Absolutely Positively **Wellington** City Council
Me Heke Ki Pōneke

ORDINARY MEETING OF **PŪRORO ĀMUA** - PLANNING AND ENVIRONMENT COMMITTEE AGENDA

Time: 1:30pm
Date: Wednesday, 10 November 2021
Venue: Virtual meeting

MEMBERSHIP

Mayor Foster
Deputy Mayor Free
Councillor Calvert
Councillor Condie
Councillor Day
Councillor Fitzsimons
Councillor Foon
Liz Kelly
Councillor Matthews
Councillor O'Neill
Councillor Pannett (Chair)
Councillor Paul (Deputy Chair)
Councillor Rush
Councillor Woolf
Councillor Young

Have your say!
You can make a short presentation to the Councillors at this meeting. Please let us know by noon the working day before the meeting. You can do this either by phoning 04-803-8334, emailing public.participation@wcc.govt.nz or writing to Democracy Services, Wellington City Council, PO Box 2199, Wellington, giving your name, phone number, and the issue you would like to talk about. All Council and committee meetings are livestreamed on our YouTube page. This includes any public participation at the meeting.

AREA OF FOCUS

The Pūroro Āmua | Planning and Environment Committee has the following responsibilities:

- RMA matters
- Urban Planning, District Plan
- Built environment
- Natural environment and biodiversity
- Future Development Strategy, Spatial Plans and Housing Supply
- Climate Change Response and Resilience
- Heritage
- Transport Strategy and Planning, including significant traffic resolutions
- Parking policy
- Submissions to Government or other local authorities
- Regulatory activity and compliance
- Planning and approval of business cases for Let's Get Wellington Moving, associated
- traffic resolutions and other non-financial statutory powers necessary for progressing
- the business cases (such as decisions under the Local Government Act 1974)
- Implementing and monitoring delivery of the affordable housing strategy

The Committee has the responsibility to discuss and approve a forward agenda.

To read the full delegations of this committee, please visit wellington.govt.nz/meetings.

Quorum: 9 members

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1. Meeting Conduct

1.1 Karakia

The Chairperson will open the meeting with a karakia.

Whakataka te hau ki te uru,	Cease oh winds of the west
Whakataka te hau ki te tonga.	and of the south
Kia mākinakina ki uta,	Let the bracing breezes flow,
Kia mātaratara ki tai.	over the land and the sea.
E hī ake ana te atākura.	Let the red-tipped dawn come
He tio, he huka, he hauhū.	with a sharpened edge, a touch of frost,
Tihei Mauri Ora!	a promise of a glorious day

At the appropriate time, the following karakia will be read to close the meeting.

Unuhia, unuhia, unuhia ki te uru tapu nui	Draw on, draw on
Kia wātea, kia māmā, te ngākau, te tinana, te wairua	Draw on the supreme sacredness To clear, to free the heart, the body
I te ara takatū	and the spirit of mankind
Koia rā e Rongo, whakairia ake ki runga	Oh Rongo, above (symbol of peace)
Kia wātea, kia wātea	Let this all be done in unity
Āe rā, kua wātea!	

1.2 Apologies

The Chairperson invites notice from members of apologies, including apologies for lateness and early departure from the meeting, where leave of absence has not previously been granted.

1.3 Conflict of Interest Declarations

Members are reminded of the need to be vigilant to stand aside from decision making when a conflict arises between their role as a member and any private or other external interest they might have.

1.4 Confirmation of Minutes

The minutes of the meeting held on 3 November 2021 will be put to the Pūroro Āmua | Planning and Environment Committee for confirmation.

1.5 Items not on the Agenda

The Chairperson will give notice of items not on the agenda as follows.

Matters Requiring Urgent Attention as Determined by Resolution of the Pūroro Āmua | Planning and Environment Committee.

The Chairperson shall state to the meeting:

1. The reason why the item is not on the agenda; and

2. The reason why discussion of the item cannot be delayed until a subsequent meeting.

The item may be allowed onto the agenda by resolution of the Pūroro Āmua | Planning and Environment Committee.

Minor Matters relating to the General Business of the Pūroro Āmua | Planning and Environment Committee.

The Chairperson shall state to the meeting that the item will be discussed, but no resolution, decision, or recommendation may be made in respect of the item except to refer it to a subsequent meeting of the Pūroro Āmua | Planning and Environment Committee for further discussion.

1.6 Public Participation

A maximum of 60 minutes is set aside for public participation at the commencement of any meeting of the Council or committee that is open to the public. Under Standing Order 31.2 a written, oral or electronic application to address the meeting setting forth the subject, is required to be lodged with the Chief Executive by 12.00 noon of the working day prior to the meeting concerned, and subsequently approved by the Chairperson.

Requests for public participation can be sent by email to public.participation@wcc.govt.nz, by post to Democracy Services, Wellington City Council, PO Box 2199, Wellington, or by phone at 04 803 8334, giving the requester's name, phone number and the issue to be raised.

2. General Business

THE PARADE UPGRADE - DESIGN OPTIONS

Kōrero taunaki

Summary of considerations

Purpose

1. This report to Pūroro Āmua - Planning and Environment Committee is to decide on a design option for The Parade upgrade.

Strategic alignment with community wellbeing outcomes and priority areas

	Aligns with the following strategies and priority areas: ☒ Sustainable, natural eco city ☒ People friendly, compact, safe and accessible capital city ☐ Innovative, inclusive and creative city ☒ Dynamic and sustainable economy
Strategic alignment with priority objective areas from Long-term Plan 2021–2031	☐ Functioning, resilient and reliable three waters infrastructure ☐ Affordable, resilient and safe place to live ☒ Safe, resilient and reliable core transport infrastructure network ☐ Fit-for-purpose community, creative and cultural spaces ☒ Accelerating zero-carbon and waste-free transition ☐ Strong partnerships with mana whenua
Relevant Previous decisions	1. July 2013 – February 2016: The current cycleway project is approved and implemented. 2. May 2016: Community response to the cycleway instigates a review of the Urban Cycleway Programme. 3. May 2016: Morrison Low undertakes review of the Urban Cycleway Programme. 4. June 2016: Wellington City Council (WCC) resolves to reconsult on the cycleway, commencing engagement through “Love the Bay”. 5. September 2017: WCC approves a Councillor’s preferred option for development. 6. May 2018: Development of the concept design is put on hold due to project cost estimations far exceeding the budget. 7. April 2020: A Government initiative that encourages delivery of ‘shovel-ready’ projects is applied for by WCC. This application was not approved. 8. November 2020: Waka Kotahi (WK) confirms that funding from the National Land Transport Programme is unavailable for the Island

	Bay Cycleway without progression of Newtown Connections. 9. November 2020: Let's Get Wellington Moving (LGWM) confirms that the Newtown Connections to Berhampore is within the LGWM programme scope, and this section is removed from WCC proposed budgets. 10. February 2021: WCC resolves to reseal The Parade and simultaneously complete minor safety improvements independent of Waka Kotahi funding. The additional cost to make necessary changes was estimated to be up to $2.5M. Councillors request that officers advise on how The Parade can be included under the cycleways programme in the Long-Term Plan (LTP). 11. May 2021: Council approves the LTP and agrees to bring funding of up to $14M forward, choosing to undertake work now, instead of working now and then again in 4-5 years time. Council made the resolution to instruct officers to report back with design and cost options for Island Bay by September 2021. 12. November 2021: LGWM begins consultation on mass rapid transit (MRT), where The Parade is an MRT route.
Significance	The decision is rated medium significance in accordance with schedule 1 of the Council's Significance and Engagement Policy.

Financial considerations

☐ Nil	☒ Budgetary provision in Annual Plan / Long-term Plan	☐ Unbudgeted $X

Risk

☐ Low	☒ Medium	☐ High	☐ Extreme

Authors	Daniel Cairncross, Principal Transport Engineer Paul Barker, Tranport Planning Manager
Authoriser	Vida Christeller, Manager City Design & Place Planning Liam Hodgetts, Chief Planning Officer

Taunakitanga

Officers' Recommendations

Officers recommend the following motion

That Pūroro Āmua - Planning and Environment Committee:

1) Receive the information

2) Agree to progress with either

   a) A Safety Improvements option integrated with the resurfacing works (cost between $2 - $3M) until Let's Get Wellington Moving Mass Rapid Transit upgrade.
   b) A Long-term Improvements option (cost up to $14M).

3) Agrees to develop the proposed chosen option, and progress with the formal traffic resolutions process.

4) Note that Let's Get Wellinton Moving is currently engaging with the community including options where Mass Rapid Transit is proposed to go to Island Bay using The Parade.

Whakarāpopoto

Executive Summary

1. The Council resolved in February 2021 to undertake $2.5M of safety improvements as part of the resealing work on The Parade which is scheduled for early 2022.
2. In May 2021, the Council decided to bring forward up to $14M funding to undertake the long-term permanent solution for The Parade.
3. Officers have therefore progressed safety and long-term design options to address the Council's cycleway programme objectives and achieve the community outcomes from the Love the Bay engagement/consultation.
4. Officers held a workshop with Councillors on May 2021 where interim and permanent design options were presented (attachment 1).
5. Officers have progressed two options based on the outcomes of this workshop: an safety design option and a long-term design option (attachment 2).
6. LGWM is undertaking public consultation in November 2021 which includes MRT to Island Bay using The Parade.
7. Following the November 2021 engagement, LGWM expects to have a decision on route and mode within the first half of 2022. A detailed business case including corridor design development will then commence.

   The two design options being considered in this report are outlined in the discussion section and include the relative benefits and limitations in relation to the LGWM plans.

Takenga mai

Background

8. Following the cycleway construction in 2014 and consequent concerns raised by the community, there was a community co-design process, Love the Bay. The process was created to work through the different ways to improve The Parade.

9. From September 2016 to May 2017, the Council, in collaboration with the community of Island Bay, the residents' association, and groups including Cycle Wellington, held facilitated workshops, drop-in sessions, and surveys to focus on identifying suitable design improvements based on the holistic needs of the community.

10. From July 2017 to August 2017, four design options were identified for consultation, each reflecting outcomes from the Love the Bay co-design process, safety audits, and Waka Kotahi guidelines.

11. In September 2017, the Council approved a redesign of The Parade that met the agreed objectives from the Love the Bay community co-design process. $6M was assigned to develop the design and implement the upgrade.

12. In moving from concept design to detailed design, it became evident that implementing the approved scheme would cost significantly more than originally estimated.

13. In subsequent discussions with Waka Kotahi, the Council was informed that they would not fund The Parade upgrade before a connection from Dee Street to the city was in place. In 2020, this decision changed stating the connection to the city must be approved and funded in the LTP before they may co-fund The Parade upgrade.

14. In April 2020, the Council applied, but was not successful in obtaining, shovel-ready funding for the implementation of the scheme approved in September 2017.

15. In August 2021, part of The Parade was confirmed for resurfacing in the 2021/2022 maintenance programme. This created a window of opportunity to build back better by making minor changes to the existing layout, improving safety in line with the 2017 upgrade proposal.

16. In the 2021-2031 LTP, the Council decided to invest in accelerated delivery of the full cycleway programme while mitigating the deliverability challenges of a constrained construction and supplier market. It also agreed to refresh the 2015 Cycleways Masterplan, reprioritise the order and cost of project delivery to bring forward $52M capex to years 1 through 3, seek a report on options for accelerated delivery (such as more tactical, low-cost solutions), and a report on the design and cost options for Island Bay by September 2021 within a budget up to $14M.

17. Officers presented four safety design options, and six long-term design options to Councillors in a workshop in May 2021. The options put forward addressed feedback received through prior community engagements and were in line with safety and sustainable transport objectives.

18. The safety design options presented vary in range relative to the extent of improvements proposed, and the area of resurfacing. The scope for the improvements considered were:

    a) The Parade south of the town centre

    b) The full length of The Parade excluding the town centre

    c) The full length of The Parade including the town centre

19. The short term safety improvement options would work within the physical confines of the current street layout. Costs estimates of these options ranged from $0.5M to $2.5M, and

would retain anywhere from 60 to 80 parking spaces of the current 151 parking spaces in the residential area.

20. Long-term upgrade options involve more extensive physical work to The Parade. These options retain benefits from safety design options, adding further improvements to the city centre, bike lanes, bus stops, intersections, road widths and allow the retention of approximately 20-25 more on street parking spaces than the safety improvements option in the southern residential area. Four of the six design options have cost estimates up to $6.1M, while two of the options have cost estimates over $6.1M.

21. The direction given to officers after the workshop was to narrow the options down to the two options that best reflect community desires and Council objectives.

    Officers have therefore developed one safety option, and one long-term option, which are discussed below.

Kōrerorero

Discussion

The two design options for The Parade upgrade should be considered in relation to the MRT route and mode options.

22. There are two options for The Parade upgrade being presented for a decision in this report:
    - The first option: Safety Improvements as part of resurfacing

      This option is in line with the transitional approach we are taking across the city to accelerate the delivery of bike lanes and bus priority improvements. This approach focuses on addressing concerns raised in the Love the Bay co-design process through relatively low-cost upgrades.
    - The second option: Long-term Improvements

      This option is in line with our permeant or transformational approach, addressing the concerns raised in the Love the Bay co-design process, then adding in more expensive items such as car parking retention through kerb changes, and a new stormwater drainage system that will be required as a result of these kerb changes.

Safety Improvements option

23. The Safety Improvements option will see a range of safety measures carried out along the length of The Parade. These include wider traffic lanes, physically separated bike lanes, clear and consistent road markings, parking adjustments, and new speed humps. These improvements will greatly improve safety and road user experience for all.

24. Resurfacing the road (see details below) will address maintenance requirements that preserve the road integrity and its service life, while providing the characteristics and markings needed for increased road user safety.

    <u>New road surface</u>

25. Resurfacing The Parade will occur from Avon Street to Mersey Street (in asphalt) and from Mersey Street to Reef Street (in chipseal). All traffic lanes and parking spaces are

included in the areas to be resealed, while the asphalted bike lanes are excluded. The existing surface from Avon Street to Dee Street will be retained

26. Resealing provides the opportunity to build back better by removing any remaining 'ghost' markings, then installing new road markings with a design that improves traffic lane widths (3.2m wide) and bike lanes (1.5m wide). New road markings across intersections will be consistent, as will buffer widths between the cycleway and parking areas (0.9m wide), visibility/sightlines at driveways (3m setbacks).

Parking and road widths

27. The Safety Improvements option will see current road widths retained, working within existing physical boundaries (set by the kerbs), and efficiently maximising available space.

28. The resulting lane widths under this option is 3.2m for traffic lanes, and 1.5m - 2.0m for bike lanes. Achieving these lane widths without road widening would allow the retention of 60 to 80 parking spaces in residential areas (removal of between 71-101 on street parking spaces).

29. There is no separated bike lane in the town centre under this option, hence parking in the town centre will remain unchanged.

Separated bike lanes (in residential areas)

30. Improvements to safety and road user experience for people on bikes will be achieved by installing kerb separators that act as a physical barrier between the bike lane and parked vehicles. Low mountable separators installed across driveways ensure vehicle access to properties are retained while encouraging lower speeds.

Intersections

31. Visibility at intersections will be improved by introducing 30m setbacks on the approach. The extra visibility created allows for better road user awareness, response times, and increased overall safety.

Town centre

32. Existing speed cushions in the town centre will be upgraded with full-width speed humps, encouraging lower speeds, increased safety, and providing a better overall road user experience. A modest upgrade of the centre is funded in the first three years of the Long- term Plan. There is $2.5M set aside for upgrading Island Bay and Berhampore town centres. Officers are investigating the details of how this will be spent.

Advantages of the Safety Improvements option

33. This option offers cost-effective improvements that can be implemented relatively quickly. Chipseal resurfacing can occur as soon as mid-March 2022, taking approximately seven days to complete. Asphalt resurfacing in and around the town centre would happen shortly after. With resurfacing complete, the new markings, separators, and speed humps can be installed.

34. The relatively short timeframes allows for the community of Island Bay, and other road users, to benefit from the resulting improvements as soon as possible.

35. Working alongside the resurfacing programme offers the opportunity to combine maintenance work with improvement plans, which reduces cost and inconvenience to the community. The disadvantage is that resurfacing is weather/temperature reliant and needs to be done during particular times of the year.

36. For our current timeframe consideration, March 2022 is the latest resurfacing can take place for chipseal, and May 2022 the latest for asphalt. This may be a tight timeframe considering the requirement and preparation for a traffic resolutions consultation, and the upcoming summer break period.

37. The Safety improvement option allows an upgrade to happen as soon as possible and therefore allows space for future LGWM decisions to happen independently.

Limitations of the Safety Improvements option

38. This option does not take into account, other than being transitional in nature, future decisions made by LGWM and plans for MRT. If decisions around LGWM override improvements implemented through the Safety Improvements option, road users would still benefit from the increased safety and improved road-user experience until LGWM begins construction.

39. Applying transitional changes rather than long-term transformational changes means that outcomes from this option do not completely fulfill what is desired by the community. The safety improvements that are not included in this option are raised intersection crossings, separated bike lanes in the town centre, bike lane realignment for better, more intuitive cycling, environmental cohesiveness through The Parade, and the opportunity to improve roading aspects such as water drainage.

Opportunities of the Safety Improvements option

40. If LGWM programmes options are changed or altered in the future, there would be an option to further upgrade The Parade by implementing options outlined in the Long-term Improvement Option. The balance of the approved $14M LTP budget would be retained but pushed into out years until the future of transport options for The Parade are clear.

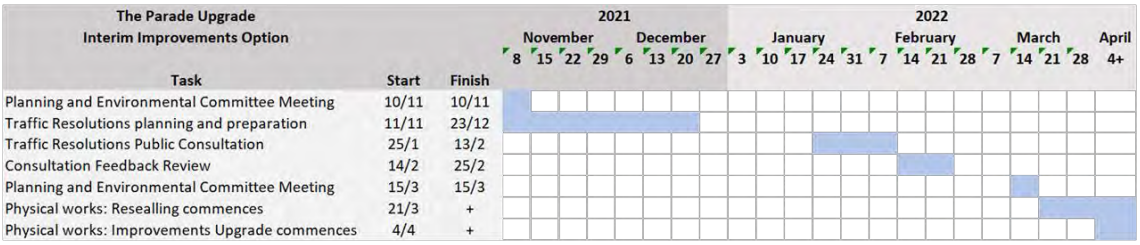
41. If LGWM proceeds and there is no necessity to upgrade The Parade further as this will be designed and implemented by LGWM, the funding allocated for the upgrades can be considered savings and reallocated as deemed appropriate.

Cost

42. Cost estimates for the Safety Improvements option is between $2M - $3M.

Timelines

43. The timelines indicated are based on information currently available. With further announcements expected from LGWM and MRT, in conjunction with potential constraints such as resource and materials availability, the timelines and costs may require adjusting.



Long-term Improvements option

44. Due to a more comprehensive design, the Long-term Improvements option will achieve the same benefits as outlined in the Safety Improvements option, in addition to other

benefits. The increase in benefits (discussed below) will be achieved by undertaking physical changes throughout The Parade. These works will include kerb realignments, improvements to the intersections, bike lanes, bus stops, parking, and the road.

New surface

45. The section of The Parade between Mersey Street and Reef Street will be resurfaced (chipseal) in March 2022. The design for the Long-term Improvements option will not be progressed sufficiently for a completely integrated scheme at this time. The existing layout with minor safety changes will be remarked after the initial resealing.

46. When the scheme is delivered, a new road surface will be applied to the entire length of The Parade, addressing all concerns of 'ghost' markings and inconsistency/confusing layout for traffic lanes and parking. The benefits will be similar to that of the Safety Improvements option but applied throughout The Parade from Dee Street to Reef Street.

Parking and road widths

47. Moving the kerbs will allow enough space to retain 85 to 100 parking spaces in the residential areas, (removal of between 51-71 on street parking spaces).

48. Benefiting from a new, separated bike lane, the town centre will see a decrease of 40 to 45 parking spaces (removal of between 10-15 on street parking spaces).

49. The Long-term Improvements option achieves the same increase in lane widths as the Safety Improvements option (3.2m wide) and allows for wider bike lane widths of up to 2.0m in some places.

Bike lanes (both residential and town centre)

50. Bike lanes will be improved not only through wider lane widths, but also through better lane alignment that makes for a more intuitive riding experience, and improved separation from parked vehicles and pedestrians through being raised. The town centre will benefit from a separated bike lane (see town centre below).

Intersections

51. Intersection improvements will be achieved through consistency in line markings (such as in the Safety Improvements option) and will feature raised crossings that improve safety for people on bikes and foot by increasing their visibility to motorists and by encouraging lower vehicle speeds.

Town centre

52. In addition to replacing the existing speed cushions with road humps, the town centre will see upgrades in the form of a separated bike lane, and adjustments to the parking layout, which improves safety and road user experience. The separated bike lane through the town centre improves the cycling experience by providing a safe, connected, and cohesive route.

Advantages of the Long-term Improvements option

53. The changes will improve cohesiveness and consistency throughout The Parade which positively increases road user experience and safety. Taking the opportunity to resurface and widen the road gives the advantage of renewing The Parade with one treatment, potentially solving long-standing concerns from past years while also addressing long-term maintenance needs.

Limitations of the Long-Term Improvements option

54. Though the Long-term Improvements option best delivers on the community's needs and what has been agreed with the community in the past, it does not fully consider and align with proposals from LGWM for MRT, which was not something that was known and therefore considered during the Love the Bay process.

55. To develop the Long-term Improvements option now, we would prepare the detailed design, and consult on a traffic resolution for the necessary parking changes in the first half of 2022.

56. Detailed construction scheduling for the Long-term Improvements option has not been undertaken. We expect construction would begin late 2022 at the earliest, and have an 18 to 24 month construction period. This means completion of The Parade upgrade under this scenario is not expected until early to mid-2024.

57. Given this timeframe, there is a possibility of overlap between construction of the Long-Term Improvements option, and LGWM engaging the community on schemes that may remove part, or all of the physical work being undertaken to put the Long-term Improvements option in place.

Cost

58. Cost allowance for the Long-term Improvements option is up to $14M.

Kōwhiringa

Options

59. Option A – Undertake the Safety Improvements option integrated with the resurfacing works (cost - up to $3M, receives no Waka Kotahi funding assistance).

60. Option B – Undertake the Long-term Improvements option (cost - up to $14M, receives no Waka Kotahi funding assistance).

61. Option C – Do minimum – do not undertake any additional changes to the cycleway on The Parade (cost $0).

Whai whakaaro ki ngā whakataunga

Considerations for decision-making

Alignment with Council's strategies and policies

62. A number of Council strategies and policies have been deciding factors for the improvements being proposed. Some of (but not limited to) these policies are the 2021-2031 Long-Term Plan, Cycling Policy, Parking Policy, Te Atakura -First to Zero Low Carbon Capital Plan, Significance and Engagement Policy, Transport Asset Management Plan Summary, and Walking Policy.

Engagement and Consultation

63. Various engagements and consultations have been carried out since the inception of the Island Bay cycleway project in 2013. The most significant of these engagements are the Island Bay cycleway project (2013) and Love the Bay (2016 –2017).

Consultation on traffic resolutions will be required regardless of which option the Council agrees on.

Implications for Māori

64. Planned upgrades for The Parade are made with overall community interest in mind, where a varied range of road users will benefit from improved safety, accessibility, and multi-modal transport choices.

Financial implications

65. Funding for The Parade upgrade has been allocated in the Council's 2021-2031 Long-term Plan. Funding subsidies from Waka Kotahi NZ Transport Agency are currently unavailable.

Legal considerations

66. Aspects of The Parade upgrade are designed in compliance with overarching legislation and best practices in New Zealand, specifically regarding transport engineering, transport planning, and sustainable transport.

Risks and mitigations

67. A variety of transport programmes are being developed throughout Wellington where negative public perception may influence decisions moving forward. There is also the possibility of scope overlap between various projects which may highlight any conflict between resources allocated and value received.

68. Mitigating this risk is heavily reliant on clear and timely communications between Council teams, the relevant decisions being made, good project planning, and how the Council engages and communicates with the community. Providing sound and relevant information to keep the community updated and aware of what is to come

69. Project delivery for the Safety Improvements option is a risk as the ability to deliver is reliant on accomplishing critical tasks before missing the opportunity to reseal The Parade. Tight timeframes are exacerbated by resource availability and competing demands, scheduling, materials availability, and upcoming holidays.

70. Mitigating this risk is best done through setting out a clear agenda, objectives, good project planning. Having a path with set milestones, actionable steps, and responsible task masters will aid in moving the project forward predictably and without confusion. The project team will have to identify the fundamental tasks that move the project forward, as well as obstacles that might hinder progress. Having this information in an updated, easily accessible document is paramount to stay on course and on time.

Disability and accessibility impact

71. The proposed upgrades to The Parade are being made with improved safety in mind. Physical improvements to the road surface, road markings, physical works, and other design changes should improve the overall experience for all users of this area

72. Separated bike lanes from vehicle lanes and footpaths add a layer of security by reducing the probability of conflict between different road users.

73. Wider bike lanes for mobility bikes, and consistent buffer space between cyclists and parked vehicles will decrease the occurrence of conflict between people on bikes and vehicles as well as preventing parked vehicles from blocking the bike lane.

74. The Long-term Improvements option includes raised crossings across intersecting side roads which significantly improves safety and accessibility for pedestrians using the footpath.

75. Both options presented will retain all accessible parking spaces on The Parade.

Climate Change impact and considerations

76. Providing safe facilities for people to consider alternative forms of sustainable transport such as walking and cycling rather than private vehicle use. With less vehicles on the road, there will be a reduction of fuel consumption and harmful carbon emissions as a result of burning fossil fuels. This reduction in emissions plays a vital role in improving air quality for a more pleasant and healthier environment.

77. The positive outcomes from an increased uptake in sustainable transport modes not only benefits the immediate community, it will also benefit everyone as a whole.

Communications Plan

78. Communities affected by the proposed improvements will be engaged with through recommended communications channels. This will include information on our website, media releases and letter drops (where applicable) The Significance and Engagement Policy will guide the level of engagement/consultation undertaken.

79. The community of Island Bay including directly affected residents, the resident's association, businesses, Cycle Wellington, Living Streets Aotearoa, and the wider Wellington community will be the focus.

80. If the Safety Improvements option is agreed, a three-week public consultation period on the proposed improvements and traffic resolutions is planned to begin in late January 2022 (after Wellington Anniversary Day). Feedback from the consultation will be assessed by the project team and findings will be presented back to Pūroro Āmua/Planning and Environment Committee meeting early in March 2022. The Committee will then decide how to proceed, taking into account the feedback received and officers' responses.

81. Before the traffic resolutions engagement in January 2022, there is an opportunity to informally engage with the Island Bay community alongside the November 2021 LGWM/Bike Network Plan/District Plan planned engagement. We will ensure there are officers at the drop-in sessions in this area who can discuss with residents the details of the upcoming January/February traffic resolutions engagement and subsequent delivery implications.

Health and Safety Impact considered

82. The proposed improvements are intended to encourage people and communities to be more active by offering a healthy and safe alternative to private transport. Having a safe cycling facility will make it easier for the community to include exercise as part of their daily routine which improves overall health, wellbeing, and quality of life, while promoting sustainable transport and lowering carbon emissions.

Ngā mahinga e whai ake nei

Next actions

83. If the Safety Safety Improvements option is selected,
    - Complete detailed design
    - Undertake public consultation from late-January 2022 through the traffic resolutions process.
    - Report back to the Committee on the public consultation on 15 March 2022
    - Undertake the physical works
    -

84. If the Long-term Improvements option is selected,
    - Prepare detailed design
    - Undertake public consultation through the traffic resolutions process
    - Report back to the Committee after the public consultation
    - Undertake physical works

.

Attachments

REPORT

Tonkin+Taylor

The Parade Upgrade

Analysis of options for WCC's Long-Term Plan budget

Prepared for
Wellington City Council
Prepared by
Tonkin & Taylor Ltd
Date
August 2021
Job Number
1016611.v6

Exceptional thinking together
www.tonkintaylor.co.nz

Document Control

Title: The Parade Upgrade					
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by:**
09/02/2021	1	DRAFT issue to client for discussion	JASZ	JRN	CHP
15/02/2021	2	Updated DRAFT issue to client for review	JASZ	JRN RWD	CHP
17/02/2021	3	Updated DRAFT issue to client for review	JASZ	RWD	CHP
28/04/2021	4	Updated DRAFT issue with short-term and long-term upgrade recommendations	JASZ	JRN RWD	CHP
24/05/2021	5	Updated DRAFT issue with short-term and long-term upgrade recommendations	JASZ	JRN	CHP
11/08/2021	6	FINAL issue to client	JASZ	JRN	CHP

Distribution:

Wellington City Council	1 copy
Tonkin & Taylor Ltd (FILE)	1 copy

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Executive summary

This report has been prepared with the intent to assist WCC Councillors in identifying a solution for short-term safety improvements on The Parade and confirming funding for long-term upgrades under WCC's 2021-2031 Long-Term Plan budget. To assist in funding decisions, this report provides an overview of the work undertaken on the Island Bay Cycleway to-date and a high-level assessment of three potential funding options for the long-term upgrades.

Background information

From 2013 to 2015, WCC undertook work on design options for a cycle facility on The Parade in Island Bay. Following 16 months of design, community consultation, and deliberations, WCC approved the project and it was implemented between September 2015 and February 2016.

In May 2016, Waka Kotahi NZ Transport Agency commissioned a review of WCC's Urban Cycleways Programme following negative public feedback to some cycling developments in Wellington, including the Island Bay Cycleway. As a result of key findings and recommendations in the review, WCC's Transport and Urban Development Committee resolved to undertake further consultation on the Island Bay Cycleway to arrive at a suitable outcome for The Parade.

From September 2016 to September 2017, a re-engagement process was undertaken with the community for the Island Bay Cycleway. During this time, T+T were engaged by WCC to incorporate findings from the community feedback into conceptual options for The Parade. Four conceptual options were identified and put forward to the community through a formal consultation process.

After the consultation, then-mayor Justin Lester put forward an alternative option for The Parade. The option sought to pull together feedback from community engagement and submissions from multiple organisations. Ultimately, in September 2017, WCC Councillors passed a resolution to adopt a design option for The Parade that closely reflected the mayor's alternative option (see Figure 1).

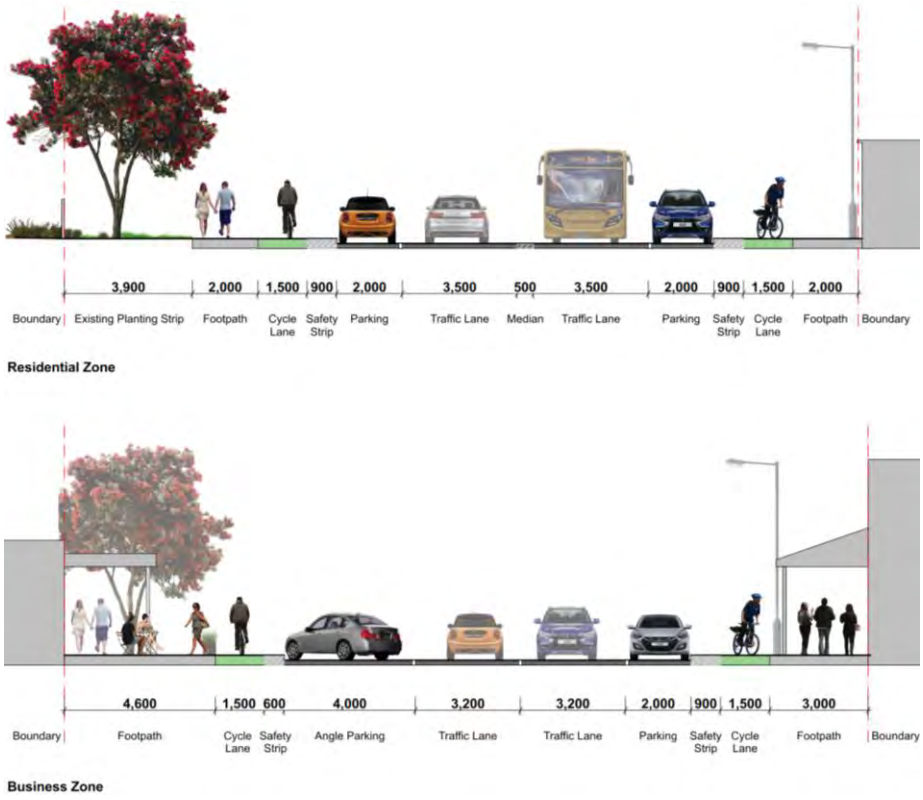


Figure 1: Councillor-approved option

In November 2017, T+T commenced concept design of the Councillor-approved option. Through progression of the design, challenges arose in designing cycle paths above road level and designing for adequate drainage. Two possible design options were considered, and revised construction cost estimates were undertaken. The cost estimates for both options came in higher than the Councillor-approved budget for the project. Ultimately, the project was put on hold due to the increased costs and funding concerns.

In February 2021 at a Long-Term Plan Committee meeting, Councillors resolved to undertake resurfacing works on The Parade and simultaneously provide minor safety improvements. They also requested that Council officers advise on how the Island Bay project can be included within the cycleways programme spending. T+T were engaged by WCC to provide a high-level assessment of options for short-term safety improvements and long-term upgrades to The Parade with the intent to assist Councillors in confirming funding under the Long-Term Plan budget. This report has been prepared in response to these resolutions from Council.

Issues with the current layout on The Parade

There are a number of issues that have been raised with the current layout of The Parade. For this report, concerns with the current layout have been collated from issues identified through the following processes:

- The post-construction road safety audit of the layout
- A search of crash records from 2005 to present day
- Community feedback gathered through the community engagement process

The following is a summary of the key issues identified through these processes:

- The layout is inconsistent and confusing to use. The cycle facility treatments and markings are inconsistent, particularly at intersections and transitions to and from the cycle lanes, and the parking layout is confusing to navigate.
- The traffic lanes are narrow, making it difficult for vehicles to exit driveways without crossing over the centreline. The traffic lanes are particularly narrow at the bend on The Parade (south of Medway), where it is difficult for buses and heavy vehicles to safely manoeuvre.
- There is a lack of intervisibility between cyclists and motor vehicles or pedestrians at driveways, intersections, and bus shelters.
- Cars park in the cycle lane car-door buffer zones.
- There is a lack of visibility and designated space for cyclists at transitions from the cycle lane.
- The kerbside cycle lanes make it harder for vehicle passengers to exit from parked cars and cross the cycle lane to the footpath.

Short-term safety improvements: recommendation

Multiple options for safety improvements to be integrated with the resurfacing works on The Parade were assessed. From the assessment, the following improvements were identified as the recommended approach for the short-term safety improvements:

1 Adjust parking through the residential area as follows:
   a Provide 3m parking setbacks at driveways
   b Provide 30m parking setbacks on approaches to intersections
   c Do not mark individual car parks (but do mark parking end bars for the 3m setback)
2 Adjust the road markings as follows:
   a Mark cycle facilities consistently across intersections with side roads

b Widen the buffer space between the cycle lanes and the on-street parking to achieve the minimum recommended width of 0.85m

c Widen the traffic lanes to 3.2m

3 Install physical separators in the buffer space between the cycle lanes and the on-street parking as follows:

a Install precast concrete kerb separators consistently through the residential zone, except across intersections and driveways

b Across driveways, install low mountable separators

This arrangement would be similar to the separated cycle lanes on Rongotai Road in Kilbirnie.

4 Make the following minor improvements in the town centre:

a Replace the existing road cushions with road humps that have a bus and bike-friendly profile

b Remark the road markings south of Medway Street to provide consistency and clarity for cyclists and to narrow the traffic lanes for traffic calming

5 Resurface to remove ghost markings (refer Section 3.2.1 of the report for further details on extent of resurfacing)

Long-term upgrades: options summary and recommendation

As requested by WCC, three broad funding brackets for upgrades to The Parade have been considered in this report:

1 Undertake no physical works on The Parade beyond the short-term safety improvements ($0)

2 Provide improvements up to the Councillor-approved budget (up to $6.1 million)

3 Proceed with the Councillor-approved option (greater than $6.1 million)

We have assessed the high-level implications of options for upgrades on The Parade that fall under each of these funding brackets. To do this, a three-step process was followed:

1 Develop long lists of options for both the residential zone and the business zone

2 Assess the options on both the residential zone and the business zone long lists using a multi-criteria analysis (MCA) and identify short-listed options

3 Confirm option combinations (pairings of residential and business zone treatments) and assess the options using the MCA outputs and the results of a benefits assessment

Ultimately, a total of six option combinations were identified for the long-term upgrades for further assessment:

- **Funding Bracket 1 ($0)**
  - **Combination 1-A:** Retain the short-term safety improvements (as identified above)
- **Funding Bracket 2 (up to $6.1 million)**
  - **Combination 1-D:** Retain the short-term safety improvements and add cycle lanes through the town centre
  - **Combination 2-A:** Retain the short-term safety improvements and add intersection and bus stop improvements
  - **Combination 2-D:** Retain the short-term safety improvements, add intersection and bus stop improvements, and add cycle lanes through the town centre

- **Funding Bracket 3 (greater than $6.1 million)**
  - **Combination 3-D:** Replace the short-term safety improvements by moving kerbs to achieve the preferred carriageway and cycle lane widths, add intersection and bus stop improvements, and add cycle lanes through the town centre
  - **Combination 6-I:** Replace the short-term safety improvements with the Councillor-approved option, value engineered (extensive improvements, as per Figure 1 above)

Based on the results from the assessment process, our recommendation for the long-term upgrades on The Parade is to proceed with one of the options under Funding Bracket 3 (Combination 3-D or 6-I). Funding Bracket 3 is recommended because it was seen to achieve the best balance between providing positive outcomes for roads users while minimising negative effects. The following are the key characteristics of the combinations under Funding Bracket 3 that contributed to the recommendation:

- A positive outcome for all of the WCC cycling investment objectives
- A positive outcome for all of the Love the Bay objectives
- Among the highest rankings for pedestrian effects out of all of the combinations considered
- Among the highest rankings for cycling effects out of all of the combinations considered
- Among the highest rankings for public transport effects out of all of the combinations considered
- Among the highest rankings for motor vehicles effects out of all of the combinations considered
- The lowest parking loss out of all of the combinations considered

The indicative cost estimates for the options under Funding Bracket 3 are $6.6 to $11.8 million for Combination 3-D and $9.4 to $17.1 million for Combination 6-I. These costs include fees for construction, design, and MSQA, plus an additional 20% for WCC management fees and an allowance that reflects the current level of uncertainty.

There is a potential opportunity to reduce the total cost for improvements on The Parade by progressing the long-term upgrades earlier than planned. If the timing of the long-term upgrade works were aligned with the resurfacing works planned for The Parade, the interim step of implementing the short-term safety improvements would not be needed. However, due to the uncertainty of the route being considered for mass rapid transit under Let's Get Wellington Moving (LGWM), there is a risk that any works undertaken on The Parade in the short term may be "undone" in the future.

Due to the uncertainties around timing for works on The Parade, we recommend that Council gives careful consideration to the coordination of these three pieces of work (the resurfacing/short-term safety improvements, the long-term upgrades, and LGWM works) to minimise costs, disruption from construction, and rework.

1 Introduction

Tonkin & Taylor Ltd (T+T) were engaged by Wellington City Council (WCC) to provide a summary of options for cycle facilities on The Parade in Island Bay and identify the implications of those options. This report outlines historic work undertaken by WCC and T+T on the Island Bay cycleway and provides a high-level assessment of options for both short-term safety improvements and long-term upgrades of The Parade moving forward.

1.1 Purpose

This report has been prepared with the intent to:

- Provide guidance on improvements to be completed simultaneously with the upcoming resurfacing works planned for The Parade; and
- Assist WCC Councillors in confirming funding for cycle facilities on The Parade under WCC's 2021-2031 Long-Term Plan budget.

To assist in the decision-making process, this report provides a summary of possible options for The Parade, an assessment of the high-level implications of each option, and recommendations for moving forward. For context, an overview of the work undertaken on the Island Bay cycleway to-date is also included.

This report includes the following information:

- Context, including:
  - Historical process and timeline
  - Funding
  - Relevant background information
- Options for short-term safety improvements on The Parade, including options for implementation
- Details of the assessment process for long-term upgrades on The Parade, including:
  - The option development process, including:
    - The funding brackets considered for the Long-Term Plan budget
    - Options considered for treatments through the residential and business zones
  - Assessment of the residential zone and business zone treatment options
  - Assessment of combinations of the short-listed treatments in the residential and business zones
  - A recommendation for the Long-Term Plan budget

2 Background information

Work to improve the cycle facilities on The Parade in Island Bay began in July 2013 and has continued until today. The sections below outline the process and timeline, past funding options, and relevant background information.

2.1 Historical process

The timeline of the process undertaken to-date for the Island Bay Cycleway is summarised in Figure 2.1 below. The following sections provide further details on each step of the process.

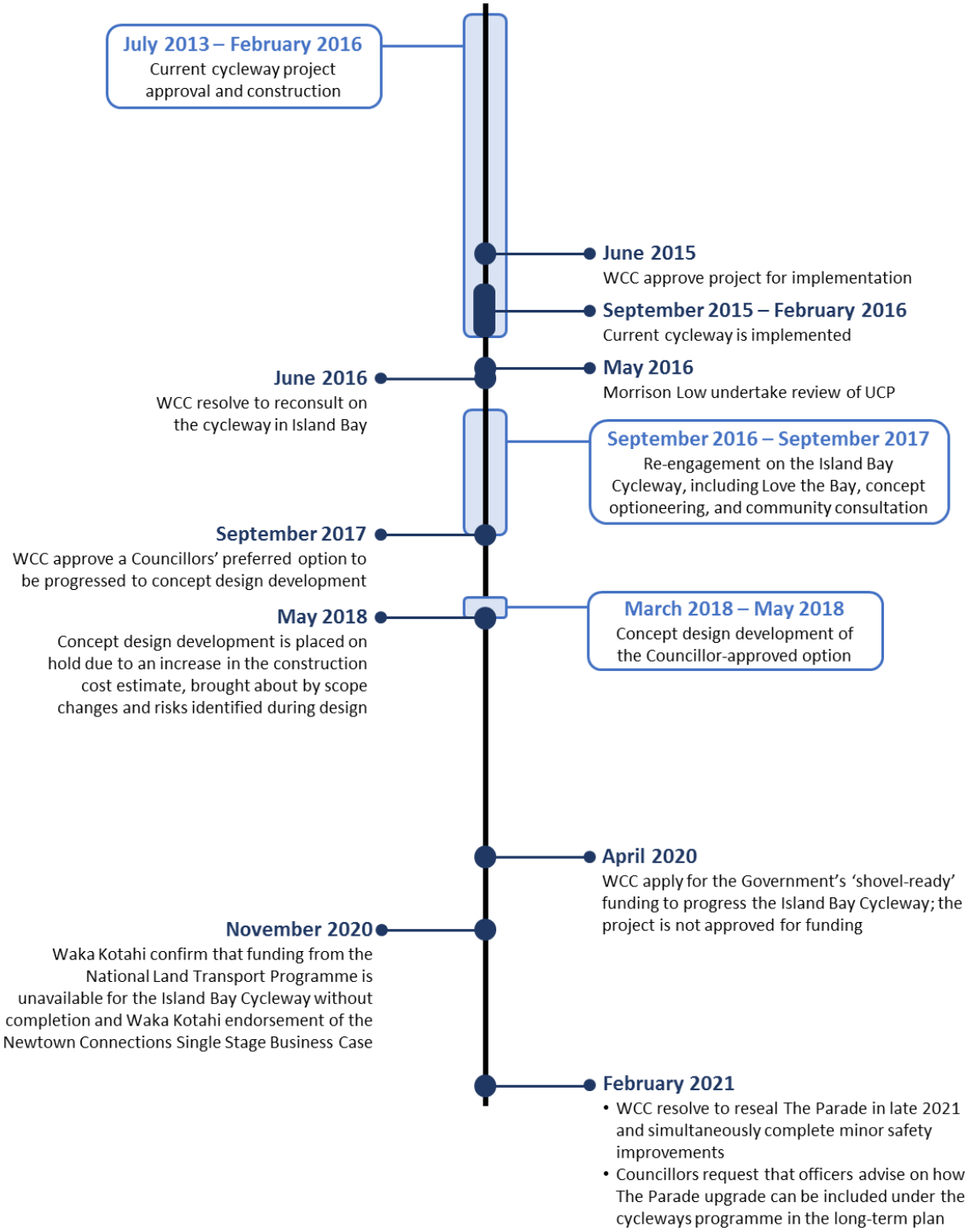


Figure 2.1: Island Bay Cycleway timeline

2.1.1 Current cycleway project approval and construction

In July 2013, WCC commenced work on design options for a cycle facility on The Parade in Island Bay, between Shorland Park and Wakefield Park. The intention was to provide a spine route for cyclists through Island Bay that would connect the parks, the coast, local shops, and the town centre.

In April 2014, WCC undertook consultation with the community on the proposed design. This was reported to Council's Transport and Urban Development Committee on 20 May 2014. The Committee also heard from a number of interested parties at the meeting, including those who presented a petition against the project. The Committee decided to proceed with developing designs for kerbside cycle lanes on The Parade. Between May and August 2014, WCC engaged in further consultation with the community.

WCC approved the project for implementation on 24 June 2015 following some 16 months of engagement, consultation, and deliberations. The project was implemented between September 2015 and February 2016.

2.1.2 Morrison Low review of WCC Urban Cycleways Programme

Public reaction to some cycling developments in Wellington, including the cycleway in Island Bay, prompted Waka Kotahi NZ Transport Agency (Waka Kotahi, formerly the New Zealand Transport Agency) to undertake a review of the WCC's Urban Cycleways Programme (UCP). Waka Kotahi commissioned consultants Morrison Low to undertake the review in May 2016, which would advise on whether the programme and implementation timetable was appropriate and realistic and whether any barriers to progress the overall programme had been identified and were being managed.

When the report was issued, it included the following key findings and recommendations relevant to the Island Bay Cycleway:

- There was a community perception that the cycleway in Island Bay is a poor solution and that it was delivered without proper community engagement and consultation. This had affected the perception of other planned projects, including perceptions of inadequate community engagement/consultation, design, and safety issues.
- The loss of parking and impacts on other users (drivers, pedestrians, businesses, homeowners, etc.) were hard to explain.
- The UCP had driven a more aspirational approach to cycleway design and went further than some members of the community could understand or agree with. This is consistent with international experience.
- The adaptation of European cycle facility designs to New Zealand conditions is challenging, and there were no agreed guidelines that could be uniformly applied.
- The other three projects in the Southern Route, which would have delivered a cycling connection between Island Bay and the Basin Reserve, were no longer part of WCC's programme. Additionally, the roads in these other projects had a greater safety risk profile than The Parade in Island Bay.
- A review would be necessary to "circuit break" Island Bay and re-engage the community on what an integrated transport solution could look like. Changes to what was delivered would need to be made and these should reflect a broader urban design and regeneration approach.
- An approach and process needed to be established for a review of the Island Bay Cycleway. This would need to be done with the community.
- WCC officials needed to be given the opportunity to identify and advise on robust options for the design and delivery of a revised programme and opportunities to modify Island Bay.

Elected members should have provided political support for a recommissioned programme and a review of Island Bay but should have been careful to make decisions based on sound evidence and advice.

On 30 June 2016, Council's Transport and Urban Development (TUD) Committee considered the Wellington City – Urban Cycleways Programme paper and resolved that they "agree that any consultation regarding changes to the cycle way in Island Bay take as long as necessary to get a suitable outcome and include a full range of options, including the status quo and original designs."

2.1.3 Island Bay Cycleway redesign process

2.1.3.1 Aroha i te Kokoru – Love the Bay

A partnership approach was established between the Island Bay Residents' Association, Cycle Aware Wellington, and WCC officers, co-designed to respond to the Island Bay re-engagement resolution of the 30 June 2016 TUD committee meeting. This partnership was branded as "Love the Bay". The project was established to act as a vehicle for constructive conversations and participation to develop a 10-year plan for Island Bay, with a focus on The Parade.

Love the Bay worked together with the Island Bay community to shape a design brief for The Parade and the cycleway. A series of workshops were held, which ultimately led to the development of a set of objectives for The Parade and Island Bay.

2.1.3.2 Concept optioneering process

2.1.3.2.1 Short list identification

In March 2017, partway through the Love the Bay process, T+T were engaged by WCC to incorporate findings from the community workshops and feedback into conceptual options for the Island Bay Cycleway. A long list of options was developed and, through community input and an options assessment process, a short list of four conceptual options was identified. At this point, BondCM provided independent construction cost estimates for each of the four options. The process that was followed to identify the options is detailed in T+T report *Design Report: The Parade – Island Bay* (issued July 2017).

The four options, known as Options A to D, were consulted on with the public through a community engagement process. The results of the engagement were ultimately used to inform the development of a single option to be progressed to concept design.

2.1.3.2.2 Alternative option

Following the community engagement process, in early September 2017 then-mayor Justin Lester put forward an alternative solution for The Parade. The option was put forward as a compromise solution that sought to pull together feedback from the community engagement and submissions from multiple organisations. Indicative cross sections of the proposed option are shown in Figure 2.2, below.

T+T was asked by WCC to provide comment and design advice on this option, which was documented in T+T report *The Parade – Island Bay Alternative Option Design Advice* (issued September 2017). This was followed up by two memorandums from T+T: one that outlined potential safety elements that could be added to the option to manage behaviour and encourage safe use of the facility (T+T memorandum *Elements to Manage Cycleway Safety*, issued 21 September 2017) and a second that summarised the design elements included in the option.

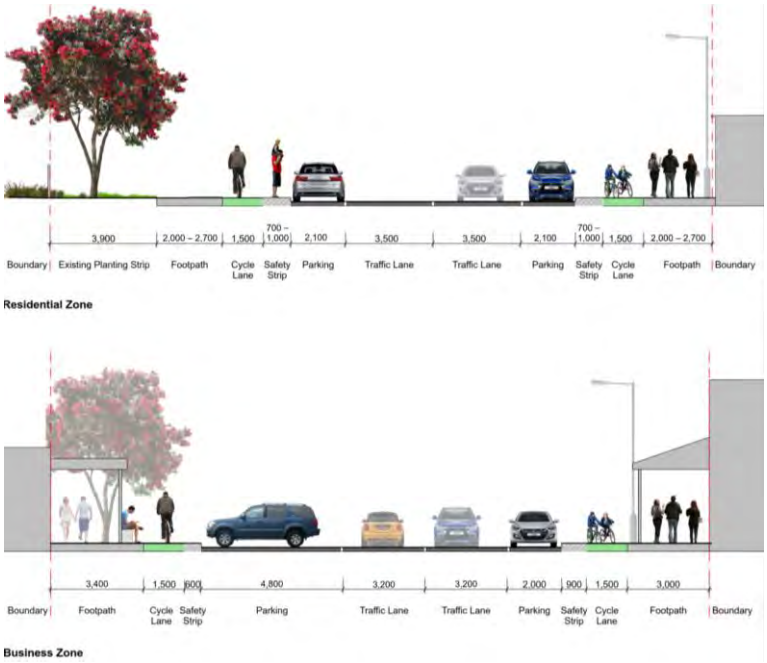


Figure 2.2: Alternative option – Kerbside cycle lane next to parking

2.1.3.2.3 Consultant's recommended option

Following the community engagement process, in mid-September 2017 T+T proposed a consultant's recommended design proposal (refer Figure 2.3, below). The project objectives, community engagement feedback, and engineering best practice standards and guidelines were considered in developing the recommended option. The details of this option were provided in T+T report *The Parade – Island Bay Design Option Refinement* (issued September 2017). During this stage, a rough-order construction cost estimate was provided based on the cost estimates undertaken by BondCM during the short-list identification process (refer Section 2.1.3.2.1 above). The estimate for the recommended option was $6.1 million. This estimate was for construction costs only and included a 25% contingency allowance, but did not include design fees, MSQA, or WCC management costs.

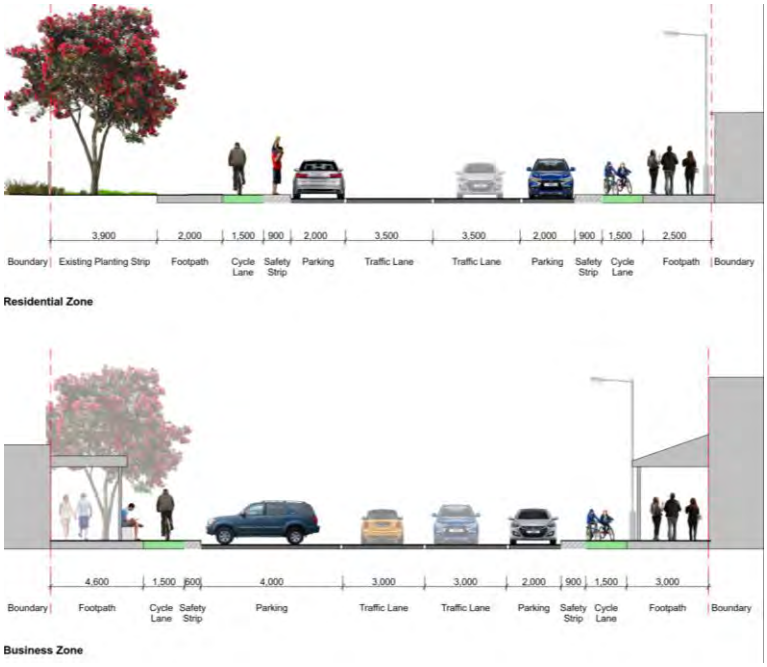


Figure 2.3: Consultant's recommended design option

2.1.3.3 Selection of a preferred option

At a City Strategy Committee meeting on 27 September 2017, WCC Councillors passed a resolution to adopt a design option for the upgrade to The Parade. The option closely reflected the alternative option put forward by the mayor. The main design elements of the option included:

- A 1.5m-wide separated kerbside cycleway on each side of The Parade, with the cycleway above road level
- A 0.9m-wide car door buffer zone and vertical kerb to separate parked vehicles from the cycleway
- 3.5m-wide traffic lanes in the residential area and 3.0m-wide traffic lanes in the business area
- A 0.5m wide median strip between traffic lanes in the residential area
- A minimum footpath width of 2.0m
- No individual parallel parking spaces marked, only parking end bars
- 3m parking setbacks at driveways, and 30m parking setbacks at intersection to improve visibility of the cycleway and to make it easier for vehicles to exit driveways without crossing the centreline

A full list of the design elements is detailed in the minutes from the City Strategy Committee meeting. Indicative cross sections of the option are presented in Figure 2.4.

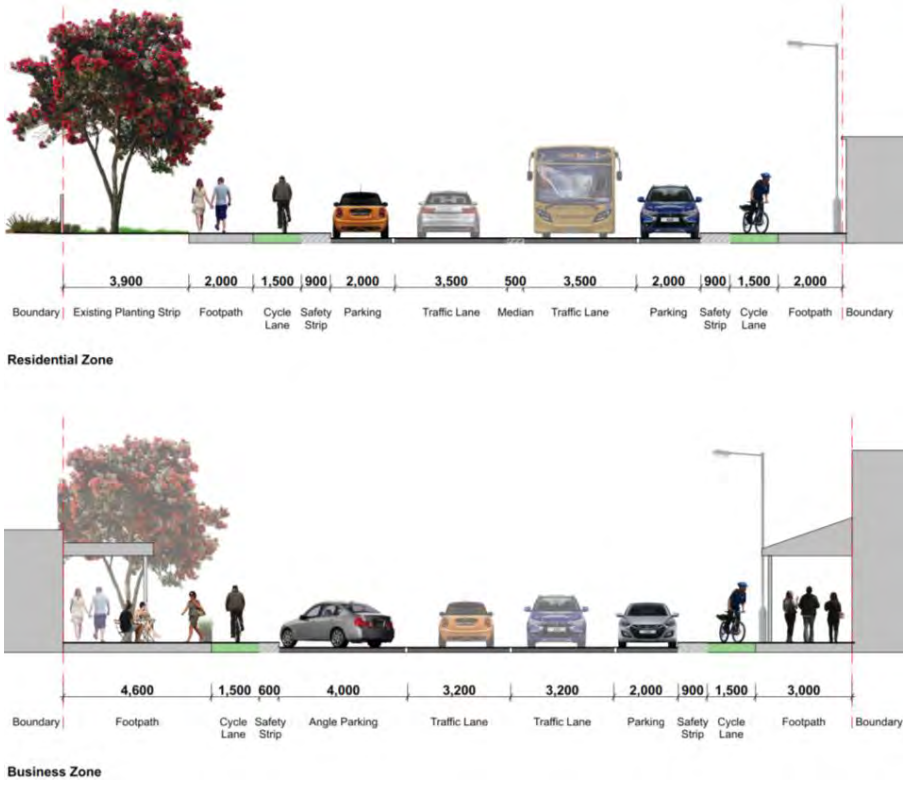


Figure 2.4: Councillor-approved option

2.1.3.4 Concept design development

In November 2017, T+T were engaged by WCC to commence development of a concept-level design of the Councillor-approved option for The Parade. With detailed topographic information for The Parade and progression of the concept design, challenges arose in designing the cycle paths to be raised above road level. The existing camber of The Parade carriageway presented physical constraints for the design and being able to design for adequate drainage of the cycle paths and

footpaths. Ultimately, two design options were considered to achieve the specified design requirements for The Parade:

1 Provide a secondary stormwater system, separate from the road carriageway drainage system, to provide drainage for the cycle paths and footpaths. This was the initial option progressed through preliminary design, and it would minimise work within the road reserve.

2 Lower the road and strengthen the pavement. WCC requested for this option to be assessed during concept design development. This option would eliminate the need for a secondary stormwater system and would improve pavement performance for the significantly heavier electric buses that were expected to be introduced to The Parade at the time of design (the buses have since been implemented and run on The Parade).

Both options were assessed at a concept level, and revised construction cost estimates were provided by Bond CM in May 2018. The cost estimates were provided in BondCM's report *Island Bay Cycleway for Wellington City Council: Further Options Estimate* Report (issued 11 May 2018). The estimates were for construction costs only and did not include any fees for design, MSQA[1], or WCC internal costs. T+T produced an additional report, *The Parade – Island Bay Redesign Cost Summary* (issued 17 May 2018), to provide estimates for design and MSQA.

A breakdown of the cost estimates for both options are outlined in Table 2.1. The full schedule of prices for both cost estimates are provided in Appendix A.

Table 2.1: Councillor-approved option cost estimates (2018)

Cost element			Secondary stormwater system	Pavement lowering
Construction cost estimate	Base construction cost estimate		$7,245,016	$9,269,966
	Contingency[1]	P50 (+25%)	$1,811,254	$2,317,492
		P90 (+15% / +30%)	$1,358,440	$3,476,237
	Subtotal with P90 contingency (rounded)		***$10,420,000***	***$15,070,000***
Consultant design fees[2] (upper-bound estimate)			$1,100,000	$1,300,000
MSQA (upper-bound estimate)			$500,000	$700,000
Total[3]			**$12,020,000**	**$17,070,000**

1 – Cost estimates with P50 / P90 contingencies represent costs that provide a 50% / 90% level of confidence in the outcomes. There is a 50% / 90% likelihood that the final costs will not exceed the estimate.

2 – Design fee estimates include some costs already spent during the concept design phase.

3 – These costs did not include any estimates for stakeholder consultation or WCC management costs.

With the inclusion of higher contingencies (P90), MSQA, and design fees and with topographic survey information and preliminary 3D design now informing the estimates, the cost estimates for both options came in higher than the cost estimate from the concept optioneering stage ($6.1 million for construction costs only, refer Section 2.1.3.2.3 above). Ultimately, the project was put on hold due to the budget and funding concerns.

2.1.3.5 Shovel-ready application

In April 2020, WCC applied for funding in response to the Government's call for shovel-ready infrastructure projects. The Island Bay Cycleway was included as a project in the application for funding. In the application, WCC indicated a total cost estimate of $14 million for the project. This cost estimate was established by taking the total cost estimate for the option of adding a secondary

[1] Management, Surveillance and Quality Assurance (MSQA) during construction

stormwater system ($12 million) and adding an additional $2 million. The additional budget of $2 million was to allow for increases in inflation for construction costs since the cost estimation was completed (2018). Ultimately, the project was not approved for funding under the shovel-ready scheme.

2.1.3.6 Waka Kotahi NLTF funding

In a letter from November 2020, Waka Kotahi confirmed that funding was not currently available from the National Land Transport Fund (NLTF) to fund the Island Bay Cycleway. As confirmed in the letter, in order to access any funding, the Island Bay Cycleway should be delivered as part of a fully connected network. This would require the completion of the single stage business case for Newtown Connections, the planned cycle connection between Island Bay and the central city. Funding for Island Bay would not be considered until the Newtown Connections business case was completed and endorsed by Waka Kotahi, as these two projects together would provide a more favourable cost-benefit ratio.

2.1.3.7 Long-term plan budgeting

In February 2021, T+T were engaged by WCC to provide a high-level assessment of options for cycle facilities on The Parade. A draft version of this report (version 3, issued 17 February 2021) was prepared with the intent to assist WCC Councillors in confirming funding for cycle facilities on The Parade under WCC's Long-Term Plan budget. To assist in funding decisions, the report provided a summary of possible options for The Parade and the implications of each option.

On 18 February 2021 at a Long-Term Plan Committee meeting, Councillors resolved to:

- Instruct officers to bring forward the resurfacing of The Parade in Island Bay and simultaneously remove ghost markings, complete minor safety improvements, and install buffers between the cycleway and parking lanes; and
- Request officers to advise Councillors on how the Island Bay project can be included within the cycleways programme (spending of $45 million over 4–10 years).

This report has been updated in response to these resolutions from Council.

2.1.4 Let's Get Wellington Moving

In April 2021, it was announced that there is an option being explored through Let's Get Wellington Moving (LGWM) for a mass rapid transit (MRT) route to connect through Island Bay. At the time of this report (August 2021), a decision has not been made for the MRT route; consultation on the route options is expected to take place in late 2021 with a decision on the route to follow. As a result, there is a possibility that future changes will be made to The Parade under the LGWM programme to accommodate the MRT route. The outcome of the MRT route decision may affect the recommendations outlined in this report.

2.2 Objectives and issues

The following sections outline the objectives identified for a cycle facility on The Parade and the issues identified for the current layout. These objectives and issues are relevant to determining the suitability of options for The Parade moving forward and the implications of each option.

2.2.1 Objectives

2.2.1.1 WCC cycling objectives

Through the Wellington Cycle Network Programme Business Case, WCC identified a set of investment objectives for future cycle projects in Wellington. During the concept design optioneering process, concept options for The Parade were tested against these objectives. The investment objectives were defined as follows:

- Achieve a high level of service for cyclists within an integrated transport network
- Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience
- Cycling is a viable and attractive transport choice
- The crash rate, number and severity of crashes involving people on bikes is reduced
- Providing transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington

2.2.1.2 Love the Bay objectives

Through the Love the Bay process, a set of objectives were developed by the community for The Parade and Island Bay. During the concept design optioneering process, concept options for The Parade were tested against these objectives. The Love the Bay objectives were defined as follows:

- The Parade is safe for all users
- The layout is intuitive and easy to understand
- The Parade accommodates all current and future users
- The visual environment is cohesive and clean
- Central Island Bay is a pleasant and welcoming environment

2.2.2 Issues

2.2.2.1 Road safety audit findings

Following the implementation of the current cycleway on The Parade, MWH (now Stantec) undertook a post-construction road safety audit. While some of the findings raised in the audit have since been addressed, there are a number of findings from the road safety audit that have not been addressed and remain relevant to current layout on The Parade. These findings include the following:

- There is inconsistency in the green markings and cycle symbols at intersections and transitions to/from the cycle lanes.
- There is a lack of intervisibility between cyclists and motor vehicles/pedestrians at driveways, intersections, and bus shelters.
- Cars park in the cycle lane buffer zones.
- The traffic lanes at the bend south of Medway Street are narrow.
- There is a lack of visibility and designated space for cyclists at transitions from the cycle lanes to the shared traffic lanes (particularly upon approach to the town centre).

2.2.2.2 Crash records

A search of crash records was undertaken using Waka Kotahi's Crash Analysis System (CAS). CAS is New Zealand's primary tool for capturing information on road crashes nationally. It is a database

with a lot of information on historical crashes, including where, when, and how crashes occurred. However, there are limitations to the data provided in CAS. Information is provided for reported crashes only, not all crashes that have occurred. Therefore, under-reporting is recognised as a difficulty with the database.

CAS was used to complete a search for all reported crashes along The Parade between Dee Street and Reef Street (including both intersections) and within 20m of The Parade (i.e., at side street intersections). Four time periods were assessed, corresponding to the status of construction of the Island Bay cycleway. These time periods were:

- 1 September 2005 to 31 August 2010 (5-10 years before the cycleway was constructed)
- 1 September 2010 to 31 August 2015 (0-5 years before the cycleway was constructed)
- 1 September 2015 to 29 February 2016 (the approximate construction period)
- 1 March 2016 to 1 February 2021 (post construction)

The pre-construction date ranges were used to compare how the cycleway has impacted frequency and severity of crashes along The Parade. The post-construction phase extends for just under 5 years, with the end date corresponding to when the assessment of crash records was completed. A breakdown of the crashes (including crash dates, severity ratings, and the number of crashes involving cyclists) is provided in Table 2.2, below.

Table 2.2: Crash records on The Parade

Date range	Description	Traffic volumes (veh/day)[1]	Cyclist volumes (cyclists/ day)[2]	Total crashes[3]				
				Severity				Total
				Fatal	Serious	Minor	Non-injury	
1 September 2005 to 31 August 2010	5-10 years before construction	11,234	Unknown	0	4	13 (1)	31 (1)	48 (2)
1 September 2010 to 31 August 2015	0-5 years before construction	10,425	Unknown	0	1	4	16	21
1 September 2015 to 29 February 2016	Construction period	10,811	Unknown	0	0	2 (1)	0	2 (1)
1 March 2016 to 1 February 2021[4]	Post-construction (approx. 5 years)	11,219	380–450	0	4 (2)	13 (5)	27 (2)	44 (9)

1 – Weekday average daily traffic volumes, recorded on The Parade between Dee Street and Tamar Street.

2 – Weekday average daily cyclist volumes, recorded on Adelaide Road at Wakefield Park, just north of the roundabout at Dee Street/The Parade. This is the closest cycle counter location and, given its proximity to The Parade, it's assumed that cycle volumes here are representative of cycle volumes on The Parade between Dee Street and Tamar Street.

3 – The numbers in parenthesis represent the number of crashes that involved cyclists.

4 – The processing times for crashes to be recorded in CAS are 1 working day for injury crashes and up to 5 months for non-injury crashes. The CAS search for this report was undertaken on 1 February 2021. Therefore, the number of crashes recorded for the period of 1 March 2016 to 1 February 2021 may be underreported.

Since the completion of the cycleway, there has been an increase in the number of reported crashes involving cyclists. In this time, a total of nine crashes involving cyclists were reported, compared to no reported cyclist crashes for the five years before construction, and two reported cyclist crashes in the period 5 to 10 years before construction. The crashes that have occurred following construction of the cycleway have been broken down by year, crash severity, and cyclist involvement in Figure 2.5, below.

The increase in reported crashes involving cyclists may be attributable to a number of factors, including the following:

- Since the cycleway was implemented, the number of cyclists travelling on The Parade may have increased. A higher frequency of cyclists travelling on the road presents an increased opportunity for crashes involving cyclists to occur. However, cyclist volume data for The Parade prior to construction of the cycleway is unavailable, meaning a comparison of cyclist volume data for the pre- and post-construction time periods is not possible.
- Not all crashes are reported and recorded, particularly non-injury and minor crashes. The percentage of crashes involving cyclists that are being reported may have increased over the past years due to multiple reasons, including the following:
  - The ongoing cycle engagement work that WCC has been undertaking for projects around the city has increased awareness of cyclists on the roads and the need for improved cycling infrastructure, potentially increasing the likelihood that crashes involving a cyclist will be reported.
  - The implementation of the current cycleway in Island Bay and the redesign process for The Parade have both been very high profile and have garnered a lot of public attention. There has been a heightened interest in the operation of The Parade and potential safety issues. This is likely to have contributed to an increase in the percentage of crashes on The Parade being reported, particularly crashes involving cyclists.
- Elements of the current layout of The Parade may contribute to an increased crash risk for cyclists. These elements may include, but are not limited to, the findings from the road safety audit, as outlined under Section 2.2.2.1 above.

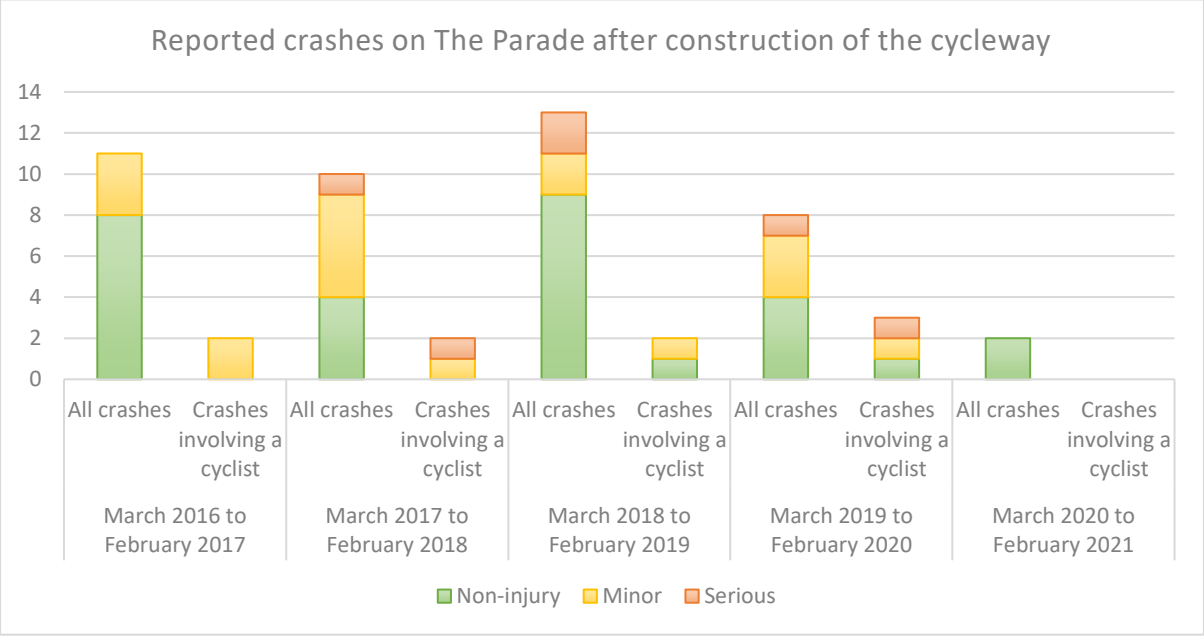


Figure 2.5: Recorded crashes on The Parade post-construction by year and crash severity (March 2016 to February 2021)[2]

[2] The processing times for crashes to be recorded in CAS are 1 working day for injury crashes and up to 5 months for non-injury crashes. The CAS search for this report was undertaken on 1 February 2021. Therefore, the number of crashes recorded for the period of March 2020 to February 2021 may be underreported.

The nine reported crashes involving cyclists post construction of the cycleway included two serious crashes. The details of the reported crashes involving cyclists are as follows:

- Two of the crashes occurred in the town centre, where there is no separated cycleway and cyclists share the road with motor vehicles.
  - There was one serious crash, where a driver swerved to the left, colliding with a cyclist.
  - There was one minor crash, where a vehicle turned left into a parking space and side-swiped a cyclist.
- Six of the crashes involved a collision between a turning motor vehicle and a cyclist in the cycle lane.
  - Three of these crashes occurred at driveways, where a motor vehicle turning into a driveway did not see a cyclist travelling in the cycle lane and they collided. In two of these crashes, the motor vehicle was turning right into a driveway, and in the third the motor vehicle was turning left.
  - Three of these crashes occurred at an intersection. In two of them, a motor vehicle turned left from The Parade onto a side road and side-swiped a cyclist travelling in the cycle lane. In the third crash, a driver on a side road failed to stop at a stop control and turned onto The Parade, rear-ending a cyclist travelling in the cycle lane.
- One serious crash occurred in the midblock, where the cycle lane runs along the kerb, between the footpath and on-street parallel parking. A pedestrian moved around the front of their parked car and stepped into the cycle lane, in front of a cyclist who was travelling at approximately 25 km/h. Both the cyclist and the pedestrian suffered serious injuries.

A lack of intervisibility between cyclists and motor vehicles or pedestrians has been a factor in all of the crashes involving cyclists that have occurred since the implementation of the new cycleway on The Parade (except for the crashes that have occurred in the town centre, where there is no cycle facility).

2.2.2.3 Community feedback

A significant amount of community feedback has been gathered through the Love the Bay process and subsequent community engagement on the concept design options. The following points provide a high-level summary of the community feedback that is relevant to the current layout on The Parade:

- The current parking layout is confusing and leads to safety issues, including side-swipe vehicles crashes with cyclists and encroachment into the cycle lane car door buffer zone.
- The narrow traffic lanes make exiting driveways harder and require vehicles to cross the centreline. The narrow traffic lanes also make it more difficult for buses and heavy vehicles to safely manoeuvre on The Parade.
- It is now more difficult for drivers to see cyclists on the cycleway when turning into driveways on The Parade.
- The cycleway is a “cycleway to nowhere” and there is little understanding of planned connections further north to connect to the central city.
- The cycle facilities vary in style and treatment along The Parade. This results in a layout that is confusing and affects how safe people feel using the space.
- Intervisibility and the cycleway treatment at intersections is important to ensure that intersections are safe and intuitive, that users know where to expect each other, and that they can see each other.

- The kerbside cycle lanes make it harder for vehicle passengers to unload and cross the cycle lane to the footpath (particularly the young, the elderly, those who have impaired mobility, or people with strollers).
- The locations of some bus stops and pedestrian islands block through traffic on The Parade, causing delay and frustration.
- There are perceived safety risks caused by cyclists ignoring the kerbside cycle lanes and continuing to use the traffic lanes.
- There was criticism of the type of treatment being aspirational for Wellington and out of context with other cycle facilities in the city. (It is worth noting that this feedback is from 2016/2017; since this time, more cycle facilities have been implemented in Wellington that have similarities to the treatment on The Parade).

2.3 Assumptions

For the identification and assessment of options for upgrades on The Parade, a number of key assumptions have been made. The assumptions have directed the development and assessment of the options. The following key assumptions were made:

- The short-term safety improvements (to be implemented in conjunction with the resurfacing works) will not involve any kerb relocation or any other major physical works.
- The short-term safety improvements will be implemented by the end of 2021, before the long-term upgrades are carried out. The indicative cost estimates for the long-term options were prepared under the assumption that the resurfacing works and associated short-term improvements will have already been implemented.
- In line with the Councillor-approved option and the consultant's recommend option (refer Section 2.1.3.2.3), all of the options assume that the basic cross section of the carriageway will remain the same (i.e., cycle lanes are kerbside, between the footpath and parked cars). This is applicable for all options, except for select options in the business zone that consider the impacts of maintaining the shared traffic lanes.
- The long-term upgrade options should be assessed separately for the residential and business zones since the treatment applied in one zone does not necessarily need to be the treatment applied in the other zone. Given that the basic cross sections remain the same (as described in the above point), many of the options for both zones can be paired with one another while maintaining consistency.
- The scope extent for the long-term upgrades is the length of The Parade from Dee Street to Reef Street, not including the Dee Street roundabout. It is understood that the Dee Street intersection is included in the scope extent for Newtown Connections.
- The mass rapid transit project under Let's Get Wellington Moving programme may include future changes on The Parade to provide a mass rapid transit connection to Island Bay. The assessment of the options should take the impact of this possibility into consideration.

2.4 Design dimensions

Local and national design guidance was referenced to identify design widths for the elements being considered in the options. Specifically, the guidance considered was:

- Waka Kotahi guidance
- Austroads guidance, as referenced by Waka Kotahi guidance
- WCC guidance, for local Wellington reference

Table 2.3 outlines the absolute minimum, desirable minimum, and desirable widths for relevant transport facilities, as noted in the reference guidelines.

Using a combination of these reference guidelines, best practice, and input from WCC, a list of minimum and desirable widths was identified for each of the design elements being considered on The Parade. This list, provided in Table 2.4, was used as the basis for developing the options for The Parade.

Table 2.3: Design guidance recommended widths

Design element	Recommended widths			Reference
	Absolute minimum	Desirable minimum	Desirable	
Footpath	1.8m	2.7m	--	PPDG[1]
	1.5m	--	2.0m	COP[2]
Cycle path/lane	1.6m	1.8m	2.1m	CNG[3]
	1.5m	--	2.2m	CF[4]
	1.2m	--	--	WCC[5]
Buffer zone (between a cycle path/lane and a traffic lane)	0.5m	--	1.0m	CNG (refers to Austroads[6])
	0.6m	--	--	CF
Buffer zone (between a cycle path/lane and parallel parking)	0.7m	0.85	1.0m	CNG (refers to Austroads)
	--	1.0m	1.2m	CF
Traffic lane	3.0m	--	3.5m	SHGDM[7]
	--	--	3.5m	COP/CF
	--	3.2m	--	WCC[8]

1 – Waka Kotahi Pedestrian Planning and Design Guide

2 – WCC Code of Practice for Land Development – Part C: Road Design and Construction

3 – Waka Kotahi Cycle Network Guidance

4 – WCC Cycling Framework

5 – During the design development phase of the Councillor-approved option, WCC requested that the cycle paths through the business zone be narrowed to 1.2m wide. This was to encourage slower cyclist speeds through the business zone, where there would be an increased number of pedestrians crossing the cycle paths. The cycle paths were designed to be flush with the footpath and buffer space, so cyclists would still have space to navigate around obstacles if required.

6 – Austroads Guide to Road Design, Part 3 and Part 6A

7 – Waka Kotahi State Highway Geometric Design Manual *DRAFT*

8 – Advice provided by WCC's Transport & Infrastructure team on the desirable minimum width of traffic lanes on bus routes.

Table 2.4: Dimensions used in developing options for The Parade

Design element		Width	
		Minimum	Desirable
Footpath	Residential zone	1.5m	2.7m
	Business zone	3.0m	>3.0m[1]
Cycle path (above road level)	Residential zone	1.5m	2.0m
	Business zone	1.2m	1.5m
Cycle lane (at road level)		1.5m	2.0m
Buffer next to cycle facilities	Next to traffic lane	0.6m	1.0m
	Next to parallel parking	0.85m	1.0m
	Next to angle parking	0.6m	>0.6m
Traffic lane		3.2m	3.5m

1 – The current minimum footpath widths through the business zone on The Parade is currently approximately 3m. The desirable width for the business zone is to maintain this minimum width, or ideally widen it to provide additional width for place-making opportunities.

3 Short-term safety improvements (integrated with resurfacing works)

Resurfacing is scheduled to take place on the section of The Parade between Mersey Street and Reef Street (not including the Mersey Street and Reef Street intersections). At the Long-Term Plan Committee meeting on 18 February 2021, Councillors resolved to bring forward this resurfacing work to be completed by the end of 2021 and to incorporate minor safety improvements into the work. This section outlines the options considered for the short-term safety improvements and the recommended approach moving forward, constrained by funding available for this short-term work.

3.1 Improvement options

In the Councillor resolution, the following three items were specified to be integrated into the resurfacing of The Parade:

- Removal of the ghost markings
- Installation of separators between the cycleway and parking lanes
- Other minor safety improvements

Any improvements incorporated into the resurfacing works should improve the safety of the existing layout and work towards some of the objectives identified for the Councillor-approved option. To identify options, a list was developed of minor improvements that could be implemented that would address identified issues with current layout. In line with the Councillor-approved option, all of the opportunities assume that the basic cross section of the carriageway will remain the same (i.e., cycle lanes are kerbside, between the footpath and parked cars).

The following options were considered for the short-term safety improvements:

- Adding physical separators in the buffer zone between the cycle lanes and car parking
- Making changes to the parking markings
- Adjusting road markings, including:
  - Providing consistent cycle markings through intersections
  - Widening the buffer space
  - Widening the traffic lanes
- Making improvements to bus stops
- Adding raised tables on side streets at intersections
- Removing ghost markings
- Improving the town centre, which could include any of the following:
  - Adding cycle lanes
  - Providing traffic calming improvements more suitable for cyclists in a mixed traffic environment
  - Remarking the road markings south of Medway Street

The full list of the identified improvements is in Table 3.1. The table includes descriptions of the options, a summary of the issues addressed, and whether or not the improvement is recommended to be incorporated into the short-term safety improvements. Further details in the safety impacts of each of the options and the rationale for whether or not they are recommended to be incorporated into the short-term improvements are outlined in Appendix B.

Table 3.1: Options for short-term safety improvements

Improvement		Description	Issue(s) addressed	Recommend?
Separators	Vertical posts	Add vertical post separators to the buffer zone	• Vehicles parked in the buffer zone	✗
	Low separators	Add low mountable separators to the buffer zone	• Vehicles parked in the buffer zone • Conflict between cyclists and vehicles turning into/out of driveways	✓
	Kerb separators	Add wide kerb separators to the buffer zone	• Vehicles parked in the buffer zone • Narrow car door buffer zone • Confusing layout • Difficulty unloading from parked cars	✓
	Planter boxes	Add planter boxes to the buffer zone	• Vehicles parked in the buffer zone • Narrow car door buffer zone • Confusing layout	✗
Parking	1m setback at driveways	Mark the end bars for on-street parking 1m back from driveways	• Lack of visibility of cyclists at driveways	✗
	3m setback at driveways	Mark the end bars for on-street parking 3m back from driveways	• Lack of visibility of cyclists at driveways • Vehicles crossing the centreline when exiting driveways	✓
	30m setback on intersection approaches	Remove parking within 30m of the approaches to intersections	• Lack of visibility of cyclists at intersections	✓
	No individual car parks	Remove individual car park marking	• Individual car park markings	✓
Road markings	Consistent cycle markings	Provide consistent cycle markings and treatments across intersections with side roads	• Lack of consistency along The Parade • Lack of visibility of the cycle lanes at intersections	✓
	Wider buffer space	Widen the buffer space between the cycle lanes and parking to a minimum width of 0.85m	• The existing buffers are narrower than the minimum recommended width • Difficulty unloading from parked cars	✓
	Wider traffic lanes	Widen the traffic lanes to a minimum width of 3.2m	• Difficulty entering and exiting driveways • Difficult for buses and heavy vehicles to pass each other	✓
Bus stop improvements		Update the geometry at bus stops to address conflict points, improve intervisibility, and address pinch points	• Lack of intervisibility between cyclists and pedestrians at bus stops • Lack of consistency • Delay at bus stops	✗
Raised tables		Install raised tables across side roads to provide raised crossings for pedestrians and cyclists	• Conflict at intersections • Lack of visibility of cyclists	✗
Remove ghost markings		Resurface The Parade where there are ghost markings	• Lack of consistency along The Parade • Confusing layout	✓
Business zone	Cycle lanes	Provide cycle lanes through the town centre	• Shared traffic lanes through the town centre	✗
	Bus and bike-friendly road humps	Replace the existing road cushions with bus and bike-friendly road humps	• Non-cycle-friendly traffic calming measures for the shared traffic lanes in the town centre	✓
	Remark transitions from the cycle lanes	Remark the transition south of Medway Street from the cycle lane to the shared traffic lane	• Lack of consistency along The Parade • Lack of clarity at transitions to/from the cycle lanes and the business zone	✓

3.2 Recommendation

From the findings described in Table 3.1, our recommendation is that the following works are incorporated into the resurfacing works on The Parade to provide short-term safety improvements:

1 Adjust parking through the residential area as follows:
   a Provide 3m parking setbacks at driveways
   b Provide 30m parking setbacks on approaches to intersections
   c Do not mark individual car parks (but do mark parking end bars for the 3m setback)
2 Adjust the road markings as follows:
   a Mark cycle facilities consistently across intersections with side roads
   b Widen the buffer space between the cycle lanes and the on-street parking to achieve the minimum recommended width of 0.85m
   c Widen the traffic lanes to 3.2m
3 Install physical separators in the buffer space between the cycle lanes and the on-street parking as follows:
   a Install precast concrete kerb separators consistently through the residential zone, except across intersections and driveways
   b Across driveways, install low mountable separators
4 Make the following minor improvements in the town centre:
   a Replace the existing road cushions with road humps that have a bus and bike-friendly profile
   b Remark the road markings south of Medway Street to provide consistency and clarity for cyclists and to narrow the traffic lanes for traffic calming
5 Resurface The Parade to remove ghost markings

3.2.1 Implementation

Although the resurfacing works were only scheduled for the section of The Parade between Mersey Street and Reef Street, it is recommended that the identified safety improvements are applied to the full length of The Parade (Dee Street to Reef Street). Making changes to only one section of the road would further exacerbate the inconsistency of the treatments along The Parade and lead to even more confusion for road users.

Resurfacing the entire length of The Parade should also be considered to remove both the existing ghost markings and any new ghost markings that would be created by adjusting the markings for the improvements identified under Section 3.2 above.

For comparison, the outcomes of four options for implementing the short-term safety improvements have been considered:

- **Option 1:** Implement safety improvements and resurface between Mersey Street and Reef Street only
- **Option 2:** Implement safety improvements for the whole length of The Parade and resurface between Mersey Street and Reef Street only
- **Option 3:** Implement safety improvements for the whole length of The Parade and resurface between Avon Street and Reef Street only to remove ghost markings from the more significant road marking changes through the town centre
- **Option 4:** Implement safety improvements and resurface the entire length of The Parade

The outcomes for each option are summarised in Table 3.2 below.

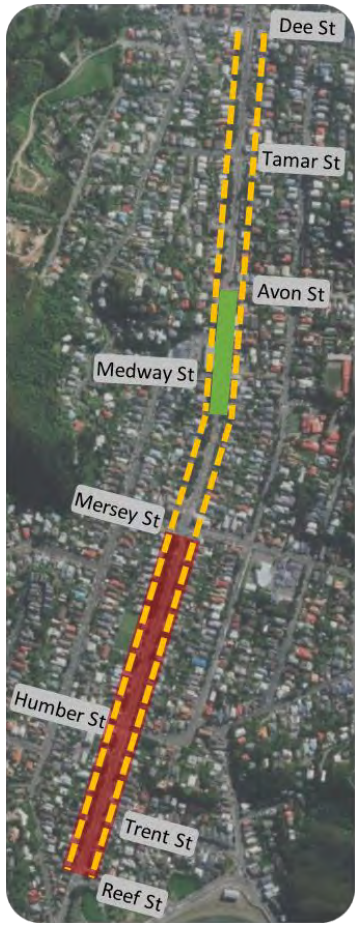
Table 3.2: Implementation options for the short-term safety improvements

Legend

Resurfacing

Residential safety improvements:
- Parking changes
- Cycle lanes marked through intersections
- Widened buffer space and traffic lanes

Town centre safety improvements:
- New road humps
- Remarked transitions to/from the cycle lanes



Safety improvements:				
Resurfacing to remove ghost markings	Mersey St to Reef St only	Mersey St to Reef St only	Avon St to Reef St only	✓
Parking changes	Mersey St to Reef St only	✓	✓	✓
Cycle lanes marked through intersections	Humber St intersection only	✓	✓	✓
Widened buffer space and traffic lanes	Mersey St to Reef St only	✓	✓	✓
Physical separators installed	Mersey St to Reef St only	✓	✓	✓
Town centre improvements	×	✓	✓	✓

Our recommendation is that Option 3 is progressed for the implementation of the short-term safety improvements. This option strikes a balance between removing ghost markings on The Parade while minimising resurfacing works that will need to be redone when long-term upgrades are implemented. Option 3 would remove all of the existing ghost markings on The Parade (which are present between Avon Street and Reef Street) and ensure that no new ghost markings are created in the town centre when remarking the transitions between the cycle lanes and the shared traffic lanes. Ghost markings would remain in the section between Dee Street and Avon Street, but these would be limited to ghost markings from the removal of the parking ticks ("L" and "T" parking markings).

3.2.2 Cross-sections

To accommodate the short-term safety improvements, in particular the widening of the buffers and the traffic lanes, the cross section of The Parade will need to be adjusted. The width between the existing kerbs on The Parade varies. Therefore, two separate recommended cross sections have been identified for different kerb-to-kerb widths. The cross sections are shown in Figure 3.1 and Figure 3.2.

For the length of The Parade between the town centre and Trent Street, the kerb-to-kerb width is too narrow to accommodate the changes while maintaining all of the features of the existing cross section. Therefore, parallel parking would need to be removed from one side of the street for this section.

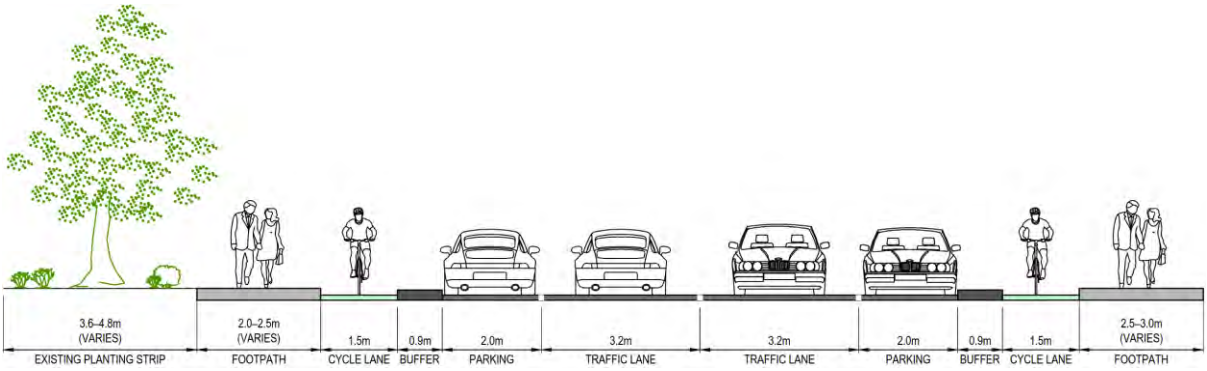


Figure 3.1: Cross Section 1 – Recommended residential cross section for the short-term upgrades (between Dee Street and the north side of the town centre, and between Trent Street and Reef Street)

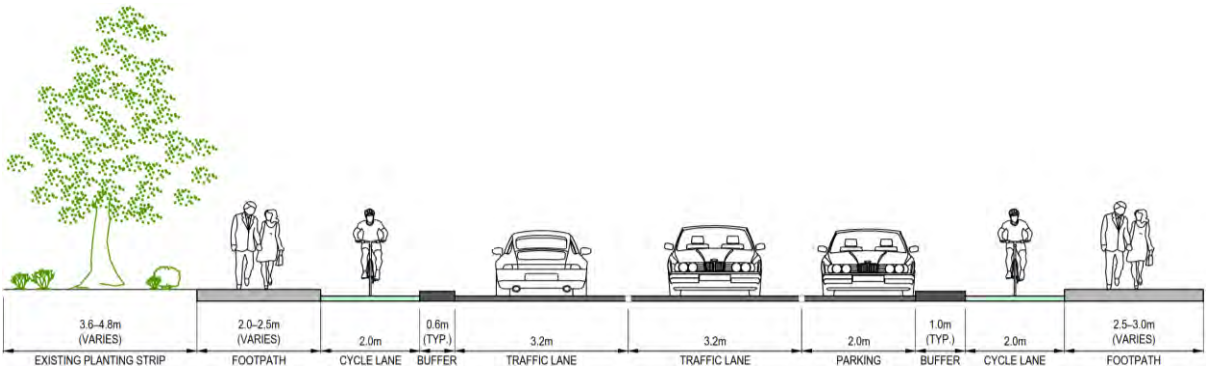


Figure 3.2: Cross Section 2 – Recommended residential cross section for the short-term upgrades (between the south side of the town centre and Trent Street)

3.2.3 Parking

If the short-term safety improvements were implemented along the entire length of The Parade (Option 2 to 4), the changes would result in a reduction of car parking in the residential zone from approximately 150 existing individually marked car parks to capacity for approximately 60-80 cars in unmarked spaces. The car parks would be removed for the following reasons:

- Parking setbacks at intersection approaches:
  - Approximately 3 spaces total would be removed for the 30m setbacks at intersections.
- Parking setbacks at driveways:
  - Approximately 10–15 spaces would be removed if a 1m parking setback were applied at every driveway. However, it should be noted that the 1m setback for parking at driveways is a legal requirement in New Zealand, as per New Zealand Land Transport (Road User) Rule 2004. This parking loss should not be considered a result of the improvements.
  - Approximately 35–45 additional spaces would be removed if a 3m parking setback were applied to improve visibility of cyclists at driveways, as recommended.
- Cross-section width changes:
  - Approximately 20–25 spaces would be removed from one side of the street between the town centre and Trent Street due to the cross-section changes (parallel parking removed from one side of the street, as shown in Figure 3.2 above).

3.2.4 Indicative cost estimate

High-level indicative cost estimate ranges have been produced for each of the options for implementing the short-term safety improvements. Quantities used for these cost estimates are based on high-level concepts. The cost estimates have been produced to assist in the option assessment process. The ranges represent the low and high cost estimates for each option, accounting for the potential design variations and uncertainties. A breakdown of the estimates for each implementation option is provided in Table 3.3.

Table 3.3: Indicative cost estimates for the short-term safety improvements (2021)

Item			Scheduled Resurfacing	Option 1	Option 2	Option 3	Option 4
Construction	Scheduled resurfacing (Mersey to Reef)		$130,000	$130,000	$130,000	$130,000	$130,000
	Additional resurfacing and remarking		$ -	$ -	$160,000	$390,000	$580,000
	Additional safety improvements		$ -	$330,000	$650,000	$650,000	$650,000
	Subtotal		***$130,000***	***$460,000***	***$940,000***	***$1,170,000***	***$1,360,000***
	Uncertainty allowance	Low (-5%)	$ -	- $20,000	- $50,000	- $60,000	- $70,000
		High (30%)	$ -	$140,000	$280,000	$350,000	$410,000
	Construction total	**Low**	**$130,000**	**$440,000**	**$890,000**	**$1,110,000**	**$1,290,000**
		High	**$130,000**	**$600,000**	**$1,220,000**	**$1,520,000**	**$1,770,000**
Additional fees (consultant design, MSQA, and WCC management)		Low	$40,000	$150,000	$300,000	$370,000	$430,000
		High	$60,000	$240,000	$500,000	$620,000	$710,000
Total		**Low**	**$170,000**	**$590,000**	**$1,190,000**	**$1,480,000**	**$1,720,000**
		High	**$190,000**	**$840,000**	**$1,720,000**	**$2,140,000**	**$2,480,000**

Additional estimates should be undertaken during the design process to confirm the costs and reduce the level of uncertainty. A full breakdown of the cost estimates is provided in Appendix D.

3.2.4.1 Uncertainties

The cost estimates are based on concepts. No design work has been done for the improvements. This means that the quantities are high-level estimates only. The uncertainties that are known to exist are outlined in Table 4.7. Each uncertainty has been assigned an estimated percentage uncertainty range. These ranges have been accumulated and applied to the relevant cost items, resulting in total low- and high-end contingency allowances. The contingency we have allowed should be considered as part of the cost rather than a potential add-on. The estimates are based on rates from 2020/2021 and no allowance has been included for cost escalation beyond this.

Table 3.4: Cost estimate uncertainties for the short-term safety improvements

Uncertainty	Rationale	Assigned project uncertainty
Design uncertainty	At this stage, only conceptual options for improvements to The Parade have been considered. No design work has been undertaken.	+5% to +10%
Quantity uncertainty, levels	The quantities used to estimate the costs are rough-order approximations only, estimated from high-level concepts.	–5% to +10%
Rates uncertainty	The rates are a combination of rates supplied by WCC and rates that have been estimated and extrapolated from similar recent projects. They may or may not be applicable to this project.	–5% to +10%
Total project uncertainty		**–5% to 30%**

4 Long-term upgrades (options assessment for the Long-Term Plan)

To assist Councillors in confirming funding for long-term upgrades on The Parade under WCC's 2021-2031 Long-Term Plan budget, an assessment has been undertaken on potential funding options. This section of the report outlines the assessment process, the results, and a recommended approach.

4.1 Assessment process

Assessment of the options for The Parade was undertaken following three steps:

1 Develop long lists of options for both the residential zone and the business zone

2 Assess the options on both the residential zone and the business zone long lists using a multi-criteria analysis (MCA) and identify short-listed options

3 Confirm option combinations (pairings of residential and business zone treatments) and assess the options using the MCA outputs and the results of a benefits assessment

The assessment process is outlined in Figure 4.1.

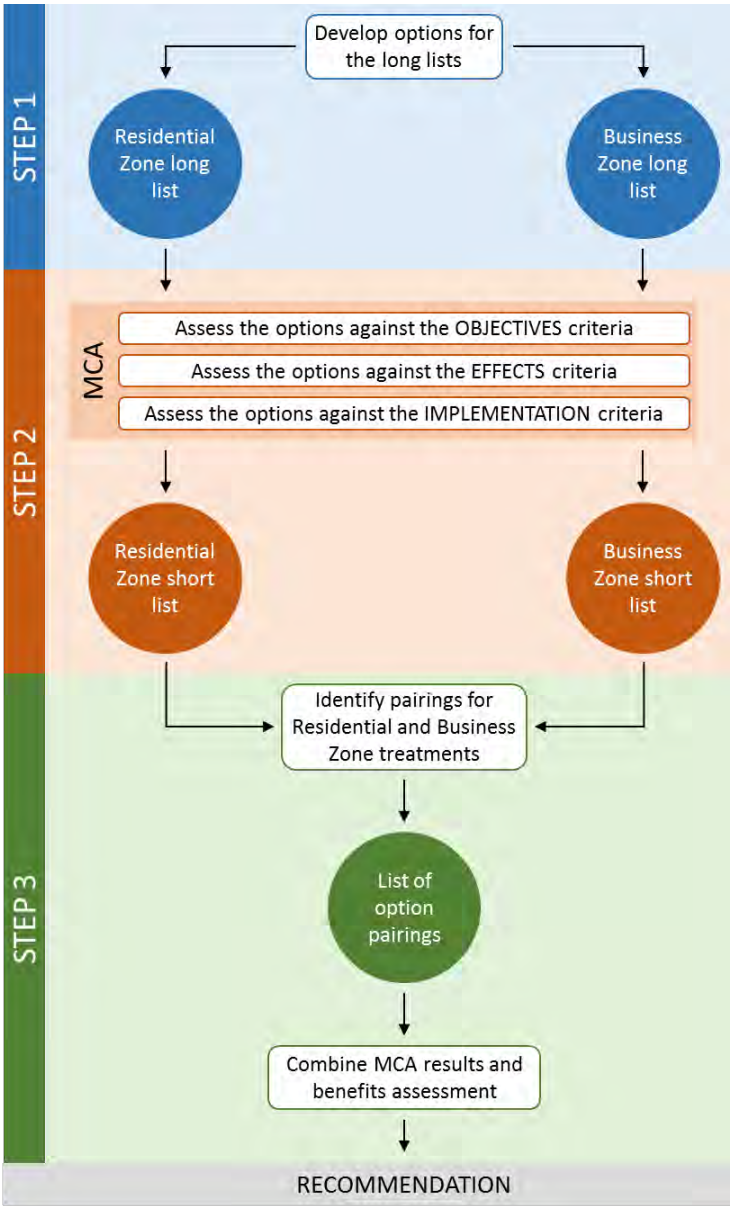


Figure 4.1: Assessment process used to evaluate long-term upgrade options for The Parade

4.2 Step 1: Option development

As requested by WCC, options have been assessed for the long-term upgrades to The Parade that fall under three broad funding brackets:

1 Undertake no physical works on The Parade beyond the short-term safety improvements ($0)

2 Provide improvements up to the Councillor-approved budget (up to $6.1 million)

3 Proceed with the Councillor-approved option (greater than $6.1 million)

The options were developed by identifying variations to the Councillor-approved option that would result in cost-savings while still working towards achieving the desired outcomes for The Parade. The following sections provide a description of the considerations under each bracket.

4.2.1 Funding brackets

4.2.1.1 Funding Bracket 1: No physical works on The Parade

Funding Bracket 1 would see no further work undertaken on The Parade beyond the short-term safety improvements outlined under Section 3 above. There would be no additional physical improvements to the road layout, with no opportunity to address concerns not addressed through the short-term improvements (such as improving intersection layouts, continuing the cycle facilities through the town centre, or providing amenity upgrades).

4.2.1.2 Funding Bracket 2: Improvements up to the Councillor-approved budget

Funding Bracket 2 includes upgrades to The Parade beyond the short-term safety improvements, up to $6.1 million[3]. This is the WCC budget previously approved by Councillors for the Councillor-approved option, based on a cost estimate completed by BondCM in the early concept optioneering stage (refer Section 2.1.3.2 above). Options under this bracket would work towards achieving some of the outcomes of the Councillor-approved option by making selective improvements.

It is important to note that a large driver of the cost for the Councillor-approved option is the physical works needed to ensure proper drainage of the cycle paths, which are raised above road level. Within the budget of $6.1 million, cycle paths above road level (which would improve the visibility of cyclists) could not be provided. However, the options do still include improvements that would partially address the identified issues on The Parade and work towards the intended objectives of the Councillor-approved option.

4.2.1.3 Funding Bracket 3: Councillor-approved option

Funding Bracket 3 would involve continuing with the design and implementation of the option previously approved by Councillor's on 27 September 2017, as shown in Figure 4.2 (refer Section 2.1.3.3 for further details).

During the beginning of the detailed design process for the Councillor-approved option (undertaken in 2018), WCC requested that the cycle paths through the business zone were reduced to 1.2m wide instead of 1.5m. The intention of this change was to encourage slow cyclist speeds through the town centre and provide additional width in the footpaths. For consistency, in this options assessment the cross section for the Councillor-approved options through the business zone have been updated to reflect the most recent iteration that was being considered for detailed design (i.e., 1.2m-wide cycle paths).

[3] The cost estimates undertaken at this stage are presented as indicative cost ranges. This is due to the absence of design work being completed on the options and the resulting uncertainty. As a result, the upper end of the indicative cost ranges for some of the options identified under this funding bracket are greater than $6.1 million.

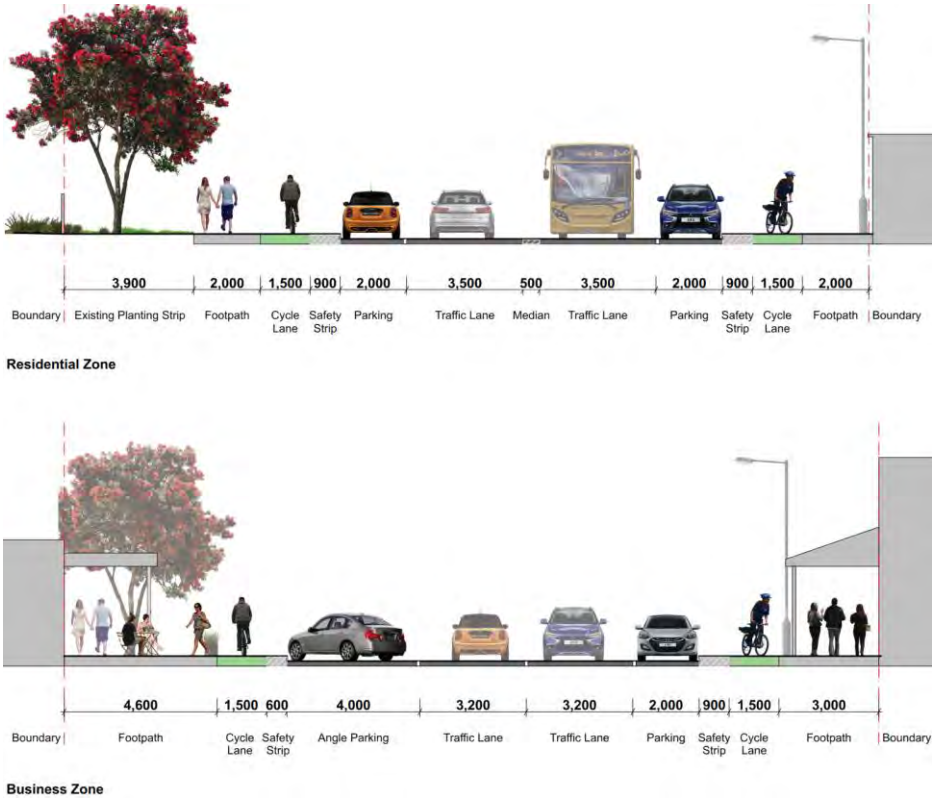


Figure 4.2: Councillor-approved option

4.2.2 Option details

A total of 15 options were identified for assessment: six options in the residential zone and nine options in the business zone. The options were developed through value engineering workshops and a workshop held with WCC representatives on 14 April 2021. The identified options are as follows:

Residential zone

- **Option 1:** Retain the short-term safety improvements (kerbs unchanged)
- **Option 2:** Retain the short-term safety improvements and add intersection and bus stop improvements (isolated kerb changes)
- **Option 3:** Replace the short-term safety improvements by moving kerbs to achieve the preferred carriageway and cycle lane widths, and add intersection and bus stop improvements
- **Option 4:** Replace the short-term safety improvements with the Councillor-approved option (secondary stormwater system)
- **Option 5:** Replace the short-term safety improvements with the Councillor-approved option (lowered pavement)
- **Option 6:** Replace the short-term safety improvements with the Councillor-approved option (value engineered)

Business zone

- **Option A:** Retain the short-term safety improvements (kerbs unchanged)
- **Option B:** Replace the short-term safety improvements with cycle lanes at road level, with angle and parallel parking
- **Option C:** Replace the short-term safety improvements with cycle lanes at road level with angle parking only

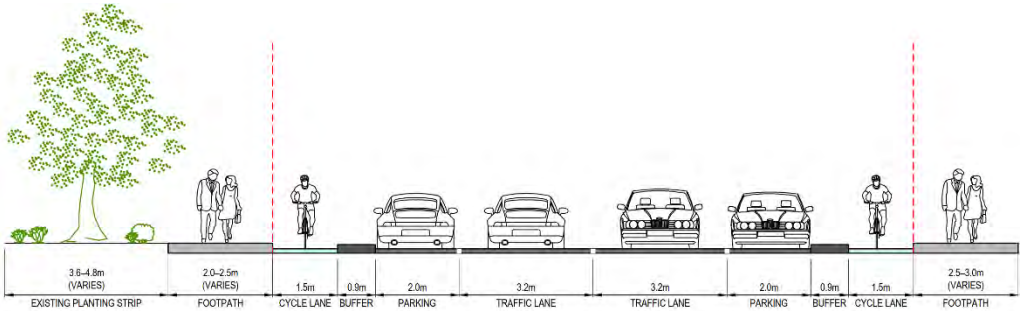
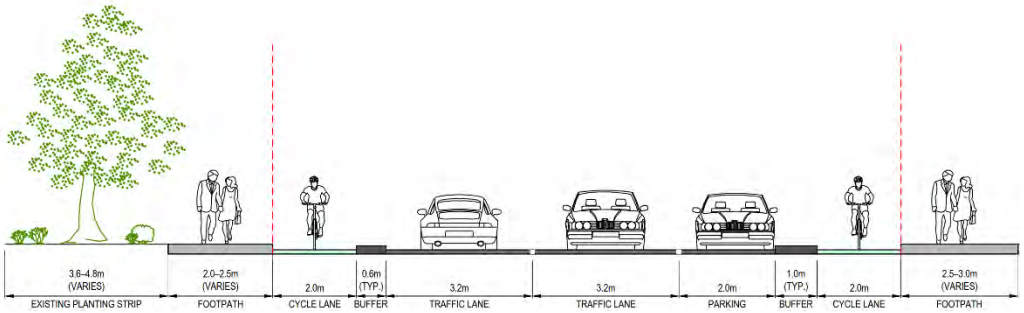
- **Option D:** Replace the short-term safety improvements with cycle lanes at road level with parallel parking only
- **Option E:** Replace the short-term safety improvements with the Councillor-approved option (secondary stormwater system)
- **Option F:** Replace the short-term safety improvements with the Councillor-approved option (lowered pavement)
- **Option G:** Replace the short-term safety improvements with the Councillor-approved option (value engineered) with angle and parallel parking
- **Option H:** Replace the short-term safety improvements with the Councillor-approved option (value engineered) with angle parking only
- **Option I:** Replace the short-term safety improvements with the Councillor-approved option (value engineered) with parallel parking only

Details on the 15 options are provided in Table 4.1 and Table 4.2, including indicative cross sections, a list of changes associated with each option, and high-level indicatives cost estimates.

The value-engineered options (residential Option 6 and business Options G to I) include cost-saving design changes. The options are based on the secondary stormwater system option, with the following changes factored in to achieve cost savings:

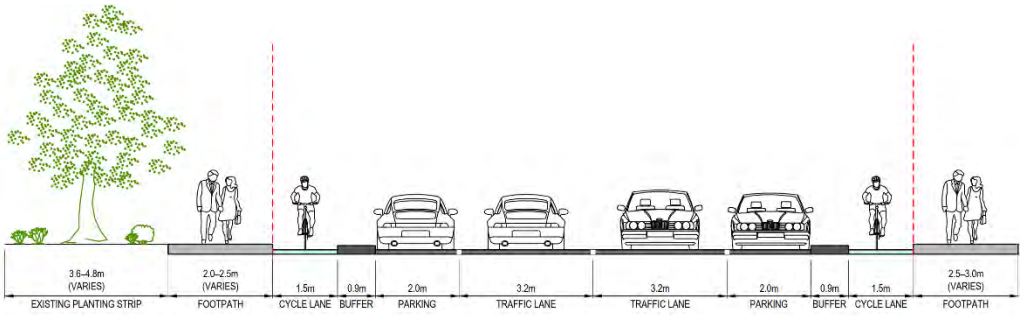
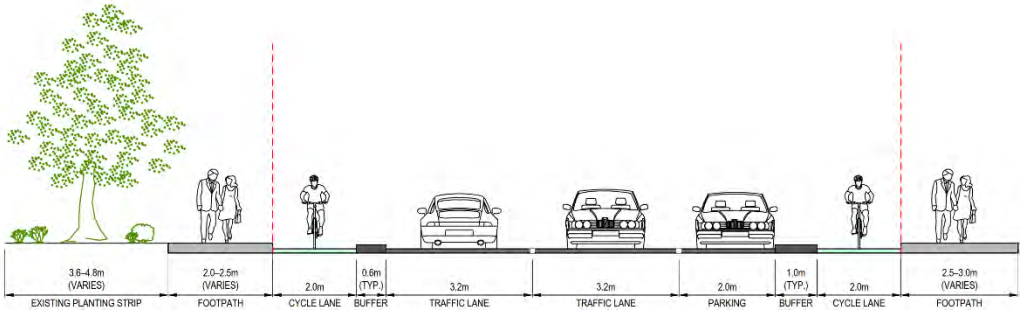
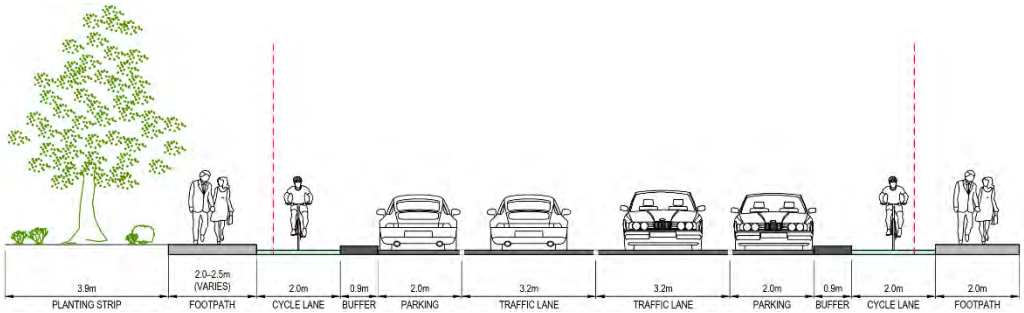
- Changes to the levels of the footpaths and cycle paths, achieved by adjusting crossfalls and using a low-profile kerb between the buffer zone and on-street parking. These changes removed the need for secondary stormwater infrastructure in some locations and reduced the area of pavement that would need to be reconstructed.
- Minor changes to the footpath and cycle path alignments by making minor changes to the horizontal kerb alignments. These changes reduced the number of items that would need to be relocated, including power poles and shop canopy poles.
- Reduction in the rates of some design elements to provide lower-cost options, such as using asphalt instead of exposed concrete for the buffer space through the business zone (where the cycle paths are concrete), or providing lower-cost benches (i.e., without underlighting, as was allowed for under the 2018 cost estimates).
- Replacement of like-for-like when resurfacing The Parade. Currently, road surface on The Parade varies between asphalt and chipseal. The 2018 cost estimates allowed for the entire length of The Parade to be resurfaced with asphalt. The value-engineered options reduce costs by assuming that sections of The Parade that are currently chipsealed will be resurfaced with chipseal.

Table 4.1: Long-term upgrades: residential zone options

Option		Cross section(s)[4]	Other changes not shown in the cross section	Indicative cost[5]
1	Retain the short-term safety improvements (kerbs unchanged)	***Typical cross section:***  ***Between the south end of the town centre and Trent Street (parking removed on one side of the street):***  	The width between the existing kerbs varies. Therefore, there are two separate cross sections. For the length of The Parade between the town centre and Trent Street, the kerb-to-kerb width is too narrow to accommodate the changes while maintaining all features of the existing cross section. Therefore, parallel parking would need to be removed from one side of the street (the second cross section). Improvements as identified for the short-term safety improvements (Section 3.2): • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • No individual car parks marked • Cycle facilities marked consistently across intersections • Widened traffic lanes • Widened buffer space between the cycle lanes and on-street parking • Precast concrete kerb separators in the buffer space with low mountable separators at driveways • Resurfacing the entire length of The Parade	$0

[4] The red dashed lines in the cross sections represent the indicative location of the existing kerbs.

[5] The estimates include costs for construction, design fees, MSQA, a 20% allowance for WCC management costs, and allowance for uncertainty. The methodology of how the indicative cost estimates have been calculated is provided in Section 4.3.3. A breakdown of the cost estimates is provided in Appendix D.

Option		Cross section(s)[4]	Other changes not shown in the cross section	Indicative cost[5]
2	Retain the short-term safety improvements and add intersection and bus stop improvements (isolated kerb changes)	***Typical cross section:***  ***Between the south end of the town centre and Trent Street (parking removed on one side of the street):***  	The width between the existing kerbs varies. Therefore, there are two separate cross sections. For the length of The Parade between the town centre and Trent Street, the kerb-to-kerb width is too narrow to accommodate the changes while maintaining all features of the existing cross section. Therefore, parallel parking would need to be removed from one side of the street (the second cross section). Improvements as identified under Option 1 above, plus: • Intersection improvements, including raised crossings across side roads, realignment of the kerb lines, and turning lane and pedestrian crossing changes at select locations • Bus stop improvements	$2.6 – $4.7 m
3	Replace the short-term safety improvements by moving kerbs to achieve the preferred carriageway and cycle lane widths, and add intersection and bus stop improvements	 	• Resurfacing the entire length of The Parade • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • No individual car parks marked • Precast concrete kerb separators with low mountable separators at driveways • Intersection improvements, including raised crossings across side roads, realignment of the kerb lines, and turning lane and pedestrian crossing changes at select locations • Bus stop improvements	$4.1 – $7.4 m

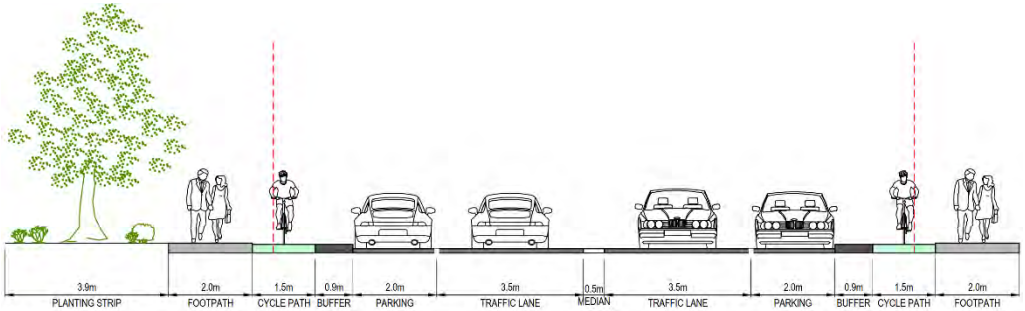
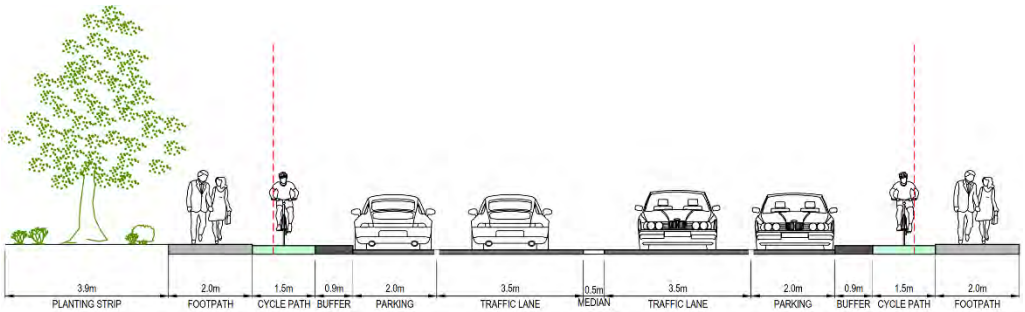
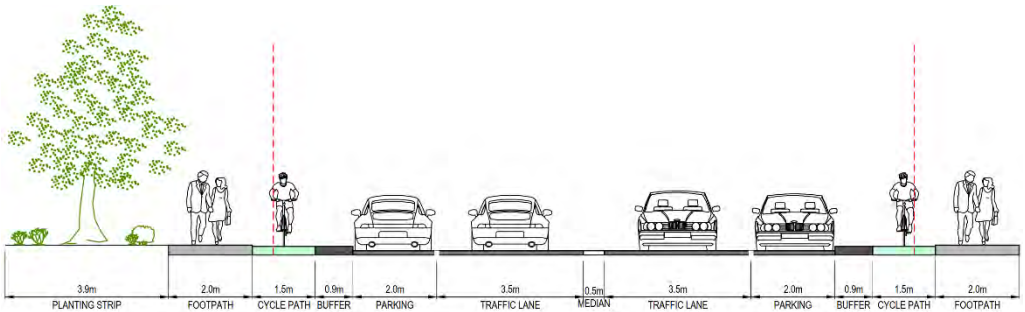
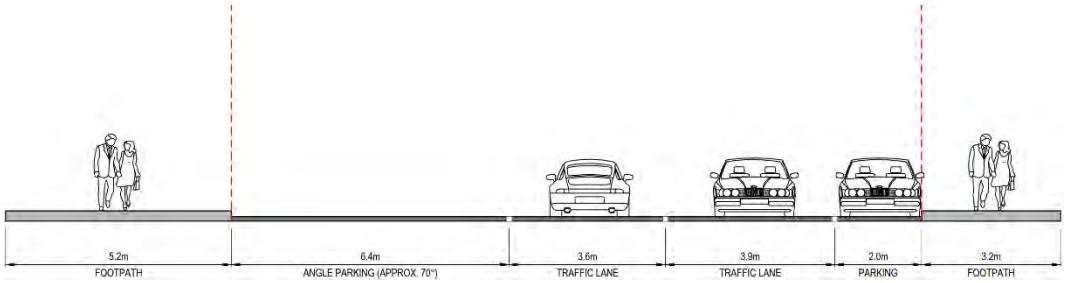
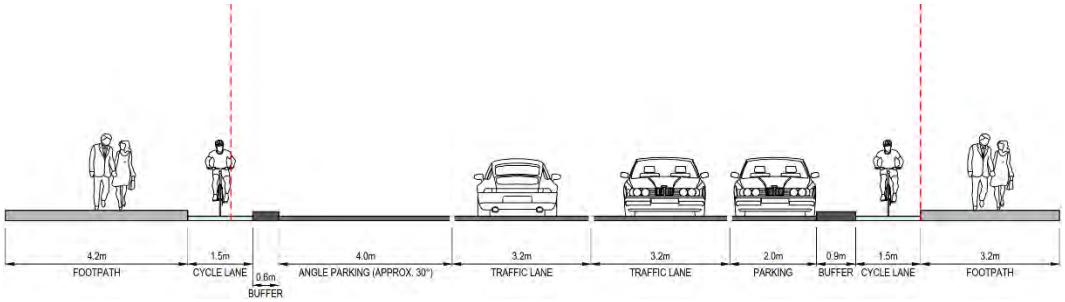
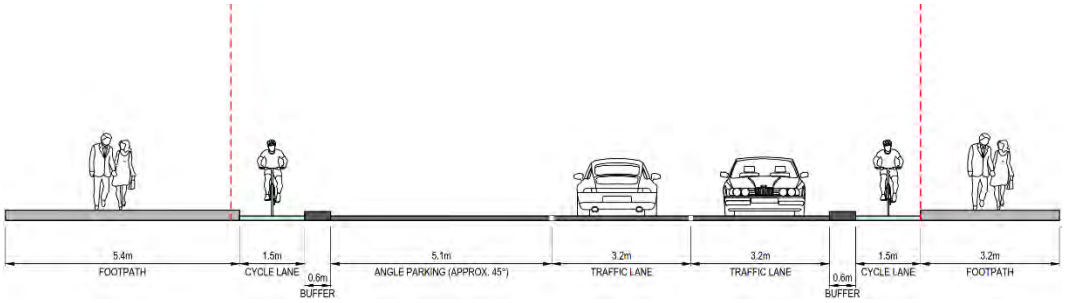
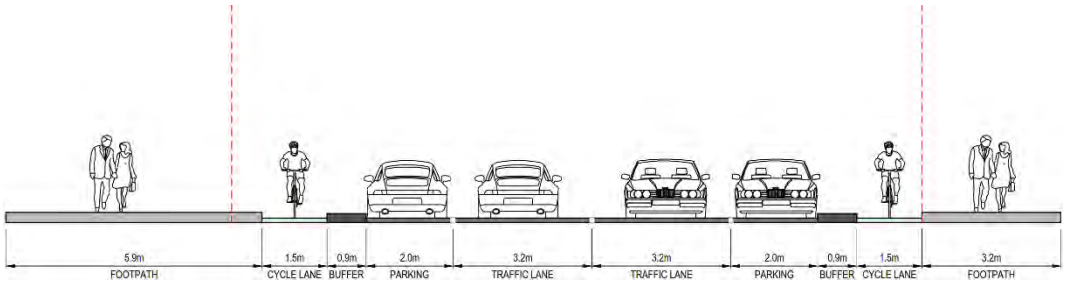
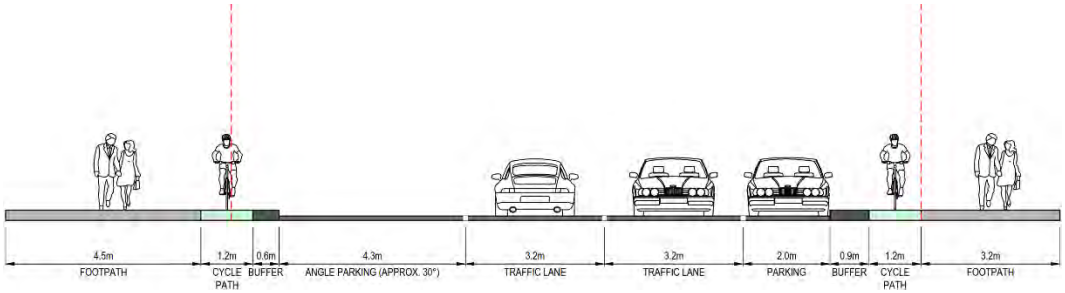
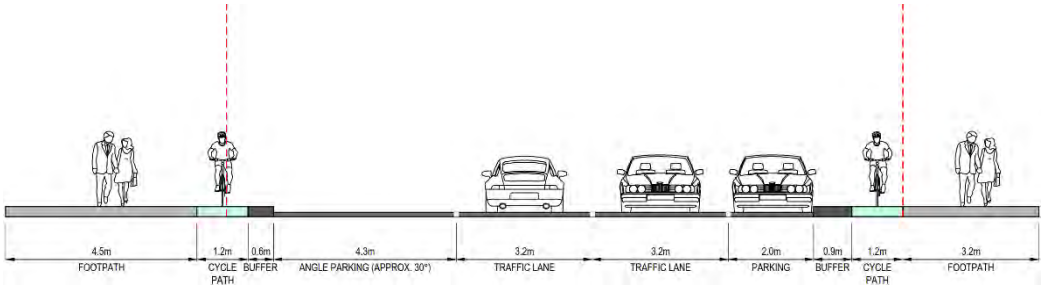
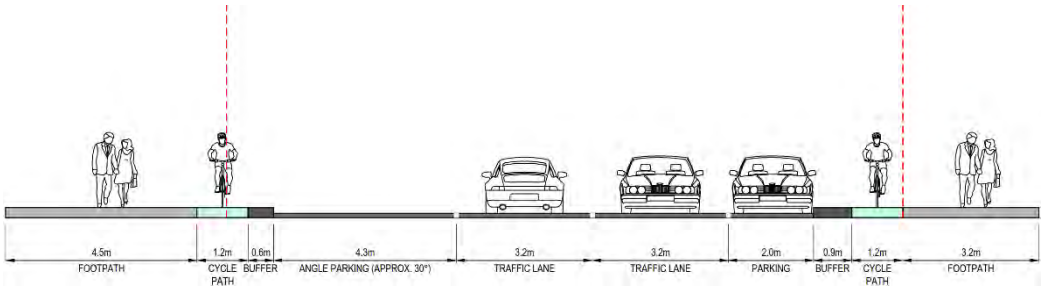
Option		Cross section(s)[4]	Other changes not shown in the cross section	Indicative cost[5]
4	Replace the short-term safety improvements with the Councillor-approved option (secondary stormwater system)		• Resurfacing the entire length of The Parade • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • No individual car parks marked • Intersection improvements, including raised crossings across side roads, realignment of the kerb lines, and turning lane and pedestrian crossing changes at select locations • Bus stop improvements • Stormwater drainage system added between the footpaths and cycle paths	$6.7 – $12.3 m
5	Replace the short-term safety improvements with the Councillor-approved option (lowered pavement)		• Resurfacing the entire length of The Parade • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • No individual car parks marked • Intersection improvements, including raised crossings across side roads, realignment of the kerb lines, and turning lane and pedestrian crossing changes at select locations • Bus stop improvements • Road pavement lowered and strengthened	$10.7 – $20.1 m
6	Replace the short-term safety improvements with the Councillor-approved option (value engineered)		• Resurfacing the entire length of The Parade • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • No individual car parks marked • Intersection improvements, including raised crossings across side roads, realignment of the kerb lines, and turning lane and pedestrian crossing changes at select locations • Bus stop improvements • Low profile kerbs between the cycle paths and parking	$5.9 – $10.7 m

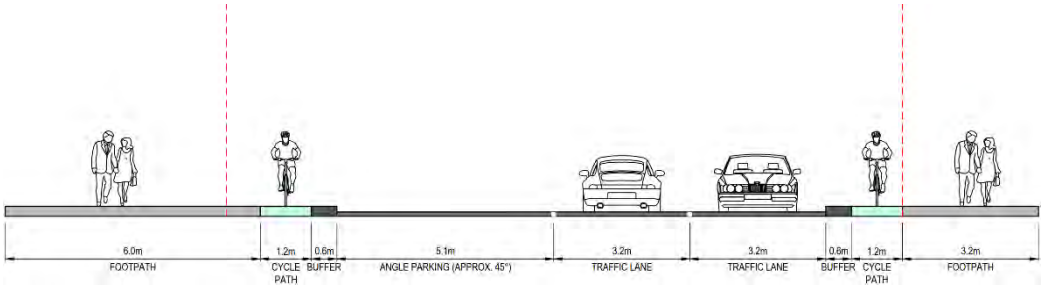
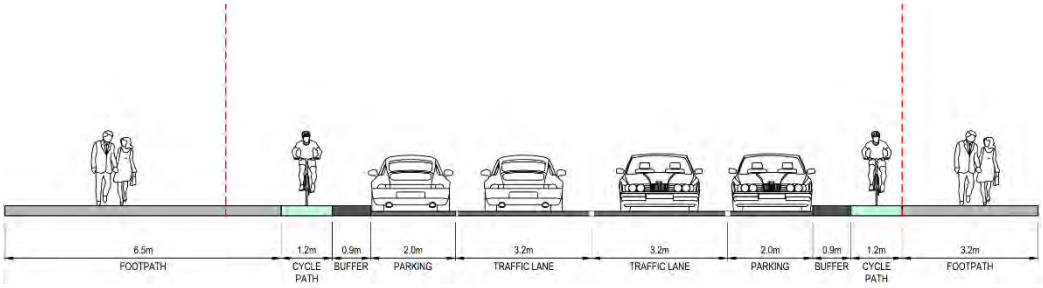
Table 4.2: Long-term upgrades: business zone options

Options		Typical cross section(s) [6]	Other changes not shown in the cross section	Indicative cost[7]
A	Retain the short-term safety improvements (kerbs unchanged)		Improvements as identified for the short-term safety improvements (Section 3.2): • Resurfacing through the business zone • Adjusted road markings south of Medway Street to provide consistency and clarity for cyclists and to narrow the traffic lanes for traffic calming • Existing road cushions replaced with road humps that have a bus and bike-friendly profile	$0
B	Replace the short-term safety improvements with cycle lanes at road level with angle and parallel parking		• Resurfacing through the business zone • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • Precast concrete kerb separators with low mountable separators at driveways • Intersection improvements, including raised crossings across side roads and realignment of the kerb lines • Bus stop improvements	$2.5 – $4.5 m
C	Replace the short-term safety improvements with cycle lanes at road level with angle parking only		• Resurfacing through the business zone • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • Precast concrete kerb separators with low mountable separators at driveways • Intersection improvements, including raised crossings across side roads and realignment of the kerb lines • Bus stop improvements	$2.4 – $4.4 m

[6] The red dashed lines in the cross sections represent the indicative location of the existing kerbs.

[7] The estimates include costs for construction, design fees, MSQA, a 20% allowance for WCC management costs, and allowance for uncertainty. The methodology of how the indicative cost estimates have been calculated is provided in Section 4.3.3. A breakdown of the cost estimates is provided in Appendix D.

Options		Typical cross section(s) [6]	Other changes not shown in the cross section	Indicative cost[7]
D	Replace the short-term safety improvements with cycle lanes at road level with parallel parking only		• Resurfacing through the business zone • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • Precast concrete kerb separators with low mountable separators at driveways • Intersection improvements, including raised crossings across side roads and realignment of the kerb lines • Bus stop improvements	$2.5 – $4.4 m
E	Replace the short-term safety improvements with the Councillor-approved option (secondary stormwater system)		• Resurfacing through the business zone • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • Intersection improvements, including raised crossings across side roads and realignment of the kerb lines • Bus stop improvements • Secondary stormwater drainage system added between the footpath and cycle path	$3.9 – $7.0 m
F	Replace the short-term safety improvements with the Councillor-approved option (lowered pavement)		• Resurfacing through the business zone • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • Intersection improvements, including raised crossings across side roads and realignment of the kerb lines • Bus stop improvements • Road pavement lowered and strengthened	$4.3 – $7.9 m
G	Replace the short-term safety improvements with the Councillor-approved option (value engineered) with angle and parallel parking		• Resurfacing through the business zone • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • Intersection improvements, including raised crossings across side roads and realignment of the kerb lines • Bus stop improvements • Low profile kerbs between the cycle paths and parking	$3.4 – $6.1 m

Options		Typical cross section(s) [6]	Other changes not shown in the cross section	Indicative cost[7]
H	Replace the short-term safety improvements with the Councillor-approved option (value engineered) with angle parking only		• Resurfacing through the business zone • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • Intersection improvements, including raised crossings across side roads and realignment of the kerb lines • Bus stop improvements • Low profile kerbs between the cycle paths and parking	$3.5 – $6.3 m
I	Replace the short-term safety improvements with the Councillor-approved option (value engineered) with parallel parking only		• Resurfacing through the business zone • 3m parking setbacks at driveways and 30m setbacks on approaches to intersections • Intersection improvements, including raised crossings across side roads and realignment of the kerb lines • Bus stop improvements • Low profile kerbs between the cycle paths and parking	$3.5 – $6.4 m

4.3 Step 2: Assessment of residential and business zone options (MCA)

A multi-criteria analysis (MCA) was used to evaluate the options for long-term upgrades on The Parade. An MCA is a tool that evaluates how effective potential options would be at addressing a specified problem. The options are assessed and ranked against a set, or multiple sets, of pre-defined criteria. The outcome of an MCA allows decision makers to understand the appropriateness of each option at meeting the criteria and see a comparison of each option's costs and benefits. This information can assist decision makers in arriving at a recommended short list and/or a final option.

The MCA starts with a list of options. These options are evaluated against a set or sets of criteria. For this MCA, three criteria categories have been used:

- Objectives
- Effects
- Implementation

The output of the MCA is a visual representation of how well each option meets the selected criteria. The outputs are used to assist decision making for which option(s) to carry forward.

4.3.1 MCA criteria

The following section provides a brief explanation of the MCA criteria filters used for assessing the long-term upgrade options. The criteria used were reviewed and confirmed with WCC representatives during a workshop on 14 April 2021 and a follow-up meeting on 15 April 2021.

4.3.1.1 Objectives

The options were evaluated against the WCC cycling investment objectives and the Love the Bay objectives, as outlined in Section 2.2.1 above. Both sets of objectives were evaluated against the seven-point scale of effectiveness shown in Table 4.3.

Table 4.3: Objectives effectiveness scale

+3	Highly contributes to achieving the desired outcome
+2	Contributes to achieving the desired outcome
+1	Partially contributes to achieving the desired outcome
0	Could detract from achieving the desired outcome but can be managed through design
-1	Partially detracts from achieving the desired outcome
-2	Detracts from achieving the desired outcome
-3	Significantly detracts from achieving the desired outcome

4.3.1.2 Effects

Options were assessed on criteria that relate to the effects the options would have on the existing situation. The effects filter assessed the options against a range of criteria that included alignment to the wider transport network, the level of service and safety for all users, land use, and access. The effects criteria were evaluated against the seven-point scale of effectiveness shown in Table 4.4.

Table 4.4: Effects effectiveness scale

+3	Significant positive effect
+2	Moderate positive effect
+1	Slight positive effect
0	Neutral/no effect
-1	Slight negative effect
-2	Moderate negative effect
-3	Significant negative effect

4.3.1.3 Implementation

The final set of criteria assessed as part of the MCA considered the implementation of an option. These criteria assessed the delivery feasibility and the cost of an option. For each option, the delivery assessment considered any disruption to traffic and businesses that would occur during construction and potential integration with other programmes of works. The delivery criteria were evaluated against the four-point scale of effectiveness shown in Table 4.5.

Table 4.5: Delivery assessment scale

0	Neutral/no risk
-1	Slight negative effect/risk
-2	Moderate negative effect/risk
-3	Significant negative effect/risk

The cost of each option was evaluated against the four-point scale shown in Table 4.6. For more information on the cost estimates, refer Section 4.3.3 below.

Table 4.6: Cost assessment scale

0	No cost
-1	Low cost
-2	Medium cost
-3	High cost

4.3.2 Resources

Many of the MCA criteria were assessed based on recommendations and best-practice standards outlined in local and national guidance. The following list describes the standards that influenced the assessment process.

4.3.2.1 Austroads LOS Metrics

The Austroads LOS Metrics report provides a LOS framework for network operations from the perspective of all road users. The framework provides guidance for assessing the LOS of each user type for five categories of needs—mobility, safety, access, information, and amenity. The framework outlines the measures used to assess how well a facility meets these needs for each user group. These measures were integrated into the MCA assessment.

4.3.2.2 Waka Kotahi Cycle Network Guidance

Waka Kotahi has an online resource to guide the design of cycle infrastructure called the cycle network guidance (CNG). The CNG aims to promote a consistent, best practice approach to cycling network and route planning throughout New Zealand. It outlines a principles-based process for deciding what cycling provision is desirable and provides best-practice guidance for the design of cycleways.

4.3.2.3 Wellington City Council Cycling Framework

The WCC Cycling Framework provides design guidelines and design principles for the implementation of a cycling network (i.e., what, where, when, how) in Wellington. The framework outlines the proposed citywide cycle network and describes the cycleway options and their typical locations.

4.3.2.4 Danish Cycling Level of Service

The Danish Cycling LOS assessment method uses quantitative data to assess the LOS rating (A to F) for cyclists in a given road environment. This assessment method takes into consideration a wide range of factors that influence cyclist comfort and safety, including elements such as allocated space for cyclists, proximity to motor vehicles and pedestrians, motor vehicle speeds and volumes, and the presence of bus stop facilities. These variables factor into an equation, with which the LOS rating is calculated.

Whereas the Austroads LOS Framework (see Section 5.4.1) method assesses the LOS rating for each need of a user group, the Danish method provides one overall rating for the cyclist LOS. As part of the MCA assessment, the Danish Cycling LOS assessment method was used to determine the cycling LOS.

4.3.3 Cost estimates

High-level indicative cost estimate ranges have been produced for each of the long-term upgrade options. Quantities used for these cost estimates are based on high-level concepts. The cost estimates have been produced to assist in the option assessment process. The ranges represent the low and high cost estimates for each option, accounting for the potential design variations and uncertainties. A full breakdown of the cost estimates is provided in Appendix D.

4.3.3.1 Basis for construction rates

BondCM's 2018 cost estimates for the Councillor-approved option have been utilised as a starting point for the indicative cost estimates included in this report. Where available, updated construction rates have been sourced from recent similar projects in the region and used to supersede BondCM's 2018 rates. The rates have been sourced from various data sources and extrapolated to match this project. The sources cover varying procurement methods, and they also apply to projects with a variety of constraints and site conditions. Therefore, rates may or may not be directly applicable to this project. However, in the absence of design, early contractor involvement, and a full schedule of quantities, these sources are considered to be the best information available to us at this time.

Where updated rates are not available, BondCM's 2018 rates have been used and increased by 8% (approximately 2.5% monthly compounding interest since May 2018) to account for escalation over this period. BondCM was engaged to review the rates used to build the 2021 cost estimates. However, this review considered individual rates only, and BondCM did not complete a full review of the estimates. It is strongly recommended that an independent cost estimator is engaged to confirm these rates and estimated cost ranges.

4.3.3.2 Uncertainties

The cost estimates are based largely on concepts. The only design work that has been considered is the preliminary design carried out on the Councillor-approved option; no further design work has been done. This means that the quantities are high-level estimates only. The uncertainties that are known to exist are outlined in Table 4.7. Each uncertainty has been assigned an estimated percentage uncertainty range. These ranges have been accumulated and applied to the relevant cost items, resulting in total low- and high-end contingency allowances. Due to the significant uncertainty at this stage, the contingency we have allowed should be considered as part of the cost rather than a potential add-on. The estimates are based on rates from 2020/2021 and no allowance has been included for cost escalation beyond this.

Table 4.7: Cost estimate uncertainties for the long-term upgrades

Uncertainty	Rationale	Assigned project uncertainty
Design uncertainty	At this stage, only conceptual options for improvements to The Parade have been considered. No design work has been undertaken beyond the preliminary design issue for the Councillor-approved option and no details exist.	+10% to +20%
Quantity uncertainty, levels	The quantities used to estimate the costs are rough-order approximations only, estimated from high-level concepts.	–5% to +20%
Rates uncertainty	Rates have been estimated and extrapolated from similar recent projects. They may or may not be applicable to this project.	–5% to +20%
Pavement condition uncertainty	No investigations have been carried out on the existing pavement on The Parade. The details of the existing pavement are unknown, and estimates have been for the work required to tie-into and cut down the existing pavement where required.	–5% to +25% *(applied to pavement items only)*
Utilities relocation uncertainty	Utilities records have not been examined. The estimate contains specific service relocation allowances and generic allowances for the balance of the route.	–5% to +25% *(applied to utility relocation items only)*
Future escalation uncertainty	Escalation between 2021 and construction. **No attempt has been made to assign a value to this uncertainty.**	Not assessed

4.3.3.3 COVID-19 impacts

Some of the derived rates are based on information and data obtained prior to COVID19 being declared a pandemic by the World Health Organisation. New Zealand subsequently entering COVID19 Alert framework plus the global economic impacts of COVID19 will have an impact on the construction industry in at least the immediate- and medium-term future. The significance and extent of COVID19 impacts are uncertain at this time but are likely to impact both labour and materials rates.

We have not made any attempt to allow for the impact of COVID-19 in our estimates and recommend you seek specialist economic advice on what budgetary allowances you should make for escalation and changed construction costs post COVID-19.

4.3.4 MCA results

Summaries of the MCA results for the residential zone and business zone options are shown in Table 4.8 and Table 4.9, respectively. The full assessments with details on how ratings were assigned for each criterion are provided in Appendix C.

Table 4.8: Summary of MCA results – residential zone

Criteria			Current layout	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Objectives	Effectiveness meeting WCC Cycling Investment Objectives	Achieve a high level of service for cyclists within an integrated transport network							
		Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience							
		Cycling is a viable and attractive transport choice							
		The crash rate, number and severity of crashes involving people on bikes is reduced							
		Providing transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington							
	Effectiveness meeting Love the Bay Objectives	The Parade is safe for all users							
		The layout is intuitive and easy to understand							
		The Parade accommodates all current and future users							
		The visual environment is cohesive and clean							
		Central Island Bay is a pleasant and welcoming environment *(not applicable)*							
Effects	Pedestrian Effects	Pedestrian Safety							
		Pedestrian Experience							
	Cyclist Effects	Cyclist Safety							
		Cyclist Experience							
	Public Transport Effects	Public Transport Safety							
		Public Transport Experience							
	Motor Vehicle Effects	Motor Vehicle Safety							
		Motor Vehicle Experience							
	Parking Effects	Removal of existing parking spaces							
	Property Effects	Effect on access to businesses for pedestrians							
		Effect on access to businesses for cyclists							
		Effect on access to businesses for motor vehicles							
Implementation	Delivery	Traffic disruption during construction							
		Business disruption during construction							
		Integration with Let's Get Wellington Moving							
	Funding	Indicative cost estimate							
Short listed for pairings with business zone options?				✓	✓	✓	✗	✗	✓

Table 4.9: Summary of MCA results – business zone

Criteria			Current layout	Option A	Option B	Option C	Option D	Option E	Option F	Option G	Option H	Option I
Objectives	Effectiveness meeting WCC Cycling Investment Objectives	Achieve a high level of service for cyclists within an integrated transport network										
		Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience										
		Cycling is a viable and attractive transport choice										
		The crash rate, number and severity of crashes involving people on bikes is reduced										
		Providing transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington										
	Effectiveness meeting Love the Bay Objectives	The Parade is safe for all users										
		The layout is intuitive and easy to understand										
		The Parade accommodates all current and future users										
		The visual environment is cohesive and clean										
		Central Island Bay is a pleasant and welcoming environment										
Effects	Pedestrian Effects	Pedestrian Safety										
		Pedestrian Experience										
	Cyclist Effects	Cyclist Safety										
		Cyclist Experience										
	Public Transport Effects	Public Transport Safety										
		Public Transport Experience										
	Motor Vehicle Effects	Motor Vehicle Safety										
		Motor Vehicle Experience										
	Parking Effects	Removal of existing parking spaces										
	Property Effects	Effect on access to businesses for pedestrians										
		Effect on access to businesses for cyclists										
		Effect on access to businesses for motor vehicles										
Implementation	Delivery	Traffic disruption during construction										
		Business disruption during construction										
		Integration with Let's Get Wellington Moving										
	Funding	Indicative cost estimate										
Short listed for pairings with residential zone options?				✓	✗	✗	✓	✗	✗	✗	✗	✓

4.3.5 Short-listing

Using the results from the MCA process, short lists were identified for the both the residential zone and the business zone. For both zones, select options were retained so that the list of option combinations would include at least one combination under each of the three funding brackets. This was to ensure that there would be options for comparison of outcomes under each funding bracket.

4.3.5.1 Discounted options

To identify the short lists for the residential zone and the business zone, the following options were not carried forward for further assessment:

Residential zone

- **Options 4 and 5:** Options 4 to 6 in the residential zone are all variations of the Councillor-approved option. Option 6 has been value engineered so that the indicative costs are reduced from Options 4 and 5 while achieving very similar outcomes for roads users (refer Section 4.2.1.3 above for further details on the changes made for the value-engineered option). For this reason, Options 4 and 5 were not short-listed for further consideration.

Business zone

- **Options B and C:** Options B to D in the business zone all include the same treatment for cyclists through the town centre (cycle lanes at road level). The differences between the options are the parking arrangements and the footpaths widths. Following the MCA, Option D (with parallel parking on both sides of the road and the widest footpaths) was short-listed. It was selected because it scored the best against the objectives and resulted in the best balance in the effects criteria ratings. Options B and C were not short-listed for further consideration.
- **Options E and F:** Options E to I in the business zone are all variations of the Councillor-approved option. Options G to I have been value engineered so that the indicative costs are reduced from Options E and F while achieving very similar outcomes for roads users (refer Section 4.2.1.3 above for further details on the changes made for the value-engineered option). For this reason, Options E and F were not short-listed for further consideration.
- **Options G and H:** Options G to I in the business zone all include the same treatment for cyclists through the town centre (Councillor-approved option). The differences between the options are the parking arrangements and the footpaths widths. Following the MCA, Option I (with parallel parking on both sides of the road and the widest footpaths) was short-listed. It was selected because it scored the best against the objectives and resulted in the best balance in the effects criteria ratings. Options G and H were not short-listed for further consideration.

4.3.5.2 Short-listed options

As a result of discarding the options outlined above, the following options were short-listed:

Residential zone

- **Option 1:** Short-term safety improvements (kerbs unchanged)
- **Option 2:** Intersection and bus stop improvements (isolated kerb changes)
- **Option 3:** Widened cycle lanes with intersection and bus stop improvements
- **Option 6:** Councillor-approved option, value engineered

Business zone

- **Option A:** Short-term safety improvements (kerbs unchanged)
- **Option D:** Cycle lanes at road level with parallel parking only
- **Option I:** Councillor-approved option, value engineered with parallel parking only

4.4 Step 3: Assessment of option combinations

4.4.1 Option combinations: residential and business zone pairings

Using the two short lists, options from the residential and business zones were paired together to identify possible upgrade approaches for the full length of The Parade. Table 4.10 below outlines the pairings considered for further assessment and provides a rationale for discounting the pairings that were not carried forward.

Table 4.10: Rationale for the selected residential zone and business zone option pairings

		Short-listed residential zone options			
		Option 1	**Option 2**	**Option 3**	**Option 6**
Short-listed business zone options	**Option A**	✓ (Combination 1-A)	✓ (Combination 2-A)	Providing significant improvements to the residential zone would result in little benefit without providing continuous cycle facilities through the town centre.	Providing significant improvements to the residential zone would result in little benefit without providing continuous cycle facilities through the town centre.
	Option D	✓ (Combination 1-D)	✓ (Combination 2-D)	✓ (Combination 3-D)	This would result in inconsistent treatments between the residential zone (raised cycle paths) and the business zone (road-level cycle lanes).
	Option I	This would result in inconsistent treatments between the residential zone (road-level cycle lanes) and the business zone (raised cycle paths).	This would result in inconsistent treatments between the residential zone (road-level cycle lanes) and the business zone (raised cycle paths).	This would result in inconsistent treatments between the residential zone (road-level cycle lanes) and the business zone (raised cycle paths).	✓ (Combination 6-I)

As a result, a total of six combinations were identified for further assessment:

- **Combination 1-A:** Retain the short-term safety improvements
- **Combination 1-D:** Retain the short-term safety improvements and add cycle lanes through the town centre
- **Combination 2-A:** Retain the short-term safety improvements and add intersection and bus stop improvements
- **Combination 2-D:** Retain the short-term safety improvements, add intersection and bus stop improvements, and add cycle lanes through the town centre
- **Combination 3-D:** Replace the short-term safety improvements by moving kerbs to achieve the preferred carriageway and cycle lane widths, add intersection and bus stop improvements, and add cycle lanes through the town centre
- **Combination 6-I:** Replace the short-term safety improvements with the Councillor-approved option, value engineered

4.4.2 MCA results

A summary of the combined MCA results for the option combinations is shown in Table 4.11. The full assessment with details on how ratings were assigned for each criterion are provided in Appendix C.

Table 4.11: Summary of MCA results for the option combinations

Criteria			Funding Bracket 1 ($0)		Funding Bracket 2 (up to $6.1 million)						Funding Bracket 3 (greater than $6.1 million)			
			Combo 1-A		Combo 1-D		Combo 2-A		Combo 2-D		Combo 3-D		Combo 6-I	
			Res. 1	Bus. A	Res. 1	Bus. D	Res. 2	Bus. A	Res. 2	Bus. D	Res. 3	Bus. D	Res. 6	Bus. I
Objectives	Effectiveness meeting WCC Cycling Investment Objectives	Achieve a high level of service for cyclists within an integrated transport network												
		Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience												
		Cycling is a viable and attractive transport choice												
		The crash rate, number and severity of crashes involving people on bikes is reduced												
		Providing transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington												
	Effectiveness meeting Love the Bay Objectives	The Parade is safe for all users												
		The layout is intuitive and easy to understand												
		The Parade accommodates all current and future users												
		The visual environment is cohesive and clean												
		Central Island Bay is a pleasant and welcoming environment	N/A		N/A		N/A		N/A		N/A		N/A	
Effects	Pedestrian Effects	Pedestrian Safety												
		Pedestrian Experience												
	Cyclist Effects	Cyclist Safety												
		Cyclist Experience												
	PT Effects	Public Transport Safety												
		Public Transport Experience												
	Motor Vehicle Effects	Motor Vehicle Safety												
		Motor Vehicle Experience												
	Parking Effects	Removal of existing parking spaces												
	Property Effects	Effect on access to businesses for pedestrians												
		Effect on access to businesses for cyclists												
		Effect on access to businesses for motor vehicles												
Implementation	Delivery	Disruption during construction												
		Integration with Let's Get Wellington Moving												
	Funding	Indicative cost estimate												

4.4.3 Benefits assessment

WCC have undertaken an internal assessment of the benefits of implementing different types of cycle facilities on The Parade. This section summarises the results of that assessment, issued to T+T on 14 April 2021.

The benefits realised from making improvements to part of a transportation network are often impacted by the infrastructure on surrounding parts of the network. For this reason, when modelling cycle facility options for Island Bay, two wider scenarios were considered:

1 Implementation of the option for Island Bay and implementation of Newtown Connections

2 Implementation of the option for Island Bay without progressing Newtown Connections

Benefits modelling was completed under both of these scenarios for the implementation of three different cycle facility options on The Parade. Whole of life benefits for each option under Scenario 1 and Scenario 2 are shown in Figure 4.3 and Figure 4.4, respectively. Preliminary findings from the modelling indicate that, under both scenarios, installing a fully separated cycle facility along The Parade will result in the greatest net benefits (irrespective of whether Newtown Connections is progressed or not).

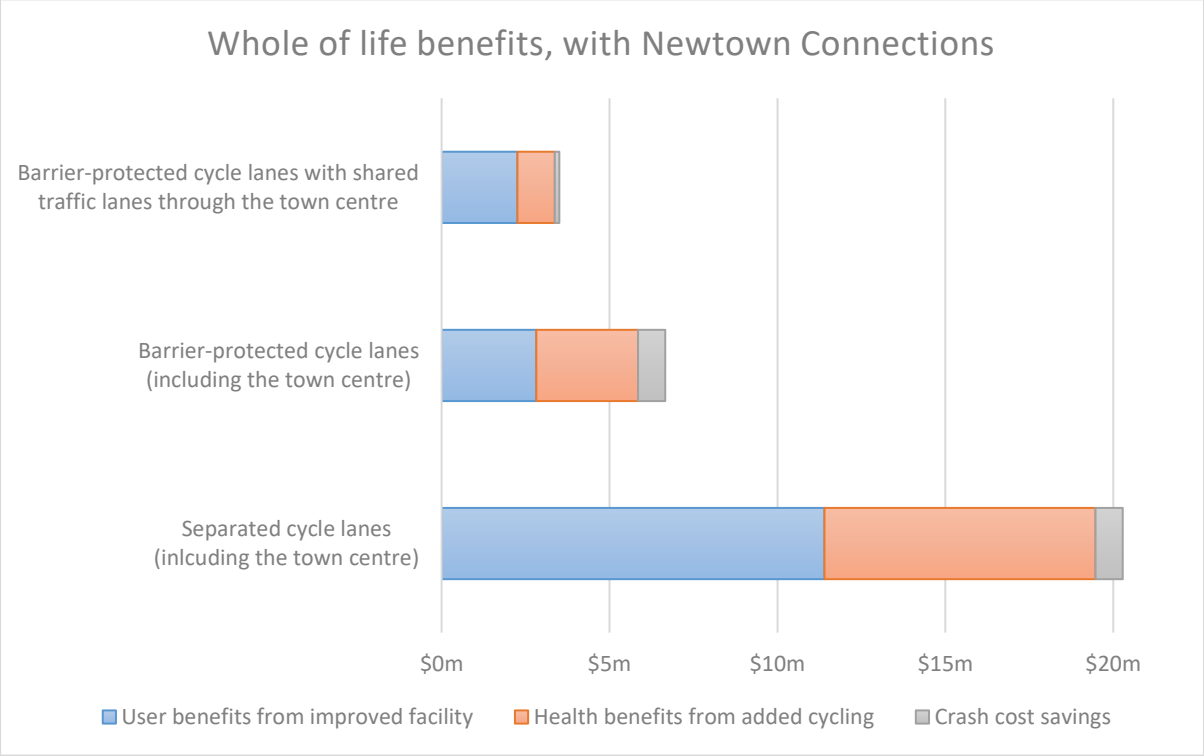


Figure 4.3: Benefits of cycle facilities on The Parade, without progression of Newtown Connections (Scenario 1)

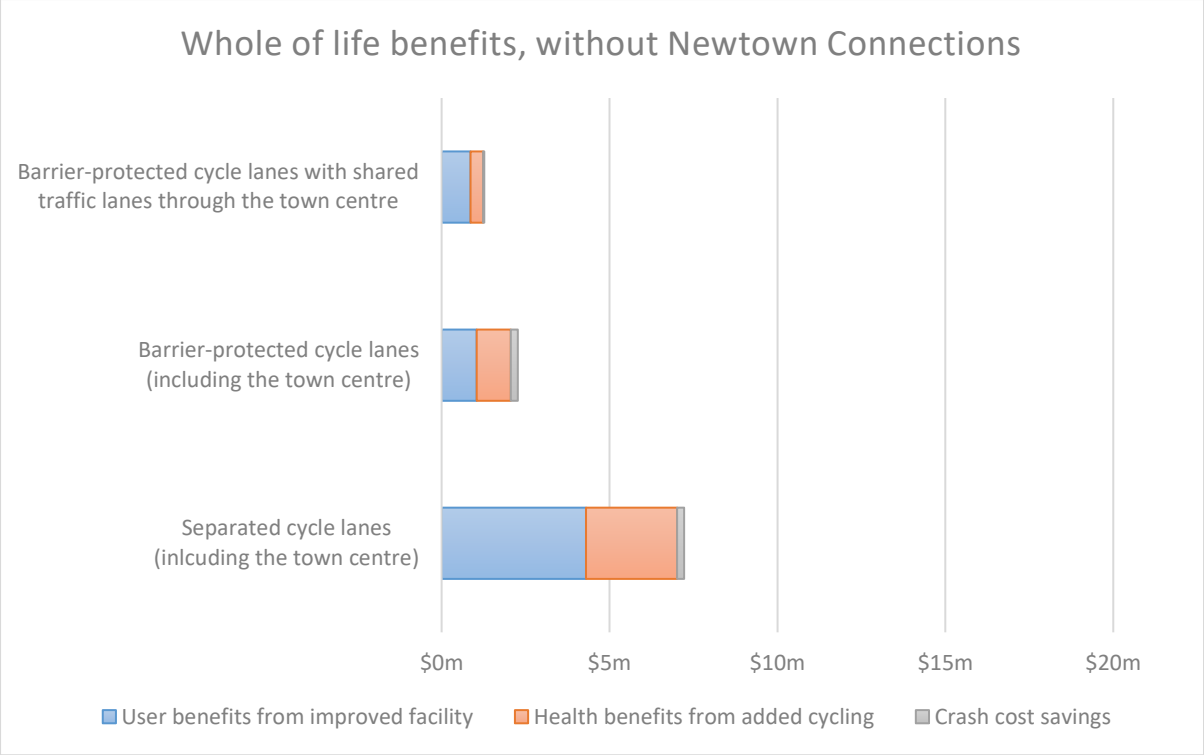


Figure 4.4: Benefits of cycle facilities on The Parade, with progression of Newtown Connections (Scenario 2)

The benefits assessment was limited to only identifying the benefits resulting from the implementation of different cycle facility types. However, the options being considered for long-term upgrades on The Parade include many improvements beyond just changing the type of cycle facility. The assessment did not account for benefits (or disbenefits) arising from other changes, including:

- Improvements to intersections and bus stops
- Cycle lane widths (For example, under this benefits assessment, wide barrier-protected cycle lanes that allow cyclists to pass each other are modelled the same as narrow barrier-protected cycle lanes that do not allow for passing.)
- Traffic lane and painted median widths, which influence motor vehicle speeds
- Parking changes

Due to these limitations, the calculated benefits underrepresent the actual potential for realised benefits from the options being considered for long-term upgrades on The Parade.

4.4.4 High-level implications

A summary of the high-level implications for each option combination is provided in Table 4.12 below. The summary includes an overview of the following:

- The effectiveness of each option at meeting the Love the Bay objectives
- The effects on the transport facilities
- The results of the high-level economics assessments, including the modelled benefits and indicative cost estimates

Table 4.12: High-level summary of the implications of each option combination

Item			Funding Bracket 1 ($0)	Funding Bracket 2 (up to $6.1 million)			Funding Bracket 3 (greater than $6.1 million)	
			Combo 1-A	Combo 1-D	Combo 2-A	Combo 2-D	Combo 3-D	Combo 6-I
			Retain short-term safety improvements	Retain short-term safety improvements + cycle lanes through the town centre	Retain short-term safety improvements + intersection/bus stop improvements	Retain short-term safety improvements + intersection/bus stop improvements + cycle lanes through the town centre	Move kerbs (to achieve preferred carriageway and cycle lane widths) + intersection/bus stop improvements + cycle lanes through the town centre	Councillor-approved option (cycle paths), value engineered with parallel parking in the town centre
Love the Bay objectives	• The Parade is safe for all users • The layout is intuitive and easy to understand • The Parade accommodates all current and future users • The visual environment is cohesive and clean • Central Island Bay is a pleasant and welcoming environment		• Minor safety improvements at intersections • No opportunity to realign the cycle lanes and make the layout more intuitive • No opportunity to improve cohesiveness • No upgrades to the town centre layout	• Minor safety improvements at intersections • No opportunity to realign the cycle lanes and make the layout more intuitive • Improved cohesiveness between residential and business zones • Town centre upgrades	• Substantial safety improvements at intersections in the residential zone only • Cycle lanes realigned to make the layout more intuitive • No opportunity to improve cohesiveness • No upgrades to the town centre layout	• Substantial safety improvements at intersections • Cycle lanes realigned to make the layout more intuitive • Improved cohesiveness between residential and business zones • Town centre upgrades	• Substantial safety improvements at intersections • Cycle lanes realigned to make the layout more intuitive • Improved cohesiveness between residential and business zones • Town centre upgrades	• Substantial safety improvements at intersections • Cycle lanes realigned to make the layout more intuitive • Improved cohesiveness between residential and business zones • Town centre upgrades
Effects	Footpath widths	Residential	2.0 – 3.0m	2.0 – 3.0m	2.0 – 3.0m	2.0 – 3.0m	2.0 – 2.5m	2.0m
		Business	3.2m / 5.2m	3.2m / 5.9m	3.2m / 5.2m	3.2m / 5.9m	3.2 / 5.9m	3.2 / 6.5m
	Cycle facility widths	Residential	1.5 – 2.0m	1.5 – 2.0m	1.5 – 2.0m	1.5 – 2.0m	2.0m	1.5m
		Business	No cycle facilities	1.5m	No cycle facilities	1.5m	1.5m	1.2m
	Traffic lane widths	Residential	3.2m	3.2m	3.2m	3.2m	3.2m	3.5m with 0.5m median
		Business	3.6m / 3.9m	3.2m	3.6m / 3.9m	3.2m	3.2m	3.2m
	Remaining # of car parks	Residential	60-80 (43-56% loss)	60-80 (43-56% loss)	60-80 (43-56% loss)	60-80 (43-56% loss)	85-100 (29-37% loss)	85-100 (29-37% loss)
		Business	55 (no change)	40-45 (18-27% loss)	55 (no change)	40-45 (18-27% loss)	40-45 (18-27% loss)	40-45 (18-27% loss)
Economics	Benefits from the change in cycle facility type[1]	with Newtown	$3.51 m	$6.66 m	$3.51 m	$6.66 m	$6.66 m	$20.28 m
		without Newtown	$1.27 m	$2.27 m	$1.27 m	$2.27 m	$2.27 m	$7.22 m
	Indicative cost estimate[2]		$0	$2.5 – $4.4 m	$2.6 – $4.7 m	$5.1 – $9.1 m	$6.6 – $11.8 m	$9.4 – $17.1 m

1 – The benefits are limited to the benefits achieved by changing the cycle facility type. These figures underrepresent each option's actual potential for benefits to be realised (refer Section 4.4.3 for more detail).
2 – The indicative cost estimates include construction, design fees, MSQA, allowance for uncertainties, and an additional 20% for WCC management costs. A full breakdown of the cost estimates is provided in Appendix D.

4.5 Recommendation

Based on the results from our assessment process, our recommendation for the long-term upgrades on The Parade is to proceed with one of the options under Funding Bracket 3 (Combination 3-D or 6-I. Funding Bracket 3 is recommended because it was seen to achieve the best balance between providing positive outcomes for roads users while minimising negative effects. The following are the key characteristics of the combinations under Funding Bracket 3 that contributed to the recommendation:

- A positive outcome for all of the WCC cycling investment objectives
- A positive outcome for all of the Love the Bay objectives
- Among the highest rankings for pedestrian effects out of all of the combinations considered
- Among the highest rankings for cycling effects out of all of the combinations considered
- Among the highest rankings for public transport effects out of all of the combinations considered
- Among the highest rankings for motor vehicles effects out of all of the combinations considered
- The lowest parking loss out of all of the combinations considered

This recommendation is based solely on the assessment outlined in this report. The assessment is limited and has not considered all factors that may impact a final recommendation, including the following:

- The community feedback used to inform this assessment is limited to feedback from the Love the Bay process and the consultation on the concept design options. Further community engagement has not been completed for this assessment report. We recommend that Council considers the need to reengage with the community if the long-term option changes from what has been previously communicated with the community (i.e., the Councillor-approved option, Combo 6-I, is not progressed).
- The future impact of LGWM on The Parade is currently unknown. If the MRT route were to go to Island Bay, significant changes would likely be made on The Parade. Depending on the required changes, the long-term upgrades to The Parade could be “undone” in the relatively short-term future.
- The cost-benefit assessment completed by Council does not account for potential changes to The Parade from LGWM and the MRT route. We recommend that Council update the cost-benefit assessment to consider what the benefits would be if the long-term upgrades were in place for a limited number of years before being changed through LGWM.

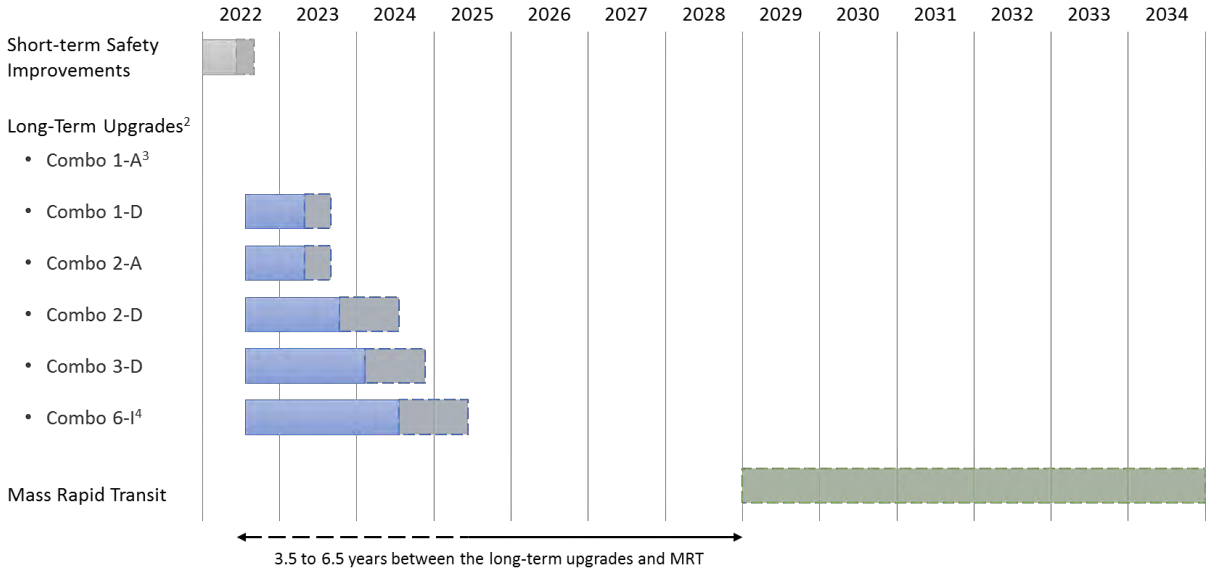
In making a final decision for the which long-term upgrade option to progress, the above factors should be taken into consideration.

4.5.1 Integration with Let’s Get Wellington Moving

There is a possibility that future changes will be made to The Parade under the LGWM programme to accommodate the MRT route. At the time of this report, a decision has not been made for the route. Consultation on the route options is expected to take place in late 2021 with a decision on the route to follow. There is also an uncertainty in the timing of construction of the MRT.

Due to the uncertainty of the MRT route and the timing of its construction, it’s unclear how long any long-term upgrades on The Parade would remain in place. There is a risk that the long-term upgrades are only in place for a few years before being “undone” by works for MRT. An indicative timeline is included in Figure 4.5 to demonstrate the potential relationship between timing of the

short-term safety improvements, the long-term upgrades, and MRT. The timeline is preliminary and indicative only; there are still several unknown factors that would affect the timing and length of each stage of work. The timing for MRT has been indicatively shown based on information provided by Council, however this timeline has not been confirmed by LGWM.



Notes
1 – The timelines shown are indicative only, including the timeframe for MRT, which has not yet been confirmed by LGWM.
2 – The estimated timeframes for the long-term upgrades include time allowance for detailed design and construction.
3 – Combination 1-A does not include any physical works beyond the short-term safety improvements; therefore, no additional time for design and construction is required.
4 – The timeline for Combo 6-I is based on previous estimates for design (6 months for T+T detailed design) and construction (350 working days, from BondCM cost estimate).

Figure 4.5: Indicative timeline for upgrades on The Parade and mass rapid transit

4.5.2 Coordination opportunities

There is an opportunity to reduce the total cost for improvements on The Parade by progressing the long-term upgrades earlier than planned. If the timing of the long-term upgrade works were aligned with the resurfacing works planned for The Parade, the interim step of implementing short-term improvements would not be needed. This would avoid rework and minimise disruption from construction on The Parade. Additionally, some or all of the costs identified for the short-term safety improvements could be eliminated (except if Combination 1-A were progressed, as this option does not include any physical works beyond the short-term safety improvements).

However, due to the uncertainty of the route being considered for mass rapid transit under Let's Get Wellington Moving (LGWM), there is a risk that any works undertaken on The Parade in the short term may be "undone" in the future. Implementing more significant physical works in the short term, such as the recommended long-term upgrade option, risks increased overall costs and rework on The Parade.

The future changes proposed for The Parade under the LGWM programme may affect the recommendations outlined in this report. Due to the uncertainties around timing for works on The Parade, we recommend that Council gives careful consideration to the coordination of these three pieces of work (the resurfacing/short-term safety improvements, the long-term upgrades, and LGWM works) to minimise costs, disruption from construction, and rework.

5 Applicability

This report has been prepared for the exclusive use of our client Wellington City Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that this report will be used to assist Wellington City Council Councillors in confirming WCC's Long-Term Plan budget.

Tonkin & Taylor Ltd

Report prepared by:

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Janine Sziklasi

Transportation Engineer

Report reviewed by:

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Jan Noering

Project Manager

Authorised for Tonkin & Taylor Ltd by:

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Chris Purchas

Project Director

JASZ
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Appendix A: Cost estimates (2018)

- **Schedule of prices for the cost estimates undertaken by BondCM in 2018**

ISLAND BAY CYCLEWAY (OPTION 1)

Item	Description	Unit	Quantity	Rate	Amount
1	**PRELIMINARY AND GENERAL**				**$ 1,500,000.00**
1.1	Establishment	LS	1	50,000.00	$ 50,000.00
1.2	Time-related costs	Day	350	2,400.00	$ 840,000.00
1.3	Bonds and Insurances	LS	1	50,000.00	$ 50,000.00
1.4	Traffic Management	Day	350	1,600.00	$ 560,000.00
2	**SITE CLEARANCE & EARTHWORKS**				**$ 549,500.00**
2.1	Remove street furniture, etc.	LS	1	10,000.00	$ 10,000.00
2.2	Excavate & remove existing kerbs, channels, etc.	m	3,300	40.00	$ 132,000.00
2.3	Demolish and remove from site existing asphalt footpath & buildouts	m2	10,000	40.00	$ 400,000.00
2.4	Demolish and remove from site existing traffic island including kerb	m2	100	50.00	$ 5,000.00
2.5	Removal of existing trees (provisional item)	ea	5	500.00	$ 2,500.00
3	**WET SERVICES**				**$ 861,000.00**
3.1	100mm dia galv steel pipe	m	0	270.00	$ -
3.2	150mm dia uPVC pipe to collect kerb discharge	m	80	300.00	$ 24,000.00
3.3	225mm dia uPVC pipe to collect kerb discharge	m	730	250.00	$ 182,500.00
3.4	225mm dia RCRRJ class 4 sump lead	m	360	430.00	$ 154,800.00
3.5	300mm dia RCRRJ class 4 sump lead	m	20	440.00	$ 8,800.00
3.6	Saddle connections	ea	34	500.00	$ 17,000.00
3.7	1050mm dia manhole 0-1.2m depth	ea	6	4,000.00	$ 24,000.00
3.8	1500mm dia manhole 0-1.2m depth	ea	1	5,000.00	$ 5,000.00
3.9	1050mm dia manhole over large diameter pipe	ea	1	3,500.00	$ 3,500.00
3.10	Single road sump	ea	61	3,000.00	$ 183,000.00
3.11	Double road sump	ea	5	5,500.00	$ 27,500.00
3.12	Single manhole sump	ea	2	3,000.00	$ 6,000.00
3.13	Double manhole sump	ea	7	5,500.00	$ 38,500.00
3.14	Reposition existing sump & replace grate with cycle friendly grate	ea	10	2,500.00	$ 25,000.00
3.15	Reset existing wet services lids to suit new levels	LS	1	30,000.00	$ 30,000.00
3.16	Field sump with cycle friendly grate	ea	73	1,800.00	$ 131,400.00
4	**DRY SERVICES**				**$ 289,500.00**
4.1	Relocate power poles up to 7m	ea	9	20,000.00	$ 180,000.00
4.2	Relocate existing dry services lids (<1.5m)	ea	11	2,000.00	$ 22,000.00
4.3	Reset existing dry services lids to suit new levels	PS	1	10,000.00	$ 10,000.00
4.4	Relocation of existing underground services	PS	1	10,000.00	$ 10,000.00
4.5	Relocate Belisha Beacon lights & power connections	ea	9	7,500.00	$ 67,500.00
5	**PAVEMENT RECONSTRUCTION**				**$ 1,632,050.00**
5.1	Flexible pavement (standard) 680mm depth	*m2*	*1,300*		
5.1.1	Excavate to sub-grade & trim	m3	900	40.00	$ 36,000.00
5.1.2	490mm GAP65 subbase	m3	640	90.00	$ 57,600.00
5.1.3	150mm AP40 basecourse	m3	200	140.00	$ 28,000.00
5.1.4	40mm DG10 wearing course (on membrane)	m2	1,300	40.00	$ 52,000.00
5.2	Flexible pavement (stabilised) 440mm depth + 300mm stabilised S/G	*m2*	*1,100*		
5.2.1	Excavate to sub-grade & trim	m3	500	40.00	$ 20,000.00
5.2.2	Lime stabilised sub-grade (assume 300mm, 3% lime)	m2	1,100	8.00	$ 8,800.00
5.2.3	250mm GAP65 subbase	m3	280	90.00	$ 25,200.00
5.2.4	150mm AP40 basecourse	m3	170	140.00	$ 23,800.00
5.2.5	40mm DG10 wearing course (on membrane)	m2	1,100	40.00	$ 44,000.00
5.3	Structural pavement (assume 540mm)	*m2*	*1,100*		
5.3.1	Excavate to sub-grade & trim	m3	440	40.00	$ 17,600.00
5.3.2	150mm GAP65 subbase	m3	170	90.00	$ 15,300.00
5.3.3	225mm 30MPa concrete with 663 mesh	m2	1,100	170.00	$ 187,000.00
5.4	Transition slabs between concrete/flexible pavement	PS	1	20,000.00	$ 20,000.00

ISLAND BAY CYCLEWAY (OPTION 1)

Item	Description	Unit	Quantity	Rate	Amount
5.5	Reconstruct parking bay portion of carriageway to make up differential >50mm on eastern side	m	670	250.00	$ 167,500.00
5.6	E/O to modify private drive ways where above item not sufficient	ea	50	1,500.00	$ 75,000.00
5.7	Minor cut/fill within berm to tie-in on western boundary	LS	1	5,000.00	$ 5,000.00
5.8	Undercut & replace sub-grade < assumed CBR (provisional item)	m3	200	160.00	$ 32,000.00
5.9	E/O extent of structural pavement where services are shallower than expected (provisional item)	m2	600	200.00	$ 120,000.00
5.10	Localised pavement widening (replacement of obselete footpath)	m2	200	100.00	$ 20,000.00
5.11	Mill & re-surface balance of pavement				
5.11.1	Mill out existing surface for remaining pavement	m2	16,700	7.50	$ 125,250.00
5.11.2	Levelling for reshaping	t	170	300.00	$ 51,000.00
5.11.3	40mm DG10 wearing course (on membrane)	m2	16,700	30.00	$ 501,000.00
6	**KERBS / PATHS / ISLANDS**				**$ 1,912,900.00**
6.1	Kerb and channel	m	3,200	110.00	$ 352,000.00
6.2	Kerb & nib (or dish channel) between cycleway & footpath	m	2,000	90.00	$ 180,000.00
6.3	Asphalt footpath & cycleway including relacement of existing paths/drives	m2	10,200	50.00	$ 510,000.00
6.4	Asphalt footpath with brick cobble paving with brick bands (business zone)	m2	2,600	160.00	$ 416,000.00
6.5	Concrete cycleway (business zone)	m2	600	75.00	$ 45,000.00
6.6	Exposed concrete safety strip for cycleway	m2	1,800	90.00	$ 162,000.00
6.7	Pram crossings including tactile pavers	ea	30	750.00	$ 22,500.00
6.8	Cycle ramps	ea	4	550.00	$ 2,200.00
6.9	Tactile pavers at bus stops	ea	8	150.00	$ 1,200.00
6.10	Asphalt raised table (as per detail SK-03) for residential side roads	m2	550	120.00	$ 66,000.00
6.11	Exposed concrete raised table (as per detail SK-03) for business zone side roads	m2	150	200.00	$ 30,000.00
6.12	Exposed aggregate bus friendly speed table	m2	150	200.00	$ 30,000.00
6.13	Islands including kerbs	m2	50	120.00	$ 6,000.00
6.14	Dee Street intersection treatment (TBC)	PS	1	50,000.00	$ 50,000.00
6.15	Reef Street intersection treatment (TBC)	PS	1	40,000.00	$ 40,000.00
7	**TRAFFIC SERVICES**				**$ 166,616.00**
7.1	**Signage**				
7.1.1	Remove existing signage	ea	19	50.00	$ 950.00
7.1.2	Relocate existing signage (assume new sockets)	ea	63	150.00	$ 9,450.00
7.1.3	"Cycleway Only" with supplementary "Begins" or "Ends"	ea	4	400.00	$ 1,600.00
7.1.4	Belisha Beacon disc	ea	16	375.00	$ 6,000.00
7.1.5	Give Way To Cyclists & Pedestrians	ea	16	525.00	$ 8,400.00
7.1.6	Wayfinding maps in 1000x2000 galv steel painted display stands	ea	4	2,000.00	$ 8,000.00
7.2	**Line Marking**				
7.2.1	M1: Centreline / lane line continuous 100mm	m	700	1.30	$ 910.00
7.2.2	M2: Centreline / lane line broken 100mm with RRPMs @ 20m	m	900	1.70	$ 1,530.00
7.2.3	M3: Continuity line 100mm	m	2,800	1.20	$ 3,360.00
7.2.4	M4: Limit line continuous 300mm (thermo)	m	50	4.00	$ 200.00
7.2.5	M5: Stop line 300mm (thermo)	m	40	4.00	$ 160.00
7.2.6	M6: Pedestrian crossing bars 300mm (thermo)	m	220	4.00	$ 880.00
7.2.7	M7: Parking 100mm	m	700	3.00	$ 2,100.00
7.2.8	M8: Disabled parking space	ea	3	500.00	$ 1,500.00
7.2.9	M9: Fire hydrant symbol with blue RRPM by centrel line	ea	20	70.00	$ 1,400.00
7.2.10	M10: Bus stop line 100mm	m	150	15.00	$ 2,250.00
7.2.11	M11: No parking 100mm	m	130	1.20	$ 156.00
7.2.12	M12: Speed limit - renew red surface	m2	200	55.00	$ 11,000.00
7.2.13	M13: Right turn bay incl RRPMs	ea	5	750.00	$ 3,750.00

ISLAND BAY CYCLEWAY (OPTION 1)

Item	Description	Unit	Quantity	Rate	Amount
7.2.14	M14: Pedestrian crossing advance warning (thermo)	ea	10	100.00	$ 1,000.00
7.2.15	M15: Cycle symbol (thermo)	ea	24	100.00	$ 2,400.00
7.2.16	M16: Green or red cycle surfacing	m2	2,000	48.00	$ 96,000.00
7.2.17	M17: Hatching 100mm lines, 600mm hatch, RRPMs	m2	50	16.00	$ 800.00
7.2.18	M18: 30 speed limit (thermo)	ea	3	100.00	$ 300.00
7.2.19	M19: Stop lettering (thermo)	ea	8	150.00	$ 1,200.00
7.2.20	M20: Raised hump hatching	ea	3	200.00	$ 600.00
7.2.21	M21: Sharrow (thermo)	ea	6	120.00	$ 720.00
8	**LANDSCAPING**				**$ 333,450.00**
8	**Street Furniture**				
8.1	Rubbish bins (WCC proprietary)	ea	8	1,400.00	$ 11,200.00
8.2	Cycle stand	ea	50	1,000.00	$ 50,000.00
8.3	Bespoke timber benches with under lighting	ea	20	6,000.00	$ 120,000.00
8.4	Drinking fountain	ea	2	2,000.00	$ 4,000.00
8.5	Public artwork (tbc)	PS	1	30,000.00	$ 30,000.00
8.6	Urban design (stencil, etc)	PS	1	10,000.00	$ 10,000.00
8.2	**Planting**				
8.2.1	400l 2.5m clear stem, 5m high street trees with proprietary root system, aeration/irrigation tubes	ea	10	1,800.00	$ 18,000.00
8.2.2	Garden beds 450mm topsoil, 200mm drainage aggregate, 75mm mulch with low level natives, herbaceous perennials & ground cover (business zone only)	m2	130	150.00	$ 19,500.00
8.2.3	Grassed berm behind footpath	m2	50	15.00	$ 750.00
8.3	**Property Accommodation**				
8.3.1	Relocate shop awnings supports	PS	1	15,000.00	$ 15,000.00
8.3.2	Relocate bus shelter & bus board incl new electrical connection	ea	3	10,000.00	$ 30,000.00
8.3.3	New bus shelter & bus board incl new electrical connection	ea	1	25,000.00	$ 25,000.00
	TOTAL (excluding GST)				**$7,245,016.00**

ISLAND BAY CYCLEWAY (OPTION 2)

Item	Description	Unit	Quantity	Rate	Amount
1	**PRELIMINARY AND GENERAL**				**$ 1,930,000.00**
1.1	Establishment	LS	1	60,000.00	$ 60,000.00
1.2	Time-related costs	Day	450	2,400.00	$ 1,080,000.00
1.3	Bonds and Insurances	LS	1	70,000.00	$ 70,000.00
1.4	Traffic Management	Day	450	1,600.00	$ 720,000.00
2	**SITE CLEARANCE & EARTHWORKS**				**$ 549,500.00**
2.1	Remove street furniture, etc.	LS	1	10,000.00	$ 10,000.00
2.2	Excavate & remove existing kerbs, channels, etc.	m	3,300	40.00	$ 132,000.00
2.3	Demolish and remove from site existing asphalt footpath & buildouts	m2	10,000	40.00	$ 400,000.00
2.4	Demolish and remove from site existing traffic island including kerb	m2	100	50.00	$ 5,000.00
2.5	Removal of existing trees (provisional item)	ea	5	500.00	$ 2,500.00
3	**WET SERVICES**				**$ 725,200.00**
3.1	100mm dia galv steel pipe	m	10	330.00	$ 3,300.00
3.2	150mm dia uPVC pipe to collect kerb discharge	m	30	300.00	$ 9,000.00
3.3	225mm dia uPVC pipe to collect kerb discharge	m	850	250.00	$ 212,500.00
3.4	225mm dia RCRRJ class 4 sump lead	m	220	430.00	$ 94,600.00
3.5	300mm dia RCRRJ class 4 sump lead	m	20	440.00	$ 8,800.00
3.6	Saddle connections	ea	20	500.00	$ 10,000.00
3.7	1050mm dia manhole 0-1.2m depth	ea	6	4,000.00	$ 24,000.00
3.8	1500mm dia manhole 0-1.2m depth	ea	1	5,000.00	$ 5,000.00
3.9	1050mm dia manhole over large diameter pipe	ea	1	3,500.00	$ 3,500.00
3.10	Single road sump	ea	60	3,000.00	$ 180,000.00
3.11	Double road sump	ea	5	5,500.00	$ 27,500.00
3.12	Single manhole sump	ea	2	3,000.00	$ 6,000.00
3.13	Double manhole sump	ea	7	5,500.00	$ 38,500.00
3.14	Reposition existing sump & replace grate with cycle friendly grate	ea	1	2,500.00	$ 2,500.00
3.15	Reset existing wet services lids to suit new levels	LS	1	100,000.00	$ 100,000.00
4	**DRY SERVICES**				**$ 369,500.00**
4.1	Relocate power poles up to 7m	ea	9	20,000.00	$ 180,000.00
4.2	Relocate existing dry services lids (<1.5m)	ea	11	2,000.00	$ 22,000.00
4.3	Reset existing dry services lids to suit new levels	PS	1	50,000.00	$ 50,000.00
4.4	Relocation of existing underground services	PS	1	50,000.00	$ 50,000.00
4.5	Relocate Belisha Beacon lights & power connections	ea	9	7,500.00	$ 67,500.00
5	**PAVEMENT RECONSTRUCTION**				**$ 3,282,800.00**
5.1	Flexible pavement (standard) 680mm depth	*m2*	*13,400*		
5.1.1	Excavate to sub-grade & trim	m3	12,000	36.00	$ 432,000.00
5.1.2	490mm GAP65 subbase	m3	6,600	75.00	$ 495,000.00
5.1.3	150mm AP40 basecourse	m3	1,830	120.00	$ 219,600.00
5.1.4	40mm DG10 wearing course (on membrane)	m2	12,200	28.00	$ 341,600.00
5.2	Flexible pavement (stabilised) 440mm depth + 300mm stabilised S/G	*m2*	*4,300*		
5.2.1	Excavate to sub-grade & trim	m3	3,000	36.00	$ 108,000.00
5.2.2	Lime stabilised sub-grade (assume 300mm, 3% lime)	m2	4,700	6.00	$ 28,200.00
5.2.3	250mm GAP65 subbase	m3	1,200	75.00	$ 90,000.00
5.2.4	150mm AP40 basecourse	m3	650	120.00	$ 78,000.00
5.2.5	40mm DG10 wearing course (on membrane)	m2	4,300	28.00	$ 120,400.00
5.3	Structural pavement (assume 540mm)	*m2*	*2,500*		
5.3.1	Excavate to sub-grade & trim	m3	2,000	36.00	$ 72,000.00
5.3.2	150mm GAP65 subbase	m3	400	90.00	$ 36,000.00
5.3.3	225mm 30MPa concrete with 663 mesh	m2	2,500	140.00	$ 350,000.00
5.3.3	Transition slabs between concrete/flexible pavement	PS	1	20,000.00	$ 20,000.00
5.8	Undercut & replace sub-grade < assumed CBR (provisional item)	m3	1,200	160.00	$ 192,000.00

ISLAND BAY CYCLEWAY (OPTION 2)

Item	Description	Unit	Quantity	Rate	Amount
5.9	E/O extent of structural pavement where services are shallower than	m2	3,500	200.00	$ 700,000.00
6	**KERBS / PATHS / ISLANDS**				**$ 1,912,900.00**
6.1	Kerb and channel	m	3,200	110.00	$ 352,000.00
6.2	Kerb & nib (or dish channel) between cycleway & footpath	m	2,000	90.00	$ 180,000.00
6.3	Asphalt footpath & cycleway including relacement of existing paths/drives	m2	10,200	50.00	$ 510,000.00
6.4	Asphalt footpath with brick cobble paving with brick bands (business zone)	m2	2,600	160.00	$ 416,000.00
6.5	Concrete cycleway (business zone)	m2	600	75.00	$ 45,000.00
6.6	Exposed concrete safety strip for cycleway	m2	1,800	90.00	$ 162,000.00
6.7	Pram crossings including tactile pavers	ea	30	750.00	$ 22,500.00
6.8	Cycle ramps	ea	4	550.00	$ 2,200.00
6.9	Tactile pavers at bus stops	ea	8	150.00	$ 1,200.00
6.10	Asphalt raised table (as per detail SK-03) for residential side roads	m2	550	120.00	$ 66,000.00
6.11	Exposed concrete raised table (as per detail SK-03) for business zone side roads	m2	150	200.00	$ 30,000.00
6.12	Exposed aggregate bus friendly speed table	m2	150	200.00	$ 30,000.00
6.13	Islands including kerbs	m2	50	120.00	$ 6,000.00
6.14	Dee Street intersection treatment (TBC)	PS	1	50,000.00	$ 50,000.00
6.15	Reef Street intersection treatment (TBC)	PS	1	40,000.00	$ 40,000.00
7	**TRAFFIC SERVICES**				**$ 166,616.00**
7.1	**Signage**				
7.1.1	Remove existing signage	ea	19	50.00	$ 950.00
7.1.2	Relocate existing signage (assume new sockets)	ea	63	150.00	$ 9,450.00
7.1.3	"Cycleway Only" with supplementary "Begins" or "Ends"	ea	4	400.00	$ 1,600.00
7.1.4	Belisha Beacon disc	ea	16	375.00	$ 6,000.00
7.1.5	Give Way To Cyclists & Pedestrians	ea	16	525.00	$ 8,400.00
7.1.6	Wayfinding maps in 1000x2000 galv steel painted display stands	ea	4	2,000.00	$ 8,000.00
7.2	**Line Marking**				
7.2.1	M1: Centreline / lane line continuous 100mm	m	700	1.30	$ 910.00
7.2.2	M2: Centreline / lane line broken 100mm with RRPMs @ 20m	m	900	1.70	$ 1,530.00
7.2.3	M3: Continuity line 100mm	m	2,800	1.20	$ 3,360.00
7.2.4	M4: Limit line continuous 300mm (thermo)	m	50	4.00	$ 200.00
7.2.5	M5: Stop line 300mm (thermo)	m	40	4.00	$ 160.00
7.2.6	M6: Pedestrian crossing bars 300mm (thermo)	m	220	4.00	$ 880.00
7.2.7	M7: Parking 100mm	m	700	3.00	$ 2,100.00
7.2.8	M8: Disabled parking space	ea	3	500.00	$ 1,500.00
7.2.9	M9: Fire hydrant symbol with blue RRPM by centrel line	ea	20	70.00	$ 1,400.00
7.2.10	M10: Bus stop line 100mm	m	150	15.00	$ 2,250.00
7.2.11	M11: No parking 100mm	m	130	1.20	$ 156.00
7.2.12	M12: Speed limit - renew red surface	m2	200	55.00	$ 11,000.00
7.2.13	M13: Right turn bay incl RRPMs	ea	5	750.00	$ 3,750.00
7.2.14	M14: Pedestrian crossing advance warning (thermo)	ea	10	100.00	$ 1,000.00
7.2.15	M15: Cycle symbol (thermo)	ea	24	100.00	$ 2,400.00
7.2.16	M16: Green or red cycle surfacing	m2	2,000	48.00	$ 96,000.00
7.2.17	M17: Hatching 100mm lines, 600mm hatch, RRPMs	m2	50	16.00	$ 800.00
7.2.18	M18: 30 speed limit (thermo)	ea	3	100.00	$ 300.00
7.2.19	M19: Stop lettering (thermo)	ea	8	150.00	$ 1,200.00
7.2.20	M20: Raised hump hatching	ea	3	200.00	$ 600.00
7.2.21	M21: Sharrow (thermo)	ea	6	120.00	$ 720.00
8	**LANDSCAPING**				**$ 333,450.00**
8	**Street Furniture**				
8.1	Rubbish bins (WCC proprietary)	ea	8	1,400.00	$ 11,200.00

ISLAND BAY CYCLEWAY (OPTION 2)

Item	Description	Unit	Quantity	Rate	Amount
8.2	Cycle stand	ea	50	1,000.00	$ 50,000.00
8.3	Bespoke timber benches with under lighting	ea	20	6,000.00	$ 120,000.00
8.4	Drinking fountain	ea	2	2,000.00	$ 4,000.00
8.5	Public artwork (tbc)	PS	1	30,000.00	$ 30,000.00
8.6	Urban design (stencil, etc)	PS	1	10,000.00	$ 10,000.00
8.2	**Planting**				
8.2.1	400l 2.5m clear stem, 5m high street trees with proprietary root system, aeration/irrigation tubes	ea	10	1,800.00	$ 18,000.00
8.2.2	Garden beds 450mm topsoil, 200mm drainage aggregate, 75mm mulch with low level natives, herbaceous perennials & ground cover (business zone only)	m2	130	150.00	$ 19,500.00
8.2.3	Grassed berm behind footpath	m2	50	15.00	$ 750.00
8.3	**Property Accommodation**				
8.3.1	Relocate shop awnings supports	PS	1	15,000.00	$ 15,000.00
8.3.2	Relocate bus shelter & bus board incl new electrical connection	ea	3	10,000.00	$ 30,000.00
8.3.3	New bus shelter & bus board incl new electrical connection	ea	1	25,000.00	$ 25,000.00
	TOTAL (excluding GST)				**$9,269,966.00**

Appendix B: Short-term safety improvements

- **Description of options considered for the short-term safety improvements**

Options considered for short-term safety improvements

Improvement			Description	Issue(s) addressed	Safety impacts	Recommended?
Residential zone	Separators	Vertical posts	Add vertical post separators to the buffer zone 	• Vehicles parking in the buffer zone	• Encourages good parking practices • Provides limited physical separation between cyclists and vehicles • Does not provide improvements for pedestrians walking between parked cars and the footpath • May be obstructive to parked vehicles (e.g., opening a car door into the posts)	✖ Vertical posts would address some of the identified issues. However, they may be obstructive for parked cars, and other options for separator styles would address more of the identified issues.
		Low separators	Add low mountable separators to the buffer zone 	• Vehicles parking in the buffer zone • Conflict between cyclists and vehicles turning into/out of driveways	• Encourages good parking practices, but does not eliminate the possibility of cars parking in the buffer space • Uses vertical deflection to slow down vehicles turning into driveways	✓ Low separators would encourage good parking behaviours for people who park on the street. They would also reduce the speed of vehicles entering driveways.
		Kerb separators	Add wide kerb separators to the buffer zone 	• Vehicles parking in the buffer zone • Narrow car door buffer zone • Confusing layout • Difficulty unloading from parked cars	• Encourages good parking practices • Provides a physical separation between cyclists and vehicles and sufficient width for the car door buffer zone • Provides a raised platform for people exiting from the passenger side of parked vehicles to step onto • Improves the visual demarcation of the cycle lanes, making the layout less confusing for users	✓ Kerb separators can address many of the issues with the current buffer zone arrangement. They would provide benefits for all users of The Parade (pedestrians, cyclists, and drivers).
		Planter boxes	Add planter boxes to the buffer zone 	• Vehicles parking in the buffer zone • Narrow car door buffer zone • Confusing layout	• Encourages good parking practices • Provides a physical separation between cyclists and vehicles • Improves the visual demarcation of the cycle lanes, making the layout less confusing for users • Would be obstructive to parked vehicles (e.g., opening a car door into a planter) and does not provide a space for people entering/exiting parked vehicles	✖ Planter boxes would address some of the identified issues, but they would be obstructive for anyone entering/exiting parked cars. If desired, they could be incorporated into buffers where there is no parking (e.g., on intersection approaches).

Improvement			Description	Issue(s) addressed	Safety impacts	Recommended?
Residential zone	Parking	1m setback at driveways	Mark the end bars for on-street parking 1m back from driveways	• Lack of visibility of cyclists at driveways	• A 1m parking setback at driveways is the minimum legal requirement[8] • Slightly improves visibility of cyclists at driveways • Decreases the parking capacity on The Parade	✖ A minimum of 3m is the recommended minimum setback for parking at driveways when there is a cycle facility between the kerb and parking. This option would not meet that recommendation.
		3m setback at driveways[9]	Mark the end bars for on-street parking 3m back from driveways	• Lack of visibility of cyclists at driveways • Motor vehicles crossing the centreline when exiting driveways	• Improves visibility of cyclists at driveways • Reducing the likelihood that vehicles exiting driveways will need to cross the centreline • Decreases the parking capacity on The Parade	✓ Setbacks of 3m are the minimum recommended setback for parking at driveways to address the visibility issues.
		30m setback on intersection approaches	Remove parking within 30m of the approaches to intersections	• Lack of visibility of cyclists at intersections	• Improves visibility of cyclists at intersections, especially for vehicles turning onto or off of The Parade	✓ A minimum parking setback of 30m on intersection approaches would improve visibility at intersections for cyclists and drivers turning into or out of side streets.
		No individual car parks	Remove individual car park marking ("T" bars)	• Individual car park markings	• Allows for more flexible parking on The Parade	✓ Unmarked car parking in the residential zone would allow for flexibility in parking.
	Road markings	Consistent cycle markings	Provide consistent cycle markings and treatments across intersections with side roads	• Lack of consistency along The Parade • Lack of visibility of the cycle lanes at intersections	• Makes The Parade more intuitive and easy to understand • Improves visibility of cyclists at conflict points	✓ Consistent markings across intersection would make the layout more intuitive and easier to understand for all users.
		Wider buffer space	Widen the buffer space between the cycle lanes and parking to a minimum width of 0.85m	• The existing buffers are narrower than the minimum recommended width • Difficulty unloading from parked cars	• Improves safety for cyclists by reducing the dooring risk • Increases the space available to passengers to load/unload from parked cars and gives more width for pedestrians to identify a change in space between the buffer and the cycle lanes	✓ The buffer space would be widened to the minimum recommended width to improve safety and comfort for cyclists and people accessing parked cars.

[8] As per Land Transport (Road User) Rule 2004, a vehicle cannot be parked within 1m of the prolongation of the side of a driveway

[9] Minimum recommended parking setback from driveways where there is on-street parking between a traffic lane and a separated cycle facility, as per Waka Kotahi *Technical Note: Separated cycleways at side roads and driveways, TN002*, August 2020.

Improvement			Description	Issue(s) addressed	Safety impacts	Recommended?
Residential zone	Road markings	Wider traffic lanes	Widen the traffic lanes to a minimum width of 3.2m	• Difficulty entering and exiting driveways • Difficult for buses and heavy vehicles to pass each other	• Reducing the likelihood that vehicles exiting driveways will need to cross the centreline • Provides adequate width for buses and heavy vehicles to pass each other • Increase traffic lane widths may lead to a slight increase in vehicle speeds	✓ Improves the road for motor vehicles through simple road marking changes. This is in alignment with the Councillor-approved option.
	Bus stop improvements		Update the geometry at bus stops to address conflict points, improve intervisibility between pedestrians and cyclists, and address pinch points for motor vehicles where there is a bus stop and a central median island	• Lack of intervisibility between cyclists and pedestrians at bus stops • Lack of consistency • Delay at bus stops	• Improves intervisibility between pedestrians and cyclists • Provides consistent treatment for cyclists at all bus stops • May reduce delay for vehicles waiting behind stopped buses	✗ To make impactful changes to the bus stops that would address the issues would require significant kerb and footpath reconstruction at bus stops. This was considered too substantial to be incorporated into the resurfacing works as minor safety improvements.
	Raised tables		Install raised tables across side roads at all intersections to provide raised crossings for pedestrians and cyclists	• Conflict at intersections • Lack of visibility of cyclists on The Parade	• Slows down vehicles approaching The Parade or turning from The Parade onto side streets, increasing the likelihood that drivers entering or exiting side streets will see vehicles and cyclists travelling along The Parade • Raised tables can be uncomfortable for bus passengers; there is a bus route on Mersey Street, across The Parade	✗ Adding the raised crossings requires realignment to the kerbs at intersections and realignment of the existing cycle lanes so they can cross the raised tables. This was considered too substantial to be incorporated into the resurfacing works as minor safety improvements.
	Remove ghost markings		Resurface The Parade where there are ghost markings	• Lack of consistency along The Parade • Confusing layout	• Makes The Parade more intuitive and easy to understand • Makes the layout less confusing for all road users	✓ Improves clarity and consistency on The Parade. This is in alignment with the Councillor-approved option.
Business zone	Cycle lanes		Provide cycle lanes through the town centre	• Shared traffic lanes through the town centre	• Provides a continuous facility for cyclists travelling through the town centre	✗ Providing cycle lanes through the town centre would require significant changes to the kerbs. This is considered too substantial to be incorporated into the resurfacing works as minor safety improvements.

Improvement		Description	Issue(s) addressed	Safety impacts	Recommended?
Business zone	Bus and bike-friendly road humps	Replace the existing road cushions with bus and bike-friendly road humps	• Unideal traffic calming measures for the shared traffic lanes in the town centre	• Provides minor improvements for cyclists who use the shared traffic lane through the town centre	✓ This is a relatively minor improvement that can be made for cyclists through the town centre that still provides appropriate traffic calming outcomes but doesn't involve significant reconfiguration of the road.
	Remark transitions from the cycle lanes	Remark the road markings for the transition south of Medway Street from the cycle lane to the shared traffic lane	• Lack of consistency along The Parade • Lack of clarity at transitions to/from the cycle lanes and the business zone	• Addresses inconsistency at transition points (northbound cyclists merge into the traffic lane south of Medway Street, but then there are cycle lane markings for a short distance across the Medway Street intersection; it is unclear whether cyclists should merge with traffic or not) • Narrows traffic lanes to encourage slow speeds through the town centre (the traffic lanes are currently approx. 5m wide each) • Makes The Parade more intuitive and easy to understand • Improves visibility of cyclists at conflict points	✓ This is a relatively minor improvement that can be made for cyclists through the town centre that doesn't involved significant reconfiguration of the road.

Appendix C: MCA results

- **Detailed results from the MCA assessments:**
    - **Rating scales**
    - **Multi-criteria analysis of the residential zone options**
    - **Multi-criteria analysis of the business zone options**
    - **Multi-criteria analysis of the option combinations**

Multi-Criteria Analysis: Rating scales

Objectives

+3	Highly contributes to achieving the desired outcome
+2	Contributes to achieving the desired outcome
+1	Partially contributes to achieving the desired outcome
0	Neither contributes to nor detracts from the desired outcome, or could detract from achieving the desired outcome but can be managed through design
-1	Partially dertracts from achieving the desired outcome
-2	Detracts from achieving the desired outcome
-3	Significantly detracts from achieving the desired outcome

Effects

+3	Significant Positive Effect
+2	Moderate Positive Effect
+1	Slight Positive Effect
0	Neutral/No Effect
-1	Slight Negative Effect
-2	Moderate Negative Effect
-3	Significant Negative Effect

Delivery

0	Neutral/No Risk
-1	Slight Negative Effect/Risk
-2	Moderate Negative Effect/Risk
-3	Significant Negative Effect/Risk

Funding

0	No cost
-1	Low cost
-2	Medium cost
-3	High cost

Multi-Criteria Analysis: Residential Zone Options

Criteria			Current layout *(for comparison)*	Option 1 Retain the short-term safety improvements (kerbs unchanged)	Option 2 Retain the short-term safety improvements + intersection and bus stop improvements (isolated kerb changes)	Option 3 Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection and bus stop improvements	Option 4 Councillor-approved option (secondary stormwater system)	Option 5 Councillor-approved option (lowered pavement)	Option 6 Councillor-approved option (value engineered)
Objectives	Effectiveness meeting WCC Cycling Investment Objectives	Achieve a high level of service for cyclists within an integrated transport network	LOS C	LOS C to B	LOS C to B	LOS B	LOS B	LOS B	LOS B
		Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). ● The **1.5m to 2.0m**-wide cycle lanes do not consistently provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). ● The **1.5m to 2.0m**-wide cycle lanes do not consistently provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). ● The **1.5m to 2.0m**-wide cycle lanes do not consistently provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). ● The **2.0m**-wide cycle lanes provide cyclists restricted opportunities to pass each other. ● Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). ● The **1.5m**-wide cycle paths plus **0.9m**-wide traversable buffers provide cyclists opportunities to pass each other (effectively **2.4m** wide for passing). ● Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). ● The **1.5m**-wide cycle paths plus **0.9m**-wide traversable buffers provide cyclists opportunities to pass each other (effectively **2.4m** wide for passing). ● Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). ● The 1.5m-wide cycle paths plus 0.9m-wide traversable buffers provide cyclists opportunities to pass each other (effectively 2.4m wide for passing). ● Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.
		Cycling is a viable and attractive transport choice	● The on-road bicycle lanes partially separated from car parking are moderately suitable for the road environment (cars park in the flush painted buffer and the parking buffer width is not sufficient). ● There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Bicycle parking facilities can be accessed directly from the bicycle network.	● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Bicycle parking facilities can be accessed directly from the bicycle network.	● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Bicycle parking facilities can be accessed directly from the bicycle network.
		The crash rate, number and severity of crashes involving people on bikes is reduced	*● There is some hazard from parked cars blocking the path of cyclists (i.e. parking against the kerb in the cycle lane).* *● There is not adequate space for cyclists to avoid conflict with open car doors (i.e. there is insufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists.* *● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists.* *● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists.* *● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists.* *● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists.* *● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists.* *● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*
			● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. *● Pedestrians and cyclists occassionally cross each others' path. The flush painted buffers do not provide clear a physical indicator between pedestrian and cyclist space for pedestrians crossing the cycle lanes from parked cars to the footpath.* *● Cyclists are not able to safely pass each other.*	*● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane.* *● Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath.* *● Cyclists are not able to safely pass each other.*	*● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane.* *● Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath.* *● Cyclists are not able to safely pass each other.*	*● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane.* *● Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath.* *● Cyclists are restricted in their ability to pass each other.*	*● Nib kerbs provide some physical distinction between space for pedestrians on the footpath and cyclists in the cycle path.* *● Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath.* *● Cyclists are able to pass each other.*	*● Nib kerbs provide some physical distinction between space for pedestrians on the footpath and cyclists in the cycle path.* *● Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath.* *● Cyclists are able to pass each other.*	*● Nib kerbs provide some physical distinction between space for pedestrians on the footpath and cyclists in the cycle path.* *● Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath.* *● Cyclists are able to pass each other.*
			● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. *● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways.* *● Cycle lanes somewhat separate cyclists from motor vehicles at intersections, but vehicle speeds are not reduced and cyclists are fully exposed to motor vehicles.* *● Parking at intersections and driveways restricts intervisibility between cyclists and motor vehicles.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles.* *● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways.* *● Cycle lanes somewhat separate cyclists from motor vehicles at intersections, but vehicle speeds are not reduced and cyclists are fully exposed to motor vehicles.* *● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles.* *● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways.* *● Raised crossings across the intersections reduce vehicle speeds at intersections.* *● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles.* *● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways.* *● Raised crossings across the intersections reduce vehicle speeds at intersections.* *● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles.* *● The raised cycle paths improve intervisibility between cyclists and motor vehicles.* *● Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections.* *● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles.* *● The raised cycle paths improve intervisibility between cyclists and motor vehicles.* *● Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections.* *● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles.* *● The raised cycle paths improve intervisibility between cyclists and motor vehicles.* *● Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections.* *● Parking setbacks improve visibility of cyclists at intersections and driveways.*

Multi-Criteria Analysis: Residential Zone Options

Criteria			Current layout *(for comparison)*	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
				Retain the short-term safety improvements (kerbs unchanged)	Retain the short-term safety improvements + intersection and bus stop improvements (isolated kerb changes)	Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection and bus stop improvements	Councillor-approved option (secondary stormwater system)	Councillor-approved option (lowered pavement)	Councillor-approved option (value engineered)
Objectives (cont.)	Effectiveness meeting WCC Cycling Investment Objectives (cont.)	Providing transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington	● The facility does not cater well for strong and fearless cyclists as the facility is not wide enough for cyclists to pass each other. ● The separated facility caters well to enthused and confident cyclists. ● The facility caters to some interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety. However, there is no physical separation from parking, so cars can still enter the cycle lanes. There is also little separation for cyclists through intersections.	● The facility does not cater well for strong and fearless cyclists as the facility is not wide enough for cyclists to pass each other. ● The separated facility caters well to enthused and confident cyclists. ● The facility caters to some interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. However, there is little separation for cyclists through intersections.	● The facility does not cater well for strong and fearless cyclists as the facility is not wide enough for cyclists to pass each other. ● The separated facility caters well to enthused and confident cyclists. ● The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	● The facility may cater to only some strong and fearless cyclists as the width of the facility restricts cyclists' ability to pass each other. ● The separated facility caters well to enthused and confident cyclists. ● The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	● The facility caters to some strong and fearless cyclists as the facility is wide enough for cyclists to pass each other. ● The separated facility caters well to enthused and confident cyclists. ● The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	● The facility caters to some strong and fearless cyclists as the facility is wide enough for cyclists to pass each other. ● The separated facility caters well to enthused and confident cyclists. ● The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	● The facility caters to some strong and fearless cyclists as the facility is wide enough for cyclists to pass each other. ● The separated facility caters well to enthused and confident cyclists. ● The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.
	Effectiveness meeting Love the Bay Objectives	The Parade is safe for all users	● There is not adequate space for cyclists to avoid conflict with open car doors (i.e. there is insufficient buffer width). ● Unintuitive intersection layouts lead to confusion between all road users. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● Visibility of cyclists at intersections and driveways is restricted due to on-street parking and the cycle lanes at road level. ● Cycle lanes somewhat separate cyclists from motor vehicles at intersections, but vehicle speeds are not reduced and cyclists are fully exposed to motor vehicles. ● Kerbs provide a clear physical distinction for pedestrian space. ● Pedestrians and cyclists occasionally cross each others' path. The flush painted buffers do not provide clear a physical indicator between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	● There is adequate space for cyclists to avoid conflict with open car doors. ● Unintuitive intersection layouts lead to confusion between all road users. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● Visibility of cyclists at intersections and driveways is restricted due to the cycle lanes at road level. ● Mountable separators slow down drivers turning into and out of driveways. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Cycle lanes somewhat separate cyclists from motor vehicles at intersections, but vehicle speeds are not reduced and cyclists are fully exposed to motor vehicles. ● Kerbs provide a clear physical distinction for pedestrian. ● Pedestrians and cyclists occasionally cross each others' path. Physical separators in the buffer space provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	● There is adequate space for cyclists to avoid conflict with open car doors. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● Visibility of cyclists at intersections and driveways is restricted due to the cycle lanes at road level. ● Mountable separators slow down drivers turning into and out of driveways. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Kerbs provide a clear physical distinction for pedestrian space. ● Pedestrians and cyclists occassionally cross each others' path. Physical separators in the buffer space provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	● There is adequate space for cyclists to avoid conflict with open car doors. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● Visibility of cyclists at intersections and driveways is restricted due to the cycle lanes at road level. ● Mountable separators slow down drivers turning into and out of driveways. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Kerbs provide a clear physical distinction for pedestrian space. ● Pedestrians and cyclists occassionally cross each others' path. Physical separators in the buffer space provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	● There is adequate space for cyclists to avoid conflict with open car doors. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Raised crossings reduce vehicle speeds at intersections. ● Wide traffic lanes and a central painted median encourage faster motor vehicles speeds, making it less safe for vulnerable road users. ● Nib kerbs provide some physical distinction between space for pedestrians and cyclists. ● Pedestrians and cyclists occasionally cross each others' path. Raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.	● There is adequate space for cyclists to avoid conflict with open car doors. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Wide traffic lanes and a central painted median encourage faster motor vehicles speeds, making it less safe for vulnerable road users. ● Nib kerbs provide some physical distinction between space for pedestrians and cyclists. ● Pedestrians and cyclists occasionally cross each others' path. Raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.	● There is adequate space for cyclists to avoid conflict with open car doors. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Wide traffic lanes and a central painted median encourage faster motor vehicles speeds, making it less safe for pedestrians crossing The Parade or entering/exiting parked cars. ● Nib kerbs provide some physical distinction between space for pedestrians and cyclists. ● Pedestrians and cyclists occasionally cross each others' path. Raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.
		The layout is intuitive and easy to understand	● The flush painted buffers allow vehicles to park in the buffer space and encroach into cyclists' space. ● The flush painted buffers don't provide a distinct physical indication for people exiting/unloading from parked cars or for pedestrians crossing the cycle lane from parked cars to the footpath. ● Inconsistent treatments and lack of visibility visibility at intersections cause confusion for all road users. ● Inconsistent treatments and lack of visibility at bus stops cause confusion at conflict points between boarding/alighting bus passengers and cyclists.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent markings and improved visibility at intersections provide only minor improvement in clarity for road users. ● No improvements for consistency or visibility at the existing bus stops.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.

Multi-Criteria Analysis: Residential Zone Options

Criteria			Current layout *(for comparison)*	Option 1 Retain the short-term safety improvements (kerbs unchanged)	Option 2 Retain the short-term safety improvements + intersection and bus stop improvements (isolated kerb changes)	Option 3 Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection and bus stop improvements	Option 4 Councillor-approved option (secondary stormwater system)	Option 5 Councillor-approved option (lowered pavement)	Option 6 Councillor-approved option (value engineered)
Objectives (cont.)	Effectiveness meeting Love the Bay Objectives (cont.)	The Parade accommodates all current and future users	● Footpaths vary between **2.0m–3.0m** wide. Kerbs provide a distinct separation for pedestrian space. ● Painted buffers do not provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. At times, cars are parked over the buffer, effectively eliminating this space. ● The on-road bicycle lanes partially separated from car parking are moderately suitable for the road environment (cars park in the flush painted buffer and the parking buffer width is not sufficient). ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane. ● Inconsistent treatments and lack of visibility at intersections cause confusion, particularly for turning vehicles. Narrow traffic lanes increase stress of side-swiping vehicles.	● Footpaths vary between **2.0–3.0m** wide. Kerbs provide a distinct separation for pedestrian space. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane. ● Inconsistent treatments and lack of visibility at intersections cause confusion, particularly for turning vehicles. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths vary between **2.0–3.0m** wide. Kerbs provide a distinct separation for pedestrian space. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths vary between **2.0–2.5m** wide. Kerbs provide a distinct separation for pedestrian space. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths vary between **2.0m** wide. Nib kerbs provide some separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths vary between 2.0m wide. Nib kerbs provide some separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths vary between 2.0m wide. Nib kerbs provide some separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. Widened traffic lanes reduce stress of side-swiping vehicles.
		The visual environment is cohesive and clean	● The cycle facilities vary in style and treatment along The Parade. This results in a layout that is confusing and affects how safe people feel using the space. ● Transitions between the cycle lanes in the residential zones and the shared traffic lanes in the business zone create an uncohesive environment.	● The cycle facilities vary in style and treatment along The Parade. ● Providing consistent marking styles for the cycle lanes and across intersections will slightly improve the cohesiveness. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.
		Central Island Bay is a pleasant and welcoming environment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Effects	Pedestrian Effects	Pedestrian Safety	● Kerbs provide a distinct separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Painted buffers do not provide a clear and physically distinct area for people to safely exit and unload from vehicles. At times, cars are parked over the buffer, effectively eliminating this space.	● Kerbs provide a distinct separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles.	● Kerbs provide a distinct separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds at intersections.	● Kerbs provide a distinct separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds at intersections.	● Nib kerbs provide some separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Wide traffic lanes and a central painted median encourage faster motor vehicles speeds, making it less safe for pedestrians crossing The Parade or entering/exiting parked cars.	● Nib kerbs provide some separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Wide traffic lanes and a central painted median encourage faster motor vehicles speeds, making it less safe for pedestrians crossing The Parade or entering/exiting parked cars.	● Nib kerbs provide some separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Wide traffic lanes and a central painted median encourage faster motor vehicles speeds, making it less safe for pedestrians crossing The Parade or entering/exiting parked cars.
		Pedestrian Experience	● Footpaths vary between **2.0m–3.0m** wide. ● Kerbs provide a distinct separation between pedestrians and cyclists. ● Painted buffers do not provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. At times, cars are parked over the buffer, effectively eliminating this space.	● Footpaths vary between **2.0–3.0m** wide. ● Kerbs provide a distinct separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles.	● Footpaths vary between **2.0–3.0m** wide. ● Kerbs provide a distinct separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths vary between **2.0–2.5m** wide. ● Kerbs provide a distinct separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths are **2.0m** wide. ● Nib kerbs provide some separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths are **2.0m** wide. ● Nib kerbs provide some separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths are **2.0m** wide. ● Nib kerbs provide some separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.
	Cyclist Effects	Cyclist Safety	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)
		Cyclist Experience	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)

Multi-Criteria Analysis: Residential Zone Options

Criteria			Current layout *(for comparison)*	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
				Retain the short-term safety improvements (kerbs unchanged)	Retain the short-term safety improvements + intersection and bus stop improvements (isolated kerb changes)	Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection and bus stop improvements	Councillor-approved option (secondary stormwater system)	Councillor-approved option (lowered pavement)	Councillor-approved option (value engineered)
Effects (cont.)	Public Transport Effects	Public Transport Safety	● Inconsistent treatments and lack of visibility at bus stops cause confusion at conflict points between boarding/alighting bus passengers and cyclists.	● No improvements to the existing bus stops. ● Inconsistent treatments and lack of visibility at bus stops cause confusion at conflict points between boarding/alighting bus passengers and cyclists.	● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.
		Public Transport Experience	● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane.	● No improvements to the existing bus stops. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.
	Motor Vehicle Effects	Motor Vehicle Safety	● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Vehicle speeds are not reduced at intersections to limit conflict between motor vehicles and other road users. ● Parking at intersections and driveways restricts intervisibility between motor vehicles and other road users. ● Narrow traffic lanes increase the risk of side-swiping vehicles and result in cars exiting driveways crossing the centreline.	● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Vehicle speeds are not reduced at intersections to limit conflict between motor vehicles and other road users. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Widened traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways.	● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Widened traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways.	● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Widened traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways.	● The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Wide traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways. However, the wide lanes and painted central median encourage faster motor vehicles speeds and potentially unsafe passing of slowing or stopped vehicles.	● The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Wide traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways. However, the wide lanes and painted central median encourage faster motor vehicles speeds and potentially unsafe passing of slowing or stopped vehicles.	● The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Wide traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways. However, the wide lanes and painted central median encourage faster motor vehicles speeds and potentially unsafe passing of slowing or stopped vehicles.
		Motor Vehicle Experience	● Vehicle speeds are not reduced at intersections to limit conflict between motor vehicles and other road users. ● Inconsistent treatments and lack of visibility at intersections cause confusion, particularly for turning vehicles. ● Narrow traffic lanes increase stress of side-swiping vehicles.	● Vehicle speeds are not reduced at intersections to limit conflict between motor vehicles and other road users. ● Inconsistent treatments and lack of visibility at intersections cause confusion, particularly for turning vehicles. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Widened traffic lanes reduce stress of side-swiping vehicles.
	Parking Effects	Removal of existing parking spaces	● 130-140 car parks with a minimum 1m setback applied at driveways (reduced from approx. 150 marked car parks currently)	● Approx. 60-75 car parks lost (43-56%) due to driveway/intersection setbacks and parking removal on one side of the street between the business zone and Trent Street	● Approx. 60-75 car parks lost (43-56%) due to driveway/intersection setbacks and parking removal on one side of the street between the business zone and Trent Street	● Approx. 40-50 car parks lost (29-37%) due to driveway/intersection setbacks	● Approx. 40-50 car parks lost (29-37%) due to driveway/intersection setbacks	● Approx. 40-50 car parks lost (29-37%) due to driveway/intersection setbacks	● Approx. 40-50 car parks lost (29-37%) due to driveway/intersection setbacks
	Property Effects	Effect on access to businesses for pedestrians	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.
		Effect on access to businesses for cyclists	● Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	● Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	● Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	● Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	● Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	● Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	● Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.
		Effect on access to businesses for motor vehicles (incl. deliveries and ease of access)	● Parking facilities are provided outside of businesses on The Parade or side streets.	● Parking facilities are provided outside of some businesses on The Parade or side streets.	● Parking facilities are provided outside of some businesses on The Parade or side streets.	● Parking facilities are provided outside of some businesses on The Parade or side streets.	● Parking facilities are provided outside of some businesses on The Parade or side streets.	● Parking facilities are provided outside of some businesses on The Parade or side streets.	● Parking facilities are provided outside of some businesses on The Parade or side streets.
Implementation	Delivery Feasibility	Traffic disruption during construction	N/A	Traffic and travel times are slightly impacted during construction; required works are minimal and mostly involve resurfacing and remarking the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.
		Business disruption during construction	N/A	Businesses are slightly impacted during construction.	Businesses are moderately impacted during construction.	Businesses are moderately impacted during construction.	Businesses are significantly impacted during construction.	Businesses are significantly impacted during construction.	Businesses are significantly impacted during construction.
		Integration with Let's Get Wellington Moving	N/A	The construction works are only minor. If future mass rapid transit plans involve physical works on The Parade, the amount of physical works that may need to be altered are limited.	The construction works are only minor. If future mass rapid transit plans involve physical works on The Parade, the amount of physical works that may need to be altered are limited.	The construction works are moderate. If future mass rapid transit plans involve physical works on The Parade, some of the physical works will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.
	Funding	Cost indication	N/A	$0	$2.6 – $4.7 m	$4.1 – $7.4 m	$6.6 – $12.2 m	$10.6 – $20.0 m	$5.8 – $10.6 m
Short listed for assessment of pairings with business zone options?				✓	✓	✓	×	×	✓

Multi-Criteria Analysis: Business Zone Options

Objectives		Criteria	Current layout *(for comparison)*	Option A Retain the short-term safety improvements only (kerbs unchanged)	Option B Cycle lanes at road level, with angle and parallel parking	Option C Cycle lanes at road level, with angle parking only	Option D Cycle lanes at road level, with parallel parking only	Option E Councillor-approved option (secondary stormwater system) with angle and parallel parking	Option F Councillor-approved option (lowered pavement) with angle and parallel parking	Option G Councillor-approved option (value engineered) with angle and parallel parking	Option H Councillor-approved option (value engineered) with angle parking only	Option I Councillor-approved option (value engineered) with parallel parking only
Objectives	Effectiveness meeting WCC Cycling Investment Objectives	Achieve a high level of service for cyclists within an integrated transport network	LOS E	LOS E	LOS C	LOS C to B	LOS C	LOS B	LOS B	LOS B	LOS B	LOS B
		Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience	● No seperated cycling facility means that cyclist operating speeds will be somewhat dictated by car speeds and congestion. ● Cyclist speeds are likely to be restricted from interactions with drivers pulling in and out of on-street parking.	● No seperated cycling facility means that cyclist operating speeds will be somewhat dictated by car speeds and congestion. ● Cyclist speeds are likely to be restricted from interactions with drivers pulling in and out of on-street parking.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. ● The **1.5m**-wide cycle lanes do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. ● The **1.5m**-wide cycle lanes do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. ● The **1.5m**-wide cycle lanes do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. ● The **1.2m**-wide cycle paths do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. ● The **1.2m**-wide cycle paths do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. ● The **1.2m**-wide cycle paths do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. ● The **1.2m**-wide cycle paths do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	● An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. ● The **1.2m**-wide cycle paths do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. ● Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.
		Cycling is a viable and attractive transport choice	● On-road shared traffic environment on medium- to high-volume, slow-speed road is moderately unsuitable for cycling. ● There is a non-mountable kerb between bicycle parking facilities and the shared traffic lanes; cyclists must dismount in the traffic lane to park.	● On-road shared traffic environment on medium- to high-volume, slow-speed road is moderately unsuitable for cycling. ● There is a non-mountable kerb between bicycle parking facilities and the shared traffic lanes; cyclists must dismount in the traffic lane to park.	● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Bicycle parking facilities can be accessed directly from the bicycle network.	● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Bicycle parking facilities can be accessed directly from the bicycle network.	● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Bicycle parking facilities can be accessed directly from the bicycle network.	● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Bicycle parking facilities can be accessed directly from the bicycle network.	● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Bicycle parking facilities can be accessed directly from the bicycle network.
		The crash rate, number and severity of crashes involving people on bikes is reduced	*● There are hazards from parked cars crossing/blocking the path of cyclists. ● There is limited space for cyclists to safely avoid conflict with open car doors and vehicles backing out of on-street car parks. The speed humps encourage cyclists to ride around the vertical deflection, and they are pushed towards parked vehicles.*	*● There are hazards from parked cars crossing/blocking the path of cyclists. ● There is limited space for cyclists to safely avoid conflict with open car doors and vehicles backing out of on-street car parks. Adjustment of the traffic calming measures can encourage cyclists to ride in the centre of the traffic lane.*	*● There is no hazard from parked cars crossing/blocking the path of cyclists. ● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists. ● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists. ● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists. ● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists. ● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists. ● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists. ● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*● There is no hazard from parked cars crossing/blocking the path of cyclists. ● There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*
			● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the shared traffic lane. ● Pedestrians do not need to regularly cross the path of cyclists. ● Cyclists are able to pass each other.	*● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the shared traffic lane. ● Pedestrians do not need to regularly cross the path of cyclists. ● Cyclists are able to pass each other.*	*● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. ● Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. ● Cyclists are not able to safely pass each other.*	*● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. ● Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. ● Cyclists are not able to safely pass each other.*	*● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. ● Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. ● Cyclists are not able to safely pass each other.*	*● Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. ● Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. ● Cyclists are not able to safely pass each other.*	*● Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. ● Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. ● Cyclists are not able to safely pass each other.*	*● Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. ● Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. ● Cyclists are not able to safely pass each other.*	*● Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. ● Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. ● Cyclists are not able to safely pass each other.*	*● Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. ● Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. ● Cyclists are not able to safely pass each other.*
			● No bicycle facility in a medium- to high-risk road environment results in risk of crashes between cyclists and motor vehicles.	*● No bicycle facility in a medium- to high-risk road environment results in risk of crashes between cyclists and motor vehicles.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. ● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. ● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. ● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections. ● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections. ● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections. ● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections. ● Parking setbacks improve visibility of cyclists at intersections and driveways.*	*● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections. ● Parking setbacks improve visibility of cyclists at intersections and driveways.*

Multi-Criteria Analysis: Business Zone Options

Criteria			Current layout *(for comparison)*	Option A Retain the short-term safety improvements only (kerbs unchanged)	Option B Cycle lanes at road level, with angle and parallel parking	Option C Cycle lanes at road level, with angle parking only	Option D Cycle lanes at road level, with parallel parking only	Option E Councillor-approved option (secondary stormwater system) with angle and parallel parking	Option F Councillor-approved option (lowered pavement) with angle and parallel parking	Option G Councillor-approved option (value engineered) with angle and parallel parking	Option H Councillor-approved option (value engineered) with angle parking only	Option I Councillor-approved option (value engineered) with parallel parking only
Objectives (cont.)	Effectiveness meeting WCC Cycling Investment Objectives (cont.)	Providing transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington	• The shared traffic lanes do cater to strong and fearless cyclists, but there are risks for on-road cyclists due to vehicles backing out of angle parking. • The shared traffic lanes in a low-speed environment may cater to only some enthused and confident cyclists due to the shared lanes with motor vehicles and risks from angle parking. • The facility does not cater to interested but concerned cyclists.	• The shared traffic lanes do cater to strong and fearless cyclists, but there are risks for on-road cyclists due to vehicles backing out of angle parking. • The shared traffic lanes in a low-speed environment may cater to only some enthused and confident cyclists due to the shared lanes with motor vehicles and risks from angle parking. • The facility does not cater to interested but concerned cyclists.	• The facility may cater to only some strong and fearless cyclists as the width of the facility restricts cyclists' ability to pass each other, and the on-road traffic lanes present risks for on-road cyclists due to vehicles backing out of angle parking. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility may cater to only some strong and fearless cyclists as the width of the facility restricts cyclists' ability to pass each other, and the on-road traffic lanes present risks for on-road cyclists due to vehicles backing out of angle parking. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility may cater to only some strong and fearless cyclists as the width of the facility restricts cyclists' ability to pass each other. However, the on-road traffic lanes in a low-speed environment with parallel parking only cater well to strong and fearless cyclists. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility does not cater well for strong and fearless cyclists, and the on-road traffic lanes present risks for on-road cyclists due to vehicles backing out of angle parking. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility does not cater well for strong and fearless cyclists, and the on-road traffic lanes present risks for on-road cyclists due to vehicles backing out of angle parking. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility does not cater well for strong and fearless cyclists, and the on-road traffic lanes present risks for on-road cyclists due to vehicles backing out of angle parking. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility does not cater well for strong and fearless cyclists, and the on-road traffic lanes present risks for on-road cyclists due to vehicles backing out of angle parking. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility may cater to only some strong and fearless cyclists as the width of the facility restricts cyclists' ability to pass each other. However, the on-road traffic lanes in a low-speed environment with parallel parking only cater well to strong and fearless cyclists. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.
Objectives (cont.)	Effectiveness meeting Love the Bay Objectives	The Parade is safe for all users	• No bicycle facility in a medium to high-risk road environment results in risk of crashes between cyclists and motor vehicles. • There are hazards from parked cars crossing / blocking the path of cyclists. • There is limited space for cyclists to safely avoid conflict with open car doors and vehicles backing out of on-street car parks. The speed humps encourage cyclists to ride around the vertical deflection, and they are pushed towards parked vehicles. • Kerbs provide a clear physical distinction for pedestrian space. • Pedestrians do not need to regularly cross the path of cyclists.	• No bicycle facility in a medium to high-risk road environment results in risk of crashes between cyclists and motor vehicles. • There are hazards from parked cars crossing / blocking the path of cyclists. • There is limited space for cyclists to safely avoid conflict with open car doors and vehicles backing out of on-street car parks. • Kerbs provide a clear physical distinction for pedestrian space. • Pedestrians do not need to regularly cross the path of cyclists.	• There is adequate space for cyclists to avoid conflict with open car doors. • An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. • Visibility at intersections and driveways is restricted due to the cycle lanes at road level. • Mountable separators slow down drivers turning into and out of driveways. • Parking setbacks improve visibility of cyclists at intersections and driveways. • Raised crossings reduce vehicle speeds at intersections. • Kerbs provide a clear physical distinction for pedestrian space. • Pedestrians and cyclists occassionally cross each others' path. Physical separators provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	• There is adequate space for cyclists to avoid conflict with open car doors. • An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. • Visibility at intersections and driveways is restricted due to the cycle lanes at road level. • Mountable separators slow down drivers turning into and out of driveways. • Parking setbacks improve visibility of cyclists at intersections and driveways. • Raised crossings reduce vehicle speeds at intersections. • Kerbs provide a clear physical distinction for pedestrian space. • Pedestrians and cyclists occassionally cross each others' path. Physical separators provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	• There is adequate space for cyclists to avoid conflict with open car doors. • An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. • Visibility at intersections and driveways is restricted due to the cycle lanes at road level. • Mountable separators slow down drivers turning into and out of driveways. • Parking setbacks improve visibility of cyclists at intersections and driveways. • Raised crossings reduce vehicle speeds at intersections. • Kerbs provide a clear physical distinction for pedestrian space. • Pedestrians and cyclists occassionally cross each others' path. Physical separators provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	• There is adequate space for cyclists to avoid conflict with open car doors. • An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. • The raised cycle paths improve intervisibility between cyclists and motor vehicles. • Parking setbacks improve visibility of cyclists at intersections and driveways. • Raised crossings reduce vehicle speeds at intersections. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.	• There is adequate space for cyclists to avoid conflict with open car doors. • An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. • The raised cycle paths improve intervisibility between cyclists and motor vehicles. • Parking setbacks improve visibility of cyclists at intersections and driveways. • Raised crossings reduce vehicle speeds at intersections. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.	• There is adequate space for cyclists to avoid conflict with open car doors. • An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. • The raised cycle paths improve intervisibility between cyclists and motor vehicles. • Parking setbacks improve visibility of cyclists at intersections and driveways. • Raised crossings reduce vehicle speeds at intersections. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.	• There is adequate space for cyclists to avoid conflict with open car doors. • An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. • The raised cycle paths improve intervisibility between cyclists and motor vehicles. • Parking setbacks improve visibility of cyclists at intersections and driveways. • Raised crossings reduce vehicle speeds at intersections. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.	• There is adequate space for cyclists to avoid conflict with open car doors. • An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. • The raised cycle paths improve intervisibility between cyclists and motor vehicles. • Parking setbacks improve visibility of cyclists at intersections and driveways. • Raised crossings reduce vehicle speeds at intersections. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.
Objectives (cont.)	Effectiveness meeting Love the Bay Objectives	The layout is intuitive and easy to understand	• Shared traffic lanes are inconsistent with the separated cycle facilities in the residential areas of The Parade. • Cyclist transitions between the business and residential areas of The Parade are inconsistent and stressful for road users to navigate.	• Shared traffic lanes are inconsistent with the separated cycle facilities in the residential areas of The Parade. • Cyclist transitions between the business and residential areas of The Parade are inconsistent and stressful for road users to navigate.	• A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. • Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. • Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. • Consistent markings and improved visibility at intersections somewhat improve clarity for all road users.	• A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. • Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. • Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. • Consistent markings and improved visibility at intersections somewhat improve clarity for all road users.	• A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. • Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. • Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. • Consistent markings and improved visibility at intersections somewhat improve clarity for all road users.	• A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. • Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. • Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. • Consistent treatments and improved visibility at intersections improve clarity for all road users.	• A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. • Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. • Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. • Consistent treatments and improved visibility at intersections improve clarity for all road users.	• A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. • Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. • Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. • Consistent treatments and improved visibility at intersections improve clarity for all road users.	• A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. • Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. • Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. • Consistent treatments and improved visibility at intersections improve clarity for all road users.	• A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. • Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. • Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. • Consistent treatments and improved visibility at intersections improve clarity for all road users.

Multi-Criteria Analysis: Business Zone Options

Criteria			Current layout *(for comparison)*	Option A Retain the short-term safety improvements only (kerbs unchanged)	Option B Cycle lanes at road level, with angle and parallel parking	Option C Cycle lanes at road level, with angle parking only	Option D Cycle lanes at road level, with parallel parking only	Option E Councillor-approved option (secondary stormwater system) with angle and parallel parking	Option F Councillor-approved option (lowered pavement) with angle and parallel parking	Option G Councillor-approved option (value engineered) with angle and parallel parking	Option H Councillor-approved option (value engineered) with angle parking only	Option I Councillor-approved option (value engineered) with parallel parking only
Objectives (cont.)	Effectiveness meeting Love the Bay Objectives (cont.)	The Parade accommodates all current and future users	● Footpaths are **3.2m/5.2m** wide, with some space for outdoor business activities and place-making opportunities. ● On-road shared traffic environment on medium- to high-volume, slow-speed road is moderately unsuitable for cycling. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths are **3.2m/5.2m** wide, with some space for outdoor business activities and place-making opportunities. ● On-road shared traffic environment on medium- to high-volume, slow-speed road is moderately unsuitable for cycling. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths are **3.2m/4.2m** wide, with reduced space for outdoor business activities and place-making opportunities. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths are **3.2m/5.4m** wide, with some space for outdoor business activities and place-making opportunities. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths are **3.2m/5.9m** wide, with increased space for outdoor business activities and place-making opportunities. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths are **3.2m/4.5m** wide, with reduced space for outdoor business activities and place-making opportunities. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths are **3.2m/4.5m** wide, with reduced space for outdoor business activities and place-making opportunities. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths are **3.2m/4.5m** wide, with reduced space for outdoor business activities and place-making opportunities. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths are **3.2m/6.0m** wide, with increased space for outdoor business activities and place-making opportunities. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths are **3.2m/6.5m** wide, with increased space for outdoor business activities and place-making opportunities. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.
		The visual environment is cohesive and clean	● The cycle facilities vary in style and treatment along The Parade. This results in a layout that is confusing and affects how safe people feel using the space. ● Transitions between the cycle lanes in the residential zones and the shared traffic lanes in the business zone create an uncohesive environment.	● The cycle facilities vary in style and treatment along The Parade. ● Providing consistent marking styles for the transitions from the cycle lanes and across intersections will slightly improve the cohesiveness. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Provides a consistent cycle lane treatment along The Parade. ● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Provides a consistent cycle lane treatment along The Parade. ● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Provides a consistent cycle lane treatment along The Parade. ● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● Providing a cohesive environment is dependent upon the transition between the residential and business zones.
		Central Island Bay is a pleasant and welcoming environment	● The footpaths provide some space for outdoor business activities and place-making opportunities.	● The footpaths provide some space for outdoor business activities and place-making opportunities. ● Improvements are isolated the carriageway between existing kerb lines. There is no opportunity to incorporate amenity improvements to the town centre beyond this.	● The reduced footpath width removes space for outdoor business activities and place-making opportunities. ● With the improvements, there is an opportunity to incorporate amenity upgrades in the town centre.	● The footpaths provide some space for outdoor business activities and place-making opportunities. ● With the improvements, there is an opportunity to incorporate amenity upgrades in the town centre.	● The increased footpath width provides more space for outdoor business activities and place-making opportunities. ● With the improvements, there is an opportunity to incorporate amenity upgrades in the town centre.	● The reduced footpath width removes space for outdoor business activities and place-making opportunities. ● The physical works require a complete redesign of the town centre, including the footpaths. With the improvements, there is a significant opportunity to incorporate amenity upgrades in the town centre.	● The reduced footpath width removes space for outdoor business activities and place-making opportunities. ● The physical works require a complete redesign of the town centre, including the footpaths. With the improvements, there is a significant opportunity to incorporate amenity upgrades in the town centre.	● The reduced footpath width removes space for outdoor business activities and place-making opportunities. ● The physical works require a complete redesign of the town centre, including the footpaths. With the improvements, there is a significant opportunity to incorporate amenity upgrades in the town centre.	● The increased footpath width provides more space for outdoor business activities and place-making opportunities. ● The physical works require a complete redesign of the town centre, including the footpaths. With the improvements, there is a significant opportunity to incorporate amenity upgrades in the town centre.	● The increased footpath width provides more space for outdoor business activities and place-making opportunities. ● The physical works require a complete redesign of the town centre, including the footpaths. With the improvements, there is a significant opportunity to incorporate amenity upgrades in the town centre.
Effects	Pedestrian Effects	Pedestrian Safety	● Kerbs provide a distinct separation for pedestrians from cyclists and motor vehicles.	● Kerbs provide a distinct separation for pedestrians from cyclists and motor vehicles.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.

Multi-Criteria Analysis: Business Zone Options

Criteria			Current layout *(for comparison)*	Option A Retain the short-term safety improvements only (kerbs unchanged)	Option B Cycle lanes at road level, with angle and parallel parking	Option C Cycle lanes at road level, with angle parking only	Option D Cycle lanes at road level, with parallel parking only
Effects (cont.)	Pedestrian Effects (cont.)	Pedestrian Experience	• Footpaths are **3.2m/5.2m** wide. • Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the shared traffic lane. • Pedestrians do not need to regularly cross the path of cyclists.	• Footpaths are **3.2m/5.2m** wide. • Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the shared traffic lane. • Pedestrians do not need to regularly cross the path of cyclists.	• Footpaths are **3.2m/4.2m** wide. • Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. • Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	• Footpaths are **3.2m/5.4m** wide. • Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. • Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	• Footpaths are **3.2m/5.9m** wide. • Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. • Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.
	Cyclist Effects	Cyclist Safety	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)
		Cyclist Experience	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)
	Public Transport Effects	Public Transport Safety	• Passengers boarding/alighting the bus do not need to cross the cycle facility.	• No improvements to the existing bus stops. • Passengers boarding/alighting the bus do not need to cross the cycle facility.	• Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.	• Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.	• Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.
		Public Transport Experience	• Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane.	• No improvements to the existing bus stops. • Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane.	• Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	• Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	• Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.
	Motor Vehicle Effects	Motor Vehicle Safety	• The transitions from the cycle lanes to the shared traffic lanes between the residential areas and the business area create conflict points with cyclists. • Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. However, the speed humps encourage cyclists to ride around the vertical deflection, and they are pushed towards parked vehicles. • Parking at intersections and driveways restricts intervisibility between road users.	• The transitions from the cycle lanes to the shared traffic lanes between the residential areas and the business area create conflict points with cyclists. • Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. Adjustment of the traffic calming measures (including removal of the speed humps) can encourage cyclists to ride in the centre of the traffic lane. • Parking at intersections and driveways restricts intervisibility between road users.	• Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. • Parking setbacks at intersections and driveways improve intervisibility between road users.	• Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. • Parking setbacks at intersections and driveways improve intervisibility between road users.	• Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. • Parking setbacks at intersections and driveways improve intervisibility between road users.
		Motor Vehicle Experience	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • The transitions from the cycle lanes to the shared traffic lanes between the residential areas and the business area create conflict points with cyclists and confusion for road users.	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • The transitions from the cycle lanes to the shared traffic lanes between the residential areas and the business area create conflict points with cyclists and confusion for road users.	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.

Criteria			Option E Councillor-approved option (secondary stormwater system) with angle and parallel parking	Option F Councillor-approved option (lowered pavement) with angle and parallel parking	Option G Councillor-approved option (value engineered) with angle and parallel parking	Option H Councillor-approved option (value engineered) with angle parking only	Option I Councillor-approved option (value engineered) with parallel parking only
Effects (cont.)	Pedestrian Effects (cont.)	Pedestrian Experience	• Footpaths are **3.2m/4.5m** wide. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. • Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. • Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	• Footpaths are **3.2m/4.5m** wide. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. • Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. • Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	• Footpaths are **3.2m/4.5m** wide. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. • Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. • Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	• Footpaths are **3.2m/6.0m** wide. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. • Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. • Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	• Footpaths are **3.2m/6.5m** wide. • Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. • Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. • Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.
	Cyclist Effects	Cyclist Safety	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)
		Cyclist Experience	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)
	Public Transport Effects	Public Transport Safety	• Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.	• Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.	• Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.	• Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.	• Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.
		Public Transport Experience	• Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	• Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	• Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	• Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	• Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.
	Motor Vehicle Effects	Motor Vehicle Safety	• Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. • The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. • Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. • Parking setbacks at intersections and driveways improve intervisibility between road users.	• Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. • The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. • Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. • Parking setbacks at intersections and driveways improve intervisibility between road users.	• Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. • The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. • Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. • Parking setbacks at intersections and driveways improve intervisibility between road users.	• Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. • The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. • Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. • Parking setbacks at intersections and driveways improve intervisibility between road users.	• Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. • The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. • Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. • Parking setbacks at intersections and driveways improve intervisibility between road users.
		Motor Vehicle Experience	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.	• Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. • Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.

Multi-Criteria Analysis: Business Zone Options

Criteria			Current layout *(for comparison)*	Option A: Retain the short-term safety improvements only (kerbs unchanged)	Option B: Cycle lanes at road level, with angle and parallel parking	Option C: Cycle lanes at road level, with angle parking only	Option D: Cycle lanes at road level, with parallel parking only	Option E: Councillor-approved option (secondary stormwater system) with angle and parallel parking	Option F: Councillor-approved option (lowered pavement) with angle and parallel parking	Option G: Councillor-approved option (value engineered) with angle and parallel parking	Option H: Councillor-approved option (value engineered) with angle parking only	Option I: Councillor-approved option (value engineered) with parallel parking only
Effects (cont.)	Parking Effects	Removal of existing parking spaces	• Approx. 55 car parks total	• 0 car parks lost	• Approx. 5-10 car parks lost (9-18%) due to driveway setbacks and a change in the parking angle	• Approx. 15-20 car parks lost (27-36%) due to driveway setbacks and removal of parallel parking on one side of the street	• Approx. 10-15 car parks lost (18-27%) due to driveway setbacks and replacement of angle parking with parallel parking	• Approx. 5-10 car parks lost (9-18%) due to driveway setbacks and a change in the parking angle	• Approx. 5-10 car parks lost (9-18%) due to driveway setbacks and a change in the parking angle	• Approx. 5-10 car parks lost (9-18%) due to driveway setbacks and a change in the parking angle	• Approx. 15-20 car parks lost (27-36%) due to driveway setbacks and removal of parallel parking on one side of the street	• Approx. 10-15 car parks lost (18-27%) due to driveway setbacks and replacement of angle parking with parallel parking
	Property Effects	Effect on access to businesses for pedestrians	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road. • Widened footpaths provide potential for improved access to businesses.	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road. • Widened footpaths provide potential for improved access to businesses.	• Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road. • Widened footpaths provide potential for improved acces to businesses.
		Effect on access to businesses for cyclists	• Shared traffic lanes on both sides of the road provide cyclists with limited access to businesses on both sides of the road.	• Shared traffic lanes on both sides of the road provide cyclists with limited access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.
		Effect on access to businesses for motor vehicles (incl. deliveries and ease of access)	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities on only one side of the road and pedestrian crossing locations provide somewhat restricted access to all businesses.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities on only one side of the road and pedestrian crossing locations provide somewhat restricted access to all businesses.	• Parking facilities on both sides of the road provide easy access to all businesses.
Implementation	Delivery Feasibility	Traffic disruption during construction	N/A	Traffic and travel times are slightly impacted during construction; required works are minimal and mostly involve resurfacing and remarking the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.
		Business disruption during construction	N/A	Businesses are slightly impacted during construction.	Businesses are moderately impacted during construction.	Businesses are moderately impacted during construction.	Businesses are moderately impacted during construction.	Businesses are significantly impacted during construction.	Businesses are significantly impacted during construction.	Businesses are significantly impacted during construction.	Businesses are significantly impacted during construction.	Businesses are significantly impacted during construction.
		Integration with Let's Get Wellington Moving	N/A	The construction works are only minor. If future mass rapid transit plans involve physical works on The Parade, the amount of physical works that may need to be altered are limited.	The construction works are moderate. If future mass rapid transit plans involve physical works on The Parade, some of the physical works ges will likely need to be changed to accommodate the mass rapid transit.	The construction works are moderate. If future mass rapid transit plans involve physical works on The Parade, some of the physical works ges will likely need to be changed to accommodate the mass rapid transit.	The construction works are moderate. If future mass rapid transit plans involve physical works on The Parade, some of the physical works ges will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.
	Funding	Cost indication	N/A	$0	$2.4 – $4.4 m	$2.4 – $4.3 m	$2.4 – $4.4 m	$3.8 – $6.8 m	$4.2 – $7.8 m	$3.3 – $6.0 m	$3.4 – $6.2 m	$3.5 – $6.3 m
Short listed for assessment of pairings with residential zone options?				✓	✗	✗	✓	✗	✗	✗	✗	✓

Multi-Criteria Analysis: Option Combinations

	Criteria	No physical works ($0)		Works within the originally approved budget (up to $6.1 million)						Works consistent with the Councillor-approved option (greater than $6.1 million)			
		Combination 1-A		Combination 1-D		Combination 2-A		Combination 2-D		Combination 3-D		Combination 6-I	
		Retain the short-term safety improvements		Retain the short-term safety improvements + cycle lanes in the town centre with parallel parking		Retain the short-term safety improvements + intersection/bus stop improvements		Retain the short-term safety improvements + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Councillor-approved option, value engineered with parallel parking in the town centre	
		Residential Option 1	Business Option A	Residential Option 1	Business Option D	Residential Option 2	Business Option A	Residential Option 2	Business Option D	Residential Option 3	Business Option D	Residential Option 6	Residential Option I
Objectives Effectiveness meeting WCC Cycling Investment Objectives	Achieve a high level of service for cyclists within an integrated transport network	LOS C to B	LOS E	LOS C to B	LOS C	LOS C to B	LOS E	LOS C to B	LOS C	LOS B	LOS C	LOS B	LOS B
	Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). • The 1.5m to 2.0m-wide cycle lanes do not consistently provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. • Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	• No seperated cycling facility means that cyclist operating speeds will be somewhat dictated by car speeds and congestion. • Cyclist speeds are likely to be restricted from interactions with drivers pulling in and out of on-street parking.	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). • The 1.5m to 2.0m-wide cycle lanes do not consistently provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. • Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. • The 1.5m-wide cycle lanes do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. • Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). • The 1.5m to 2.0m-wide cycle lanes do not consistently provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. • Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	• No seperated cycling facility means that cyclist operating speeds will be somewhat dictated by car speeds and congestion. • Cyclist speeds are likely to be restricted from interactions with drivers pulling in and out of on-street parking.	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). • The 1.5m to 2.0m-wide cycle lanes do not consistently provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. • Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. • The 1.5m-wide cycle lanes do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. • Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). • The 2.0m-wide cycle lanes provide cyclists restricted opportunities to pass each other. • Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. • The 1.5m-wide cycle lanes do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. • Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility (pedestrians and motor vehicles). • The 1.5m-wide cycle paths plus 0.9m-wide traversable buffers provide cyclists opportunities to pass each other (effectively 2.4m wide for passing). • Cyclist speeds may be slightly restricted from interactions with pedestrians crossing the path.	• An exclusive cycling facility means that cyclist operating speeds will not be dictated by other road users using the facility. • The 1.2m-wide cycle paths do not provide cyclists opportunities to pass each other; speeds will be impeded by other cyclists. • Cyclist speeds are likely to be restricted from interactions with pedestrians crossing the cycle path.
	Cycling is a viable and attractive transport choice	• The on-road bicycle lanes separated from car parking are suitable for the road environment. • There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	• On-road shared traffic environment on medium- to high-volume, slow-speed road is moderately unsuitable for cycling. • There is a non-mountable kerb between bicycle parking facilities and the shared traffic lanes; cyclists must dismount in the traffic lane to park.	• The on-road bicycle lanes separated from car parking are suitable for the road environment. • There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	• The on-road bicycle lanes separated from car parking are suitable for the road environment. • There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	• The on-road bicycle lanes separated from car parking are suitable for the road environment. • There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	• On-road shared traffic environment on medium- to high-volume, slow-speed road is moderately unsuitable for cycling. • There is a non-mountable kerb between bicycle parking facilities and the shared traffic lanes; cyclists must dismount in the traffic lane to park.	• The on-road bicycle lanes separated from car parking are suitable for the road environment. • There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	• The on-road bicycle lanes separated from car parking are suitable for the road environment. • There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	• The on-road bicycle lanes separated from car parking are suitable for the road environment. • There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	• The on-road bicycle lanes separated from car parking are suitable for the road environment. • There is a non-mountable kerb between bicycle parking facilities and the bicycle network; cyclists must dismount in the bike lane to park.	• The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. • Bicycle parking facilities can be accessed directly from the bicycle network.	• The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. • Bicycle parking facilities can be accessed directly from the bicycle network.
	The crash rate, number and severity of crashes involving people on bikes is reduced	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*• There are hazards from parked cars crossing/blocking the path of cyclists. • There is limited space for cyclists to safely avoid conflict with open car doors and vehicles backing out of on-street car parks. Adjustment of the traffic calming measures can encourage cyclists to ride in the centre of the traffic lane.*	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*• There are hazards from parked cars crossing/blocking the path of cyclists. • There is limited space for cyclists to safely avoid conflict with open car doors and vehicles backing out of on-street car parks. Adjustment of the traffic calming measures can encourage cyclists to ride in the centre of the traffic lane.*	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*	*• There is no hazard from parked cars crossing/blocking the path of cyclists. • There is adequate space for cyclists to avoid conflict with open car doors (i.e. there is sufficient buffer width).*
		• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are not able to safely pass each other.	*• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the shared traffic lane. • Pedestrians do not need to regularly cross the path of cyclists. • Cyclists are able to pass each other.*	*• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are not able to safely pass each other.*	*• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are not able to safely pass each other.*	*• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are not able to safely pass each other.*	*• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the shared traffic lane. • Pedestrians do not need to regularly cross the path of cyclists. • Cyclists are able to pass each other.*	*• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are not able to safely pass each other.*	*• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are not able to safely pass each other.*	*• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are restricted in their ability to pass each other.*	*• Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. • Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are not able to safely pass each other.*	*• Nib kerbs provide some physical distinction between space for pedestrians on the footpath and cyclists in the cycle path. • Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are able to pass each other.*	*• Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. • Pedestrians regularly cross the cycle paths, but the raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths from parked cars to the footpath. • Cyclists are not able to safely pass each other.*

Multi-Criteria Analysis: Option Combinations

Criteria			No physical works ($0)		Works within the originally approved budget (up to $6.1 million)						Works consistent with the Councillor-approved option (greater than $6.1 million)			
			Combination 1-A		Combination 1-D		Combination 2-A		Combination 2-D		Combination 3-D		Combination 6-I	
			Retain the short-term safety improvements		Retain the short-term safety improvements + cycle lanes in the town centre with parallel parking		Retain the short-term safety improvements + intersection/bus stop improvements		Retain the short-term safety improvements + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Councillor-approved option, value engineered with parallel parking in the town centre	
			Residential Option 1	Business Option A	Residential Option 1	Business Option D	Residential Option 2	Business Option A	Residential Option 2	Business Option D	Residential Option 3	Business Option D	Residential Option 6	Residential Option I
Objectives (cont.)	Effectiveness meeting WCC Cycling Investment Objectives (cont.)	The crash rate, number and severity of crashes involving people on bikes is reduced (cont.)	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Cycle lanes somewhat separate cyclists from motor vehicles at intersections, but vehicle speeds are not reduced and cyclists are fully exposed to motor vehicles. • Parking setbacks improve visibility of cyclists at intersections and driveways.*	*• No bicycle facility in a medium- to high-risk road environment results in risk of crashes between cyclists and motor vehicles.*	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Cycle lanes somewhat separate cyclists from motor vehicles at intersections, but vehicle speeds are not reduced and cyclists are fully exposed to motor vehicles. • Parking setbacks improve visibility of cyclists at intersections and driveways.*	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Raised crossings across the intersections reduce vehicle speeds at intersections. • Parking setbacks improve visibility of cyclists at intersections and driveways.*	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Raised crossings across the intersections reduce vehicle speeds at intersections. • Parking setbacks improve visibility of cyclists at intersections and driveways.*	*• No bicycle facility in a medium- to high-risk road environment results in risk of crashes between cyclists and motor vehicles.*	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Raised crossings across the intersections reduce vehicle speeds at intersections. • Parking setbacks improve visibility of cyclists at intersections and driveways.*	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Raised crossings across the intersections reduce vehicle speeds at intersections. • Parking setbacks improve visibility of cyclists at intersections and driveways.*	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Raised crossings across the intersections reduce vehicle speeds at intersections. • Parking setbacks improve visibility of cyclists at intersections and driveways.*	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. • Raised crossings across the intersections reduce vehicle speeds at intersections. • Parking setbacks improve visibility of cyclists at intersections and driveways.*	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The raised cycle paths improve intervisibility between cyclists and motor vehicles. • Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections. • Parking setbacks improve visibility of cyclists at intersections and driveways.*	*• An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes between cyclists and motor vehicles. • The raised cycle paths improve intervisibility between cyclists and motor vehicles. • Raised cycle paths across the intersections reduce vehicle speeds and improve visibility of cyclists at intersections. • Parking setbacks improve visibility of cyclists at intersections and driveways.*
		Providing transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington	• The facility does not cater well for strong and fearless cyclists as the facility is not wide enough for cyclists to pass each other. • The separated facility caters well to enthused and confident cyclists. • The facility caters to some interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. However, there is little separation for cyclists through intersections.	• The shared traffic lanes do cater to strong and fearless cyclists, but there are risks for on-road cyclists due to vehicles backing out of angle parking. • The shared traffic lanes in a low-speed environment may cater to only some enthused and confident cyclists due to the shared lanes with motor vehicles and risks from angle parking. • The facility does not cater to interested but concerned cyclists.	• The facility does not cater well for strong and fearless cyclists as the facility is not wide enough for cyclists to pass each other. • The separated facility caters well to enthused and confident cyclists. • The facility caters to some interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. However, there is little separation for cyclists through intersections.	• The facility may cater to only some strong and fearless cyclists as the width of the facility restricts cyclists' ability to pass each other. However, the on-road traffic lanes in a low-speed environment with parallel parking only cater well to strong and fearless cyclists. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility does not cater well for strong and fearless cyclists as the facility is not wide enough for cyclists to pass each other. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. 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However, the on-road traffic lanes in a low-speed environment with parallel parking only cater well to strong and fearless cyclists. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility caters to some strong and fearless cyclists as the facility is wide enough for cyclists to pass each other. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.	• The facility may cater to only some strong and fearless cyclists as the width of the facility restricts cyclists' ability to pass each other. However, the on-road traffic lanes in a low-speed environment with parallel parking only cater well to strong and fearless cyclists. • The separated facility caters well to enthused and confident cyclists. • The facility caters well to interested but concerned cyclists. The separated facility in the midblocks provides an increased feeling of safety, with physical separation from motor vehicles. Raised cycle paths across intersections also provide an increased level of protection through intersections.

Multi-Criteria Analysis: Option Combinations

Criteria			No physical works ($0)		Works within the originally approved budget (up to $6.1 million)						Works consistent with the Councillor-approved option (greater than $6.1 million)			
			Combination 1-A		Combination 1-D		Combination 2-A		Combination 2-D		Combination 3-D		Combination 6-I	
			Retain the short-term safety improvements		Retain the short-term safety improvements + cycle lanes in the town centre with parallel parking		Retain the short-term safety improvements + intersection/bus stop improvements		Retain the short-term safety improvements + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Councillor-approved option, value engineered with parallel parking in the town centre	
			Residential Option 1	Business Option A	Residential Option 1	Business Option D	Residential Option 2	Business Option A	Residential Option 2	Business Option D	Residential Option 3	Business Option D	Residential Option 6	Residential Option I
Objectives (cont.)	Effectiveness meeting Love the Bay Objectives	The Parade is safe for all users	● There is adequate space for cyclists to avoid conflict with open car doors. ● Unintuitive intersection layouts lead to confusion between all road users. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● Visibility of cyclists at intersections and driveways is restricted due to the cycle lanes at road level. ● Mountable separators slow down drivers turning into and out of driveways. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Cycle lanes somewhat separate cyclists from motor vehicles at intersections, but vehicle speeds are not reduced and cyclists are fully exposed to motor vehicles. ● Kerbs provide a clear physical distinction for pedestrian. ● Pedestrians and cyclists occassionally cross each others' path. Physical separators in the buffer space provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	● No bicycle facility in a medium- to high-risk road environment results in risk of crashes between cyclists and motor vehicles. ● There are hazards from parked cars crossing / blocking the path of cyclists. ● There is limited space for cyclists to safely avoid conflict with open car doors and vehicles backing out of on-street car parks. ● Kerbs provide a clear physical distinction for pedestrian space. ● Pedestrians do not need to regularly cross the path of cyclists.	● There is adequate space for cyclists to avoid conflict with open car doors. ● Unintuitive intersection layouts lead to confusion between all road users. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● Visibility of cyclists at intersections and driveways is restricted due to the cycle lanes at road level. ● Mountable separators slow down drivers turning into and out of driveways. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Cycle lanes somewhat separate cyclists from motor vehicles at intersections, but vehicle speeds are not reduced and cyclists are fully exposed to motor vehicles. ● Kerbs provide a clear physical distinction for pedestrian. ● Pedestrians and cyclists occassionally cross each others' path. 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Physical separators provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	● There is adequate space for cyclists to avoid conflict with open car doors. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● Visibility of cyclists at intersections and driveways is restricted due to the cycle lanes at road level. ● Mountable separators slow down drivers turning into and out of driveways. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Kerbs provide a clear physical distinction for pedestrian space. ● Pedestrians and cyclists occassionally cross each others' path. 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Physical separators provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle lanes.	● There is adequate space for cyclists to avoid conflict with open car doors. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Wide traffic lanes and a central painted median encourage faster motor vehicles speeds, making it less safe for pedestrians crossing The Parade or entering/exiting parked cars. ● Nib kerbs provide some physical distinction between space for pedestrians and cyclists. ● Pedestrians and cyclists occassionally cross each others' path. Raised buffers provide a clear physical indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.	● There is adequate space for cyclists to avoid conflict with open car doors. ● An exclusive bicycle facility in a medium-risk road environment limits the risk of crashes. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles. ● Parking setbacks improve visibility of cyclists at intersections and driveways. ● Raised crossings reduce vehicle speeds at intersections. ● Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists. ● Pedestrians and cyclists occassionally cross each others' path, but the raised buffers provide a clear indication between pedestrian and cyclist space for pedestrians crossing the cycle paths.
		The layout is intuitive and easy to understand	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent markings and improved visibility at intersections provide only minor improvement in clarity for road users. ● No improvements for consistency or visibility at the existing bus stops.	● Shared traffic lanes are inconsistent with the separated cycle facilities in the residential areas of The Parade. ● Cyclist transitions between the business and residential areas of The Parade are inconsistent and stressful for road users to navigate.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent markings and improved visibility at intersections provide only minor improvement in clarity for road users. ● No improvements for consistency or visibility at the existing bus stops.	● A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. ● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent markings and improved visibility at intersections somewhat improve clarity for all road users.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Shared traffic lanes are inconsistent with the separated cycle facilities in the residential areas of The Parade. ● Cyclist transitions between the business and residential areas of The Parade are inconsistent and stressful for road users to navigate.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. ● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent markings and improved visibility at intersections somewhat improve clarity for all road users.	● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● A separated cycle facility provides consistency with the treatment in the residential areas of The Parade. ● Raised buffers prevent vehicles from parking in the buffer space and encroaching into cyclists' space. ● Raised buffers provide clarity and physical separation for people exiting/unloading from parked cars and for pedestrians crossing the cycle path from parked cars to the footpath. ● Consistent treatments and improved visibility at intersections improve clarity for all road users.

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Objectives (cont.)	Effectiveness meeting Love the Bay Objectives (cont.)	The Parade accommodates all current and future users	● Footpaths vary between 2.0–3.0m wide. Kerbs provide a distinct separation for pedestrian space. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane. ● Inconsistent treatments and lack of visibility at intersections cause confusion, particularly for turning vehicles. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths are 3.2m/5.2m wide, with some space for outdoor business activities and place-making opportunities. ● On-road shared traffic environment on medium- to high-volume, slow-speed road is moderately unsuitable for cycling. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths vary between 2.0–3.0m wide. Kerbs provide a distinct separation for pedestrian space. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane. ● Inconsistent treatments and lack of visibility at intersections cause confusion, particularly for turning vehicles. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths are 3.2m/5.9m wide, with increased space for outdoor business activities and place-making opportunities. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths vary between 2.0–3.0m wide. Kerbs provide a distinct separation for pedestrian space. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths are 3.2m/5.2m wide, with some space for outdoor business activities and place-making opportunities. ● On-road shared traffic environment on medium- to high-volume, slow-speed road is moderately unsuitable for cycling. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths vary between 2.0–3.0m wide. Kerbs provide a distinct separation for pedestrian space. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths are 3.2m/5.9m wide, with increased space for outdoor business activities and place-making opportunities. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths vary between 2.0–2.5m wide. Kerbs provide a distinct separation for pedestrian space. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths are 3.2m/5.9m wide, with increased space for outdoor business activities and place-making opportunities. ● The on-road bicycle lanes separated from car parking are suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.	● Footpaths vary between 2.0m wide. Nib kerbs provide some separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. Widened traffic lanes reduce stress of side-swiping vehicles.	● Footpaths are 3.2m/6.5m wide, with increased space for outdoor business activities and place-making opportunities. ● The physically separated bicycle paths for use by bicycles only are highly suitable for the road environment. ● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users.
		The visual environment is cohesive and clean	● The cycle facilities vary in style and treatment along The Parade. ● Providing consistent marking styles for the cycle lanes and across intersections will slightly improve the cohesiveness. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space) will contribute to a clean visual look.	● The cycle facilities vary in style and treatment along The Parade. ● Providing consistent marking styles for the transitions from the cycle lanes and across intersections will slightly improve the cohesiveness. ● The shared traffic lanes through the business zone are not cohesive with the cycle lanes in the residential zone.	● The cycle facilities vary in style and treatment along The Parade. ● Providing consistent marking styles for the cycle lanes and across intersections will slightly improve the cohesiveness. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space) will contribute to a clean visual look.	● Provides a consistent cycle lane treatment along The Parade. ● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● The cycle lanes through the business zone are cohesive with the cycle lanes in the residential zone.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look.	● The cycle facilities vary in style and treatment along The Parade. ● Providing consistent marking styles for the transitions from the cycle lanes and across intersections will slightly improve the cohesiveness. ● The shared traffic lanes through the business zone are not cohesive with the cycle lanes in the residential zone.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look.	● Provides a consistent cycle lane treatment along The Parade. ● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● The cycle lanes through the business zone are cohesive with the cycle lanes in the residential zone.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look.	● Provides a consistent cycle lane treatment along The Parade. ● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● The cycle lanes through the business zone are cohesive with the cycle lanes in the residential zone.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look.	● Updates to intersections and bus stops will help to improve consistency. ● Using physical elements instead of road markings (i.e., raised cycle paths, physical separators in the buffer space, kerb build-outs, traffic islands, etc.) will contribute to a clean visual look. ● The cycle paths through the business zone are cohesive with the cycle paths in the residential zone.
		Central Island Bay is a pleasant and welcoming environment	N/A	● The footpaths provide some space for outdoor business activities and place-making opportunities. ● Improvements are isolated the carriageway between existing kerb lines. There is no opportunity to incorporate amenity improvements to the town centre beyond this.	N/A	● The increased footpath width provides more space for outdoor business activities and place-making opportunities. ● With the improvements, there is an opportunity to incorporate amenity upgrades in the town centre.	N/A	● The footpaths provide some space for outdoor business activities and place-making opportunities. ● Improvements are isolated the carriageway between existing kerb lines. There is no opportunity to incorporate amenity improvements to the town centre beyond this.	N/A	● The increased footpath width provides more space for outdoor business activities and place-making opportunities. ● With the improvements, there is an opportunity to incorporate amenity upgrades in the town centre.	N/A	● The increased footpath width provides more space for outdoor business activities and place-making opportunities. ● With the improvements, there is an opportunity to incorporate amenity upgrades in the town centre.	N/A	● The increased footpath width provides more space for outdoor business activities and place-making opportunities. ● The physical works require a complete redesign of the town centre, including the footpaths. With the improvements, there is a significant opportunity to incorporate amenity upgrades in the town centre.

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		Criteria	No physical works ($0)		Works within the originally approved budget (up to $6.1 million)						Works consistent with the Councillor-approved option (greater than $6.1 million)			
			Combination 1-A		Combination 1-D		Combination 2-A		Combination 2-D		Combination 3-D		Combination 6-I	
			Retain the short-term safety improvements		Retain the short-term safety improvements + cycle lanes in the town centre with parallel parking		Retain the short-term safety improvements + intersection/bus stop improvements		Retain the short-term safety improvements + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Councillor-approved option, value engineered with parallel parking in the town centre	
			Residential Option 1	Business Option A	Residential Option 1	Business Option D	Residential Option 2	Business Option A	Residential Option 2	Business Option D	Residential Option 3	Business Option D	Residential Option 6	Residential Option I
Effects	Pedestrian Effects	Pedestrian Safety	● Kerbs provide a distinct separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles.	● Kerbs provide a distinct separation for pedestrians from cyclists and motor vehicles.	● Kerbs provide a distinct separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Kerbs provide a distinct separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds at intersections.	● Kerbs provide a distinct separation for pedestrians from cyclists and motor vehicles.	● Kerbs provide a distinct separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds at intersections.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Kerbs provide a distinct separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds at intersections.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.	● Nib kerbs provide some separation between pedestrians and cyclists. ● Pedestrians need to cross the cycle facility to walk between parked cars and the footpath. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds at intersections. ● Wide traffic lanes and a central painted median encourage faster motor vehicles speeds, making it less safe for pedestrians crossing The Parade or entering/exiting parked cars.	● Pedestrians now need to cross the cycle facility to walk between parked cars and the footpath, which creates new conflict between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to safely exit and unload from vehicles. ● Raised crossings reduce vehicle speeds at intersections and midblock crossings.
		Pedestrian Experience	● Footpaths vary between 2.0–3.0m wide. ● Kerbs provide a distinct separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles.	● Footpaths are 3.2m/5.2m wide. ● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the shared traffic lane. ● Pedestrians do not need to regularly cross the path of cyclists.	● Footpaths vary between 2.0–3.0m wide. ● Kerbs provide a distinct separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles.	● Footpaths are 3.2m/5.9m wide. ● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths vary between 2.0–3.0m wide. ● Kerbs provide a distinct separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths are 3.2m/5.2m wide. ● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the shared traffic lane. ● Pedestrians do not need to regularly cross the path of cyclists.	● Footpaths vary between 2.0–3.0m wide. ● Kerbs provide a distinct separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths are 3.2m/5.9m wide. ● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths vary between 2.0–2.5m wide. ● Kerbs provide a distinct separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths are 3.2m/5.9m wide. ● Kerbs provide a clear physical distinction between space for pedestrians on the footpath and cyclists in the cycle lane. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths are 2.0m wide. ● Nib kerbs provide some separation between pedestrians and cyclists. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.	● Footpaths are 3.2m/6.5m wide. ● Difference in colouring/material between the footpaths and cycle paths provide some distinction between space for pedestrians and cyclists in the cycle lane. ● Raised buffers provide a clear and physically distinct area for people to comfortably exit and unload from vehicles. ● Raised crossings across the intersections reduce vehicle speeds and provide a consistent through route for pedestrians.
	Cyclist Effects	Cyclist Safety	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)	Average of the ratings for WCC cycling objective: "The crash rate, number and severity of crashes involving people on bikes is reduced" (above)
		Cyclist Experience	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)	Average of the ratings for all WCC cycling objectives (above)
	Public Transport Effects	Public Transport Safety	● No improvements to the existing bus stops. ● Inconsistent treatments and lack of visibility at bus stops cause confusion at conflict points between boarding/alighting bus passengers and cycslists.	● No improvements to the existing bus stops. ● Passengers boarding/alighting the bus do not need to cross the cycle facility.	● No improvements to the existing bus stops. ● Inconsistent treatments and lack of visibility at bus stops cause confusion at conflict points between boarding/alighting bus passengers and cycslists.	● Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.	● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● No improvements to the existing bus stops. ● Passengers boarding/alighting the bus do not need to cross the cycle facility.	● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.	● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.	● Consistent treatments and improved visibility at bus stops improve clarity at conflict points between boarding/alighting bus passengers and cyclists.	● Boarding/alighting bus passengers now need to cross the cycle facility, which creates new conflict between passengers and cyclists. Conflicts can be managed through consistent treatments that improve visibility at conflict points between boarding/alighting bus passengers and cyclists.

Multi-Criteria Analysis: Option Combinations

Criteria			No physical works ($0)		Works within the originally approved budget (up to $6.1 million)						Works consistent with the Councillor-approved option (greater than $6.1 million)			
			Combination 1-A		Combination 1-D		Combination 2-A		Combination 2-D		Combination 3-D		Combination 6-I	
			Retain the short-term safety improvements		Retain the short-term safety improvements + cycle lanes in the town centre with parallel parking		Retain the short-term safety improvements + intersection/bus stop improvements		Retain the short-term safety improvements + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Councillor-approved option, value engineered with parallel parking in the town centre	
			Residential Option 1	Business Option A	Residential Option 1	Business Option D	Residential Option 2	Business Option A	Residential Option 2	Business Option D	Residential Option 3	Business Option D	Residential Option 6	Residential Option I
Effects (cont.)	PT Effects (cont.)	Public Transport Experience	● No improvements to the existing bus stops. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane.	● No improvements to the existing bus stops. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane.	● No improvements to the existing bus stops. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● No improvements to the existing bus stops. ● Off-line bus stops means that buses must wait for a gap to re-enter the traffic lane.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.	● Potential opportunity to provide in-line bus stops and reduce re-entry delay for buses.
	Motor Vehicle Effects	Motor Vehicle Safety	● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Vehicle speeds are not reduced at intersections to limit conflict between motor vehicles and other road users. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Widened traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways.	● The transitions from the cycle lanes to the shared traffic lanes between the residential areas and the business area create conflict points with cyclists. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. Adjustment of the traffic calming measures (including removal of the speed humps) can encourage cyclists to ride in the centre of the traffic lane. ● Parking at intersections and driveways restricts intervisibility between road users.	● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Vehicle speeds are not reduced at intersections to limit conflict between motor vehicles and other road users. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Widened traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways.	● Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. ● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. ● Parking setbacks at intersections and driveways improve intervisibility between road users.	● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Widened traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways.	● The transitions from the cycle lanes to the shared traffic lanes between the residential areas and the business area create conflict points with cyclists. ● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. Adjustment of the traffic calming measures (including removal of the speed humps) can encourage cyclists to ride in the centre of the traffic lane. ● Parking at intersections and driveways restricts intervisibility between road users.	● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Widened traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways.	● Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. ● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. ● Parking setbacks at intersections and driveways improve intervisibility between road users.	● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Widened traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways.	● Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. ● The road-level cycle lanes restrict intervisibility between cyclists and motor vehicles at driveways. ● Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. ● Parking setbacks at intersections and driveways improve intervisibility between road users.	● The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. ● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Parking setbacks at intersections and driveways improve intervisibility between motor vehicles and other road users. ● Wide traffic lanes reduce risk of side-swiping vehicles and improve the ability to manoeuvre out of driveways. However, the wide lanes and painted central median encourage faster motor vehicles speeds and potentially unsafe passing of slowing or stopped vehicles.	● Consistent treatment for cyclists in the residential and business areas creates consistency and eliminates conflict points. ● The raised cycle paths improve intervisibility between cyclists and motor vehicles at driveways. ● Through traffic calming, vehicle speeds are reduced in the midblock and at intersections to limit conflict between motor vehicles and other road users. ● Parking setbacks at intersections and driveways improve intervisibility between road users.
		Motor Vehicle Experience	● Vehicle speeds are not reduced at intersections to limit conflict between motor vehicles and other road users. ● Inconsistent treatments and lack of visibility at intersections cause confusion, particularly for turning vehicles. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. ● The transitions from the cycle lanes to the shared traffic lanes between the residential areas and the business area create conflict points with cyclists and confusion for road users.	● Vehicle speeds are not reduced at intersections to limit conflict between motor vehicles and other road users. ● Inconsistent treatments and lack of visibility at intersections cause confusion, particularly for turning vehicles. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. ● Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.	● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. ● The transitions from the cycle lanes to the shared traffic lanes between the residential areas and the business area create conflict points with cyclists and confusion for road users.	● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. ● Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.	● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. ● Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.	● Raised crossings at intersections reduce vehicle speeds and improve visibility of pedestrians and cyclists at intersections. ● Consistent treatments and improved visibility at intersections improve clarity for all road users. ● Widened traffic lanes reduce stress of side-swiping vehicles.	● Through traffic calming, vehicle speeds are reduced in the midblock at intersections to limit conflict between motor vehicles and other road users. ● Consistent treatment for cyclists in the residential and business areas creats consistency and eliminates conflict points.
	Parking Effects	Removal of existing parking spaces	● Approx. 60-75 car parks lost (43-56%) due to driveway/intersection setbacks and parking removal on one side of the street between the business zone and Trent Street	● 0 car parks lost	● Approx. 60-75 car parks lost (43-56%) due to driveway/intersection setbacks and parking removal on one side of the street between the business zone and Trent Street	● Approx. 10-15 car parks lost (18-27%) due to driveway setbacks and replacement of angle parking with parallel parking	● Approx. 60-75 car parks lost (43-56%) due to driveway/intersection setbacks and parking removal on one side of the street between the business zone and Trent Street	● 0 car parks lost	● Approx. 60-75 car parks lost (43-56%) due to driveway/intersection setbacks and parking removal on one side of the street between the business zone and Trent Street	● Approx. 10-15 car parks lost (18-27%) due to driveway setbacks and replacement of angle parking with parallel parking	● Approx. 40-50 car parks lost (29-37%) due to driveway/intersection setbacks	● Approx. 10-15 car parks lost (18-27%) due to driveway setbacks and replacement of angle parking with parallel parking	● Approx. 40-50 car parks lost (29-37%) due to driveway/intersection setbacks	● Approx. 10-15 car parks lost (18-27%) due to driveway setbacks and replacement of angle parking with parallel parking
	Property Effects	Effect on access to businesses for pedestrians	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road. ● Widened footpaths provide potential for improved access to businesses.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road. ● Widened footpaths provide potential for improved access to businesses.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road. ● Widened footpaths provide potential for improved access to businesses.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road.	● Footpaths on both sides of the road and pedestrian crossings provide pedestrians with access to businesses on both sides of the road. ● Widened footpaths provide potential for improved acces to businesses.

Multi-Criteria Analysis: Option Combinations

Criteria			No physical works ($0)		Works within the originally approved budget (up to $6.1 million)						Works consistent with the Councillor-approved option (greater than $6.1 million)			
			Combination 1-A		Combination 1-D		Combination 2-A		Combination 2-D		Combination 3-D		Combination 6-I	
			Retain the short-term safety improvements		Retain the short-term safety improvements + cycle lanes in the town centre with parallel parking		Retain the short-term safety improvements + intersection/bus stop improvements		Retain the short-term safety improvements + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Move kerbs to achieve the preferred carriageway and cycle lane widths + intersection/bus stop improvements + cycle lanes in the town centre with parallel parking		Councillor-approved option, value engineered with parallel parking in the town centre	
			Residential Option 1	Business Option A	Residential Option 1	Business Option D	Residential Option 2	Business Option A	Residential Option 2	Business Option D	Residential Option 3	Business Option D	Residential Option 6	Residential Option I
Effects (cont.)	Property Effects (cont.)	Effect on access to businesses for cyclists	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Shared traffic lanes on both sides of the road provide cyclists with limited access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Shared traffic lanes on both sides of the road provide cyclists with limited access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.	• Exclusive cycle facilities on both sides of the road provide cyclists with access to businesses on both sides of the road.
		Effect on access to businesses for motor vehicles (incl. deliveries and ease of access)	• Parking facilities are provided outside of some businesses on The Parade or side streets.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities are provided outside of some businesses on The Parade or side streets.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities are provided outside of some businesses on The Parade or side streets.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities are provided outside of some businesses on The Parade or side streets.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities are provided outside of some businesses on The Parade or side streets.	• Parking facilities on both sides of the road provide easy access to all businesses.	• Parking facilities are provided outside of some businesses on The Parade or side streets.	• Parking facilities on both sides of the road provide easy access to all businesses.
Implementation	Delivery	Traffic disruption during construction	Traffic and travel times are slilghtly impacted during construction; required works are minimal and mostly involve resurfacing and remarking the road.	Traffic and travel times are slilghtly impacted during construction; required works are minimal and mostly involve resurfacing and remarking the road.	Traffic and travel times are slilghtly impacted during construction; required works are minimal and mostly involve resurfacing and remarking the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are slilghtly impacted during construction; required works are minimal and mostly involve resurfacing and remarking the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are moderately impacted during construction; required works are mostly limited to resurfacing and remarking the road and isolated sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.	Traffic and travel times are significantly impacted during construction; extensive works are required on all sections of the road.
		Business disruption during construction	Businesses are slightly impacted during construction.	Businesses are slightly impacted during construction.	Businesses are slightly impacted during construction.	Businesses are moderately impacted during construction.	Businesses are moderately impacted during construction.	Businesses are slightly impacted during construction.	Businesses are moderately impacted during construction.	Businesses are moderately impacted during construction.	Businesses are moderately impacted during construction.	Businesses are moderately impacted during construction.	Businesses are significantly impacted during construction.	Businesses are significantly impacted during construction.
		Integration with Let's Get Wellington Moving	The construction works are only minor. If future mass rapid transit plans involve physical works on The Parade, the amount of physical works that may need to be altered are limited.	The construction works are only minor. If future mass rapid transit plans involve physical works on The Parade, the amount of physical works that may need to be altered are limited.	The construction works are only minor. If future mass rapid transit plans involve physical works on The Parade, the amount of physical works that may need to be altered are limited.	The construction works are moderate. If future mass rapid transit plans involve physical works on The Parade, some of the physical works ges will likely need to be changed to accommodate the mass rapid transit.	The construction works are only minor. If future mass rapid transit plans involve physical works on The Parade, the amount of physical works that may need to be altered are limited.	The construction works are only minor. If future mass rapid transit plans involve physical works on The Parade, the amount of physical works that may need to be altered are limited.	The construction works are only minor. If future mass rapid transit plans involve physical works on The Parade, the amount of physical works that may need to be altered are limited.	The construction works are moderate. If future mass rapid transit plans involve physical works on The Parade, some of the physical works ges will likely need to be changed to accommodate the mass rapid transit.	The construction works are moderate. If future mass rapid transit plans involve physical works on The Parade, some of the physical works will likely need to be changed to accommodate the mass rapid transit.	The construction works are moderate. If future mass rapid transit plans involve physical works on The Parade, some of the physical works ges will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.	The construction works are significant. If future mass rapid transit plans involve physical works on The Parade, most of the physical works will likely need to be changed to accommodate the mass rapid transit.
	Funding	Cost indication	$0	$0	$0	$2.4 – $4.4 m	$2.6 – $4.7 m	$0	$2.6 – $4.7 m	$2.4 – $4.4 m	$4.1 – $7.4 m	$2.4 – $4.4 m	$5.8 – $10.6 m	$3.5 – $6.3 m
			$0		$2.4 – $4.4 m		$2.6 – $4.7 m		$5.0 – $9.1 m		$6.5 – $11.8 m		$9.3 –$16.9 m	
Preferred option?			✗		✗		✗		✗		✓		✗	

Appendix D: Cost estimates (2021)

- **Costing summary for the short-term safety improvements**
- **Costing summary for the long-term upgrade options**
- **Costing summary for the long-term upgrade short-listed combinations**

Indicative cost estimates: Short-term safety improvements

Item			Scheduled resurfacing	Option 1	Option 2	Option 3	Option 4
Construction	Planned resurfacing and remarking (Mersey St to Reef St)		$ 130,000	$ 130,000	$ 130,000	$ 130,000	$ 130,000
	Additional resurfacing and remarking		$ -	$ -	$ 160,000	$ 390,000	$ 580,000
	Additional safety improvements		$ -	$ 330,000	$ 650,000	$ 650,000	$ 650,000
	SUBTOTAL		$ 130,000	$ 460,000	$ 940,000	$ 1,170,000	$ 1,360,000
	Cont. Low contingency allowance	-5%	$ -	-$ 20,000	-$ 50,000	-$ 60,000	-$ 70,000
	Cont. High contingency allowance	30%	$ -	$ 140,000	$ 280,000	$ 350,000	$ 410,000
	LOW CONSTRUCTION TOTAL		**$ 130,000**	**$ 440,000**	**$ 890,000**	**$ 1,110,000**	**$ 1,290,000**
	HIGH CONSTRUCTION TOTAL		**$ 130,000**	**$ 600,000**	**$ 1,220,000**	**$ 1,520,000**	**$ 1,770,000**
Consultant fees	Low Design fees	8%	$ 10,000	$ 40,000	$ 70,000	$ 90,000	$ 100,000
	Low MSQA	3%	$ -	$ 10,000	$ 30,000	$ 30,000	$ 40,000
	Low fees		$ 10,000	$ 50,000	$ 100,000	$ 120,000	$ 140,000
	High Design fees	12%	$ 20,000	$ 70,000	$ 150,000	$ 180,000	$ 210,000
	High MSQA	5%	$ 10,000	$ 30,000	$ 60,000	$ 80,000	$ 90,000
	High fees		$ 30,000	$ 100,000	$ 210,000	$ 260,000	$ 300,000
LOW TOTAL FEES, EXCLUDING WCC COSTS			**$ 140,000**	**$ 490,000**	**$ 990,000**	**$ 1,230,000**	**$ 1,430,000**
HIGH TOTAL FEES, EXCLUDING WCC COSTS			**$ 160,000**	**$ 700,000**	**$ 1,430,000**	**$ 1,780,000**	**$ 2,070,000**
WCC	Low WCC management fees	20%	$ 30,000	$ 100,000	$ 200,000	$ 250,000	$ 290,000
	High WCC management fees	20%	$ 30,000	$ 140,000	$ 290,000	$ 360,000	$ 410,000
LOW TOTAL (rounded)			**$ 170,000**	**$ 590,000**	**$ 1,190,000**	**$ 1,480,000**	**$ 1,720,000**
HIGH TOTAL (rounded)			**$ 190,000**	**$ 840,000**	**$ 1,720,000**	**$ 2,140,000**	**$ 2,480,000**

Indicative cost estimates: Long-term upgrade options

Item				RESIDENTIAL ZONE OPTIONS					
				Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Construction	1	**Preliminary and general**		$ -	$ 436,000	$ 696,000	$ 1,156,000	$ 1,857,000	$ 1,013,000
	2	**Site clearance & earthworks**		$ -	$ 63,000	$ 200,000	$ 475,000	$ 475,000	$ 475,000
	3	**Wet services**		$ -	$ 272,000	$ 346,000	$ 733,000	$ 543,000	$ 688,000
	4	**Dry services**		$ -	$ 42,000	$ 42,000	$ 166,000	$ 166,000	$ 58,000
	5	**Pavement reconstruction**		$ -	$ 362,000	$ 713,000	$ 1,067,000	$ 3,598,000	$ 749,000
	6	**Kerbs / paths / islands**		$ -	$ 619,000	$ 899,000	$ 1,229,000	$ 1,229,000	$ 1,229,000
	7	**Traffic services**		$ -	$ 65,000	$ 76,000	$ 134,000	$ 129,000	$ 134,000
	8	**Landscaping**		$ -	$ 33,000	$ 46,000	$ 53,000	$ 52,000	$ 45,000
	SUBTOTAL			$ -	$ 1,892,000	$ 3,018,000	$ 5,013,000	$ 8,049,000	$ 4,391,000
	Contingency	Low	Pavement	-5%	$ -	-$ 19,000	-$ 36,000	-$ 54,000	-$ 180,000	-$ 38,000
			Services	-5%	$ -	-$ 16,000	-$ 20,000	-$ 45,000	-$ 36,000	-$ 38,000
			Overall	0%	$ -	$ -	$ -	$ -	$ -	$ -
			Low contingency allowance		**$ -**	**-$ 35,000**	**-$ 56,000**	**-$ 99,000**	**-$ 216,000**	**-$ 76,000**
		High	Pavement	25%	$ -	$ 91,000	$ 179,000	$ 267,000	$ 900,000	$ 188,000
			Services	25%	$ -	$ 79,000	$ 97,000	$ 225,000	$ 178,000	$ 187,000
			Overall	60%	$ -	$ 1,136,000	$ 1,811,000	$ 3,008,000	$ 4,830,000	$ 2,635,000
			High contingency allowance		**$ -**	**$ 1,306,000**	**$ 2,087,000**	**$ 3,500,000**	**$ 5,908,000**	**$ 3,010,000**
	LOW CONSTRUCTION TOTAL				**$ -**	**$ 1,857,000**	**$ 2,962,000**	**$ 4,914,000**	**$ 7,833,000**	**$ 4,315,000**
	HIGH CONSTRUCTION TOTAL				**$ -**	**$ 3,198,000**	**$ 5,105,000**	**$ 8,513,000**	**$ 13,957,000**	**$ 7,401,000**
Consultant fees	Low	Design fees		10%	$ -	$ 186,000	$ 297,000	$ 492,000	$ 784,000	$ 432,000
		MSQA		3%	$ -	$ 56,000	$ 89,000	$ 148,000	$ 235,000	$ 130,000
		Low fees			$ -	$ 242,000	$ 386,000	$ 640,000	$ 1,019,000	$ 562,000
	High	Design fees		15%	$ -	$ 480,000	$ 766,000	$ 1,277,000	$ 2,094,000	$ 1,111,000
		MSQA		5%	$ -	$ 160,000	$ 256,000	$ 426,000	$ 698,000	$ 371,000
		High fees			$ -	$ 640,000	$ 1,022,000	$ 1,703,000	$ 2,792,000	$ 1,482,000
LOW TOTAL FEES, EXCLUDING WCC COSTS					**$ -**	**$ 2,099,000**	**$ 3,348,000**	**$ 5,554,000**	**$ 8,852,000**	**$ 4,877,000**
HIGH TOTAL FEES, EXCLUDING WCC COSTS					**$ -**	**$ 3,838,000**	**$ 6,127,000**	**$ 10,216,000**	**$ 16,749,000**	**$ 8,883,000**
WCC	Low WCC management fees			20%	$ -	$ 420,000	$ 670,000	$ 1,111,000	$ 1,771,000	$ 976,000
	High WCC management fees			20%	$ -	$ 768,000	$ 1,226,000	$ 2,044,000	$ 3,350,000	$ 1,777,000
LOW TOTAL (rounded)					**$ -**	**$ 2,600,000**	**$ 4,100,000**	**$ 6,700,000**	**$ 10,700,000**	**$ 5,900,000**
HIGH TOTAL (rounded)					**$ -**	**$ 4,700,000**	**$ 7,400,000**	**$ 12,300,000**	**$ 20,100,000**	**$ 10,700,000**

Indicative cost estimates: Long-term upgrade options

Item				BUSINESS ZONE OPTIONS								
				Option A	Option B	Option C	Option D	Option E	Option F	Option G	Option H	Option I
Construction	1	Preliminary and general		$ -	$ 421,000	$ 410,000	$ 417,000	$ 658,000	$ 743,000	$ 577,000	$ 596,000	$ 604,000
	2	Site clearance & earthworks		$ -	$ 65,000	$ 40,000	$ 40,000	$ 121,000	$ 121,000	$ 121,000	$ 119,000	$ 119,000
	3	Wet services		$ -	$ 81,000	$ 84,000	$ 84,000	$ 211,000	$ 195,000	$ 211,000	$ 211,000	$ 211,000
	4	Dry services		$ -	$ 40,000	$ 18,000	$ 18,000	$ 106,000	$ 106,000	$ 106,000	$ 106,000	$ 106,000
	5	Pavement reconstruction		$ -	$ 554,000	$ 538,000	$ 538,000	$ 668,000	$ 967,000	$ 528,000	$ 528,000	$ 528,000
	6	Kerbs / paths / islands		$ -	$ 277,000	$ 298,000	$ 322,000	$ 693,000	$ 693,000	$ 661,000	$ 728,000	$ 753,000
	7	Traffic services		$ -	$ 88,000	$ 89,000	$ 89,000	$ 88,000	$ 88,000	$ 88,000	$ 88,000	$ 88,000
	8	Landscaping		$ -	$ 300,000	$ 300,000	$ 300,000	$ 308,000	$ 308,000	$ 210,000	$ 210,000	$ 210,000
	SUBTOTAL			$ -	$ 1,826,000	$ 1,777,000	$ 1,808,000	$ 2,853,000	$ 3,221,000	$ 2,502,000	$ 2,586,000	$ 2,619,000
	Contingency	Low	Pavement	-5%	$ -	-$ 28,000	-$ 27,000	-$ 27,000	-$ 34,000	-$ 49,000	-$ 27,000	-$ 27,000	-$ 27,000
			Services	-5%	$ -	-$ 7,000	-$ 6,000	-$ 6,000	-$ 16,000	-$ 16,000	-$ 16,000	-$ 16,000	-$ 16,000
			Overall	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
			Low contingency allowance		**$ -**	**-$ 35,000**	**-$ 33,000**	**-$ 33,000**	**-$ 50,000**	**-$ 65,000**	**-$ 43,000**	**-$ 43,000**	**-$ 43,000**
		High	Pavement	25%	$ -	$ 139,000	$ 135,000	$ 135,000	$ 167,000	$ 242,000	$ 132,000	$ 132,000	$ 132,000
			Services	25%	$ -	$ 31,000	$ 26,000	$ 26,000	$ 80,000	$ 76,000	$ 80,000	$ 80,000	$ 80,000
			Overall	60%	$ -	$ 1,096,000	$ 1,067,000	$ 1,085,000	$ 1,712,000	$ 1,933,000	$ 1,502,000	$ 1,552,000	$ 1,572,000
			High contingency allowance		**$ -**	**$ 1,266,000**	**$ 1,228,000**	**$ 1,246,000**	**$ 1,959,000**	**$ 2,251,000**	**$ 1,714,000**	**$ 1,764,000**	**$ 1,784,000**
	LOW CONSTRUCTION TOTAL				**$ -**	**$ 1,791,000**	**$ 1,744,000**	**$ 1,775,000**	**$ 2,803,000**	**$ 3,156,000**	**$ 2,459,000**	**$ 2,543,000**	**$ 2,576,000**
	HIGH CONSTRUCTION TOTAL				**$ -**	**$ 3,092,000**	**$ 3,005,000**	**$ 3,054,000**	**$ 4,812,000**	**$ 5,472,000**	**$ 4,216,000**	**$ 4,350,000**	**$ 4,403,000**
Consultant fees	Low	Design fees		10%	$ -	$ 180,000	$ 175,000	$ 178,000	$ 281,000	$ 316,000	$ 246,000	$ 255,000	$ 258,000
		MSQA		3%	$ -	$ 54,000	$ 53,000	$ 54,000	$ 85,000	$ 95,000	$ 74,000	$ 77,000	$ 78,000
		Low fees			$ -	$ 234,000	$ 228,000	$ 232,000	$ 366,000	$ 411,000	$ 320,000	$ 332,000	$ 336,000
	High	Design fees		15%	$ -	$ 464,000	$ 451,000	$ 459,000	$ 722,000	$ 821,000	$ 633,000	$ 653,000	$ 661,000
		MSQA		5%	$ -	$ 155,000	$ 151,000	$ 153,000	$ 241,000	$ 274,000	$ 211,000	$ 218,000	$ 221,000
		High fees			$ -	$ 619,000	$ 602,000	$ 612,000	$ 963,000	$ 1,095,000	$ 844,000	$ 871,000	$ 882,000
LOW TOTAL FEES, EXCLUDING WCC COSTS					**$ -**	**$ 2,025,000**	**$ 1,972,000**	**$ 2,007,000**	**$ 3,169,000**	**$ 3,567,000**	**$ 2,779,000**	**$ 2,875,000**	**$ 2,912,000**
HIGH TOTAL FEES, EXCLUDING WCC COSTS					**$ -**	**$ 3,711,000**	**$ 3,607,000**	**$ 3,666,000**	**$ 5,775,000**	**$ 6,567,000**	**$ 5,060,000**	**$ 5,221,000**	**$ 5,285,000**
WCC	Low WCC management fees			20%	$ -	$ 405,000	$ 395,000	$ 402,000	$ 634,000	$ 714,000	$ 556,000	$ 575,000	$ 583,000
	High WCC management fees			20%	$ -	$ 743,000	$ 722,000	$ 734,000	$ 1,155,000	$ 1,314,000	$ 1,012,000	$ 1,045,000	$ 1,057,000
LOW TOTAL (rounded)					**$ -**	**$ 2,500,000**	**$ 2,400,000**	**$ 2,500,000**	**$ 3,900,000**	**$ 4,300,000**	**$ 3,400,000**	**$ 3,500,000**	**$ 3,500,000**
HIGH TOTAL (rounded)					**$ -**	**$ 4,500,000**	**$ 4,400,000**	**$ 4,400,000**	**$ 7,000,000**	**$ 7,900,000**	**$ 6,100,000**	**$ 6,300,000**	**$ 6,400,000**

Indicative cost estimates: Long-term upgrade combinations

Item				COMBINATIONS					
				Combo 1-A	Combo 1-D	Combo 2-A	Combo 2-D	Combo 3-D	Combo 6-I
Construction	1	**Preliminary and general**		$ -	$ 417,000	$ 436,000	$ 853,000	$ 1,113,000	$ 1,617,000
	2	**Site clearance & earthworks**		$ -	$ 40,000	$ 63,000	$ 103,000	$ 240,000	$ 594,000
	3	**Wet services**		$ -	$ 84,000	$ 272,000	$ 356,000	$ 430,000	$ 899,000
	4	**Dry services**		$ -	$ 18,000	$ 42,000	$ 60,000	$ 60,000	$ 164,000
	5	**Pavement reconstruction**		$ -	$ 538,000	$ 362,000	$ 900,000	$ 1,251,000	$ 1,277,000
	6	**Kerbs / paths / islands**		$ -	$ 322,000	$ 619,000	$ 941,000	$ 1,221,000	$ 1,982,000
	7	**Traffic services**		$ -	$ 89,000	$ 65,000	$ 154,000	$ 165,000	$ 222,000
	8	**Landscaping**		$ -	$ 300,000	$ 33,000	$ 333,000	$ 346,000	$ 255,000
	SUBTOTAL			$ -	$ 1,808,000	$ 1,892,000	$ 3,700,000	$ 4,826,000	$ 7,010,000
	Contingency	Low	Pavement	-5%	$ -	-$ 27,000	-$ 19,000	-$ 46,000	-$ 63,000	-$ 65,000
			Services	-5%	$ -	-$ 6,000	-$ 16,000	-$ 22,000	-$ 26,000	-$ 54,000
			Overall	0%	$ -	$ -	$ -	$ -	$ -	$ -
			Low contingency allowance		**$ -**	**-$ 33,000**	**-$ 35,000**	**-$ 68,000**	**-$ 89,000**	**-$ 119,000**
		High	Pavement	25%	$ -	$ 135,000	$ 91,000	$ 226,000	$ 314,000	$ 320,000
			Services	25%	$ -	$ 26,000	$ 79,000	$ 105,000	$ 123,000	$ 267,000
			Overall	60%	$ -	$ 1,085,000	$ 1,136,000	$ 2,221,000	$ 2,896,000	$ 4,207,000
			High contingency allowance		**$ -**	**$ 1,246,000**	**$ 1,306,000**	**$ 2,552,000**	**$ 3,333,000**	**$ 4,794,000**
	LOW CONSTRUCTION TOTAL				**$ -**	**$ 1,775,000**	**$ 1,857,000**	**$ 3,632,000**	**$ 4,737,000**	**$ 6,891,000**
	HIGH CONSTRUCTION TOTAL				**$ -**	**$ 3,054,000**	**$ 3,198,000**	**$ 6,252,000**	**$ 8,159,000**	**$ 11,804,000**
Consultant fees	Low	Design fees		10%	$ -	$ 178,000	$ 186,000	$ 364,000	$ 475,000	$ 690,000
		MSQA		3%	$ -	$ 54,000	$ 56,000	$ 110,000	$ 143,000	$ 208,000
		Low fees			$ -	$ 232,000	$ 242,000	$ 474,000	$ 618,000	$ 898,000
	High	Design fees		15%	$ -	$ 459,000	$ 480,000	$ 939,000	$ 1,225,000	$ 1,772,000
		MSQA		5%	$ -	$ 153,000	$ 160,000	$ 313,000	$ 409,000	$ 592,000
		High fees			$ -	$ 612,000	$ 640,000	$ 1,252,000	$ 1,634,000	$ 2,364,000
LOW TOTAL FEES, EXCLUDING WCC COSTS					**$ -**	**$ 2,007,000**	**$ 2,099,000**	**$ 4,106,000**	**$ 5,355,000**	**$ 7,789,000**
HIGH TOTAL FEES, EXCLUDING WCC COSTS					**$ -**	**$ 3,666,000**	**$ 3,838,000**	**$ 7,504,000**	**$ 9,793,000**	**$ 14,168,000**
WCC	Low WCC management fees			20%	$ -	$ 402,000	$ 420,000	$ 822,000	$ 1,072,000	$ 1,559,000
	High WCC management fees			20%	$ -	$ 734,000	$ 768,000	$ 1,502,000	$ 1,960,000	$ 2,834,000
LOW TOTAL (rounded)					**$ -**	**$ 2,500,000**	**$ 2,600,000**	**$ 5,100,000**	**$ 6,600,000**	**$ 9,400,000**
HIGH TOTAL (rounded)					**$ -**	**$ 4,400,000**	**$ 4,700,000**	**$ 9,100,000**	**$ 11,800,000**	**$ 17,100,000**

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Attachment 2

The Parade Upgrade Options

Introduction

This document is a summary of the two upgrade options being proposed for the Parade Upgrade:

- **Safety Improvements Option**
- **Long-term Improvements Option**

Safety Improvements

Safety improvements being proposed for The Parade are outlined below:

Safety Improvements Option

Long-term Improvements Option

Road Widening

Achieving the desired lane width for traffic, bikes, and parking is best achieved through road alterations such as kerb changes rather than working within existing physical limits.

Safety Improvements Option

- No road widening or kerb changes.

Long-term Improvements Option

- Moving kerbs throughout The Parade to achieve desired lane widths.
- New drainage systems as a result of moving kerb

Resurfacing

The scope of resurfacing differs between both options presented as below:

Safety Improvements Option

- Resurfacing (in asphalt) from Avon Street to Mersey Street including the town centre

Long-term Improvements Option

- Resurfacing (in asphalt) from Dee Street to Mersey Street including the town centre
- Resurfacing (in chipseal) from Mersey Street to Reef Street

- Resurfacing (in chipseal) from Mersey Street to Reef Street

Road Markings

With the resealing complete, both the **Safety Improvements Option** and the **Long-term Improvements Option** will feature a new road marking layout. New layout improvements will include:

- Removal of 'ghost' markings
- Wider traffic lanes
- Widen buffer zones between parking spaces and bike lanes
- Consistent bike lane (green) markings across intersections
- Improved lane alignment, consistency, road user clarity and visibility

Parking Changes

Parking changes will apply throughout the entire length of The Parade (from Dee Street to Reef Street) to achieve desired lane widths and buffer spaces. The changes will result in a reduction of available parking spaces.

Both the **Safety Improvements Option** and **Long-term Improvements Option** will include:

- 30m Parking setbacks at intersection approaches (for improved visibility)
- 3m Parking setbacks at driveways (for improved visibility and vehicle manoeuvrability)
- Parking spaces will not be individually marked after resurfacing

The differences between both options are:

Safety Improvements Option

- Cross-sectional width changes between the town centre and Trent Street retaining parking on only one side of the street
- Retention of approximately 60-80 parking spaces (from 151 parking spaces) in the residential areas
- Retention of all 55 parking spaces in the town centre
- 206 existing Parking spaces in total, 105-135 retained (loss of 71-101)

Long-term Improvements Option

- Retention of approximately 85-100 parking spaces (from 151 parking spaces) in the residential areas
- Retention of approximately 40-45 parking spaces (from 55 parking spaces) in the town centre
- 206 existing parking space in total, 125-145 retained (loss of 61-81)

	Residential areas retained	**Town Centre retained**	**Total retained**	**Total removal**
Existing	151	55	206	NA
Safety Improvements option	60-80	55	105-135 (51-66%)	71-101 (34-49%)
Long-term Improvements option	85-100	40-45	125-145 (61–70%)	61-81 (30-39%)

Intersection and Bus Stop Improvements

The differences in improvements to intersections and bus stops are:

Safety Improvements Option

- Consistent bike (green) markings across all intersection

Long-term Improvements Option

- Consistent bike (green) markings across all intersection
- Raised intersection platforms for pedestrians
- Bus stop improvements (isolated kerb changes)

Buffer Zones

Both the **Safety Improvement Option** and the **Long-term Improvement Option** will feature buffer zones throughout the entire length of The Parade (from Dee Street to Reef Street). Improvements are:

- Consistent buffer zone widths
- Pre-cast concrete physical separators installed between parking spaces and the cycle lane
- Low, mountable separators installed across driveways

Town Centre

The town centre will receive improvements upgrades through:

Safety Improvements Option

- Replacing speed cushions with full-width speed humps to reduce speed
- New asphalt seal and line markings

Long-term Improvements Option

- Replacing speed cushions with full-width speed humps to reduce speed
- New asphalt seal and line markings
- Separated cycleway

Cross-sections

To accommodate the desired safety improvements such as wider traffic lanes, bike lanes, consistent buffer widths, cross-sections along The Parade will need to be adjusted.

Proposed cross-sections for the **Safety Improvements Option** are shown below:

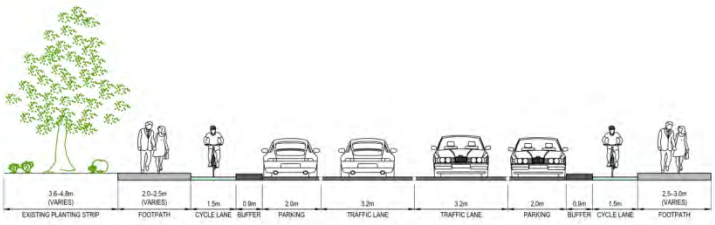


Figure 3.1: Cross Section 1 – Recommended residential cross section for the short-term upgrades (between Dee Street and the north side of the town centre, and between Trent Street and Reef Street)

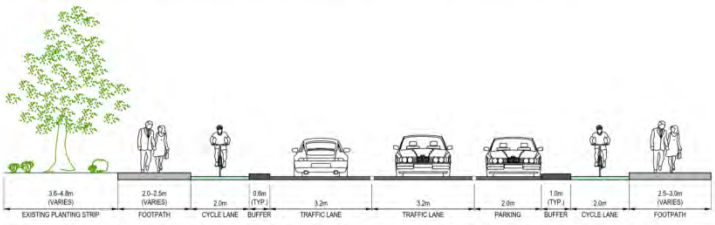
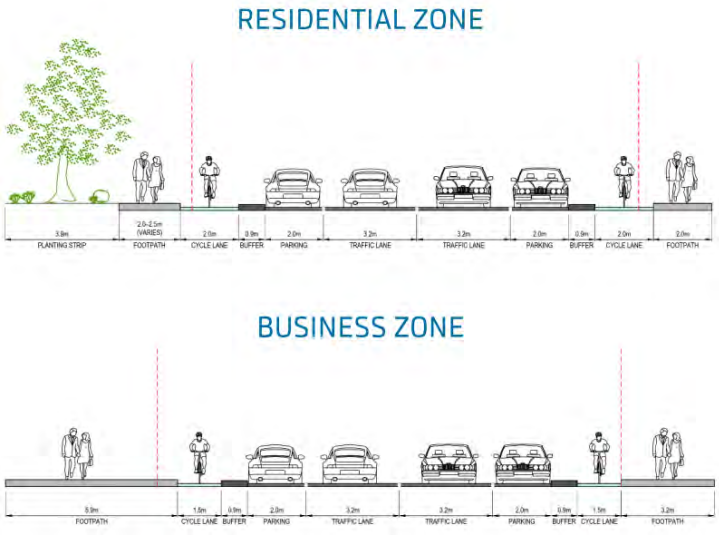


Figure 3.2: Cross Section 2 – Recommended residential cross section for the short-term upgrades (between the south side of the town centre and Trent Street)

Proposed cross-sections for the **Long-term Improvements Option** are shown below:



FOSSIL FUEL FREE CENTRAL CITY

Kōrero taunaki

Summary of considerations

Purpose

1. This report asks Pūroro Āmua | Planning and Environment Committee to receive the contents of this paper and its appendix as fulfilling the requirements of the 13 May 2021 motion, and to consider the report's recommendations.
2. The report presents the findings and recommendations from work undertaken investigating the potential to achieve a Wellington fossil fuel free central city by 2025, as directed by the motion.

Strategic alignment with community wellbeing outcomes and priority areas

	Aligns with the following strategies and priority areas: ☒ Sustainable, natural eco city ☒ People friendly, compact, safe and accessible capital city ☒ Innovative, inclusive and creative city ☒ Dynamic and sustainable economy
Strategic alignment with priority objective areas from Long-term Plan 2021–2031	☐ Functioning, resilient and reliable three waters infrastructure ☒ Affordable, resilient and safe place to live ☒ Safe, resilient and reliable core transport infrastructure network ☒ Fit-for-purpose community, creative and cultural spaces ☒ Accelerating zero-carbon and waste-free transition ☐ Strong partnerships with mana whenua
Relevant Previous decisions	On Thursday, 13 May the following motion (through a notice of motion process) was passed by Council after being proposed by Councillor Tamatha Paul: "Direct officers to prepare a report investigating a Wellington Fossil-Fuel Free Central City by 2025, to be brought back for consideration by 30 September 2021" Subsequent to this the Chair and Deputy Chair of Pūroro Āmua Planning and Environment Committee agreed to move the paper to the meeting of 10 November 2021 to account for external stakeholder needs.
Significance	The decision is rated medium significance in accordance with schedule 1 of the Council's Significance and Engagement Policy.

Financial considerations

☒ Nil	☐ Budgetary provision in Annual Plan / Long-term Plan	☐ Unbudgeted $X

Risk

☒ Low	☐ Medium	☐ High	☐ Extreme

Author	Vida Christeller, Manager City Design & Place Planning
Authoriser	Liam Hodgetts, Chief Planning Officer

Taunakitanga

Officers' Recommendations

Officers recommend the following motion

That Pūroro Āmua - Planning and Environment Committee:

1) Receive the information in this report.
2) Agree that officers continue to engage with the LGWM partners around the incorporation of low traffic interventions, including a traffic circulation plan in LGWM.
3) Agree that officers continue to develop parklet guidelines.
4) Agree that officers investigate options for bike libraries and e-bike schemes.
5) Agree that officers investigate opportunities for low traffic streets in areas outside of the scope of LGWM, in line with Council's strategic vision and within current programmes of work and budgets.

Whakarāpopoto

Executive Summary

4. Officers have investigated the potential of a creating a zero-carbon transport central city by 2025 in response to the Notion of Motion to investigate creating a fossil fuel free central city by 2025.

5. Note that officers have interpreted the notice of motion as not intending to create zero traffic flow through the city, but rather focus on carbon reduction to zero if possible, through the reduction of traffic in the central city, and supporting the conversion of remaining vehicles to electric.

6. Officers note there are a range of existing and planned initiatives already underway that will move us a significant way towards the goal by 2025, including the delivery of current programmes such as the LGWM Golden Mile and City Streets projects, a large portion of the bike network through the transitional and transformational programmes, the laneways programme, walking improvements, and Build Back Better.

7. Other planned initiatives will continue this momentum in the second half of this decade. It is the intention of the 2021 Long-term Plan to have the full bike network completed by 2031, GWRC has a target of 2028 for electrifying the city's bus fleet, and LGWM will have started construction of an MRT system by 2028.

8. Officers recommend that in addition to the above initiatives, a low traffic circulation plan is developed with LGWM and adopted. This pathway forward includes implementing transport network changes in stages to assist in managing traffic around construction, and retaining a long-term view on carbon reduction and liveability of the city.

9. Note there still may be fossil fuel vehicles entering the central city under this pathway, such as accessibility vehicles, delivery and emergency vehicles, where electric vehicle options may not be suitable.

10. Acceleration of this activity to meet the 2025 date is problematic and unlikely to be achieved for the following reasons:

a. Firstly, a 2025 goal would be difficult to achieve, particularly as GWRC's holds a bus electrification goal at 2028, and the electrification of New Zealand's vehicle fleet is not expected to be complete for some time with no set target. Therefore to achieve zero carbon transport in the central city by 2025 a significant number of vehicles including some buses would need to be kept out of the central city area, which would be highly disruptive.

b. Secondly, setting this goal would miss opportunities to complement work that is already well progressed. For example, the upcoming decision on MRT for Wellington (without which the city's 2030 carbon reduction goal will be difficult to achieve) and the opportunity to reorganise traffic as construction of planned projects commences.

11. The recommended pathway is through the integration of a traffic circulation plan into LGWM, implementing changes in stages to assist in managing traffic around construction, and reducing private vehicle traffic in the central city in the long term by making it easier and more attractive to choose zero carbon transport options and increasing liveability.

12. Additionally, this will be supported by Council and LGWM continued course to reduce carbon emissions and rebalance the transport network as the first priority in achieving a net zero carbon city. Council should continue to work with the commercial, residential and business communities throughout the central city to facilitate this change and create common purpose around the vision and long-term prosperity of the central city.

13. LGWM is aware of this recommendation and next steps would be to work with the LGWM partners to explore the feasibility of utilising a traffic circulation plan in assisting the programme to meet its objectives.

Takenga mai

Background

14. On 13 May 2021 the Strategy and Policy committee directed officers to prepare a report investigating a fossil fuel free central city by 2025, to be brought back for consideration by 30 September 2021. This was subsquently deferred to 10 November 2021.

15. Two background reports were commissioned to investigate options, which are attached to this report:

a. A pre-feasibility report from sustainable transportation consultancy MRCagney, who led the Access for Everyone traffic circulation planning for Auckland's CBD and the recently announced Christchurch traffic circulation plan. Drawing on successful examples from international cities, the report outlines a high-level concept for a low traffic central city in Wellington achieved through the implementation of a traffic circulation plan. The proposed approach would enable people to access destinations in their vehicles while reducing the movement of traffic through the city, freeing up space for other uses such as better public spaces for people, public transport and bike network infrastructure. This approach is proposed to be implemented as complementary to current programmes. (Attachment 1)

b. A set of global case studies compiled by Gehl Architects for WCC, who also recently completed a Public Spaces and Public Life Report for LGWM (to be released mid-November). These case studies show that where other cities have taken steps to reduce emissions through low traffic measures, they have also experienced reduced congestion, increased safety and after a small period of adjustment, economic success. The work recognises the need for a city to find the right level of low traffic rather than completely car-free, achieving this through safe and attractive public realm and attractive routes to and from public transport and parking. (Attachment 2)

16. The MRCagney report concluded there are already several key activities in place for carbon reduction and a rebalancing of the central city. The report highlights the important role of the work planned through LGWM to reduce transport-related carbon emissions in Wellington and presents how low traffic network adjustments could complement that work, providing 'glue' between the projects and bringing corridors together into a network.

17. The LGWM programme and its partners are considering which of the Gehl recommendations from the Public Life Public Space report can be integrated into the scope of the programme or adopted into other partner projects.

18. Through the further work commissioned by the Council, Gehl Architects provided a set of global case studies exploring four key themes, three of which are relevant here: economy, mode shift and public space.

    a. Economy: Gehl concludes that a city good for people is good for business, with research showing that cities which take actions to improve spaces for walking, cycling and public transport have succeeded in reducing congestion, increasing safety and improve economic performance. They highlight that needs of the workforce are changing, and that millennials have different needs and want to walk and cycle and have access to green spaces. Research shows that while retailers often perceive the highest volume of their customers travel by car, walkable and bikeable cities bring in more business. Walking and cycling infrastructure is also particularly beneficial for making a city attractive for tourism.

    b. Mode shift: Gehl examples cover a range of strategies including financial incentives, restrictions on car access, spatial planning and mobility management. They show the scale of measures and low traffic outcomes in cities from car-free to those with car-lite measures and traffic calming.

    c. Public space: Gehl states streets are not just transport corridors, but also public spaces. Creating public spaces that are safe, attractive and enjoyable are key to changing transport choices, achieved through making streets attractive to pedestrians and connecting city parks and public spaces.

19. Officers conclude the key elements for delivering a net zero carbon city as laid out in Te Atakura – First to Zero are Paneke Pōneke, the Bike Network Plan; the District Plan giving effect to the Spatial Plan; and the LGWM programme. Success will rely on excellent decision-making around these three initiatives.

20. In the Fossil Fuel Free Central City report officers have focused on the reduction of transport-related carbon emissions, given the Council has most influence on these as owner of the road network and as road transport emissions make up 34% of Wellington's carbon emissions.
21. In addition to transport emissions, the Council has agreed to consult on the draft District Plan which contributes to a more sustainable city in the long term through the promotion of more dense housing and urban form, which plans for the doubling the central cities population from 18,000 to 36,000 by 2048.
22. Te Atakura – First to Zero implementation plan requires all new Wellington City Council commercial buildings to now be designed to a 5 Green Star standard or equivalent, and new Community Housing to 6 Homestar, both operating at net zero carbon from 2030.
23. The Green Network Plan focuses on how we can address the current deficit of greening as well as provide additional green infrastructure (trees and plants) and public amenity (upgrading existing and creating new parks and spaces) as the central city densifies over the next 30 years. Greening is a fundamental component in responding to climate change, helping us to live with more water and severe weather.
24. Locations to trial low traffic interventions could also be investigated to be trialled such as temporary street space reallocation, parklets etc., alert levels allowing.

Kōrerorero

Discussion

25. There are four pillars for carbon reduction from transport; alternatives to car travel; car travel with alternative fuels; reducing trip distances; and reducing the attractiveness of car travel. This final pillar is the area where we have the greatest opportunity to do more.
26. The Regional Land Transport Plan has three targets including a 40% mode shift and reducing transport emissions by 35% by 2030. Because the Wellington is the primary centre serving the City and the wider region for shopping, employment, city-living, government services, arts and entertainment, tourism and major events and due to the expected growth and dense urban form, Wellington city will need to do the 'heavy lifting' to make this target a reality.
27. The pre-feasibility report produced by MRCagney proposes coordinating the use of low traffic interventions with the changes to infrastructure to achieve low carbon and accessibility outcomes.
28. The report further recommends that any traffic circulation changes are coordinated with LGWM to organise traffic around the construction of the Golden Mile and City Streets projects to minimise the negative effects of the construction period and maximise the opportunities from the programme. For example, the Gehl report highlights the opportunity to work with local businesses and the creative sector throughout the construction period to maximise vibrancy and create new experiences during construction.
29. This work aligns with work underway to enhance the liveability of the city, promote a better way of developing infrastructure, and facilitate the opportunity to make changes well and once. The aim is to achieve the outcomes through adjustments to our existing and planned assets. This report does not address the potential impact of traffic demand

management measures like pricing mechanisms, but we note these options are being explored by LGWM and this work could help inform those investigations.

Kōwhiringa

Options

31. Accept the report and take no further action.

32. **Prefered:** Accept the report and adopt recommendations 2, 3, 4 and 5.

33. Continue to engage with the LGWM partners around the incorporation for low traffic interventions to become part of the LGWM work prior to any further investment.

Whai whakaaro ki ngā whakataunga

Considerations for decision-making

Alignment with Council's strategies and policies

34. The Council has committed to being a net zero carbon city by 2050 through its commitment to the Te Atakura - First to Zero programme of work, as well as reducing carbon emissions by 57% by 2030 in the recent Te Atakura 2021 Update. Transforming transport in the central city will be essential to achieving this outcome.

35. Through the Planning for Growth workstream the Council has identified the central city as an area of significant growth to accommodate the projected population increase of 50,000-80,000 people by 2050. It enables the doubling of the Central City population and as a result, a focus on liveability is key.

36. A traffic circulation plan presents the opportunity to free up space and achieve multiple objectives for the community through other Council plans and strategies such as the new *Green Network Plan*, the *Play Strategy*, the *Sustainable Food Network Plan*, *Aho Tini*, and the *Children and Youth Strategy*.

37. The Council's participation in the LGWM partnership means many of the core actions for carbon reduction from transport are already planned by the programme or by the three programme partners (Wellington City Council, Waka Kotahi, and Greater Wellington Regional Council). Implementing low traffic interventions will complement this work and enable the city to do more to reduce carbon.

38. Most of the core actions are already planned by LGWM or by the three programme partners

Engagement and Consultation

39. Any engagement and consultation will be undertaken in conjunction with planned LGWM or other project-specific engagement. This will ensure alignment and clarity for members of the public. Note the information at this stage does not justify engagement with the public as it is research that will inform other projects subject to engagement.

Implications for Māori

40. Initial contact has been made with mana whenua partners through the LGWM Iwi Partnerships Working Group about the significance of this exploration and there was

some interest in discussing how low traffic interventions might lead to a more culturally sensitive city, but this would need significant further discussion alongside the discussion with LGWM partner organisations to progress this work.

Financial implications

41. N/A - initiatives are already covered in existing budgets.

Legal considerations

42. Some actions key to the maximisation of effects of low traffic interventions like congestion charging are not yet possible under current legal frameworks. LGWM is exploring various forms of priced travel demand management that could be utilised if government enables through legislative change.

Risks and mitigations

43. Executing such a programme without the full backing of the LGWM partners and alignment with the LGWM programme would not be possible. As such we are proposing direct engagement and integration with the programme.

44. If changes occurred because of the circulation plan, strategic network risk will have to be managed. For example, key routes to both the airport (SH1) and hospital from eastern, western, northern and southern suburbs are critical risks with such major changes. As a result, these trips are expected to stay largely unchanged as a result of the central city changes proposed in this work. Emergency service access would also not be proposed to change and it is noted that the reduction of congestion could improve their level of service.

45. Heavy freight access is similar, particularly to CentrePort. As such the boundary has been drawn south of CentrePort. This issue should be assessed in detail in further stages of analysis of the concept, particularly relating to whether large freight movements on the quays are suitable.

Disability and accessibility impact

46. Engagement with the disability community would be needed on proposed low traffic interventions to ensure accessibility is maintained, and preferably enhanced.

Climate Change impact and considerations

47. We have not developed a communications plan around this decision as this is research which will inform other projects subject to their own communication plans.

Communications Plan

48. We have not developed a communications plan around this decision as direct engagement with partners is needed in order to determine the level of appetite to progress.

Health and Safety Impact considered

49. N/A.

Ngā mahinga e whai ake nei

Next actions

50. If progressed under the preferred option, the next step would be to continue working with the LGWM partners for further investigation and execution of the concept.

51. Officers will also look for low traffic streets opportunities in areas outside of the scope of LGWM, in line with Council's strategic vision and within current programmes of work and budgets.

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Attachments

FOSSIL FUEL FREE CENTRAL CITY

Traffic circulation plan investigation

Wellington City Council

12 October 2021

MRCagney

BETTER TRANSPORT • BETTER PLACES • BETTER CHOICES

About MRCagney

MRCagney is a sustainable transportation consultancy that operates in a unique space for Aotearoa, combining sustainable transport strategy and planning, urban design and research.

We work on projects that shape the way New Zealanders move around their cities and towns, developing approaches that bring sustainable long-term solutions.

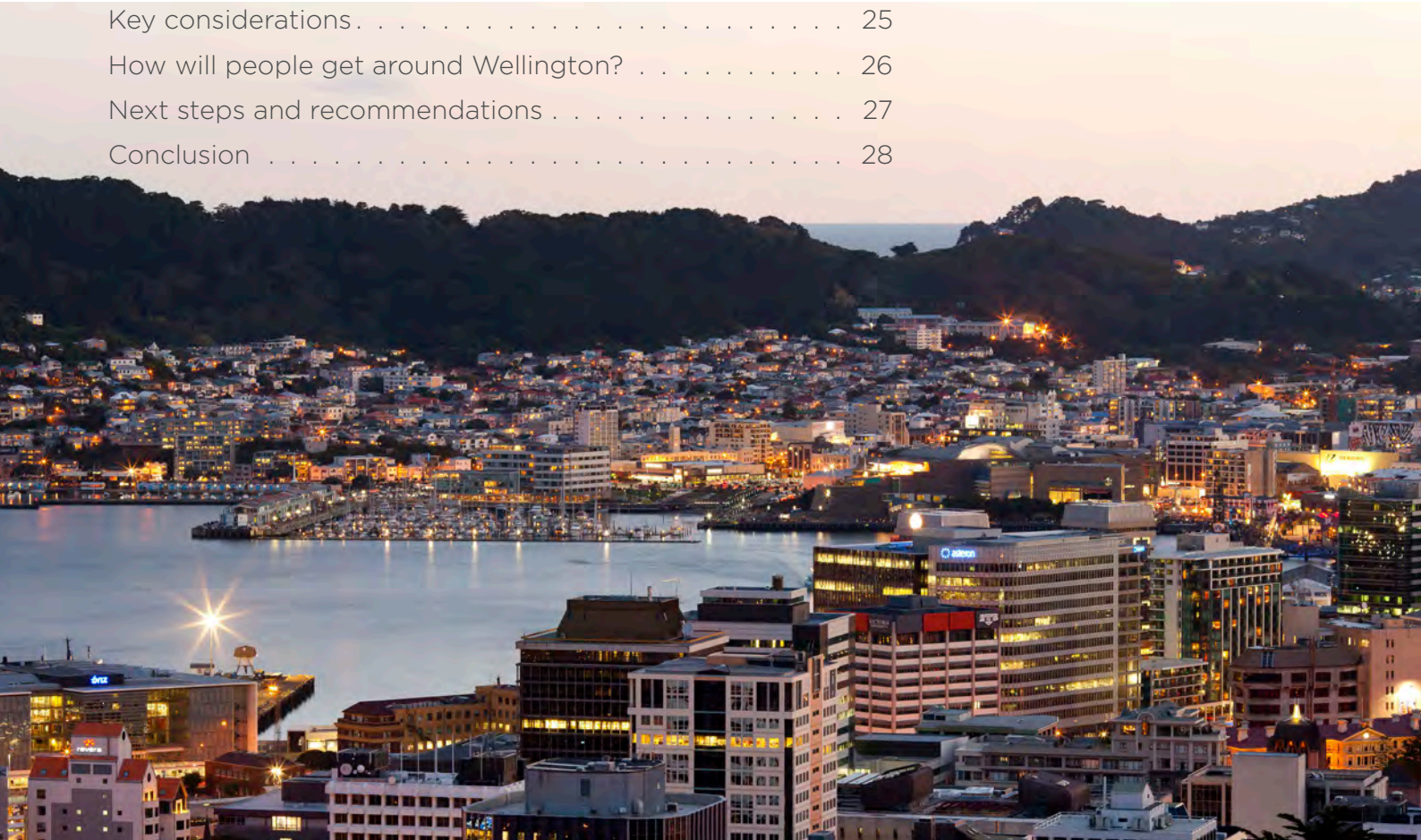
We consider how transport infrastructure works together with urban space and how this contributes to broader social, economic, environmental, and cultural outcomes.

Document register

Revision	Version	Author/Check	Date
A	Draft	FT/KL	20 September 2021
B	Amended	FT/KL	24 September 2021
C	Final	FT/KL	12 October 2021

Contents

All photographs of Wellington provided courtesy of Wellington City Council



Executive summary

This report outlines a concept for a low traffic central city in Wellington.

This is achieved by creating a traffic circulation plan, which sets out how private vehicles can and cannot move around the central city.

Low traffic does not mean car-free, people will still be able to access destinations in their vehicles, but the proposal divides the city into "traffic cells" which cars can drive into and out of, but not between. To access each traffic cell, cars use the boundary roads of Kent and Cambridge Terrace, The Quays, and Vivian Street/State Highway 1.

For other forms of transport, like walking, cycling and public transport, movement between the cells and within the central city continues seamlessly. This approach has been used successfully in several international cities, including Ghent, The Hague, and Strasbourg. It is also being introduced in Auckland.

By reducing the volume of private vehicles travelling within the central city, space is freed up to make room for other uses, such as cycling infrastructure, public transport priority and better public spaces for people.

What about Let's Get Wellington Moving?

This proposal has taken the LGWM programme into consideration in a considerable way. While it is not currently part of the LGWM suite of work, it provides a "roadmap" for the central city, including coordinating construction in a way that reduces disruption and achieves many of Wellington's desired transport and urban outcomes at the same time.

What are the benefits, and where are the challenges?

The benefits of this approach include:

- Reduced vehicle mode share into the central city, with an associated emissions reduction,
- Increased road space for other projects, such as Mass Rapid Transit, to be built,
- Improved public transport access for more people,
- Reduced serious injuries and deaths on inner-city roads; and
- A targeted approach for construction disruption.

As this concept is developed, it is vital that access for disabled people, emergency services, and service and loading is maintained. These groups should be closely involved to ensure their central city access is clear and appropriate.

We believe this concept presents the Council with a transformational opportunity to improve Wellington's central city for the benefit of all.

Introduction

Wellington is known as a vibrant, small and well-connected city. At the same time, it faces the challenges of increasing demands for central city space, environmental concerns, and a growing need for efficient public transport.

Other cities around the world find themselves in similar positions. Many cities are taking bold action to create more sustainable and more liveable central cities. Many European cities are achieving these goals by reallocating road space away from cars and to other uses, such as restricting traffic to some streets, public transport priority, or green space.

In 2021, Wellington City Councillors asked for an investigation into what a fossil fuel free central city might mean for Wellington. This relates specifically to transport in the central city.

This report draws on the experience of overseas cities and looks at what solutions may suit the Wellington context. It presents a high-level concept of how traffic circulation changes can be used to reduce the number of cars on central city streets. As an introductory concept, this initial study does not rely on traffic modeling or economic analysis and is developed as an entry point for further discussion only.

What does this report include?

- An explanation of what low traffic means
- The key concepts that could be used to limit central city vehicle volumes
- Case study examples of cities that have introduced measures to reduce private vehicle traffic in their centres
- The case for change in Wellington
- A proposed concept for Wellington's central city
- The potential benefits to Wellington of such a plan
- Discussion of the key issues that may arise out of such changes in Wellington
- Examples of journey changes to people in Wellington
- Proposed next steps

MRCagney

Why implement a low traffic central city in Wellington?

For various reasons, cities are introducing measures to reduce the number and impact of cars in busy central areas.

Depending on the goals of such programmes, various techniques can be used ranging from financial incentives, like pricing, to physical traffic restrictions. Many programmes are supported by land use changes and investment in public transport infrastructure, with explicit goals around reducing traffic and improving urban environments.

Why are cities reducing vehicle numbers in their centres?

Mode share and emissions

Cities are implementing circulation changes as a way to dramatically change travel behaviour away from private vehicles in central cities. This has the expected flow on effect of reducing carbon emissions for these cities.

Liveability

In order to make attractive central cities with space for people to live, work and study in a healthy living environment. This enables density and increased residential activity in central cities.

Accessibility

In order to allow more people to safely and easily reach their destinations, while ensuring that the centre remains accessible (by vehicle) for those who need to be there.

Local environmental benefits

Reducing vehicle numbers in central cities can have strong positive environmental impacts and can directly result in reducing local harmful emissions.

What have the outcomes been?

The following cities have all introduced circulation plans as a way to reduce the volume of private vehicles in their centres.

Ghent's circulation plan resulted in bike mode share increasing from 22% in 2012, to 35% in 2018, while car travel reduced from 55% to 39% in the same time period.

Bus patronage in **Leuven, Belgium** increased by 18% in the three years following the introduction of the traffic circulation plan, while cycling increased by 16%.

Traffic volumes in **Oslo** reduced by 11% from 2016 to 2018, and by 19% from 2018 to 2019, following the implementation of the city's traffic circulation plan. Much of the car mode share has shifted to cycling and public transport.

Strasbourg experienced a reduction in absolute numbers of vehicles traveling to the central city from 240,000 in 1990, to 200,000 in 2000. It is expected that without the traffic circulation plan, more than 300,000 vehicles would have traveled into the central city in 2004.

A low traffic central city

What do we mean by low traffic?

The idea of a 'fossil fuel free area' in the city can be misleading and possibly counterproductive. Most cities that have created centres that are considered people friendly have done so through a combination of transport systems and traffic management techniques. While some streets are pedestrianised, meaning no cars travel along them, they are accompanied by circulation plans which allow vehicles to access required areas and circulate the restricted areas. This creates a wide area that is best described as low traffic. Throughout this document this is what we mean when we say low traffic.

The Dutch call this concept 'autoluw'. It allows traffic to access most areas but prevents through traffic. This limits traffic to people who have a local destination but prevents 'through traffic' vehicles that have a destination outside the central city from using local streets. By limiting traffic to people with a nearby destination, the amount of vehicles on local streets is dramatically reduced.

This limits traffic to residents and people accessing destinations like off-street car parks and key locations. Further restrictions on some streets limit general traffic completely and only allow access for emergency vehicles, service and delivery, and sometimes public transport vehicles. These streets are distinct from pedestrian malls as they manage the type of vehicles allowed and the time of access instead of just closing the street entirely.

A low traffic central city includes a combination of these types of areas, as well as streets that retain access for vehicles as they currently do. The overall aim is to reduce reliance on private vehicles within the central city, and make journeys on public transport, by bike, micro-mobility or on foot easier and faster.

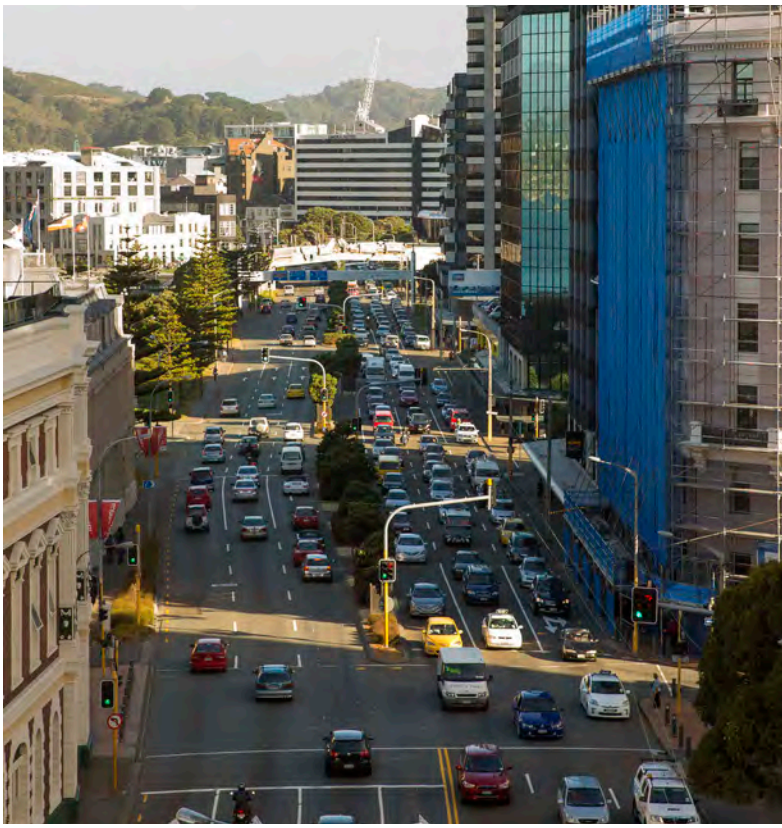
What don't we mean by low traffic?

There are several other mechanisms cities use to restrict vehicle volumes in central cities. These techniques may accompany a circulation plan within a city's wider approach to managing travel demand, but are not expressly part of a circulation plan.

Congestion charging: deterring car use at busy times of the day or certain areas by charging a toll.

Parking changes: discouraging ownership of car parking spaces by charging an annual fee to the owners of inner city car parking spaces. Reduction of inner city parking.

Vehicle restrictions by emissions: Restricting access to areas based on the emissions profile of vehicles. Polluting vehicles are sometimes completely restricted while others face increasing charges for accessing certain areas.



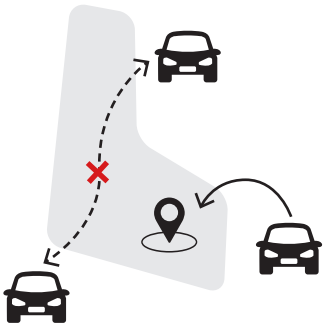
How is low traffic achieved?

Creating a low traffic central city is achieved by implementing a series of clear tools to direct through traffic away from busy pedestrian areas and determine where cars will and will not be.

A traffic circulation plan

A traffic circulation plan strategically directs where and how cars circulate in the city. It establishes restrictions on general vehicles to prevent 'through traffic' from passing through certain areas. Through traffic is directed to specially designated and designed traffic arterials and distributor roads.

This means that not all streets are accessible by cars.



A traffic circulation plan allows general traffic to get to their destination, and prevents them from driving through the city centre.

Traffic circulation changes

Accompanying modal filters or 'snips', other traffic circulation changes that support circulation plans and traffic cells include changes in directions to streets, creating one-way streets from previously two-way streets or vice versa.

Traffic circulation changes further manage where cars can and cannot go.

Modal filters

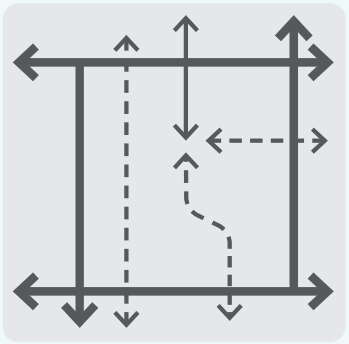
Modal filters, through various means, allow some vehicles to pass through but not others. Examples could include a bus-only section of a road, such as Wellington's Manners Mall, or a pedestrian only section, such as parts of Cuba Street.

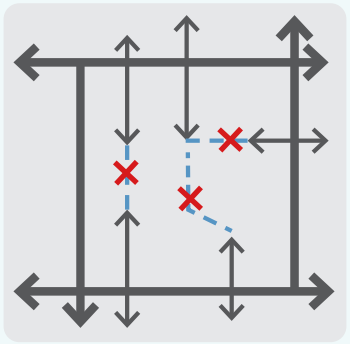
These are called 'snips' and are the main tools used at the boundaries of traffic cells.

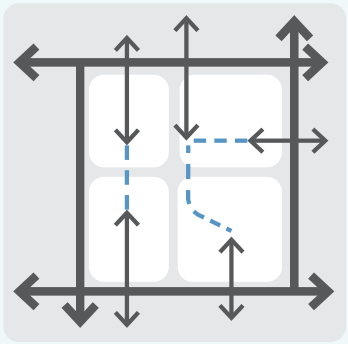
Traffic cells

Within the wider traffic circulation area, there may be traffic cells. While traffic can access locations within the cells, it cannot travel between cells. This concept stops cars from driving through the central city, keeping it on key perimeter routes instead.

Traffic cells make pedestrian cycling and public transport journeys more convenient than circuitous car trips.







What sorts of streets does a traffic circulation plan create?

A traffic circulation plan redefines the functions of central city streets.

By cutting out through traffic, the street network can be prioritised for clean and spatially efficient transport modes. This also frees up space for pedestrian and public realm improvements.

Some streets will now have a special purpose by restricting traffic but accommodating high volumes of cycling, public transport, or both.

Other streets benefit from reduced traffic volumes and speeds. This means that streets can become quiet with room to linger or can be used safely for people cycling in the street without special cycling infrastructure.

Bus only, Ghent

Through traffic was removed from the Ghent central city using low-cost measures. Bus only streets and bridges allow buses direct access across the central city while restricting traffic.

Cycle Street, Leuven

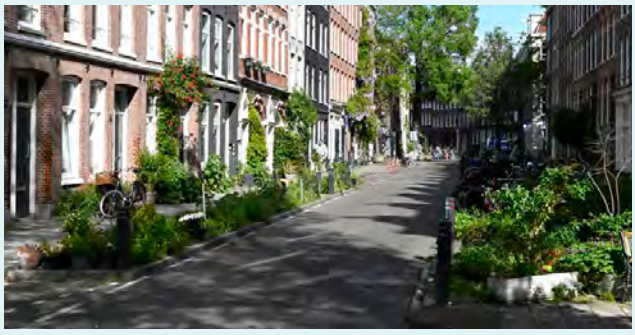
A traffic circulation plan was put in place in Leuven in 2016 that restricts car traffic from the central city freeing up streets for people cycling.

Very low traffic street, Barcelona

Traffic is directed to outer streets freeing up space inside the 'superblock' to be used for playing and socialising.

Very low traffic street, Amsterdam

Low traffic and the recent removal of parking allows for greenery in this residential street.



Case study 1: Ghent, Belgium

Urban population

260,000

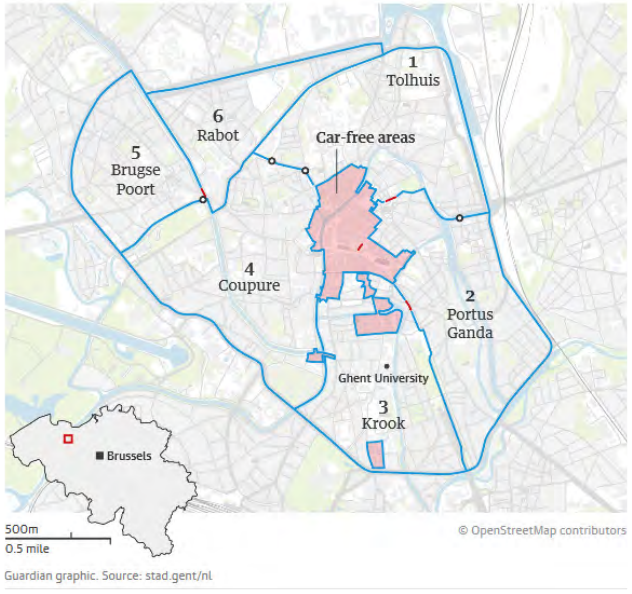
Ghent introduced a circulation plan in 2017.

The purpose of the plan was to prevent private vehicles from traversing the central city and to improve accessibility for public transport and active modes.

The plan was introduced quickly and with cheap and temporary infrastructure to allow changes to be made as fast as possible. This had been supported with significant prior planning, communication and engagement and vision from local politicians.

The city is divided into five restricted traffic cells, as well as an earlier-implemented historic centre, with vehicle movements limited between the zones. To access different zones, private vehicles use a ring road on the outside of the central city. Access to the zones is controlled by a permit system, with more generous permits for users with higher needs e.g. mobility vehicles, service and delivery, healthcare providers.

As a result of both the circulation plan and the city's transport planning efforts, Ghent achieved its goal of a 35% cycling mode share by 2019, 11 years ahead of its 2030 expectation.



Universal access

Poor quality of pavements in Ghent was addressed through a Pavement Action Plan from 2010 to 2014, bringing all pavements up to a minimum standard based on the least mobile users. This improved accessibility across the central city.

In 2018, the city introduced small people mover buses, called Wandelbussen, to transport people with limited mobility around the central city. The buses run on a set route made up of 8 stops every 25 minutes. This service has not been well used and is set to be discontinued.

Source: https://visit.gent.be/en/see-do/gent-wheels

Parking plan

Ghent's parking plan was launched the year before the circulation plan and includes provisions for:

- resident parking
- long-term underground car parks
- park and ride
- staggered pricing of on-street parking based on distance from the central city
- digital parking meters

Traffic cells and a traffic-free centre

Ghent's traffic circulation plan clearly delineates traffic cells around a completely car free centre.

Graphic Source: The Guardian

Case study 2: The Hague, Netherlands

Urban population

884,000

The Hague introduced a circulation plan in 2009 after two years of extended public hearings and participation in the process.

The city is divided into three 'sectors', each of which is accessible via a ring road, called a CentrumRing. Vehicles cannot travel between the sectors once inside them, instead they use the ring road to access each one. Pedestrians and cyclists can travel between the sectors without using the ring road.

The circulation plan is supported by an extensive tram network throughout the city which has been in place since 1864 and has a total of 12 lines with 241 stops.

The city is also phasing in a series of low emissions zoning for the city.

In 2017, walking, cycling and public transport made up nearly 60% of journeys less than 15km in the city, and 95% of journeys less than 2.5km

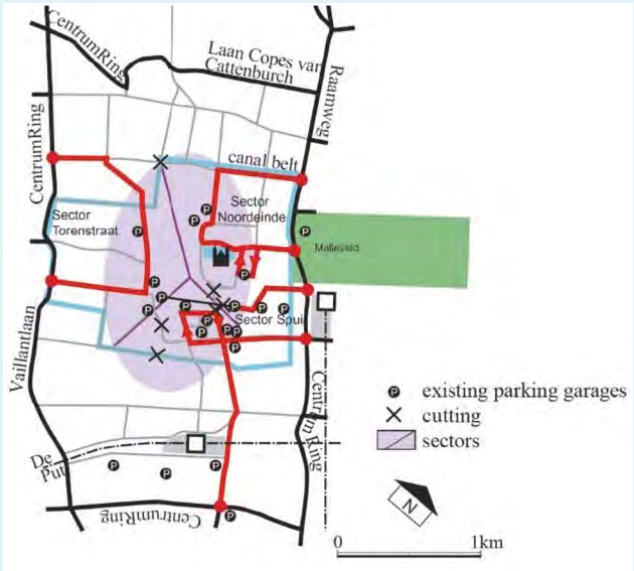
Cycling initiatives:

The Hague is implementing several initiatives to encourage cycling and provide bike parking. This includes:

- Subsidies of up to €120,000 for neighourhood bike parking facilities
- Extensive bike parking network across the city
- Several bike share providers
- Temporary bike parking on a "bicycle deck" the size of an on-street car park being trialled across the city
- 'Park and bike' facilities

Source: Wikimedia commons. https://commons.wikimedia.org/wiki/File:The_Hague_car-free_city-centre_28.JPG

→ **The Hague's car free central city makes it easy for pedestrians and cyclists to get around**



Sectors and 'Centrumring' (ring-road) of The Hague's Circulation Plan.

In The Hague's traffic circulation plan, a CentrumRing (ring road) surrounds a central city in which car movements are tightly controlled. Vehicles can enter and exit three 'sectors' (purple outline), for example using the outlined routes in red, but not cross between them, unlike cyclists and pedestrians who can cross freely.

Graphic source: bof-denhaag.n

Case study 3: Strasbourg, France

Urban population

467,000

Strasbourg introduced a circulation plan in 1992.

The plan accompanied the introduction of a step change in the city's transportation system, with the building of a new tram network which has now reached 65km in length. The city's circulation plan is made up of four traffic loops, which guide private vehicle traffic around the central city and which freed up space for both the new tram system, and for increased pedestrian zones in the central city which were set up in 1994.

Since the initial traffic circulation plan, several network extensions to the tram network have been delivered and reforms to parking policy have been introduced across the city. Between 1997 and 2019, the private vehicle went from making up 53% of journeys in the city to 37%, while public transport, cycling and walking all saw increases.

Universal access

Of the case studies profiled in this work, Strasbourg appears to have the most comprehensive universal access support in its central city.

- Strasbourg's tram and bus fleet is 100% accessible, with space for wheelchairs, ramps and a low floor tram fleet.
- The city has an on demand mobility service for mobility impaired users. A standard public transport fee of €1.70 applies per trip.
- A system of remote controlled pedestrian crossings for users with mobility impairments.

Source: https://en.wikipedia.org/wiki/Strasbourg_tramway

Strasbourg's new tram network was an important component in the circulation plan.

Strasbourg's circulation plan filters vehicle journeys.

This map shows the recommended delivery routes within the Strasbourg circulation plan and restrictions for different types of vehicles at different times of the day.

Graphic source: https://urbanaccessregulations.eu/countries-mainmenu-147/france/strasbourg

Case Study 4: Oslo, Norway

Urban population

1.03million

Oslo introduced its 'Car Free Life' programme in 2017, with a plan to reduce the volume of cars in the central city.

Unlike the other case studies outlined in this work, the Oslo programme does not rely as significantly on a circulation plan, rather a series of interventions aimed at reducing car volumes in the central city.

The crux of this approach has been the removal of a large number of on-street parking spaces. This means cars can still access the central city, but stays are no longer accommodated by on-street parking. In turn, this has changed the use of some streets away from the movement of vehicles and towards public space or cycling infrastructure. The approach also relied strongly on the identification of pilot areas to trial street treatments and approaches.

These changes have been accompanied by long-standing congestion charging in the city and recent low emissions zoning.

Public support

Oslo built support for its 'Car Free Life' approach by providing financial grants and public support for the use of central city public spaces for events and initiatives from local people. The city also ran public events in the new spaces.

In 2019, Oslo recorded zero pedestrian or cyclist deaths.

The city saw a 28% reduction in cars in the central city between 2016 and 2019.

Public space is improving in Oslo as cars are removed

Source: MRC

Proposed new zoning plan for Oslo Central city.

This plan shows the various types of streets that form Oslo's central city, including pedestrian streets, market streets with limited one-way vehicle access, public transport streets, and multi purpose streets.

Graphic source: Agency for Planning and Building Services, Oslo City

Low traffic city plans as part of a collection of interventions

While cities internationally have implemented circulation plans with successful results, they do not stand alone.

In each location, plans to create low traffic central cities have sat within wider transport plans, and alongside approaches such as low emissions zoning or congestion charging, and have enhanced, or been enhanced by investment in infrastructure to support travel options using several modes.

In general, traffic circulation plans fit with other plans in the following ways.

Emissions or vehicle-based charging

In terms of physical catchments, low traffic central cities tend to become nested with emissions zoning or congestion charging catchments. The concepts may be mutually reinforcing, but are generally implemented at different times and for different reasons. In several case study cities, environmental zoning has been applied at a later date, with the aim of reducing the city's emissions.

Common approaches used to support environmental zoning include:

- Subsidies and incentives to encourage travel by walking, cycling and public transport
- The promotion of alternative mobility options
- Enforcement of zoning with fines for non-compliance with environmental zoning catchment rules/requirements.
- A fee/permit structure for high-emitting vehicles to enter a central catchment

These approaches also support traffic circulation plans for low traffic central cities.

Investment in infrastructure to support low traffic central cities

Within the case studies, low traffic central cities are closely linked to sustained investment in infrastructure to support travel choices using non-car modes.

While investment in infrastructure can require a medium to long-term horizon to deliver outcomes, low traffic central city approaches can be implemented in a shorter time frame at any point along the life cycle of infrastructure delivery.

Some cities have already had well developed public transport networks in place prior to implementing circulation changes (The Hague), and others had a strong culture of sustained infrastructure investment.

However, the experience in Strasbourg shows that steps towards low traffic central cities can come before infrastructure delivery and catalyze its delivery. Circulation changes can facilitate longer term infrastructure proposals by taking a step towards altering the use of space. Alternatively, such changes can work in tandem with network development and delivery (as in Ghent), where infrastructure delivery can function as a key way to build support for low traffic proposals by showing how accessibility needs will be met.

This shows that circulation changes for low traffic central cities can come at any point in the timeline of large infrastructure projects, and does not rely on them ahead of time.

An artist's impression of the LGWM Golden Mile project

Wellington's current vehicle access

LEGEND
- State Highway
- Arterial road
- Secondary arterial (through route)
- Golden Mile (bus corridor)
- Pedestrian-only street
- Significant public building

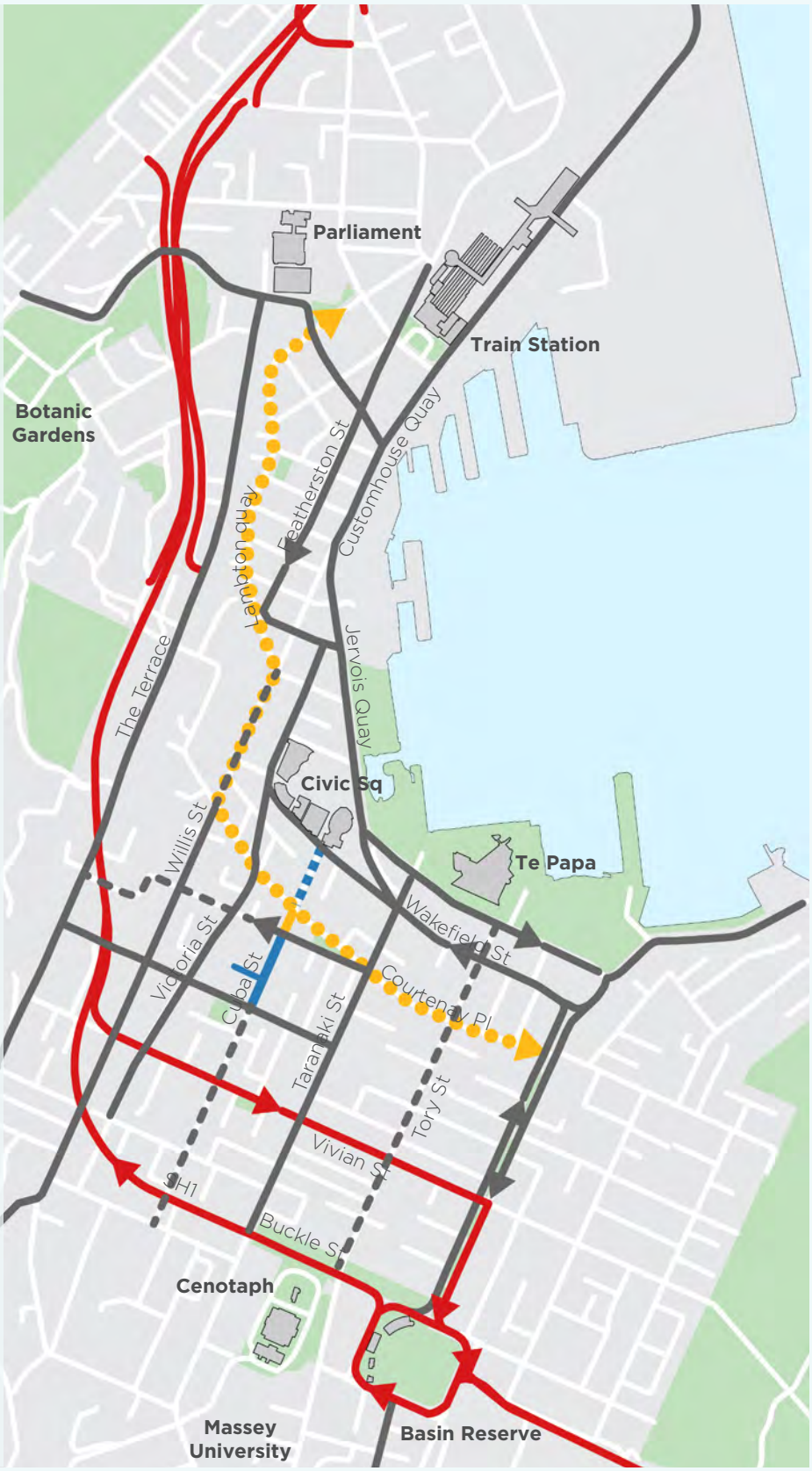
Routes through and to.

Vehicle access to Wellington's central city currently comes from several main arterials and five State Highway 1 off-ramps. State Highway 1 traverses the western and southern edges of the city, while the harbour side of the central city is bounded by Customhouse and Jervois Quays.

The city's main public transport spine, known as the Golden Mile, travels directly through the central city, and shares its path with general traffic in a number of locations.

Under the umbrella of LGWM, there are plans for Mass Rapid Transit to run from Wellington Station along the Quays and through the city on an alignment yet to be determined.

In addition to this, the City Streets programme, under LGWM, introduces a series of cycling, pedestrian and public transport improvements across the central city. The city's cycle network is imagined as a north/south and east/west connected grid of cycleways on central city streets.



The case for change in Wellington

Setting the scene

The number of people living, visiting, studying, and doing business in Wellington's central city is increasing and with it, the need to access and move around the area.

The central city resident population has increased from 9378 in 2003 to 14,823 at the last census, and is predicted to reach more than 30,000 by 2050. Central city employment continues to grow, and has been entirely accommodated by an increase in use of public transport and active modes for accessing the central city, rather than an increase in private vehicles.

Change is also coming as a result of the city's climate commitments. Building energy and urban form, and transport account for large proportions of the city's emissions, 34% and 53%, respectively. WCC has committed to a 43% reduction in both of these sectors.

What's the Wellington we want to see?

This work seeks to help Wellington achieve key goals for the central city, as set out in the strategic documents opposite and listed below. This concept represents a significant change in approach to the city's streets which can support higher population densities, unlock road space which can be reallocated for urban greening, and support a shift to low-emission transport modes. All of these are aims Wellington's strategic documents have expressed as important.

- Compact: We build on the city's layout and structures (its urban form), and make sure we have quality development in the right places.
- Resilient: Our city's natural and built environments are healthy and robust. Good design encourages physical activity and interaction that fosters social resilience.
- Vibrant and prosperous: We welcome social and cultural diversity. We support innovation and invest strategically to maintain a thriving economy.
- Inclusive and connected: We're connected by a world class transport system, and have attractive and accessible public spaces that support our diverse community and cultural values.
- Greener: We protect and value our natural environment, an enjoy thriving pockets of nature in the city.
- In partnership with Mana Whenua: We recognise Mana Whenua's important role and actively partner with them.

Wellington's transport history

The ideas which inform this report are not new.

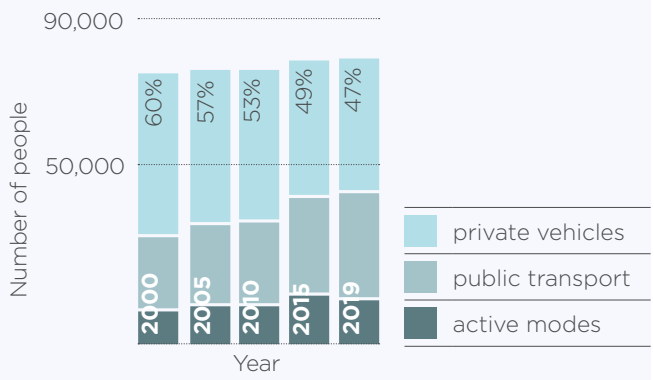
In the 1960s, the De Leuw Cather transport plan for Wellington presented a major change in how transport is delivered in the city. The plan recommended extending the motorway system into the central city, with a vision for later improving public transport by extending rail services the full length of the Golden Mile, and removing on-street parking to create more space. This plan was only half realised: the Foothills Motorway system was partially completed, but, the expansion of the rail network did not occur and on-street parking was retained in most of the central city. In the meantime, Wellington's extensive tram network was removed between 1949 and 1964.

Into the 1990s, transport planning in Wellington largely continued to focus on moving vehicles either into or through the central city, with significant focus on State Highway 1 and its route through the city.

More recently, transport planning in Wellington has seen increased focus on the role of public transport, walking and cycling. This includes the redevelopment of the city's bus network, and the identification of a key public transport spine in the city.

People's travel choices reflect this. The absolute number of people traveling into Wellington's central city by car has decreased since 2000, while the total number of trips has increased, meaning demand for public transport and active modes is on the rise.

Travel to central city by mode



The current Let's Get Wellington Moving (LGWM) programme is addressing many of the areas unresolved in the last 50 years, including the introduction of MRT through the central city and the creation of more space for walking and cycling. However, these plans will require a reconsideration of how the city's street space is allocated. This work seeks to support that change by providing a solution to the central city's space limitations.

Post Office Square in 1909 (left) and 2021 (right).

How could a traffic circulation plan work in Wellington?

A **limited traffic zone** would be defined by boundary roads, which could include Jervois Quay and Vivian Street (SH1) and Kent and Cambridge Terrace. This would mean that through traffic with a destination outside the central city would be directed to these boundary roads and would not be able to use local central city streets, such as Wakefield Street, to complete their journey.

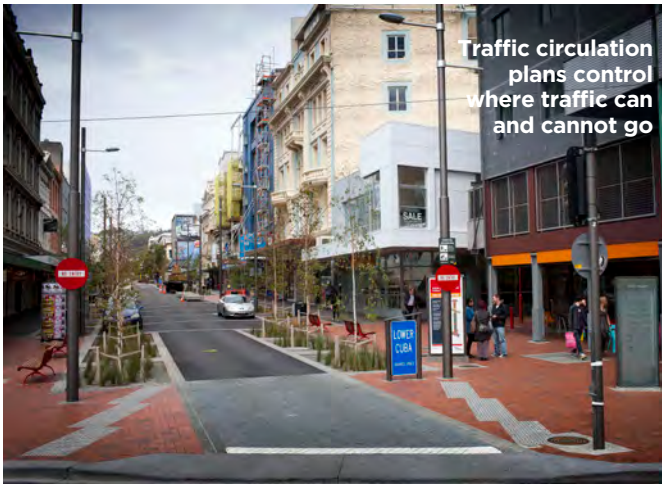
Modal filters or 'snips' would restrict through traffic on these streets by bus only sections, pedestrian-only areas, or lane closures that force turning movements or restrict straight ahead travel.

Traffic circulation patterns would have to be reconfigured to retain vehicle access to all areas of the city including off-street car parks. Further consideration should be made about whether some streets should still be accessible for kerbside pick-up/drop-off and/or on-street parking.

Traffic cells are accessible to cars via the **boundary roads** using prescribed routes. Some streets would change travel direction and some would go from 1-way to 2-way operation, or vice versa. In no cases would streets need to be multiple lane one-ways.

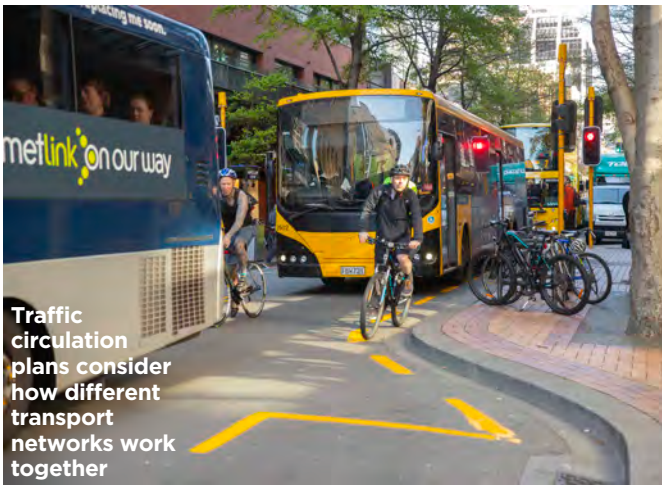
Traffic circulation patterns should be coordinated with **public transport and cycling networks, and safety objectives.** They should be designed to enhance urban amenity, improve residential environments, and make it easier for people to move around by walking and cycling.

A traffic circulation plan could be **implemented at one time** as in Groningen, The Hague or Ghent. It could also be **staged for progressive implementation** as is planned in Auckland. Both approaches take numerous years of planning before kick-off.


Traffic circulation plans control where traffic can and cannot go


Bus-only streets make public transport faster and more reliable


Multiple-lane one-way roads would be reduced



Traffic circulation plans consider how different transport networks work together

A traffic circulation concept for Wellington

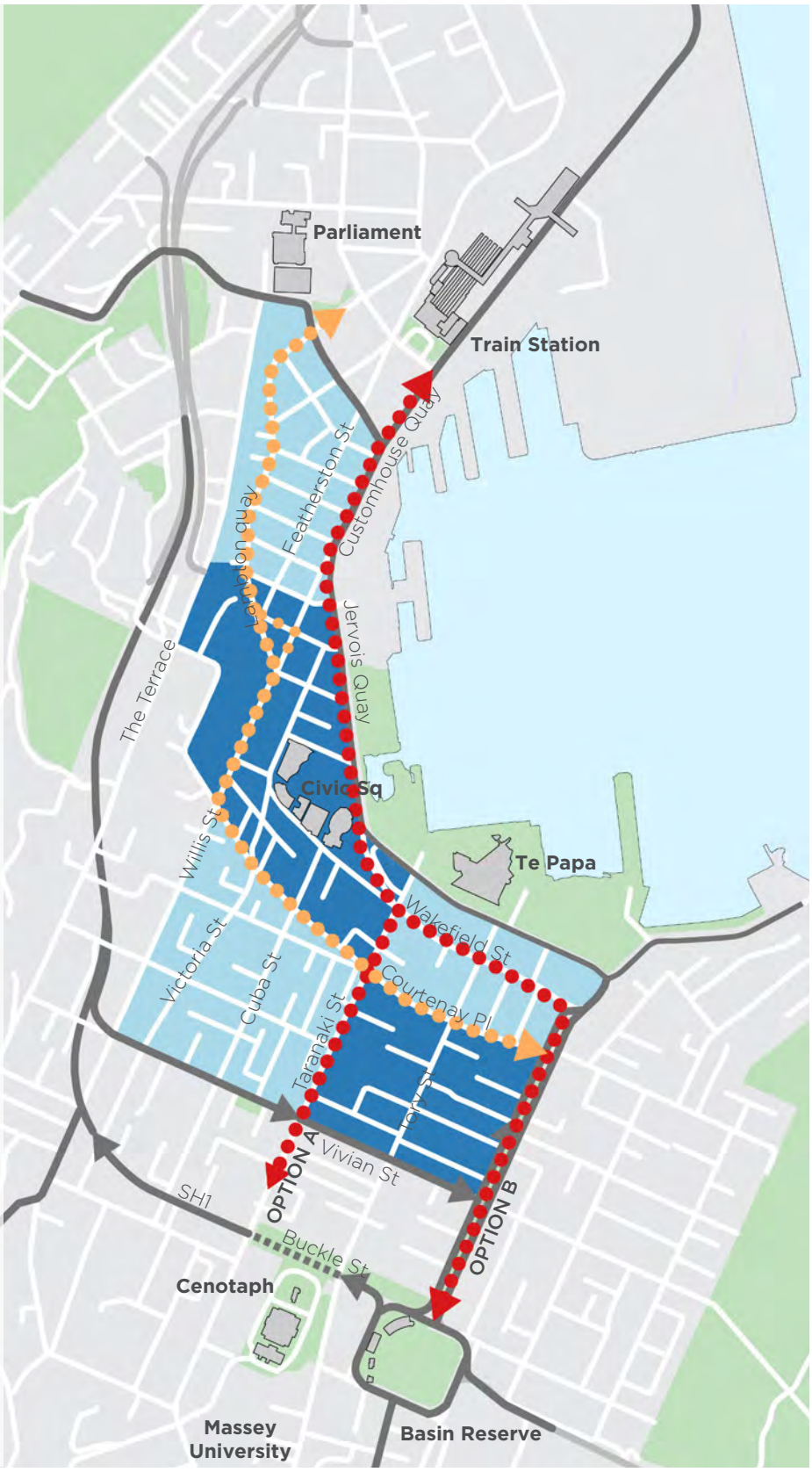
LEGEND

- Traffic cells
- Golden Mile
- Mass rapid transit
- Traffic perimeter route
- Significant public building

Wellington's central city is divided into 5 'traffic cells'.

These are bounded by through-routes for traffic. Cars have access to most streets within each cell, but are unable to travel through one cell to the next. Instead, they must return to the nearest through route.

Public transport and walking and cycling routes are unaffected.



Wellington's central city traffic circulation detail

LEGEND
- Key street changes
- Very low-traffic area
- Traffic perimeter route
- Significant public building

This map provides detail of the location of potential street changes in Wellington's central city. Numbers refer to the key on the following page.

Wellington's central city traffic circulation detail - Key

The function of central city streets will change to enable the circulation concept.

1. Lambton Quay: Bus transit street and possible cycleway.

2. Willis Street: Bus transit street between Manners Street and Hunter Street. New 2-way traffic between Ghuznee Street and Vivian Street.

3. Victoria Street: No traffic between Manners Street and Wakefield Street. Possible service lane in southbound direction. Key cycleway.

4. Mercer Street: No traffic. Key pedestrian and cycling connection to the waterfront and MRT.

5. Featherston Street: 2-way traffic operation. Key cycleway.

6. Tory Street: May be a cycleway or part of a 'low traffic' cycling route.

7. Courtenay Place: Bus transit street and key cycleway.

8. Wakefield Street: From 3 lanes 1-way to a 1+1, 2-way and MRT between Taranaki Street and Cambridge Terrace. Through traffic restricted between Mercer Street and Taranaki Street.

9. Ghuznee Street: Snipped. No through traffic between Taranaki Street and the Terrace. May be a key cycleway or a 'low traffic' cycling route.

10. Dixon Street: Snipped. No through traffic between Taranaki Street and the Terrace. May be a cycleway or a 'low traffic' cycling route.

11. Quays: MRT alignment. Reduced to 2 + 2 lanes. 1 + 1 lanes between Hunter Street and Harris Street. Key cycleway.

12. Cable Street: From 3 lanes 1-way to 2+1, 2-way.

13. Kent and Cambridge Terrace: Traffic distributor and key cycleway.

14. Taranaki Street: Taranaki Street snipped. No traffic across Courtenay Place. Cycleway and main bus route. Forms boundary of traffic cells. Left in and left out access along the corridor.

What sort of streets would this create in Wellington?

Low traffic streets.

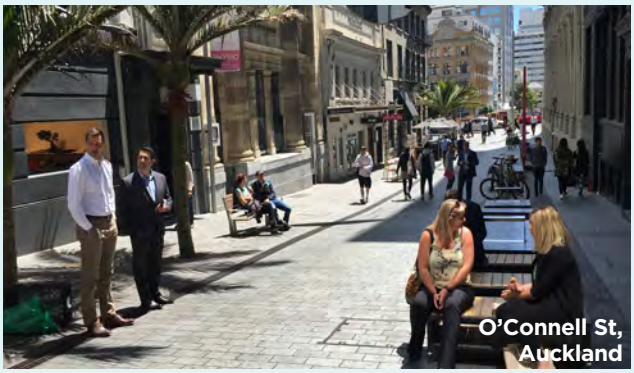
With a traffic circulation plan in place, traffic volumes and speeds are greatly reduced across the limited traffic zone. Removing on street parking further reduces vehicle numbers and frees up space that can be used for loading zones, wider footpaths, seating and greenery.

These streets can be embellished in many ways at a range of costs but their key feature is very low traffic which creates a safe, spacious, pleasant environment.

Removing traffic frees up space for public transport and walking and cycling networks. Almost car free streets can work harmoniously with special purpose streets that are important sustainable transport corridors.

Low traffic 'shared street'

Local access only streets, like Blair and Allen Streets, could become shared spaces with low traffic and high amenity for pedestrians.



O'Connell St, Auckland

Low traffic street

Streets like Dixon and Ghuznee Streets could have such low traffic that they become safe cycle routes.

High St, Auckland

Auckland images: MRC

Cycle Street

Areas such as lower Tory Street could have very little traffic other than local access, with increased potential for residential development and quiet streets connecting to the waterfront.

Cycle Street, Delft, NL

Bus Transit Street

Streets intersecting with key bus corridors like Courtenay Place and Lambton Quay could utilise bollards to ensure bus routes are kept clear. Bollards can be used to regulate vehicle access to pedestrian streets for certain purposes and times.

Bus Transit Street, Ljubljana

Staging a circulation plan in Wellington

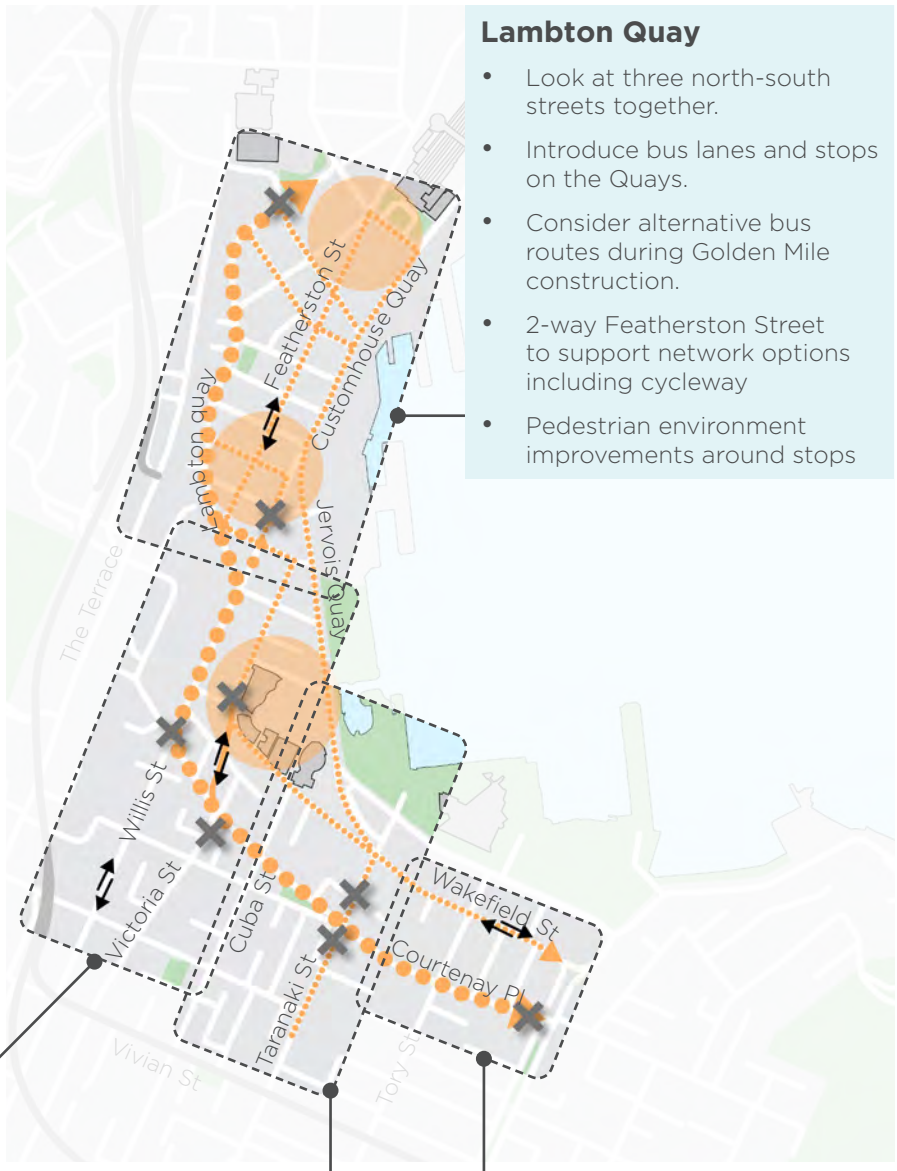
LEGEND
- Completed Golden Mile
- Temporary bus re-routing
- Change to two-way
- Removal of car traffic

The LGWM programme presents opportunities to make long-term street changes that are steps towards a low traffic central city.

Golden Mile, MRT and City Streets programmes cover nearly every street in the central city. LGWM projects could be coordinated using as the organising 'game plan'. This would mean looking at area-wide transport networks together when constructing the Golden Mile.

Diverting buses to the Quays during construction of the Golden Mile could kick-start a new PT corridor.

Changes could be implemented one area at a time based on other project triggers.



Lambton Quay

- Look at three north-south streets together.
- Introduce bus lanes and stops on the Quays.
- Consider alternative bus routes during Golden Mile construction.
- 2-way Featherston Street to support network options including cycleway
- Pedestrian environment improvements around stops

Willis Street and Victoria Street

- Look at these streets together.
- Victoria Street 2-way, bus only during Willis Street construction.
- Lower Victoria Street returned as a cycle street with no traffic.
- Pedestrian connections to new MRT station at Te Ngakau

Taranaki Street and Courtenay Place

- Through traffic is removed at this intersection simplifying construction.
- Changes to Dixon Street to maintain access but remove through traffic.
- Pedestrian connections along Cuba Street to new MRT station at Te Ngakau

Courtenay Place

- Buses re-routed to Wakefield Street during contruction. New contra-flow bus lane makes Wakefield Street two-way.
- Wakefield Street becomes a low-traffic street between Taranaki Street and Kent and Cambridge Terrace.

Why is this good for Wellington?

A traffic circulation plan responds to the trends that already exist in Wellington's central city: a growing population and increasing demands for public transport access to the central city.

LGWM will deliver a step change in public transport access and service, which will increase capacity on the public transport network and require central city space.

Space for other central city projects

Reducing or removing traffic frees up space. This space can be re-allocated to space-efficient transport modes, to enable more people to easily reach the central city. Several projects could use this space, such as MRT, The Golden Mile bus improvement project and the City Streets projects to provide improved walking and cycling. The space could also be used for urban realm projects to improve public realm amenity across the entire central area. While incremental space reallocation is inevitable as part of other transport projects in the city, this concept represents a transformational change.

Better access for more people

This traffic circulation concept prioritises public transport on key routes within the central city, and creates space for people to walk and cycle within the central city without interacting with heavy vehicle traffic. By doing this, these efficient modes of transport can move quickly and pleasantly through the city, which creates overall efficiencies of movement compared to car travel.

A healthy and safe environment

These changes would establish parts of the city as very low traffic, which could later be classified and enforced as Zero Emissions Areas, contributing to an improvement to public health outcomes through improving air quality in the central city and towards the city's carbon emissions goals. A reduction in private vehicle traffic also has the opportunity to reduce deaths and serious injuries in the central city by reducing interactions between people and cars. In the last five years, Wellington had 79 serious or fatal crashes, in the central city. This approach also allows for improvements in city space that can enhance personal safety, such as well lit urban spaces.

An attractive central city for people and businesses

Creating a central city that is easy to access for a wider range of people will continue Wellington central city's trajectory as a place people want to live and where businesses want to be located. Providing space on the city's streets where chance meetings with others are more likely creates opportunity for innovation and creativity, furthering Wellington's reputation as a place for new ideas and as a business hub.

Construction disruption

A traffic circulation plan can be used as a cohesive strategy to manage the effects on traffic circulation of construction activity around the central city. By doing this, projects can be coordinated in a way that takes advantage of disruption to make key changes in the city, and coordinates projects at a high level.

Key considerations

When ways to access the central city change, there are some groups whose access should be maintained.

There are also key considerations about the way such changes will affect some Wellingtonians and visitors. These are discussed below and should be an integral part of any further work in this space.

What about access for disabled people?

It is essential that everyone who lives, visits, work, studies, or plays in the central city can access everything they need. A range of tools will be tested with disabled communities to ensure their access to the central city is improved. This could include:

- Retaining access with a vehicle permit system for disabled people, potentially integrated with the mobility parking permit scheme.
- Public realm upgrades to make walking routes smoother and more accessible.
- Public transport accessibility improvements such as improved accessibility to stops within and surrounding the city centre.
- Supporting transport services, such as on-demand affordable mobility vehicles inside the central city.
- Promoting access through mobility parking and drop-off zones in accessible places

How will emergency services get around the city?

Emergency services are essential to keeping people safe and protecting property. When designing traffic circulation patterns, places should be easily reachable by emergency vehicles. This can be achieved through:

- Allowing emergency vehicles access to all areas of the central city, including traffic restricted areas.
- Where bollards are used, using retractable bollard technology with automated access for emergency vehicles.

What about loading and servicing?

Loading and servicing is essential to ensuring central city businesses receive the products they need, repairs and maintenance can be undertaken, and waste can be removed from the central city. Loading and servicing is currently constrained by other traffic on the road and competition for kerbside space. Changes to traffic circulation must also address changes to servicing and loading opportunities in the central city. Potential solutions include:

- Reallocating space currently assigned to on-street parking to increased kerbside loading space
- Providing dedicated time frames during which servicing and loading vehicles have access to restricted areas. Such time frames should also be outside of peak hours for general traffic and public transport in/out of the central city.
- Providing service and delivery “hubs” from which larger vehicles can distribute goods and services using smaller vehicles.
- The uptake and encouragement of other new service and delivery technologies, including cargo bike, shared loading docks, and street space allocation apps.

How does this plan support equitable access to the city?

Providing equitable access to the central city becomes increasingly important as cities grow, and as transport costs change. Equitable access does not mean providing the same for everyone, but providing transport that meets everyone’s needs. By reallocating space towards public transport priority into the central city and investing in accessible walking and cycling routes, Wellington has the opportunity to make it easier to access the central city for those who currently have fewer choices. This including access for people who cannot or choose not to drive a vehicle for their independent travel, including teenagers and older people.

How will people get around Wellington?

The maps on this page give some idea of how journeys in Wellington might change under the traffic circulation concept.

Nikau

Nikau lives in Newtown and drives to work on Lambton Quay. Nikau usually drives past the Basin Reserve, along Tory Street and Jervois Quay. Since was implemented, Nikau now takes a similar route, but travels along Cambridge Terrace instead of Tory Street. Since the rest of the streets in the central city are less busy, Nikau likes to bike into work in the summer when the weather is nice, as he can take a more direct route.

The Smith family

The Smith family lives in Kilbirnie and goes to church on Willis Street every Sunday. They are a family of six and drive their seven-seater car through the city each week to get to work. Their journey time to church hasn't changed since was implemented and they still have the same access by car to their church.

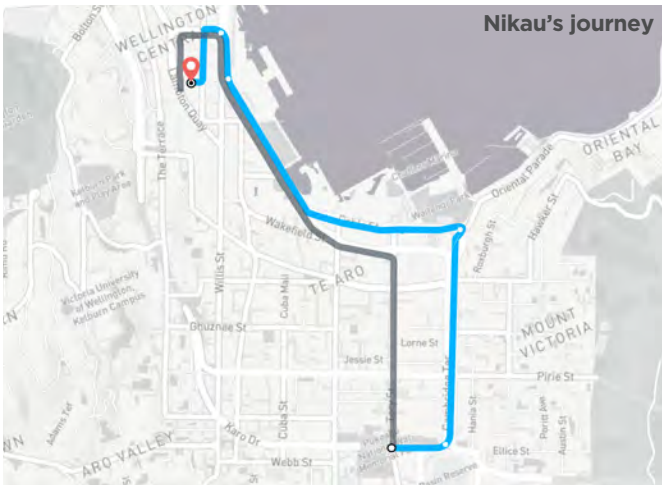
Kelsey

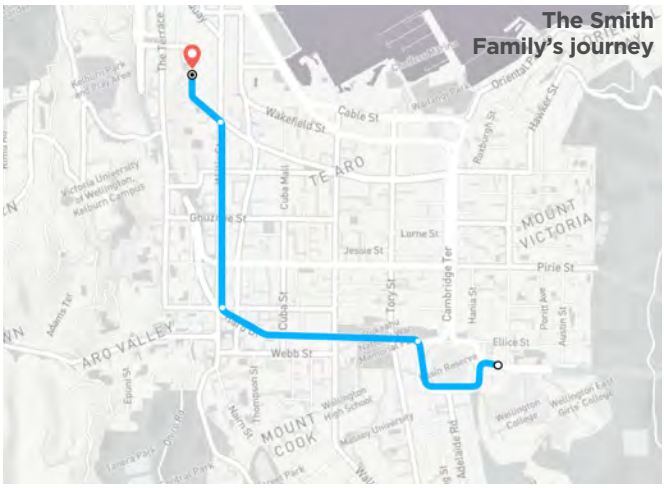
Kelsey owns a bakery in Newtown and drives a van into the city around 8am each day to deliver to the pastries to four cafes. Finding a loading zone and negotiating traffic can be difficult. Since was implemented, Kelsey has invested in an e-cargo bike. She takes protected cycleways to get to Te Aro and can now easily navigate to multiple destinations using a combination of quiet streets and new cycleways. She can bike directly to the door of each cafe cutting down on the amount of time it takes to make each delivery.

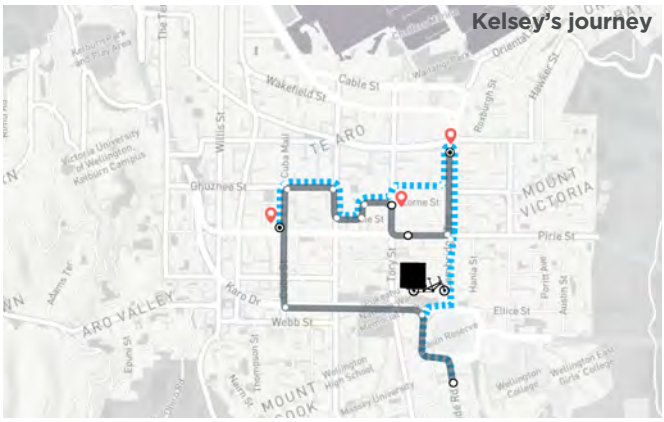
Taylor

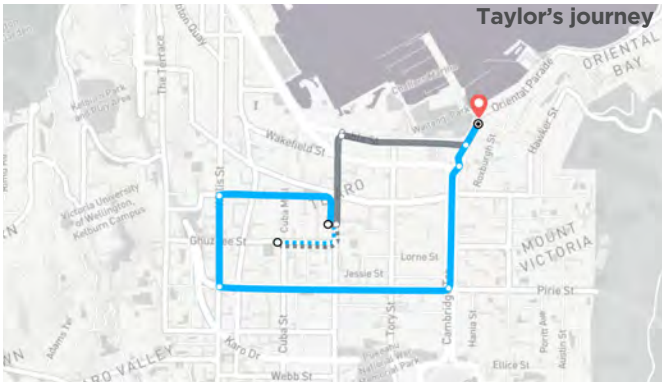
Taylor works at a bar on Ghuznee Street, and drives as public transport isn't running at 3am at the end of their shift. Taylor usually parks at the Taranaki Street parking building. Taylor then drives through the central city to their home in Oriental Bay. Since was implemented, Taylor still makes this trip by car, but uses a different route, via Willis and Victoria Streets. The change adds about one minute to the journey time.

LEGEND
- Journey before
- Journey after









Next steps and recommendations

This work has sought to establish whether there is viability for a circulation plan in Wellington's central city, and give an initial concept of what that may look like.

A high level concept has been developed for this work and a logical next step would be to both test the idea in more detail, and consider where it sits within Wellington's wider transport planning agenda. The development of this concept has found strong ties to LGWM and its expected programme of work. It is recommended that potential partnership with LGWM in the delivery and further development of this concept be explored.

Expected next steps for Wellington City Council

- Consider in more detail how a traffic circulation plan can be integrated with LGWM
- Seek approval for the approach from Councillors and the public
- Investigate the appropriate governance model for further investigations into the concept
- If approved, establish preferred funding mechanism for the next stage of detailed investigations and planning
- Establish necessary supporting work streams to be developed as part of this concept, for example service and delivery planning, inclusive access planning, parking strategies for the central city.

In addition to this, there is an opportunity for Wellington to recognise the opportunity for "quick wins" in the central city. These may include:

- Moveable or temporary barriers to test circulation changes
- Events, pilots and promotions to test different uses of space in the city
- Identification of streets already ready for change

Conclusion

This report outlines a concept for a low traffic central city for Wellington. The concept is achieved through using a series of low traffic cells bounded by the Quays, Kent and Cambridge Terrace, and Vivian Street/ State Highway 1, all of which maintain vehicle access. The nature of the Quays, however, would change and be expected to serve a lower volume of vehicles compared to the other access streets. Congestion charging could help ease the transition of the Quays to a public transport corridor that supports local vehicle access

This concept fits strongly with the current LGWM programme and creates an opportunity to deliver circulation changes in tandem with its activities. For instance, maintaining reliable, legible and attractive bus services while any construction is completed on the Golden Mile may lead to suggested changes on the Quays in order to provide a secondary public transport corridor. This in turn can contribute in advance of any MRT planning along that same route.

In some cases, the proposed traffic circulation plan can help solve key network challenges, such as the need for space for a cycleway on Victoria Street. In other cases, removal of through-traffic and reduced traffic volumes will create useful low-traffic cycling and micro-mobility routes.

Removing through traffic on Tory, Ghuznee, Dixon and Wakefield Streets could enhance area-wide objectives of urban regeneration, provide space for greenery, and create conditions better suited to residential living and public life.

When combined with planned LGWM investments, a low traffic central city significantly contributes to achieving Wellington's goal of a zero-carbon capital by 2050. By increasing the attractiveness of walking and cycling and reducing reliance on private vehicle travel, a low traffic central city could substantially reduce emissions from transport in central Wellington.

In general, the creation of low traffic spaces in the city delivers more space for Wellington's core overall, and opens up opportunities to connect to the waterfront, proposed MRT, and other urban realm projects the city has signaled.

A traffic circulation plan provides an opportunity to sit alongside and enhance the outcomes of the LGWM, by coordinating investment and delivery in a way that can deliver on climate, public realm and urban regeneration goals.

1

Cases for **Fossil Free Wellington**

Introduction

Cities today are challenged by "Brutally expensive housing markets, fierce competition over a shrinking talent pool and unbearably long commutes"[1] (techcrunch.com, 2019) source

How does a Good City for Business look like then?

2

Content

This document provides examples of cities that have worked successfully on improvements to the public realm and have experienced how the improvements have helped boosting the city economy.

The examples covers the following overall themes:

- Talent & New Business
- Productivity & Efficiency
- Retail
- Property Values
- Tourism

At the next page we are summarizing the findings of this document related to the topics we consider relevant to Wellington.

At the end we have included city cases zooming in on cities who via a combination of measures have performed especially well when it comes to create a mode shift away from the car towards other modes or/and less travel and at the same time have become (even more) attractive cities to live in, to invest in.

3

Summary
Key arguments for Wellington

A good City for People is a Good City for Business

- Cities which use a participatory approach to mobility changes together with citizens and businesses have a higher likelihood of successful implementation.
- The needs of the workforce are changing. Research shows that Millenials in particular have different needs - they want to walk, cycle and want green spaces, thus cities need to adapt. This is also true for tourists.
- Some of the actions fwill be controversial, especially taking out car lane capacity and car parking as part of improving PT, walking & public spaces.
- But other cities which have adapted similar measures have succeeded in reducing congestion, increasing safety and are also performing better economic wise. In most cases citizens' support for the measurements have been stable or increased.
- A danger is that retailers tend to have the perception that the highest volume of customers travel by car, which is why car parking spaces feel so valuable to them. Studies have shown that walkable and cyclable city centres bring in more business.
- Though inner-city logistics seem to be a challenge, a number of cities demonstrate innovative solutions that work for people, city and business.
- Examples from other cities indicates that actions towards improving the public realm will probably increase property values. This is a double edged sword as this both illustrates the positive impacts of such a vision and increase the tax base and at the same time result in an increase in the costs of living for residents or the cost of rent for small businesses. For Wellington, it is important at an early stage to have a strategy for how to mitigate the negative impacts of a potential increase in property values.

4

Cases for **Fossil Free Wellington**

Theme #1

Talent & New Business

Creating a **city that people love to live in is fundamental for the attraction and retention of talent and business.** Businesses are especially attracted to cities that offer a tool of skilled employees. Skilled employees on the other hand are attracted by a city's lifestyle.

Sources in this chapter indicates how cities through a mobility approach have increased the attractivity of the city as a **desirable city to live and work in.**

Key Reading

1. *https://www.tandfonline.com/doi/abs/10.1080/15568318.2016.1251997*
2. *https://www.mercer.com/our-thinking/people-first-driving-growth-in-emerging-megacities.html*

Gehl

“(...) skilled employees attracted by Copenhagen's lifestyle are attracting companies looking for talent.”

source

64%
of people choose the location before the job

5

5

Cases for **Fossil Free Wellington**

Theme #1 – Talent & New Business

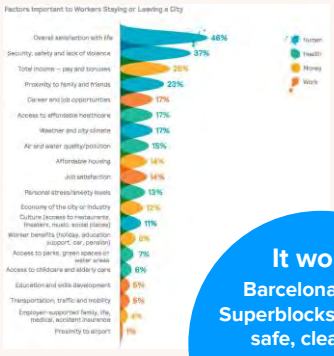
The keys to attract and retaining talent

- The Mercer report (research on 15 cities) states the importance of the following factors to attract & retain talent: source
  - **Security, safety and lack of violence is 37%**
  - **Air and water quality/pollution is 15%**
  - **Access to parks, greenspaces or water is 7%**
  - **Quality transportation, traffic & mobility is 5%**
- “Today millennials, adults 34 and younger, represent the largest component of the workforce in the developed countries. Many of them prefer to live in green, walkable neighborhoods with mixed amenities, move on bicycles or use public transport.” source
- **Barcelona, ESP** introduced in 2015 a superblock area in the district l'Eixample to *reduce road accidents, congestion and improve air quality and health*. To reduce cars within the superblock, the city expanded bike lanes, broadened electric bike networks and rearranged bus stops. In the future Barcelona plans to spread superblocks throughout the entire city to build on network effects, reduce free parking spaces and increase prices for short-term parking. source & source
  As a result, usable public space increased by 268%. Simultaneously, Barcelona moved up from 7th to *4th place between 2014 - 2019* in global rankings of *cities most attractive for talent.* source

Gehl

“Walkability helps to create a human social network”

source



source

It works
Barcelona builds Superblocks to create safe, clean and accessible neighbourhoods and remains attractive for talent

source

6

6

Cases for **Fossil Free Wellington**

Theme #1 – Talent & New Business

The keys to attract and retaining talent

Quality transportation, traffic & mobility

- The top 10 most attractive cities for employees which are measured based on lifestyle scores show a correlation with the implementation of mobility strategies. **7 of those 10 cities have brought forward strategies to reduce car traffic, car parking and improve cycling and walking.** source
- Research from 300 metropolitan areas across the United States shows that with every 4 seats per 1,000 residents added to rails and buses the number of employees in the area increased by 19%. source & source

Safety and security

- Walkable cities reduce fatalities e.g. 6% reduced risk of pedestrian deaths by shortening a long crosswalk. source
- Walkable cities reduce crime rates. source
- **Kansas, USA** "In one Kansas City neighborhood, crime dropped 74% after some streets went car-free on weekends." source

The 10 most attractive cities for workers based on lifestyle - circled cities with implemented mobility strategies

1. Zurich, Switzerland
2. Vienna, Austria
3. London, UK
4. Munich, Germany
5. Berlin, Germany
6. Copenhagen, Denmark
7. Geneva, Switzerland
8. Toronto, Canada
9. Melbourne, Australia
10. Dublin, Ireland

source

source

"(Employees) They need to be more flexible and open to moving around today. If you lack geographic mobility, it's a career detriment."

Gehl

7

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Cases for **Fossil Free Wellington**

Theme #1 – Talent & New Business

Keys to attract & retain business

Quality transportation & high-quality public spaces

- 73% of Business Innovation Districts say walking and cycling attract and retain staff, enhances vibrancy, attracts more customers. Offices prioritize locations with high quality cycling facilities source
- "Small businesses choosing a new business location rank open space, parks and recreation as a number-one priority." source
- **London, UK** has a toll ring and very poor access with cars. Still, global tech giants such as Apple & Google are committed to London as business location due to good public transport and its efforts on improving cycling conditions. source & source

Public infrastructure investment sparks private sector investment

- **Sydney, AUS** invested €185 million into office, retail, infrastructure on George Street and gained €52 billions in economy value as an outcome. Strategic partners created an incubator along the corridor that has launched 100 startups in five years which have raised more than €12 million in new capital. source
- **Barcelona, ESP** Poblenou, a once dilapidated neighborhood on Barcelona's waterfront, became Barcelona's 22@ District in 2000. The city invested €180 million in transportation and infrastructure modernization, aiming to convert the area into a lively urban center. As of 2010, the area holds over 7,000 companies, 22.85% more residents, 1,300 new subsidized housing units, more than 56,000 new workers and 4,500 new companies moved into the district throughout 11 years (47.3% startups, 11% foreign). source

"companies are attracted to locations that offer well-designed, well-managed public places" source

Barcelona invested in an abandoned neighborhood and attracted

4,500

new companies

source

It works

The number one thing companies want in Denver is bike lanes. "10 years ago we never would have thought that walkability or bike lanes would be economic development tools"

Tami Door, President, Downtown Denver Partnership

source

Gehl

8

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Cases for **Fossil Free Wellington**

Theme #1 – Talent & New Business

Keys to attract & retain business

A bicycle culture creates need for local businesses related to cycling

- According to research, bicycle and pedestrian infrastructure projects create 11.4 jobs for every €0.8 million invested which results in 46% more jobs created than the same investment in car-only infrastructure projects would. Infrastructure which is related to cycling and pedestrian is labour intensive, involves mainly local work and material. source & source
- **Portland, USA**: In 2008, the city saw €75 million in bicycle-related activity in terms of retail, rental, repair, manufacturing and distribution, bicycle events, and professional services. In 2006, over 100 Portland businesses were surveyed, and 82% responded positively to the question if the city's reputation for bike-friendliness was good for business. source & source
- **Copenhagen, DK** recognizes in its Bicycle Account 2010 the direct impact the bicycle has on businesses mapping 309 businesses selling and repairing bicycles in Greater Copenhagen which creates 650 full time local jobs and a total estimated annual turnover of €174 million. source
- **Denmark** approximately €10 billion will be the total cost of current large construction (e.g. MetroCity Ring in Copenhagen & the Fehmarn Belt Tunnel to Germany). Those projects are/will be done by non-danish consortiums and primarily involve non-danish workers being paid in their home countries. As a result the economic boost to the danish economy is limited. source

Table 2: National Average Employment Impacts by Project Type

Project type	Road	Bicycle	Pedestrian	Off-street trail	Number of projects	Direct jobs per $1 million	Indirect jobs per $1 million	Induced jobs per $1 million	Total jobs per $1 million
Total, all projects					58	4.69	2.12	2.15	8.96
Bicycle infrastructure only		•			4	6.00	2.40	3.01	11.41
Off-street multi-use trails				•	9	5.09	2.21	2.27	9.57
On-street bicycle and pedestrian facilities (without road construction)		•	•		2	4.20	2.20	2.02	8.42
Pedestrian infrastructure only			•		10	5.18	2.33	2.40	9.91
Road infrastructure with bicycle and pedestrian facilities	•	•	•		13	4.32	2.21	2.00	8.53
Road infrastructure with pedestrian facilities	•		•		9	4.58	1.82	2.01	8.42
Road infrastructure only (no bike or pedestrian components)	•				11	4.06	1.86	1.83	7.75

source

The MetroCity Ring in Copenhagen was built primarily by non-danish companies (e.g. Ansaldo STS) with a mainly non-danish workforce, this limits the positive effects on tax and profits in denmark
source by Gehl

Gehl

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Cases for **Fossil Free Wellington**

Theme #2

Productivity & Efficiency

It is a well documented fact that a commute by bicycle - even just for 15-30 minutes - or a commute that includes walking of longer distances significantly **improves health and thereby reduces sick days, improves productivity and reduces societal health costs.**

At the same time, the more people you can move by foot, bicycle and public transport the more **space-efficient the transport systems** becomes.

> **"Every minute added to workers commute negatively impacts their anxiety, happiness and general wellbeing..."**

source

27%
reduction in sick days if employees are physically active

source

Gehl

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Cases for **Fossil Free Wellington**

Theme #2 – Productivity & Efficiency

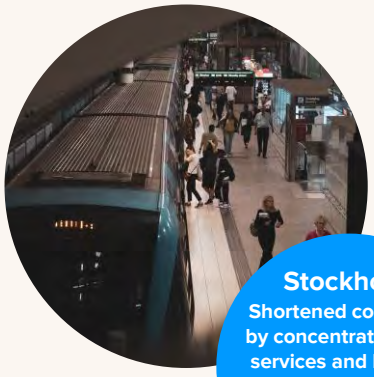
Reducing commuting time & costs

Street trees reduce city operation costs

- An increase in public spaces creates more chances for greenery e.g. public spaces with healthy tree cover, have shown to lower city temperatures on hot summer days saving costs to the city and its businesses e.g. in **London, UK** where more than 5 billion pounds for air cooling were saved between 2014 and 2018 by populating streets with a large number of trees. source & source

Reducing commuting times

- The World Bank supports that better and more efficient public transportation reduces commute times and attracts more riders, concentrating jobs, services, and housing in an accessible area. Doubling job density leads to an economic productivity increase of 5 to 10%. source
- According the UN Habitat, European cities with a Infrastructure Development Index higher than 0.9 (1.0 being max.) have established good street connectivity and as a result enjoy high productivity with optimal community time. Cities with high productivity levels have succeeded in reducing traffic congestion by improving walkability. source
- **Stockholm, SWE** promoted shorter commutes by reducing dependencies on private cars. This was achieved by concentrating jobs, services and housing in areas close to high quality transit, so called Transit-Oriented Development. Typically TOD translates into higher productivity. source



Stockholm
Shortened commutes by concentrating jobs, services and housing which resulted in
+ 41% Gross Value
– 35% Emissions per capita

source

Gehl

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Cases for **Fossil Free Wellington**

Theme #2 – Productivity & Efficiency

Reduce sick-days and boost productivity

Reduced absenteeism by active mobility choices

- People who are physically active take 27% less sick days. source
- Biking reduces sick absentees. People who cycle regularly take 1.3 fewer sick days a year than those who don't [all other factors being even]. source & source

Biking boosts productivity

- Effects of cycling were tested with 100 participants (50 - 83 years old) over a period of 8 weeks. After cycling at least 3 times/week for each 30 min participants showed a boost in productivity and mental health. source

Efficient transport make increased business activity possible

- **Vancouver, CAN** By reducing the number of cars entering downtown area by 20% and instead make more people cycle, walk or take public transport, the city enabled a growth in jobs (26%) and population (75%) without increased road congestion grinding the city to halt. Total trips to downtown even increased. This shows the positive effects on the productivity of the business sphere by space-efficient transport system. source

Vancouver downtown:
+26% jobs
-20% vehicles entering
+75% population

source

It works
Nordrhein Westfalen and many other growth areas in Germany are building cycling highways to shorten commuting times for employees, to promote active transport and to provide alternatives to congested roads

source

Gehl

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Themes

Retail

The challenge of people living on the outskirts rather than in proximity to the city centre offers a lower footfall for retail. The retail sector is further challenged by being one of the sectors which registers the highest number of vacant jobs. Furthermore internet trading has changed people's shopping habits from physical shops to online shops.

In this respect the following sources will shed light on how a mobility vision could **positively impact the economic state of retail business**.

But as research shows retailers often hold misconceptions of impacts from car-focused streets and strong voices against car and parking restrictions might rise from the retail sector.

Further Reading

1. *https://www.livingstreets.org.uk/media/3890/pedestrian-pound-2018.pdf*

“(...) retailers on a local high street overestimated the proportion of shoppers arriving by car by almost double at 41% compared with the actual proportion of 22%”

source

5x

more retail spend with bike parking than car parking

source

Theme #3 – Retail

Public realm increases retail sales

Good-quality and green public space attract shoppers

- More people are attracted by good-quality public environments within city centres which can boost commercial trading by up to 40%. source

Retailers hold misleading beliefs of impact from walking and cycling

- A study in London showed that retailers often assume the majority of sales coming from shoppers arriving by car but overestimate their impact by almost 50% (41% compared to 22%). source
- People cycling tend to shop more on local stores supporting local businesses and car drivers shop less and support chain business located elsewhere. Source

Increased footfall through cyclable and walkable streets

- **Coventry, UK** invested in “improved pedestrianisation, a new civic square, clearer signage and better placement of street furniture” which increased footfall in the city centre on Saturdays by 25%. source
- **Copenhagen, DK** has identified that 58% of all shopping trips and 55% of all revenues in Copenhagen come from pedestrians and people cycling. They spend €2.06 billion every year in shops’ and supermarkets (malls excluded). source

“Converting an underused parking lot into a public park on Pearl Street (Brooklyn) increased nearby retail sales volumes by 172%, compared to 18% borough-wide.”

source

Cases for **Fossil Free Wellington**

Theme #3 – Retail

Walk and cycle for the local economy

Bike parking is an effective investment

- **London, UK** Overall, a study found that bike parking delivers 5 times more retail spending per square meter than the same amount of car parking would and that people who walk spend 40% more. source
- **Bern, CH** shows that people cycling generate €7,500 in retail sales compared to car drivers who generate €6,625 for every square meter of parking space in the city centre. source

Business associations tend to warm to the potential after a while

- **Vancouver, CAN** Charles Gauthier, President and CEO of the Downtown Vancouver Business Improvement Association (DVBIA), said: "More people than ever before are walking or cycling to stores, restaurants and cafes, and that's helping move people more efficiently through the city, creating a vibrant local economy, as well as attracting talent and innovation." source

It works
"Establishing bike paths on 8th and 9th Avenues in Manhattan increased local business retail sales up to 49% compared with 3% borough-wide."

source

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Cases for **Fossil Free Wellington**

Theme #3 – Retail

Walk and cycle for the local economy

Less car parking does not mean less business

- **UK & Austria** Sources show businesses regularly overestimate how many of their customers arrive by car. "In 2006 Sustrans interviewed 840 shoppers and 126 retailers on two neighbourhood shopping streets in Bristol to find out how customers travelled, and were perceived to travel. This replicated a survey in the city of Graz, in Austria, which found that retailers overestimated the importance of the car for customer travel (retailers assumed 58% of their customers arrived by car, when in fact 44% walked, 8% cycled and 16% arrived by bus). In Bristol, retailers overestimated the importance of the car by almost 100%. They assumed that 41% of their customers arrived by car; only 22% had done so (Sustrans, 2006)." source
- **Toronto, CAN** A study in Toronto's Parkdale Neighbourhood shows "72% of visitors to the Study Area usually arrived by active transportation (by bicycle or walking). Only 4% report that driving is their usual mode of transportation." source
- **Toronto, CAN** In 2008 a study was conducted on Bloor Street, a shopping area and central street of **Toronto**, "Patrons arriving on foot or bicycle spent the most money and had the highest visiting frequency per month and more business owners would have wanted to see even better possibilities for people cycling and pedestrians." source See table:

In 2015 a survey of local businesses in Waltham Forest, UK found that business believed 63% of their customers arrived by car and only 49% walked. A survey of visitors to the street revealed that only 20% had arrived by car and 64% had walked.

source

Table 5. Money spent in the area per month

	Live or work in the area (294)	Live and work outside the area (242)	Walk (246)	Bicycle (64)	Public Transit (171)	Car (55)	Total (536)
< $25	6%	31%	8%	11%	29%	24%	17%
$25-$99	21%	35%	16%	39%	37%	37%	27%
$100-$499	50%	29%	52%	42%	28%	30%	41%
$500-$999	14%	5%	17%	3%	3%	4%	10%
> $1,000	9%	0%	7%	5%	3%	5%	5%

source

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Cases for **Fossil Free Wellington**

Theme #3 – Retail

Inner-city logistics for e-commerce

Reduced delivery costs in cyclable inner-cities

- General research has found that business using cycle freight save between 39% and 64% on delivery costs. source
- **Hamburg & Cologne, DE** collaborate with UPS to make last-mile logistics more efficient in densely populated parts of cities. After banning cars from the inner-cities, new intersection points & storage facilities were created for last-mile delivery. Also, alternative distribution methods such as e-assisted cargo bikes were introduced. Overall, the pressuring challenges with last-mile delivery were translated into the opportunity to increase efficiency.
- **Paris, FR** bound start-up The Green Link (TGL) delivers parcels in central Paris using a fleet of battery electric vehicles since 2009. Before clients delivered goods by diesel vans from suburban areas through congested main roads within the city centre. TGL delivers over 2,000 parcels daily and saves 30,000 litres of diesel a year. A challenge is the limited availability and cost of suitable depot space in central Paris. source

> **A growing web of Amazon warehouses will increase deliveries leading to increased freight traffic on city streets."** source

Business using cycle freight save between 39-64% on delivery costs

source

With its electric fleet in Paris, The Green Link delivers over 2,000 parcels daily while saving the costs of 30,000 l of diesel a year.

source

Gehl

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Cases for **Fossil Free Wellington**

Themes

Property Value

Mobility and public spaces impact property value greatly which is why the sources in this chapter will provide arguments for the the impacts of mobility approaches on **increased property value** as well as **declined vacancies**.

But with the success, once the city become more attractive for people to live in, work in and visit, the attraction is also tracked on the levels of rents. A higher demand gives higher prizes and gradually **the small businesses and affordable housing is pushed out of the market** - into other districts or out of the city.

Many cities have worked to change this process by e.g. controlling/curating ground floor rent levels and regulating minimum common/affordable housing supplies.

> **greater walkability of areas translated into higher office, retail and apartment values"**

source

17% less retail vacancy when street environments were improved

source

Gehl

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Theme #4 – Property Value

Value of public space and walkability

Value increase through quality public space

- **Berlin, DE** found that the proximity to playgrounds in residential areas increased land values by up to 16% and street trees resulted in an increase of 17 % in land values. Source
- Improvements to public space and non-motorized mobility results in increase property values and rents. source

Walkability and public transport increases prices

- Researcher from Indiana University & University of Arizona analysed data from more than 4,200 office, apartment, retail and industrial properties from 2001 to 2008 in the United States and found that all other variables being equal, greater walkability of areas has shown to translate into higher office, retail and apartment values. There were no direct effect found on industrial properties. "On a 100-point scale, a 10-point increase in walkability increased values by 1–9%, depending on property type." source

It works
Properties bordering water or green areas in Netherlands can increase house values between 8 - 11 %. Compared with properties with a view on an apartment block, prices can reduce by 7%

source

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Theme #4 – Property Value

Decline in vacancies in the city centre

Good public environment attracts thriving business

- **London, UK** provides evidence that there is a strongly correlation between improved street environments and declining retail vacancies. The differences of retail vacancy between improved and unimproved street environments was measured with 17% yearly. source

Walking, cycling and public transport reduce vacancies

- **New York City, USA** "Expanding walking facilities in Union Square North (Manhattan) reduced commercial vacancies 49%, compared to a 5% increase borough-wide." source

"Replacing car lanes with bus- and bike-lanes on First and Second Avenue reduced commercial vacancy rates 47%, compared with 2% borough-wide." New York

source

Photo: Huffpost.com

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Theme #4 – Property Value

Risk of gentrification

Activating the ground floor

- **Mayfair and Belgravia, London**
  Grosvenor owns the land in Mayfair and Belgravia in London and leases units to retail, office and residential occupiers. Most buildings are leased out for long periods of time. When working towards a more lively and attractive city, Grosvenor used what is called in legal terms a "Deed of Variation" to a lease.

  Generally, leases can be changed and Grosvenor takes the initiative to: Change the area of the lease so they can change the first 5-10m of ground floor space to retail/restaurant/co-working/gym etc. and buy a tenant out in order to take control of the ground floor units

  Grosvenor demands that the tenant of the lease must animate the ground floor frontage with a window display, chairs, flowers etc. A real estate "leasing agent" helps to find emerging businesses that will take on the responsibility of running the retail/restaurant/co-working/gym.

  Grosvenor have several examples where providing a restaurant or retail at ground floor has increased the value of office rentals above the ground floor. The more attractive the place is, the more desirable it is as an office destination which drives office value.

Grosvenor has done successful transformations at Mount Street, Grosvenor Street, Duke Street and North Audley Street in Mayfair.

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Themes

Tourism

Sources in this section will additionally highlight the **benefits of walking and cycling infrastructure as well as the effects for increased accessibility of tourist destinations.**

Several examples from cities around the world also show that increased tourism positively affects employment rates e.g. production and retail.

It works
In London, Trafalgar Square saw a
300%
increase in visitors after pedestrianizing.

source

Photo: london.gov.uk

22

Cases for **Fossil Free Wellington**

Theme #5 – Tourism

Making a city attractive for tourism

Benefits of walking and cycling infrastructure on tourism

- **Quebec Province, CA** Cycle tourists spend an average €180 per day, 6% more than other types of tourists while cycling the La Route Verte network. source
- **Wisconsin, US** bike tourism is estimated to contribute €1.2 billion to the state's economy every year. source & source & source
- **Europe** "an economic impact study conducted in 2012 and funded by the European Parliament shows an impact of €44 billion from 2.3 billion bicycle tourism trips." source
- "For tourists, walking is one of the best ways to experience a city, and improving walkability makes more people interested in visiting. In London, Trafalgar Square saw a 300% increase in visitors after pedestrianizing." source
- "Making a city more walkable and liveable can also give it a stronger identity, and make people want to visit. Barcelona, which has worked on improving public spaces and walkability since the 1980s, has seen its number of annual visitors grow 335% over the last two decades. source

Many tourist tours in Copenhagen brand themselves with the promise to explore the city like a local - via bike. "If you want to experience Copenhagen the authentic, local way, a bike will be your friend. "

source

Gehl

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Cases for **Fossil Free Wellington**

Theme #5 – Tourism

Making a city attractive for tourism

Sustainably connecting tourists to destinations

- **Vienna, AUT** has invested massively in sustainable mobility management and the upgrading of its public transport system. And with success: hardly any other city offers environmentally friendly traffic options. This harbours great benefits for tourism – visitors reach their destinations easily and quickly and experience Vienna as a city of pleasant and safe walking and increasingly comfortable possibilities for cycling. source & source
- **Paris, FR** has identified 59 actionable items in the 2022 Tourism Strategy Development Plan. 4 of these directly target sustainable transport, including developing active mobility and public transport better integrated with public space. source & source
- **Copenhagen, DK** The hotels in Copenhagen have realized that tourists enjoy cycling when visiting the city. A visible proof of this are the many "hotelbikes" parked in front of major hotels for the guests to use. source

Vienna's goal by 2025 is "to reverse the proportions of visitors who arrive by car (currently 26%) and by rail (21%)".

source & source

Gehl

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Cases for **Fossil Free Wellington**

Theme #5 – Tourism

Making a city attractive for tourism

The accessible tourism market

- "Accessibility is a central element of any responsible and sustainable development policy. It is both a human rights imperative, as well as an exceptional business opportunity." source & source
- A key element of the Paris 2022 Tourism Strategy Development Plan is to make the city accessible to all. source & source

The negative impacts of cruise ship tourism

- **Norway** Cruise passengers spend less despite offers on land. source
- The data provided in the study reveals a low level of cruise passenger expenditure in the port city. This fact illustrates, as do other studies, the poor contribution of cruise tourists to the local economy. source
- **Venice, ITA** is one of the most desirable ports for cruise tourism, but they've seen negative impacts on the local ecosystem, social systems and economy. source

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Case Study

Vienna

Starting in the 80's, the city has pursued a rigorous mobility strategy to decrease the car ridership share from the streets by reducing car parking, improving its public transportation, and nurturing walking neighborhoods as the mantra for development in the city.

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Case Study: Vienna

Vienna – *Overview*

Trends (source)

- 13.4% increase in employment (2007-2017)
- 12.4% increase in population (2007-2017)
- Density: 46 people/ hectare
- Tripled its car-free, pedestrian zones to 295.938m2 since 1990 source
- Implemented traffic calming to 80% of its streets by 2013

- Walking, cycling, and public transport account for 73% source
- Modal split of public transportation rose by 10pp since 1993
- Reduced the car share from 40% to 27% (1993 and 2014) source

Population 2019: (source)

- City: 1.897.491
- Metro Region: 3.000.000 source
- 30% of population is foreign born

A few other facts:

- 1st place as "The Most Livable City" (2019) source, source & source
- World's greenest city with 50% of urban areas being green source & source
- Exceeds by 35% the EU labor productivity average
- Income per capita €28.000/yr, just below the OECD average source
- 95% of residents are satisfied with public transport source

Case Study: Vienna

Key Moves

The economic prosperity between 1960 and 1990 increased car ownership in the city by 4 times its original size, leading to road congestion, parking problems, air pollution, noise and accidents. Political and public consensus over sustainable mobility has since transformed Vienna into a world leading city for business.

> **Vienna is an outstanding business location. This is not only documented by numerous international rankings but by "hard" data as well: every 55 minutes, a new enterprise is set up in Vienna; our productivity is above average. At the same time, a forward-looking housing policy ensures that two out of three inhabitants of the city live in publicly financed or subsidised housing."**
> **Peter Hanke Ex. City Councillor of Finance**
> **source**

The key moves in Vienna to positioning itself as the world's most livable city and as a leading attractive pole for entrepreneurs:

- Preservation of the old town
- Leverage the tight-knight historic urban fabric for walking, biking, public transport use, and mixed-use developments
- Implementation of car-free zones in the city center and strategic parking areas off the center
- Protection of large open spaces from development to build more parks, forests and working landscapes
- Increase of its public housing stock each year by 5.000 units
- A consistent focus on developing the public transport with the train and metro system as the key elements

Two very important results of these key moves were:

1. Attracted young well-educated generations to the city
2. Provided the best environment for tech and creative industries to choose Vienna as their HQ

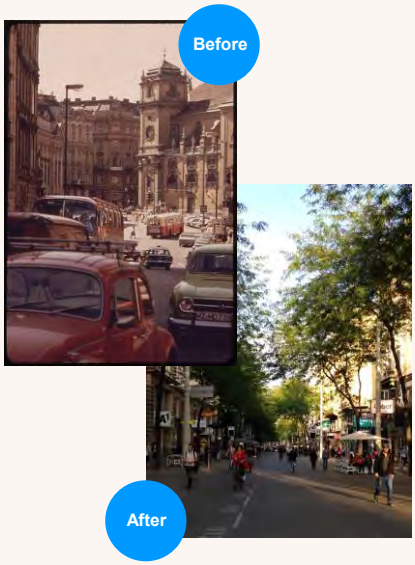
Case Study: Vienna

Mobility Approach

Vienna has focused its efforts around public transportation improvements led by the construction and expansion of the U-Bahn since 1968. It has also implemented car-free zones in commercial areas and traffic-calmed zones in residential neighborhoods restricting parking for private vehicles in selected locations supported by improved public transportation and walking conditions. Business owners and local workers concerns were solved by building parking garages and park-and-ride lots off the city center for commuters.

Congestion in the center has been reduced by better coordinating the public transportation systems and suburban rails, diverting traffic around the center but not in its core. The modernization of the tram system has rendered it as a key part of Vienna's transport system, and ridership in tram and U-Bahn has increased steadily through the present.

The city has been able to reduce the car ridership share from 40% to 27% of all trips by expanding car-free zones and improving their pedestrian areas and transportation systems. Throughout the same period Vienna has positioned itself as "The most livable city" in the world, attracting the best companies and talent to their urban fabric.



Case Study: Vienna

Impact – *Capacity and support*

Mariahilfer Strasse is a 1.6km commercial street that was pedestrianized after a pilot project and a referendum supported by 53% of the voters. The local authorities held a series of charrettes with the local community and tested the car-free idea.

The pilot project served to attract people and new activities to the street and to encourage participation in the redesign process. The different opinions were considered for the final proposal that created a lively commercial corridor for people and people friendly transportation options.

Key Reading

1. https://thecityateyelevel.files.wordpress.com/2017/03/22europe_s-longest-shared-space-case-mariahilfer-strasse-vienna.pdf
2. https://www.vienncouver.com/2015/01/viennas-begegnungszone-shared-space-program/
3. https://www.vienncouver.com/2015/10/transforming-a-street-before-after-images-of-viennas-mariahilferstrasse/

"If the referendum would take place now 71% of the respondents would have voted in favor of the new layout..." source

38% business felt improvement with the pedestrianization

46% did not notice any change

9% experienced a negative impact

source

Cases for **Fossil Free Wellington**

Case Study: Vienna

Impact – *Business & investment*

Aspern Seestadt is a recent Transit Oriented Development located 7 km east of the city center that houses 8.000 residents with a capacity to generate 2.000 workplaces. It is a hub concept that agglomerates open spaces, housing, and working opportunities, supported by creative investment.

Seestadt has provided ample variety of mobility options in order to sustainably and rapidly connect residents to their needs within short walking or biking distances. Other initiatives such as collective car parking garages and lower car parking numbers to limit car use have been included in the master plan. Seestadt is connected to Vienna by the metro and rail, where commuters can keep using sustainable means of transportation.

Key Reading

1. https://www.aspern-seestadt.at/en/lifestyle_hub/mobility
2. https://www.aspern-seestadt.at/en/business_hub/quarters__development/location__surroundings

Gehl

"The underground network is Vienna's number one mode of transport. That was one of the key arguments for bringing our company HQ and workshops at Seestadt."

source

€5B

total investment volume attracted by the Transit Oriented Development

source

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Case Study

Copenhagen

Since the 1980´s, Copenhagen has adopted a people centered approach prioritizing walking, cycling and public spaces. An approach that together with an upgrading of the housing stock has been a key component in moving Copenhagen from the brink of bankruptcy to one of the most liveable cities in the world.

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Case Study: Copenhagen

Copenhagen – *Overview*

Trends from 1995 - 2013 (source: see pdf attached)

- 17% increase in jobs
- 19% increase in population
- 25% increase in trips from and to the city
- 38% decrease in cartrips to work and education

Population 2020: (source)

- Municipality: 583.000
- Greater Copenhagen: 1.346.485

A few other facts: (source)

- 20% population growth expected from 2020 - 2025
- European Green Capital in 2014
- Routinely at the top or in top 10 on city liveability lists
- The best city to attract and retain talent source

Case Study: Copenhagen

Key Moves

In the late 1980's Copenhagen was close to being bankrupt. Since then the city has transformed itself and was described with the following words by the London School of Economics:

> **"Copenhagen is widely recognised as a green economy leader. The wider Copenhagen region accounts for 39% of Denmark's output and has enjoyed stable growth over the long term. Copenhagen's growth has been delivered at the same time as improving environmental performance and transitioning to a low-carbon economy."**
> **source**

The key moves in Copenhagen's transition from a run down and poor city to a city well off with a green profile which is at the top of liveability rankings can be summarized like this:

- Upgrade of the housing stock
- Upgrade of public spaces to create attractive local destinations
- Upgrade of cycling and walking conditions
- Development of areas close to the city center served well by public transport and cycling facilities, as part of this a metro system financed by selling of public land, for example along the harbor

Two very important results of these key moves were:

1. making it attractive for families to live in Copenhagen (instead of moving to the suburbs)
2. making it attractive for investments and companies to locate to Copenhagen

Case Study: Copenhagen

Mobility Approach

Today more than 60% of the people both living and working within the city of Copenhagen commute to work/education by bike.

A steady improvement of the cycling conditions has been a key part of the transformation of Copenhagen - at first because this was cheap and all the city could afford. Later because the positive effect was clear and the demand from citizens was tangible. The focus on cycling infrastructure has gone hand in hand with an improvement of the public transport and more attractive conditions for walking. The latter very much related to an upgrade of squares and parks and a gradual reduction in the space devoted to car lanes and car parking within the city.

Overall the market share of the car has been decreasing. But interestingly enough this has happened at the same time as car ownership has gone up. Or put in other words, the conditions for cycling has become so good and the restrictions on parking at workplaces so tough that most commuters have preferred the bike and then enjoyed access to the car during the weekend whether the purpose was to visit the summerhouse or Ikea.

Before

After

Nyhavn, Copenhagen

Case Study: Copenhagen

Impact – *City gains*

Society consequently saves at least € 1,34 per kilometer when people cycle rather than drive. source

If 10% more kilometers are cycled there will be an annual socio-economic gain in Denmark of € 150 mil. In the capital region the annual gain will be approx. € 70 mil. For purposes of comparison the Danish regional health authorities spend approx. € 2 billion annually on general doctor-practices. source

Wealthy cities such as Copenhagen rely on a mix of cycling paths, tramways, underground railways, buses, and pedestrian paths that are well integrated and designed into the urban fabric. Increasingly, the world's wealthiest and most economically productive cities are leaders in redesigning transportation infrastructure to promote safer, healthier, and more pleasant neighborhoods. source

Key Reading

1. *https://cyclingsolutions.info/cost-benefit-of-cycling-infrastructure/*
2. *https://www.consultancy.uk/news/21524/mega-cities-must-improve-quality-of-life-to-attract-talent*
3. *https://urbantransitions.global/wp-content/uploads/2019/09/Climate-Emergency-Urban-Opportunity-report.pdf*

"Copenhageners collectively take 109,000 fewer sick days each year due to the health effect of cycling, saving companies €62.5 million a year..."

source

€1.7M

of gain to the city if 1.4M km of car trips were done by bike

source

€1

enjoyed by people cycling in health benefits per kilometre travelled.

source

Case Study: Copenhagen

Impact – *Business and branding*

On the societal level the health benefits derived from walking make it the most profitable transport mode from a cost-benefit point of view, with a societal gain of €1 per kilometer walked. source

Pedestrian oriented transportation options have the largest share in shop turnovers: Shoppers arriving by bike or on foot are responsible for almost 50% of the turnover in shops in Copenhagen (29% and 20% respectively). Drivers are responsible for 36% and public transport users for 15%.

People cycling are more loyal customers and shop more frequently in the same shops than drivers. Drivers tend to drive to only one shop. source

The cycle superhighways are estimated to give a socioeconomic surplus of €765 million, with a total price of €295 million. source

Key Reading

1. *https://www.weforum.org/agenda/2018/10/what-makes-copenhagen-the-worlds-most-bike-friendly-city/*
2. *http://www.cycling-embassy.dk/facts-about-cycling-in-denmark/statistics/*

"Copenhagen has created functional people oriented infrastructure that has also contributed to its branding attracting new residents and tourists..."

source

"...offers an inclusive business culture and a high quality of life, really appreciated by internationals moving here."

source

The Bicycle Snake
source

Case Study: Copenhagen

Impact – *Transport efficiency*

Nørrebrogade, Copenhagen by Queen Louise Bridge 1946-2016,
Number of bicycles, weekday

Bicycle lanes were introduced in 1982,
Street redesigned in 2010-2012
Nørrebrogade has 6.000 motor vehicles per weekday as of 2013

People per workday

Case Study: Copenhagen

Impact – *Property values*

"Under the auspices of Copenhagen, the report focuses on Sønder Boulevard in Vesterbro, which has been reorganized with more parks, fewer cars and lower speeds. Here, it is estimated that the restructuring has had a positive effect of €53 million. (approx. DKK 350 million in 2014 price) for the area's property value and in addition also strengthened the local public health with i.a. a lower sickness absence i.a. the derived effects."

Note: A key component of the transformation of Sønder Boulevard has been the movement from a link (for traffic) to a public space (that is also a street) through a mix of traffic calming, adding cycle tracks and improving the green space.

Photo source: SLA

List of references

1. Techcrunch "Where tech companies should look to expand" by Cheryl Young:
2. Politico "Latvia, a disappearing nation" by GORDON F. SANDER:

Links

LONDON

https://content.tfl.gov.uk/walking-cycling-economic-benefits-summary-pack.pdf

https://content.tfl.gov.uk/street-appeal.pdf

https://content.tfl.gov.uk/healthy-streets-a-business-view.pdf

https://heartoflondonbid.london/wp-content/uploads/2020/02/Arup-Holba-Economic-Case-121119.pdf

https://www.designcouncil.org.uk/sites/default/files/asset/document/the-value-of-public-space1.pdf

NEW YORK

http://www.nyc.gov/html/dot/downloads/pdf/dot-economic-benefits-of-sustainable-streets.pdf

https://www.nyc.gov/html/dot/downloads/pdf/2012-10-measuring-the-street.pdf

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Cases for **Fossil Free Wellington**

Content

The theme of public spaces is embedded in the presentation re. Mode shift (traffic) since the overall approach and the learnings from other cities point are very aligned across these two topics.

This document therefore only consist of some general findings re. Public space that can be taken from the cases found in this document and the cases listed in the other documents within this project.

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Summary
Key arguments for Wellington

Streets are also public spaces

- Streets should be designed as public spaces - not just as transport corridors.
- At the end of all travels, people become pedestrians and cherish a positive, safe and attractive public realm. To deliver an attractive route to and from public transport and parking is therefore the key to change or nudge peoples transport choices and behavior.
- In streets people need good sensory experiences and opportunities to rest and linger - then more people will be willing to walk and cycle more - and over longer distances.
- Once streets become attractive to pedestrians and connect the public spaces and parks in the city, a true public space network is created.
- Learning from Odense - big infrastructural barriers that have split the city offers opportunities to change - holds centrally located land that can be used better - e.g. to deliver a new balance of traffic/sustainable infrastructure.
- Learning from Aarhus - change take time. It is though never too late to reveil and give hidden and forgotten amenities and nature back to the citizens.

Case Study

Odense
Transformation of Thomas B. Thriges Gade

Thomas B. Thriges Gade - a four lane street that since the 1960's cut the city center of Odense in two - has in the last ten years been closed for traffic and transformed into a new neighbourhood with housing, offices, cultural institutions and f&b. Eight new public spaces and a fine mesh street network connects the two sides of the previously divided Odense, as well as a central boulevard for bikes and pedestrians running along the street.

The traffic that used to run on the four lane road has been re redirected to connect to a ring road around the city center, meaning that circulation of cars has been restricted but access by car has been kept at a relatively high level. A two storey underground parking garage has been built under the area, with room for 1100 cars. In connection to the completion of the development, a new 14,5 km long tram line will open in 2021/2022, with two stops in the area.

Cases for **Fossil Free Wellington**

Case Study: Odense

Odense – *Overview*

"City of cyclists"

- Danish National Cycling City 1999-2003. The focus on cycling during this period resulted in a 20% increase in cycling and a 15% drop in car use
- The successful focus on cycling improvements helped create the momentum for an ambitious overall urban strategy for mode shift and public space improvements
- 26% of all trips are done by bike

Population 2021: (en.wikipedia.org/wiki/Odense)

- Urban: 180.760
- Municipality: 204.895
- Denmark's third largest city

A few other facts: (source)

- The closing of TBT gade, the new light rail and a continued strong focus on cycling the key moves in the overall urban strategy

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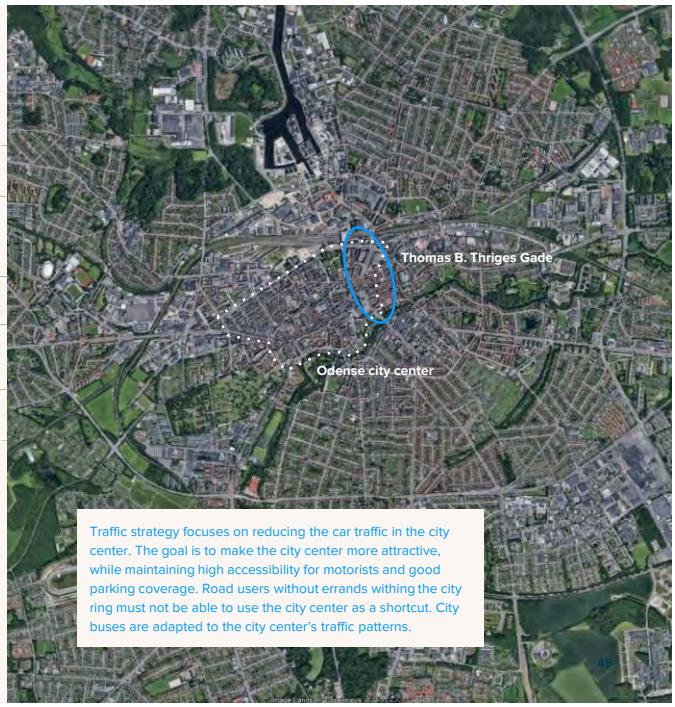

Traffic strategy focuses on reducing the car traffic in the city center. The goal is to make the city center more attractive, while maintaining high accessibility for motorists and good parking coverage. Road users without errands withing the city ring must not be able to use the city center as a shortcut. City buses are adapted to the city center's traffic patterns.

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Cases for **Fossil Free Wellington**

Thomas B. Thriges Gade
– *overview*

From 4 lane road built in the 1960s, dividing the historical center in two

To (vision) An integrated, attractive and sustainable city center.
Four new neighbourhoods and eight new public spaces.

30.000 cars/day before closing.

Time frame: 2008-2021/22 Planning 2008-201. Competition in 2011 with 7 invited teams.

Winning team: Team Entasis + Utopian City Scape
Construction started in 2014

Cost: Estimated before start 710 mio. Dkr
Odense Municipality and Realdania has each supported with 255 mio. Dkr

Area size: 51.000 m2
53.000 m2 construction distributed on 65% housing, 25% offices and 10% retail. Cirka 300 new housing units and 1000 new office spaces.

Public transport: A new tram line with two stops + new supercycle highway along the new Thomas B. Thriges Gade

Parking: 1000 parking spots in 2 storey underground parking

The project is implemented as a partnership between Odense Municipality and the foundation Realdania. Team Entasis is the totalrådgiver and Cowi is the bygherrerådgiver. es som et partnerskab mellem Odense Kommune og Realdania. **Team Entasis er totalrådgiver** for projektet og **Cowi er bygherrerådgiver**.

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Cases for **Fossil Free Wellington**

Densification and redirection of traffic sews the city together

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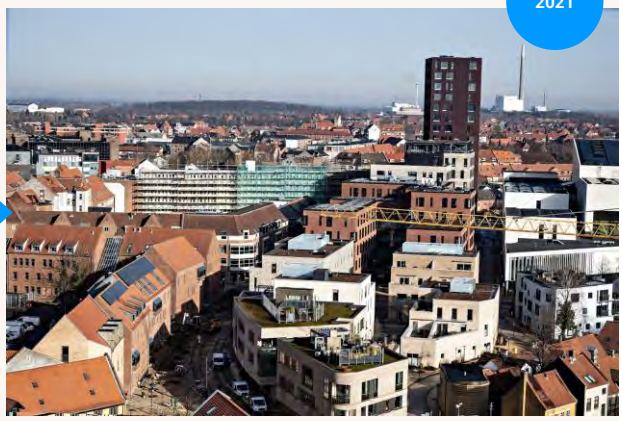
Cases for **Fossil Free Wellington**

Thomas B. Thriges Gade, Odense

2010

2021



https://fyens.dk/artikel/f%C3%B8r-efter-boliger-aff%C3%B8ser-biler

Photo: Michael Bager

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Cases for **Fossil Free Wellington**

Thomas B. Thriges Gade, Odense

2010

2021

https://fyens.dk/artikel/f%C3%B8r-efter-boliger-aff%C3%B8ser-biler

Photo: Michael Bager

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Cases for **Fossil Free Wellington**

Thomas B. Thriges Gade, Odense

2010

2021

https://fyens.dk/artikel/f%C3%B8r-efter-boliger-aff%C3%B8ser-biler

Photo: Michael Bager

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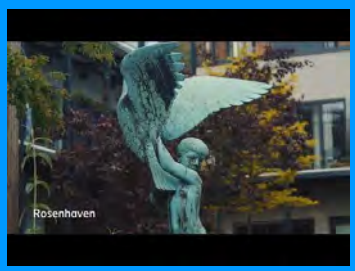
Cases for **Fossil Free Wellington**

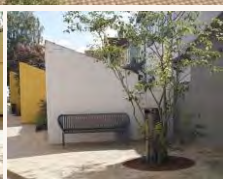
New public spaces, streets and lanes



Movie: Update on new public spaces 2021 (https://www.youtube.com/watch?v=nOU8qi7F2uA&t=1s)

Image source and descriptions: https://www.fragadetilby.dk/bygninger-og-rum/torve-og-pladser

Gehl



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Cases for **Fossil Free Wellington**

Case Study: Odense

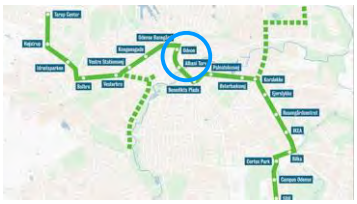
Impact – *City level circulation*

Gehl

New tramway - connecting the different sides of the city center, with two stops along TBT Gade

2021/2022

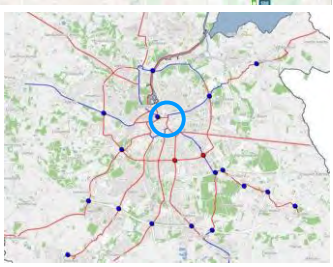
suggested future extension



Connecting the wider cycle network - super cycle highway along TBT Gade connects to the cycle network in and out of the city

Existing super cycle highway

Planned super cycle highway



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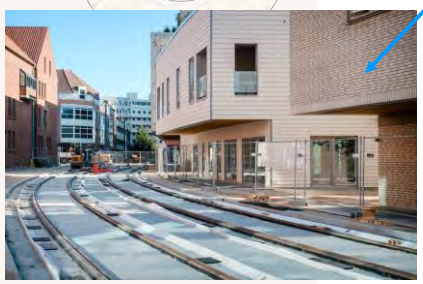
Cases for **Fossil Free Wellington**

Case Study: Odense

Impact – *Accessibility for public transport and bikes*



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Cases for **Fossil Free Wellington**

Case Study: Odense

Impact – *Public life*

Temporary public space at Fisketorvet

New bike connections and information center for the project. The permanent public space will be in place in 2021.

http://www.landplus.dk/project/fisketorvet-odense/

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For more information...

Holistic plan “Fra gade til by” (From street to city), 2015

See the plan document here

Links - Thomas B. Thriges Gade

Team Entasis:
https://entasis.dk/projects/thomas-b-thriges-gade/

Cowi:
https://www.cowi.com/solutions/infrastructure/thomas-b-thriges-gade

Masterplan: https://entasis.dk/projects/thomas-b-thriges-gade/
https://www.fragadetilby.dk/plan-for-omraadet

Landscape and public space plan:
https://aarstiderne.dk/en/cases/thomas-b-thriges-gade/

Case Study

Åboulevarden, Aarhus, DK

Aarhus is the second largest town in Denmark ”the capital of Jutland” and is the Danish city with the youngest and fastest growing demographics and home to Scandinavia's largest university.

Åboulevarden was created as a through-street in the 1930’ies when it was decided to cover the stream (at that time smelly and dirty) to give space for car traffic between the city and the industries at the harbour.

In 1989 time had changed and the city council voted to reopen the stream and through different stages over the next 25 years the stream has become fully re-opened

Today Åboulevarden is one of the most attractive public spaces in the city center which is used for both recreation, dining and going out.

Cases for **Fossil Free Wellington**

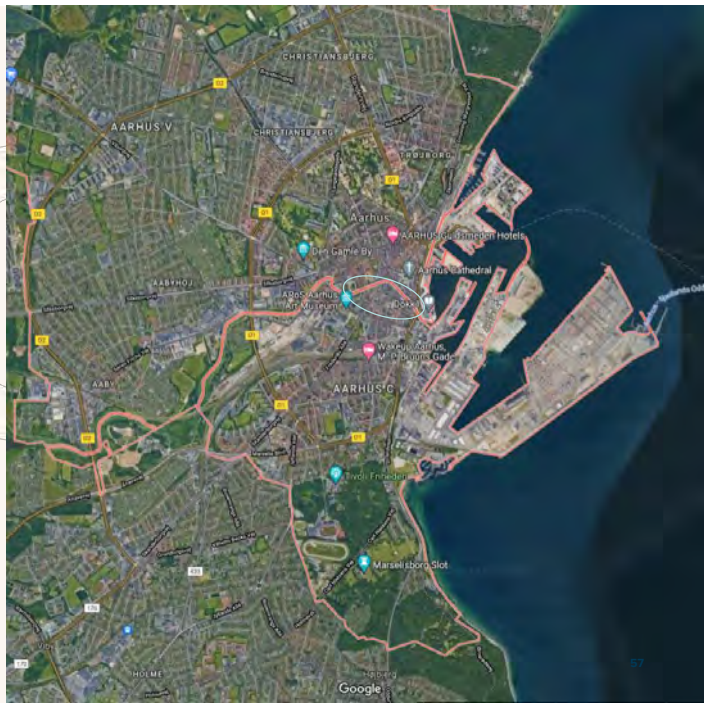
Case Study: Åboulevarden, Aarhus, Denmark

Aarhus– *Overview*

Aarhus is Denmark's second largest city.
The greater Aarhus area as itself and 8 adjacent municipalities totalling 952,824 inhabitants (as of 1 January 2021)
280,500 inhabitants in city centre

New light rail system opened 2020 and is planned to being expanded.

Was European Capital of Culture in 2017



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Cases for **Fossil Free Wellington**

Åboulevarden
– overview

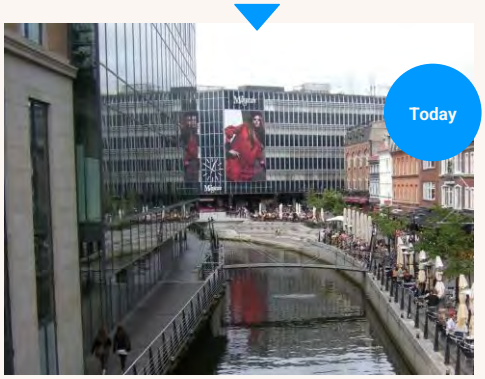
From	4 lane road and parking
To	An attractive and busy public space in the city centre

Åboulevarden was constructed between 1930 and 1958 covering the stream running through central city of Aarhus thereby allowing for parking in the center and connecting the city better to the harbour for vehicular traffic.

12.000 cars/day before closing
In 1980ies about 12000 vehicles were driving through Åboulevarden - 6% of these were heavy traffic to and from the harbour.

Time frame: 1995-2015
After much debating the decision of reopening the stream was taken in 1989
First stage: 1995 ->
Awarded the danish planning award 1996
Awarded the European award for city- and regional planning 1997-98
2008 the new section of river was inaugurated
Final stage- fully opened by 2015
(source wikipedia)

Area size: The re-opened Åboulevard is about 1 km



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Cases for **Fossil Free Wellington**

Before the re-opening of the stream the asphalt of the street was painted and the city architects office published perspectives to show to people that there actually was a stream under the road - many people have forgotten all about it..

Today the re-opened stream is one of the most attractive and busy public spaces in the city center.

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Content

This document provides examples of cities that have worked successfully on decreasing the mode share for cars.

The examples covers the following overall strategies:

- Financial incentives
- Physical restrictions on car access
- Spatial planning
- Mobility Management
- Organisation

At the end we have included [5] city cases zooming in on a handful of cities who via a combination of measures have performed especially well when it comes to create a mode shift away from the car towards other modes or/and less travel and at the same time have become (even more) attractive cities to live in, to invest in. Regarding impact we have also aimed to include how more broader parameters such as growth in population and jobs has developed in the period where the case cities have pursued a strategy of mode shift.

Examples have - apart from success in creating mode shift - been selected based on some similarity to Wellington regarding income levels and other socio-economic factors including size of city. Therefore all/most examples are from cities in Europe including some smaller cities such as Ghent (B), Odense (DK) and Trondheim (N).

As mentioned the main focus is on reduced emissions through mode shift.

Though, no matter the effectiveness of converting car trips to other modes, a substantial volume of car trips are to be expected also in the future. Therefore also some examples of successful strategies to promote e-cars are included.

Next steps

For us at Gehl with our knowledge of both Wellington and the examples we find the following especially interesting:

- Ghent; the quick rather low cost roll out, impressive impact and the simple concept of a “lagkage by”/cirkulation plan
- Trondheim: Mixing a modest fee for driving a car to the city with massive investments in alternative modes and an impressive impact
- Barcelona: The superblock as a simple & easily explained concept with instant positive local impact on cycling, walking and public space while still providing car access
- The trend of people moving away from speaking about “car-free” city centers, realising it is not about being car-free but about finding the right level of “carelessness”, Oslo being one example.

This document includes some very simple graphics/reflections on how the concepts from other cities can be implemented in a Wellington concept.

We hope the document together with the references to further reading can inspire Wellington to explore in more detail how these concepts can be applied in a Wellington context, building on the existing work in plans such as the Regional Mode Shift Plan, Keeping Cities Working and “First to zero”

Cases for **Fossil Free Wellington**

Ways to define the car-free city - level of “car-lessness”

4.
exceptions for people with access to parking (Madrid)

3.
exceptions for residents
(Barcelona Superblocks)

2.
few exceptions
handicapped, goods delivery, craftsmen (Oslo, Ghent) NB: Taxi and public transport a variable...

1.
no exceptions
(Venice, Tivoli)

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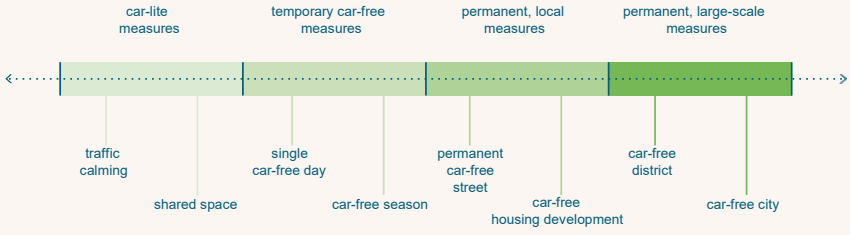
Cases for **Fossil Free Wellington**

Ways to define the car-free city - time period and size of area



NB: Technically you could argue that traffic calming & shared space to move to slide on “level of carlessness”

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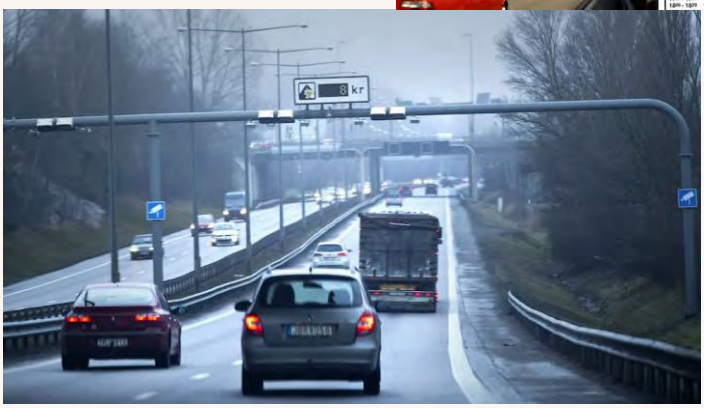
How?

Gothenburg congestion charging - part of a long-term initiative for sustainable travel habits

A congestion charge was implemented at the beginning of 2013 for Swedish registered vehicles entering Gothenburg city centre. The aim is to give car drivers financial incentives to choose other means of transportation, and to finance investments in sustainable travel for the region, reduce traffic congestion and improve air quality, in order to create a more liveable city with more usable land. [1]

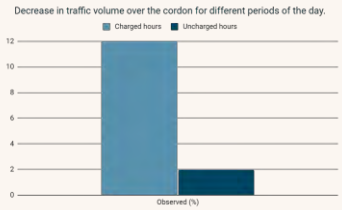
The primary purpose of the congestion tax is to reduce traffic congestion and improve the environmental situation in central Gothenburg, and to get financing for large road and rail construction projects in and around Gothenburg. [2]



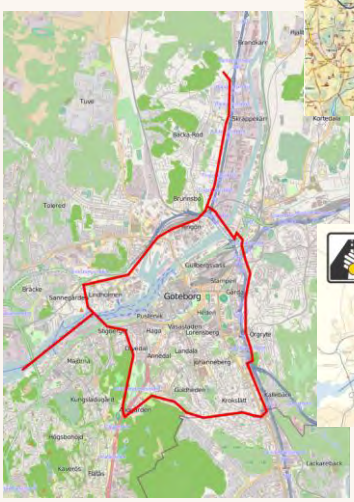
Gothenburg congestion charging -

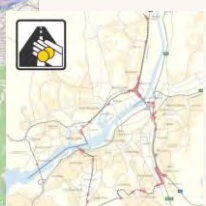
Learnings:

The congestion charges was found to have an positive effect on the traffic volumes in Gothenburg. The reduction is clearly higher in the charged period than the uncharged, visualized in diagram below.
The congestion charging was earlier applied in Stockholm with great success, however the major challenge with Gothenburg is the many routes to the city, causing cordon to cut through residential areas. [3] [4]



Above: Low emission zone - heavy, diesel-powered lorries and buses restricted





Zone for congestion charging. Location of poll stations in red above

Cases for **Fossil Free Wellington**

Gothenburg vs. Wellington
Size in relation to the traffic strategy "Getting around in the Central City on foot and on bike"

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Cases for **Fossil Free Wellington**

Comparison

Gothenburg **vs.** **Wellington**

City

Population greater city: 1 mill.

Population city: 570.000

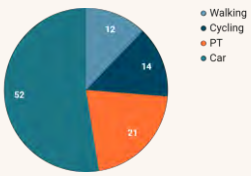
Car ownership: 338 cars/1000 inhabitants (Municipality, 2017)

City

Population greater city: 430,000

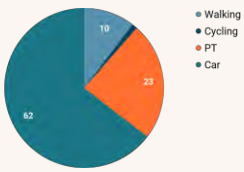
Population city: 215,000

Car ownership: 640 (cars per 1000 citizens) (2012)



Modal split

"the percentage of travelers using a particular type of transportation or number of trips using said type" [5]



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Further reading

[1] https://www.stepupsmartcities.eu/Default.aspx?tabid=3732&aid=2120&rid=3286

[2] https://en.wikipedia.org/wiki/Gothenburg_congestion_tax

[3] https://www.stepupsmartcities.eu/Default.aspx?tabid=3732&aid=2120&rid=3286https://en.wikipedia.org/wiki/Gothenburg_congestion_tax

[4] https://www.sciencedirect.com/science/article/abs/pii/S0965856415000531

[5] https://web.archive.org/web/20060603041834/http://vancouver.ca/engsvcs/transport/plan/1997report/glossary.htm

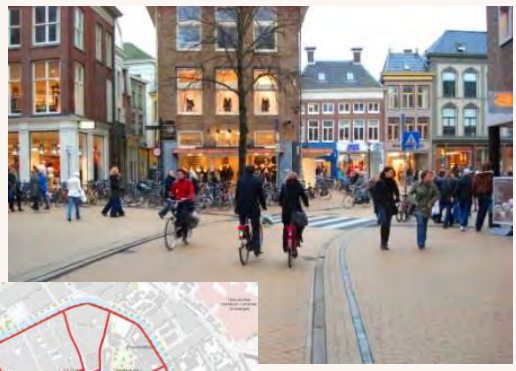
Groningen car-free city center

How?

- High quality alternatives to the car and strong bicycle culture had reduced demand for car parking even before implementation of car free city center
- High quality alternatives in place made the shift to alternatives easier when car free zone was implemented (also for people arriving from surroundings, for example P&R buses and share bikes)
- Physical measures is supplemented with comprehensive mobility management programme to promote non-car travel
- A population with many students has reduced the "cost" of limited access with car

Exceptions

- Delivery vehicles from 5:00 am to 12:00
- Emission free vehicles
- Emergency vehicles
- Residents
- Garbage trucks & road maintenance



SECTION • CHAPTER

Groningen car-free city center

Effect on modal split?

The implementation of the the car free city center was met by skepticism from politicians and shopkeepers, claiming they where going bankrupt from such implementations.

"We wanted to adjust the car to the city. It was a tough fight. The shopkeepers were livid" Jacques Wallage (former mayor of Groningen)

However, the implementation showed that the shops survived and some even thriving, with increased public life in the city center, reaching an average of 3.1 bikes per household. The air quality also increased and Groningen is claimed to have the cleanest air of all big Dutch cities along with the city centre becoming quiet.

"The bike is the number-one mode of transport in the centre of Groningen" Paul de Rook (local politician)

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Cases for **Fossil Free Wellington**

Groningen vs. Wellington

Size in relation to the traffic strategy "Getting around in the Central City on foot and on bike"

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Comparison

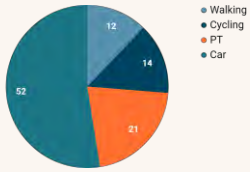
Groningen **vs.** **Wellington**

City

Population greater city: 582,640

Population city: 200,000

Car ownership: 0.3 (cars per household)

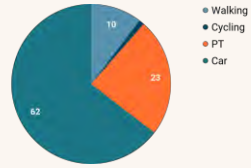


City

Population greater city: 430,000

Population city: 215,000

Car ownership: 640 (cars per 1000 citizens) (2012)



How?

Oslo - The "new kid on the block"

"The traditional road user hierarchy has been turned upside down: soft road users have the highest priority, the private car comes last. Program for Car-free city life has worked with physical measures such as benches, lighting and driving patterns, but also with planning, participation, measurements and communication.

Since the start in 2016, we have removed about 760 street parking spaces in the downtown zone. The vacated space can be used for measures for increased urban life or necessary handicap parking, delivery of goods or commercial parking.

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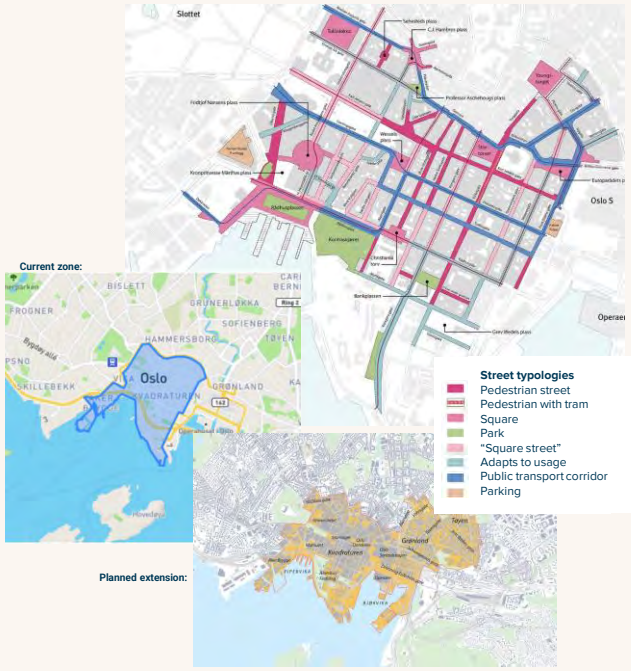
SECTION • CHAPTER

Oslo “Car-free urban life”

Learnings: Controversial AND hard to document increase in walking and cycling. Lorry drivers expected better access but have not experienced it when asked. Well-off/privileged with own parking not affected much. Challenge with the why during winter. Have worked with naming "Bilfritt Byliv" / "Car free Urban Life". Still the restrictions, not the improvements dominate most people's perception. [1]



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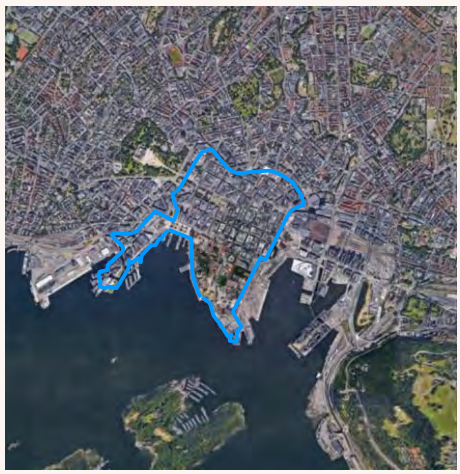
Cases for **Fossil Free Wellington**

Oslo vs. Wellington

Size in relation to the traffic strategy “Getting around in the Central City on foot and on bike”



Oslo car free area

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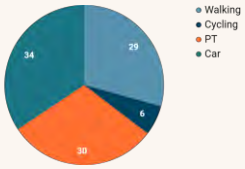
Comparison

Oslo **vs.** **Wellington**

City

Population greater city: 1 mill.

Population city: 697,549

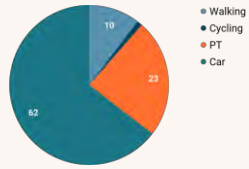


City

Population greater city: 430,000

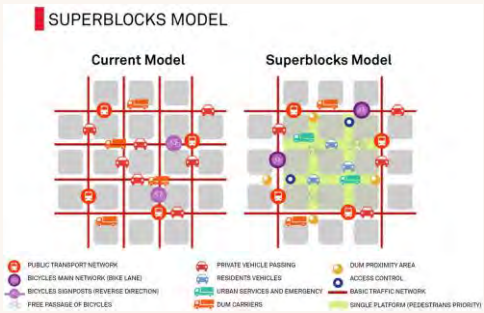
Population city: 215,000

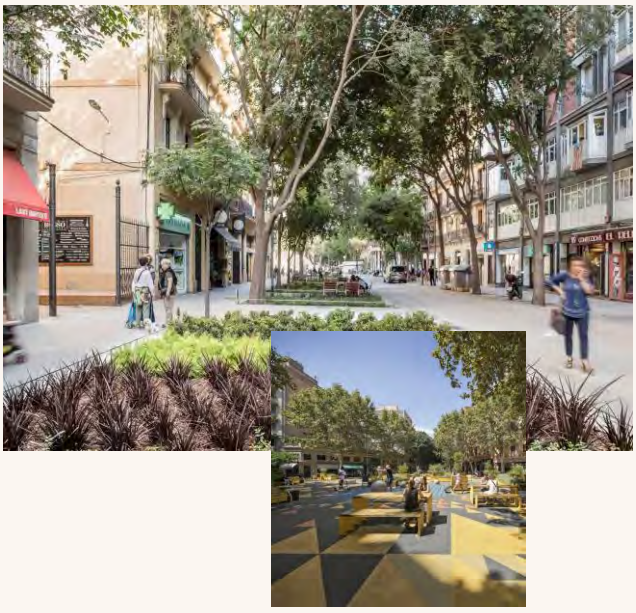
Car ownership: 640 (cars per 1000 citizens) (2012)



How?

Barcelona Superblocks - A brand with momentum

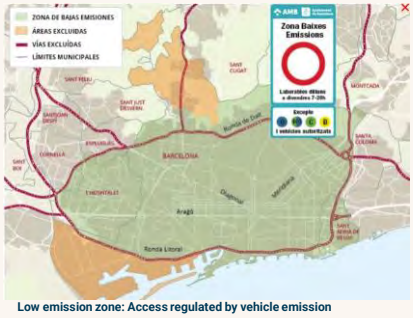




Cases for **Fossil Free Wellington**

Barcelona Superblocks

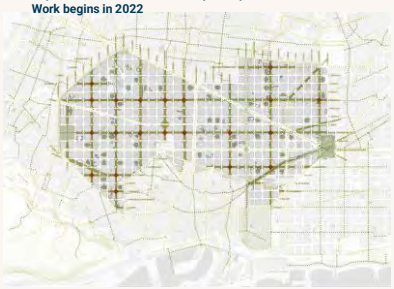
Learnings: Importance of concept being easy to understand and of providing tangible local improvements. [1]



Low emission zone: Access regulated by vehicle emission

Superblocks, current

Superblocks, extended, 22 new public plazas
Work begins in 2022



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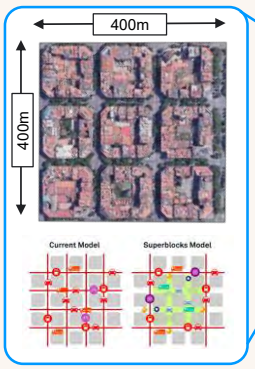
Cases for **Fossil Free Wellington**

Barcelona vs. Wellington
Size in relation to the traffic strategy "Getting around in the Central City on foot and on bike"

One superblock:



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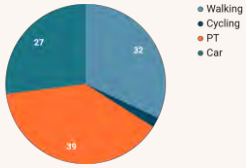
Comparison

Barcelona **vs.** **Wellington**

City

Population greater city: 4.8 mill.

Population city: 1.6 mill.

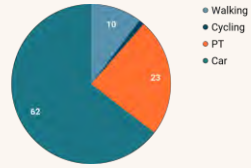


City

Population greater city: 430,000

Population city: 215,000

Car ownership: 640 (cars per 1000 citizens) (2012)



Car-free city
How?

Ghent, Belgium

Ghent, Belgium, who instituted the Traffic Circulation Plan in April 2017, which completely changed the way nearly every resident gets around the city and has inspired unheard of mode shifts. It encourages less car use, more bicycling and more transit use by splitting the city into seven distinct zones: a mostly car-free city center core surrounded by six zones which have been cordoned off with concrete or controlled by cameras. The only way to reach them is to travel to the ring road on the city outskirts, thus making it not impossible to use a car but motivates those shorter trips to be done via human power or mass transit. Bike mode share in 2012 was 22%, now it is 35% and growing!

SECTION • CHAPTER

How?

Ghent Circulation plan - a step to cycling heaven

"If you design a city for cars - you get cars. If you design a city for people - you get people.

The Circulation Plan was a shortcut to quickly make space for pedestrians and cyclists without hard and expensive infrastructure.

Movie about the project:
https://youtu.be/sE0A_Tcq2XA

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SECTION • CHAPTER

Ghent Circulation plan

How?

- ➔ 20 years of consequent politics, 10 years since implementation, has created a social and sustainable city
- ➔ Impact on car travel / fossil fuel / emissions
- ➔ 30 % of the city's population don't own a car today
- ➔ Increase in bike usage from 22% (2012) to 35% (2019) in seven years
- ➔ Inspired by bicycle programs in Utrechts and Groningen, but adapted to be implemented faster
- ➔ Tactical urbanism, furniture, bollards, signage and paint used to change the streets and remove cars

Learnings:

More info:

[1]

The central city is divided into 6 areas, which you reach through access streets and move in between on a ring road. The very central part (purple above) is car free, with parking around its edges.

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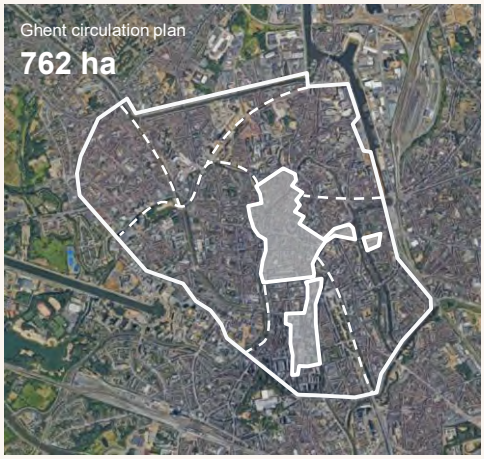
Oslo vs. Wellington
Size in relation to the traffic strategy “Getting around in the Central City on foot and on bike”



Comparison

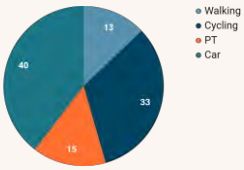
Ghent

Wellington

City

Population greater city: 470,000

Population city: 231,000



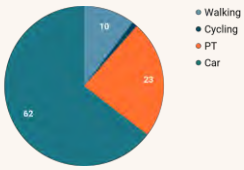
vs.

City

Population greater city: 430,000

Population city: 215,000

Car ownership: 640 (cars per 1000 citizens) (2012)



Case Study: Norway

Norwegian EV policy

How?

The Norwegian Parliament has decided on a goal that all new cars sold by 2025 should be zero (battery electric or hydrogen) emission vehicles. This is a very ambitious but feasible goal with the right policy measures. The Parliament will reach this goal with a strengthened green tax system, not a ban.

Effect?

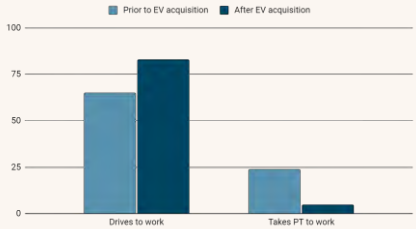
After the EV policy (Incentives for Electric Vehicles in Norway) the amount of people driving a car to work increased by 20% while the amount of people taking the public transport decreased by 20%, resulting in more traffic and congestion in the cities, illustrated on the button right figure.
Because of all the incentives of having a e-car, the amount of families owning two cars also increased. Taking into account, the e-cars doesn't burn fossil fuels the electricity running them today on a global scale consist of two thirds coal power. Which underlines how important emission reduction is through mode shift. [1]

"The subsidization idea, which informs so much of environmental policy today, not least within Europe, is ineffective, has several unintended consequences and will in many cases be counterproductive (Helm, 2012)"

The Norwegian EV incentives:

- ➔ No purchase/import taxes (1990-)
- ➔ Exemption from 25% VAT on purchase (2001-)
- ➔ No annual road tax (1996-)
- ➔ No charges on toll roads or ferries (1997-2017).
- ➔ Maximum 50% of the total amount on toll roads (2019)
- ➔ Free municipal parking (1999- 2017)
- ➔ Access to bus lanes (2005-) …

Travel patterns to and from work before and after EV acquisition



Source: Halvorsen and Frøyen (2009)

Gehl

[1] https://www.sdu.dk/-/media/files/om_sdu/institutter/iful/ime/seminar+ime+side/environmental+science+and+policy+814.pdf

Car-free city
How?

Trondheim, Norway

The city of Trondheim has set a 'zero growth' target - while the city grows, car traffic should not increase. A package of several hundred large and small initiatives (Miljøpakken), financed in collaboration with the state holistically invests in public transport, bike network, new connections and a greener, more pleasant city.

Gehl

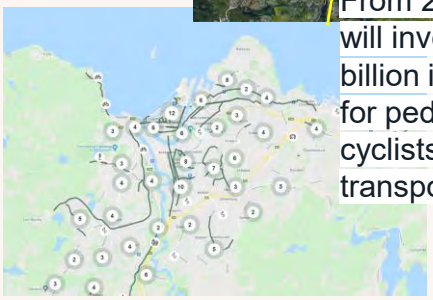
SECTION CHAPTER

Trondheim Miljøpakken (Environment package)

How?

- NOK 25 billion invested in roads, facilities for pedestrians, bicyclist and public transport between 2010 and 2019.
- Several hundred "soft" (eg. mobility advisory for schools and workplaces and safe school ways) and "hard" (eg. building roads where bikes and buses are in prioritization over the car) infrastructure projects all over the city
- Miljøpakken is co-financed with the state and party financed by poll stations surrounding the city. The state pays 10 NOK for every 1 NOK paid at the poll stations.
- Electrical cars has until this year been excepted from paying, as part of a national initiative that all new cars sold should be emission free by 2025.
- 50% of the invested money goes to building new roads, 50% to public transport, biking, walking, safety, noise reduction and improving the environment

Miljøpakken poll stations
Chargaing stations to drive into the city center helps financing the projects in Miljøpakken (Financing of the highway E6 is separated from Miljøpakken and comes from charging stations on the highway)



From 2010 to 2029 we will invest NOK 25 billion in roads, facilities for pedestrians and cyclists and public transport.

Miljøpakken projects around the city
https://miljopakken.no/prosjekter

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Cases for **Fossil Free Wellington**

How?
Trondheim - 70% more trips by bike and bus after 10 years of road tolls and a green travel package "Miljøpakken"

Learnings:

- Results 2010-2018: 16% reduction in number of car trips, 73% more trips by public transport, 52% more trips by bicycle
- The cost for public transport has been reduced - poll money has paid for 25% of the cost for running the buses in the city and has improved and maintained the tramway
- 42 km of bicycle path and 9 bicycle bridges has been built since 2010, financed by the package
- Exception for payment has been an incentive for more people to buy an electric instead of a regular car. 20% of the cars driving through the poll stations are today electrical. What the consequences on car trips will be when payment is reintroduced this year is still yet to be seen

Gehl

Andelen elbiler samlet i Miljøpakkens bommer og i E6-bommen på Ranheim fra 2015 til 2020. Bommene på E6 finansierer E6 og inngår ikke i Miljøpakken.

Cycling has increased with 52%. Women is the groups that has increased the most

Increase in sold electric vehicles

90

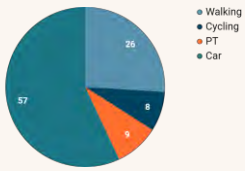
Comparison

Trondheim **vs.** **Wellington**

City

Population greater city: 200,000

Population city: 169,343

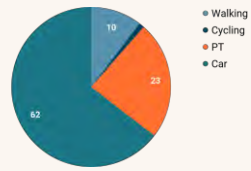


City

Population greater city: 430,000

Population city: 215,000

Car ownership: 640 (cars per 1000 citizens) (2012)



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Vienna, Austria

Starting in the 80's, the city has pursued a rigorous mobility strategy to decrease the car ridership share from the streets by reducing car parking, improving its public transportation, and nurturing walking neighborhoods as the mantra for development in the city.

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Case Study: Vienna

Vienna – *Overview*

Trends (source)

- 13.4% increase in employment (2007-2017)
- 12.4% increase in population (2007-2017)
- Density: 46 people/ hectare
- Tripled its car-free, pedestrian zones to 295.938m2 since 1990 source
- Implemented traffic calming to 80% of its streets by 2013

- Walking, cycling, and public transport account for 73% source
- Modal split of public transportation rose by 10pp since 1993
- Reduced the car share from 40% to 27% (1993 and 2014) source

Population 2019: (source)

- City: 1.897.491
- Metro Region: 3.000.000 source
- 30% of population is foreign born

A few other facts:

- 1st place as "The Most Livable City" (2019) source, source & source
- World's greenest city with 50% of urban areas being green source & source
- Exceeds by 35% the EU labor productivity average
- Income per capita €28.000/yr, just below the OECD average source
- 95% of residents are satisfied with public transport source

Case Study: Vienna

Key Moves

The economic prosperity between 1960 and 1990 increased car ownership in the city by 4 times its original size, leading to road congestion, parking problems, air pollution, noise and accidents. Political and public consensus over sustainable mobility has since transformed Vienna into a world leading city for business.

> **Vienna is an outstanding business location. This is not only documented by numerous international rankings but by "hard" data as well: every 55 minutes, a new enterprise is set up in Vienna; our productivity is above average. At the same time, a forward-looking housing policy ensures that two out of three inhabitants of the city live in publicly financed or subsidised housing."**
> **Peter Hanke Ex. City Councillor of Finance**
> **source**

The key moves in Vienna to positioning itself as the world's most livable city and as a leading attractive pole for entrepreneurs:

- Preservation of the old town
- Leverage the tight-knight historic urban fabric for walking, biking, public transport use, and mixed-use developments
- Implementation of car-free zones in the city center and strategic parking areas off the center
- Protection of large open spaces from development to build more parks, forests and working landscapes
- Increase of its public housing stock each year by 5.000 units
- A consistent focus on developing the public transport with the train and metro system as the key elements

Two very important results of these key moves were:

1. Attracted young well-educated generations to the city
2. Provided the best environment for tech and creative industries to choose Vienna as their HQ

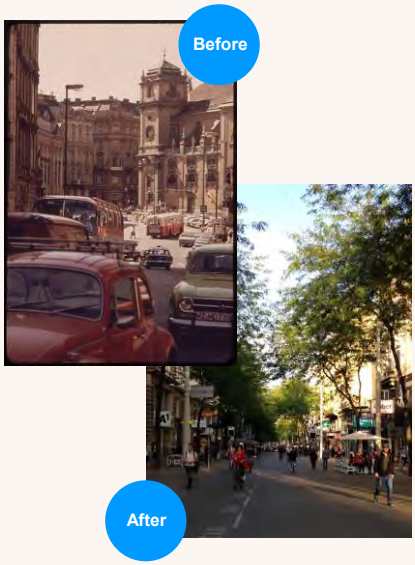
Case Study: Vienna

Mobility Approach

Vienna has focused its efforts around public transportation improvements led by the construction and expansion of the U-Bahn since 1968. It has also implemented car-free zones in commercial areas and traffic-calmed zones in residential neighborhoods restricting parking for private vehicles in selected locations supported by improved public transportation and walking conditions. Business owners and local workers concerns were solved by building parking garages and park-and-ride lots off the city center for commuters.

Congestion in the center has been reduced by better coordinating the public transportation systems and suburban rails, diverting traffic around the center but not in its core. The modernization of the tram system has rendered it as a key part of Vienna's transport system, and ridership in tram and U-Bahn has increased steadily through the present.

The city has been able to reduce the car ridership share from 40% to 27% of all trips by expanding car-free zones and improving their pedestrian areas and transportation systems. Throughout the same period Vienna has positioned itself as "The most livable city" in the world, attracting the best companies and talent to their urban fabric.



Case Study: Vienna

Impact – *Capacity and support*

Mariahilfer Strasse is a 1.6km commercial street that was pedestrianized after a pilot project and a referendum supported by 53% of the voters. The local authorities held a series of charrettes with the local community and tested the car-free idea.

The pilot project served to attract people and new activities to the street and to encourage participation in the redesign process. The different opinions were considered for the final proposal that created a lively commercial corridor for people and people friendly transportation options.

Key Reading

1. https://thecityateyelevel.files.wordpress.com/2017/03/22europe_s-longest-shared-space-case-mariahilfer-strasse-vienna.pdf
2. https://www.vienncouver.com/2015/01/viennas-begegnungszone-shared-space-program/
3. https://www.vienncouver.com/2015/10/transforming-a-street-before-after-images-of-viennas-mariahilferstrasse/

> **If the referendum would take place now 71% of the respondents would have voted in favor of the new layout..."** source

Case Study: Vienna

Impact – *Business & investment*

Aspern Seestadt is a recent Transit Oriented Development located 7 km east of the city center that houses 8.000 residents with a capacity to generate 2.000 workplaces. It is a hub concept that agglomerates open spaces, housing, and working opportunities, supported by creative investment.

Seestadt has provided ample variety of mobility options in order to sustainably and rapidly connect residents to their needs within short walking or biking distances. Other initiatives such as collective car parking garages and lower car parking numbers to limit car use have been included in the master plan. Seestadt is connected to Vienna by the metro and rail, where commuters can keep using sustainable means of transportation.

Key Reading

1. https://www.aspern-seestadt.at/en/lifestyle_hub/mobility
2. https://www.aspern-seestadt.at/en/business_hub/quarters__development/location__surroundings

> **The underground network is Vienna's number one mode of transport. That was one of the key arguments for bringing our company HQ and workshops at Seestadt."**

source

€5B

total investment volume attracted by the Transit Oriented Development

source

Case Study: Vienna

Key Learnings

- Vienna aligned the needs of the city for development and economic growth with the sustainable needs of the present and future related to climate challenges.
- Worked across scales from the urban fabric and social interaction at the street level to the large scale of international connections and networks.
- Strengthened its business ecosystem by capitalizing the mobility infrastructure, data and technology into a service and a product for tech and data analysis start-ups.
- Vienna has attracted, retained, and grown talent throughout the years by investing in its public realm by improving open spaces, public transportation, and safety for walking and riding bikes.
- A people-first approach to the city's development has created a great environment for companies and startups to be well connected, close, and accessible to each other, growing the resources that companies need to thrive.
- Vienna has shared the decision making process with the community by providing guidance and economic support for communities that would like to improve their urban environment.
- The city has leveraged its urban data and analysis tools and paired them with the growing tech industry allowing for the creation of a new circular economy based in people-first mobility.
- Also in Vienna, it is still controversial to reduce car parking and access for cars to make other improvements. Though the history shows in most cases the majority of citizens supported car parking reduction when it was suggested and an even bigger number of citizens supported the developments after they have been implemented.

Key Reading

1. *https://www.bloomberg.com/news/articles/2020-01-29/use-cultural-attractions-to-boost-car-free-travel.*
2. *.https://thecityfix.com/blog/need-new-ideas-advance-public-transport-look-vienna-dario-hidalgo/*

Copenhagen, Denmark

Since the 1980´s, Copenhagen has adopted a people centered approach prioritizing walking, cycling and public spaces. An approach that together with an upgrading of the housing stock has been a key component in moving Copenhagen from the brink of bankruptcy to one of the most liveable cities in the world.

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Case Study: Copenhagen

Copenhagen – *Overview*

Trends from 1995 - 2013 (source: City of CPH PPs)

- 17% increase in jobs
- 19% increase in population
- 25% increase in trips from and to the city
- 38% decrease in cartrips to work and education

Population 2020: (source)

- Municipality: 583.000
- Greater Copenhagen: 1.346.485

A few other facts: (source)

- 20% population growth expected from 2020 - 2025
- European Green Capital in 2014
- Routinely at the top or in top 10 on city liveability lists (number 1 in Monocle 2021 list)
- The best city to attract and retain talent source

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Case Study: Copenhagen

Key Moves

In the late 1980's Copenhagen was close to being bankrupt. Since then the city has transformed itself and was described with the following words by the London School of Economics:

> **Copenhagen is widely recognised as a green economy leader. The wider Copenhagen region accounts for 39% of Denmark's output and has enjoyed stable growth over the long term. Copenhagen's growth has been delivered at the same time as improving environmental performance and transitioning to a low-carbon economy."** source

The key moves in Copenhagen's transition from a run down and poor city to a city well off with a green profile which is at the top of liveability rankings can be summarized like this:

- Upgrade of the housing stock
- Upgrade of public spaces to create attractive local destinations
- Upgrade of cycling and walking conditions
- Development of areas close to the city center served well by public transport and cycling facilities, as part of this a metro system financed by selling of public land, for example along the harbor

Two very important results of these key moves were:

1. making it attractive for families to live in Copenhagen (instead of moving to the suburbs)
2. making it attractive for investments and companies to locate to Copenhagen

Case Study: Copenhagen

Mobility Approach

Today more than 60% of the people both living and working within the city of Copenhagen commute to work/education by bike.

A steady improvement of the cycling conditions has been a key part of the transformation of Copenhagen - at first because this was cheap and all the city could afford. Later because the positive effect was clear and the demand from citizens was tangible. The focus on cycling infrastructure has gone hand in hand with an improvement of the public transport and more attractive conditions for walking. The latter very much related to an upgrade of squares and parks and a gradual reduction in the space devoted to car lanes and car parking within the city.

Overall the market share of the car has been decreasing. But interestingly enough this has happened at the same time as car ownership has gone up. Or put in other words, the conditions for cycling has become so good and the restrictions on parking at workplaces so tough that most commuters have preferred the bike and then enjoyed access to the car during the weekend whether the purpose was to visit the summerhouse or Ikea.

Nyhavn, Copenhagen

Case Study: Copenhagen

Impact – *City gains*

Society consequently saves at least € 1,34 per kilometer when people cycle rather than drive. source

If 10% more kilometers are cycled there will be an annual socio-economic gain in Denmark of € 150 mil. In the capital region the annual gain will be approx. € 70 mil. For purposes of comparison the Danish regional health authorities spend approx. € 2 billion annually on general doctor-practices. source

Wealthy cities such as Copenhagen rely on a mix of cycling paths, tramways, underground railways, buses, and pedestrian paths that are well integrated and designed into the urban fabric. Increasingly, the world's wealthiest and most economically productive cities are leaders in redesigning transportation infrastructure to promote safer, healthier, and more pleasant neighborhoods. source

Key Reading

1. *https://cyclingsolutions.info/cost-benefit-of-cycling-infrastructure/*
2. *https://www.consultancy.uk/news/21524/mega-cities-must-improve-quality-of-life-to-attract-talent*
3. *https://urbantransitions.global/wp-content/uploads/2019/09/Climate-Emergency-Urban-Opportunity-report.pdf*

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"Copenhageners collectively take 109,000 fewer sick days each year due to the health effect of cycling, saving companies €62.5 million a year..."

source

€1.7M

of gain to the city if 1.4M km of car trips were done by bike

source

€1

enjoyed by people cycling in health benefits per kilometre travelled.

source

Case Study: Copenhagen

Impact – *Business and branding*

On the societal level the health benefits derived from walking make it the most profitable transport mode from a cost-benefit point of view, with a societal gain of €1 per kilometer walked. source

Pedestrian oriented transportation options have the largest share in shop turnovers: Shoppers arriving by bike or on foot are responsible for almost 50% of the turnover in shops in Copenhagen (29% and 20% respectively). Drivers are responsible for 36% and public transport users for 15%.

People cycling are more loyal customers and shop more frequently in the same shops than drivers. Drivers tend to drive to only one shop. source

The cycle superhighways are estimated to give a socioeconomic surplus of €765 million, with a total price of €295 million. source

Key Reading

1. *https://www.weforum.org/agenda/2018/10/what-makes-copenhagen-the-worlds-most-bike-friendly-city/*
2. *http://www.cycling-embassy.dk/facts-about-cycling-in-denmark/statistics/*

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"Copenhagen has created functional people oriented infrastructure that has also contributed to its branding attracting new residents and tourists..."

source

The Bicycle Snake

source

"...offers an inclusive business culture and a high quality of life, really appreciated by internationals moving here."

source

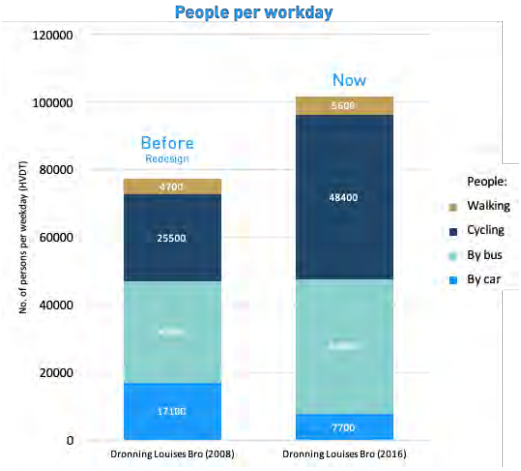
Cases for **Fossil Free Wellington**

Case Study: Copenhagen

Impact – *Transport efficiency*

Nørrebrogade, Copenhagen by Queen Louise Bridge 1946-2016,
Number of bicycles, weekday

Bicycle lanes were introduced in 1982,
Street redesigned in 2010-2012
Nørrebrogade has 6.000 motor vehicles per weekday as of 2013



Gehl

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Cases for **Fossil Free Wellington**

Case Study: Copenhagen

Impact – *Property values*

"Under the auspices of Copenhagen, the report focuses on Sønder Boulevard in Vesterbro, which has been reorganized with more parks, fewer cars and lower speeds. Here, it is estimated that the restructuring has had a positive effect of €53 million. (approx. DKK 350 million in 2014 price) for the area's property value and in addition also strengthened the local public health with i.a. a lower sickness absence i.a. the derived effects."

Note: A key component of the transformation of Sønder Boulevard has been the movement from a link (for traffic) to a public space (that is also a street) through a mix of traffic calming, adding cycle tracks and improving the green space.

Photo source: SLA

Gehl

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Towards a fossil fuel free central city for Wellington

2021 - 2025

Let's Get Wellington Moving

Golden Mile

We expect to have completed the bulk of this project, prioritising walking and public transport, and reducing private vehicles on Wellington's busiest connection through the city.

Thorndon Quay and Hutt Road

Planning improvements for people that walk, ride or take the bus are nearly complete. Designs will be finalised and construction of both Thorndon Quay and Hutt Road will be close to completion, providing opportunities for people travelling to and from the central city from the north to have viable options for travel other than private cars.

Central City Walking Improvements

Upgrades to 17 central city intersections are currently underway to make walking in and around the central area safer and easier. These improvements will be complete in 2022

Transformation Programme – MRT, Basin Reserve, Mt Victoria Tunnel (TBC)

In this period, it is expected that both the Indicative and Detailed Business Cases will be completed. This will include the details of the MRT route and in the case of the Waterfront Quays we will get an understanding of how the second PT spine will operate and how we may be able to progress this in an interim way. The Basin Reserve and Mt Victoria Tunnel business cases will confirm the additional increased provision of Public Transport, Walking and cycling facilities to and from the Central City.

City Streets (2021 – *2025*)

The 10-year City Streets programme will address the connection between Johnsonville and the northern end of the Hutt Road, and focus on transformational central city projects in the Willis/Victoria area of Te Aro to complement the work on the Golden Mile including completing a north south cycle route through Featherston Street. The City Streets programme will also work closely with Wellington City Council's Bike Network Plan to get transitional improvements in place quickly, including the connections between the central city and Newtown and the central city and the Botanic Gardens.

Traffic Demand Management (TBC)

There will be a focus on soft (human-centric) Traffic Demand Management and Behaviour Change interventions / Smart tools delivered in this period.

Paneke Pōneke - Bike Network Plan

Bike infrastructure in the central city and along the key arterial routes will be delivered through LGWM. The transitional programme is collaborating with City Streets to deliver interim bike projects, accelerating the delivery of the transport network transformation.

Transitional Programme (2021 – 2025)

By 2024, a significant amount of the bike network in the central city will have been delivered by City Streets in cooperation with the transitional programme. In parallel to the transitional programme work will continue to develop, design and deliver on the complete street solution through the transformational and City Streets Programme. Approximately one third of the overall programme budget is expected to be spent in this period.

Pōneke Promise

Pōneke Promise will deliver physical changes to increase safety and create more attractive and inclusive spaces and connections in and around Te Aro Park in this period, including the proposal of closing Dixon St between Taranaki St and Cuba St to general traffic.

Laneways, public space and greening

Swan Lane and Garrett Street upgrades will be completed and planning for the next laneway projects will commence.

Opportunities to Build Back Better when doing maintenance or renewals will prioritise implementing low traffic place improvements and a traffic circulation plan (if progressed).

The Green Network Plan identifies the need to use opportunities as they arise to create pocket parks and greening as well as increase the canopy cover of the city through the planning of trees, including street trees.

Parklets guidelines will allow businesses and community groups to reimagine on-street parking spaces as space for customers and people more generally. and contribute to increasing the vitality and vibrancy of the city while reducing the appeal of, and reliance on, private vehicles.

2026 – 2031

Bus fleet electrification is underway and the transition is expected to be complete by 2028.

Let's Get Wellington Moving

City Streets

The remaining City Streets projects are expected to be completed in full and much of the central city work will support a traffic circulation plan. Work outside the central area will contribute to mode shift by giving residents real choice in the way they choose to travel to and from the central area.

Transformation Programme – MRT, Basin Reserve and Mt Victoria Tunnel

During this period we expect that work will progress on the construction of the MRT, and if they proceed the changes at the Basin Reserve and Mt Victoria Tunnel in the central area. Reallocation of road space for the construction and ultimately the completed projects will disrupt existing traffic flows and patterns. The ultimate solution will result in better facilities for active and public transport users, reduced reliance on private cars, with construction disruption combined with TDM also providing an opportunity for mode shift.

Traffic Demand Management (TBC)

There will be a focus on soft (human-centric) Traffic Demand Management and Behaviour Change interventions / Smart tools delivered in this period as well as possibly harder measures such as pricing mechanisms mechanisms which are being explored by LGWM.

Paneke Pōneke - Bike Network Plan

Transformation Programme

The transformational programme, Build Back Better and Let's Get Wellington Moving will deliver the full network by 2031.

Laneways, public space and greening

Planning and delivery for the next laneway projects will be underway, with a goal to complete one project every two years.

Opportunities to build back better when we are doing maintenance or renewals will continue to prioritise implementing low traffic place improvements and a traffic circulation plan (if progressed).

The Green Network Plan mandates the creation of parklets, greening and increased canopy cover of the city through the planting of trees, including street trees. The Long-term Plan also provides $7.5M to deliver one Urban Park.