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ORDINARY MEETING  
OF  
**PŪRORO ĀMUA | PLANNING AND ENVIRONMENT**  
COMMITTEE  
SUPPLEMENTARY AGENDA

Time: 9:30am  
Date: Thursday, 15 September 2022  
Venue: Ngake (16.09)  
Level 16, Tahiwī  
113 The Terrace  
Wellington

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A. General Business

**CHAYTOR STREET, RAROA CRESCENT, CURTIS STREET  
KARORI - SAFETY IMPROVEMENT OPTIONS**

**Kōrero taunaki | Summary of considerations**

**Purpose**

1. This report to Pūroro Āmua | Planning and Environment Committee presents a number of options to address safety concerns at the Chaytor-Curtis-Raroa intersection and requests the Committee to agree to progress a business case to determine the preferred option to take forward to the 2023 Annual Planning process.

**Strategic alignment with community wellbeing outcomes and priority areas**

Aligns with the following strategies and priority areas:

- |  |  |
|--|--|
| <b>Strategic alignment with priority objective areas from Long-term Plan 2021–2031</b> | <input checked="" type="checkbox"/> Sustainable, natural eco city<br><input checked="" type="checkbox"/> People friendly, compact, safe and accessible capital city<br><input type="checkbox"/> Innovative, inclusive and creative city<br><input checked="" type="checkbox"/> Dynamic and sustainable economy<br><br><input type="checkbox"/> Functioning, resilient and reliable three waters infrastructure<br><input type="checkbox"/> Affordable, resilient and safe place to live<br><input checked="" type="checkbox"/> Safe, resilient and reliable core transport infrastructure network<br><input type="checkbox"/> Fit-for-purpose community, creative and cultural spaces<br><input checked="" type="checkbox"/> Accelerating zero-carbon and waste-free transition<br><input type="checkbox"/> Strong partnerships with mana whenua |
|--|--|

**Relevant Previous decisions**

**August 2021:** the Indicative Business Case for City Streets identifies the route from Karori Tunnel to the Karori Town Centre in its plan to improve outcomes for people on buses, bikes, and walking.

**May 2022:** Council resolved to :

Request WCC officers to investigate options to address long-standing significant safety concerns at the Chaytor-Curtis-Raroa intersection to reinvestigate options that address long-standing significant safety concerns at the intersection of Chaytor Street, Raroa Crescent, and Curtis Street.

**Significance**

The decision is **rated medium significance** in accordance with schedule 1 of the Council's Significance and Engagement Policy.

**Financial considerations**

- |                              |  |  |
|------------------------------|--|--|
| <input type="checkbox"/> Nil | <input type="checkbox"/> Budgetary provision in Annual Plan / Long-term Plan | <input checked="" type="checkbox"/> Unbudgeted \$X |
|------------------------------|--|--|

**Risk**

- |                              |  |                               |                                  |
|------------------------------|--|-------------------------------|----------------------------------|
| <input type="checkbox"/> Low | <input checked="" type="checkbox"/> Medium | <input type="checkbox"/> High | <input type="checkbox"/> Extreme |
|------------------------------|--|-------------------------------|----------------------------------|

Authors	Zackary Moodie, T/L Transport Engineering Brad Singh, Transport and Infrastructure Manager
Authoriser	Siobhan Procter, Chief Infrastructure Officer

## **Taunakitanga | Officers' Recommendations**

Officers recommend the following motion

That the Pūroro Āmua | Planning and Environment Committee:

1. Receive the information.
2. Agree for Council Officers to progress the development of a business case to determine the preferred option to take forward to the 2023 Annual Planning process.
3. Agree that this work be funded out of the 2022/23 minor works programme budget which will require deferral of the lowest priority projects to make available the requisite resource and funding capacity.

## **Whakarāpopoto | Executive Summary**

4. The intersection of Chaytor Street, Raroa Crescent, and Curtis Street has been identified as having safety deficiencies, particularly for pedestrians and people on bikes.
5. Ongoing safety concerns for this intersection have been raised by road users, members of the public, and elected members. There is a history of complaints and recorded crashes in the area, with people on bikes being the most vulnerable road users.
6. To improve safety, several minor improvements have been implemented over the years.
7. The Indicative Business Case for City Streets identified this intersection as part of the Karori Tunnel to the Karori Town Centre route and work on this intersection is scheduled in that programme to be complete by around 2031
8. In 2021, electronic bike warning signs were approved for installation. These signs have been delayed due to design issues and are scheduled for installation in late 2022. They will alert motorists to the presence of people on bikes.
9. In May 2022, Council requested Officers to investigate further options for this intersection that address the long-standing, ongoing safety concerns.
10. This report presents the long list of options and recommends that work continues to develop a business case to determine a preferred option to improve safety at this intersection and present the preferred option for funding consideration in the 2023/2024 Annual Plan process.
11. The cost of developing this business case will be funded from the 2022/ 2023 Minor Works Programme which will require a re-prioritisation of projects to free up resource and funding capacity.

## **Takenga mai | Background**

12. Chaytor Street is a vital transport route between Karori and the Wellington CBD and is a public transport route with a dedicated bus lane and an average daily traffic count of 17,775 (2019) vehicles and an 85th percentile speed of 49km/h. Safety concerns have

been raised regarding Chaytor Street, between Curtis Street and Raroa Road, effectively creating two T-intersections within 50m of each other.

13. Safety issues have been confirmed through Waka Kotahi's Crash Analysis System (CAS) as well as through observations on site.
14. CAS data reports nine crashes occurring between 2017 and 2022.
  - a) Two of these crashes involve people on bicycles – one sustaining serious injuries, and one with minor injuries.
  - b) Four crashes involved moped riders
  - c) The data suggests that car drivers often fail to notice people on bikes and mopeds as they turn into, or out of, Chaytor Street.
  - d) Visibility of vulnerable road users, inability of road users to respond to other moving traffic, and relatively high speeds in the peak traffic environment have contributed to the crashes and conflicts.
15. Further observations note the lack of pedestrian facilities such as footpaths, refuges, and crossing points. In most instances, people crossing Chaytor Street cross a high-volume road, unassisted and unprotected from vehicular traffic
16. In 2017, safety investigations were carried out to assess and analyse the intersection, the road user demands, the crashes, and to identify improvement options to address any deficiency in safety.
  - a) The range of safety measures explored varied in range and scale and included new road markings, static and electronic signs and other means of traffic control such as traffic signals.
  - b) Further investigation showed that traffic signals would be costly, and result in significant delays to vehicular traffic particularly during the morning peak (both public transport and private vehicles).
17. Uncertainty about the timing of proposed improvements through the LGWM programme resulted in minor improvements being made at that time – these included minor changes such as road markings, yellow hatchings, and static signs which were installed where applicable.
18. In 2021, electronic bike warning signs were approved for installation. These signs have been delayed due to design issues and are scheduled for installation in late 2022. They will alert motorists to the presence of people on bikes.
19. This option of electronic bike warning signs was presented and supported by the Karori Residents Association and members of Cycling Action Network.
20. In August 2021, the Indicative Business Case for the LGWN City Streets programme identified Chaytor Street as a route for improvement for pedestrians and people on buses and bikes. Investigations are programmed to kick off in 2025 with construction completed by 2031.

## **Kōrerorero | Discussion**

### **Crash Analysis and Intersection Complexity:**

#### Crash Analysis:

21. Reported crashes have been gathered through the Waka Kotahi Crash Analysis System (CAS). See map below:



22. These crashes are recorded between 2017 and 2022. During this period, nine crashes have been recorded. Of these, two crashes involved people on bikes, and four crashes involved people on mopeds. Crashes involving the bikes show minor and serious injuries sustained, while two crashes involving mopeds show minor injuries sustained.
23. Seven of the nine reported crashes occurred during weekday peak period. The table below shows a breakdown of the reported crashes.

Crash	Transport Type	Injury Sustained	Location	Movement
1	Moped & Car	Minor injury	Raroa Crescent intersection	Moped on Chaytor St collides with car turning from Raroa Cres into Chaytor St
2	Car & Bus	Non-injury	Raroa Crescent intersection	Bus on turning into Chaytor St from Raroa Cres collides with a car on Chaytor Street
3	Car & Car	Non-injury	Raroa Crescent intersection	Car from Raroa Cres turning into Chaytor St collides with car on Chaytor St
4	Bike & Car	Minor injury	Raroa Crescent intersection	Cyclist on Chaytor St collides with a car turning into Chaytor St from Raroa Cres
5	Bike & Car	Serious injury	Raroa Crescent intersection	Car turning into Chaytor St from Raroa Cres collides with cyclist on Chaytor St
6	Car & Car	Non-injury	Curtis Street	Car on a full stop was rear-

Crash	Transport Type	Injury Sustained	Location	Movement
				ended by another car
7	Moped & Car	Non-injury	Curtis Street intersection	Moped on Chaytor Street collides with a car turning into Curtis St from Chaytor St
8	Moped & Car	Minor injury	Curtis Street intersection	Moped on Chaytor Street collides with a car turning into Curtis St from Chaytor St
9	Moped & Car	Non-injury	Curtis Street intersection	Moped on Chaytor Street collides with a car turning into Curtis St from Chaytor St

24. The CAS report suggests that drivers can fail to observe people on bikes, mopeds as they turn into or out of Chaytor Street. Visibility of vulnerable road users, inability for road users to respond to other moving traffic, and relative high speeds for the peak traffic environment are likely to also have contributed to the resulting crashes and conflicts.
25. Further to the recorded crashes, complaints of near misses are regularly reported by members of the public, whether car users, people on bikes, or pedestrians.
26. When traffic queues form during peak periods, intersections are kept clear (via yellow hatchings) to allow turning vehicles in and out of these intersections. In doing so, road users on the bus lane (such as bikes, mopeds, and buses) can unexpectedly come into contact with turning vehicles.
27. The typical crash movements on Curtis Street and Roaroa Crescent are shown below:

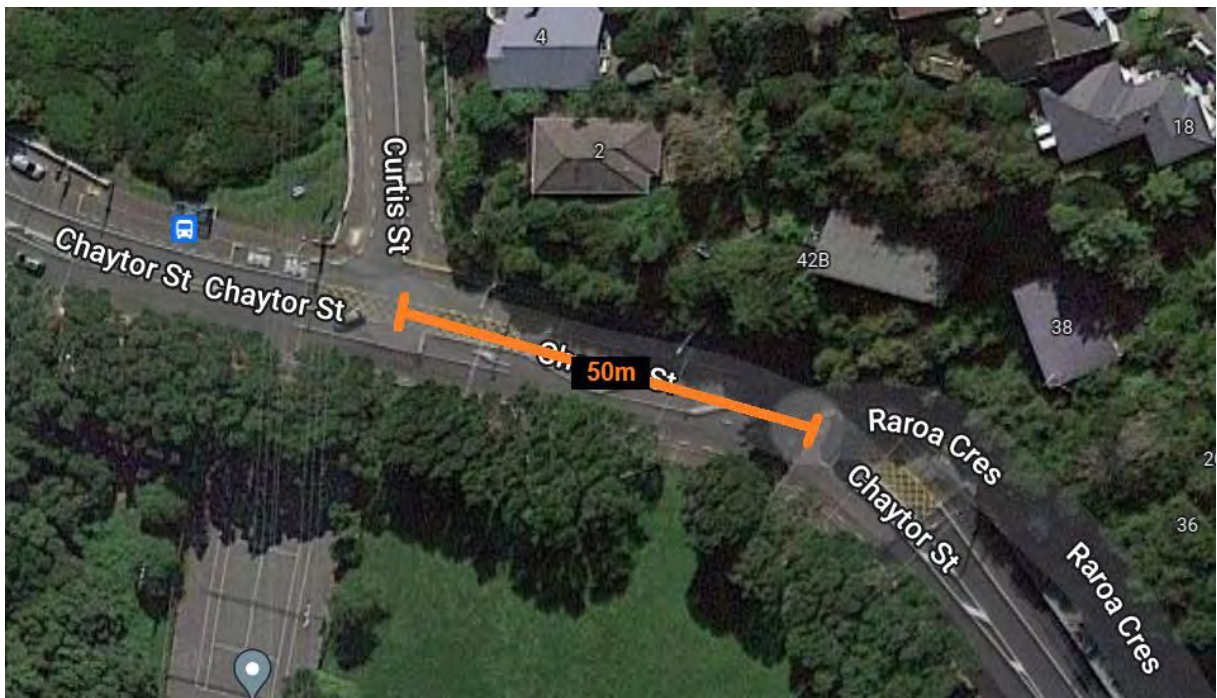


Complexities of the intersection:

28. The Chaytor Street, Raroa Crescent and Curtis Street intersection is extremely complex which makes it challenging to implement significant safety improvements.



29. Whilst traffic control solutions that can minimise conflict and lower injury severity are available for intersections similar to Raroa Crescent and Curtis Street, one of the biggest complications is the relative location as the intersections are only around 50 metres apart. Any potential solutions are required to treat Curtis Street, Raroa Road, and Chaytor Street as one large, complex intersection.



30. Road users on Curtis Street approach Chaytor Street on the uphill, with a steep bank on the eastern side, and a bus shelter and thick vegetation on the western side, which limits visibility and sight distance.



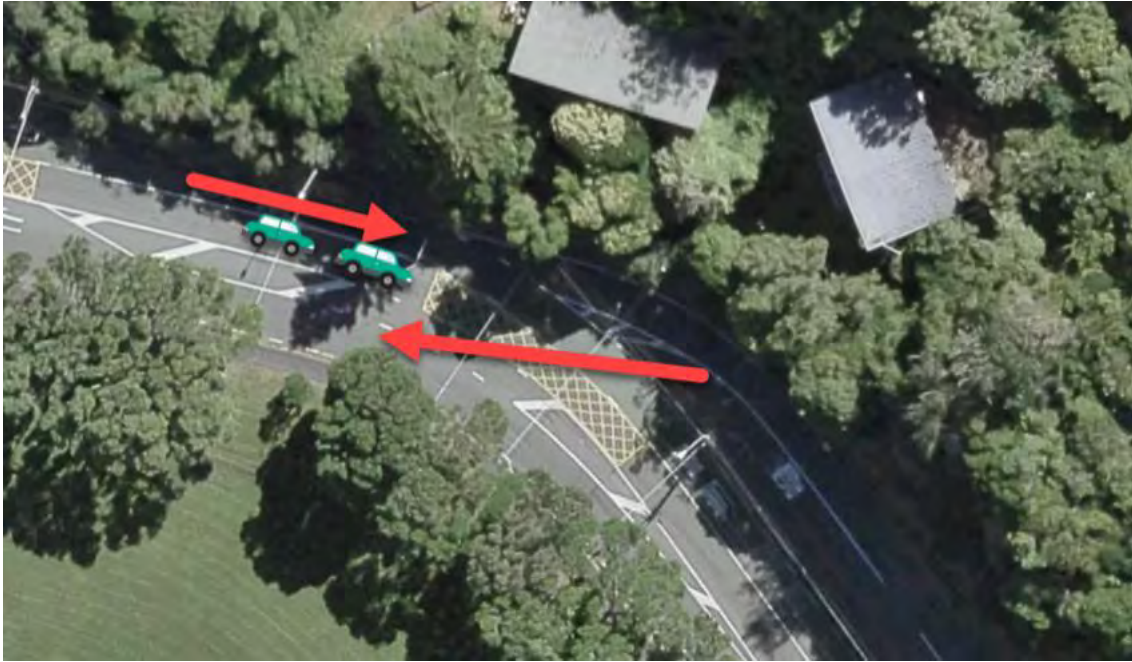
31. The shade of the hill as vehicles exit Raroa Crescent reduces visibility of cyclists with drivers' eyesight needing to adjust from the sun.



32. The power pole positioning makes it difficult to exit Raroa Crescent meaning that drivers edge out into the road and enter the bus lane.



33. Road users on Raroa Crescent approach Chaytor Street on a downhill and at an angle that restricts visibility and sight lines. To gain better visibility, vehicle drivers may encroach onto, and partially block the bus lane (which is used by people on bikes and mopeds).

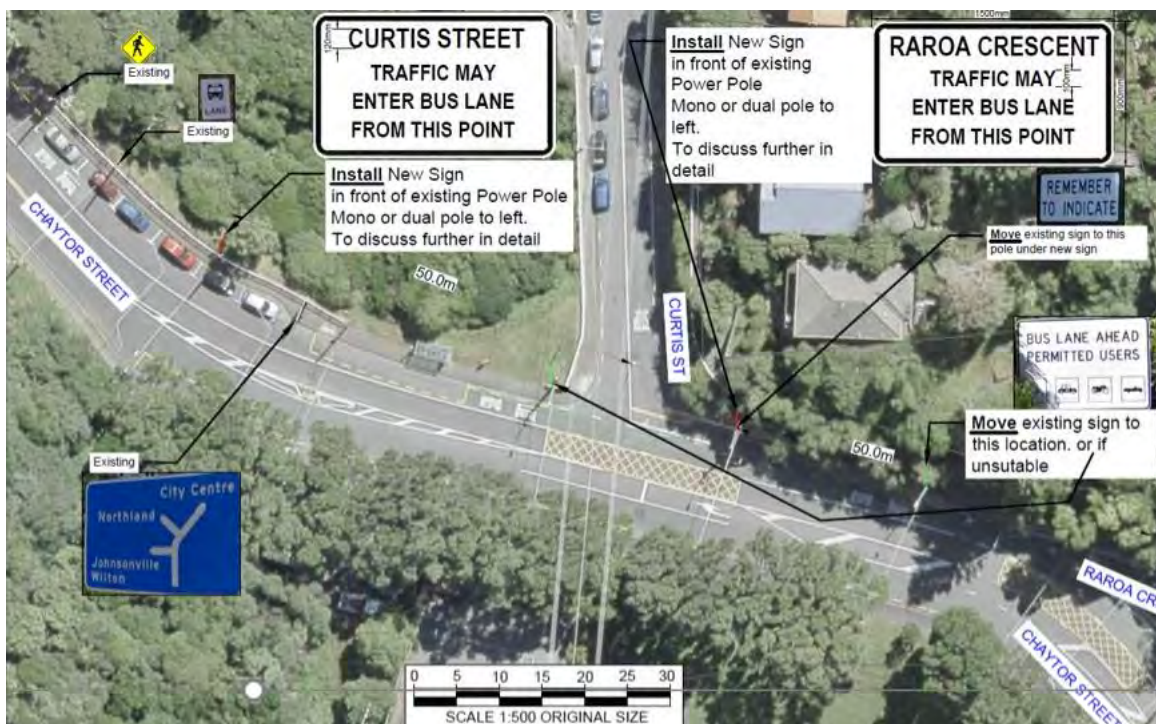


34. Bikes and mopeds that travel on the bus lane can also be obscured by the buses in front of them, increasing their safety risk.



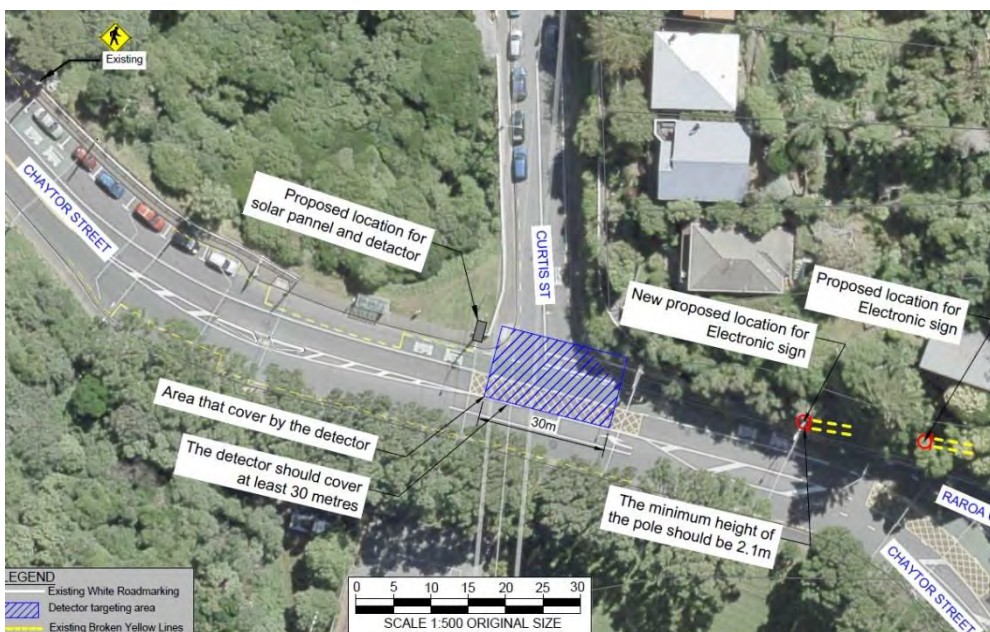
Work Completed:

35. Over time, minor improvements such as new road markings, yellow hatchings, and static traffic signs have been installed to increase road user awareness, safety, and functionality of the intersection, particularly during peak periods when queues form.



Work underway:

36. In 2021, electronic bike warning signs were approved for installation. The signs, to be installed in late 2022 are intended to alert motorists to the presence of people on bikes.
37. The business case for this was approved in August 2021, ward councillors were informed and the option was discussed with the Karori Residents Association as well as members of Cycling Action Network with both organisations being supportive of the approach.
38. At the time of developing the concept for the electronic sign, it was assumed that the solution could be implemented relatively quickly. However, when undertaking the detailed design, the complexity of the site required a design that is very different from other electronic signs which are basically point and shoot and generally have everything built into the sign.
  - a) Lack of an easily accessible low voltage supply
  - b) Excess shade resulted in difficulties with developing a solar solution
  - c) Cyclists present in a mixed use lane
  - d) Detection area has issues with blocking, turning and queued traffic
  - e) Considerations of the traveling speed of cyclists to activate the sign in time
39. Working through these complications to get a workable solution in addition to long lead time for materials resulted in a significant delay to the project with the latest completion estimate being towards the end of 2022.



40. **Kōwhiringa | Options**

41. There are a number of options that form the option long-list of the business case. These have been grouped into the following categories:

Category A – Minor improvements

Category B – Traffic Calming only.

Category C – Transformational Safety Improvements

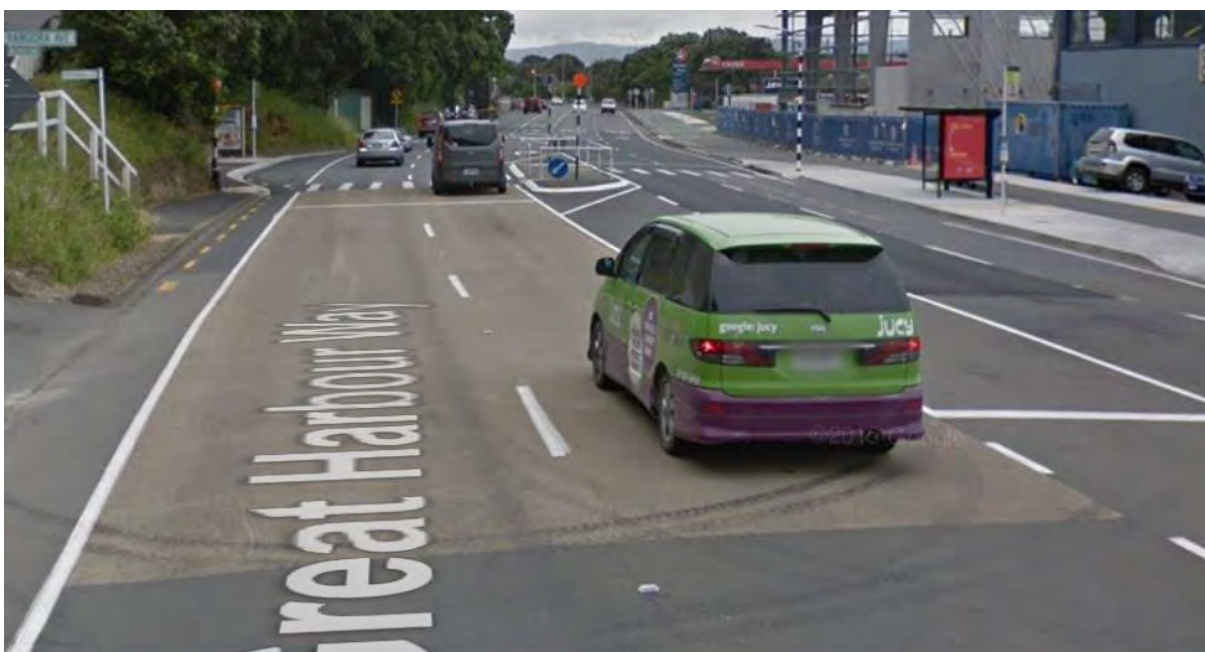
**Category A - Minor safety improvements** including quick wins to refine and improve safety on Chaytor Street in the immediate short-term up to \$50,000 which can be funded from minor works programme:

- a) Adjustments to existing road markings (increasing yellow hatching coverage)



- b) Changes to the bus shelter at the Curtis intersection to increase visibility

- c) Surface treatments (such as anti-skid)



*Anti-skid road markings location: Hutt Road, Thorndon*

- d) Reviewing the use and condition of static and electronic signs

42. **Category B – Traffic Calming measures** have the potential to reduce overall traffic speeds, provide gaps in traffic and provide suitable pedestrian amenities. Traffic calming options include:

- a) Implementation of speed cushions,



*Speed cushions: Tory Street, Te Aro*

- b) Upgraded pedestrian crossing facilities with raised platforms

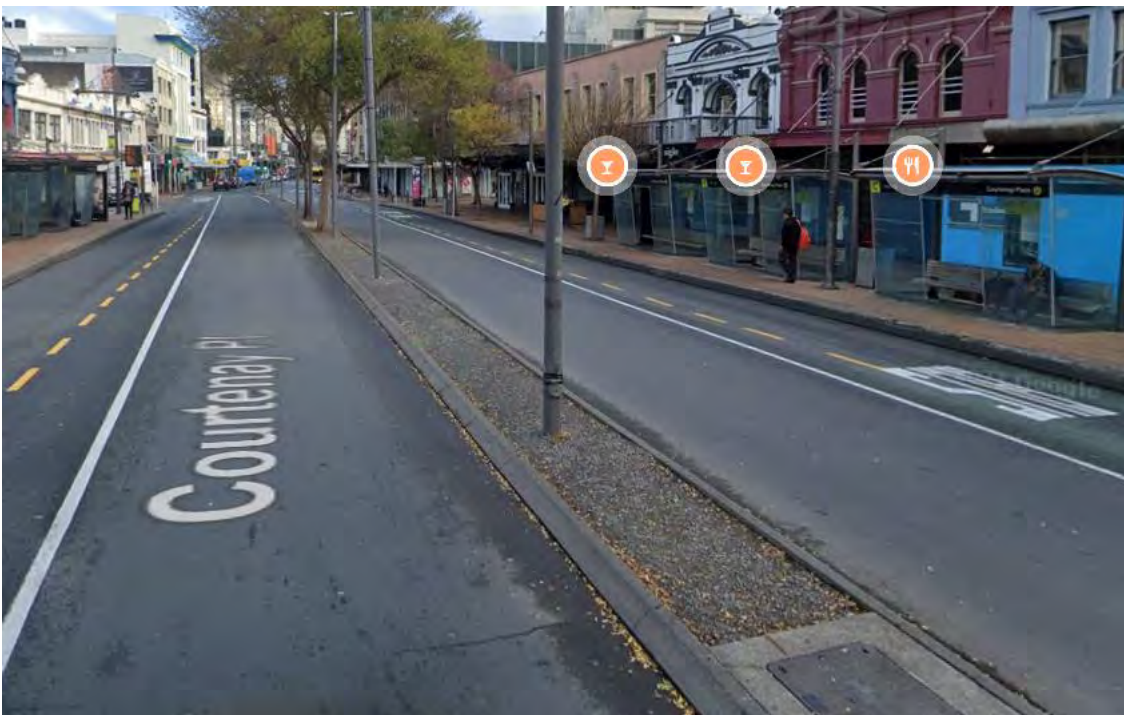


*Signalised Pedestrian Crossing: Johnsonville Road, Johnsonville*



*Raised pedestrian crossing: Bay Road, Kilbirnie*

c) Median islands



*Median island: Courtenay Place, Te Aro*

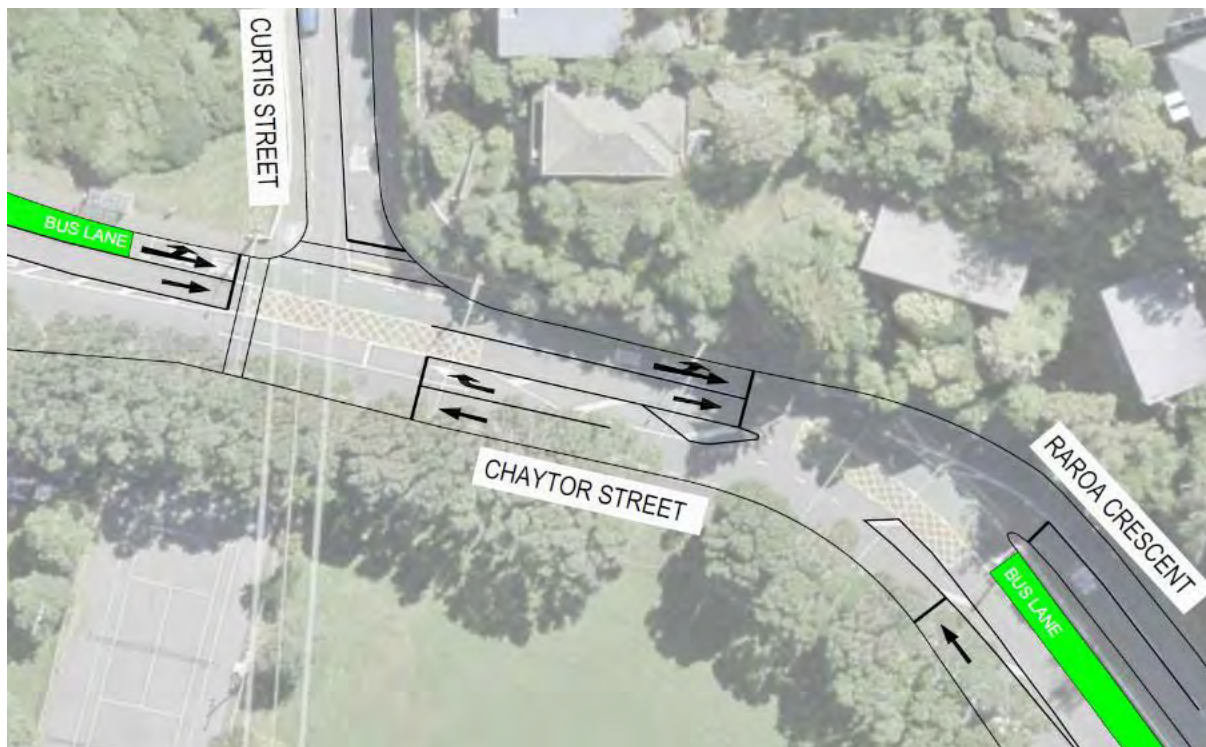
d) Pedestrian refuges





*Pedestrian Refuge: Adelaide Road, Island Bay*

- e) Placemaking improvements to support the change in traffic environment.
43. **Category C - Transformational safety improvements** consider improvements of the wider route and environment of Chaytor Street between Birdwood Street and approximately 100m west of Curtis Street. Sub options within this category include:
- a) Signalised intersections and crossings
  - b) Pedestrian and accessibility facilities
  - c) Public transportation facilities
  - d) Traffic calming
  - e) Road widening
  - f) Footpath widening
  - g) Parking changes
  - h) Placemaking and public spaces development
  - i) Integration with Appleton Park
  - j) Making Raroa a one-way road with no exit onto Chaytor
  - k) A combination of the above considerations



*Concept example: Traffic signalised intersection upgrade with pedestrian crossings*

44. The long list of options have been provisionally costed at between \$10K up to \$16M.

### **Whai whakaaro ki ngā whakataunga | Considerations for decision-making**

#### **Alignment with Council’s strategies and policies**

45. The business case will align with Council strategies and policies including the Cycling 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**

- 46. Conversations between various Council teams, elected members, members of the public, and organisations such as the Karori Residents Association and Cycling Action Network have occurred and will continue.
- 47. Engagement with stakeholders and the wider community will be part of the business case process and will help to inform the MCA process and ultimately, the preferred solution.

#### **Implications for Māori**

- 48. The Safety Improvements options being considered 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.
- 49. The preferred design option will be considered with input received via the Mana Whenua consultation process.

#### **Financial implications**

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50. Funding to investigate design and construction of any the preferred option has not been allocated in the Annual Plan or Long-term Plan.
  51. The preferred option from the business case will be included for consideration in the 2023/24 Annual Plan process.
  52. Funding allocation from Waka Kotahi has not been allocated through the National Land Transport Plan. This will require a further Waka Kotahi business case to secure subsidies for the final project.
  53. As there is no currently allocated funding, it is being recommended that the investigative work and business case development be funded through the FY22/23 minor safety improvements budget. However, as this will have implications on Officers' capacity to deliver the current minor works programme, the lowest priority projects on that programme will be deferred to next financial year.

#### **Legal considerations**

54. All options will need to meet the requirements of legislation and best practice in New Zealand, specifically regarding transport engineering, transport planning, and sustainable transport.

#### **Risks and mitigations**

55. Covid continues to be a key delivery risk with impacts on contractor and consultancy availability and supply of materials. A clear delivery plan with early procurement will go some way to mitigate this risk
56. Disruption to businesses, residents, and road users during works will be managed through early notification, discussion with the community, and a traffic management plan.

#### **Disability and accessibility impact**

57. The proposed upgrades to Chaytor Street will be made with improved safety in mind for all road users.
58. The preferred design option will be considered with disability and accessibility input received via the Design Review process.

#### **Climate Change impact and considerations**

59. We need to move more people with fewer vehicles in Wellington, especially at peak travel times. The Council's ongoing development of the transport network is to encourage the use of public transport, walking, riding bikes rather than the private car and therefore reduce greenhouse gas emissions.
60. 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.
61. 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.
62. This proposal looks to make walking, riding bikes and public transport a viable transport alternative by improving vulnerable road user safety.

#### **Communications Plan**

63. Council Officers will continue to work with the Karori Residents Association and other identified stakeholders as progress is made on developing the preferred option (s).

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64. Should we need to develop any Traffic Resolutions as part of the delivery of the preferred option(s), these will provide further opportunity for community feedback.

**Health and Safety Impact considered**

65. The proposed design options are made with improved safety in mind.
66. The proposed improvements are intended to encourage people and communities to be more active by offering a healthy and safe alternative to private transport.
67. Ensuring vulnerable road users have safe facilities to use 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**

68. We will identify a preferred option (or combination of options) through a multi-criteria assessment process which will be further informed by a cost benefit analysis.
69. The long list and the options analysis process will be socialised with the community for their feedback to ensure we have considered the full range of options in the long list as well as confirming there are no fatal flaws in our decision making process.
70. A business case will be developed and submitted for approval by the delegated authority – this will depend on the value of the preferred option.
71. The preferred option will be included for consideration as part of the 2023 Annual Plan process.
72. In parallel with this process, we will apply for the Waka Kotahi funding assistance via its business case process.
73. If approved, we will look to implement the preferred option as soon as possible thereafter noting that the delivery timeline will depend on the preferred option that has been selected.
74. Should we identify further short term fixes that can be accommodated within our Minor Works programme, these will be progressed as soon as possible.

**Attachments**

Nil