Hamilton City Council
Te kaunihera o Kirikiriroa

Notice of Meeting:

I hereby give notice that an ordinary Meeting of the Infrastructure Operations Committee will be held on:

Date:	**Tuesday 31 May 2022**
Time:	**9.30am**
Meeting Room:	**Council Chamber and Audio-visual Link**
Venue:	**Municipal Building, Garden Place, Hamilton**

Lance Vervoort
Chief Executive

Infrastructure Operations Committee
Komiti Hanganga
OPEN AGENDA

Membership

Chairperson *Heamana*	Cr A O'Leary	
Deputy Chairperson *Heamana Tuarua*	Cr S Thomson	
Members	Mayor P Southgate	Cr R Pascoe
	Deputy Mayor G Taylor	Cr Gallagher
	Cr M Bunting	Cr M van Oosten
	Cr R Hamilton	Cr E Wilson
	Cr D Macpherson	Cr M Donovan
	Cr K Naidoo-Rauf	Maangai Maaori N Hill

Quorum: **A majority of members (including vacancies)**

Meeting Frequency: **Six weekly**

Amy Viggers
Mana Whakahaere
Governance

24 May 2022

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Purpose

The Infrastructure Operations Committee is responsible for:

1. The execution of Council's infrastructure and operational plans and strategies across all asset classes.
2. To monitor and approve contracts relating to core infrastructure and provision of services.
3. To monitor and approve deferred capital relating to core infrastructure and provision of services.
4. Guiding and monitoring the provision of core infrastructure and services in particular relating to transport (including but not limited to public transport and cycleways), 3 waters and waste management, to meet the current and future needs of the city and to enhance the wellbeing of its communities.
5. Facilitating community and stakeholder involvement and discussion on core infrastructure provision and services.
6. Guiding discussion and implementation of innovative core infrastructure and service provision solutions.
7. To ensure that all infrastructure networks and service provisions are legally compliant and operate within resource consent limits.

In addition to the common delegations, the Infrastructure Operations Committee is delegated the following Terms of Reference and powers:

Terms of Reference:

1. To provide direction on strategic priorities and resourcing for core infrastructure aligned to city development and oversight of operational projects and services associated with those activities.
2. To develop policy, approve core-infrastructure related operational strategies and plans and monitor their implementation.
3. To receive and consider presentations and reports from stakeholders, government departments, organizations and interest groups on core infrastructure and associated services and wellbeing issues and opportunities.
4. To provide direction regarding Council's involvement in regional alliances, plans, initiatives and forums for joint infrastructure and shared services (for example Regional Transport Committee).
5. To monitor and oversee the delivery of Councils non-financial performance and non-financial key projects against the Long Term Plan, excluding key performance indicator reporting which is the responsibility of Finance Committee.

The Committee is delegated the following powers to act:

- Approval of capital expenditure within the Long Term Plan or Annual Plan that exceeds the Chief Executive's delegation, excluding expenditure which:
    - contravenes the Council's Financial Strategy; or
    - significantly alters any level of service outlined in the applicable Long Term Plan or Annual Plan; or
    - impacts Council policy or practice, in which case the delegation is recommendatory only and the Committee may make a recommendation to the Council for approval.

- Approval of any proposal to stop any road, including hearing and considering any written objections on such matters.
- Approval of purchase or disposal of land for core infrastructure for works and other purposes within this Committee's area of responsibility that exceed the Chief Executives delegation and is in accordance with the Annual Plan or Long Term Plan.

The Committee is delegated the following recommendatory powers:

- Approval of additional borrowing to Finance Committee.
- The Committee may make recommendations to Council and other Committees

Recommendatory Oversight of Policies and Bylaws:

- *Connections and Charging Policy for Three Waters Policy*
- *Earthquake-Prone, Dangerous & Insanitary Buildings Policy*
- *Seismic Performance of Buildings Policy*
- *Speed Limits Bylaw 2015*
- *Streetscape Beautification and Verge Maintenance Policy*
- *Traffic Bylaw 2015*
- *Solid Waste Bylaw 2012*
- *Stormwater Bylaw 2015*
- *Trade Waste and Wastewater Bylaw 2016*
- *Water Supply Bylaw 2013*

1 Apologies – *Tono aroha*

2 Confirmation of Agenda – *Whakatau raarangi take*

The Committee to confirm the agenda.

3 Declaration of Interest – *Tauaakii whaipaanga*

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

4 Public Forum – *Aatea koorero*

As per Hamilton City Council's Standing Orders, a period of up to 30 minutes has been set aside for a public forum. Each speaker during the public forum section of this meeting may speak for five minutes or longer at the discretion of the Chair.

Please note that the public forum is to be confined to those items falling within the terms of the reference of this meeting.

Speakers will be put on a Public Forum speaking list on a first come first served basis in the Council Chamber prior to the start of the Meeting. A member of the Council Governance Team will be available to co-ordinate this. As many speakers as possible will be heard within the allocated time.

If you have any questions regarding Public Forum please contact Governance by telephoning 07 838 6727.

Item 5

Council Report

Committee: Infrastructure Operations Committee

Date: 31 May 2022

Author: Narelle Waite

Authoriser: Michelle Hawthorne

Position: Governance Advisor

Position: Governance and Assurance Manager

Report Name: Confirmation of the Infrastructure Operations Committee Open Minutes - 12 April 2022

Report Status	*Open*

Staff Recommendation - *Tuutohu-aa-kaimahi*

That the Infrastructure Operations Committee confirm the Open Minutes of the Infrastructure Operations Committee Meeting held on 12 April 2022 as a true and correct record.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Infrastructure Operations Committee Open Unconfirmed Minutes of 12 April 2022

Infrastructure Operations Committee
Komiti Hanganga
OPEN MINUTES

Minutes of a meeting of the Infrastructure Operations Committee held in Council Chamber, Municipal Building, Garden Place, Hamilton and audio-visual link on Tuesday 12 April 2022 at 9.31am.

PRESENT

Chairperson *Heamana*	Cr A O'Leary (exclusively via audio-visual link)
Deputy Chairperson *Heamana Tuarua*	Cr S Thomson
Members	Mayor P Southgate Deputy Mayor G Taylor Cr M Bunting Cr K Naidoo-Rauf (exclusively via audio-visual link) Cr R Pascoe (exclusively via audio-visual link) Cr Gallagher Cr M van Oosten (exclusively via audio-visual link) Cr E Wilson (exclusively via audio-visual link) Cr M Donovan Maangai N Hill (exclusively via audio-visual link)
In Attendance	Eeva-Liisa Wright – General Manager Infrastructure Operations Tania Hermann – Group Business Manager Infrastructure Operations Maire Porter – City Waters Manager Trudi Knight and Andrew Carnell – Waikato Regional Council
Governance Staff	Amy Viggers – Governance Lead Carmen Fookes – Senior Governance Advisor Narelle Waite – Governance Advisor

1. Apologies - *Tono aroha*

Resolved: (Cr O'Leary/Cr Wilson)

That the apologies for absence from Crs Macpherson and Hamilton and for lateness from Crs Pascoe and Naidoo-Rauf are accepted.

Mayor Southgate joined the meeting (9.34am) at the conclusion of the above item. She was not present when the matter was voted on.

2. Confirmation of Agenda - *Whakatau raarangi take*

Resolved: (Cr O'Leary/Cr Wilson)

That the agenda is confirmed noting item 7 (Water Stimulus Project Delivery Update) is to be taken after item 5 (Confirmation of the Infrastructure Operations Committee Open Minutes – 24 February 2022) to accommodate staff availability.

3. Declarations of Interest - *Tauaakii whaipaanga*

No members of the Committee declared a Conflict of Interest.

4. Public Forum - *Aatea koorero*

Phil Evans (Bike ACTION Hamilton) spoke to item 8 (Infrastructure Operations General Manager's Report), noting concerns for cyclist safety in the city, his recent roading accident and injuries, national cyclist road tolls, Council's parking infringement enforcement processes and alignment with the Land Transport Act, additional resourcing for the transport team, and driver education. He responded to questions from Members concerning on-road cycle lanes and road safety infrastructure.

5. Confirmation of the Infrastructure Operations Committee Open Minutes - 24 February 2022

Resolved: (Cr O'Leary/Cr van Oosten)

That the Infrastructure Operations Committee confirm the Open Minutes of the Infrastructure Operations Committee Meeting held on 24 February 2022 as a true and correct record.

Item 7 (Water Stimulus Project Delivery Update) was taken after item 5 (Confirmation of the Infrastructure Operations Committee Open Minutes – 24 February 2022) to accommodate staff availability.

7. Waters Stimulus Project Delivery Update

The City Waters Manager spoke to the report noting progress of the programme, the high level of expenditure, that the programme is expected to meet completion deadlines in June, and the payment instalments received. She responded to questions from Members concerning the stimulus projects' alignment with He Pou Manawa Ora, alignment with city growth, the Low River Contingency project, communicating the opening of new accessways to the public, barge project cost and necessity, the rainwater case study, and savings from the Water Leak Detection project.

Resolved: (Cr O'Leary/Maangai Hill)

That the Infrastructure Operations Committee receives the report.

The meeting was adjourned from 10.27am to 10.34am.

6. Waikato Regional Council - Public Transport Update

Trudi Knight and Andrew Carnell (Waikato Regional Council) spoke to their report and presentation. They noted patronage trends throughout the Covid-19 pandemic, Te Huia patronage, growth in patronage on the Comet service, delays to the planned frequent route improvement project, the Flex on-demand bus service trial, uptake, service levels and marketing, and the Flex CBD to Airport pilot. They responded to questions from Members concerning driver shortages, bus driver remuneration, public transport's relationship with urban intensification, public feedback data for the on-demand services, the average passenger rate, and electrification of the public transport fleet.

Resolved: (Cr Bunting/Cr O'Leary)

That the Infrastructure Operations Committee:

a) receives the verbal report and information presentation; and

b) thanks Waikato Regional Council for their update.

Maangai Hill left the meeting (11.19am) during discussion of the above item. He was not present when the matter was voted on.

Cr Naidoo-Rauf joined the meeting (11.31am) during discussion of the above item. She was present when the matter was voted on.

8. Infrastructure Operations General Managers Report

The General Manager Infrastructure Operations took the report as read noting the impact of Covid-19 on staff resourcing and the work programme. Staff responded to questions from Members concerning costs to implement safety infrastructure with urgency, the parking infringement policy and alignment with national standards.

Staff Action: *Staff undertook to organise a session with Members on the Micro Mobility Business Case which would include options for transitional road safety infrastructure improvements.*

Resolved: (Cr Thomson/Deputy Mayor Taylor)

That the Infrastructure Operations Committee:

a) receives the report;

b) delegates the Chair and Deputy Chair of the Infrastructure Operations Committee to develop and finalise the following submissions by the closing dates:

   i. the Ministry of Transport's consultation *Driving Climate Change: Reviewing the Road User Charges System* Consultation document to meet the 22 April 2022, submission closing date;

   ii. the Ministry for Environment consultation *Te panoni i te hangarua – Transforming Recycling,* to meet the 8 May 2022 submission closing date; and

   iii. the Waka Kotahi NZ Transport Agency consultation Regulatory Funding and Fees to meet the 13 May 2022 submission closing date;

c) notes that the draft submissions will be circulated to Elected Members and Maangai Maaori prior to submission;

d) approves the Co-Lab Waikato Regional Submission letter regarding the Waka Kotahi NZ Transport Agency Consultation on *Draft Guide to Temporary Traffic Management;* and

e) delegates staff to send a supplementary letter to Waka Kotahi NZ Transport Agency and Minister of Transport regarding the Submission on the Waka Kotahi NZ Transport Agency Consultation on Draft Guide to Temporary Traffic Management.

Resolved: (Cr Thomson/Cr Bunting)

That the Infrastructure Operations Committee requests staff prepare options for Elected Members to consider that will prioritise additional education and infrastructure improvements (transitional and permanent) to address walking and cycling safety on key routes identified in the Biking and Micro Mobility Business Case, in time for consideration in the development of the 2023/24 Annual Plan.

Cr Pascoe joined the meeting (12.14pm) during discussion of the above item. He was present when the matter was voted on.

9. External Committees Updates

The Hamilton City Council Representative on the Te Huia Working Group provided an update from the most recent meeting, noting the Business Case under development, technology upgrade project, and delays to additional Saturday services. He responded to questions from members concerning additional commuter stops, patronage levels, impact of Covid-19, raising Te Huia's profile with the public, and customer feedback.

Resolved: (Mayor Southgate/Cr Gallagher)

That the Infrastructure Operations Committee receives the report.

The meeting was declared closed at 12.46pm.

Council Report

Item 6

Committee: Infrastructure Operations Committee

Date: 31 May 2022

Author: Narelle Waite

Authoriser: Michelle Hawthorne

Position: Governance Advisor

Position: Governance and Assurance Manager

Report Name: Chair's Report

Report Status	*Open*

Recommendation - *Tuutohu*

That the Infrastructure Operations Committee:

a) receives the report; and

b) requests staff report back to the Community Committee with a proposal, that includes costs, to enhance the Kent Street Carpark and adjacent green space to be a more friendly community event space.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Infrastructure Operations Chairs Report - 31 May 2022

Chair's report

25 May 2022

Kent Street Carpark, Frankton

Due to Covid 19 restrictions and lockdown, the Frankton Markets was unable to operate for a long period of time. When restrictions allowed for it to reopen, it could only do so if it could manage a restricted entry/exit.

The market operator approached me at the time, and I spoke to staff about Kent Street car park. With some quick work by Tracey Wood, Events Manager, the Market was able to utilise the car park.

The Kent Street car park location has worked well to date and has ended up being a safer environment for visitors to attend the Markets as well as continuing to support businesses in bringing people to Frankton on a Saturday.

The community came together with the Market organiser and 'prettied' up the adjourning small green space by reusing planter boxes and repainting them at their cost. They also planted those planters at their own cost as well. See the images below.

It is worth noting that the Frankton Plan has an outstanding action to create a Pocket Park:

> "Frankton Plan: Pocket Park in Kent Street Develop - a small, beautiful park in Kent Street close to the village centre"

My request is to help secure the multi-use of the Kent Street carpark not only for the future use of the Frankton Markets, but what could be a safe and enhanced community event space for the Frankton community.

Staff have spoken to the parking team and they have no issues with the proposal. There is sufficient parking on-street along Kent Street and within Commerce street with the Market having moved out of that space.

Image from the Frankton Plan

Regional Connections Committee – resignation

I want to acknowledge the work this term of Councillor Macpherson as a member of the Waikato Regional Connections Committee and thank him for his time and contributions.

Unfortunately, Councillor Macpherson has notified his resignation from the Connections Committee due to his continued frustration with the meeting processes used at WRC.

I certainly won't speak for Councillor Macpherson and I am sure if he wants to share the detail of his resignation with you he will. I just wanted to make a point of thanking him for his time, wealth of experience, and continued dedication.

The Future of Car Parking Management

On Friday 18 May 2022 there was a 'drop in' on site session on our new parking technology. I appreciate everyone's diaries are increasingly time poor so thank Mayor Paula and Councillor's Gallagher and Pascoe for being able to attend. Thank you to John Purcell, Parking Activity Manager, and his team for taking the time to show us this innovative new 'tech'.

I didn't think anything would make me terribly excited about "parking", but the new technology has.

We got to have a look at the city's new hybrid Licence Plate Recognition Vehicles and see them in action – they are very impressive. We also had a look at what will replace the old 'lollypops' or Parking Meters throughout the city.

The new vehicles are fully integrated with the new 'park and pay' devices and together, the system will be five times more efficient than current parking systems. They will reduce face to face contact by approximately 66%, and therefore massively reducing the 'abuse' that our parking team faces daily.

The new approach will be fully integrated and will enable us to be much more responsive. We will be much nimbler in responding to large events in the city, manage pricing and priorities for turnover, and be able to provide a quicker response to customers reporting illegal parking.

The new future of parking management will help deliver a safer and more efficient integrated network.

Chair Recommendation

That the Infrastructure Operations Committee:

a) receives the report; and

b) requests staff report back to the Community Committee with a proposal, that includes costs, to enhance the Kent Street Carpark and adjacent green space to be a more friendly community event space.

Councillor Angela O'Leary
Chair of Infrastructure Operations Committee

Council Report

Committee: Infrastructure Operations Committee
Date: 31 May 2022

Author: Martin Parkes
Authoriser: Eeva-Liisa Wright

Position: Transport and Urban Mobility Programme Delivery Lead
Position: General Manager Infrastructure Operations

Report Name: Public Transport Infrastructure Studies – Rototuna and Waikato Hospital

Report Status	*Open*

Purpose - *Take*

1. To inform the Infrastructure Operations Committee on the public transport infrastructure studies that have been completed for Rototuna services and the Waikato Hospital area.

Staff Recommendation - *Tuutohu-aa-kaimahi*

2. That the Infrastructure Operations Committee:

   a) receives the report; and

   b) requests staff report back to the Council with a proposal for the development and delivery of projects identified in the studies for Rototuna services and the Waikato Hospital in time for consideration as part of the funding opportunities for the draft Long-Term Plan 2024-34 and the draft National Land Transport Programme 2024-27.

Executive Summary - *Whakaraapopototanga matua*

3. Following concerns raised about public transport service reliability, and supporting infrastructure levels of service, from both Waikato Regional Council (WRC) and Hamilton City Council (HCC) elected members, HCC staff commissioned several public transport studies; the Comet, the Meteor, Rototuna, and the Hospital area.

4. The overall objective of these studies is to identify network issues and infrastructure opportunities along specific routes with the purpose of helping to improve the reliability of public transport services and attract more patrons.

5. While the studies have a 10-year focus, it's anticipated they will help inform the long-term future planning for public transport in the city. The studies are aligned with the strategic direction of:

   i. Hamilton-Waikato Metropolitan Spatial Plan (MSP);

   ii. Regional Public Transport Plan;

   iii. Access Hamilton Strategy; and

   iv. Waka Kotahi Waikato-Hamilton Area Mode Shift Plan.

6. The Comet and Meteor studies were completed in 2021 and reported to the 7 December 2021 Infrastructure Operations Committee [Agenda, Minutes].

7. The Waikato Hospital area and Rototuna studies have recently been completed.

8. This report is to provide the Infrastructure Operations Committee with a summary of the Rototuna and Waikato Hospital studies. The studies have identified infrastructure improvements for Rototuna services and the Waikato Hospital.

9. Staff are also recommending to the Infrastructure Operations Committee that further information on proposed infrastructure improvement projects are presented to a future Committee to be considered for the draft Long-Term Plan 2024-34 and the draft National Land Transport Programme 2024-27

Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the matter(s) in this report has/have a low level of significance.

Background - *Koorero whaimaarama*

11. The studies will help inform the long-term future planning for public transport in the city and align with the strategic outcomes of the Regional Public Transport Plan, Access Hamilton (refresh), and the Waka Kotahi Mode Shift Plan.

12. The output of the studies will support mode choice through the following ways:

    i. easily connecting people to where they need to go;

    ii. providing high quality travel choices for people of all ages and abilities;

    iii. reducing the impact of transport on the environment;

    iv. supporting and shaping Hamilton's growth; and

    v. creating a prosperous, vibrant, and inclusive city.

Rototuna Study

13. The purpose of the Rototuna study is to help inform HCC and WRC what needs to be improved from an infrastructure perspective to support the delivery of a future high frequency, direct and convenient bus route to service the large residential catchment within Rototuna and provide access to the Central City.

14. The study largely follows the alignment of the existing Route 16 (Rototuna to the Central City). The study will help inform the long-term future planning for public transport in this key growth area. Existing areas for urban intensification of relevance to the Rototuna route are Rototuna, Chartwell and the Central City area. With future areas of relevance to the Rototuna route being northwest of city boundary and Fairfield. The study has also considered the best route over the Waikato River into/out of the Central City and identify high-level concepts and costs to deliver the recommendations.

15. The study identified common issues:

    i. inconsistent provision of supporting infrastructure at bus stops (shelter, seating, accessible kerbs, and hard stand);

    ii. inconsistent bus stop spacing with stops away from key trip attractors, safe crossings etc;

    iii. bus stops not located in areas that would have a greater catchment;

    iv. indented bus stops cause delay to bus services;

v. cycle safety compromised by lack of facilities to bypass stops;

vi. very limited safe crossing facilities within proximity of bus stops;

vii. numerous intersections identified in the Comet Study as providing a low level of service to bus service reliability; and

viii. weight restriction on Claudelands Bridge may limit number of buses that can travel across.

Waikato Hospital Study

16. The purpose of the study was to assess public transport infrastructure in the area and understand the infrastructure requirements and potential investment needed to improve both service reliability and levels of service for customers. The overall study objective is to identify specific issues and infrastructure opportunities.

17. The study will help inform the MSP which indicates there will be considerable growth in both housing and employment within the catchment of the Waikato Hospital and relevant surrounds.

18. Waikato DHB have developed a Hospital Travel Demand Management Plan. Its aim is to help address issues related to a high demand for car parking at their site and a low uptake of sustainable travel modes. The outputs from this study are complementary to the travel plan work.

19. The study area included the transport network around Waikato Hospital and the land within the control of the Waikato DHB and the nearby State Highway network, including the intersections.

20. The study investigated the capacity of the current stops located within the Waikato Hospital campus (Pembroke Street) and identified the need to at least double from the existing four stops to eight stops. Therefore, the study has focussed on identifying options to increase capacity and potentially reinstate a timing point, to provide bus users increased reliability when using the bus services in this area.

21. The study identified common issues:

    i. the current bus stop location is restrictive to the capacity of the bus stops;

    ii. the elevation and distance to Waikato Hospital main entrances can sometimes be difficult for staff and public, especially those with vision or mobility impairments;

    iii. streets and intersections near the hospital have high levels of congestion, especially during peak times; and

    iv. intersections along routes servicing Waikato Hospital don't have bus priority in place, this causes delays and adds to the journey time for buses and its users.

Discussion - *Matapaki*

Rototuna Study

22. The Rototuna study (**Attachment 1**) has a 10-year focus but acknowledges the work currently underway that looks beyond this timeframe, particularly the MSP.

23. Through the route assessment it was determined the future high frequency Rototuna service will follow a route from Rototuna, along Hukanui Road/Peachgrove Road to Boundary Road before crossing the Whitiora Bridge and travelling into the Central City via Anglesea Street.

24. The study has considered the supporting infrastructure requirements for the new service for its launch as well as to help long term planning and investment. The recommendations in the study are based on best practice guidance as well as information provided by the Project Steering Group (HCC, WRC, CCS Disability). Through this, the following criteria were defined for identifying optimum bus stop locations and supporting infrastructure:

    i. bus stops are close to safe crossing facilities, bus transfer points and major trip generators;
    ii. bus stops are appropriately spaced up to 400 metres apart;
    iii. bus stops are in pairs;
    iv. ideally, bus stops are located after intersections or pedestrian crossings and where there is sufficient sightline for approaching vehicles;
    v. bus stops are accessible (hard surfaces, continuous kerbs and allow safe movement of people along the side of the road;
    vi. bus stops are convenient, comfortable, and attractive with shelters provided; and
    vii. ensure the surrounding footways are clear of obstructions.

25. As with many bus routes across the city, reliability is impacting the Rototuna service. There are primarily two causes for delay to buses along a route; delay at stops and delay at intersections. To minimise the delay to buses at stops, it is recommended that the bus stops on the higher-volume roads such as Hukanui Road, Peachgrove Road, Boundary and Mill Street are shifted in-lane.

26. Further consideration should be given to the operation of buses through the Callum Brae Drive/Hukanui Road intersection as they are required to turn right in the southbound direction. It is expected that the proposed upgrades to the Comries Road/Hukanui Road intersection and the Davies Corner roundabout, as part of Eastern Pathways School Link, are likely to reduce delay to buses and improve the efficiency of the service.

27. The recommendations for improving supporting infrastructure in the study are based on best practice guidance and the focus was to ensure bus stops are appropriately spaced (e.g. approximately 400m between stops), located near transfer points and major trip generators, and located close to side roads where possible to increase the walking catchment covered by each stop.

28. The full list of Rototuna projects (excluding the future Rototuna bus hub) is shown in the study (**Attachment 1**).

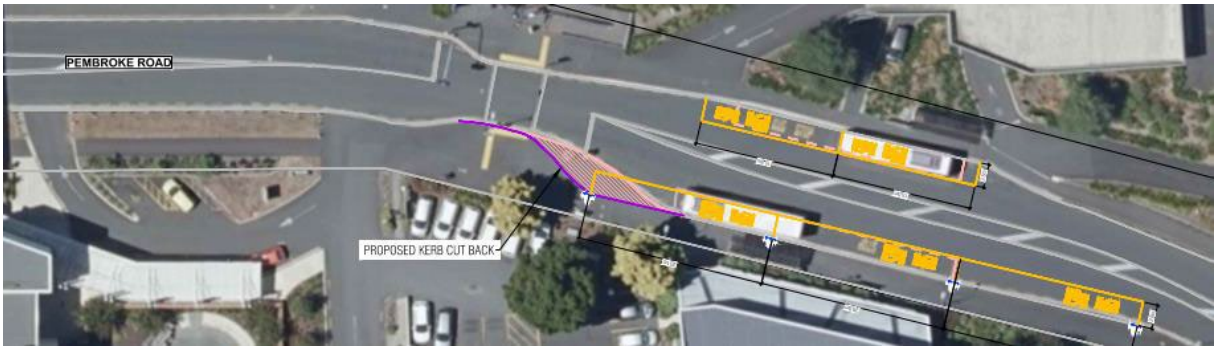
Waikato Hospital Study

29. This study focuses on the infrastructure and service reliability response at the Waikato Hospital in the next decade. It looks at both short term and long-term options due to future developments of the site as part of the Waikato District Health Board Master Plan, which involves consolidating and adjusting entrances.

30. In the short term it is recommended that the on street stops are split between Pembroke Street and Lorne Street to increase the capacity and support growth of bus services in this area.

31. Features of this option are:

    i. an additional bus stop at the existing bus bay locations on Pembroke Street; and
    ii. a bus stop is introduced on each side of Lorne Street outside No.36A, plus a pedestrian refuge crossing to provide connectivity to the new stops. A signalised crossing facility can be considered in the future if pedestrian demands justify.



32. The preferred long-term option is on street stops on Selwyn Street. This option is recommended once the Waikato Hospital Masterplan is implemented and the Waikato Hospital main entrance is located on 'Hospital Street' (adjacent to Selwyn Street).

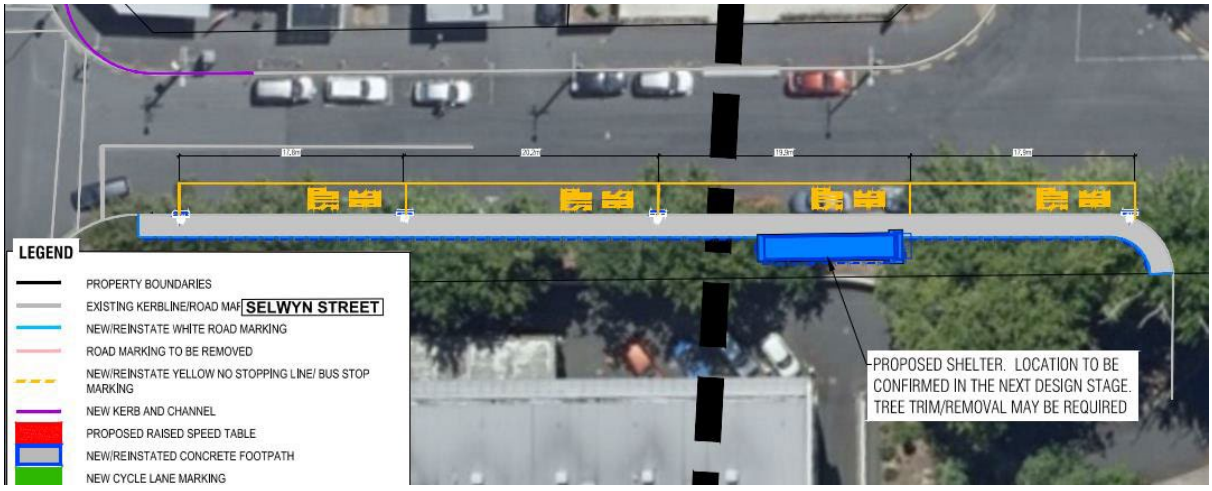
33. Features of this option are:

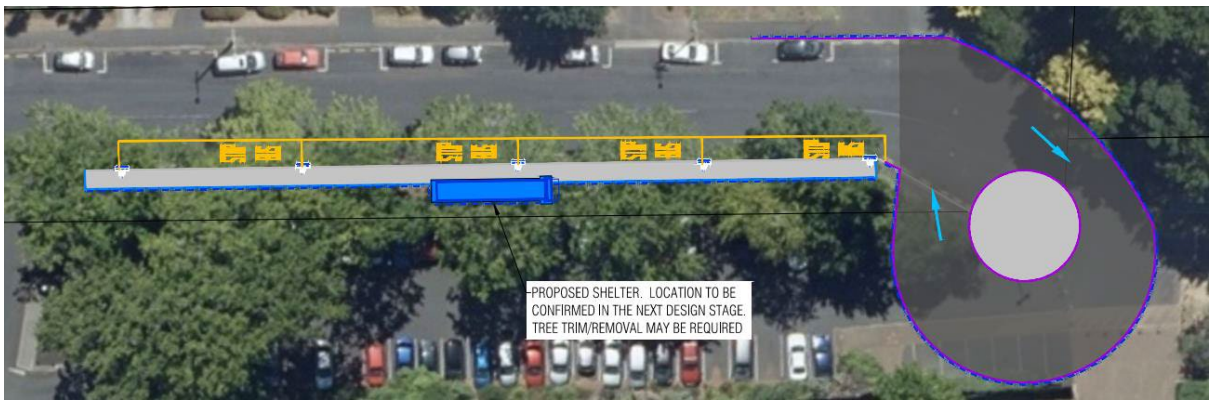
    i. providing eight bus stops on the southern side of Selwyn Street. This will require removal of all on street parking on the southern side of Selwyn Street;

    ii. formalising and upgrading existing footpaths on Selwyn Street for passengers getting on and off buses;

    iii. a turning bay will be required at the cul-de-sac of Selwyn Street to allow buses to turn and access the bus stops; and,

    iv. due to the terrain on Selwyn Street, a retaining wall may be required at the turning bay as well as where the bus shelters are.





34. Intersection safety and connectivity improvements, and bus priority were also included in the scope of the study. The intersections included are:

Site 1 – Pembroke Street/Lake Crescent/Selwyn Street Intersection

Site 2 – Pembroke Street/Hague Road Intersection

Site 3 – Pembroke Street/Ohaupo Road Intersection

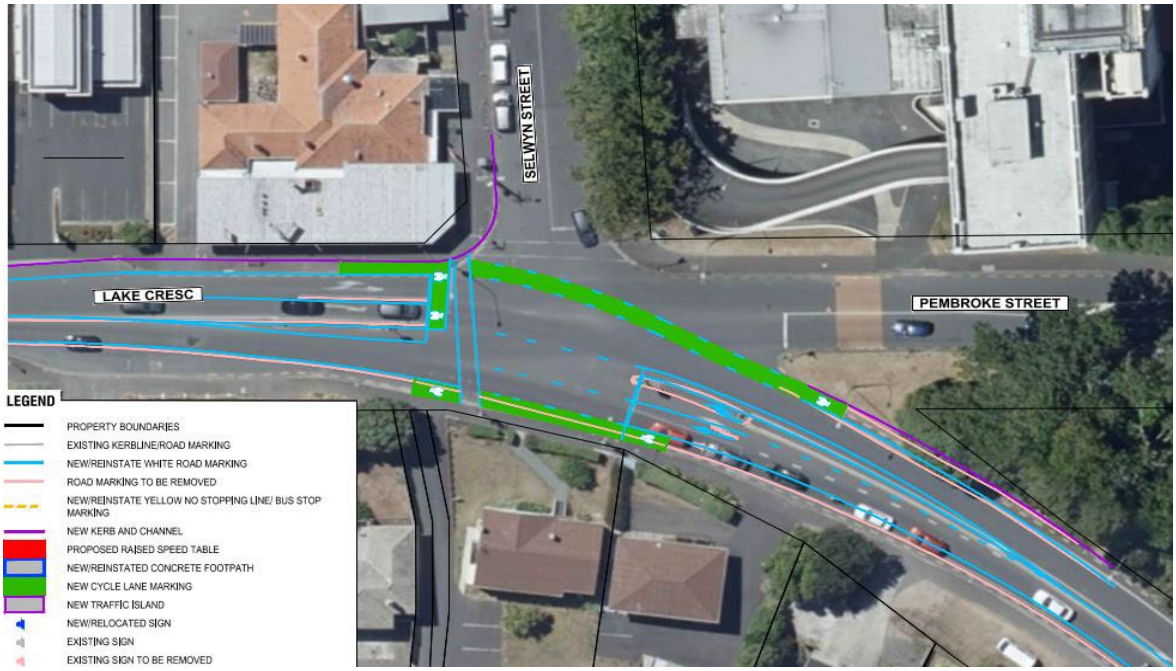
Site 4 – Ohaupo Road/SH1/SH3 Intersection

35. Following an assessment of each intersection, the following options were recommended:

36. **Site 1** – Pembroke Street/Lake Crescent/Selwyn Street Intersection

Existing intersection layout with cycle lanes on both side and potential traffic light cycle phase adjustment. Features of this option are:

i. On road cycle lanes are upgraded to the compliant width for both directions on Pembroke Street. This will connect to the Lake Crescent/Ohaupo Road intersection improvement project recently delivered.



37. **Site 2** – Pembroke Street/Hague Road Intersection

Change priority to through movement instead of right turn with combined entry/exit and raised zebra crossing. Features of this option are:

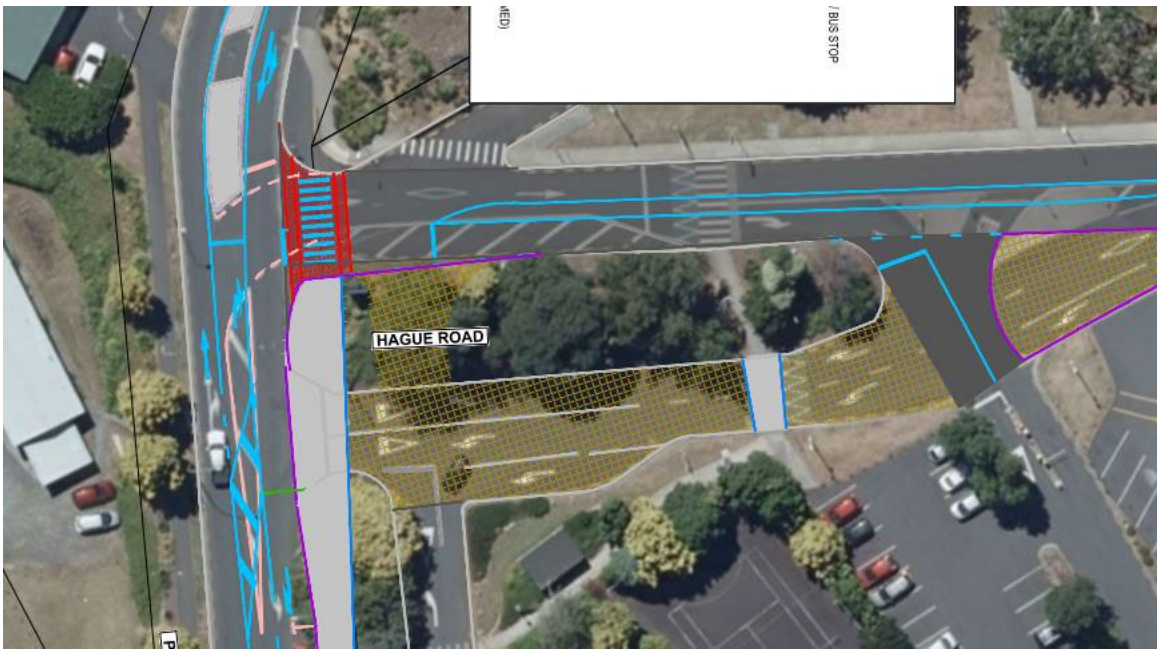
i. The exit access on Hague Road is proposed to be closed and the exit access is to be combined with entry access to reduce points of conflicts and providing more stacking length on the right turn bay.

ii. A footpath is provided with a minimum width of 1.8 m wide

iii. The intersection priority is to be changed from right turning movement to straight through movement on Pembroke Street.

iv. A right turn bay is proposed on Pembroke Street northbound approach to minimise delays to straight through movement.

v. Raised zebra crossing is proposed at the access on Hague Road to provide priority and connectivity for pedestrians along Pembroke Street



38. **Site 3** – Pembroke Street/Ohaupo Road Intersection

Existing give-way layout with 60m bus lane on Pembroke Street Features of this option are:

i. Kerb cutback and lane relocation required to install proposed 60 m bus lane

ii. Traffic island on Ohaupo Road is also required to be removed to allow vehicles to turn into/out of this intersection

iii. Cycle lanes have been upgraded to standard 1.8 m wide in both directions on Ohaupo Road

39. **Site 4 –** Ohaupo Road/SH1/SH3 Intersection

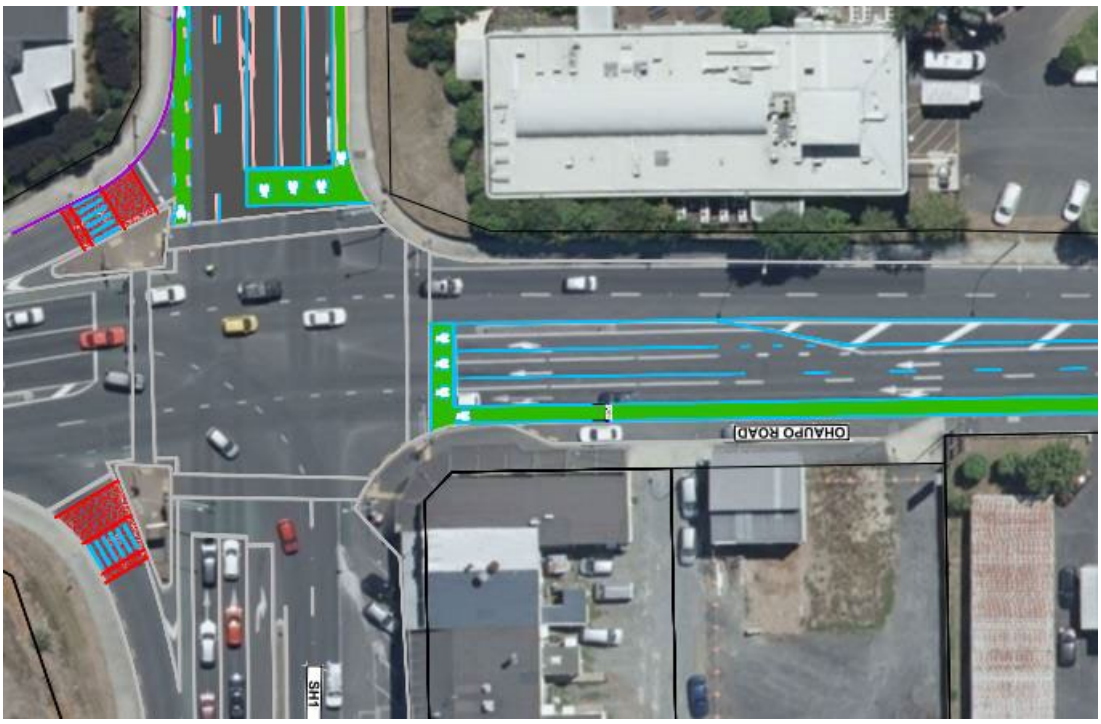
Existing intersection with raised zebra crossings on the two slip lanes. Features of this option are:

i. Raised zebra crossings have been proposed at both slip lanes to provide safe crossing facilities for pedestrians.

ii. Cycle lanes have been upgraded to the standard 1.8 m wide to provide more separation from general traffic.

iii. Advance cycle boxes have been proposed at the intersection to allow cyclists to have a head start at the green phase.

iv. Minor lane realignments because of cycle lane upgrades.



Financial Considerations - *Whaiwhakaaro Puutea*

40. Overall costs to deliver all the infrastructure projects identified in the studies are:

    i. **Rototuna** – The 95th percentile project estimate of the preferred package in this study is approximately $2.2m (as at Feb. 2022), this does not include the future bus hub at Rototuna Village. Further design development will assess the operational impacts, demonstrate engineering and safety compliance, and further refine cost estimates.

    ii. **Waikato Hospital** – The 95th percentile project estimate of the preferred package in this study area is approximately $3.35 million (as at Feb. 2022), this includes the short-term bus infrastructure options on Pembroke Street and Lorne Street. The cost of the long-term bus hub option at Selwyn Street is approximately $850k. Further design development will assess the operational impacts, demonstrate engineering and safety compliance, and further refine cost estimates.

Legal and Policy Considerations - *Whaiwhakaaro-aa-ture*

41. Staff confirm that staff recommendations comply with the Council's legal and policy requirements.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

42. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

43. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report as outlined below.

44. The recommendations set out in this report are consistent with that purpose.

Social

45. The options outlined in this report easily connect people to where they need to go. Providing high quality and affordable travel choices for people of all ages and abilities will contribute directly to the social wellbeing of people and communities in Hamilton.

Economic

46. Hamilton is the economic hub of the Waikato Region. Reallocating transport space to more efficient and less polluting modes of transport is necessary to enable the city centre to achieve its optional as a driver of Hamilton and New Zealand's economic prosperity.

Environmental

47. Delivering transport choices for all Hamiltonians will directly contribute to a reduction in vehicle related carbon emissions. By providing the right level of investment in mode choice activities, we can demonstrate that daily activities can collectively make a big difference and that each individual has a role to play in the fight against climate change.

Cultural

48. Mode choice projects bring opportunities to build some strong cultural elements. Engagement with iwi will take place as projects develop.

Risks - *Tuuraru*

49. There were no known risks identify during the formation of this report.

Significance & Engagement Policy - *Kaupapa here whakahira/anganui*

50. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the matter(s) in this report has/have a low level of significance.

Engagement

51. Given the low level of significance determined, the engagement level is low. No engagement is required.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Rototuna Rocket Public Transport Route Assessment

Attachment 2 - Waikato DHB Public Transport Assessment

Rototuna Rocket Public Transport Route Assessment

Draft for client feedback

Project Number: 2-WLASS.DK

17 December 2021

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Disclaimers and Limitations

This report ('**Report**') has been prepared by WSP exclusively for Hamilton City Council (HCC), Waikato Regional Council (WRC) and Waka Kotahi NZ Transport Agency (Waka Kotahi) ('**Client**') in relation to the option assessment for the route of the Rototuna Rocket Bus Route ('**Purpose**') and in accordance with the Form of Instruction for Service under the WLASS contract with the Client dated 1st August 2019. The findings in this Report are based on and are subject to the assumptions specified in the Report and Offer of Service dated 30 June 2021. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

In preparing the Report, WSP has relied upon data, surveys, analyses, designs, plans and other information ('**Client Data**') provided by or on behalf of the Client. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable in relation to incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

1 Introduction

WSP was commissioned to undertake an assessment for the proposed Rototuna Rocket Public Transport Route. The assessment will help inform Hamilton City Council (HCC) in partnership with Waikato Regional Council (WRC) to create a new high frequency, direct and convenient bus route to service the large residential catchment within Rototuna and provide access to the Hamilton CBD via the Transport Centre.

1.1 Scope

The overall objective of this study is to identify specific network issues and infrastructure opportunities in the Rototuna area, but with a particular focus on a future proposed high-frequency route ('Rototuna Rocket') that will largely follow the alignment of the existing Route 16 – Rototuna to Hamilton CBD (referred to as Route 16). It is acknowledged that the study will help inform the long-term future planning for public transport in this key growth area, determine the best route over the Waikato River into/out of the Central City and identify high-level concepts and costs to deliver the recommendations.

For ease of reference, the route has been split into three parts; Parts A, B and C as shown in Figure 1-1. The parts are as follow:

- Part A: Rototuna Village to Wairere Drive
- Part B: Wairere Drive to the Boundary Road/Heaphy Terrace intersection
- Part C: Boundary Road/Heaphy Terrace intersection to the Transport Centre

This report includes four alternative route assessments to the current 16 – Rototuna route for the Rototuna Rocket. One alternative route in Part A – Rototuna, another in Part B – Chartwell and two in Part C – CBD; these assessments are described in more detail in Section 5. Any route changes were derived and confirmed through consultation with the Client.

Several client data sources were provided by HCC and WRC to assist in the review. These included:

- Bus performance data including boarding/alighting numbers and bus delay at each bus stop;
- Intersection level of service data for the major intersections along Route 16 in the AM and PM peaks (June 2020), however, this data is limited as it does not cover all the intersections at which buses could be delayed;
- Rototuna and North East Hamilton public transport network review – Working paper prepared by Adam Lawrence of Ian Wallis Associates Ltd.

Other background documents used to inform the assessment were:

- Hamilton-Waikato Metropolitan Spatial Plan;
- The Eastern Pathways - School Link SSBC (Eastern Pathways);
- Hamilton City Council draft biking and micro-mobility programme SSBC.

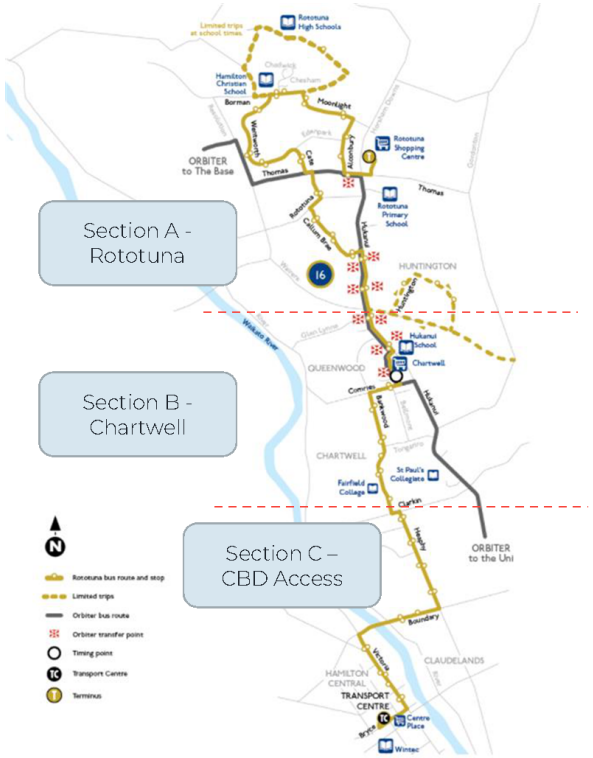


Figure 1-1: Route 16 assessment sections

1.2 Background

Route 16 is a bus service that runs between Rototuna and the Transport Centre in the CBD. The service has one route extension which services the local Rototuna High School by completing a loop past Rototuna High School (Rototuna North loop) and a loop around Huntington Drive. The breakdown of bus stops serviced via the standard Route 16 and the extension due to Rototuna High School are described in Table 1-1.

Table 1-1: Route 16 journeys

	Bus Stops served inbound (towards Rototuna)	Bus Stops served outbound (towards Transport Centre)	*Total
Route 16	34	34	66
Route 16 extension (via Rototuna High School)	43	43	84

**The start and end points are included in both the inbound and outbound journeys, but only counted once in the total.*

The standard Route 16 operates every 30 minutes on weekdays and every 60 minutes evenings, weekends and public holidays. Route 16 extension via Rototuna High School operates once during the AM and PM school peak servicing stops around the Huntington Drive loop and Rototuna North loop.

1.3 Future context

1.3.1 Hamilton-Waikato Metropolitan Spatial Plan (MSP)

The Hamilton-Waikato Metropolitan Spatial Plan (MSP) is a framework for how Hamilton will grow and develop in the future. It describes that communities and jobs will be focussed around centres and corridors in locations which are supported by both rapid and frequent public transport and walking and cycling

transport options so that people have a choice and the opportunity to live close to where they work and play.

Figure 1-2 illustrates the current and indicative future urban areas around Hamilton; indicating locations where more residential dwellings are anticipated. These growth and intensification areas will be where new trips originate/terminate as people travel to/from their place of education and/or employment.

The existing areas for urban intensification of relevance to the Rototuna Rocket route are; Rototuna, Chartwell and the Central City area. Based on location, the future areas of relevance to the Rototuna Rocket bus route are; HT[1] and Fairfield.

The MSP also provides indicative future growth for these areas which is illustrated in Figure 1-2. Major future growth in these identified areas is in the order of magnitude of 5,000-10,000 dwellings. Significant intensification is anticipated in the Central City and Chartwell areas, with only minor growth expected in Rototuna.

Within the urban growth programme outlined in the MSP are priority development areas that are expected in the short term (0-2 years). One of these priorities is a key area of the Rototuna Rocket and important to note is:

- "Hamilton Central City Area: Deliver central city place-making initiatives to support increased residential density and provide amenity."

In summary, the MSP indicates there will be considerable growth in both housing and employment within the catchment of the Rototuna Rocket. While this will result in more demand for the Rototuna Rocket services, it would potentially result in higher traffic volumes and delays without sufficient planning and infrastructure improvements. It is acknowledged that the strategic transport response to this growth is being assessed as part of the Metro Spatial Plan Transport Programme Business Case (PBC) which includes a 100+ year vision and a 30-year plan for delivery.

This study focuses on the infrastructure and service reliability response for the Rototuna Rocket in the next decade and seeks to provide input into the PBC.

[1] Being an area of land to the north-west of the existing city boundary in the Hamilton – Waikato Metropolitan Spatial Plan.

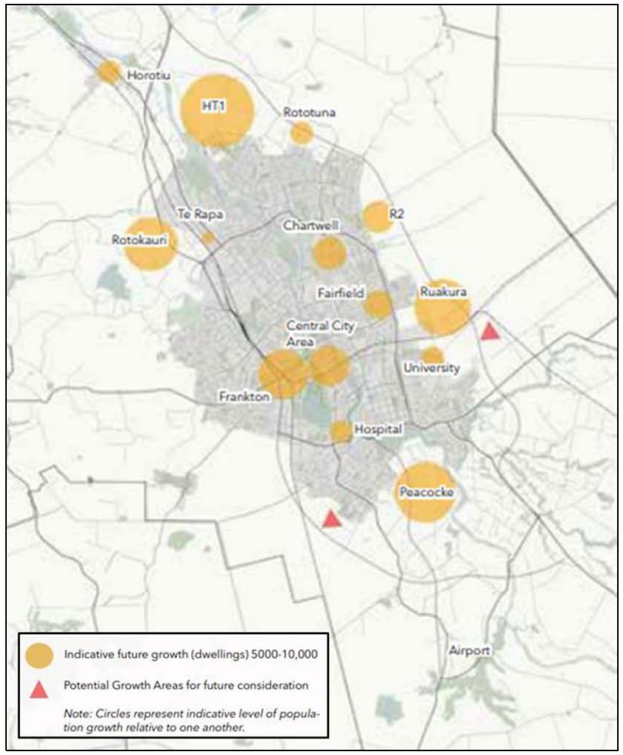


Figure 1-2: Urban area indicative future growth

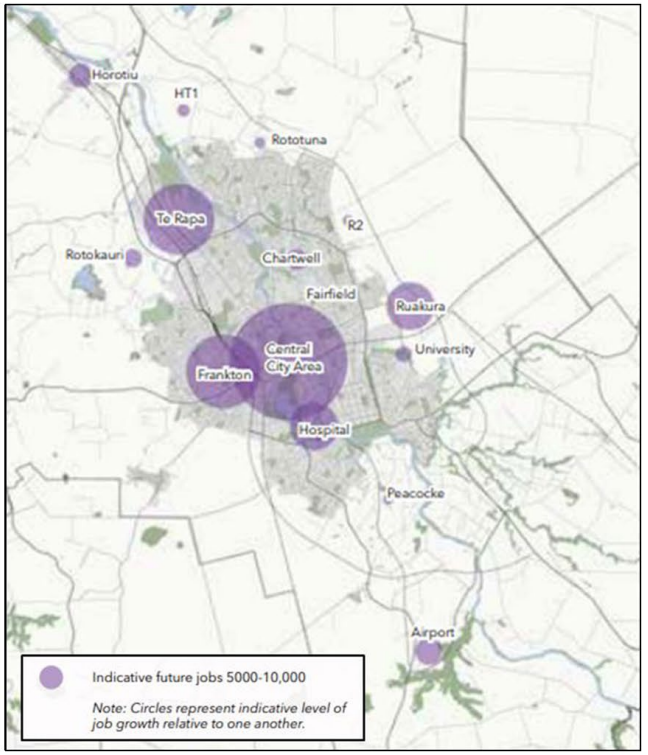


Figure 1-3: Growth in employment

1.3.2 HCC response to the National Policy Statement for Urban Development

In response to the Government's National Policy Statement for Urban Development (August 2021), HCC identified four Hamilton areas that require special changes to their District Plan. These changes are to be made to manage the impacts of growth on neighbourhoods in these areas. The areas that have been signalled to require area plan changes are in parts of Chartwell, Hamilton East, Five Cross Roads and Central City (north).

Proposed changes to the district plan includes; central city buildings having no height limits, for locations in easy walking distance to the central city being a minimum of six storeys and increasing building heights and density in other areas with easy access to schools, shops, jobs and major public transport routes.

Future development of the Rocket route should consider this anticipated intensification and the opportunities for providing frequent, direct, reliable and convenient public transport services connecting new trips as people travel to/from their residence, education and place of employment. Similar to the MSP, while the growth will result in more demand for the Rocket services, it would potentially result in higher traffic volumes and delays without sufficient planning and infrastructure improvements. As such, it is important that the Rocket is reliable and easy to use in order to encourage mode shift through the uptake of public transport.

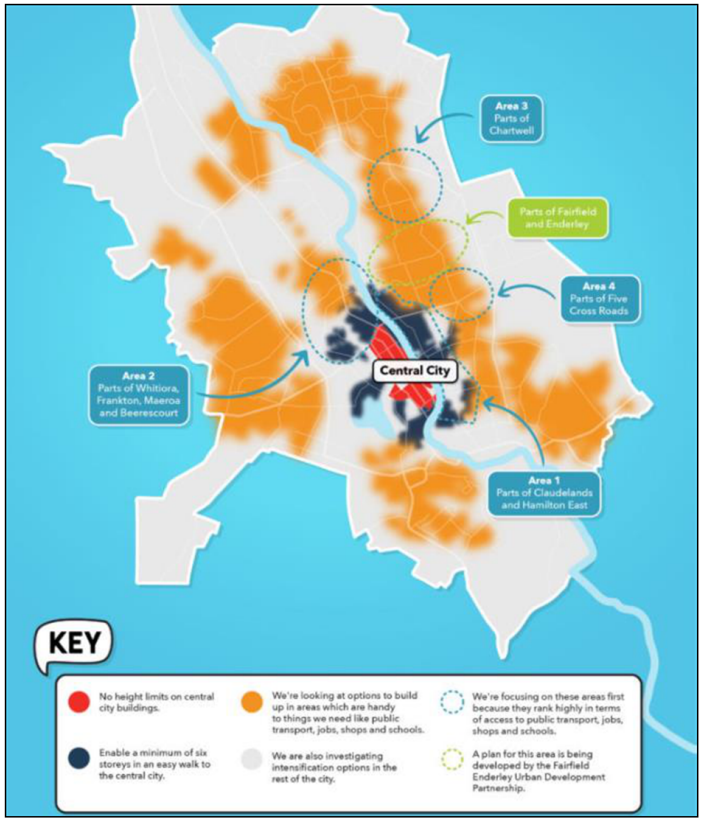


Figure 1-4: Areas being investigated by HCC to meet government requirements

2 Design Considerations

2.1 Bus Stop Infrastructure Best Practice

This section provides a literature review of available bus stop infrastructure best practices in New Zealand. It specifically draws on information from Waka Kotahi's Designing Streets for the 21st Century: Urban Street design workshop and Auckland Transport's Public Transport – Bus Infrastructure design guide.

The purpose of this review is to focus on design considerations associated with bus stop spacing, accessibility, supporting infrastructure and interactions with cycleways. A summary of the key findings is provided in Table 2-1.

Table 2-1: Bus infrastructure best practice

Infrastructure	Best practice
Bus stop spacing	• A key focus is balancing bus efficiency and coverage • Guidance indicates that for urban areas (outside main centres) 400m or 3 per km is optimum. This equates to a 5-minute walking distance. Other factors to consider include frontage access, layout of the streets, topography and adjacent bus routes. • Greater than 400m could be considered for urban services where there is a greater Level of Service and/or bus frequency • Main centres (e.g. CBD) spacing of 150m to 400m – where there is more demand in higher density areas. Ultimately the decision needs to take into consideration pedestrian delays at crossings, demand generators and identified safe crossing points.
Bus stop location	• Step 1) Close to safe crossings, transfer points and major trip generators • Step 2) Plan stops at appropriate spacings between initial stops e.g. 400m Other considerations include: • Should ideally be located after intersections with safe crossings and after pedestrian crossings • Make use of parking restrictions between 1) intersection and bus stop and 2) pedestrian crossings and bus stop • Bus stops should ideally be in pairs (tail to tail) • Must be located where there are safe sight lines for approaching vehicles and bus drivers
Accessibility	• Continuous kerbs at minimum 150mm height, with no drops for crossings of any kind • Hard surface for getting on and off the bus, with connecting footpaths • Tactile ground surface indicators • Pedestrian crossing close to the bus stop (behind the bus stop) • Allow safe and easy movement of pedestrians along the side of the road where the bus stop is located

Supporting infrastructure	• Signs and markings – bus stop sign and 'no stopping' markings to provide adequate tapers to allow the bus to smoothly enter and exit the stop • Safety and security – street lighting, well-lit shelter, emergency help point, video surveillance • Information at stops – bus stop number and name, fare information, routes and times, real-time information • Street furniture – seating, rubbish bins, bicycle/micro-mobility parking
Interaction with cycleways	• Safe and obvious access on and off the bus for passengers • Visibility of cyclists for bus drivers • Separation of cyclists from buses entering and exiting stops • Where a cycleway crosses a footpath: clarity for pedestrians and cyclists about the right of way

2.2 Accessibility to Bus Stops

There is a need to maximise the level of access for all users and ensure that best practice is implemented for bus stop design so that the route can serve all users.

This includes consideration of bus stop spacing and access, infrastructure and street crossings. The following elements of best practice should be considered when designing and locating bus stops.

2.2.1 Spacing and access

- Consider the placement of power poles and lighting columns on the footpath, which disrupts movement for users with mobility devices due to the reduced footpath width;
- Consider the distance between each bus stop to improve accessibility for disabled users;
- Ensure the bus ramp gradient is low for ease of use for wheelchair users;
- Ensure appropriate wayfinding is provided from the bus stop to the closest kerb ramp; and
- Upgrade existing stops where access on/off the bus is via grassed areas.

2.2.2 Infrastructure

- Ensure seating is provided for mobility-impaired users and elderly in response to possible fatigue and waiting times for bus services;
- Ensure sufficient space is provided within the shelter and next to seating to allow manoeuvring for wheelchair users; and
- Ensure footpath is maintained to avoid potential hazards such as potholes and tree roots.

2.2.3 Crossings

- Ensure the provision of crossing facilities are appropriately spaced to allow mobility-impaired users to cross safely and without rushing.

3 Project objectives

The following vision statement was produced for the Rototuna Rocket in consultation with the project partners:

A fast, reliable and easy to use service that encourages uptake of public transport.

By aligning to this vision statement, the Rocket will help provide capacity to the network between Rototuna and the CBD for further population growth, creating more liveable urban areas and a healthier environment by moving commuters out of cars and onto public transport.

Some of the key factors that will encourage uptake of public transport include:

- Frequency of the service – The Rocket is proposed to be a "Frequent" service, which is expected to operate every 15 minutes
- Consistent travel times
- Easy access to the bus stops
- Density of population and employment along the route
- Speed that is comparable to other modes
- Efficient connections to major population and activity centres
- Linearity of the route – a more direct route to where people want to go
- Proximity of the key trip generators

These factors have been addressed in the objectives summarised in Table 3-1.

Table 3-1: Rocket proposed objectives

Objective	Description
Reliability	Journey time reliability – will get you where you want to go at the time you expect to arrive there. This objective aligns with the frequency and travel time consistency factors.
Accessibility	Services must enable easy access and use; and connect to major population and activity centres. This objective aligns with the density factor as bus stops in areas of more dense population and employment will promote increased ridership.
Integration	Integrating with walking and cycling networks, integrating with other modes, how does the bus route fit in with the wider bus route network plan and convenient transfer locations, does it make sense in the context of the other routes in the network. This objective aligns with the easy access factor as bus stops along routes with good connections to walking and cycling facilities will promote increased ridership. Also aligning with the major population and activity centres factor as these locations facilitate good transfers between services.

Direct	Frequent, fast journey times and competing with other modes of transport. This objective aligns with the speed and linearity factors as a direct route allows faster cycle times for buses and fewer deviations from an efficient route.

4 Problems and Opportunities

Site visits were undertaken between 6 July and 9 July 2021 to assess each bus stop along Route 16 and understand the site environment and current bus stop infrastructure. A further site visit was undertaken on 10 August 2021 to similarly assess the existing bus stops along the alternative route options to Route 16 for the Rocket.

Utilising a ArcGIS Survey123 form, each stop was assessed to evaluate facilities at the stop, surrounding road infrastructure and pedestrian accessibility. This enabled a consistent and comprehensive report to be produced for each stop.

This information was imported into ArcGIS and used to inform the bus stop infrastructure and footway accessibility assessment presented in this report.

The purpose of the site visits was to identify the problems and opportunities through a review of:

- The existing spacings between each bus stop;
- The existing bus stop infrastructure along this route; and,
- The current user accessibility to each bus stop.

The findings are summarised in the following sections. For further details, refer to Appendix A.

Although the figures in the following sections include the locations of the existing bus stops along the alternative routes, only the alternative route bus stops in Part C were surveyed. Refer to Section 5 for the assessment of each route option.

4.1 Rototuna – Part A

4.1.1 General

The Rototuna section (Part A) shown in Figure 4-1 incorporates Northbound and Southbound stops between Rototuna Village and Wairere Drive. A total of 37 bus stops were surveyed. Of these 37 stops, 6 have full infrastructure[2] (16%), 11 have at least hardstand (30%) and 20 have no infrastructure (54%). In total, there is 1 stop with a safe crossing[3] within 50 metres, 8 priority crossings within 50 metres of the bus stop and 28 bus stops with either no crossing or a crossing greater than 50 metres away from it.

[2] Full bus stop infrastructure includes - seats, shelters, accessible kerb and hardstand. No infrastructure indicates that there is only bus stop signage.

[3] Safe crossing is considered as either signalised or zebra crossings.

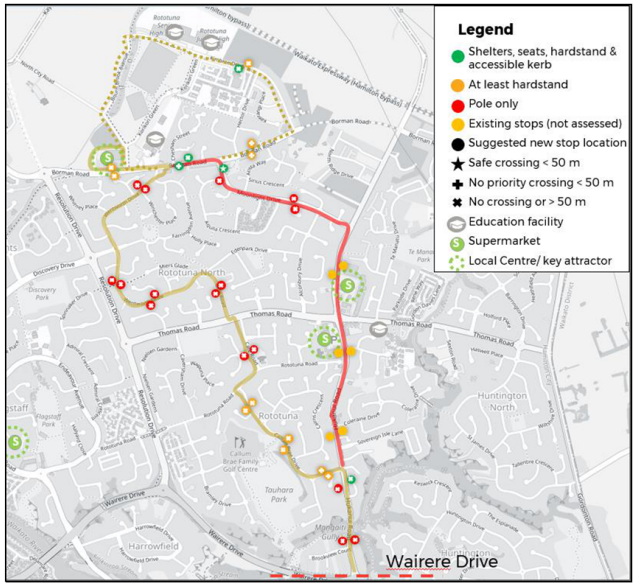


Figure 4-1: Part A (Rototuna) Problems and Opportunities

4.1.2 Summary of findings

The following issues and opportunities have been identified:

- Existing stops on Kimbrae Drive are far from the school.
- Bus stops along Moonlight Drive are positioned at distances greater than that of best practice.
- There are inconsistent bus shelter types along the route. A large proportion (54%) of these bus stops do not have a hard surface for boarding and alighting.
- Most bus stop locations lack a crossing facility. Only one bus stop has a safe crossing facility within 50 metres. Generally, the crossing facilities available near the bus stops are non-priority greater than 50 metres away or non-existent.
- There are opportunities to rationalise bus stops along Callum Brae Drive, Cate Road and Wentworth Drive – due to stop spacing and low level of existing passenger usage.
- Many of the existing bus stops are positioned in poor catchment areas. There is an opportunity to move some of these bus stops along Callum Brae Drive and Wentworth Drive nearer to the side roads to improve the walking catchment for these stops.

4.2 Fairfield and Chartwell - Part B

4.2.1 General

The Chartwell section (Part B) shown in Figure 4-2 incorporates Northbound and Southbound stops between Wairere Drive and Boundary Road. A total of 24 bus stops were surveyed. Of these 24 stops, 7 have full infrastructure (29%), 10 have at least hardstand (42%) and 7 have no infrastructure (29%). In total, there are 5 stops with a safe crossing within 50 metres, 11 priority crossings within 50 metres of the bus stop and 8 bus stops with either no crossing or a crossing greater than 50 metres away from it.

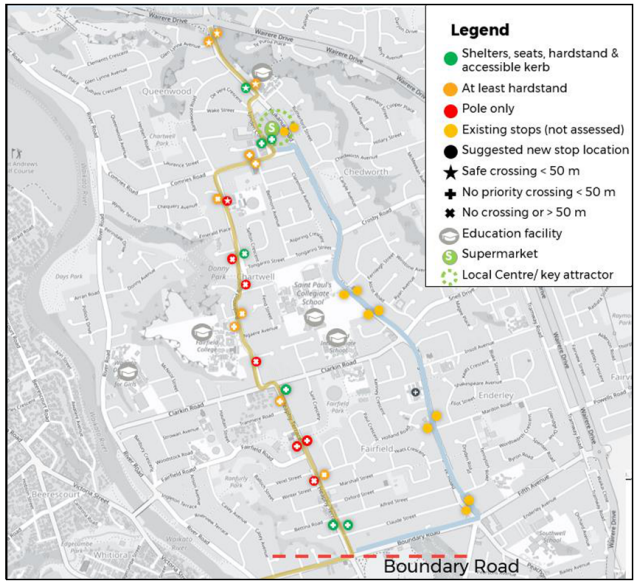


Figure 4-2: Part B (Chartwell) Problems and Opportunities

4.2.2 Summary of findings

The following issues and opportunities have been identified:

- Inconsistent spacing (commonly large distances) on Hukanui Road and Peachgrove Road. There is an opportunity to improve this spacing and by doing so, increase the catchment of the route.
- Potential to use the existing indented stops near Wairere Drive as a kiss and ride facility and a transfer point between demand-responsive-vehicles and the frequent Rocket service
- Potential to remove unpaired stops that are located close to other stops along the route on Bankwood Road.
- Most bus stop locations along Bankwood Road and Heaphy Terrace lack a (safe) crossing facility. Generally, the crossing facilities available near these bus stops are non-priority or non-existent.
- Provision of safe cycle infrastructure at bus stops should be considered. In-lane bus stops would avoid buses pulling in and out from the traffic lanes however, separation of cyclists from buses entering and exiting stops needs to be considered.
- There is an opportunity to rationalise bus stops along Bankwood Road, due to stop spacing and low level of existing passenger usage.
- There is an opportunity to rationalise bus stops along Heaphy Terrace, due to stop spacing and low level of existing passenger usage.
- Along Bankwood Road there are two schools with safe crossing facilities in place. Currently, one-stop at each school is further from these safe crossings than preferred. There is an opportunity to relocate these stops closer to the safe crossings in place for these schools.

Through Part B, along Hukanui Road and Peachgrove Road is the alternative proposed route as illustrated in Figure 4-2. It is assumed that there will be major works along Hukanui Road and Peachgrove Road in the future to provide safe walking and cycling facilities as it forms part of Eastern Pathways. Key recommendations from Eastern Pathways include separated cycle facilities along the route and signalising the Comries Road and Clarkin Road intersections with bus priority provided. These recommendations provide the opportunity to create a road environment more suited for a high-frequency bus service.

4.3 CBD – Part C

4.3.1 General

The CBD section (Part C) shown in Figure 4-3 incorporates Northbound and Southbound stops between Boundary Road and Hamilton Transport Centre. A total of 11 bus stops were surveyed. Of these 11 stops, 4 have full infrastructure (36%), 7 have at least a hardstand (64%). In total, there are 3 priority crossings within 50 metres of the bus stop and 8 bus stops with either no crossing or a crossing greater than 50 metres away from it.

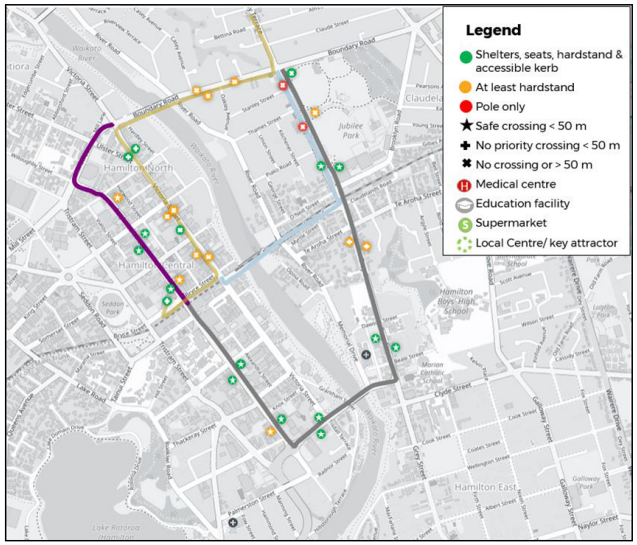


Figure 4-3 Part C (CBD) Problems and Opportunities

4.3.2 Summary of findings

The following issues and opportunities have been identified:

- Remove an unpaired stop outside 41 Boundary Road.
- There is a weight restriction on the Claudelands Bridge which may limit the number of buses that can travel across at any given time.
- If Anglesea Street is used by the Rocket there is a large gap between the northern bus stops on Anglesea Street and the nearest Boundary Road bus stops.
- Existing indented bus stops along Victoria Street and Ulster Street can cause delays to bus services due to the difficulty in getting back into the traffic stream. Bus priority measures such as in-lane bus stops should be investigated if this alignment remains.
- If the Anzac Bridge is used by the Rocket there is an opportunity to provide access to businesses in Hamilton East.
- Anglesea Street is considered by WRC as the most important public transport corridor within Hamilton City and the Comet Public Transport Route Assessment recommendd bus priority measures along Anglesea Street in the future. This would improve the reliability and travel time for the Rocket if it were to travel along Anglesea Street.

As identified by HCC, future plans for the north end of Victoria Street include providing improved pedestrian priority and streetscape similar to the southern end. This is likely to result in delays to buses if the speed environment is reduced through the use of traffic calming devices and pedestrian crossing facilities.

5 Route Assessment

5.1 Context

Alternative route assessments were undertaken for each of the three sections between the Rototuna and Hamilton CBD. These three sections are as follows:

- Part A – four route options between Rototuna Village and Wairere Drive;
- Part B – two route options between Wairere Drive and the Boundary Rd / Heaphy Tce intersection;
- Part C – two route options between the Boundary Road/Heaphy Terrace intersection and the Transport Centre (including the river crossing); and
- Part C (i) - if the Whitiora Bridge option is chosen, between the Whitiora Bridge and the Transport Centre.

A Multi-Criteria Assessment(MCA) framework was the chosen assessment tool to evaluate the options as it provides a consistent approach to aid decision-making. It was used in two stages to evaluate the options as shown below:

- Stage 1) Assess each option intervention in relation to the identified objectives stated in Table 5-1.
- Stage 2) Assess each option intervention based on the potential impacts and risks in implementation. A summary of the impacts and risks identified for the interventions is shown in Table 5-2

This MCA is a qualitative assessment and enables the options to be ranked against different criteria to recommend a preferred option. The Client team was involved in the MCA process and provided input towards the final scoring.

Table 5-1: Identified objectives

Objective	Assessment
Reliability	• Does it pass through intersections where buses could be delayed? • Are the bus stops suitable for multiple buses if on a route with multiple services? • Is there an opportunity to improve existing areas of congestion/delay (signal optimisation, intersection layout, etc.)?
Accessibility	• Does the route pass through an area of dense population and employment? • Can the bus stops be provided at good locations for easy access in areas of (current and future) dense population and employment?
Integration	• Are the stops at good locations for connection to the walking/cycling network? • How does it overlay with the biking and micro-mobility map? • Does it connect with other bus routes at good transfer locations?
Direct	• Is the route suitable for a high-frequency service? • Any potential modal conflicts? • Does this align with HCC's aspirations for a 20-minute city? • What is the perceived linearity of the route?

Table 5-2: Identified implementation risks

Implementation risk	Assessment
Safety	Are there any safety risks that need to be addressed? Can the risks be addressed in the design process?
Technical	What are the technical or practical considerations that may prevent an option from achieving the objectives?
Consenting /Road Environment	Are there risks of this adversely impacting on required project timeframes or other aspects of delivery?
Timeframe	Likely to be delivered within the investment planning cycle e.g. 10 years
Capital/ operations/ maintenance (Affordability)	Does the cost of this option fit within the likely funding available? What factors might affect the ability of the project owner to afford the cost to operate and maintain the option over its projected life?

The impacts of each of the route options were assessed in comparison to the existing layout, using a seven-point scale to identify the magnitude of the impacts (-3 to 3) as shown in Table 5-3.

Table 5-3: MCA scoring

Magnitude	Definition	Score
Large Positive	• Major positive impact resulting in substantial long-term improvements	3
Moderate positive	• Moderate positive impact, possibly short, medium or long-term duration.	2
Slight positive	• Minimal positive impact - short term	1
Neutral	• Neutral - no discernible/ predicted impact	0
Slight Negative	• Minimal negative impact possibly only lasting over short term (definitely able to be managed)	-1
Moderate Negative	• Moderate negative impact. Impacts may be short, medium or long term and highly likely to respond to management actions	-2
Large Negative	• Impacts serious, long-term and possibly irreversible effect	-3

5.2 Part A – Rototuna

5.2.1 Route options

The MCA was initially undertaken on two route options within Part A, between Rototuna Village and Wairere Drive.The two initial route options are as follows:

- Option 1: Wentworth Drive and Callum Brae Drive
- Option 2: Moonlight Drive and Hukanui Road

Following further consultation with the Client team as part of regular workshopping, an additional two route options were included. These additional routes are illustrated in Figure 5-1 and are as follows:

- Option 3: Borman Road extension
- Option 4: Wentworth Drive, Thomas Road and Hukanui Road

Currently, the Borman Road extension does not connect through to Horsham Downs Road, however, HCC has plans to complete this link in the future and as such, has been assessed as a viable alternative route.

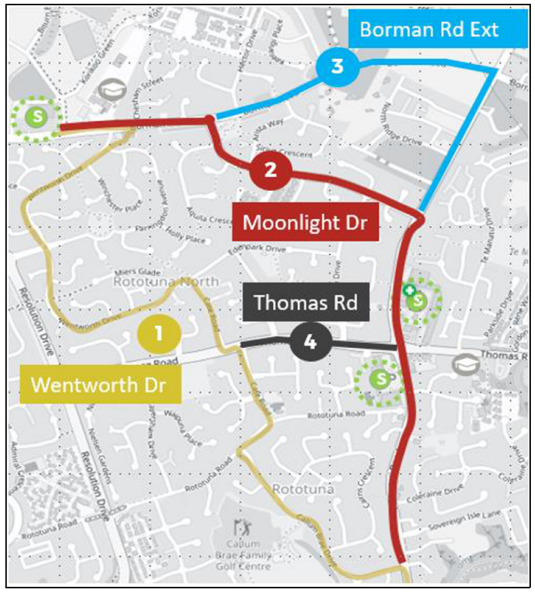


Figure 5-1: Part A - Rototuna alternative route options

The results of the MCA are summarised in the following sections. The detailed MCA for Part A is attached in Appendix B.

5.2.2 Assessment against the objectives

The results of the MCA were such that each of the four options scored the same (6) when assessed against the objectives.

Option 1 follows a relatively circuitous route and passes through significantly more intersections when compared against the other options, and as such, scored poorly in reliability and

directness. However, the residential nature of the route resulted in good scores for accessibility and integration.

The remaining options scored well in reliability due to the significantly reduced number of intersections on the route at which the service could be delayed, with option 2 and option 3 also scoring well in directness. The directness scoring was predominantly based on the good perceived linearity of the routes, the higher-order road classification and also, in the case of option 2, it was 500 metres less travel distance.

As Option 4 travels along Wentworth Drive for the northern section of the route, it scored well for accessibility but poorly for directness; similar to option 1.

5.2.3 Assessment against the implementation risks

Option 1 was assessed to have no risks largely due to its status as the existing Route 16.

The remaining options were identified as having minor safety risks as they are 'community link' cycling routes within the HCC micro-mobility plan so there may be difficulty in safely providing for the bus/cycle interaction at the bus stops if there are to be on-road cycle lanes provided in the future. They were also identified as having minor technical risks due to the perceived difficulty in fixing congestion issues at the Thomas Rd/Hukanui Rd roundabout. If the intersection continues to perform poorly in the peak periods, the reliability of the routes passing through the intersection will be reduced.

Changes in the distance of the route result in changes to the operational cost of running the service. As such, option 2 scored well in affordability due to the reduced distance compared to the existing route. However, option 3 and option 4 both scored negatively due to the increased distance.

5.2.4 Total scoring

As described in the previous sections, all options were assed to have the same overall objectives score rating of six. The key differentiators were associated with the implementation risks.

As illustrated in Table 5-4, option 1 is ranked first with the highest score of 3. However, this is only marginally greater than the score of 2.5 for option 2. Sensitivity testing was undertaken to provide a greater weighting to the objectives (80%) than the implementation risks (20%); with the intent to identify which option is most likely to achieve the project objectives in the long term. As illustrated in Table 5-4, this reduced the difference in scores between the options, however, the ranking remained the same. Option 1 remained the highest score (4.8) and option 2 ranked a close second with a score of 4.6.

Table 5-4: Part A route MCA

		Wentworth / Callum Brae	Moonlight / Hukanui	Borman Road Extension	Wentworth / Thomas
Objectives	Reliability	1	2	2	2
	Accessibility	2	1	1	2
	Integration	2	1	1	1
	Direct	1	2	2	1
Implementation /Risks	Safety	0	-1	-1	-1
	Technical	0	-1	-1	-1
	Consenting /Road Environment	0	0	0	0
	Time frame	0	0	0	0
	Capital/ operations/ maintenance (Affordability)	0	1	-1	-1
Summary 50% objectives 50% risks	(Score)	**3**	**2.5**	**1.5**	**1.5**
	(Ranking)	**1**	**2**	**3**	**3**
Summary 80% objectives 20% risks	(Score)	**4.8**	**4.6**	**4.2**	**4.2**
	(Ranking)	**1**	**2**	**3**	**3**

5.3 Part B – Chartwell

5.3.1 Route options

The MCA was initially undertaken on two route options within Part B, between Wairere Drive and the Boundary Road/Heaphy Terrace intersection.. The two initial route options are as follows:

- Option 1: Bankwood Road and Heaphy Terrace
- Option 2: Hukanui Road, Peachgrove Road and Boundary Road

Following further consultation with the Client team as part of regular workshopping, an additional route option was included as part of the MCA within this section. This additional route is illustrated in Figure 5-2 and is as follows:

- Option 3: Hukanui Road, Peachgrove Road and Claude Street

The options within Part B have been assessed with the assumption that there will be major works along Hukanui Road and Peachgrove Road in the future to provide safe walking and cycling facilities as it forms part of Eastern Pathways. Key recommendations from Eastern Pathways include separated cycle facilities along the route and signalising the Comries Road and Clarkin Road intersections with bus priority provided.

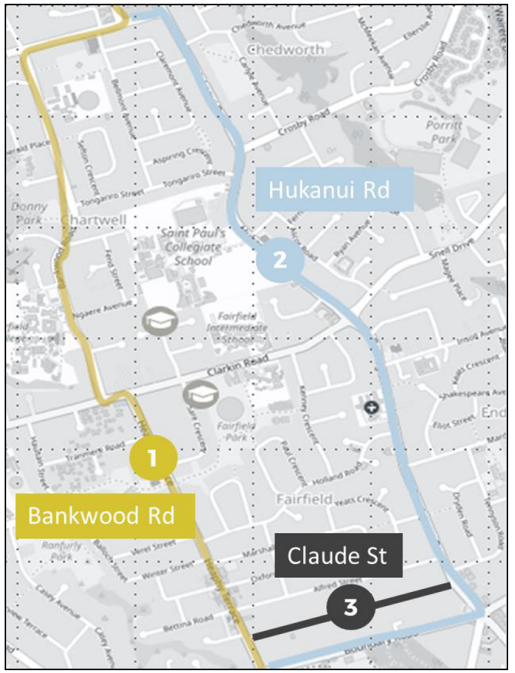


Figure 5-2: Part B - Chartwell alternative route options

The results of the MCA are summarised in the following sections. The detailed MCA for Part B is attached in Appendix B.

5.3.2 Assessment against the objectives

It was identified that option 2 scored the highest, with a score of 8, when assessed against the project objectives; indicating that the Hukanui – Peachgrove route aligns well with the vision

statement outlined in Section 3. Options 1 and 3 both scored 6 when assessed against the project objectives.

All three route options have a similar number of intersections and pedestrian crossings, however, options 2 and 3 experience delays in the peak periods at the Clarkin Road intersection with option 2 also experiencing significant delays at five-cross-roads. These delays result in reduced reliability of the service. However, at these intersections, there are increased opportunities for the service to cater for higher density employment and residential catchments at the Davey's Corner shops and five-cross-roads.

Despite being 800 m longer than option 1, option 2 scored well in directness due to the perceived linearity of the route. Travelling along Hukanui Road and Peachgrove Road between five-cross-roads and Westfield Chartwell allows the service to cover a significant distance without turning; this benefit would be increased if the existing stops on Lynden Court are shifted to Hukanui Road in the future.

5.3.3 Assessment against the implementation risks

Both option 2 and option 3 scored well in safety as it was assumed that separated cycle facilities will be in place along School Link in the future; removing the risk of bus/cycle conflict at bus stops. Option 1 scored a minor negative as it is identified as a cycle route within the HCC micro-mobility plan. As such, there is the risk that the bus/cycle interaction is not managed appropriately at the stops.

Option 2 scored poorly in technical design as it was deemed likely that major work is required at five-cross-roads to ensure delays at the intersection (and the resultant unreliability in the service) are minimised.

As option 1 follows the existing Route 16, the operational and maintenance costs are not expected to be dissimilar from the existing. However, option 2 and option 3 both scored negatively due to the increased distance.

5.3.4 Total scoring

As illustrated in Table 5-5, option 2 is ranked first with the highest score of 2.5. However, this is only marginally greater than the score of 2 for the remaining options. Sensitivity testing was undertaken to provide a greater weighting to the objectives (80%) than the implementation risks (20%); with the intent to identify which option is most likely to achieve the project objectives in the long term. As illustrated in Table 5-5, this increased the difference in scores between the options with option 2 scoring 5.8 and the remaining options scoring 4.4. This is due to option 2 aligning well with the project objectives identified in Section 3.

Table 5-5: Part B route MCA

		Bankwood - Heaphy	Hukanui - Peachgrove	Hukanui / Peachgrove / Claude
Objectives	Reliability	2	1	1
	Accessibility	1	2	2
	Integration	2	3	2
	Direct	1	2	1
Implementation /Risks	Safety	-1	0	0
	Technical	0	-2	0
	Consenting /Road Environment	-1	0	-1
	Time frame	0	0	0
	Capital/ operations/ maintenance (Affordability)	0	-1	-1
Summary 50% objectives 50% risks	(Score)	**2**	**2.5**	**2**
	(Ranking)	**2**	**1**	**2**
Summary 80% objectives 20% risks	(Score)	**4.4**	**5.8**	**4.4**
	(Ranking)	**2**	**1**	**2**

5.4 Part C – CBD Access Point

5.4.1 Route options

The MCA was undertaken on three route options across the Waikato River within Part C, between the Boundary Road/Heaphy Terrace intersection and the Transport Centre.. The three route options are illustrated in Figure 5-3 and are as follows:

- Option 1: The Whitiora Bridge
- Option 2: The Claudelands Bridge
- Option 3: The Victoria Bridge

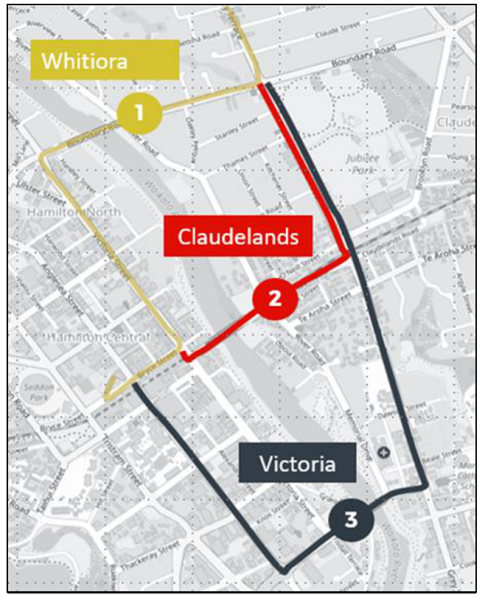


Figure 5-3: Part C - CBD Access

5.4.2 Assessment against the objectives

It was identified that option 1 scored the highest, with a score of 7, when assessed against the project objectives. Option 3 is ranked second (6) and option 3 is ranked third (5).

Option 1 scored well in reliability, accessibility and directness as it:

- has relatively few intersections at which buses could be delayed

- is in close proximity to medium/high density residential and high-density employment in the north of the CBD
- has a high road classification, short distance and relatively good perceived linearity.

Option 3 scored extremely well in accessibility because travelling over the Victoria Bridge brings the route close to the employment centres in Hamilton East and the south of the CBD. Additionally, it scored well in integration, however, scored poorly in reliability and directness due to the number of intersections along the route at which buses could be delayed and the length of the route; 1.3 km longer than option 1 and 1.6 km longer than option 2.

5.4.3 Assessment against the implementation risks

Option 1 scored well when assessed against implementation risks, with only minor technical risks identified in providing a bus stop on Mill Street as there is a large gap between the bus stops on Boundary Road and Anglesea Street (refer to Section 5.5).

Safety, technical and road environment risks were identified with option 2 due to the interaction between cyclists and buses in the shared lane on Claudelands Bridge and the weight restrictions on the bridge that may make it unsuitable for running high-frequency bus services across the bridge.

Operationally, option 3 has a much larger cost due to the additional distance required to be travelled by buses.

5.4.4 Total scoring

As illustrated in Table 5-6, option 1 is ranked first with the highest score of 3. This is significantly greater than the scores for the remaining options. Sensitivity testing was undertaken to provide a greater weighting to the objectives (80%) than the implementation risks (20%); with the intent to identify which option is most likely to achieve the project objectives in the long-term. As illustrated in Table 5-6, option 1 remained ranked first with a score of 5.4 compared to the next highest score of 4 for option 3.

Table 5-6: Part C route MCA

		Whitiora Bridge	Claudelands Bridge	Anzac Bridge
Objectives	Reliability	2	2	1
	Accessibility	2	1	3
	Integration	1	1	2
	Direct	2	1	0
Implementation /Risks	Safety	0	-1	-1
	Technical	-1	-2	-1
	Consenting /Road Environment	0	-1	0
	Time frame	0	0	0
	Capital/ operations/ maintenance (Affordability)	0	0	-2
Summary 50% objectives 50% risks	(Score)	**3**	**0.5**	**1**
	(Ranking)	**1**	**3**	**2**
Summary 80% objectives 20% risks	(Score)	**5.4**	**3.2**	**4**
	(Ranking)	**1**	**3**	**2**

5.5 Part C (i) – Transport Centre Access

5.5.1 Route options

Given Whitoria Bridge was identified as the preferred option to access the CBD, the project team undertook a further MCA for two route options between the Whitiora Bridge and the Transport Centre. The two route options are illustrated in Figure 5-4 and are as follows:

- Option 1: Victoria Street
- Option 2: Anglesea Street

Figure 5-4: Part D - Transport Centre Access

5.5.2 Assessment against the objectives

It was identified that option 1 scored the highest, with a score of 8, when assessed against the project objectives. Option 2 is ranked second with a score of 7.

Option 1 scored well in all objectives indicating that the Anglesea Street route aligns well with the vision statement outlined in Section 3. Anglesea Street has potential for bus priority in the future as a number of bus routes (including the Comet) converge along Anglesea Street which may improve reliability and speed.

Similarly, option 2 scored well in reliability, accessibility and directness with a similar route length as option 1. However, if bus priority measures are put in place in the future along Anglesea Street, it is likely that Anglesea Street will be the major public transport route within the city centre as it also caters for the high-frequency Comet bus route. As such, option 2 scored lower than option 1 in integration.

5.5.3 Assessment against the implementation risks

Both option 1 and option 2 scored well when assessed against implementation risks, with only minor technical risks identified for option 1 in providing a bus stop on Mill Street and minor safety risks identified for option 2 due to the interaction between cyclists and buses as Victoria Street is identified as a cross-city connection in the biking and micro-mobility network plan.

5.5.4 Total scoring

As illustrated in Table 5-7, option 1 is ranked first with the highest score of 3.5. However, this is only marginally higher than the score of 3 for option 2. Sensitivity testing was undertaken to provide a greater weighting to the objectives (80%) than the implementation risks (20%); with the intent to identify which option is most likely to achieve the project objectives in the long

term. As illustrated in Table 5-7, option 1 remained ranked first with a score of 6.2 compared to option 2 with a score of 5.4; however, these scores do not differ significantly.

As described in Section 5.5.2, the key differentiating factor between the two options is the likely integration of bus priority measures along Anglesea Street. This will promote Anglesea Street as the major public transport route within the city centre. Relocating the Rocket route onto Anglesea Street results in Anglesea Street catering for two high-frequency bus services (Rocket and Comet) in addition to the other lower frequency services; where consolidating bus services to use a single route enhances the case for investment and bus priority measures. Additionally, as described in Section 4.3.2, the northern end of Victoria Street is likely to have improved pedestrian priority and streetscape similar to the southern end which may result in delays to buses if the speed environment is reduced through the use of traffic calming devices and pedestrian crossing facilities. As such, option 1 scores better when taking into account the future context of the city centre, however, in the short term there is little to differentiate between the two options.

Table 5-7: Part C(i) route MCA

		Anglesea Street	Victoria Street
Objectives	Reliability	2	2
	Accessibility	2	2
	Integration	2	1
	Direct	2	2
Implementation /Risks	Safety	0	-1
	Technical	-1	0
	Consenting /Road Environment	0	0
	Time frame	0	0
	Capital/ operations/ maintenance (Affordability)	0	0
Summary 50% objectives 50% risks	(Score)	**3.5**	**3**
	(Ranking)	**1**	**2**
Summary 80% objectives 20% risks	(Score)	**6.2**	**5.4**
	(Ranking)	**1**	**2**

5.6 Overall proposed route

The overall proposed route for the Rocket bus service between Rototuna Village and the Transport Centre is as illustrated in Figure 5-5 and Figure 5-6.

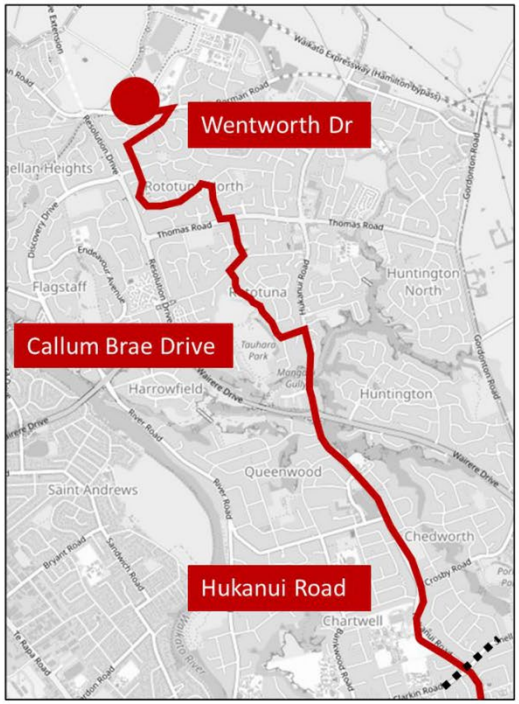


Figure 5-5: Proposed Rocket route between Rototuna Village and Clarkin Road

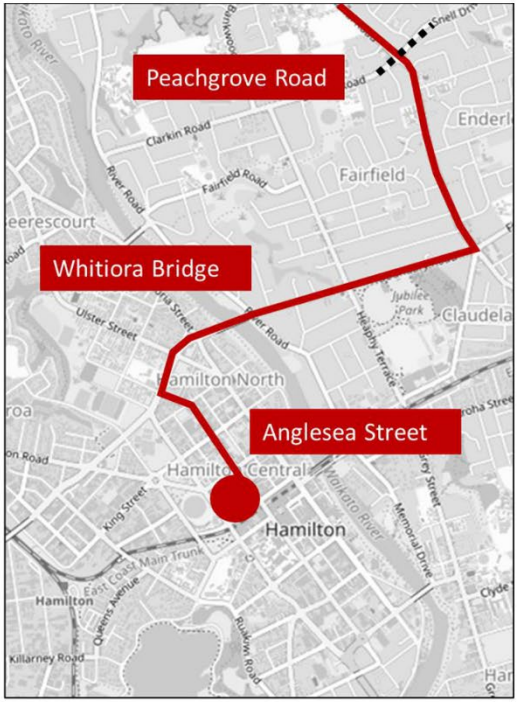


Figure 5-6: Proposed Rocket route between Clarkin Road and the Transport Centre

6 Rototuna Village Bus Hub

WRC have identified Rototuna Village as the future northern terminus for the Rocket service. As such, there must be facilities or a route available for the Rocket buses to turn around at the end of their northbound trip so they can begin their return south into the CBD. WRC and HCC have plans for a future bus turn-around and driver break facility accessed from a proposed extension to Turakina Rise. As part of this study, problems and opportunities have been investigated for the implementation of an interim bus hub in the event that the Rocket is implemented prior to construction of the proposed bus hub.

From HCC, we understand that there will be significant development occurring at Rototuna Village with construction to be completed by early 2023. As part of this development, a bus turn-around and driver break facility is proposed to be accessed from the future extension of Turakina Rise that will tie into the future proposed roundabout at the North City Road / Bourn Brook Avenue intersection as illustrated in Figure 6-1.

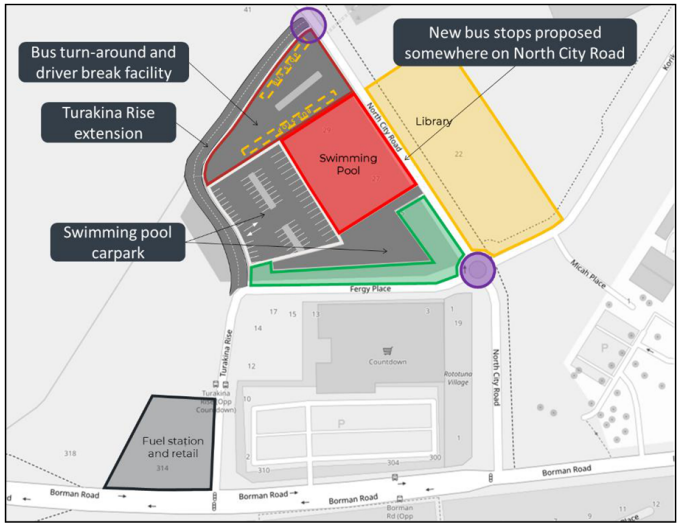


Figure 6-1: Future Rototuna Village development

The proposed bus turn-around and driver break facility will allow Rocket buses to turn around and will also provide for other services that will terminate at Rototuna Village in the future such as the Flagstaff and St James services. As illustrated in Figure 6-1, North City Road will become a "high street" with the library, swimming pool and businesses along the road frontage. We understand the intention is that bus stops will be provided on this northern section of North City Road to cater for passenger demand of the bus services to / from Rototuna Village. This will be the termination point for passengers as we understand that the turn-around facility is not for passenger access. The buses will continue from the North City Road stops to the proposed bus

turn-around and driver break facility to lay-over following the route illustrated in Figure 6-2. However, we understand there are complications with the location of the proposed turn-around and driver break facility due to an existing farm drain at the location. As such, there is a possibility that the turn-around facility will not be completed by early 2023 with the remainder of the Rototuna Village development.

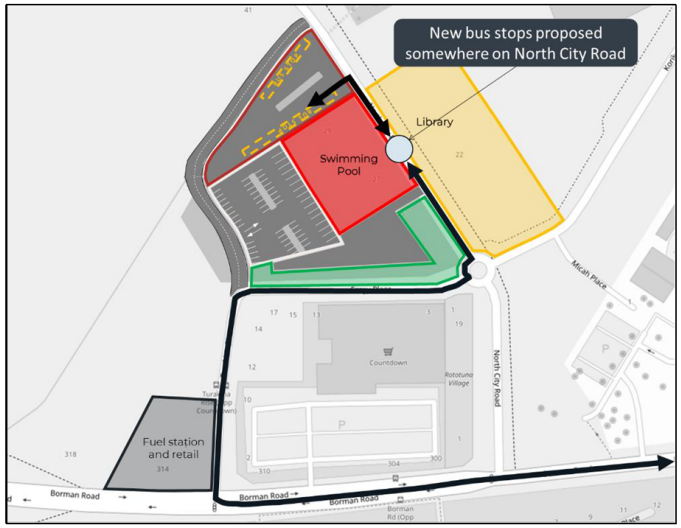


Figure 6-2: Rototuna Rocket termination point and turn-around facility

The roads around Rototuna Village are currently laid out as illustrated in Figure 6-3 with indented bus stops on Borman Road in front of the Countdown supermarket. There are currently no off-street turnaround facilities for buses at Rototuna Village, so with the existing layout, Rocket buses will need to turn around using the existing road network which requires either;

- Rocket buses continue along Borman Road to turn around at the Resolution Drive roundabout with an additional 900m of "dead-running" between the northbound and southbound services, or
- Rocket buses loop around Rototuna Village via the Turakina Rise / Fergy Place / North City Road loop before continuing on Borman Road to Wentworth Drive. This results in 500m additional distance at the start of the route and may impact on the perception of a fast and direct service.

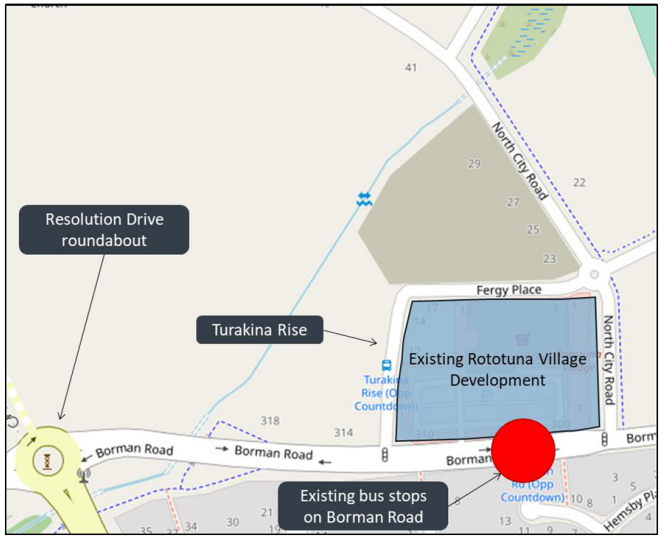


Figure 6-3: Existing Rototuna Village road layout

An alternative interim option that would allow buses to turn-around in the absence of the bus turn-around and driver break facility proposed was discussed with HCC. This option would allow buses to utilise the swimming pool carpark that will be accessed from the future extension of Turakina Rise to turn around. This option would retain the existing bus stop on Borman Road as the termination point for passengers. However, it is anticipated that this interim option has implementation risks involved such as ensuring there is sufficient manoeuvring space for buses and the pavement within the carpark is suitable for slow moving buses to perform turning manoeuvres.

From information provided by WRC, we understand that implementation of the Rocket service is unlikely to occur prior to 2023 due to a lack of funding. As such, we recommend that:

- Prior to the implementation of the Rocket, the 16 route continues to terminate at the Rototuna North shops
- The interim option of utilising the swimming pool carpark off Turakina Rise as a turn-around and driver break facility is explored further with the HCC project team involved in the Rototuna Village development
- The timing for implementation of the Rocket is coordinated with the implementation of the proposed bus turn-around and driver break facility at Rototuna Village

7 Option Development

7.1 Overview

The methodology for assessing bus stop locations focused on the following kep points:

- ensuring bus stops are appropriately spaced (e.g. approximately 400m between stops),
- ensuring bus stops are located close to safe crossing facilities,
- ensuring bus stops are located near transfer points, major trip generators and close to side roads where possible to increase the walking catchment covered by each stop.

Then the stops where assessed based on the following points:

- Ensuring the bust stops are accessible
- ideally in pairs (tail to tail); and
- Located where there are safe sight lines for approaching vehicles and bus drivers.

7.2 Part A – Rototuna

7.2.1 Bus stop infrastructure

As described in Section 4.1, the key improvements required in Part A are improving the spacing of the stops within the residential areas along Wentworth Drive, Cate Road and Callum Brae Drive. Consideration was given to which bus stops are currently located near intersections and pedestrian walkways and which stops could be added or relocated to provide better coverage. Although the road layout of the route through the residential area north of Thomas Road is relatively circuitous with numerous small cul-de-sacs branching off Wentworth Drive, there are a number of pedestrian walkways that provide good coverage and pedestrian connectivity to the service.

Figure 7-1 illustrates the proposed relocations and improvements considered in the early option development stages. Of note, this included;

- Providing new stops on Wentworth Drive near the Farringdon Avenue intersection due to the large gap between adjacent stops
- Providing kerb let downs near the stops at the Miers Glade walkway to improve pedestrian access across Wentworth Drive
- Relocating the existing stops at 32 & 33 Wentworth Drive to 24 & 25 Wentworth Drive to improve spacing and increase coverage on Innswood and Woodham Place
- Relocating the existing stops at 2 & 5 Cate Road closer to Thomas Road to improve coverage on Thomas Road recognising that the Orbiter service will shift from Thomas Road to Borman Road in the future
- Consolidating the bus stops along the southern section of Callum Brae Drive to the Cairns Crescent intersection to improve coverage on Cairns Crescent
- Providing a pedestrian refuge on Hukanui Road near the bus stops at 371 & opposite 373 Hukanui Road and relocating the bus stops tail to tail of the refuge

In addition to the above, it is recommended that hardstand, seats and shelters are provided to ensure a high-quality user experience and consistent look and feel along the route.

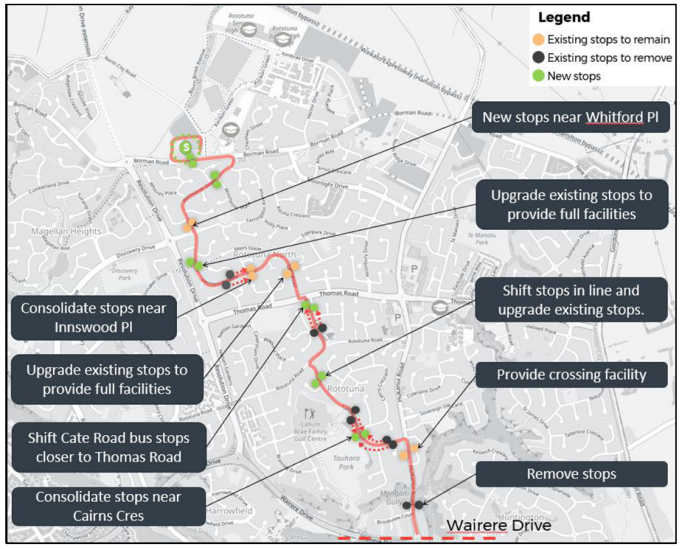


Figure 7-1: Part A option development summary

7.2.2 Bus priority

There are primarily two causes for delay to buses along a route; delay at stops and delay at intersections. The Rocket route will primarily follow low volume residential streets. As such, it is unlikely buses will be delayed when re-entering the traffic stream from bus stops..

Due to the nature of the route, the majority of intersections the Rocket will pass through have low volumes on the opposing roads so it is expected that delays will be minor with the exception of the Callum Brae Drive / Hukanui Road intersection.

In the southbound direction, buses will turn right out of Callum Brae Drive on to Hukanui Road which has traffic volumes of 10,800 vpd. It is likely that buses will be delayed at this intersection with larger delays expected in the weekday peak hours. It is recommended that further consideration is given to the operation of buses through this intersection.

7.3 Part B – Chartwell

The future form of the road corridor along Hukanui Road and Peachgrove Road is being addressed through Eastern Pathways. Key recommendations from Eastern Pathways include separated cycle facilities along the route and signalising the Comries Road and Clarkin Road intersections with bus priority provided. This is likely to result in significant changes to the road formation. As such, the primary focus is on ensuring bus stops are provided in good locations to cater for future development within Chartwell, Fairfield and Enderley.

7.3.1 Bus stop infrastructure

As described in Section 4.2, generally the stops along Hukanui Road and Peachgrove Road are at good locations, however, there is a large gap in coverage between the bus stops on Lynden Court and the bus stops outside Saint Pauls Collegiate. One of the key improvements required is improving the spacing of the stops along this section, in turn improving the coverage on the side roads such as Dalmont / Chedworth and Crosby /Tongariro. Additionally, there is a large gap between the southernmost stops on Peachgrove Road and the closest adjacent stops on Boundary Road.

Figure 7-2 illustrates the proposed relocations and improvements considered in the early option development stages. Of note, this included;

- Investigating the feasibility of a kiss and ride facility at the indented bus stops directly south of the Wairere Drive intersection
- Providing new paired bus stops on Hukanui Road near the Dalmont Place / Chedworth Avenue intersections to improve stop spacing and coverage on the side roads
- Providing new paired bus stops on Hukanui Road near the Crosby Road / Tongariro Street intersections to improve stop spacing and coverage on the side roads
- Relocating the existing stops north of Davies Corner closer to the future proposed signalised Clarkin Road intersection
- Providing new paired bus stops on Boundary Road near the Heaphy Terrace intersection to improve stop spacing

In addition to the above, it is recommended that hardstand, seats and shelters are provided to ensure a high-quality user experience and consistent look and feel along the route.

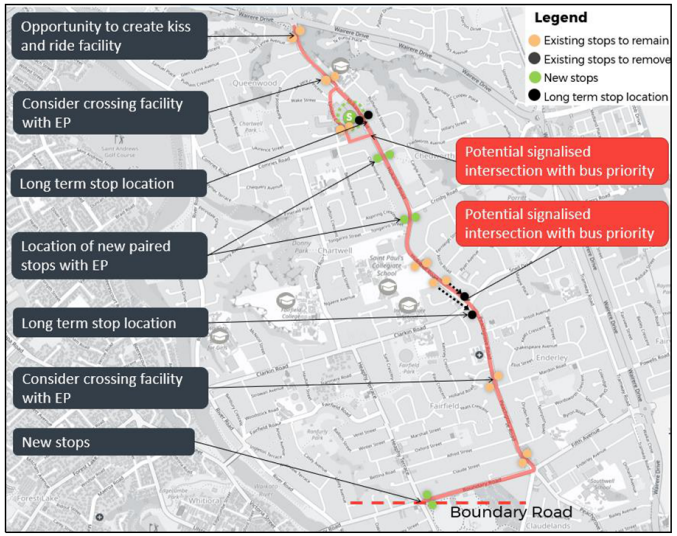


Figure 7-2: Part B option development summary

Due to the high traffic volumes on Hukanui Road and Peachgrove Road, it is important that safe crossing facilities are provided near bus stops[4]. It is assumed that there will be major works along Hukanui Road and Peachgrove Road in the future to provide safe walking and cycling facilities as part of Eastern Pathways so it is recommended that providing safe crossing points near the bus stops should be considered further as part of Eastern Pathways detailed design.

[4] With the exception of the stops near Wairere Drive, the relocated stops at the Clarkin Road intersection and the stops near five-cross-roads that are already near safe crossing points (grade separated, signalised and zebra respectively)

As the future proposed Rocket service follows Hukanui Road and Peachgrove Road (with the exception of the Lydon Court bus hub), consideration should be given to providing bus stops on Hukanui Road outside Westfield Chartwell. This will allow the service to remain on Hukanui Road and utilise the future bus priority at the signalised Comries Road intersection proposed as part of Eastern Pathways. This will reduce delays to the service and improve cycle times by eliminating the turning movements and additional distance travelled along the route to cater for the stop at the Lydon Court bus hub.

7.3.2 Bus priority

It is understood that theEastern Pathways project will improve pedestrian and cyclist safety, and bus priority. This provides a good opportunity to improve bus journey times along the corridor. It is recommended that shifting the bus stops in-lane is considered as part of the Eastern Pathways.Additionally, as the Rocket will follow Hukanui Road and Peachgrove Road from Wairere Drive to Five Cross Roads, with the exception of the Lydon Court diversion (addressed in Section 7.3.1), the only intersections at which buses will be delayed are the Davies Corner intersection and the Five Cross Roads intersection. It is understood that Eastern Pathways will address the delay at the Davies Corner intersection as it is proposed to upgrade the existing roundabout to a signalised intersection with bus priority measures implemented. Similarly, subsequent phases of Eastern Pathways will address the operation of the Five Cross Road roundabout.

7.4 Part C – CBD Access

7.4.1 Bus stop infrastructure

Generally, the bus stops are located near safe crossing points and at good locations to cater for the employment catchment within the CBD. However, there is a large gap in coverage between the northern stops on Anglesea Street and the nearest Boundary Road stops on the east of the Waikato River.

Although there is currently no safe crossing point on Boundary Road near the existing bus stops, we understand that HCC have plans to construct a signalised crossing on Boundary Road near Casey Avenue. This will help facilitate safe crossing manoeuvres for pedestrian to access the currently underutilised stops on Boundary Road.

As the Rocket service is proposed to travel along Anglesea Street, it will follow the route of the Comet (another high-frequency service) to the Transport Centre. As the bus stops on Anglesea Street are generally at good locations and have been addressed as part of the previous Comet Public Transport Route Assessment, no further improvements to the bus stop infrastructure are recommended as part of this study.

Figure 7-3 illustrates the proposed relocations and improvements considered in the early option development stages. Of note, this included;

- Removing the unpaired stop outside 41 Boundary Road to improve spacing
- Providing a safe crossing facility near the existing bus stops at 7 & 10 Boundary Road (we understand that this is already planned by HCC)
- Providing near paired bus stops at the Mill Street / Victoria Street / Boundary Road intersection to improve stop spacing

and cater for the existing passengers that currently use the well-utilised, northernmost bus stops on Victoria Road

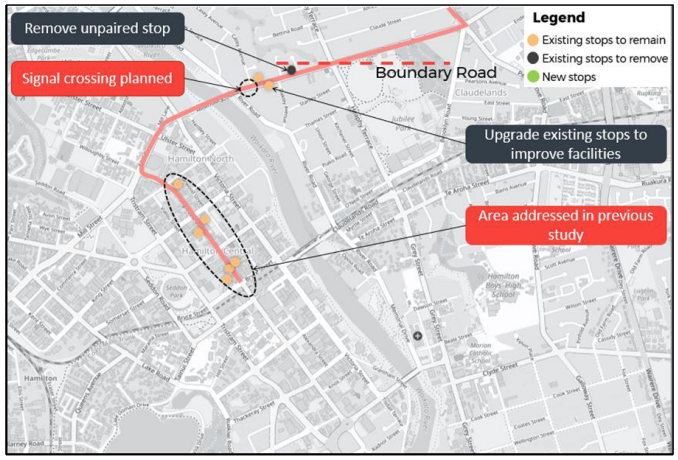


Figure 7-3: Part C option development summary

7.4.2 Bus priority

As the Rocket service is proposed to travel along Anglesea Street, it will follow the route of the Comet (another high-frequency service) to the Transport Centre. There will, therefore, be increased benefit to providing bus priority measures such as dedicated bus lanes or bus-jumps at the intersections along Anglesea Street. Bus priority measures are likely to have a negative impact on the operation of general traffic along Anglesea Street, therefore, it is recommended that further work is undertaken to determine the feasibility of providing bus priority measures along this section of the route.

8 Bus Stop Options Assessment

The following sub sections describe the existing stop locations, the preferred option proposed at each location and the key differentiating factors between them. These differentiating factors highlight a summary of the pros and cons of each option and the rational for selecting the preferred option. For more details on the other options investigated and the pros and cons of each, refer to Appendix C.

Refer to Appendix D for the preferred option concept designs. The concept designs illustrate shelters and hardstand at all bus stops where there is sufficient space, however, providing shelters at some locations will be a lower priority than at other locations. An example of this is the northbound stops at the northern section of the route; these bus stops are more likely to be the destination where a passenger alights from a bus as opposed to the beginning of a passenger's journey where they will wait at a bus stop for a bus to arrive. Refer to Section 10 for more information on the priority for investment.

8.1 Part A - Rototuna

8.1.1 Location A – 106 & 123 Wentworth Drive

The existing stops at 106 and 123 Wentworth Drive do not have hardstand, seats or shelters and the southbound stop is located directly across from the Waltham Place / Wentworth Drive intersection. It is proposed that the stops at this location are relocated to 102 and 109 Wentworth Drive and positioned so that they are tail to tail. Relocating the southbound stop outside 102 Wentworth Drive reduces the risk of buses at the southbound stop coming into conflict with turning vehicles at the Waltham Place / Wentworth Drive intersection. Additionally, it is recommended that a kerb let-down is provided on the

northbound side of Wentworth Drive, opposite the pedestrian walkway to Farringdon Avenue, to improve accessibility for mobility impaired users to cross Wentworth Drive.

8.1.2 Location B – Wentworth Drive near Farringdon Avenue

Currently, there are no existing stops on Wentworth Drive near Farringdon Avenue. This creates a large spacing of approximately 650m between the existing adjacent stops. This spacing is considerably greater than that of best practice (400m). It is proposed to provide a set of stops on Wentworth Drive outside 1 Wakefield Place and 2 Whitford Place in order to reduce the spacing between adjacent stops to approximately 300-350m. This proposed location positions the stops closer to the surrounding side streets which improves coverage on Farringdon Avenue, Whitford Place and Wakefield Place. We recommend upgrading the existing splitter island at the Farringdon Avenue roundabout to a pedestrian refuge in order to provide a safer crossing facility for pedestrians on Wentworth Drive.

8.1.3 Location C – 52 & 65 Wentworth Drive

The existing stops at 52 and 65 Wentworth Drive are at the Miers Glade pedestrian walkway, therefore, they are in an effective location to cater for passengers accessing the service from the nearby residential streets accessed by the walkway. There is currently no pedestrian crossing facility between the Miers Glade walkways and no kerb let-downs to cater for mobility impaired users to cross Wentworth Drive. We recommend providing kerb let-downs at each side of the Miers Glade walkway to better cater for pedestrians crossing the road. To facilitate this, we propose to shift the northbound stop to 61 Wentworth Drive.

8.1.4 Location D – 32 & 33 Wentworth Drive

The existing stops are currently positioned in close proximity to the adjacent stops to the north; approximately 220m. It is proposed that the stops in this location are shifted to 24 and 25 Wentworth Drive; improving coverage and spacing. By repositioning the stops, the coverage on the surrounding side streets such as Woodham Place and Innswood Place is improved. and the stop spacing is increased to more closely align with the best practice guidance of 400m.

8.1.5 Location E – 37 & 40 Cate Road

Bus boarding data indicates that the existing stops at 37 and 40 Cate Road are highly utilised, as such, they will be retained. It is recommended that the stops are upgraded to provide hardstand, seats and shelter.

8.1.6 Location F – 2 &5 Cate Road

Currently, the stops at this location are well utilised but have limited coverage for those who reside on Thomas Road. In the future, it is understood that the Orbiter route will shift from Thomas Road to Borman Road; reducing access to a bus service for residents on Thomas Road. It is proposed that the existing stops at 2 and 5 Cate Road are relocated closer to Thomas Road at 20 and 21/23 Cate Road. This relocation will allow the Rocket to accommodate the change in service of the Orbiter by minimising any adverse impact on access to a bus service for passengers who currently use the Thomas Road stops. By repositioning these stops nearer to Thomas Road it aligns the spacing between adjacent nearer to the 400 metres of best practice as opposed to the existing spacing.

8.1.7 Location G – 47 & 64 Callum Brae Drive

The existing location of the bus stops at 47 and 64 Callum Brae Drive provides a good walking catchment to the stops due to the proximity to Glenwarrick Court, Rototuna Road and Cairns Crescent Along Callum Brae Drive at present there is indented parking bays for majority of the road length with the current bus stops located within these indented parking bays. In order to reduce delays and improve priority to the bus service it is recommended that the kerb is built out at the bus stops to provide in-lane bus stops. There is an opportunity to utilise the existing kerb let down south of the stops and pair this with a new kerb let down on the eastern side of Callum Brae Drive. At this location it is proposed that the kerb is built out in the existing indented parking bay to reduce the crossing distance required for pedestrians.

It should be noted that there is a potential implementation risk when trying to provide a shelter in the northbound direction directly outside 47 Callum Brae Drive as vegetation at the property appears to encroach into the road reserve. An alternative location for the shelter is in front of 45 Callum Brae Drive.

8.1.8 Location H – 19 & 44 Callum Brae Drive

There is currently a large distance (approximately 70m) between the existing northbound and southbound stops at 19 and 44 Callum Brae Drive which results in the reduced legibility of the service. In addition to this, the existing stops are midblock between two intersections and adjacent to a park, therefore, only cater to a small walking catchment. It is proposed to shift the existing stops further south on Callum Brae Drive to outside 1 Cairns Crescent and opposite 24 Callum Brae Drive. This would increase the legibility of the stops as they are located closer together but also improves the walking catchment on Cairns Crescent to the stops. As part of this proposal, it is recommended to construct a splitter island on Cairns Crescent with a pedestrian refuge cut in the middle and relocate the existing kerb let downs on Cairns Crescent to align with the pedestrian refuge, improving the safety for pedestrians crossing Cairns Crescent between the stops.

8.1.9 Location I – 5 & 10 Callum Brae Drive

Currently, the stops in this location have poor spacing from the adjacent stops to the north and the south (150-250m) and the bus boarding data indicates they have poor utilisation. The preferred option is to remove these stops, reducing delay to the service by reducing the number of bus stops along the route.

8.1.10 Location J – 371 & opp 373 Hukanui Road

At present there are no crossing facilities on Hukanui Road near the bus stops located at 371 and opposite 373 Hukanui Road. Due to the large traffic volumes on Hukanui Road it is proposed that a pedestrian facility is provided between the bus stops to provide for safe crossing manoeuvres. Following the crossing selection flowchart within the Waka Kotahi draft pedestrian network guidance, the types of crossing facility appropriate for the site are either a signalised crossing or pedestrian refuge. As illustrated in Figure 8-1, a pedestrian refuge allows for an excellent or very good level of delay to pedestrians[5]. As such, it is recommended that a pedestrian refuge is provided between the bus stops as

[5] This graph assumes a kerb-to-kerb width of 14m, where Hukanui Road is <12m. Therefore, expected to have less delay to pedestrians due to the reduced crossing distance

this level of crossing facility aligns with the remainder of Hukanui Road to the north.

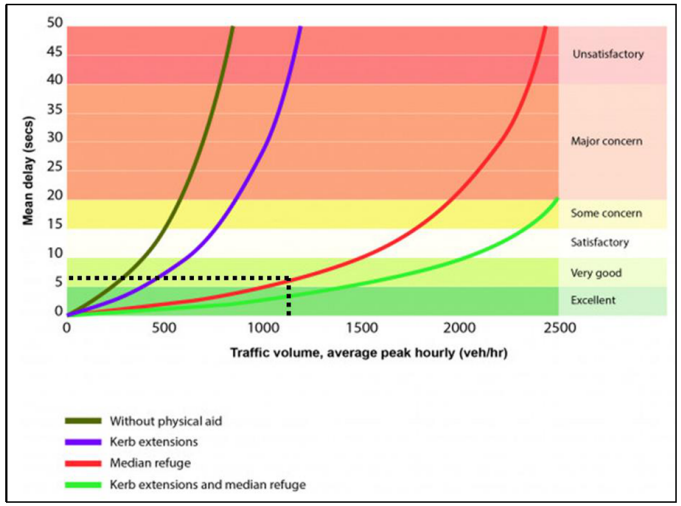


Figure 8-1: Mean waiting delay for pedestrians crossing on a two-lane, two-way urban road (uninterrupted flow) - 14m kerb-to-kerb width

In order to provide this crossing facility between the bus stops, it is proposed that the existing stops are shifted to 375 and opposite 371 Hukanui Road so that they are tail-to-tail of the intersection.

[6] "Kiss and ride" is a term used to describe a facility where passengers can be dropped off by private vehicles or ride-sharing services to interchange to the public transport service

8.1.11 *Location K – 343 & opp 343 Hukanui Road*

Currently, the stops in this location are poorly utilised and have a limited catchment due the surrounding environment. There are no pedestrian crossing facilities on Hukanui Road near the stops and due to the vertical and horizontal curves at the site, limitations regarding the implementation of a pedestrian facility in this location. It is proposed to remove these stops, reducing delay to the service by reducing the number of bus stops along the route.

8.2 Part B – Chartwell

8.2.1 *Location L – Wairere Drive / Hukanui Road*

The existing bus stops on Hukanui Road, directly south of the Wairere Drive roundabout are indented stops that the stakeholder group identified as a potential "kiss and ride" facility[6]. Due to the large, indented bus stops and the additional open space within the road reserve, there is sufficient room to provide a drop-off / pick-up space in addition to the bus stop in each direction as illustrated in Figure 8-2. In addition to being used as a kiss and ride facility, there is also the potential for this location to be an interchange between demand responsive services and the frequent Rocket bus route. As such, the concept design prepared is able to cater for a 6.5m van entering and exiting the drop-off / pick-up space. The existing northbound stop can cater for the additional drop-off / pick-up space without the need to alter kerb, however, the southbound stop needs to be extended to the north.

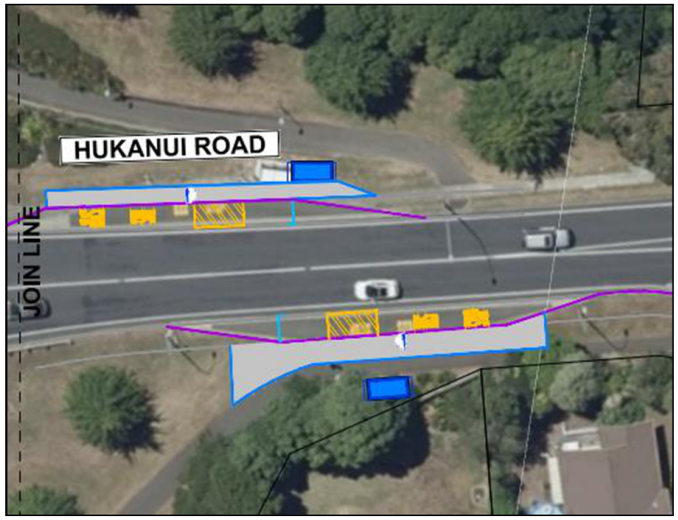


Figure 8-2: Kiss and ride concept design

Due to its proximity to the cycling paths at Wairere Drive and through the nearby residential areas, cycle storage facilities could be considered at this stop location to encourage the interchange between the cycle network and the frequent Rocket bus route. This may provide a viable option for residents on Huntington Drive and in the surrounding area to access a high frequency bus route into the CBD.

We recommend that providing a kiss and ride facility and cycle storage at this bus stop location is considered further, where signage, markings and education describing the use of the kiss and ride facility is likely to improve the operation and utilisation of the facility. Any signage, markings and education should be consistent for future kiss and ride facilities across Hamilton City.

8.2.2 Location M – 248 & 249 Hukanui Road

The existing stops at 248 and 249 Hukanui Road are located well to cater for Hukanui Primary School. They are within 100 m of a signalised crossing on Hukanui Road with the spacing to the adjacent stops approximately 400 m, aligning with best practice guidelines. Currently the northbound stop has seats, shelter and hardstand, however, the southbound stop does not have seats or a shelter. It is assumed that there will be major works along Hukanui Road and Peachgrove Road in the future to provide safe walking and cycling facilities as it forms part of Eastern Pathways. As such, it is recommended that the existing stops are upgraded to include seats, shelters and hardstand during detailed design of the Hukanui Road walking and cycling upgrades. To help improve priority to the buses and minimise delays to the service it is recommended that the bus stops are shifted to in-lane stops.

8.2.3 Location N – Lynden Court / Hukanui Road

The Lyndon Court bus hub currently caters well for bus trips to the Westfield shopping centre and for passengers to interchange between bus routes. However, will require buses to turn from Hukanui Road at both the Lydon Court and Comries Road intersections; increasing delay to the service. We understand that a recommendation from Eastern Pathways is to signalise the existing give-way controlled Comries / Hukanui with bus priority on the Hukanui Road approaches as illustrated in Figure 8-3.

Figure 8-3: Eastern Pathways preferred concept for Comries / Hukanui intersection

If these intersection improvements are implemented at the Comries / Hukanui intersection, we recommend that the Rototuna Rocket bus stops are relocated from Lyndon Court to Hukanui Road at the Westfield shopping centre; eliminating turning manoeuvres and maximising the use of bus priority measures. Consideration should be given to the location of these stops to ensure passengers are able to interchange efficiently and safely with other routes at the Lydon Court bus hub, or to whether all bus routes should utilise bus stops on Hukanui Road as opposed to Lydon Court in the future.

Until the proposed upgrade to the Comries / Hukanui intersection is confirmed, it is recommended that the Rototuna Rocket bus stops remain at the current location on Lynden Court.

8.2.4 Location O – Hukanui Road (near Chedworth Ave / Dalmont Place)

Currently, there are no bus stops located between the stops at Lynden Court and those located outside Saint Pauls Collegiate; a gap of 1.1 – 1.3 km. To improve the spacing between adjacent stops and and improve coverage, it is recommended that a set of paired bus stops is implemented near the Chedworth Avenue and Dalton Place intersections to maximise coverage on the side-roads. It is also recommended that crossing facilities are provided on Hukanui Road near the proposed bus stops. The exact location of the bus stops and the crossing facility should be determined during detailed design of the Hukanui Road walking and cycling upgrades as part of Eastern Pathways.

8.2.5 Location P – Hukanui Road (near Crosby Road / Tongariro Street)

Currently, there are no bus stops located between the stops at Lynden Court and those located outside Saint Pauls Collegiate; a gap of 1.1 – 1.3 km. To improve the spacing between adjacent stops and and improve coverage, it is recommended that a set of paired bus stops is implemented near the Crosby Road and Tongariro Street intersections to maximise coverage on the side-roads. It is also recommended that crossing facilities are provided on Hukanui Road near the proposed bus stops. The exact location of the bus stops and the crossing facility should be determined during detailed design of the Hukanui Road walking and cycling upgrades as part of Eastern Pathways.

8.2.6 Location Q – 52 & 74 Hukanui Road (outside Saint Pauls Collegiate)

The existing stops are located well to cater for St Paul Collegiate, however, the closest pedestrian crossing facility on Hukanui Road is greater than 250 m away. It is assumed that there will be major works along Hukanui Road and Peachgrove Road in the future to

provide safe walking and cycling facilities as it forms part of Eastern Pathways. As such, it is recommended that the existing stops are upgraded to include seats, shelters and hardstand and a crossing facility is provided on Hukanui Road during detailed design of the Hukanui Road walking and cycling upgrades. To help improve priority to the buses and minimise delays to the service it is recommended that the bus stops are shifted to in-lane stops.

8.2.7 Location R – Davies Corner

There is currently approximately 60 m between the existing northbound and southbound bus stops near Davies Corner and the bus stops are also less than 200 m from the adjacent stops to the north. Recommendations from Eastern Pathways are that the Davies Corner intersection is upgraded to a signalised intersection with the bus stops located at the intersection. It is recommended that prior to the upgrade of the Davies Corner intersection, the bus stops near Davies Corner are retained in the existing location.

8.2.8 Location S – 356 & 359 Peachgrove Road (near Holland Road)

The existing bus stops are located well to cater for the Holland Road and Mardon Road walking catchments and have seats, shelters and hardstand. There is also an existing pedestrian refuge on Pechgrove Road within 70 m of the stops. It is assumed that there will be major works along Hukanui Road and Peachgrove Road in the future to provide safe walking and cycling facilities as it forms part of Eastern Pathways. To help improve priority to the buses and minimise delays to the service it is recommended that the bus stops are shifted to in-lane stops during detailed design of the Peachgrove Road walking and cycling upgrades. There is an opportunity to shift the existing pedestrian refuge on Peachgrove Road closer to the bus stops, however, consideration should be given to the location of pedestrian desire lines in the vicinity of the stops.

8.2.9 Location T – 255 & 272 Peachgrove Road (near Five Cross Roads)

Currently, the bus stops at this location cater well for the employment centre at Five Cross Roads, with a zebra crossing on Peachgrove Road within 60 m of the stops. It is assumed that there will be major works along Hukanui Road and Peachgrove Road in the future to provide safe walking and cycling facilities as it forms part of Eastern Pathways. To help improve priority to the buses and minimise delays to the service it is recommended that the bus stops are shifted to in-lane stops during detailed design of the Peachgrove Road walking and cycling upgrades.

8.2.10 Location U – Boundary Road / Heaphy Terrace Intersection

Between the existing bus stops at Five Cross Roads and those located near Whitiora Bridge there is a gap of approximately 1.3 km. To improve the spacing between adjacent stops it is recommended that a set of paired bus stops are provided near the Heaphy Road and Boundary Road intersection. Hamilton City Council have noted that there is the potential for the intersection of Heaphy Terrace and Boundary Road intersection to be upgraded from the existing roundabout to a signalised intersection. However, we understand this project is currently unfunded at this stage. To maximise the catchment for the stops it is recommended that two stops are placed as close to the intersection as possible.

Boundary Road is identified as a cross city connector within the HCC biking and micromobility plan, as such, cycle facilities are expected along the corridor in the future. This may affect the form and location of the bus stops at this intersection as it will be

necessary to ensure safe interaction between cyclists, buses and vehicles in the future. However, we understand that there is major work required (land acquisition and kerb realignment) to facilitate this and it is not expected to be implemented in the short term.

8.3 Part C – CBD Access

8.3.1 Location V – 41 Boundary Road

Currently, there is only a single stop in this location in the northbound direction, this unpaired stop has poor spacing (<200 m) from the adjacent stops to the west. It is recommended that the existing unpaired bus stop is removed.

8.3.2 Location W – 7 & 10 Boundary Road

Currently, the existing stops are in a good location along the western side of Boundary Road and provide good coverage to the nearby Casey Avenue. The nearest crossing facility on Boundary Road to the existing stops is a pedestrian refuge approximately 50 m away, however, we understand that HCC has plans to construct a signalled pedestrian crossing on Boundary Road near Casey Avenue by the end of 2021. By improving the crossing facility near the stops it is likely that utilisation of the stops will improve as it will become easier for pedestrians to cross Boundary Road. It is recommended that the existing bus stops are upgraded to provide seats and shelters in both directions, however, the footpath on both sides of Boundary Road is narrow which may result in difficulty providing a shelter without adversely affecting pedestrian accessibility along the footpath.

8.3.3 Location X – Mill Street / Victoria Street / Boundary Road Intersection

With the proposed relocation of the route in the CBD from Victoria Street to Anglesea Street, there are currently no bus stops between Whitiora Bridge and the northern stops on Anglesea Street. This would leave a gap in coverage on the route of approximately 1.1km between adjacent stops. As identified in the problems and opportunities phase of the assessment, the existing bus stops on Victoria Street near the Mill Street Intersection are well utilised. Relocating the route within the CBD to Anglesea Street will remove these stops, therefore, it was considered how bus stops could be provided on Mill Street to improve the coverage of the route and cater to the catchment of the existing well-utilised stops on Victoria Street.

Three options were considered for providing stops on Mill Street (refer to Appendix C), however, option 2 and option 3 were discounted due to their proximity to the left-turn slip-lanes at PaknSave and the Willoughby Street / Mill Street intersection. These had safety concerns that vehicles would attempt to overtake stopped buses by changing lanes at a constrained location between signalised intersections where traffic volumes are high. In addition, there is a lack of safe crossing point between the stops which may result in pedestrians crossing Mill Street in an unsafe manner.

It is proposed that bus stops are provided tail-to-tail of the Mill Street / Victoria Street / Boundary Road Intersection. Providing bus stops tail-to-tail of the intersection means that the bus stops are downstream of the signalised intersection which aligns with best practice guidance. There are signalised crossings on all four legs of the intersection. However, the southbound stop cannot fit a shelter due to a narrow footpath and the proximity to the property boundary.

Boundary Road and Mill Street are both identified as cross city connectors within the HCC biking and micromobility plan, as such, cycle facilities are expected along the corridor in the future. This may affect the form and location of the bus stops at this

intersection as it will be necessary to ensure safe interaction between cyclists, buses and vehicles in the future. However, we understand that there is major work required (land acquisition and kerb realignment) to facilitate this and it is not expected to be implemented in the short term. We recommend that tail-to-tail bus stops are provided at the Mill Street / Victoria Street / Boundary Road Intersection to facilitate the implementation for the Rocket service, with the interaction between cyclists and buses at the bus stops to be considered when the cross city connector route is established.

9 Cost Estimation

A project cost estimate has been prepared for the preferred option and is presented below:

Item	Description	Base Estimate	Contingency	Funding Risk
A	**Nett Project Property Cost**	-	-	-
	Project Development Phase			
	· **Consultancy Fees**			
	· **NZTA Managed Costs**			
B	**Total Project Development**	-	-	-
	Pre-Implementation Phase			
	· **Consultancy Fees**	95,000		
	· **NZTA Managed Costs**	30,000		
C	**Total Pre-implementation**	125,000	38,000	25,000
	Implementation Phase			
	Implementation Fees			
1.1	· **Consultancy Fees**	95,000		
1.2	· **NZTA Managed Costs**	12,000		
1.3	· **Consent Monitoring Fees**	6,000		
	Sub Total Base Implementation Fees	113,000	34,000	23,000
	Physical Works			
1	Environmental Compliance	7,100		
2	Earthworks	15,200		
3	Ground Improvements	0		
4	Drainage	34,600		
5	Pavement and Surfacing	0		
6	Bridges	0		
7	Retaining Walls	0		
8	Traffic Services	17,900		
9	Service Relocations	60,000		
10	Landscaping	664,600		
11	Traffic Management and Temporary Works	215,000		
12	Preliminary and General	170,300		
13	Extraordinary Construction Costs	0		
	Sub Total Base Physical Works	1,185,000	355,000	254,000
D	**Total construction**	1,298,000	389,000	277,000
E	**Project base estimate** (A+C+D)	1,423,000		
F	**Contingency** (Assessed/Analysed)	(A+C+D)	427,000	
G	**Project expected estimate**	(E+F)	1,850,000	
Nett Project Property Cost Expected Estimate			0	
Project Development Phase Expected Estimate			0	
Pre-implementation Phase Expected Estimate			163,000	
Implentation Phase Expected Estimate			1,687,000	
H	**Funding risk** (Assessed/Analysed)		(A+C+D)	302,000
I	**95th percentile Project Estimate**		(G+H)	2,150,000
Project property cost 95th percentile estimate				0
Investigation and reporting 95th percentile estimate				0
Design and project documentation 95th percentile estimate				188,000
Construction 95th percentile estimate				-

10 Conclusion and Recommendations

Vision

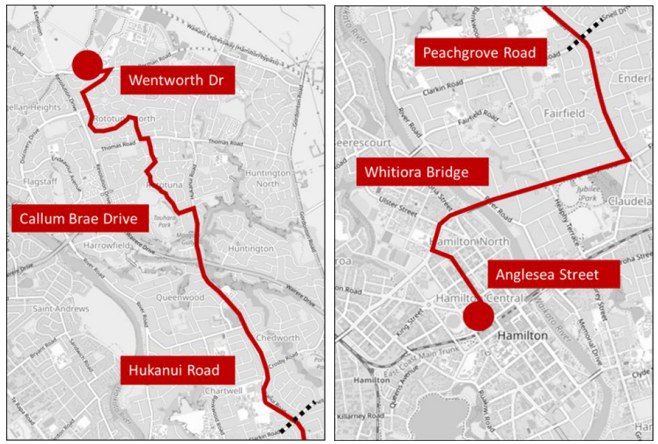
This study has considered specific network issues and infrastructure opportunities for the future proposed Rototuna Rocket service; a high frequency service between the Rototuna Village and the Transport Centre within the CBD. A key part of this study was determining the preferred route that the Rocket service would follow from Rototuna to the CBD. To help frame the objectives of the service, the following vision statement was produced in consultation with the project partners:

A fast, reliable and easy to use service that encourages uptake of public transport.

By aligning with the vision statement, this study endeavore to help provide capacity to the network between Rototuna and the CBD for further population growth and development by moving commuters out of cars and onto public transport, creating more liveable urban areas and a healthier environment.

Preferred Route Option

Through the route assessment it was determined that the Rocket service should follow the route as illustrated in the following figures. This route provides good coverage through the residential catchment in Rototuna and then follows Hukanui Road and Peachgrove Road down until Boundary Road before crossing the Whitiora Bridge and travelling into the CBD via Anglesea Street.



Rototuna bus hub

Future development of a bus turn-around and driver break facility will allow Rocket buses to turn around at the end of their route. However, we understand there are complications with the location of the proposed turn-around and driver break facility which may affect the proposed 2023 completion timeline. As the Rocket service is unlikely to be implemented prior to 2023, we recommend that:

- Prior to the implementation of the Rocket, the 16 route continues to terminate at the Rototuna North shops
- An interim option of utilising the swimming pool carpark off Turakina Rise as a turn-around and driver break facility is explored further with the HCC project team involved in the Rototuna Village development

- The timing for implementation of the Rocket is coordinated with the implementation of the proposed bus turn-around and driver break facility at Rototuna Village

Bus Priority

There are primarily two causes for delay to buses along a route; delay at stops and delay at intersections. To minimise the delay to buses at stops, it is recommended that the bus stops on the higher-volume roads such as Hukanui Road, Peachgrove Road, Boundary and Mill Street are shifted in-lane. Further consideration should be given to the operation of buses through the Callum Brae Drive / Hukanui Road intersection as they are required to turn right in the southbound direction. It is expected that the proposed upgrades to the Comries / Hukanui intersection, Davies Corner intersection and Five Cross Roads as part of Eastern Pathway are likely to reduce delay to buses and improve the efficiency of the service.

Bus infrastructure improvements

The recommendations for improving supporting infrastructure in this report are based on best practice guidance and the focus was to ensure bus stops are appropriately spaced (e.g. approximately 400m between stops), located near transfer points and major trip generators, and located close to side roads where possible to increase the walking catchment covered by each stop. Other considerations included:

- Bus stops located near intersections or pedestrian accessways;
- Bus stops ideally in pairs (tail to tail); and
- Located where there are safe sight lines for approaching vehicles and bus drivers.

This has been applied through the optioneering process and deviations from this have been explained. In certain situations, the ability to achieve all criteria has been limited by physical constraints along the corridor. Overall, the preferred infrastructure options were assessed to meet the overall objectives of the project.Concept designs were completed for the preferred route illustrating proposed bus infrastructure upgrades. Table 10-1, Table 10-2 and Table 10-3 summarise the recommended options identified throughout the route and provides comment on how priority should be given to the improvements. For the purpose of this exercise, the level of priority for each option has simply been ranked low, medium or high.

When determining the level of priority for each option, we have used the following principles:

- Infrastructure improvements that would also benefit the existing service (prior to implementation of the Rocket) are ranked as high priority;
- Improvements within Hukanui Road and Peachgrove Road recommended to be designed as part of Eastern Pathways are ranked as high priority;
- Improvements to crossing facilities are ranked as high priority;
- Relocating stops within Part A are ranked as medium priority as there is some uncertainty around the timing of the implementation of the Rocket;
- If existing stops are retained, upgrading the existing stops to full facilities is ranked as low priority;
- Northbound shelters near the northern terminus of the route within Rototuna are low priority as the passenger demand is expected to be low.

Table 10-1: Part A – Preferred options and priority

Location	*Description*	*Interventions*	*Priority*
Part A			
A	106 & 123 Wentworth Drive	- Relocation of both stops and provide in lane stops configured tail to tail; northbound stop relocated from 123 Wentworth Drive to 119 Wentworth Drive. Southbound stop relocated from 106 Wentworth Drive to 102 Wentworth Drive - Provide full facilities at both stops; o Northbound requires seats, shelter, hardstand to provide full facilities o Southbound requires seats, shelter, hardstand to provide full facilities - Tree replacement at northbound stop - Provide additional kerb let down on the northbound side of Wentworth Drive to align with the existing on southbound side of Wentworth Drive.	Medium
B	Wentworth Drive near Farringdon Avenue	- Two new in lane bus stops configured tail to tail; northbound stop located at 1 Whitford Place and southbound located at 74 Wentworth Drive - Provide full facilities at both stops; o Northbound requires seats, shelter, hardstand to provide full facilities o Southbound requires seats, shelter, hardstand to provide full facilities - Potential to provide a safer crossing facility by upgrading the existing splitter to include cut to act as a pedestrian refuge	Medium
C	52 & 65 Wentworth Drive	- Retain existing southbound stop at this location - Relocate northbound stop to 61 Wentworth Drive to facilitate providing kerb let-downs at the Miers Glade walkway	Low

		- Provide full facilities at both stops;
		  o Northbound requires seats, shelter, hardstand to provide full facilities
		  o Southbound requires hardstand to provide full facilities
		- Construct kerb let downs on either side of Wentworth Drive at the Miers Glade walkway	

D	32 & 33 Wentworth Drive	- Relocation of both stops and provide in lane stops configured tail to tail; northbound stop relocated from 33 Wentworth Drive to 25 Wentworth Drive. Southbound stop relocated from 32 Wentworth Drive to 24 Wentworth Drive
		- Provide full facilities at both stops;
		  o Northbound requires seats, shelter, hardstand to provide full facilities
		  o Southbound requires seats, shelter, hardstand to provide full facilities
			Medium

E	37 & 40 Cate Road	- Retain existing stops at this location
		- Provide full facilities at both stops;
		  o Northbound requires seats, shelter, hardstand to provide full facilities
		  o Southbound requires seats, shelter, hardstand to provide full facilities
			Low

F	2 & 5 Cate Road	- Relocation of both stops and provide in lane stops; northbound stop relocated from 5 Cate Road to 21/23 Cate Road. Southbound stop relocated from 2 Cate Road to 20 Cate Road
		- Provide full facilities at both stops;
		  o Northbound requires seats, shelter, hardstand to provide full facilities
		  o Southbound requires seats, shelter, hardstand to provide full facilities
			Medium

G	47 & 64 Callum Brae Drive	- Retain existing stops at this location - Build out indented parking bay at bus stop locations to provide in line stops	Low

		- Potential to provide a safer crossing facility by constructing a new kerb let down on the eastern side and aligning it with the existing kerb let down south of the stops - Provide full facilities at both stops; o Northbound requires seats, shelter, hardstand to provide full facilities o Southbound requires seats, shelter, hardstand to provide full facilities	
H	19 & 44 Callum Brae Drive	- Relocation of both stops and provide in lane stops located on the approach to Cairns Cresent; northbound stop relocated from 19 Callum Brae Drive to opp 24 Callum Brae Drive. Southbound stop relocated from 44 Callum Brae Drive to 1 Cairns Crescent - Construct a splitter island on Cairn Crescent with pedestrian refuge and relocate the existing kerb let downs to align with the refuge - Provide full facilities at both stops; o Northbound requires seats, shelter, hardstand to provide full facilities o Southbound requires seats, shelter, hardstand to provide full facilities	Medium
I	5 & 10 Callum Brae Drive	- Removal of stop due to low utilisation and poor spacing between adjacent stops	Medium
J	371 & opp 373 Hukanui Road	- Relocation of both stops and provide in lane stops configured tail to tail; northbound stop relocated from 371 Hukanui Road to 375 Hukanui Road. Southbound stop relocated from opp 373 Hukanui Road to opp 371 Hukanui Road - Provide full facilities at both stops; o Northbound requires seats, shelter, hardstand to provide full facilities o Southbound reinstate full facilities - Provide a pedestrian refuge on Huknaui Road between the stops	High

K	343 & opp 343 Hukanui Road	- Removal of stop due to low utilisation and poor spacing between adjacent stops	Medium

Table 10-2: Part B – Preferred options and priority

Location	*Description*	*Interventions*	*Priority*
Part B			
L	Wairere Drive / Hukanui Road	- Retain existing stop location - Further investigation of a kiss and ride facility and cycle storage at this location. Any signage, markings and education should be consistent for future kiss and ride facilities across Hamilton City.	Low
M	248 & 249 Hukanui Road	- Retain existing stop location - Shift bus stops in-lane - Provide full facilities at both stops; o Southbound stop requires seats and shelter	High (to be addressed by Eastern Pathways)
N	Lynden Court / Hukanui Road	- Retain existing stop location in the short term - After completion of Comries Road/Hukanui Road intersection upgrade, relocate bus stops to Hukanui Road. The location of these bus stops should be investigated as part of Eastern Pathways to ensure passengers are able to interchange efficiently and safely with other routes at the Lydon Court bus hub, or to whether all bus routes should utilise bus stops on Hukanui Road as opposed to Lydon Court in the future	High (to be addressed by Eastern Pathways)
O	Hukanui Road (near Chedworth Ave / Dalmont Place)	- Provide a set of paired bus stops on Hukanui Road near the Chedwoth Avenue and Dalmont Place intersections o Bus stops should be in-lane	High (to be addressed by Eastern Pathways)

		- Provide a crossing facility on Hukanui Road near the bus stops	
P	Hukanui Road (near Crosby Road / Tongariro Street)	- Provide a set of paired bus stops on Hukanui Road near the Crosby Road and Tongariro Street intersections o Bus stops should be in-lane - Provide a crossing facility on Hukanui Road near the bus stops	High (to be addressed by Eastern Pathways)
Q	52 & 74 Hukanui Road (outside Saint Pauls Collegiate)	- Retain existing stop location - Shift bus stops in-lane - Provide full facilities at both stops; o Northbound stop requires seats, shelter and accessible kerb - Provide a crossing facilitly on Hukanui Road near the bus stops	High (to be addressed by Eastern Pathways)
R	Davies Corner	- Retain existing stop location in the short term - Recommendation as per Eastern Pathways to relocate existing bus stops to the Clarkin Road / Hukanui Road intersection when it is upgraded to a signalised intersection	High (to be addressed by Eastern Pathways)
S	356 & 359 Peachgrove Road (near Holland Road)	- Retain existing stop location - Shift bus stops in-lane	High (to be addressed by Eastern Pathways)
T	255 & 272 Peachgrove Road (near Five Cross Roads)	- Retain existing stop location - Upgrades of bus stop infrastructure and crossing facilities near the stops to be addressed within Eastern Pathways project	High (to be addressed by Eastern Pathways)
U	Boundary Road / Heaphy Terrace Intersection	- Provide two new in-lane bus stops configured tail to tail; to be located to the east of the Heaphy Terrace and Boundary Road intersection but close proximity to the intersection	Low (dependent on upgrade to

		- Consideration regarding bus stop and cycling facilities as Boundary Road is recognised as HCC cross city connector - Provide full facilities at both stops	Heaphy Terrace / Boundary Road intersection)

Table 10-3: Part C – Preferred options and priority

Location	*Description*	*Interventions*	*Priority*
Part C			
V	41 Boundary Road	- Removal of unpaired stop due to low utilisation and poor spacing between adjacent stops	High
W	7 & 10 Boundary Road	- Retain existing stops at this location - Provide full facilities at both stops; o Northbound requires seats, shelter and accessible kerb o Southbound requires seats, shelter and accessible kerb - Consideration regarding bus stop and cycling facilities as Boundary Road is recognised as HCC cross city connector	Low
X	Mill Street / Victoria Street / Boundary Road Intersection	- Two new in lane bus stops configured tail to tail; to be located on the downstream of Boundary Road at the Mill Street / Victoria Street / Boundary Road intersection - Consideration regarding bus stop and cycling facilities as Boundary Road is recognised as HCC cross city connector - Provide facilities at both stops; o Northbound requires seats, shelter, hardstand to provide full facilities	High

		○ Southbound requires hardstand. Unlikely to be sufficient width to provide seats and shelter at the soutbound stop	

Appendix A
Problems and opportunities presentation

Appendix B
Route MCAs

Appendix C
Steering Group meeting presentation slides – 1 October 2021

Appendix D
Preferred option – concept designs

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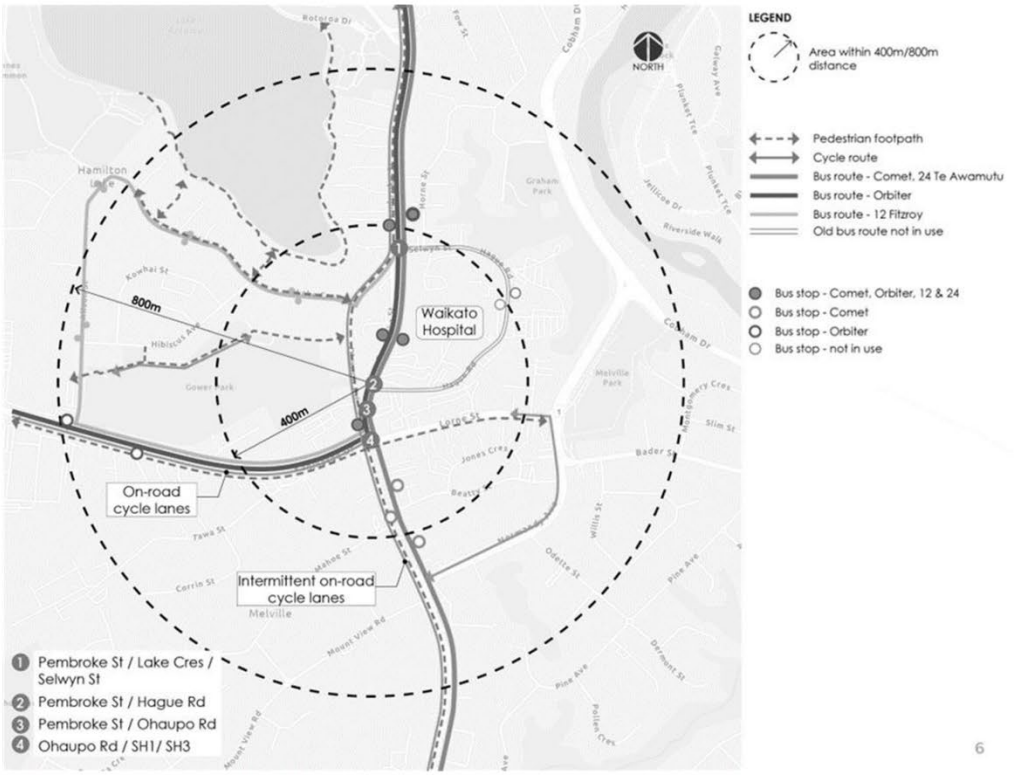
Project Number: 2-WLASS.DN

Waikato Hospital Public Transport Assessment

Final Report

28 February 2022

CONFIDENTIAL



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Revision Details

Revision	Details
Version 1	Draft final report for the client to review

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Disclaimers and Limitations

This report ('**Report**') has been prepared by WSP exclusively for Hamilton City Council ('**Client**') in relation to the option investigation and concept design for the Waikato District Health Board (DHB) public transport improvement assessment ('**Purpose**') in accordance with the Consultancy Services Framework Agreement with the Client dated 24th December 2014. The findings in this Report are based on and are subject to the assumptions specified in the Report and Offer of Services dated 6th July 2021. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

In preparing the Report, WSP has relied upon data, surveys, analyses, designs, plans and other information ('**Client Data**') provided by or on behalf of the Client. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable in relation to incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented, or otherwise not fully disclosed to WSP.

1 Introduction

WSP has been engaged by Hamilton City Council (HCC) to undertake an assessment and concept design of the existing public transport (PT) infrastructure arrangements in the vicinity of Waikato Hospital.

The purpose of the study is to assess public transport infrastructure in the area and understand the infrastructure requirements and potential investment needed to improve both service reliability and levels of service for customers. The overall study objective is to identify specific issues and infrastructure opportunities. The study will help inform the long-term future planning for public transport in this key area of the city.

The proposed study area is highlighted below and includes land within the control of Waikato DHB and the nearby State Highway network. The study area is the transport network around Waikato Hospital and the land within the control of the Waikato DHB and the nearby State Highway network and is shown in Figure 1-1. The locations of the four study intersections are shown on the map and listed below:

- Site 1 – Pembroke St / Lake Cr / Selwyn St Intersection
- Site 2 – Pembroke St / Hague Rd Intersection
- Site 3 – Pembroke St / Ohaupo Rd Intersection
- Site 4 – Ohaupo Rd / SH1 / SH3 Intersection

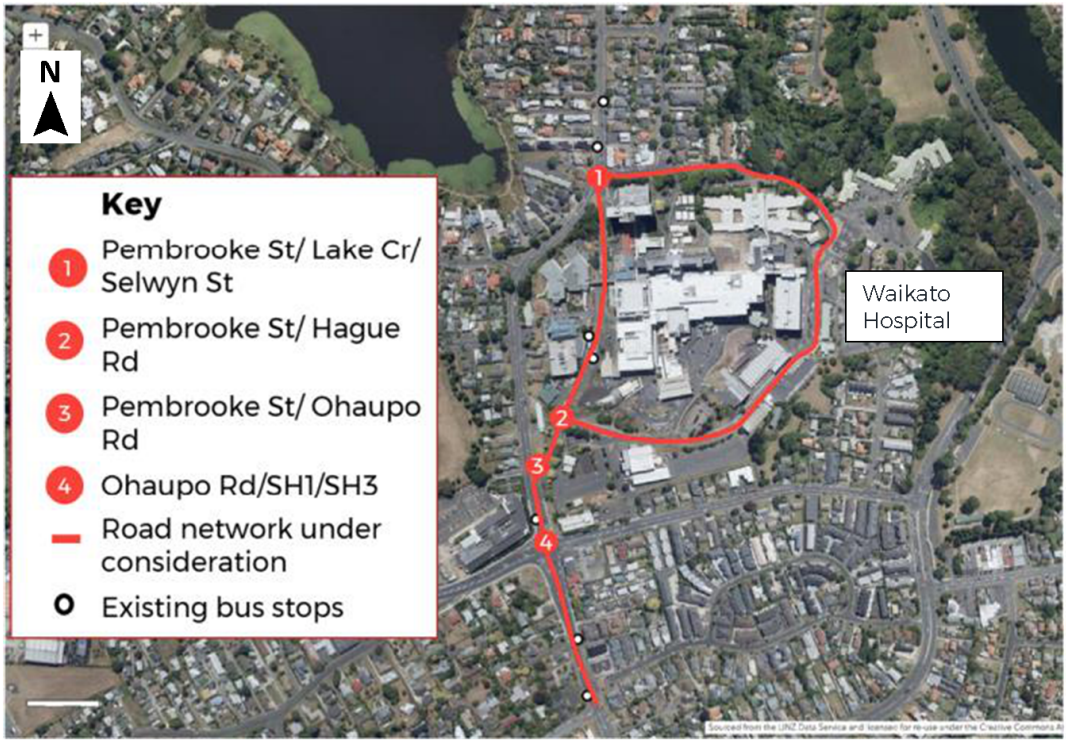


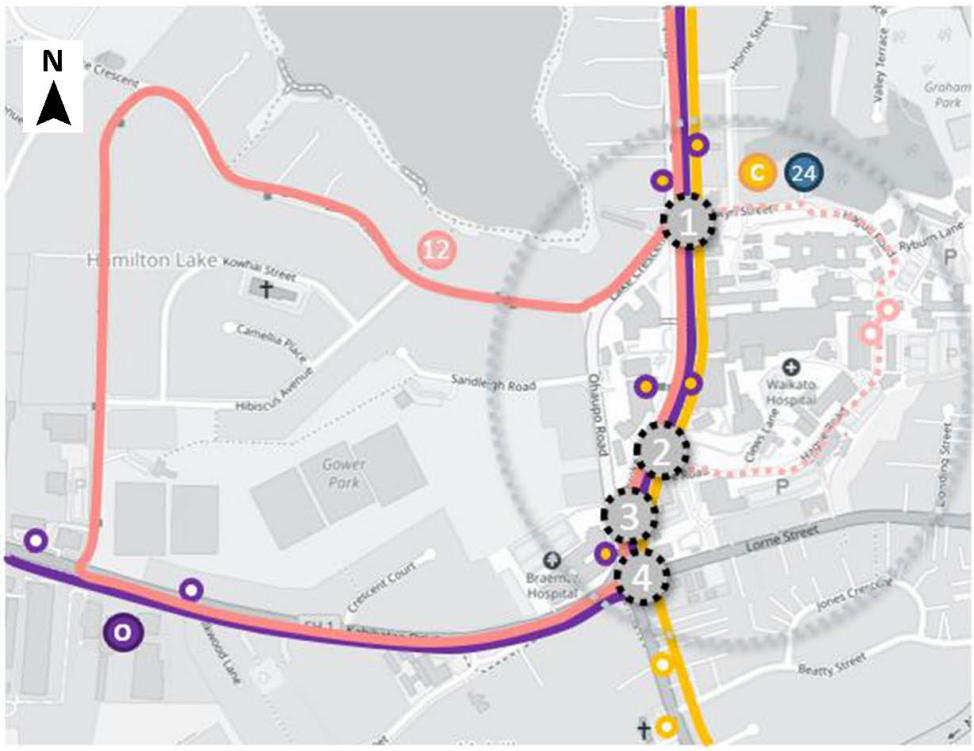
Figure 1-1 Study Area

1.1 Scope

The scope of this study including (Figure 1-2):

- PT infrastructure requirements
- Intersection and access assessment

- Crash analysis of the intersections
- Walking, cycling and mobility accessibility
- Emergency vehicle access assessment



Public Transport

- C – Comet
- O – Orbiter
- 12 - Fitzroy
- 24 – Te Awamutu

Four Intersections

- Pembrooke St/ Lake Cr/ Selwyn St
- Pembrooke St/ Hague Rd
- Pembrooke St/ Ohaupo Rd
- Ohaupo Rd/SH1/SH3

Figure 1-2 Study Scope

2 Background – Bus Infrastructure

2.1 Site

Currently, there are 4 existing bus services that operate within a 800 metre radius of Waikato Hospital (Figure 2-1). The Comet and Orbiter routes are on Hamilton's frequent service network and act as a great connection for those wanting to travel between the southern suburbs, such as Glenview, to the northern suburbs, such as Te Rapa, through the CBD in a direct route. These routes also provide the ability to travel to these via the outer CBD suburbs located on the eastern and western sides of Hamilton. A regional service between Hamilton and Te Awamutu also operates through the Waikato Hospital, providing a connection for those living in the southern towns such as Te Awamutu and Kihikihi. The fourth bus service is 12-Fitzroy and this service only provides a limited service to Waikato Hospital in that it only operates through the site on weekends and after 7 pm weekdays.

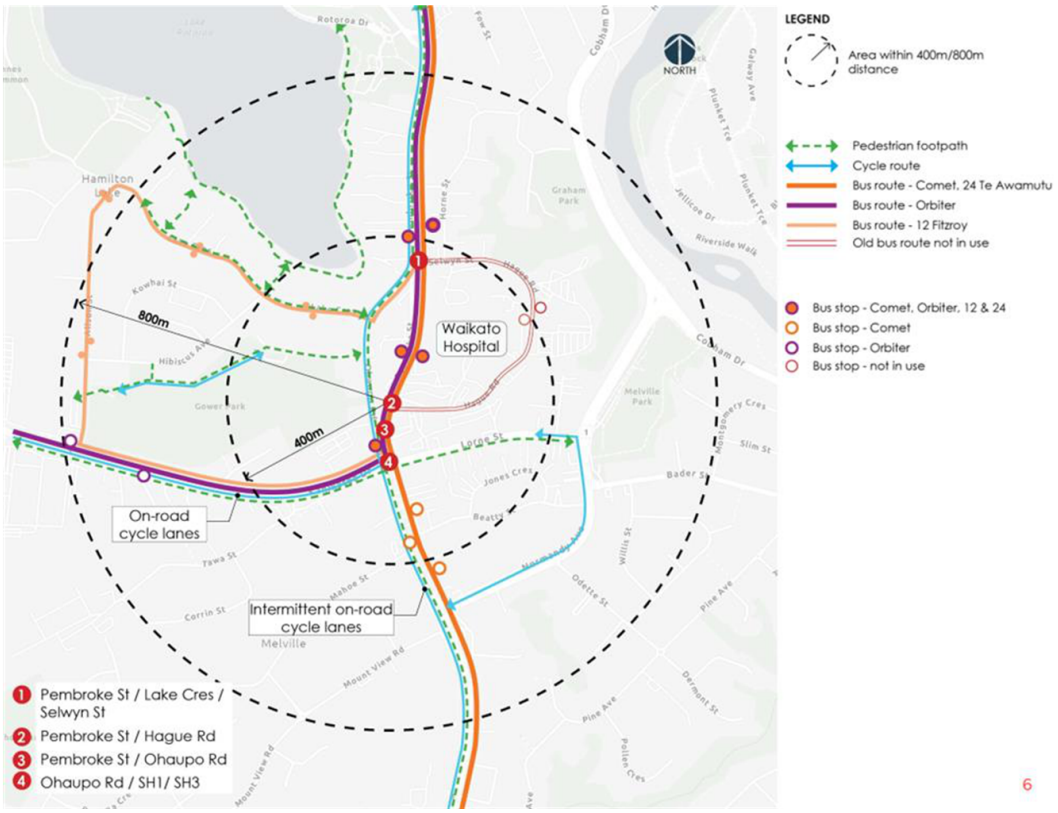


Figure 2-1 Background Public Transport

2.2 Bus Infrastructure Characteristics

While there are several bus stop locations within close proximity of the Waikato Hospital as seen above in Figure 2-1. Waikato Regional Council identified that, in order to reinstate a previous timing point that used to exist at Waikato Hospital, the capacity of the current stops located within the Waikato Hospital campus (224 Pembroke St & opp i226 Pembroke St) needs to at least double from the existing 4 stops to 8 stops. Therefore, the project team have chosen to focus the investigation of the current bus infrastructure to this location to identify an option for the increase in capacity to potentially reinstate the timing point, helping to provide bus users increased

reliability when using the bus networks in this area. The characteristics of the bus infrastructure at 224 Pembroke Street & opp 226 Pembroke Street are:

- Bus bay sufficient length for 2 buses in each direction
  - *224 Pembroke Street – 30 metres (approximately)*
  - *Opp 226 Pembroke Street – 25 metres (approximately)*
- Shelters with seating and provisions for mobility impaired
- Live departure information
- Wayfinding bus service information and timetables
- Accessible kerbs heights
- Signalised crossing approximately 20 metres from bus stops
- Sufficient footpath widths to support all bus users
- Positioned on the crest of the campus with a reasonably flat incline to Pembroke Street entrance of Waikato Hospital

2.3 Site Observation

A site observation was completed by individuals of the project team and Maurice Flynn (CCS Disability Action) on Wednesday 11th August 2021. The following observations were made while on site:

- Uncontrolled crossing of pedestrians across the bus stops as opposed to the nearby signal crossing. Figure 2-2 below shows an example of pedestrian behaviour occurring.
- Uneven surfacing surrounding the stops can be hazardous for those with mobility and/or vision impairments
- Only the northbound live departure timing information was working for bus users

Figure 2-2 Bus stop locations on Pembroke Street, looking north.

3 Background – Intersections

3.1 Site

There are four intersections within the study area as shown in Figure 3-1.

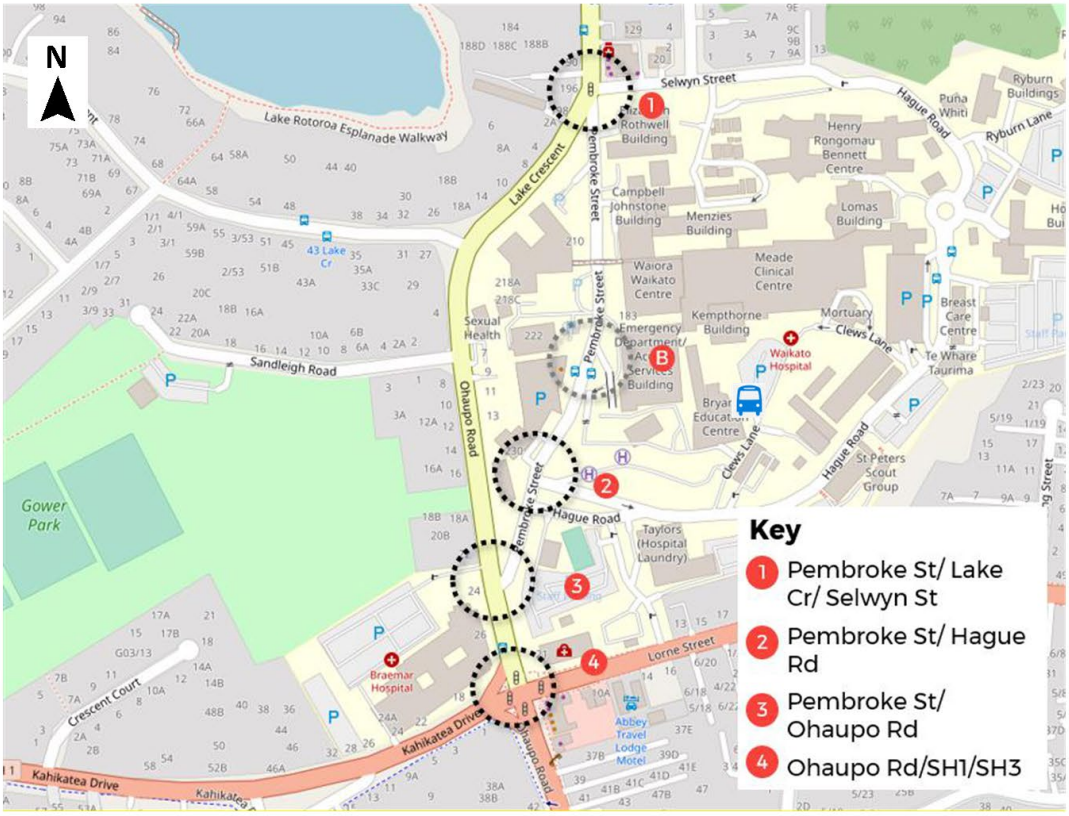


Figure 3-1 Intersections General Location

3.2 Surrounding Land Use

As shown in Figure 3-2, there are typically four types of zoning in the immediate vicinity of the intersections in the project area:

- Residential zoning to the south, north and north-west
- Recreational General (St Peters Park) and Major facilities zoning (the hospital complex) to the east.
- Suburban centre zoning to the north of Selwyn St which includes Sunny Side Early Education, and various neighbourhood shops and to the Rototuna suburban centre to the south of SH1
- Residential and recreational (Gower park) to the west.

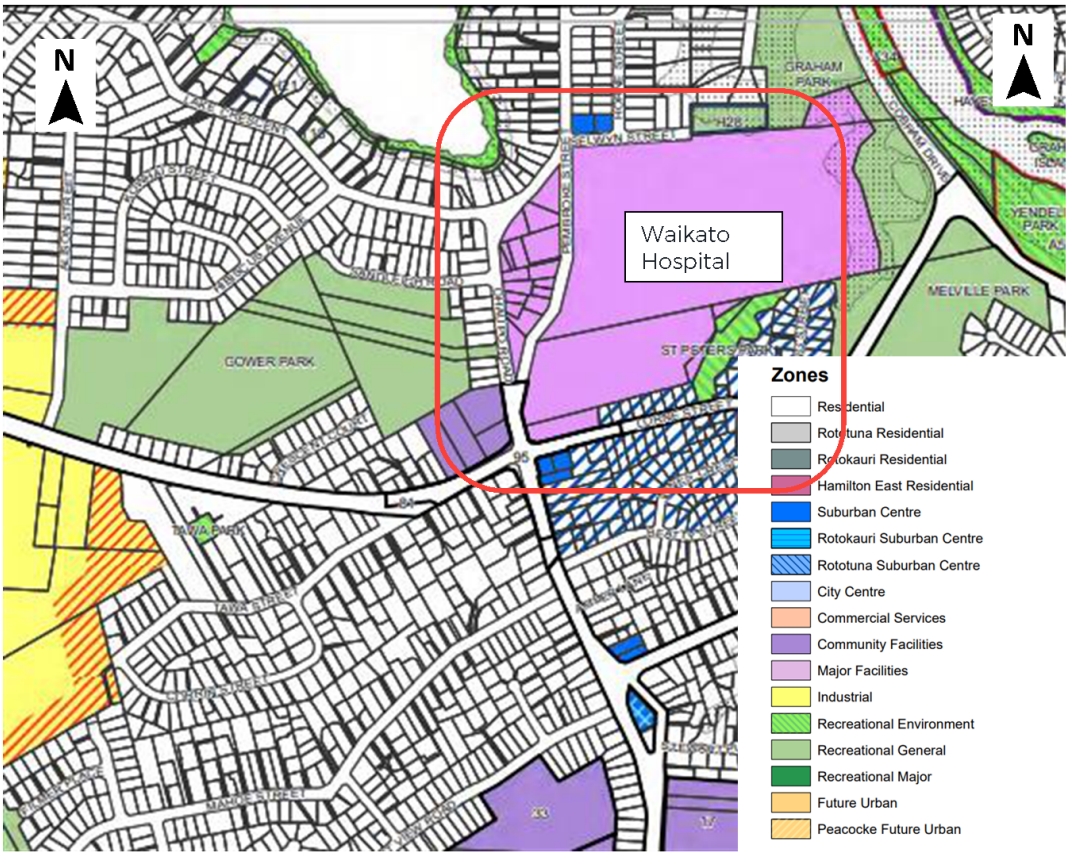


Figure 3-2: Land Use Map.

3.3 Intersection Characteristics

3.3.1 Site 1: Pembroke St/Lake Cr/Selwyn St Intersection

The intersection is located on the northern end of Pembroke Street, functioning as one of the northern access points to the Waikato Hospital, as shown on Figure 3-3. Waikato Hospital is located south-east of the intersection. Graham Park is located east of the intersection, at the eastern end of Selwyn Street. The northern and western sides of the intersection consist of mainly residential households.

Pembroke St / Lake Cr / Selwyn St intersection is 4-way signalised intersection, made up of four roads. Pembroke Street North and South are both arterial roads with a posted speed limit of 50 km/h.

Lake Cr and Selwyn Rd are both classified as secondary collector roads with a 50 km/h and a 40 km/h speed limit, respectively. There are pedestrian signals north-south across Selwyn Rd and east-west across Pembroke St North.

Figure 3-3: Site 1 Intersection Layout.

3.3.2 Site 2: Pembroke St / Hague Rd Intersection

The intersection is located towards the southern end of the hospital site and functions as a main access point along Hague Road and to the Emergency Department on Pembroke Street, shown on Figure 3-4. The main hospital buildings are located to its north-eastern corner with hospital parking to the southeast.

Pembroke St / Hague Rd is a priority controlled intersection with southbound vehicles on Pembroke St giving way to traffic turning right into Hague Rd. This section of Hague Rd is one way leading to the Meade Clinical Centre, the Blood Donor Centre and to hospital parking.

Pembroke St is classified as a regional road and has a posted speed limit of 50 km/h. Hague Rd is a private road with a posted speed limit of 20km/h.

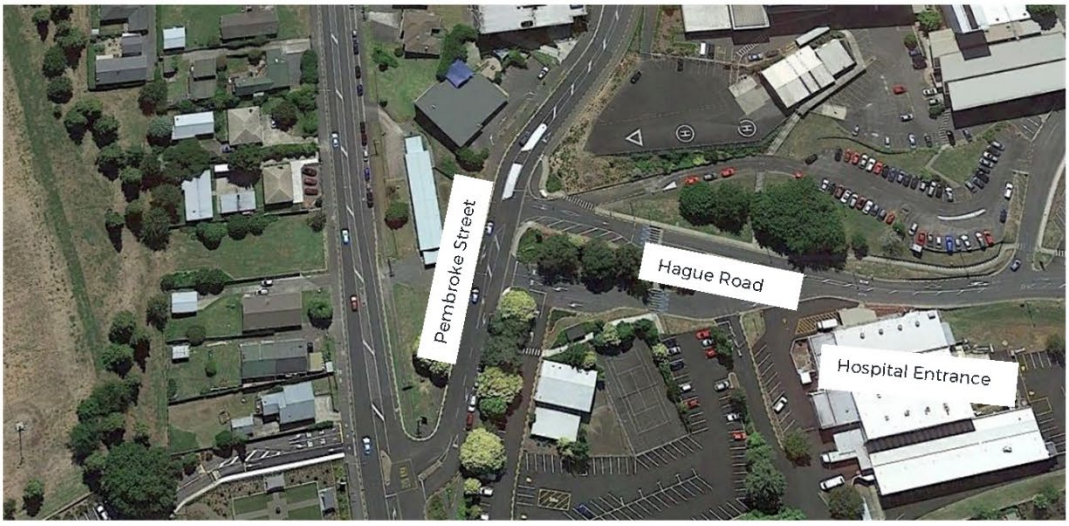


Figure 3-4: Site 2 Intersection Layout.

3.3.3 Site 3 Pembroke St / Ohaupo Rd Intersection

The intersection is located on the southern end of Pembroke Street, shown on Figure 3-5. Waikato Hospital is located to the north-eastern corner of the intersection, with Gower Park to west. Immediately to the southeast is hospital parking with mainly residential households to the north-west and further south of the intersection.

Pembroke St / Ohaupo Rd is a priority controlled intersection with vehicles giving way from Pembroke St onto Ohaupo Road. Ohaupo Road is classified as an arterial road and Pembroke St, a regional road; both have a posted speed limit of 50 km/h.

Figure 3-5: Site 3 Intersection Layout.

3.3.4 Site 4 Ohaupo Rd/SH1/SH3 Intersection

The intersection is located on the southern end of Ohaupo Road, functioning as an access point between Waikato Hospital and State Highway 1 (SH1) and State Highway 3 (SH3), show on Figure 3-6. Waikato Hospital is located north-east of the intersection. Gower Park is located north-west of the intersection. The south-eastern side of the intersection consists of the Rototuna suburban centre with mainly residential households beyond this to the south.

This site is a 4-way signalised intersection. The intersection is made up of three roads. Ohaupo Road is an arterial road with a posted speed limit of 50 km/h. State Highway 1 is classified as a high volume road and State Highway 3 as a regional road; both have a posted speed limit of 60 km/h.

Figure 3-6: Site 4 Intersection Layout.

3.4 Site Observation

A site visit was undertaken on 22 July 2021 by WSP engineers and designers. The following site observations were made on each site, refer to Figure 3-7 to Figure 3-10 below for more information.

3.4.1 Site 1: Pembroke St / Lake Cres / Selwyn St Intersection

- Observed rat run to Pembroke Street South to avoid queues on Lake Crescent in the PM peak
- Lack of proper cycle facility on Lake Crescent through the intersection

Figure 3-7 Site 1 Observation

3.4.2 Site 2: Pembroke St / Hague Rd Intersection

- Right turning traffic from Pembroke St have priority at the intersection to discourage queues formed as a result of rat running
- No dropped kerb on the northern section of the intersection, meaning wheelchair users need to do take detour via the zebra crossing further along Hague Road

Figure 3-8 Site 2 Observation

3.4.3 Site 3: Pembroke St / Ohaupo Rd Intersection

- Narrow lane width with on road parking on Pembroke Rd
- Difficult for buses to pick up and / or off-load passengers at Ohaupo Rd bus stop and then make turn into Pembroke St as they need to cross a couple of traffic lanes and make a right hand turn across oncoming traffic
- Notable queues were observed at this intersection on Pembroke Street southbound direction in the PM peak, which introduce additional delay to bus. Potential rat run on Pembroke Rd to avoid delays on Ohaupo Road

Figure 3-9 Site 3 Observation

3.4.4 Site 4: Ohaupo Rd / SH1 / SH3 Intersection

- No proper crossing on the slip lane on the west side of the intersection
- Undergoing changes to reduce the posted speed limit to 50km/h in the area

Figure 3-10 Site 4 Observation

4 Existing Plans and Strategy

4.1 Waikato Hospital Master Plan

The Waikato District Health Board Master Plan report completed December 2020 outlines a proposed plan for capital investment across the Waikato DHB. Section 4 is specific to Waikato Hospital covering the context, site analysis, future design, recommended options, and master planning process. The master plan highlighted the busy and constrained site of Waikato Hospital and that the current wayfinding for consumers is "confusing." The masterplan proposed a block and stack as a future method to provide a separation of clinical, logical, and public circulation of the hospital. Figure 4-1 demonstrates the current mix of services that Waikato Hospital are operating under which contributes to the confusing wayfinding that is experienced by consumers.

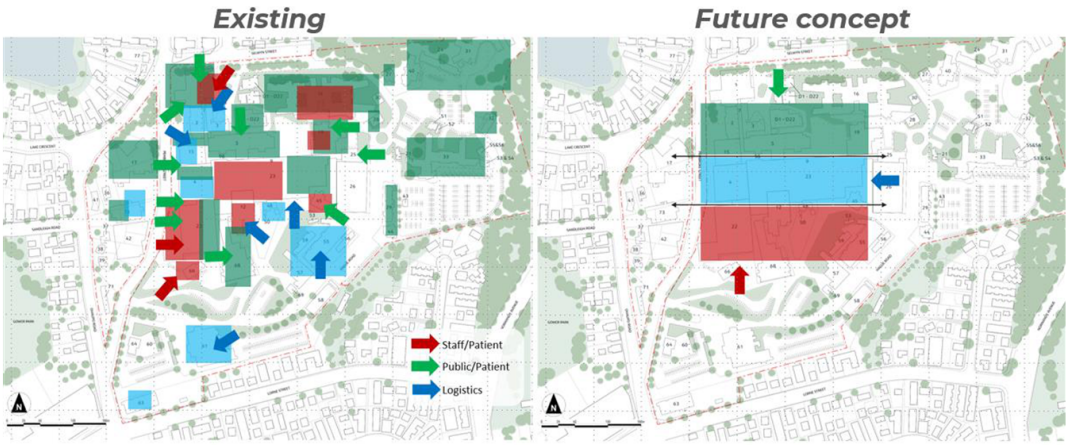


Figure 4-1 Waikato Hospital Master Plan Future Concept

With the proposed masterplan aspirations of consolidating the main entrances into three zones; public, emergency and services. The proposition is for the public entrances to be on the northern side of the Hospital, with the new main entry to be served by a new street named "Hospital Street." Recommended options of the future layout can be seen in Figure 4-2 below. The creation of Hospital Street is due to the concerns with the congestion around the Waikato Hospital due to its proximity to the State Highways 1 and 3 intersection. The aim of Hospital Street parallel to Selwyn St but a higher level to improve the accessibility conditions and allow the establishment of drop off areas and short term parking. It is recommended in the proposed masterplan that Hospital Street is formed in the medium term of the plan, 5 – 15 years after the enabling works of the master plan have begun.

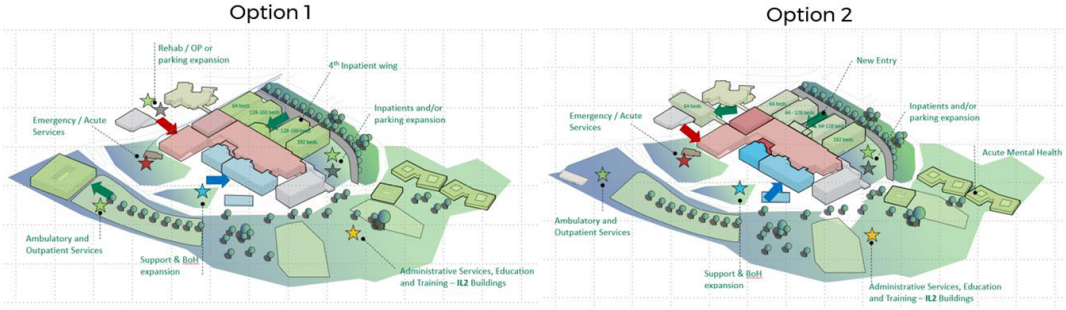


Figure 4-2 Waikato Hospital Master Plan Options

The following comment was made regarding the current public transport at Waikato Hospital "Current public transport options are limited to the bus stops located in Pembroke Street meaning that patients and visitors that use it often require to walk long distances through the Campus to reach their destination."

4.2 Active Modes Improvements

4.2.1 Lake Cres/Ohaupo Road Intersection Accessibility Improvement

Figure 4-3 below was provided by HCC with detailed design for the pedestrian crossing point improvements.

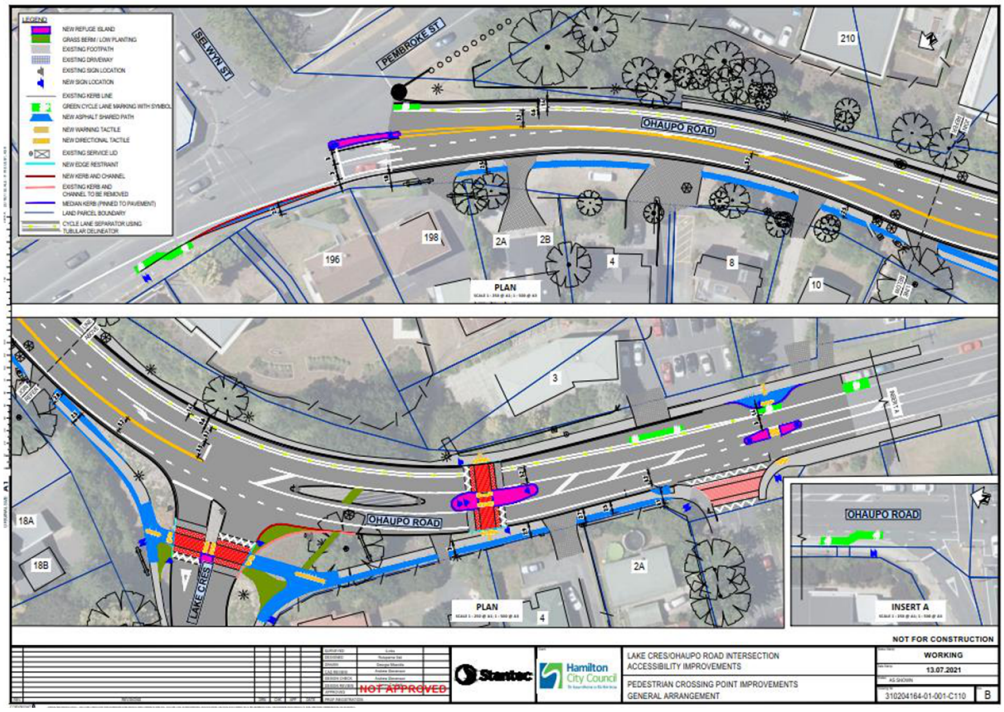


Figure 4-3 Lake Cres/Ohaupo Road Intersection Accessibility Improvement

4.2.2 West Side Biking Connections

As part of Hamilton City Council's Biking Connectivity Programme, a review of biking links on the west side of the city was undertaken to identify opportunities for improving levels of service for biking and micro-mobility. AECOM workshop record of the West Side Biking Connections was provided by HCC.

We have considered the concept sketches of Package 02 Pembroke Street (Figure 4-4) while assessing the options for Site 1 of this project.

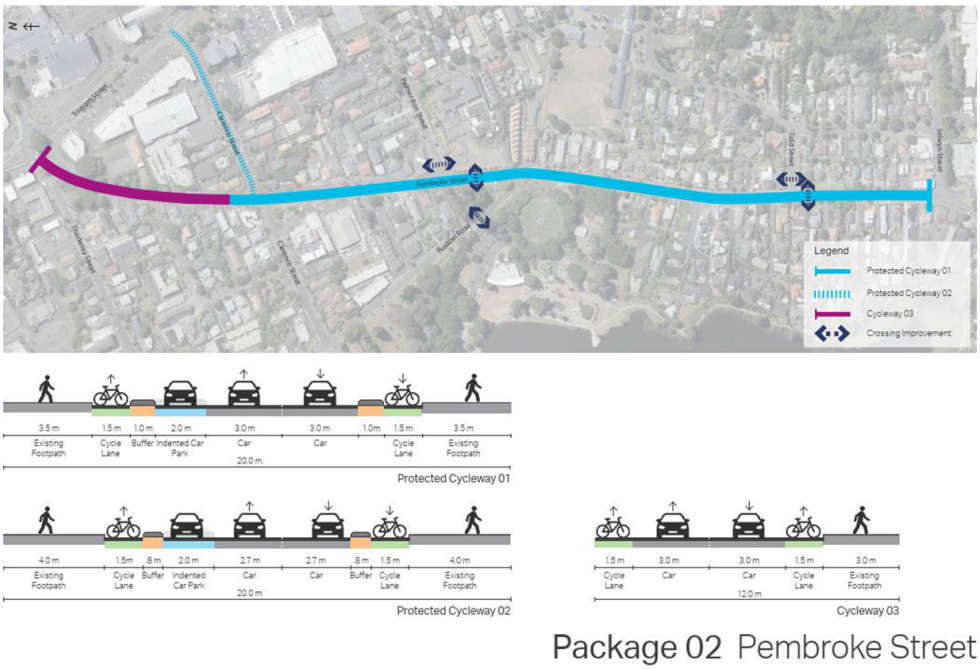


Figure 4-4 West Side Biking Connections Package 02

4.3 Waikato Hospital Travel Demand Management Plan

In 2021, Waikato DHB in partnership with Hamilton City Council, Waikato Regional Council and Waka Kotahi are working to develop a WDHB Travel Demand Management Plan (TDM Plan) for staff, patients and visitors travelling to and from the Waikato Hospital main campus and Waiora CBD site. The Hospital is a key trip generator within the city centre, and a TDM Plan will help to reduce traffic and improve travel options for staff, visitors, and patients.

The TDM Plan set out a high-level strategy with measures aimed at addressing issues related to a high demand for car parking, low uptake of sustainable travel modes, and transport and access around these two sites.

Within the TDM section 3.2.5 was the most relevant for this Waikato Hospital PT Assessment as it provided recommendations and insight into staff, volunteers, patients, and visitors thoughts of public transport at Waikato Hospital through the survey that was carried out. The following comments were noted from their findings:

- "Several comments were received that highlighted that public transport schedules and hospital shift and appointment times were not well aligned. This was limiting people's ability to choose buses for a regular commute, particularly when working shifts."
- "Not being able to rely on public transport was seen as a significant barrier to using it to commute, respondents wanted more efforts made to coordinate transport timetables with hospital timetables and needs."
- "Feedback from a stakeholder representing the mobility impaired suggested buses facilitated access to the hospital, but that bus stop infrastructure improvements were needed and that people in wheelchairs or using mobility aids had not been adequately considered."
- "Patients' transport problems were discussed as having a negative impact on staff and non-staff. Limited access to convenient public transport was seen as a reason for failure to attend clinics and appointments resulting in negative health impacts for consumers and leaving them with no alternative to driving a vehicle."

A recommendation of section 4.3 of the TDM plan how to encourage people to travel by public transport that should be considered within this study is "review and make improvements to the bus stop locations and amenities around the Waikato Hospital to improve access and accessibility. Create maps of public transport bus stops in the area and clear routes to the main hospital entrances."

4.4 Hamilton – Waikato Metropolitan Spatial Plan (MSP)

The Hamilton-Waikato Metropolitan Spatial Plan (MSP) is a framework for how Hamilton will grow and develop in the future. It describes that communities and jobs will be focussed on centres and corridors in locations which are supported by both rapid and frequent public transport and walking and cycling transport options so that people have a choice and the opportunity to live close to where they work and play.

Error! Reference source not found. below illustrates the current and indicative future urban areas around Hamilton; indicating locations where more residential dwellings are anticipated. These growth and intensification areas will be where new trips originate/terminate as people travel to/from their place of education and/or employment. Major future growth is anticipated in the future growth areas of Peacockes as well as some minor growth around the Waikato Hospital in the order of magnitude of 5,000-10,000 dwellings. Currently, no bus network services the Peacockes area, however, it is expected when the development of the area has progressed further this will be initiated and has the potential to need to be accommodated by the Waikato Hospital site.

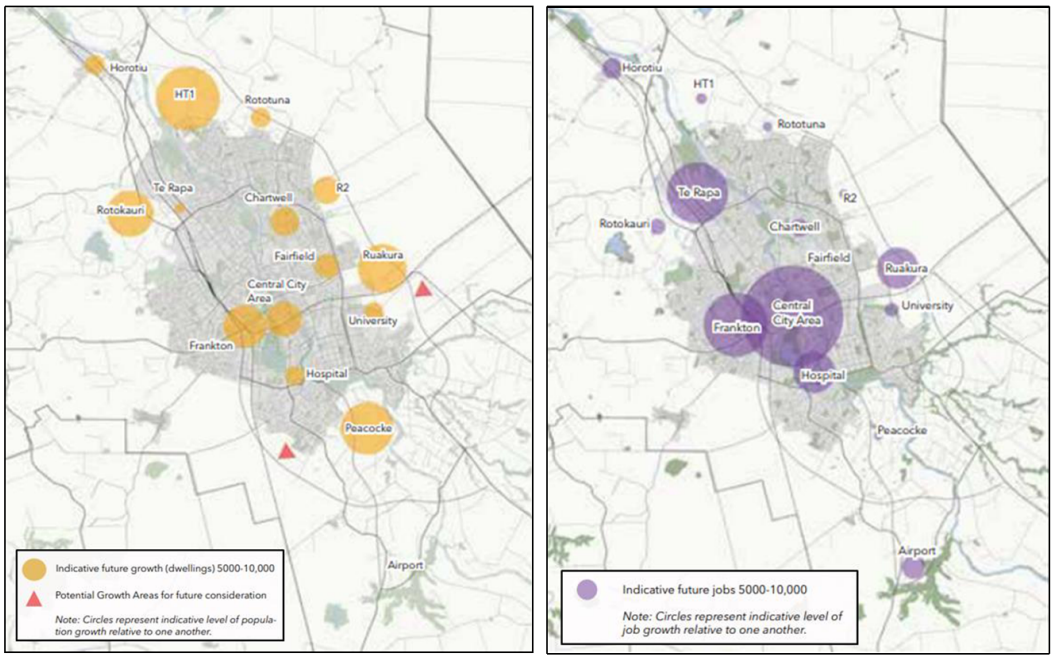


Figure 4-5 Projected future urban areas around Hamilton (Source: Hamilton -Waikato MSP)

In Figure 4-5 above, it can be seen that there is a significant growth in jobs expected to occur around Waikato Hospital in the future. In order to support this growth, it is important that the public transport network is able to also grow to meet an increase in demand in the area. Also, it is important to note that for some services and bus users the Waikato Hospital is only a through point so if the site has ability to indirectly hinder future development of bus services for other growth areas if the infrastructure is not correctly addressed.

In summary, the MSP indicates there will be considerable growth in both housing and employment within the catchment of the Waikato Hospital and relevant surrounds. While this will result in more demand for more bus services in this area, it would potentially result in higher traffic volumes and delays without sufficient planning and infrastructure improvements.

It is acknowledged that the strategic transport response to this growth is being assessed as part of the Metro Spatial Plan Transport Programme Business Case. This study focuses on the infrastructure and service reliability response at the Waikato Hospital in the next decade and seeks to provide input into the PBC.

5 Existing Public Transport

5.1 Existing Bus Infrastructure

There are 6 bus stops within the study area:

- The northern bus stops are located at 125 and 188 Pembroke St
- The middle bus stops are located at 226 and opposite 226 Pembroke St, and
- Unpaired southern bus stop located at 32 Ohaupo Rd outside Braemar Hospital

All bus stops are appropriately spaced and in good conditions in terms of shelters, accessible kerbs, and proximity to safe crossing points. The bus stops on Hague Rd are no longer in use due to the noise disturbance and time taken to operate through Hague Rd.

In terms of service reliability, there is greater variability in bus availability and journey times in the PM peak. It is observed that there are often large traffic queues from Pembroke St to Ohaupo Rd during this PM peak. Through observation, buses from the 32 Ohaupo Rd bus stop also find it difficult to pick up and / or off-load passengers and turn onto Pembroke St due to needing to cross multiple lanes and oncoming traffic.

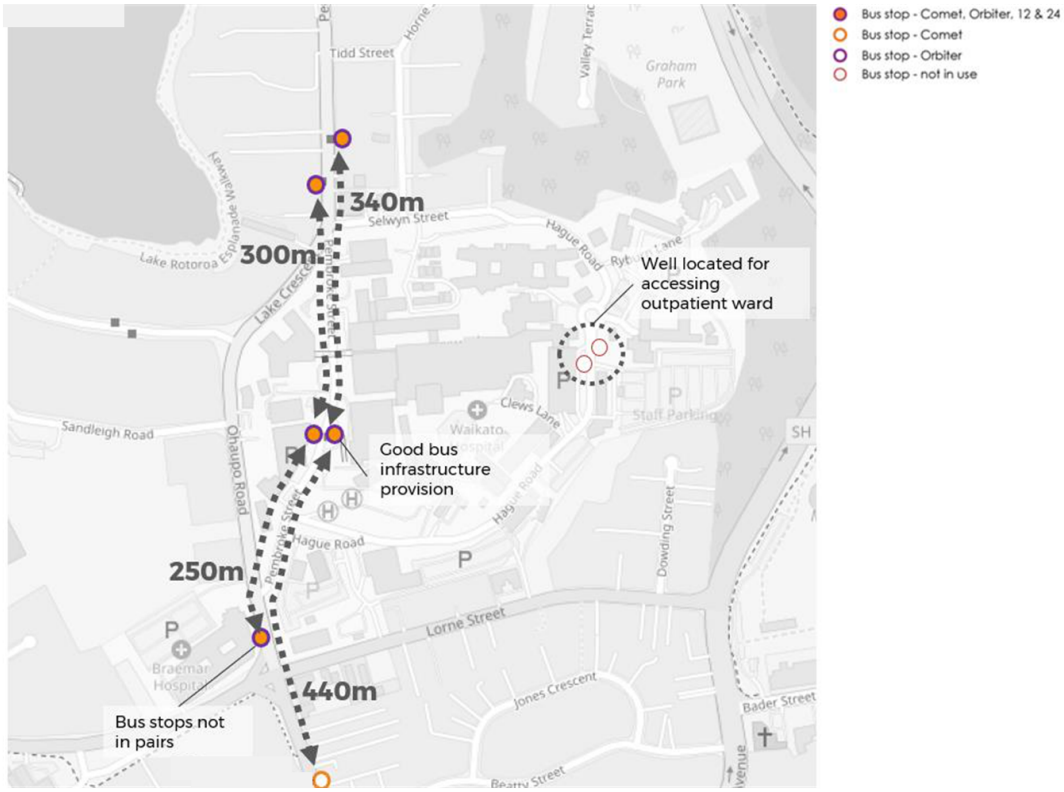


Figure 5-1 Bus Stop Location

5.2 Existing Bus Performance

We have assessed the existing bus data (24 June 2021) provided by WRC to understand the existing PT performance from delay time and travel speed perspectives. We have also assessed the passenger data to understand the usage of each of the stops.

In summary, there is greater variability in journey times in the PM with average of 85% speed of 13 km/hr from previous stop. The bus stops located at 226 and opposite 226 Pembroke St outside of the hospital were having the most people alighting and boarding. Please refer to Table 5-1 -Table 5-5.

Delay Time Variability

The delay time variability at each of the stop was calculated on the existing bus performance data provided by WRC. The variability was determined using 85th travel time minus 50th travel time to the stops.

Table 5-1 SB Delay Time

SB Delay at Stop 85th – 50th (in min)	AM Peak (8-9)	PM Peak (4-5)	Interpeak (11-12)
125 Pembroke St	2.8	5.1	2.7
Opp 226 Pembroke St (Hospital)	3.1	6.2	2.3

Table 5-2 NB Delay Time

NB Delay at Stop 85th – 50th (in min)	AM Peak (8-9)	PM Peak (4-5)	Interpeak (11-12)
188 Pembroke St	2.7	2.4	1.7
224 Pembroke St (Hospital - Inbound)	2.4	2.1	1.6
32 Ohaupo Rd (outside Braemar Hospital)	2.7	2.0	1.7

Average of 85% Speed from Previous Stop

Table 5-3 Average of 85th Speed

SB Average Speed between Stop (PM)	85th (in km/hr)	NB Average Speed between Stop (AM)	85th (in km/hr)
125 Pembroke St	20	188 Pembroke St	11
Opp 226 Pembroke St (Hospital)	13	224 Pembroke St (Hospital - Inbound)	24
-	-	32 Ohaupo Rd (outside Braemar Hospital)	10

Passenger Data

Table 5-4 SB Passenger Data

SB Stops	Sum of alighting 85	Sum of boarding 85
125 Pembroke St	65	23
Opp 226 Pembroke St (Hospital)	138	100

Table 5-5 NZ Passenger Data

NB Stops	Sum of alighting 85th	Sum of boarding 85th
188 Pembroke St	22	72
224 Pembroke St (Hospital - Inbound)	71	139
32 Ohaupo Rd (outside Braemar Hospital)	49	45

6 Existing Active Mode Users

The desire lines for pedestrian and other active mode users are summarised below for each of the intersections.

6.1 Site 1 – Pembroke St / Lake Cr / Selwyn St Intersection

Figure 6-1 shows the pedestrian desire lines at the site 1 intersection.

When catching a bus from the western side of Pembroke St North, pedestrian tend to informally cross in the vicinity of the bus stops rather than at the signalised crossing. Pedestrians also cross Pembroke St South and Lake Crescent to get to on-street parking along Lake Cr and other neighbouring streets.

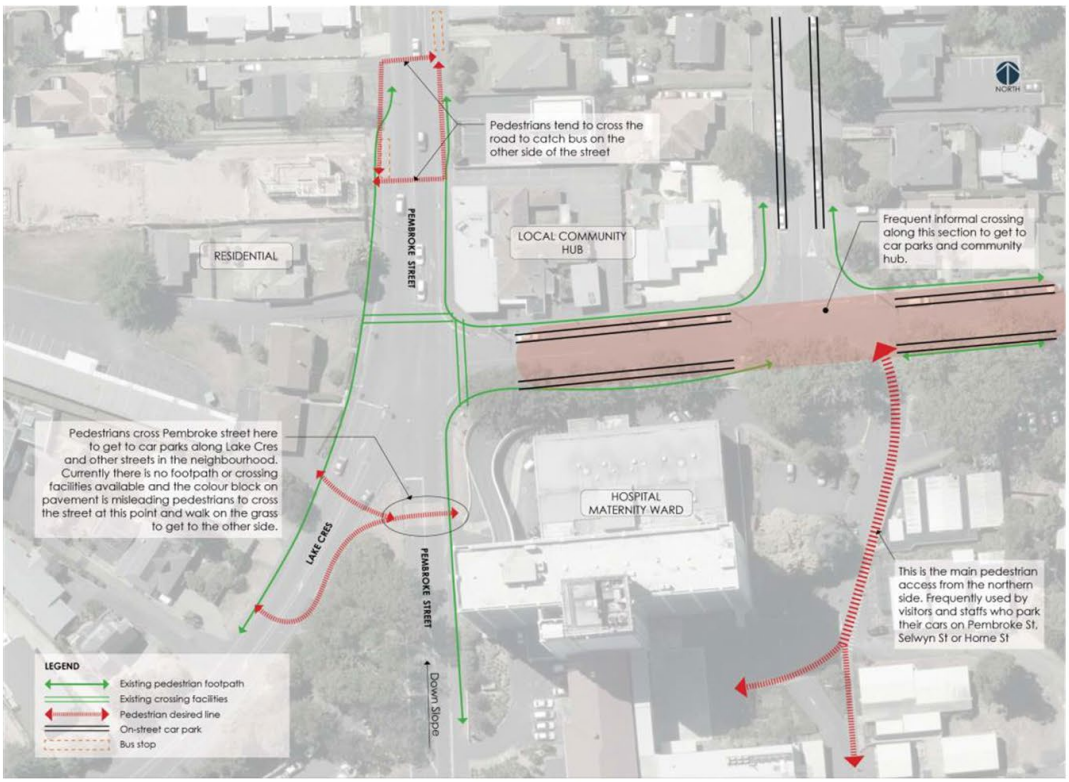


Figure 6-1: Observed Pedestrian Desired Lines at Site 1 Intersection.

6.2 Site 2 – Pembroke St / Hague Rd Intersection

Figure 6-2 shows the pedestrian desire lines at the site 2 intersection.

The existing signalised crossing opposite the emergency department is approximately 30m walking distance from the bus stops uphill from the stop on the western side. Pedestrians tend to informally cross further down to / from the bus stops.

At the intersection with Hague Road there is no dropped kerb for wheelchair users to cross from the existing footpath. A suitable crossing point is available further along Hague Road but is unlikely to be used other pedestrians as it would involve a detour from their desire line.

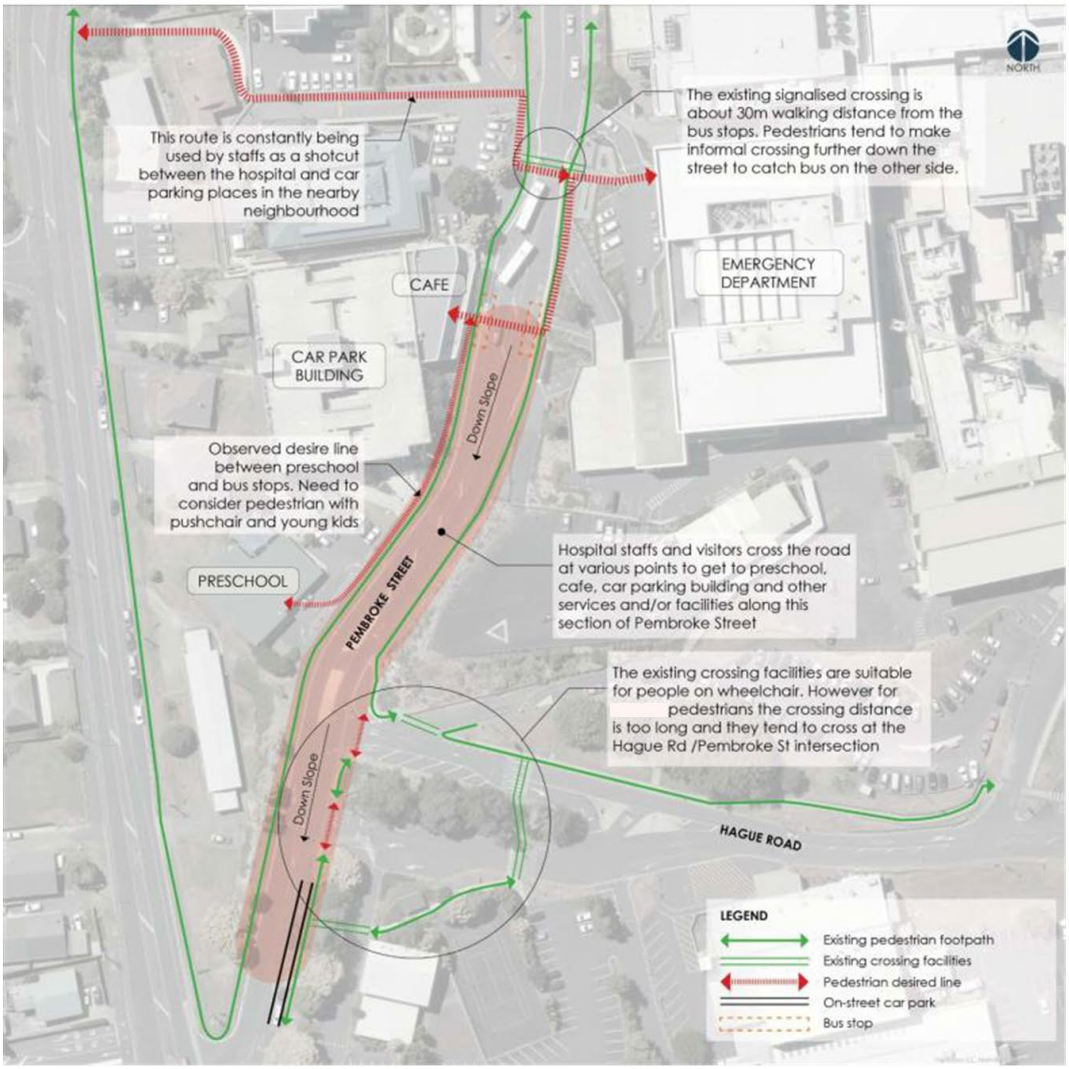


Figure 6-2: Observed Pedestrian Desired Lines at Site 2 Intersection.

6.3 Site 3 – Pembroke St / Ohaupo Rd Intersection

Figure 6-3 shows the pedestrian desire lines at the site 3 intersection.

The only crossing point available along the 0.5km of busy Ohaupo Rd is the refuge island located north of the intersection. The width of this refuge is inadequate particularly for vulnerable road users. Many pedestrians on Pembroke St tends cross where it is most convenient. Moreover, there are frequent informal crossings along Pembroke St to get to the car parks and café etc.

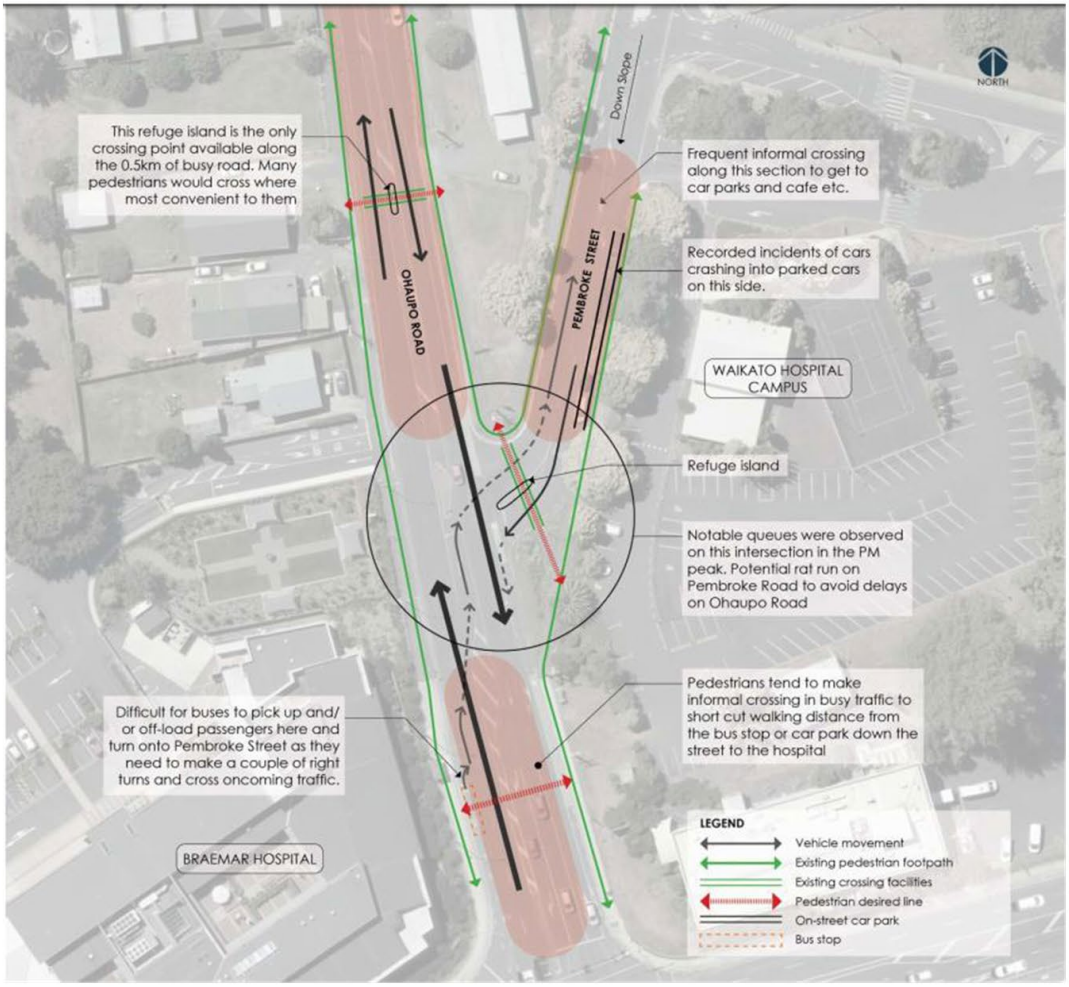


Figure 6-3: Observed Pedestrian Desired Lines at Site 3 Intersection.

6.4 Site 4 – Ohaupo Rd / SH1 / SH3 Intersection

Figure 6-4 shows the pedestrian desire lines at the site 4 intersection.

To shorten the walking distance from the bus stop or parking places further down the street, to the hospital, there is frequent informal crossing of Ohaupo Rd South, across the traffic lanes.

There is a strong pedestrian desire line to across western leg of the SH1 intersection which involves crossing two slip lanes at uncontrolled crossings.

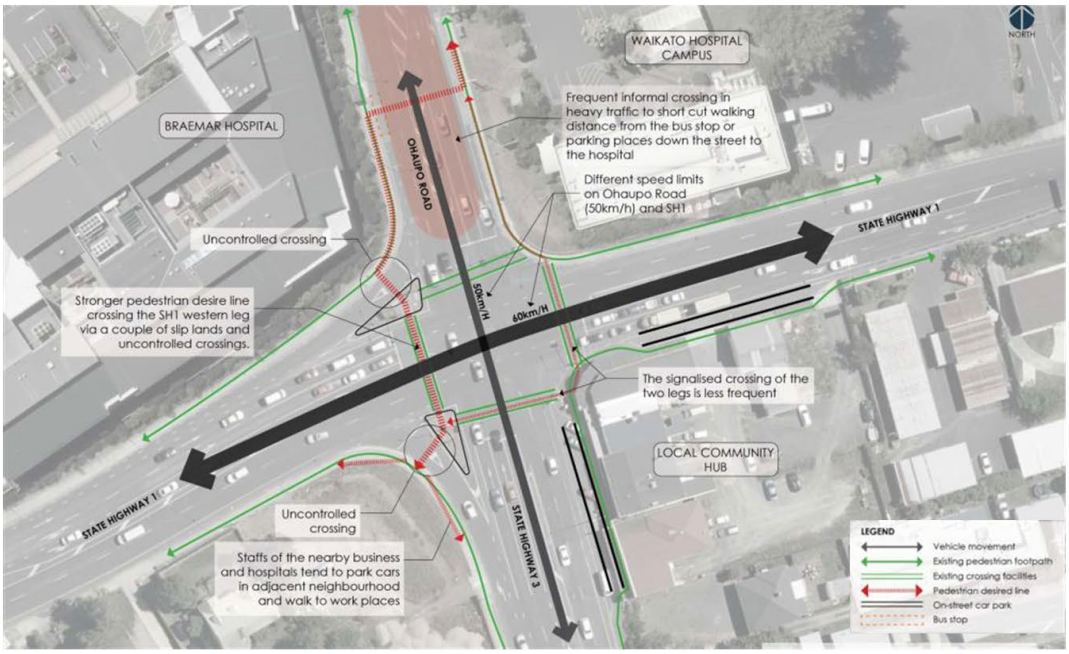


Figure 6-4: Observed Pedestrian Desired Lines at Site 4 Intersection.

6.5 Access to WDHB

Figure 6-5 below shows the pedestrian desire lines for access to Waikato Hospital site.

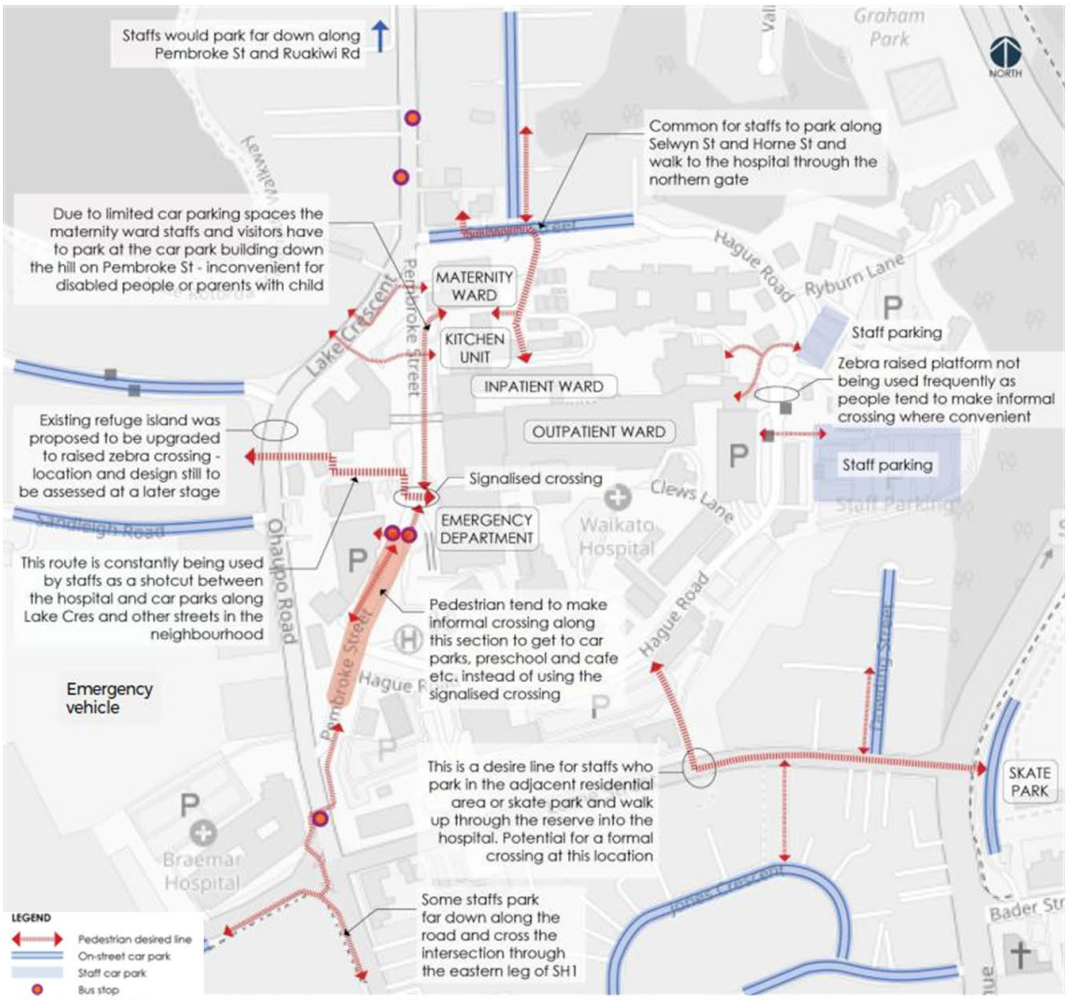


Figure 6-5: Observed Pedestrian Desired Lines from all the Hospital Entrances.

6.6 Cyclist

The map in Figure 6-6 shows cycle lanes and shared paths around the Waikato Hospital site.

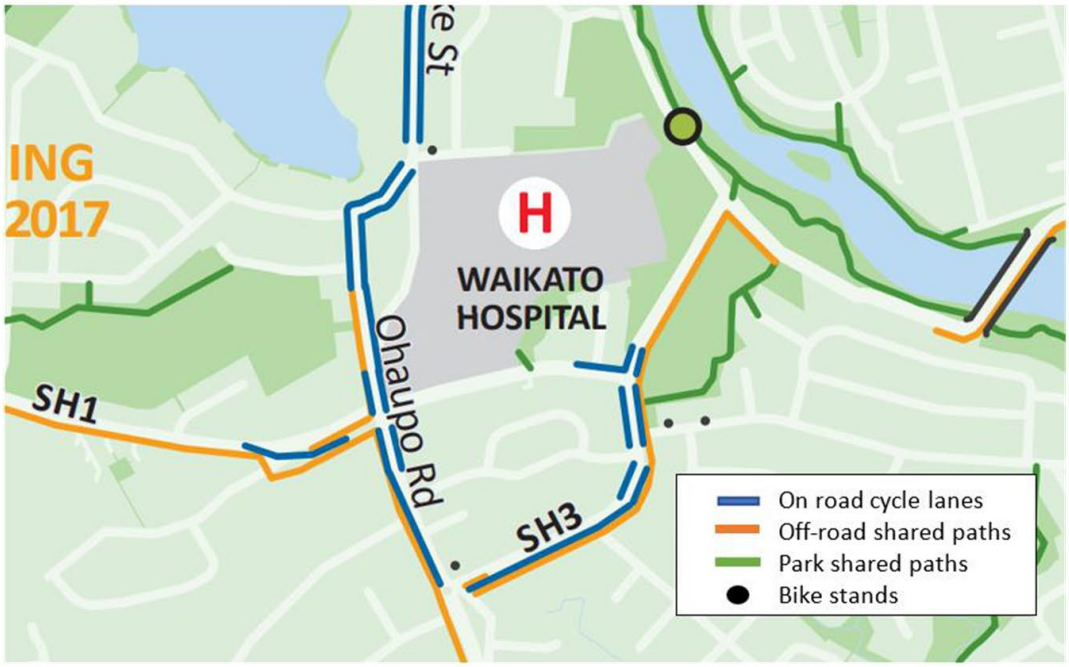


Figure 6-6: Section of Bike Hamilton map[1]

[1] *https://www.hamilton.govt.nz/our-services/transport/bike-hamilton/Pages/default.aspx*

6.6.1 cycle volume

The HCC Counters & Estimated Cycle Volumes map (Figure 6-7) indicates the median daily volume of the study intersection.

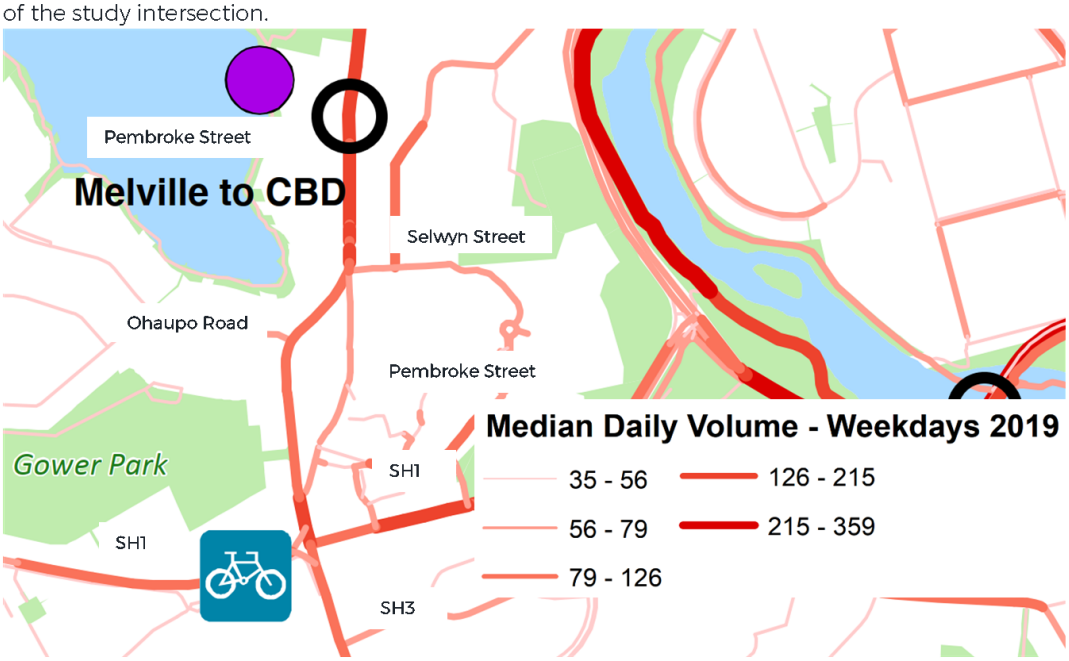


Figure 6-7: HCC Counters & Estimated Cycle Volumes Map.

7 Existing Intersection

7.1 Traffic Volume

7.1.1 AADT

The following data was obtained on 25th August 2021 from Mobile Roads application.

Site 1 – Pembroke St/Lake Cr/Selwyn St Intersection
The average annual daily traffic (AADT) along Pembroke Rd North is approximately 16300 vehicles per day (vd) with 3% heavy vehicles (hv). Pembroke Rd South has an AADT estimated at 4600 vpd with 3% hv, Lake Cr estimated at 12800 vpd at 1% hv, and Selwyn St estimated at 2900 vpd at 3% hv

Site 2 – Pembroke St/Hague Rd Intersection
The AADT along Pembroke St is estimated to be 4600 vpd with 3% hv. AADT data for Hague Rd is unavailable as data for this road was not collected.

Site 3 – Pembroke St/Ohaupo Rd Intersection
The AADT along Pembroke St is estimated to be 4600 vpd with 3% hv and Ohaupo Rd has an AADT estimated at 17100 vpd with 3% hv.

Site 4 – Ohaupo Rd/SH1/SH3 Intersection
The AADT along State Highway 1 (SH1) West is estimated to be 26470 vpd with 9% hv. SH1 East has an AADT estimated at 17743 vpd with 10% hv, State Highway 3 (SH3) estimated at 27738 vpd with 9% hv and Ohaupo Road estimated at 17100 vpd with 3% hv.

7.1.2 Turning count data

Intersection turning count data was provided by HCC. The turning count survey was undertaken at Site 1, Site 2, and Site 3 on the 12 February 2019; Site 4 on the 19 February 2019 for the following periods to determine key movement trends for both vehicles and active modes users:

- 6.30 AM – 8.45 AM
- 12.00 AM - 1.45 PM
- 4.00 PM - 5.45 PM

7.1.3 Existing Traffic Performance and Traffic Model

The peak hour intersection turning count data is used in SIDRA traffic models to understand the traffic operation performance for the existing intersection layout. However, it was found that the SIDRA modelling result is invalid due to the complexity of the study area. We have then used LinSig instead to model the study area as a network to have a better understanding of the interactions of the intersections. The intersection turning count data is also used Linsig in the options assessment to determine and understand the traffic operational performance of the proposed intersection layouts.

7.1.1 Traffic Growth Rate

Traffic count data from the HCC website (Hamilton City Traffic Counts[2]) Is used to determine the traffic growth rate at the study area. The website shows that all traffic volumes on the surrounding network have decreased in the last two years (2018 - 2019 and 2019 – 2020).

Therefore, the traffic growth rate at all sites within the study area is assumed to be 0% to be conservative.

[2] https://data-waikatolass.opendata.arcgis.com/datasets/hcc::hamilton-city-traffic-counts/explore?location=-37.794751%2C175.284801%2C20.00

8 Safety Performance

8.1 Crash History

A search of Waka Kotahi NZ Transport Agency (Waka Kotahi) Crash Analysis System (CAS) database has been carried out to identify all reported crashes at the Intersection in the past five years from 2016 to 2020. The most recent crashes in 2021 were also recorded. However, it must eb accepted that there is some delay in cashes appearing in CAS

As specified by Waka Kotahi in the High-risk Intersections Guide (HRIG), the study area included all crashes that occurred within 50 m of the Intersection. The study area was extended[3] to 100 m to identify any other relevant crashes near the intersection.

8.1.1 Site 1 – Pembroke St / Lake Cr / Selwyn St Intersection

Over the 5-year period, a total of 9 crashes were reported at the intersection as shown in Figure 8-1. Overall, there were 7 non-injury crashes, 1 minor crash, and 1 serious injury crash. The serious injury crash occurred in 2018.

1) The serious crash was at night in dry condition and involved a vehicle failing to stop at the red traffic and collided with another vehicle that was travelling through the intersection on a green light.

The data showed the most common crash type for all crashes at this intersection was "Rear end/Obstruction" type movements (5 crashes), followed by "Crossing/Turning" type movements (3 crashes). The serious injury crash was "Straight road lost control/Head on" type. An illustration of this is shown in Figure 8-1. There were no injury crash involving pedestrian or cyclist during the assessment period.

Crash severity \ Crash year	2016	2017	2018	2020	2021	Totals
Serious Crash			1			1
Minor Crash					1	1
Non-injury Crash	1	4	1	1		7
Totals	1	4	2	1	1	9

Crash type

Crash type	Crash numbers	% All crashes
Overtaking crashes	0	0
Straight road lost control/head on	1	11.11
Bend - lost control/Head on	0	0
Rear end/obstruction	5	55.56
Crossing/turning	3	33.33
Pedestrian crashes	0	0
Miscellaneous crashes	0	0
TOTAL	9	100

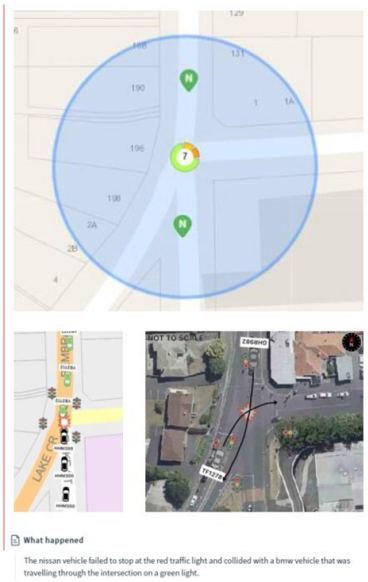


Figure 8-1: Site 1 Crash Map and TC Report.

[3] The HRIG (Waka Kotahi, 2013) also states that crashes further than 50 m away from the intersection may be included in the risk assessment if it can be demonstrated that it was associated with the intersection.

8.1.2 Site 2 – Pembroke St / Hague Rd Intersection

Over the 5-year period, a total of 4 reported crashes were reported at the intersection as shown in Figure 8-2. There were 4 non-injury crashes at the site.

The data showed the most common crash type for all crashes at this intersection were "Rear end/Obstruction" type movements (2 crashes) and "Crossing/Turning" type movements (2 crashes). An illustration of this is shown in Figure 8-2. There were no crash involving pedestrian or cyclist during the assessment period.

Crash severity	Crash year	2016	2018	Totals
Non-injury Crash		3	1	4
	Totals	3	1	4

Crash type

Crash type	Crash numbers	% All crashes
Overtaking crashes	0	0
Straight road lost control/head on	0	0
Bend - lost control/Head on	0	0
Rear end/obstruction	2	50
Crossing/turning	2	50
Pedestrian crashes	0	0
Miscellaneous crashes	0	0
TOTAL	4	100

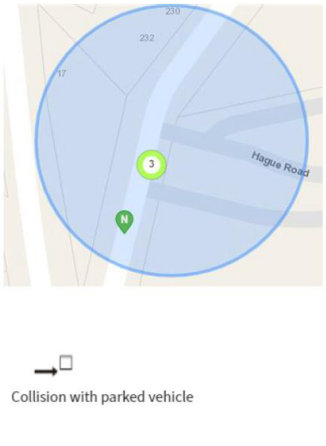


Figure 8-2: Site 2 Crash Map and TC Report.

8.1.3 Site 3 – Pembroke St / Ohaupo Rd Intersection

Over the 5-year period, a total of 15 reported crashes were reported at the intersection as shown in Figure 8-3. Overall, there were 12 non-injury crashes and 3 minor crashes.

The data showed the most common crash type for all crashes at this intersection was "Rear end/Obstruction" type movements (6 crashes), followed by "Crossing/Turning" type movements (4 crashes), and "Overtaking Crashes" type movements (3 crashes).

One minor injury crash involved a pedestrian (Figure 8-3 bottom right), the pedestrian was crossing on the Pembroke Street and was hit by a car turning into Pembroke Street. No injury crash involved cyclist during the assessment period.

Crash severity	Crash year	2016	2017	2018	2019	2020	2021	Totals
Minor Crash			1	1		1		3
Non-injury Crash		3	1	2	3	2	1	12
	Totals	3	2	3	3	3	1	15

Crash type

Crash type	Crash numbers	% All crashes
Overtaking crashes	3	20
Straight road lost control/head on	0	0
Bend - lost control/Head on	1	6.67
Rear end/obstruction	6	40
Crossing/turning	4	26.67
Pedestrian crashes	1	6.67
Miscellaneous crashes	0	0
TOTAL	15	100

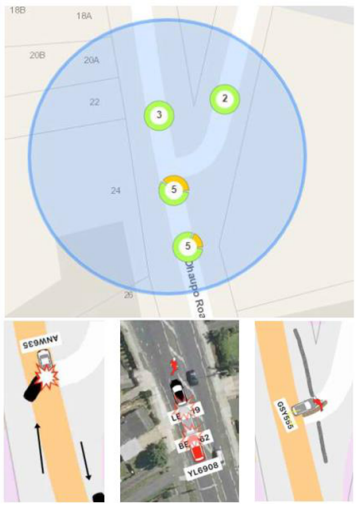


Figure 8-3: Site 3 Crash Map and TC Report.

8.1.4 Site 4 – Ohaupo Rd/SH1/SH3 Intersection

Over the 5-year period, a total of 35 reported crashes were reported at the intersection as shown in Figure 8-4. Overall, there were 30 non-injury crashes, 4 minor crash, and 1 serious injury crash. The serious injury crash occurred in 2017.

1) The serious crash was at night in a dry condition and involved a vehicle failing to take a left-hand bend and travel across both lanes before hitting a fence.

The data showed the most common crash type for all crashes at this intersection was "Rear end/Obstruction" type movements (17 crashes), followed by "Crossing/Turning" type movements (10 crashes). The serious injury crash was "Bend - lost control/Head on" type. An illustration of this is shown in Figure 8-4.

No injury crash involved pedestrian or cyclist during the assessment period.

Crash severity \ Crash year	2016	2017	2018	2019	2020	Totals
Serious Crash		1				1
Minor Crash	2	1			1	4
Non-Injury Crash	7	5	8	6	4	30
Totals	9	7	8	6	5	35

Crash type

Crash type	Crash numbers	% All crashes
Overtaking crashes	4	11.43
Straight road lost control/head on	0	0
Bend - lost control/Head on	3	8.57
Rear end/obstruction	17	48.57
Crossing/turning	10	28.57
Pedestrian crashes	0	0
Miscellaneous crashes	1	2.86
TOTAL	35	100

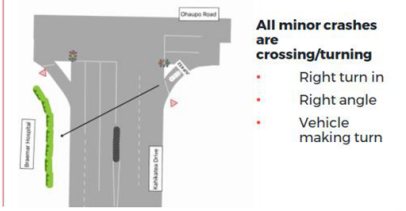


Figure 8-4: Site 4 Crash Map and TC Report.

8.2 High Risk Intersection Assessment

The High Risk Intersection Assessments were based on the five whole year crash data from 2016 to 2020.

Based on the reported crashes, a risk calculation was undertaken based on the High Risk Intersection Guide. Using injury crashes only, a death and serious injury (DSI) severity factors[4] were applied to all injury crashes and the type of movements to determine risk. Using this assessment results, all study intersections were not defined[5] as high risk due to the relatively low DSI equivalents. A summary of the safety risk assessments and calculations are attached in Appendix A.

[4] Using the Determining safety risk practitioners spreadsheet Safety risk definitions for results alignment | Waka Kotahi NZ Transport Agency (nzta.govt.nz)
[5] As per Waka Kotahi High Risk intersection guide – Figure 4-2.

9 Problems and Objectives

The following table (Table 9-1) summarises the key problems agreed for the study area based on background information gathered for site observations, previous projects (Waikato Hospital TDM Plan) and steering group meetings between WSP, HCC, WRC and WDHB. A set of objectives were proposed and agreed by HCC stakeholders to address these problems and are the basis for options development.

Table 9-1 Problems and Objectives

Problems	Objectives
1. The current bus stop location is restrictive to the capacity of the bus stops. The current capacity restricts the ability for Waikato Hospital to support future bus service growth such as, new services (Peacockes) and higher frequency bus services (Comet).	Investigate options to potentially relocate the current bus stops. These options should be able to provide the desired capacity to support and enable future growth of bus services at Waikato Hospital.
2. The Waikato Hospital campus is very large and located on top of a steep hill. The elevation and distance to Waikato Hospital main entrances can sometimes be difficult for staff and public, especially those with vision or mobility impairments.	Investigate options to improve the convenience and accessibility of the stops. It is important the options are located at elevations to allow all passengers to get where they need to go efficiently and easily.
3. Near Waikato Hospital there are streets and intersection that experience high levels of congestion, especially during peak times. Very limited intersections along routes servicing Waikato Hospital have bus priority, this causes delays and adds to the journey time for buses and its users.	Investigate options to improve bus priority for surrounding problematic intersections. Bus priority and intersection infrastructure improvement will improve journey time reliability to get bus users where they want to go at the time they expect to arrive there.

10 Assessment Framework

10.1 Overview

The MCA enables the options to be ranked against different and often competing criteria to recommend a preferred option. Client and stakeholders were involved in the MCA process and the decision-making process, which helped create more robust and clear objectives and input into the scoring. Figure 10-1 illustrates the MCA process undertaken to reach the preferred option.

Figure 10-1: Options and MCA Development Process

The effects from the option interventions are assessed in comparison to what is currently occurring using a seven-point effects scale (-3 to +3 as shown below), with the key risks also identified. The individual ratings are available in Figure 10-2 below.

Large Positive	• Major positive impact resulting in substantial long-term improvements	3
Moderate positive	• Moderate positive impact, possibly short, medium, or long-term duration.	2
Slight positive	• Minimal positive impact - short term	1
Neutral	• Neutral - no discernible/ predicted impact	0
Slight Negative	• Minimal negative impact possibly only lasting over short term (definitely able to be managed)	-1
Moderate Negative	• Moderate negative impact. Impacts may be short, medium, or long term and highly likely to respond to management actions	-2
Large Negative	• Impacts serious, long-term, and possibly irreversible effect	-3

Figure 10-2 MCA Seven-Point Effects Scale

10.2 Bus Infrastructure

MCA was used as a tool in the options assessment to outline the recommended approach for option selection. The MCA provides a consistent approach to aid decision making and has been utilised as a two-stage assessment to evaluate the different options proposed.

- Stage One: Assess each intervention in relation to the identified objectives stated above in Table 9-1.

- Stage Two: Assess each intervention based on the potential impacts and any risks on implementation. A summary of the impacts and risks identified for all the interventions are shown in Table 10-1 below:

Table 10-1 Identified Impacts and Risks

Implementation & Risks	- Technical, Design & Safety
	- Property Impact (Land take, Consenting and Environmental Risks)
	- Cost
	- Capital, Operation and Maintenance
	- Dependency and Timeframe

10.3 Intersections

MCA was used as a tool in the options assessment to outline the recommended approach for option selection. The MCA provides a consistent approach to aid decision making and has been utilised as a two-stage assessment to evaluate the different options proposed.

- Stage One: Assess each intervention in relation to the identified objectives stated above in Table 9-1.
- Stage Two: Assess each intervention based on the potential impacts and any risks on implementation. A summary of the impacts and risks identified for all the interventions are shown in Table 10-2 below:

Table 10-2 Identified Impacts and Risks

Impacts	- Active Mode Operational Performance
	- Traffic Operational Performance
Implementation & Risks	- Technical, Design & Safety
	- Property Impact (Land take, Consenting and Environmental Risks)
	- Cost
	- Capital, Operation and Maintenance

11 Options Assessment

11.1 Overview

Workshops were hosted and attended by HCC, WRC, WDHB and the WSP project team to discuss long list and short list options. Independent workshops were required to discuss the bus hub options and intersection options, due to the location of the bus hub needing to be established to inform options for the intersection improvements. Therefore, the long list and short list for the bus hub options needed to be agreed by the steering group prior to the commencement of the intersection improvement optioneering. Figure 11-1 below illustrates the optioneering process undertaken by the WSP project team to reach the preferred package of bus stop locations and associated intersection improvements.

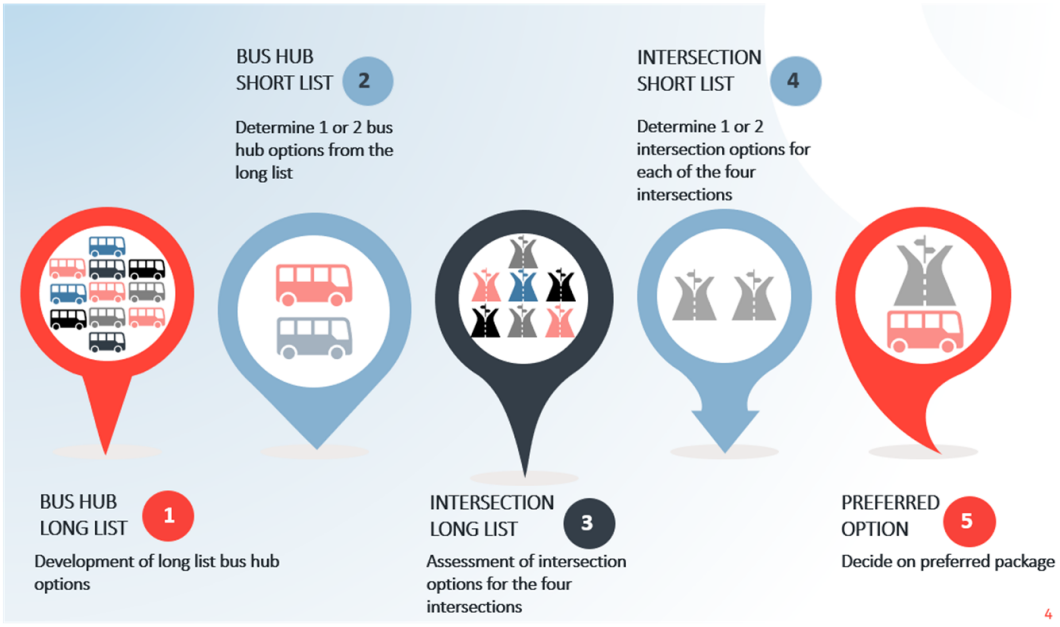


Figure 11-1 Optioneering Process

12 Bus Infrastructure Options

12.1 Longlist

A set of long-list options for the relocation of the bus infrastructure and stops (simplified to "bus hub") were identified after a set of problems and objectives were decided upon within an early steering group workshop. The workshop was attended by HCC, WRC, WDHB and the WSP project team.

In addition to the problems and objectives, functional requirements of the bus hub were used in order to develop the longlist. The functional requirements were gathered from WRC requirements and guidance from best practice. The determined functional requirements for bus hub options (Figure 12-1) to achieve are:

- 4 bus bays in each direction with ideally an additional contingency bay for congestion
- 20 metres is required per bus bay
- Aim to provide full bus stop facilities at each bus stop
- No requirement to provide driver changeover and layover
- Provide contingency for future demand responsive pick up and drop off vehicles

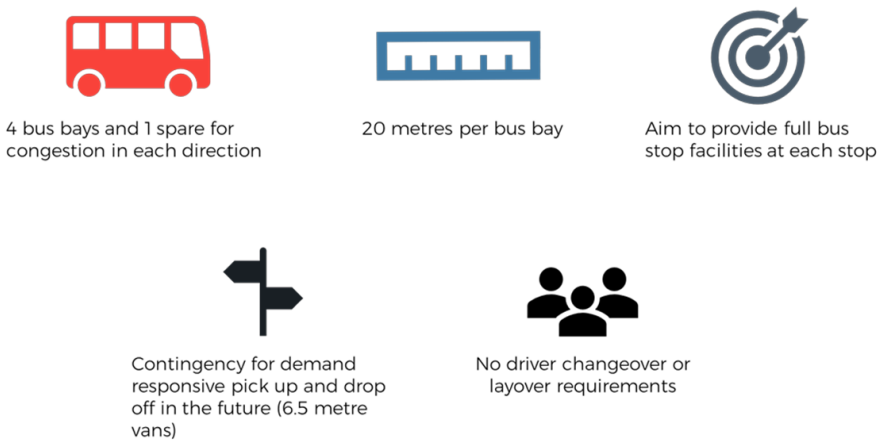


Figure 12-1 Bus Infrastructure Requirements

In order to satisfy the problems, objectives and functional requirements different layouts were trialled. Therefore, bus hub options on street, off street and an on street hub split between different streets were analysed. The final long list of options is:

- On street
  - 1 - Ohaupo Road
  - 2 - Selwyn Street
  - 3 - Pembroke Street (southern end)
- Off street
  - 4 - Ohaupo Road
  - 5 - Selwyn Street
  - 6 - Hague Road
- On street split hub
  - 7 - Pembroke Street and Lorne Street

- 8 - Pembroke Street and Ohaupo Road

The locations of the above long list options can be seen below in Figure 12-2.

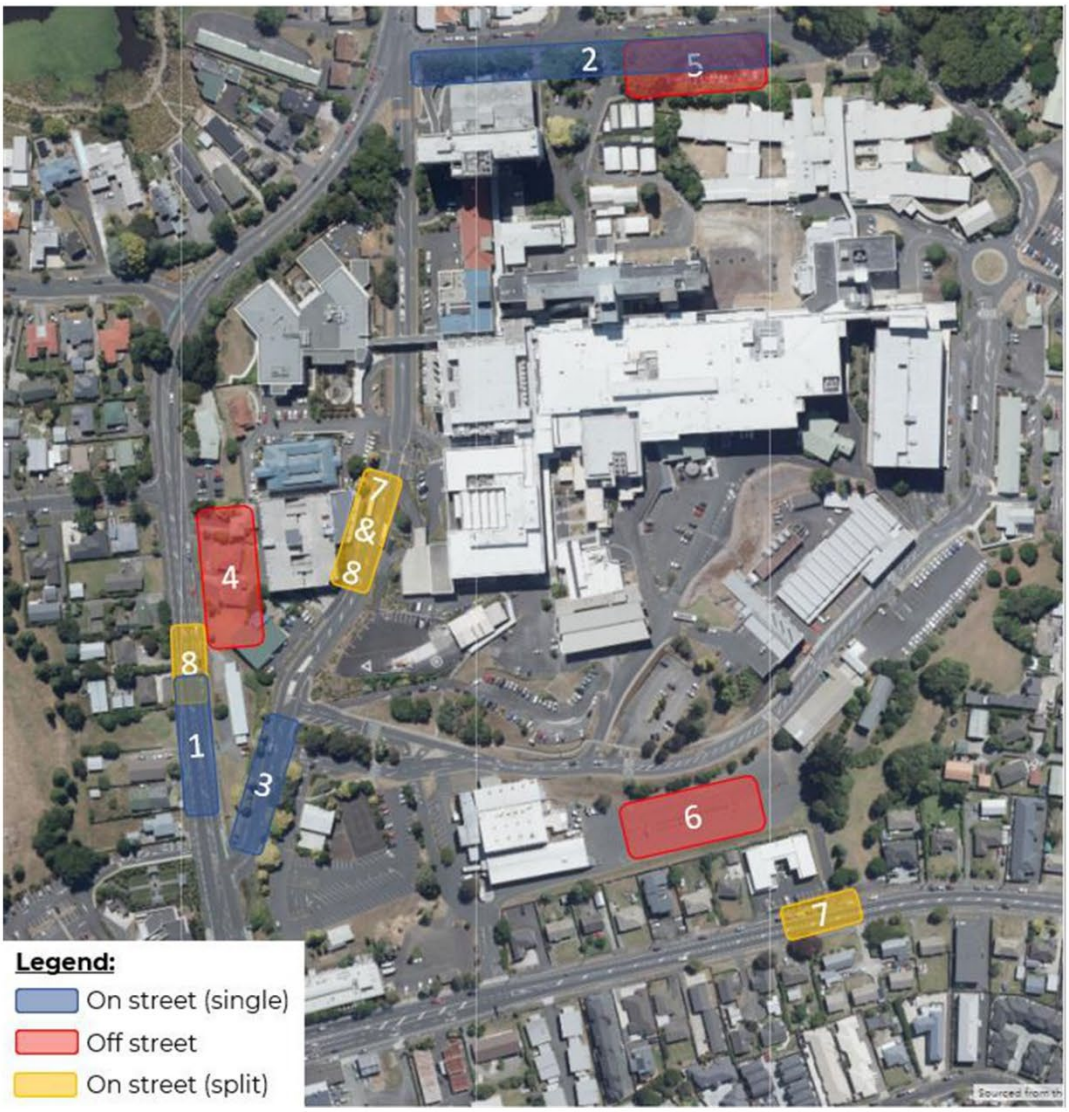


Figure 12-2 Locations of the Long List Options

A do nothing approach was considered but was dismissed as it does not meet the project objectives or address the existing problem of the bus infrastructure at Waikato Hospital.

The concept drawings and characteristics of the longlist options are included in Appendix B

12.1.1 MCA Analysis

The scores for the bus hub longlist options are provided in Table 12-1 Bus Hub Longlist Options below. The ratings were based on the assumed impacts on the objectives, impact on bus users and current operating bus performance, implementation, associated risks. These ratings were reviewed and agreed by HCC, WRC and WDHB during a steering group meeting. The detailed MCA for the bus hub options is attached in Appendix C

Common treatments were identified to improve each of the variations of options including accessible kerb heights, shelter and seating, hardstand, safe crossing points nearby and adequate footpath widths. It was acknowledged that these treatments will be considered after a specific option intervention is pursued.

Table 12-1 Bus Hub Longlist Options MCA

		WDHB Bus Hub Option MCA							
		On Street - Single			On Street - Split		Off Street		
		Ohaupo Road	Selwyn Street	Pembroke Street (Southern End)	Ohaupo Road	Lorne Street	Ohaupo Road	Selwyn Street	Hague Road
Objectives	**Capacity**	3	2	2	1	0	3	3	3
	Convenience / Accessibility	-2	1	-1	-1	-1	-1	1	-1
	Reliability	-1	-1	-1	0	0	-2	-1	-2
Implementation /Risks	**Technical / Design / Safety**	-2	-1	-1	-1	-1	-2	-2	-1
	Property Impact	-2	-1	-1	0	0	-2	-1	-1
	Cost	0	-1	-1	0	0	-2	-2	-1
	Capital/ operations/ maintenance (Affordability)	0	-1	0	-1	0	-2	-2	-1
	Dependency/ timeframe	-1	-1	-1	-1	-1	-2	-2	-2
Summary	**(Initial Score)**	**-2.5**	**-1.5**	**-2**	**-1.5**	**-1.5**	**-5**	**-3**	**-3**
	(Initial Ranking)	**5**	**1**	**4**	**1**	**1**	**8**	**6**	**6**
	Sensitivity Score	**-1.5**	**-0.1**	**-1.2**	**-0.9**	**-1.3**	**-3**	**-0.6**	**-1.8**
	Sensitivity Rank	**6**	**1**	**4**	**3**	**5**	**8**	**2**	**7**

12.1.2 Discussion

The following discussion points can be made from the MCA analysis of the bus hub options:

- All of the longlist options provide an improvement to the capacity of stops that are currently present at Waikato Hospital.
- The option for an on street split at Lorne Street has limited ability to improve the capacity for all services through Waikato Hospital due to only the future Peacockes bus service including Lorne Street in its route, hence the neutral score.
- Off street bus hub options provide the greatest capacity of bus bays, however, they require the largest footprint area.
- Due to the hill the Waikato Hospital is located on it makes it difficult to improve the accessibility of the current stops due to them be located with an achievable elevation to the Pembroke Street entrances for all mobility types. Out of all the options only those positioned on Selwyn Street are an improvement on the existing accessibility. This is due to Selwyn Street being located at a reasonable distance to the three main Waikato Hospital entrances (Pembroke Street, Hague Road, and Menzies Building Selwyn Street entrance).
- Off street bus hub options often have moderate adverse effects involved in the implementation and risks due to the property impacts, cost, capital, and operations generally being more significant of those options positioned on street.
- Due to width constraints between both boundary to boundary and kerb to kerb an on street option on Ohaupo Road would require trade off between planned cycling facilities along Ohaupo Road.
- The options located on Selwyn Street increases buses unproductive distance as the buses are required to travel down and turn around, exiting the same place as the entrance as opposed to travelling through.
- The on street bus hub option at the southern end of Pembroke Street requires an increase of the current kerb to kerb width in order to provide bus stops in both directions. Reconfiguration of the current Hague Road entrance and exit will be required in order to implement this option.

12.1.3 Longlist Recommendations

Two options were agreed and recommended for the shortlist assessment:

- SL 1 – On street (single), Selwyn Street
- SL2 – On street (split), Pembroke Street & Lorne Street

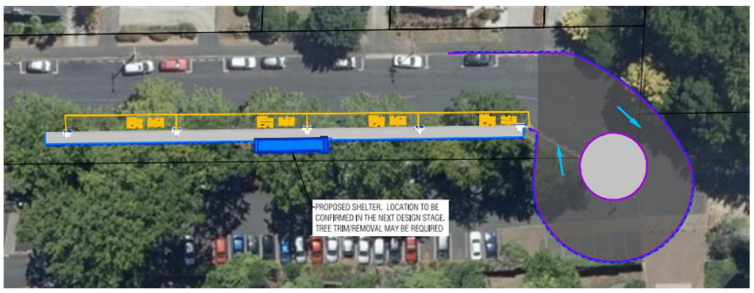
12.2 Shortlist

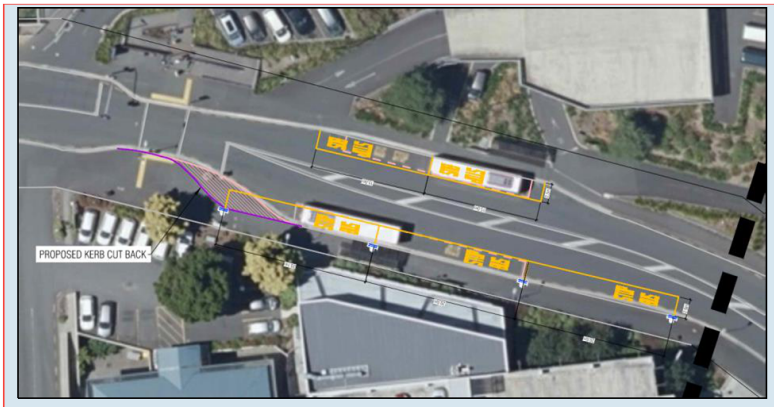
The shortlist options of Selwyn Street on street bus hub and Pembroke Street and Lorne Street on street split location bus hub were developed further.

12.2.1 Options Drawing

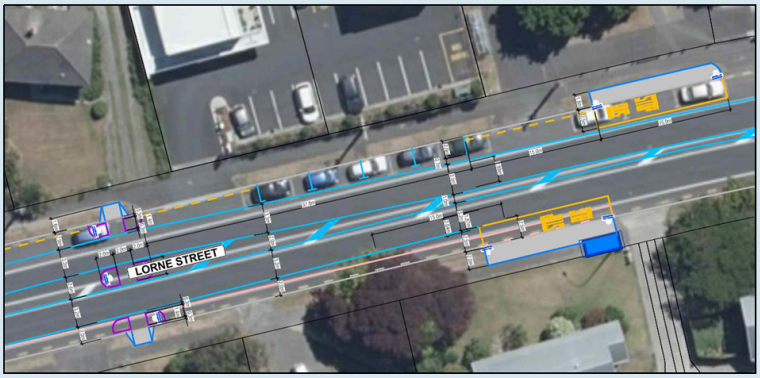
Preliminary drawings for each option were completed for the steering group workshop. These illustrate the characteristics of each bus hub option and aid the options development and assist in the decision making for the complimenting intersection infrastructure. These are illustrated in Table 12-2 below.

Table 12-2 Shortlist Options

Shortlist Options	Characteristics
<u>On Street (Single) - Selwyn Street</u> *Selwyn Street - Western End*  *Selwyn Street - Eastern End* 	- Capacity of 8 bus bays. 4 located on the western side of Waikato Hospital Gate 6 and 4 to the eastern side. - Bus shelter with seating provided in both sets of bus bays. - Upgrade of existing footpath required - Requires removal of existing car parking on the southern side of Selwyn Street. - Physical works required to allow buses to turn around at the end of Selwyn Street.
<u>On Street (Split) - Pembroke Street & Lorne Street</u> *Pembroke Street*	- Capacity of 7 bus bays. 5 located on Pembroke Street and 2 on Lorne Street. - Increase of 1 northbound bus bay to the existing on Pembroke Street. Will require



Lorne Street



kerb cutback to implement.

- Retain existing bus shelter and seating on Pembroke Street.
- Provide shelter and seating for Westbound bus stop on Lorne Street
- Requires moving west existing pedestrian kerb buildouts on Lorne Street.

12.2.2 On Street (Single) - Selwyn Street

The bus relocation to an on street option on Selwyn Street was ranked as the highest overall score for both the standard MCA assessment (50% objectives and 50% implementation/risks) and the sensitivity MCA assessment (70% objectives and 30% implementation/risks). The accessibility and convenience of stops located on Selwyn Street is an improvement to the current stop location when comparing the distance and elevations to the three main entrances of Waikato Hospital (Pembroke Street, Hague Road, and Menzies Building Selwyn Street entrance). This option also provides good future accessibility and convenience as it is located adjacent to the future Waikato Hospital entrance and with an insignificant elevation difference once the Waikato Hospital masterplan desired layout is in operation. When analysing the implementation and risks of the Selwyn Street (on street) option it does not score worse than minor adverse effect or notably worse than other options assessed. The current option on the south side of Selwyn Street has a capacity for 8 bus bays (assumed four in each direction) but also has a potential to be scaled larger in the future redevelopment on this side of Waikato Hospital with the creation of Hospital Street and masterplan changes to create even more capacity if there is a demand to do so. However, concerns were raised in the reliability of the bus service and increase in travel time with the Selwyn Street options as bus would be required to travel to the turning circle at the end of street and head back out the same entrance creating a double back impression for the services.

12.2.3 On Street (Split) - Pembroke Street & Lorne Street

The bus split between Pembroke Street and Lorne Street was ranked as the same (highest) as the on street Selwyn Street option. However, when the sensitivity MCA assessment was carried out it ranked further down. This is due to the sensitivity score putting a greater preference into achieving the objectives which for this option is ranked as either neutral or with a minor adverse effect. This

is due the option not varying too different to the existing arrangement on Pembroke Street apart from the additional northbound bay. The additional stop in each direction at Lorne Street has limited relevance to the overall bus network so this additional capacity is not reflected overall. Placement of stops on Lorne Street raised concerns regarding the accessibility to those with mobility impairments due to the distance and elevation to Waikato Hospital, hence the minor adverse effect ranking. This option is favourable in terms of the implementation and risk compared to other options, this is due to only minor changes from the existing infrastructure to needing to be designed and constructed in order for the split design to be operational.

12.2.4 Shortlist Recommendations

It was agreed by the steering group that until the Waikato Hospital masterplan is implemented to a stage where the main entrance of the Hospital is located adjacent to Selwyn Street the on street option on Selwyn Street is not a favourable option for bus patrons or bus services through the Waikato Hospital.

Therefore, in the short term it is recommended that the stop locations are split between the current stops on Pembroke Street as well as additional stops on Lorne Street (On Street Split - Pembroke Street & Lorne Street) to increase the capacity and support growth of bus services in this area. For bus stops on Pembroke Street, it is recommended utilising existing stops with additional road markings. For the new stops on Lorne Street, bus shelter is proposed on the southern side bus stop only.

However, once the Waikato Hospital Masterplan is implemented and the Waikato Hospital main entrance is located on 'Hospital Street' (adjacent to Selwyn Street) it is recommended that the bus stop locations at 224 Pembroke Street and opp 226 Pembroke Street are relocated to Selwyn Street (On Street Single - Selwyn Street). Two shelters are recommended for the stops on Selwyn Street, more investigation with arborist is required for including shelters, may need to trim or remove trees on the southern side.

Both of these options will be used as the basis of the analysis for the intersection infrastructure improvement and will be used to inform bus priority measures at the intersections.

13 Intersection Options

Longlist and shortlist intersection options are discussed in this section on the basis of the shortlisted bus hub options.

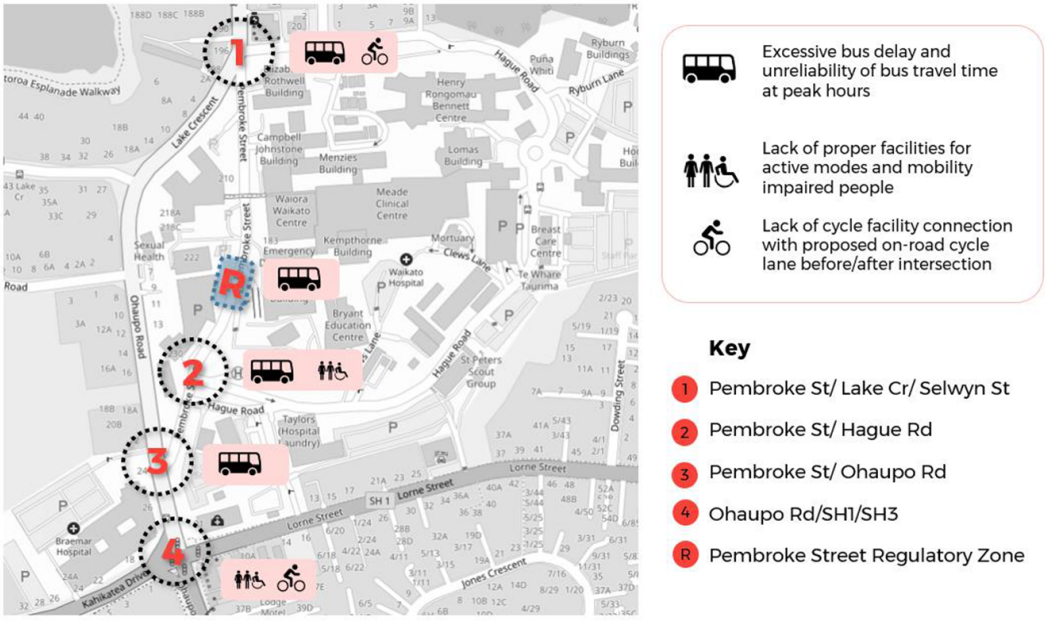


Figure 13-1 Intersection Options

13.1 Longlist

13.1.1 Option Assessments and Discussion

The key objectives of the intersection improvement are the same as for the bus infrastructure options in Section 9, as the purpose of the intersection improvements is to support the future public transport infrastructure and growth in the area. The specific safety, active mode problems at each of the intersections were identified in Section 3.3.

The key objectives identified specific intersection problems and the recommended short list bus infrastructure options were considered while we are developing the long list options for all intersections in the study area. The longlist option assessments and discussion are provided in Table 13-1 to Table 13-6.

Site 1 Pembroke St / Lake Cr / Selwyn St Intersection

Table 13-1 Site 1 Longlist Options

Longlist	Option	Commentary	Action
Option 1	Existing intersection layout with bus GPS/Radar	• Call the Bus phase more frequently with potential longer phase	✓
Option 2	Existing intersection layout with cycle lanes on both side and potential phasing adjustment (Longer bus phase and cycle phase)	• Room for on road cycle lane on both direction • Run the cycle phase with the left turn vehicles • Peak/off Peak cycle phase	✓
Option 3	Bus jump intersection realignment with general traffic (with realignment + longer phase adjustment)	• This option is discounted due to the combined bus lane (BL) and left turn vehicle lane. B phase is not recommended because a short separate bus lane is required to make effective	✗
Option 4	Bus jump intersection with cycle box provided for the southbound and northbound cycle lane is formalised	• This option is discounted due to limited space at the site	✗

Site 2 Pembroke St / Hague Rd Intersection

Table 13-2 Site 2 Longlist Options

Longlist	Option	Commentary	Action
Option 1	Fully mountable roundabout	• This option is discounted due to significant cost and marginal benefit • Require major realignment. • Tree removal may be required	✗
Option 2	Change priority to through movement instead of right turn	• This option will give priority to through vehicles as well as bus that run through Pembroke Street. • This option will potentially reduce the PT journey time	✓
Option 2a	Option 2 + combine the entry and exit	• This option will improve the pedestrian crossing at this site on top of Option 2	✓
Option 3 (SB BL)	Option 3 is Option 2 + bus lane through from Signalised ped crossing on Pembroke to Pembroke/Ohaupo	• This option is discounted due to significant cost and marginal benefit. • Potential safety risks of bus lane merging with general traffic lane before the intersection due to the additional right turn bay.	✗

Site 3 Pembroke St / Ohaupo Rd Intersection

Bus on Ohaupo Road

Table 13-3 Site 3 Longlist Options Bus on Ohaupo

Longlist	Option	Commentary	Action
Option 1 (Bus on Ohaupo)	Existing intersection layout with SB Bus Lane ends immediately after the Pembroke intersection	• This option is only considered for the long term bus stop option - On Street Single Selwyn Street	✓

Bus on Pembroke Street

Table 13-4 Site 3 Longlist Options Bus on Pembroke

Longlist	Option	Commentary	Action
Option 1	Existing intersection layout with clearway pavement marking at the whole intersection	• Consider discounting this option because it does not provide priority for buses as required for this site • It does not improve the bus manoeuvre for northbound bus turning left to Pembroke Street	✗
Option 2	Signals layout excluding Braemer Access leg No right turn from Pembroke to Ohaupo	• Consider discounting this option as it does not enable safe access in and out from the Braemar access.	✗
Option 3	Signals with Braemer Access	• Modelling is required to understand the potential impact of this option on the network	✓
Option 4	Signals with Braemer Access and additional 60 m bus lane on Pembroke	• Modelling is required to understand the potential impact of this option on the network	✓
Option 5	Existing give-way layout with additional 60 m bus lane on Pembroke	• Modelling is required to understand the potential impact of this option on the network	✓
Option 6	Fully mountable roundabout	• Very constraint space so not enough room for a formal RAB • Slope on Pembroke Street towards the site is not ideal for a RAB to operate safely and efficiently • The site is close to the SH intersection with multi lanes, a multi lane roundabout may be required	✗

Site 4 Ohaupo Rd/SH1/SH3 Intersection

Table 13-5 Site 4 Longlist Options

Longlist	Option	Commentary	Action
Option 1	Existing intersection with Raised zebra crossings on the two slip lanes	• Active mode focused improvements	✓
Option 2	Bus Jump Intersection	This option is discounted because: • The bus jump option will not provide much benefit given that is does not linked to a continuous bus lane • Also, a potential significant impact on the traffic operation of the site by adding an additional B phase • It does not cater for obiter route.	✗
Option 3	Transit lane before the intersection linked to the Pem/Ohaupo intersection	This option is discount because continuous bus lane will not work without major adjustment: • Adding a new bus lane is difficult because the boundary lane is close to the kerb lane • Need to shift the layout of the approach and extend the boundary toward the west • Consideration needs to be made to match the layout on the other approach (North Approach) of the site • Considering switching an existing general traffic lane to a bus lane. This will also require kerb realignment and there will be a significant impact on the operation of this site	✗

Site R Regulatory on Pembroke

The regulatory options were investigated to address the potential rat run problem to improve the journey time of bus travelling on Pembroke Street.

Table 13-6 Site R Longlist Options

Longlist	Option	Commentary	Action
Option 1	Bus only lane Pembroke Street (between pedestrian crossing and emergency department) exit with formalised facility for cars to turn around before and after the bus only corridor	This option is discounted because: • Entrance to the emergency department require minor realignment to allow vehicles to turn around before the bus only section. • There is additional delay as the through bus need to stop before the vehicles that are turning around.	✗

		• This option should only be considered if we have a signal at the Pembroke/Ohaupo Site to allow for right turn	
Option 2	Additional short bus lane at the existing bus stops and the signalised pedestrian crossing. Plus, dedicated bus phase and Raised Safety Platform (RSP) at the signalised crossing)	• This option is acting as a bus gate, which allow for early 6 sec starts, this option will have a 6 sec additional delay for general traffic • A short bus lane will be required at the Hague and Pembroke/Ohaupo to enable an efficient bus jump	✓
Option 3	Option 2 + SB bus lane through from Signalised ped crossing on Pembroke to Pembroke/Ohaupo	• This option is discounted due to significant cost and marginal benefit. • Potential safety risks of bus lane merging with general traffic lane before the intersection due to the additional right turn bay.	✗

13.1.2 Longlist Recommendations

The longlist options were discussed with the client and main stakeholders at the longlist workshop, the following options were agreed and recommended for the shortlist assessment:

- Site 1 Pembroke St / Lake Cr / Selwyn St Intersection
  - Option 1 (Phasing Adjustment) - Existing intersection layout with bus GPS/Radar
  - Option 2 (Cycle Improvement) - Existing intersection layout with cycle lanes on both side and potential cycle phase adjustment
- Site 2 Pembroke St / Hague Rd Intersection
  - Option 2 (Change Priority) - Change priority to through movement instead of right turn
  - Option 2a (Combined Entry and Exit) – Option 2 with combined entry/exit and raised zebra crossing
- Site 3 Pembroke St / Ohaupo Rd Intersection
  - Option 1 (Bus on Ohaupo SB Bus Lane) - Existing intersection layout with SB bus lane ends immediately after the Pembroke intersection
  - Option 3 (Bus on Pembroke Signal) - Signal layout including Braemar Access leg
  - Option 4 (Bus on Pembroke Signal + 60 m BL) - Option 3 with 60 m bus lane on Pembroke
  - Option 5 (Bus on Pembroke Give-way + 60 m BL) - Existing give-way layout with 60 m bus lane on Pembroke
- Site 4 Ohaupo Rd/SH1/SH3 Intersection
  - Option 1 (Raised Zebra on Slip Lanes) - Existing intersection with Raised zebra crossings on the two slip lanes
- Site R Regulatory on Pembroke
  - Option 2 (Bus Gate and SB BL) - Bus queue jump and southbound bus lane

13.2 Shortlist

The agreed shortlist options of the four intersections and the regulatory site were developed further.

13.2.1 Options Assessment and Discussion

Preliminary design has been carried out with tracking checks. for each option were completed for the shortlist design workshop. These illustrate the characteristics of each intervention and aid the options development and assist in decision making. These are illustrated in Table 13-7 below.

Table 13-7 Site 1 Shortlist Options

Site 1 Pembroke St / Lake Cr / Selwyn St Intersection Shortlist Options	Characteristics
Option 1 (Phasing Adjustment) 	- Existing intersection layout with bus GPS/Radar - Calling the bus phase more frequently with potential of longer phase - Minor cycle improvement with formalised northbound cycle lane through the intersection and cycle box for the southbound cycle movement
Option 2 (Cycle Improvement) 	- The intersection shifts slightly towards east because of the kerb cut back - Formalised cycle lane for both ways. Advance cycle box is provided for the southbound cycle movement - Lane and kerb realignments are required to accommodate for on-road cycle lane approaching and through the intersection - Run the cycle phase with the left turn vehicles

Table 13-8 Site 2 Shortlist Options

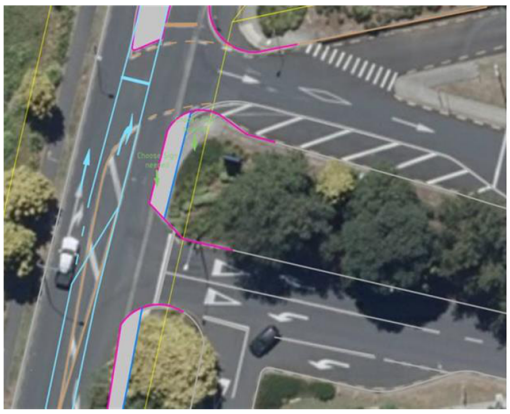
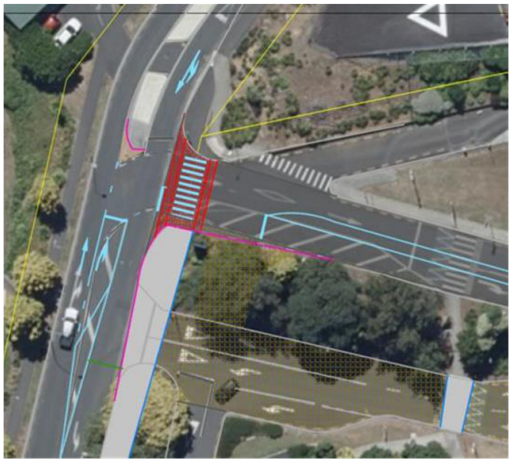
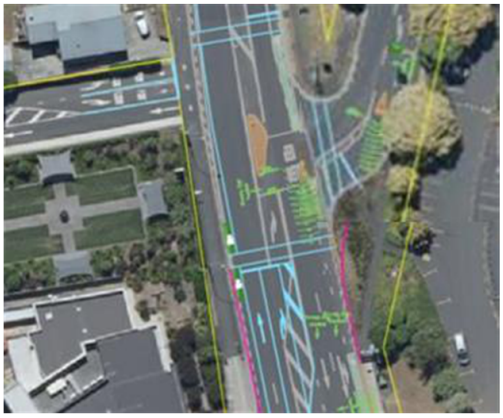
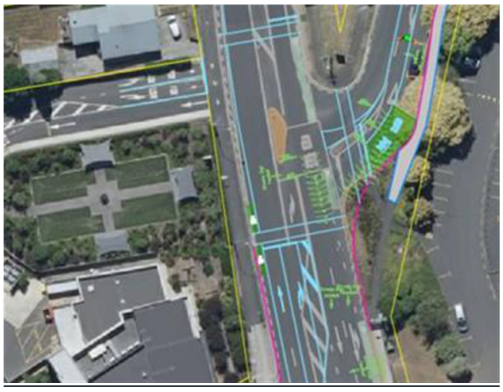
Site 2 Pembroke St / Hague Rd Intersection Shortlist Options	Characteristics
Option 2 (Change Priority) 	- This option will give priority to through vehicles as well as buses that run through Pembroke Street. - Replace the flushed median with right turn bays for vehicles turning into Hague Road - Slight kerbs build out to slow vehicle turning as well as to provide footpath for pedestrians
Option 2a (Combined Entry and Exit) 	- This option is similar to Option 2 above with priority switched to through vehicles - The exit point from Hague Road is relocated to the northern access to in order to reduce the point of conflicts and allow more stacking at the right turn bay - This option also enables a shorter crossing distance with safe raised zebra crossing - This option will improve the pedestrian crossing at this site on top of Option 2

Table 13-9 Site 3 Shortlist Options

Site 3 Pembroke St / Ohaupo Rd Intersection Shortlist Options	Characteristics
Option 1 (Bus on Ohaupo SB Bus Lane) 	- Existing intersection layout with SB bus lane ends immediately after the Pembroke intersection - The whole intersection is shifted towards west to make room for the additional bus lane - Southbound on-road cycle lane is retained
Option 3 (Bus on Pembroke Signal) 	- Signalised intersection with Braemer access - Additional signalised pedestrian crossing at three approaches except the Braemer access approach - Larger intersection layout thus longer phasing time which could potentially reduce the efficiency of the signals.
Option 4 (Bus on Pembroke Signal + 60 m BL) 	- This option is similar to Option 2 above with additional short bus lane on Pembroke Street - The additional bus lane is acting as a queue jump approaching the intersection aiming to give bus priority and reduce bus journey time

Option 5 (Bus on Pembroke Give-way + 60 m BL) 	- Existing intersection layout (Give-way) with additional 60 m bus lane on Pembroke Street - Intersection realignment and kerb build out at the exit point to accommodate an additional bus lane and allow for bus manoeuvre.

Table 13-10 Site 4 Shortlist/Emerging Preferred Options

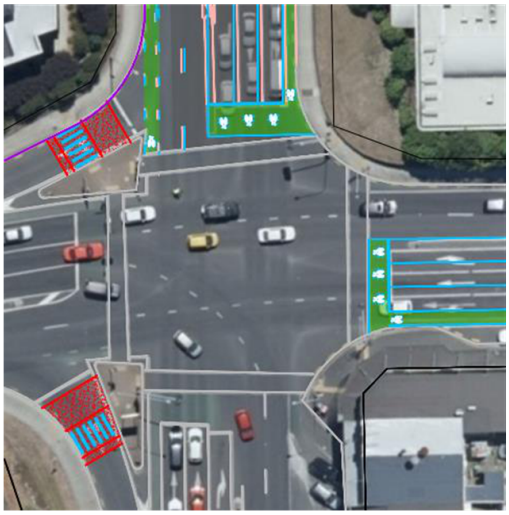
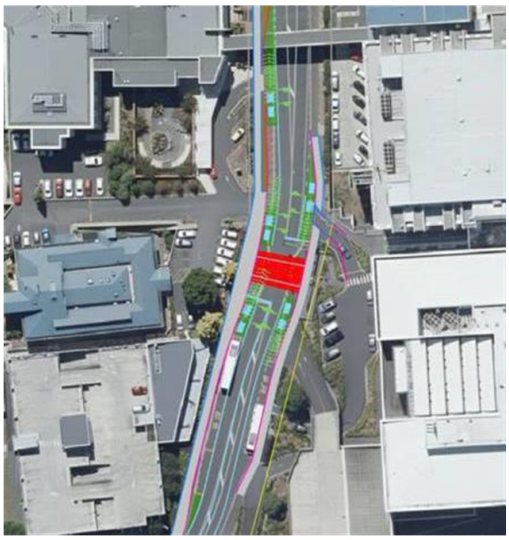
Site 4 Ohaupo Rd/SH1/SH3 Intersection Shortlist Options	Characteristics
Option 1 (Raised Zebra on Slip Lanes) 	- Existing intersection layout with raised zebra crossings on the two slip lanes - Remove the solid island on the north and east approaches to upgrade the existing cycle lane to the complaint width approaching and exiting the intersection - Formalise the cycle boxes on the north and east approaches

Table 13-11 Site R Shortlist/Emerging Preferred Options

Site R Regulatory on Pembroke Shortlist Options	Characteristics
Site R Regulatory on Pembroke 	- Additional short bus lane at the existing bus stops and the signalised pedestrian crossing. - Dedicated bus phase and RSP at the signalised crossing - This option is acting as a bus gate, which allow for early 6 sec starts for bus, which allow bus to have a head start of 6 sec ahead of general traffic, thus a potential 6 sec delay to the general traffic

Site 1 Pembroke St / Lake Cr / Selwyn St

Comparing to Option 1 (Phasing Adjustment), Option 2 (Cycle Improvement) increase the overall safety performance for cyclist with the formalised cycle facilities. Option 2 (Cycle Improvement) aligns with the Lake Cres/Ohaupo Road Intersection Accessibility Improvement project and the Hamilton City Council's Biking Connectivity Programme.

It was agreed in the shortlist options workshop that Option 2 (Cycle Improvement) with formalised cycle lanes is recommended as the tentative preferred option to be refined. The signal phasing arrangement and intersection operational performance needs to be investigated further in traffic models in the next project stage analysing the potential impact.

Site 2 Pembroke St / Hague Rd Intersection Shortlist Options

Comparing to Option 2 (Change of Priority), the raised zebra crossing and shorter crossing distance of Option 2a (Combined Entry and Exit) improves the overall safety and accessibility of this intersection for active modes users.

It was agreed in the shortlist options workshop that Option 2a (Combined Entry and Exit) with raised zebra crossing is recommended as the tentative preferred option to be refined.

Site 3 Pembroke St / Ohaupo Rd Intersection Shortlist Options

There are four shortlist options:

- Option 1 (Bus on Ohaupo SB Bus Lane) - Existing intersection layout with SB bus lane ends immediately after the Pembroke intersection
- Option 3 (Bus on Pembroke Signal) - Signal layout including Braemar Access leg
- Option 4 (Bus on Pembroke Signal + 60 m BL) - Option 3 with 60 m bus lane on Pembroke
- Option 5 (Bus on Pembroke Give-way + 60 m BL) - Existing give-way layout with 60 m bus lane on Pembroke

Option 1 is to be considered as the long-term bus hub option (On Street Single Selwyn Street) once the buses can travel via Ohaupo Road. Option 3 to Option 5 work for both the long-term and the short term bus hub option when bus is currently travelling via Pembroke Street.

The signalised intersection performance of Option 3 and Option 4 and all other options need to be investigated further in traffic models in the next stage to understand the travel times and potential impact to the larger network.

It was agreed in the shortlist options workshop that Option 1 (Bus on Ohaupo SB Bus Lane), Option 3 (Bus on Pembroke Signal), Option 4 (Bus on Pembroke Signal + 60 m BL) and Option 5 (Bus on Pembroke Give-way + 60 m BL) to be refined in the next project stage when bus infrastructure options and intersections options are combined to be assessed as one package.

Site 4 Ohaupo Rd/SH1/SH3 Intersection Shortlist Options

It has been agreed in the longlist option assessment that Option 1 (Raised Zebra on Slip Lanes) is recommended as the emerging preferred option to be refined in the next project stage.

Site R Regulatory on Pembroke Shortlist Options

In the longlist option assessment, Option 2 (Bus Gate and Southbound Bus Lane) is recommended to be refine in the next project stage.

In the shortlist assessment we have investigated the rat run- issue for this site based on the 2019 intersection survey data and SCATS data provided by the client. The study showed that the potential number of rat run- vehicles were not significant. However, it is to note that the study was not focused on actual rat run- survey and therefore it was agreed that this option is subjected to further rat run- monitoring and will not be refined in the next project stage.

13.2.2 Shortlist Recommendations

The shortlist options were discussed with the client and main stakeholders at the shortlist workshop, the following options were agreed and recommended for the combined package assessment and traffic modelling:

- Site 1 Pembroke St / Lake Cr / Selwyn St Intersection
  - Option 2 (Cycle Improvement) - Existing intersection layout with cycle lanes on both side and potential cycle phase adjustment
- Site 2 Pembroke St / Hague Rd Intersection
  - Option 2a (Combined Entry and Exit) – Option 2 with combined entry/exit and raised zebra crossing
- Site 3 Pembroke St / Ohaupo Rd Intersection
  - Option 1 (Bus on Ohaupo SB Bus Lane) - Existing intersection layout with SB bus lane ends immediately after the Pembroke intersection
  - Option 3 (Bus on Pembroke Signal) - Signal layout including Braemar Access leg
  - Option 4 (Bus on Pembroke Signal + 60 m BL) - Option 3 with 60 m bus lane on Pembroke
  - Option 5 (Bus on Pembroke Give-way + 60 m BL) - Existing give-way layout with 60 m bus lane on Pembroke
- Site 4 Ohaupo Rd/SH1/SH3 Intersection
  - Option 1 (Raised Zebra on Slip Lanes) - Existing intersection with Raised zebra crossings on the two slip lanes

14 Combined Package

14.1 Shortlist

14.1.1 Combined Package Description

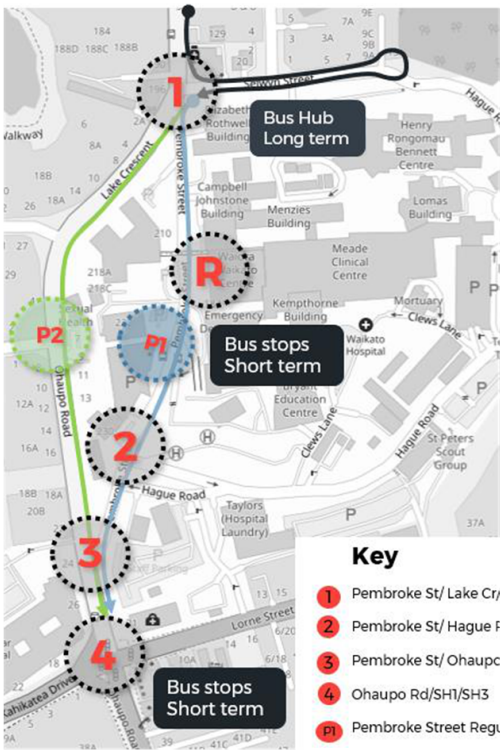
All shortlisted options were combined to two packages:

- Package 1: Bus on Ohaupo Road
- Package 2: Bus on Pembroke Street

Package 1 is only to be considered in the long term when bus is accessing the stops on the Selwyn Street. Package 2 can be considered for both the long term and the short term bus hub options. All packages are summarised in Table 14-1 below. The main difference of the packages is the bus hub location and the intersection form of Site 3 Pembroke Street/Ohaupo Road intersection.

Table 14-1 Combined Package Description

Combined Package		
Package 1a	Site 1 Option 2 (Cycle Improvement) Site 2 Option 2a (Combined Entry and Exit) **Site 3 Option 3 (Signal)** Site 4 Option 1 (Raised Zebra on Slip Lanes)	Combined Package Illustration
Package 1b	Site 1 Option 2 (Cycle Improvement) Site 2 Option 2a (Combined Entry and Exit) **Site 3 Option 4 (Signal short BL)** Site 4 Option 1 (Raised Zebra on Slip Lanes)	
Package 1c	Site 1 Option 2 (Cycle Improvement) Site 2 Option 2a (Combined Entry and Exit) **Site 3 Option 5 (Give-way short BL)** Site 4 Option 1 (Raised Zebra on Slip Lanes)	
Package 2a	Site 1 Option 2 (Cycle Improvement) Site 2 Option 2d (Combined Entry and Exit) **Site 3 Do Nothing** Site 4 Option 1 (Raised Zebra on Slip Lanes)	
Package 2b	Site 1 Option 2 (Cycle Improvement) Site 2 Option 2d (Combined Entry and Exit) **Site 3 Option 1 (Bus on Ohaupo SB Bus Lane)** Site 4 Option 1 (Raised Zebra on Slip Lanes)	



14.1.1 Traffic Modelling

LinSig Traffic Model software was used to understand the traffic operation performance with the proposed packages. The survey traffic volume in Section 7.1.2 of this assessment was used in the LinSig traffic models. A 0% annual growth rate is applied to the 2019 surveyed traffic volume to determine the 2021 traffic volume.

Table 14-2 compared the traffic operation performance (output from LinSig) of the shortlist packages against the current layout; Travel time differences are shown for each package. The detailed output from LinSig is included in Appendix D.

Table 14-2 LinSig Modelling Result – Travel Time Saving

Travel Time Difference	Package 1 – Bus on Pembroke Street			Package 2 – Bus on Ohaupo Road	
	Package 1a Site 1 Option 2 Site 2 Option 2a Site 3 Option 3 Site 4 Option 1	Package 1b Site 1 Option 2 Site 2 Option 2a Site 3 Option 4 Site 4 Option 1	Package 1c Site 1 Option 2 Site 2 Option 2a Site 3 Option 5 Site 4 Option 1	Package 2a Site 1 Option 2 Site 2 Option 2d Site 3 Existing Site 4 Option 1	Package 2b Site 1 Option 2 Site 2 Option 2d Site 3 Option 1 Site 4 Option 1
Cars AM Peak NB	+30 to +50 Sec	+30 to +50 Sec	unchanged	unchanged	unchanged
Bus AM Peak NB	+10 to +30 Sec	+10 to +30 Sec	unchanged	unchanged	unchanged
Cars PM Peak SB	+10 to +30 Sec	+40 to +60 Sec	+10 to +20 Sec	unchanged	+10 to +20 Sec
Bus PM Peak SB	+20 to +40 Sec	-50 to -70 Sec	- 80 to -100 Sec	+10 to +30 Sec	-50 to -70 Sec

In summary, Package 1b, 1c and 2b reduce the bus travel in the PM peak by 50 to 100 sec. Otherwise the travel time of cars and bus either remain unchanged or increased by 10 to 60 sec respectively for each package during the peak hours.

Package 1c has the greatest travel time savings (80 to 100 sec) for bus in the PM peak.

14.1.1 MCA Analysis

The scores for the combined packages are provided in Table 14-3 below. The ratings were based on the assumed impacts on the objectives, impact on general traffic and active mode users, imp implementation, associated risks. These ratings were reviewed and agreed by HCC, WRC and WDHB during a steering group meeting. The detailed MCA for the combined packages is attached in Appendix E

Table 14-3 Combined Packages MCA

			WDHB Bus Hub and Intersection Package MCA				
			Bus On Pembroke			Bus on Ohaupo	
			Package 1a Site 1 Option 2 Site 2 Option 2a Site 3 Option 3 (Sig no BL) Site 4 Option 1	Package 1b Site 1 Option 2 Site 2 Option 2a Site 3 Option 4 (Sig short BL) Site 4 Option 1	Package 1c Site 1 Option 2 Site 2 Option 2a Site 3 Option 5 (Giveway short BL) Site 4 Option 1	Package 2a Site 1 Option 2 Site 2 Option 2d Site 3 Do Nothing Site 4 Option 1	Package 2b Site 1 Option 2 Site 2 Option 2d Site 3 Option 1 Site 4 Option 1
Objectives	Capacity	200%	3	3	3	3	3
	Convenience / Accessibility		2	2	2	2	2
	Journey Time Reliability		-1	2	3	-1	2
Impact	Active mode operational performance	100%	1	1	-1	0	-1
	Traffic operational performance		-1.5	-2	-1	0	-1
Implementation /Risks	Technical / Design / Safety		-2	-2	-1	-1	-1
	Property Impact Land Take /Consenting /Environmental		-1	-1	-1	-1	-1
	Cost		-2	-2	-1.5	-1	-2
	Operation and Maintainence		-1	-1	-1	-1	-1
Summary	(Initial score)		2	7	10	4	7
	(Initial Ranking)		5	2	1	4	2
	Sensitivity Score	400%	10	21	26	12	21
	Sensitivity Rank	100%	5	2	1	4	2

14.1.2 Shortlist Package Discussion

The following discussion points can be made from the MCA analysis of the bus hub options:

- Objectives
  - All the options address the bus stop capacity shortfall
  - All of the packages provide the same level of convenience and accessibility to the stops that are currently present at Waikato Hospital.
  - The journey time reliability of bus for Package 1b, 1c and 2d are improved based on the LinSig modelling result.
  - Package 1c scored the highest overall against the objective as it has the longest travel time savings (80 to 100 sec) for bus in the PM peak.
- Impacts
  - Package 1a and 1b scored positive against active mode performance as of the signalised layout and controlled pedestrian crossing at Site 3
  - Traffic operation impacts were scored accordingly based on the LinSig modelling result for general traffic and cars
- Implementation/Risks
  - Package 1a and 1b were scored lower against the technical design due to the proximality of Site 3 to the SH1/SH3 intersection. If Site 3 is signalised, the RT will be signalised, and this will need to be continued to the SH1/SH3 intersection approaches. In addition, it is likely that queues generated from this intersection that significantly reduce the operation performance of the SH1/SH3 intersection.
  - All of the packages do not require land take therefore scored same to land take and consenting

Overall Package 1c scored the highest against all objectives and the 2nd against impact and risks. In addition, Package 1c works with both the short term (On Street Split - Pembroke Street & Lorne Street) and long term bus hub option (On Street Single - Selwyn Street).

14.1.3 Shortlist Recommendations

The shortlist options were discussed with the client and main stakeholders at the shortlist workshop, overall Package 1c is recommended as the preferred option to be refined.

15 Preferred Package

15.1 Preferred Package Description

The refined design of Package 1c was recommended as the preferred option with additional tracking checks, geometric and safety assessment. The preferred option was presented and agreed by stakeholders at the Preferred Option Workshop dated 17 December 2021.

The concept design drawings for the preferred options are attached in Appendix F. Vehicle tracking has been checked for 12.6m buses (on bus routes) and 6.0 m delivery van for all access to ensure the proposed design will not obstruct the manoeuvring movements.

15.1.1 Short Term Bus Infrastructure Option

The preferred short term bus infrastructure option is the on street split stops on Pembroke Street & Lorne Street to increase the capacity and support growth of bus services in this area.

Features of this option are summarised below:

- An additional bus stop has been proposed to the existing bus bay locations on Pembroke Street
- The introduction of additional bus stop in the northbound direction will require kerb cutback at the approach to the existing pedestrian signal to allow for the front buses to merge back into the traffic lane
- There are existing bus shelters on both sides of Pembroke Street, therefore no new/relocation of bus shelters have been proposed.
- Bus stop is introduced on each side of Lorne Street outside #36A
- Bus shelter can be provided for the westbound direction, however there is inadequate space for a bus shelter for the eastbound direction.
- Pedestrian refuge crossing has been proposed approximately 30m50m west of the new bus stops to provide connectivity. The location proposed was taken into the account the visibility requirement as well as to minimise the lateral shift effect for buses and heavy vehicles. Signalised crossing facility can be considered if pedestrian demands justified.

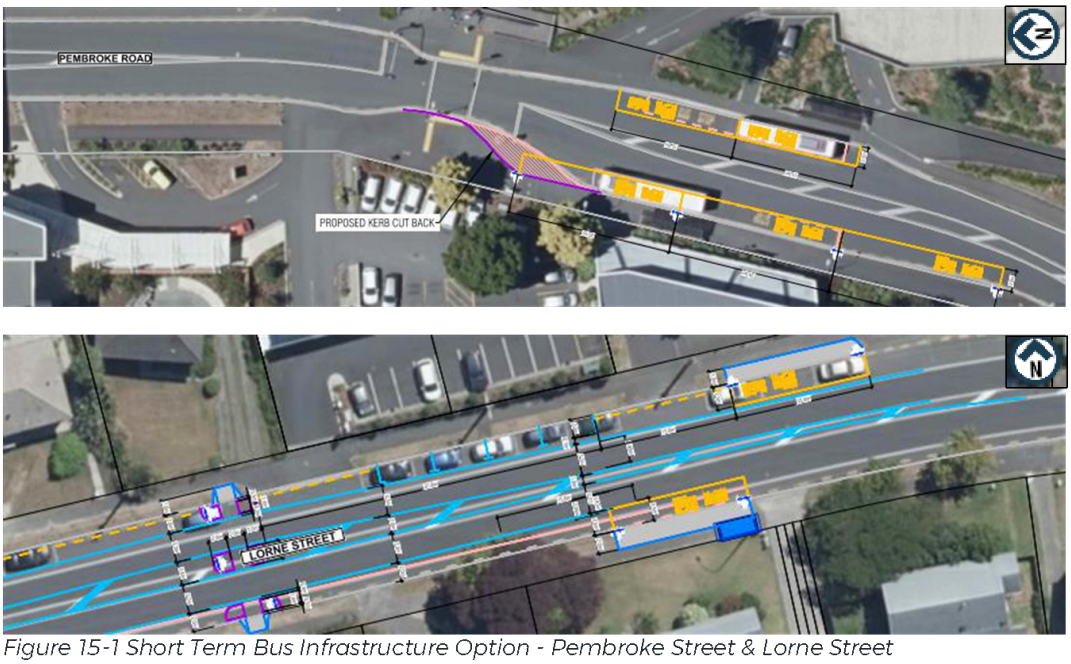


Figure 15-1 Short Term Bus Infrastructure Option - Pembroke Street & Lorne Street

15.1.2 Long Term Bus Infrastructure Option

The preferred long term bus infrastructure option is the on street single stops on Selwyn Street. This option is recommended once the Waikato Hospital Masterplan is implemented and the Waikato Hospital main entrance is located on 'Hospital Street' (adjacent to Selwyn Street).

Features of this option are summarised below:

- Providing eight 18-20 m long bus stops on the southern side of Selwyn Street. This will require removal of all on street parking on the southern side of Selwyn Street.
- Formalising and upgrading existing footpath on Selwyn Street for passengers boarding and alight buses
- Two bus shelters have been proposed for the bus stops on Selwyn Street
- A turning bay will be required to be provided at the cul-de-sac of Selwyn Street to allow buses to turn and access to the bus stops. This will require considerable kerb cutbacks at the car park as well as a closure to the access of the car park.
- Due to the terrain on Selwyn Street, retaining wall maybe required at the turning bay as well as where the bus shelters are.

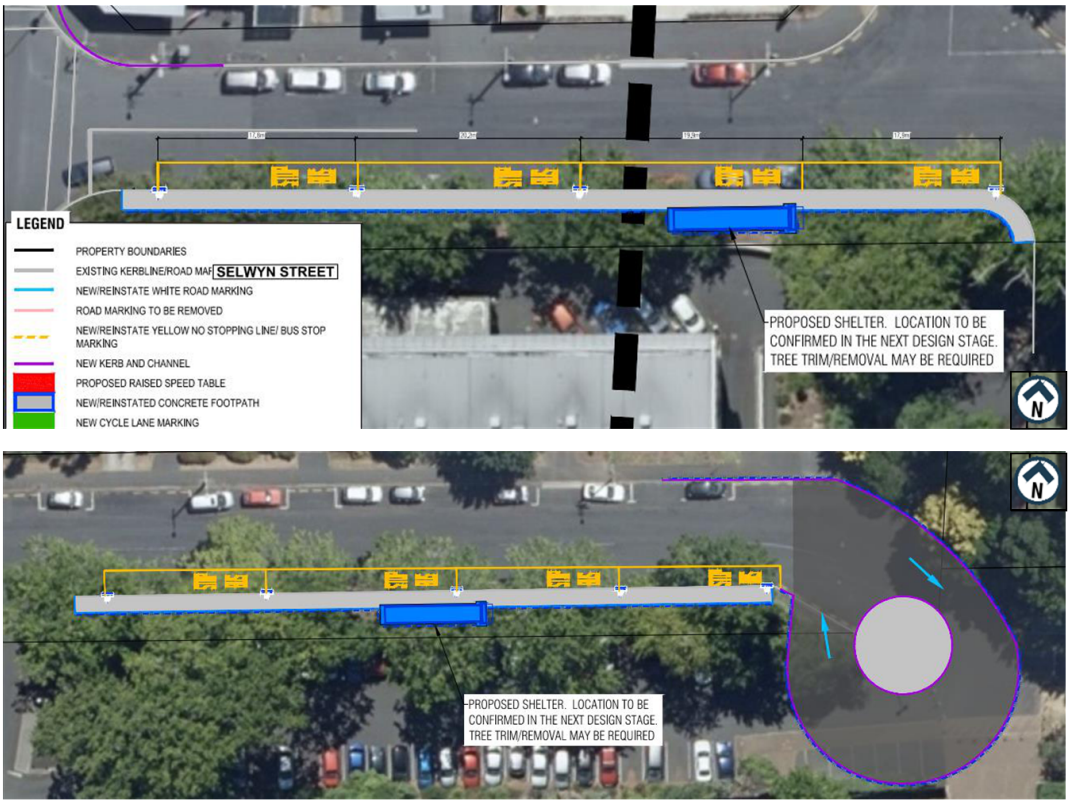


Figure 15-2 Long Term Bus Infrastructure Option - Selwyn Street

15.1.3 Site 1 Preferred Option

The preferred option for Site 1 is Option 2 (Cycle Improvement) - Existing intersection layout with cycle lanes on both side and potential cycle phase adjustment.

Features of this option are summarised below:

- Onroad cycle lanes are upgraded to the compliant width for both directions on Pembroke Street. This will allow the connection to the Lake Cres/Ohaupo Road Intersection Accessibility Improvement project carried out by another design consultant.
- The cycle lanes upgrade will result in lanes to be realigned towards easterly. This will also lead to kerb and traffic island cutback on the eastern side of Pembroke Street.
- Vehicles tracking turning for 12.6 m buses of all movements at the intersection have been checked to ensure the proposed design did not impose any issue to existing tracking.
- Central traffic island on the southern approach has been proposed to be removed and replaced with flushed median due to the tight road corridor. Further kerb and traffic island cutback will be required should central traffic island be retained.

Traffic lane widths on Pembroke Street have been maintained a minimum of 3.2 m wide.

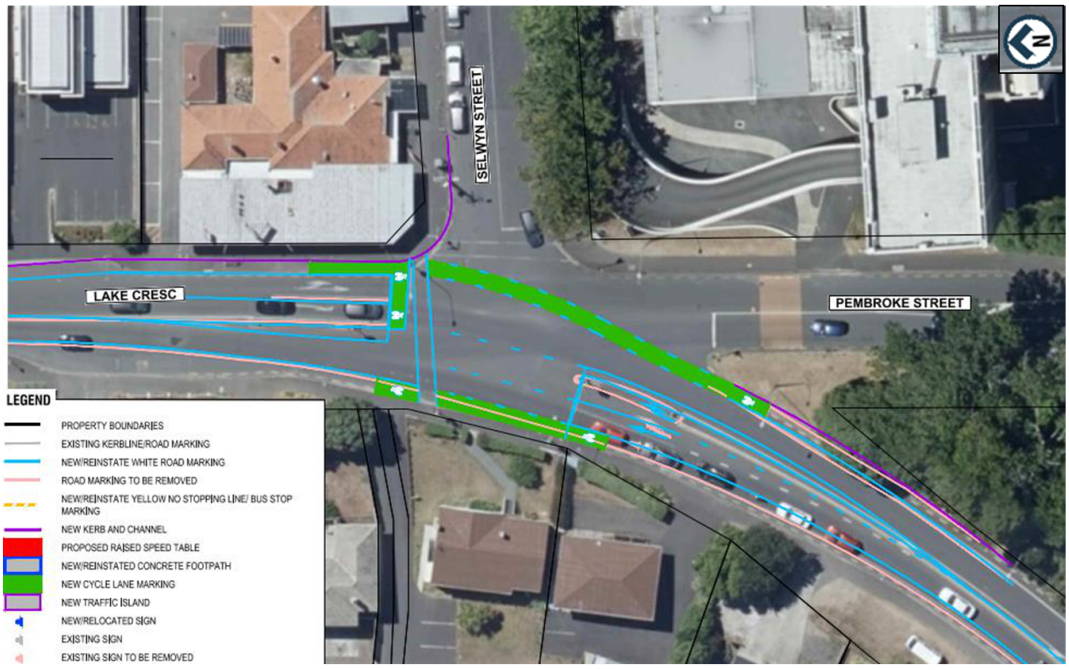


Figure 15-3 Site 1 Preferred Option

15.1.1 Site 2 Preferred Option

The preferred option for Site 2 is Option 2a (Combined Entry and Exit) – Change priority to through movement instead of right turn with combined entry/exit and raised zebra crossing

Features of this option are summarised below:

- The exit access on Hague Road is proposed to be closed and the exit access is to be combined with entry access to reduce points of conflicts and providing more stacking length on the right turn bay.
- Tighten and straighten the entry and exit points with kerb buildouts
- A footpath is provided with a minimum width of 1.8 m wide
- The intersection priority has been changed from right turning movement to straight through movement on Pembroke Street.
- A right turn bay is proposed on Pembroke Street northbound approach to minimise delays to straight through movement.
- Lane realignment is resulted due to the kerb
- Raised zebra crossing is proposed at the access on Hague Road to provide priority and connectivity for pedestrians along Pembroke Street

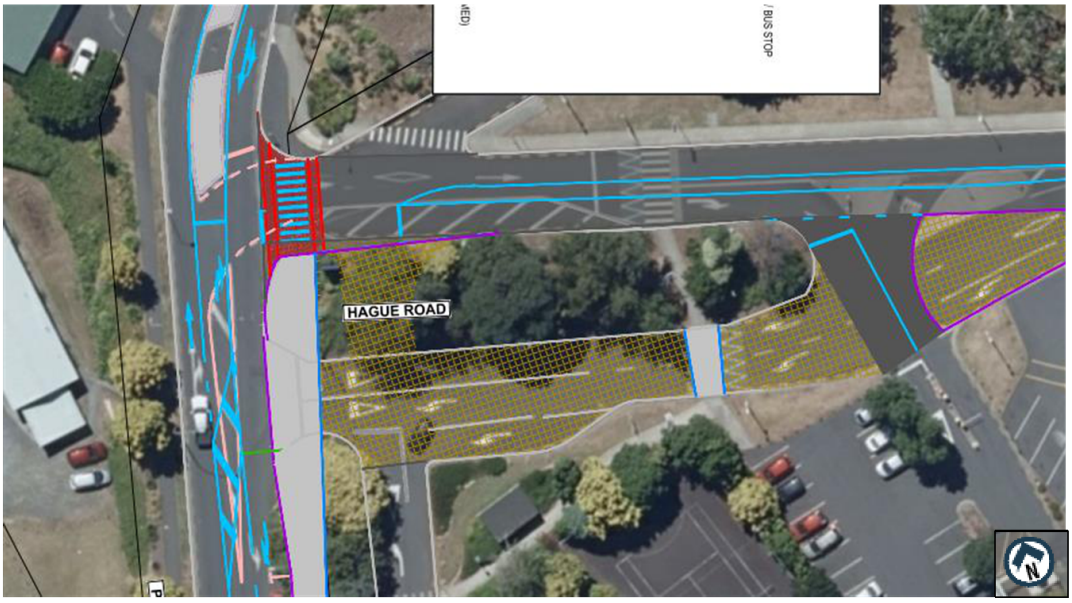


Figure 15-4 Site 2 Preferred Option

15.1.2 Site 3 Preferred Option

The preferred option for Site 3 is Option 5 (Bus on Pembroke Give-way + 60 m BL) - Existing give-way layout with 60 m bus lane on Pembroke.

Features of this option are summarised below:

- Kerb cutback and lane relocation are required as a result of the proposed 60 m bus lane.
- Traffic island on Ohaupo Road is also required to be removed in order to allow the vehicles to turn into/out of this intersection
- Cycle lanes have been upgraded to the standard 1.8 m wide in both directions on Ohaupo Road

Figure 15-5 Site 3 Preferred Option

15.1.3 Site 4 Preferred Option

The preferred option for Site 4 is Option 1 (Raised Zebra on Slip Lanes) - Existing intersection with Raised zebra crossings on the two slip lanes.

Features of this option are summarised below:

- Raised zebra crossings have been proposed at both slip at this intersection to provide safe crossing facility for pedestrians.
- Cycle lanes have been upgraded to the standard 1.8 m wide to provide more separation to the live traffic lane especially the heavy vehicle on the arterial road.
- Advance cycle boxes have been proposed at the intersection to allow cyclists to have a head start at the green phase.
- Minor lane realignments as a result of cycle lane upgrades.

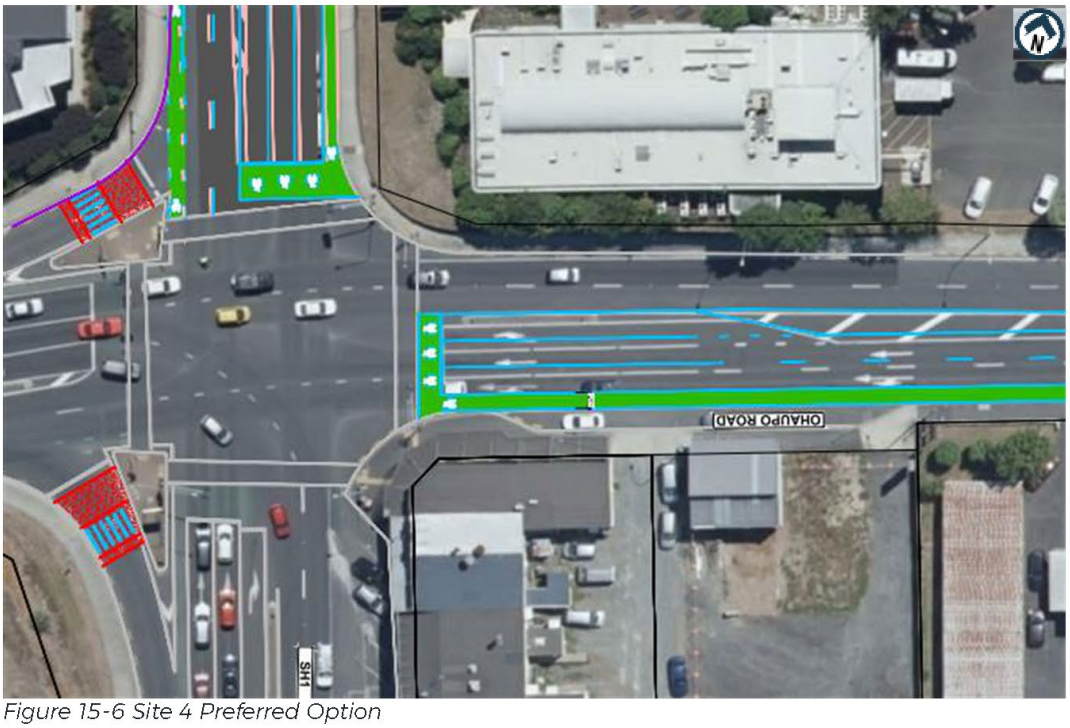


Figure 15-6 Site 4 Preferred Option

15.1.4 32 Ohaupo Bus Stop Relocation

It was agreed in the shortlist and preferred option workshop that the northbound bus stop located at 32 Ohaupo Rd outside Braemar Hospital need to be investigated and potentially relocated. Because it is difficult for bus to pick up and off-load passengers at the 32 Ohaupo Rd bus stop and then make turn into Pembroke St as they need to cross a couple of traffic lanes and make a right hand turn across oncoming traffic.

Figure 15-7: 32 Ohaupo Bus Stop Relocation

Option 1 and 2 were discounted as they could only be considered with a signalised layout at the Pembroke/Ohaupo intersection. Option 3 is discounted with safety concerns of relocating the bus stop on the slip lane.

The agreed preferred option was Option 4 in lane bus stop in front 46/46A Kahikatea Drive with proposed paired bus stop opposite to it. Bus shelter on both sides. More investigation with arborist is required for including shelters, may need to trim or remove trees on the southern side.

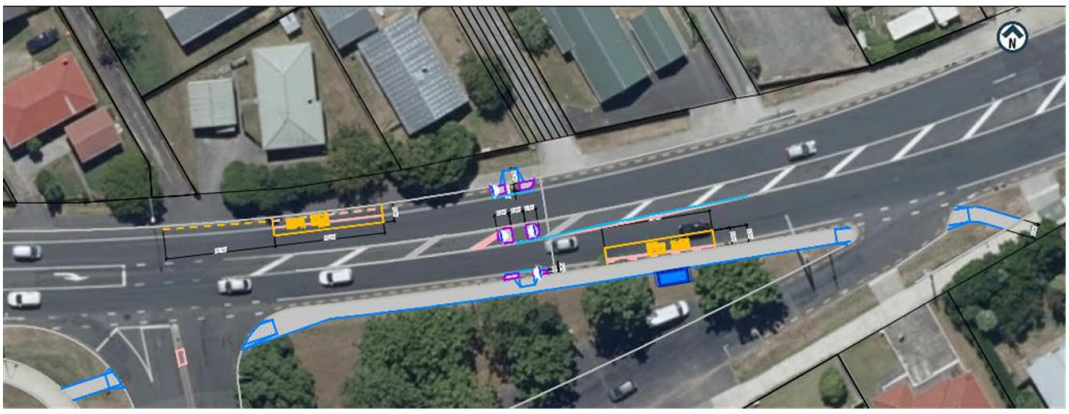


Figure 15-8 32 Ohaupo Bus Stop Relocation Preferred Option

15.2 Preferred Package Discussion

The preferred package contained options that promotes public transport, walking and cycling which is important given the site is located in the Hamilton City at the Waikato DHB. It is essential for the preferred option to cater for all travel modes to and from the hospital. Table 15-1 below summarised the impact of the preferred option.

Table 15-1 Preferred Option Discussion

Preferred Package 1c	
Features	**Comment**
Walking	The pedestrian safety and accessibility at the study area is expected to be improved due to: • Reduced crossing distance with combined entry and exit points at Site 3, as well as the proposed raised • Proposed raised zebra crossing at Site 3 • Proposed two pedestrian refuge islands on Lorne Street and Kahikatea Drive (SH1) with the new and relocated bus stops respectively • Proposed raised zebra crossings on the two slip lanes at the SH1/SH3 intersection
Cycling	Cycling safety and accessibility at the study area is expected to be improved due to: • Formalised cycle lane for both ways and cycle box for the southbound cycle movement at Site 1 • Formalised cycle lane and cycle boxes at Site 4
General Traffic	The preferred package retained a viable level of transport function comparing to other options while promoting and improving the public transport at the study area.
PT Services	The preferred package provides the desired capacity to support and enable future growth of bus services at Waikato Hospital. It improves the convenience and accessibility of the stops and allows all passengers to get where they need to go efficiently and easily. The proposed bus priority and intersection infrastructure improvement at Site 3 will potentially reduce the bus travel time in the PM peak by up to 100 sec. It improves the journey time reliability to get bus users where they want to go at the time they expect to arrive there.

15.3 Cost Estimation

The 95th percentile project estimate of the preferred package is approximately $3.35 million including the short term bus infrastructure option on Pembroke Street & Lorne Street. The cost of the long term bus hub option at Selwyn Street is 0.85 million.

The 95th percentile project estimate of each option in the preferred package is included in Table 15-2 below.

All cost estimations include a 30% contingency and Funding Risk Contingency as per Waka Kotahi NZ Transport Agency template.

Table 15-2 Cost Estimation

Site	95th percentile project estimate
Short term Bus Infrastructure On Street Split Stops on Pembroke Street & Lorne Street	$ 386,000
Long term Bus Infrastructure On Street Single Stops on Selwyn Street	$ 1,034,000
32 Ohaupo Road Bus Stop relocation Option 4 – in lane bus stop in front 46/46A Kahikatea Drive	$ 299,000
Site 1 Pembroke St / Lake Cr / Selwyn St Intersection Option 2 (Cycle Improvement)	$ 847,000
Site 2 Pembroke St / Hague Rd Intersection Option 2a (Combined Entry and Exit)	$ 499,000
Site 3 Pembroke St / Ohaupo Rd Intersection Option 5 (Bus on Pembroke Give-way + 60 m BL)	$ 1,086,000
Site 4 Ohaupo Rd/SH1/SH3 Intersection Option 1 (Raised Zebra on Slip Lanes)	$ 262,000

A summary of the Cost Estimate is included in Appendix G.

16 Recommendations

At the study area around Waikato DHB, the preferred option recommended is:

Bus Infrastructure:

- Short term
  - On Street Split - Pembroke Street & Lorne Street
- Long term
  - On Street Single - Selwyn Street
  - This option is recommended once the Waikato Hospital Masterplan is implemented and the Waikato Hospital main entrance is located on 'Hospital Street' (adjacent to Selwyn Street).

Intersections options for both short and long terms:

- Site 1 Pembroke St / Lake Cr / Selwyn St Intersection
  - Option 2 (Cycle Improvement) - Existing intersection layout with cycle lanes on both side and potential cycle phase adjustment
- Site 2 Pembroke St / Hague Rd Intersection
  - Option 2a (Combined Entry and Exit) – Change priority to through movement instead of right turn with combined entry/exit and raised zebra crossing
- Site 3 Pembroke St / Ohaupo Rd Intersection
  - Option 5 (Bus on Pembroke Give-way + 60 m BL) - Existing give-way layout with 60 m bus lane on Pembroke
- Site 4 Ohaupo Rd/SH1/SH3 Intersection
  - Option 1 (Raised Zebra on Slip Lanes) - Existing intersection with Raised zebra crossings on the two slip lanes

The 95th percentile project estimate of the preferred package at this study area is approximately $3.35 million including the short term bus infrastructure option on Pembroke Street & Lorne Street. The cost of the long term bus hub option at Selwyn Street is approximately $0.85 million.

Further design development should be progressed to assess the operational impacts, demonstrate engineering and safety compliance, and further refine the cost estimate.

Appendix A
High Risk Intersection Assessment

Appendix B
Bus Hub Longlist Options

Appendix C
Bus Hub Options MCA

Appendix D
Waikato DHB LinSig Results

Appendix E
Combined Packages MCA

Appendix F
Preferred Option Design Drawings

Appendix G
Cost Estimation

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Item 8

Council Report

Committee: Infrastructure Operations Committee

Date: 31 May 2022

Author: Robyn Denton

Authoriser: Eeva-Liisa Wright

Position: Network Operations and Use Leader

Position: General Manager Infrastructure Operations

Report Name: Proposed Low Cost Low Risk Transport Improvement Programme for 2022/23

Report Status	*Open*

Purpose - *Take*

1. To seek approval from the Infrastructure Operations Committee for the proposed Low Cost Low Risk Transport Improvement Programme for 2022/23.

Staff Recommendation - *Tuutohu-aa-kaimahi*

2. That the Infrastructure Operations Committee:

   a) receives the report;

   b) approves the proposed Low Cost Low Risk Transport Improvement programme (**Attachment 1** of the staff report) for the 2022/23 financial year; and

   c) notes that progress of the final design and consultation of the projects to be delivered in the Low Cost Low Risk Transport Improvement programme will be reported to Members via the Executive Update and General Manager's Report to future Infrastructure Operations Committee meetings.

Executive Summary - *Whakaraapopototanga matua*

3. The Low Cost Low Risk Transport Improvement (LCLR) programme for 2022/23 has been developed by staff based upon community requests, Member requests and safety performance. The draft list was discussed with Members at a briefing on Wednesday 11 May 2022.

4. A copy of the remaining two years of the LCLR programme is included in **Attachment 1**. Approval is only being sought for Year 2 (2022/23) of the programme, with the proposed Year 3 (2023/24) provided for information only as this is subject to change.

5. The LCLR programme has a number of guidelines as to the scope of work that can be included which are set by Waka Kotahi NZ Transport Agency (Waka Kotahi). The key requirement is that the total value for any one project must be no more than $2M in order to meet the LCLR programme requirements of Waka Kotahi.

6. Co-investment from Waka Kotahi is at 51% with the local share funded from the following transport LCLR activity classes that have been established in the 2021-31 Long Term Plan:
    i. Road to Zero
    ii. Walking and Cycling
    iii. Public Transport Infrastructure
    iv. Local Road improvements
7. Updates on the development and implementation of the LCLR programme will be provided via Executive Updates and inclusion in the General Managers Report to the Infrastructure Operations Committee.
8. Staff consider the matters in this report have low significance and that the recommendations comply with Council's legal requirements.

Background - *Koorero whaimaarama*

9. Previously known as the 'Discretionary Transport Programme' the Low Cost Low Risk Programme is the name given to a number of programmes of work for which Council receives co-investment (subsidy) from Waka Kotahi under their Work Activity Class 'Low Cost Low Risk'.
10. In 2020 Waka Kotahi undertook a review of the LCLR activity (formerly known by Waka Kotahi as Minor Improvements) and made changes to the activity which came into effect for the 2021–24 National Land Transport Programme (NLTP).
11. The key changes by Waka Kotahi were:
    A. an approved increase in the LCLR threshold for any one project from design through to implementation must be <$2M (up from <$1M previously);
    B. increased information requirements for each project including an assessment of and alignment to the Government Policy Statement on Land Transport (GPS);
    C. the following four LCLR activities to be grouped into a LCLR Programme:
        i. Road to Zero,
        ii. Walking and Cycling,
        iii. Public Transport Infrastructure, and
        iv. Local Road improvements.
12. A draft programme of projects under each of these activities has been developed by staff based on requests received from Members, advocacy groups, the community and safety analysis undertaken by staff and Waka Kotahi.
13. A copy of the full LCLR programme for the remaining two years (Year 2 (2022/23) and Year 3 (2023/24)) of the 2021-31 Long Term Plan is included in **Attachment 1**. Approval is only being sought for Year 2 (2022/23) of the programme, with the remaining Year 3 (2023/24) provided for information only as this is subject to change.
14. The draft programme was discussed with Elected Members at a briefing on 11 May 2022 for review. Further information on the development of each of the activity lists is included below in this report.

Discussion - *Matapaki*

15. Following approval of the proposed LCLR programme and subject to funding approvals, the following steps are undertaken in the delivery of the proposed programme:

i. *Development of concept designs* to ensure proposed treatments will address the issues and maximise opportunities for associated improvements e.g. improved accessibility as part of safety improvements. Early engagement completed with key stakeholder groups;

ii. *Consultation on the concept plans* with directly affected residents and/or property owners, key stakeholders and Elected Members. This includes site visits with residents/property owners to discuss any specific issues;

iii. *Development of detailed designs* which incorporate changes made in response to the consultation process;

iv. *Scheduling of the works* for delivery by the physical works contractor – allowing time for purchase of any materials required;

v. *Notification of upcoming works*; and

vi. *Implementation of the work* by the contractor.

16. It is expected that there will be some changes made to the list of sites, proposed works and timing of implementation as the designs are progressed and the consultation process is undertaken. As a minimum, it will take at least 4-5 months to work through the process.

17. There are also likely to be other issues/concerns raised throughout the year that staff will want to try and respond to if the timing and budget allows.

18. The list of sites for 2022/23 is therefore greater than budget available to ensure that there are projects ready to go if there are delays experienced in getting a particular project completed.

19. Any projects not implemented in the 2022/23 year will be carried forward for consideration in the 2023/24 programme which will be presented to the relevant committee in the second quarter of 2023 for approval.

20. Updates on the programme including any changes will be noted in future reports to the Infrastructure Operations Committee in the General Manager Report. Progress on the implementation of the projects will be provided via Executive Updates.

21. A full list of sites and information is also made available throughout this process on the Hamilton City website on the Safety and Access Improvement Programme page. This includes updating with the concept and consultation plans as they are developed.

22. This report sets out the proposed Low-Cost Low Risk Programme for each activity for the 2022/23 financial year for approval.

Low Cost Low Risk Road to Zero

23. The development of this programme has been focused on achieving Vision Zero and has been strongly guided by the Waka Kotahi Safe Networks Programme.

24. The Safe Network Programme is a collaborative initiative that aims to save up to 160 deaths and serious injuries every year across New Zealand's highest risk state highways and local roads.

25. The programme uses the Safe System approach, the international gold standard in road safety. This approach seeks to create a safe and forgiving road system that makes the safety of people a priority. It recognises people are not perfect, we make mistakes, and we are vulnerable in a crash. While mistakes are inevitable – deaths and serious injuries from crashes are not.

26. The projects have been prioritised based on their ability to reduce deaths and serious injuries, with minor changes made to accommodate other work programmes such as road resealing or pavement renewals and Eastern Pathways.

27. The programme includes the ongoing delivery of the Speed Management Plan with $500,000 annually via the implementation of Safer Speed Areas (permanent 40km/h speed restrictions on local residential streets), lower speeds around high use pedestrian and cycle areas (e.g. shopping areas).

28. Following the recent adoption of the Land Transport Rule: Setting of Speed Limits 2022 and the requirement for Road Controlling Authorities (RCAs) to aim to achieve 40% of schools to have 30km/h speed limits in place by 2024, this programme will have an increased current focus on ensuring facilities at the school gate are safe with the upgrade and installation of pedestrian crossing facilities and traffic calming measures such as mini roundabouts and splitter islands.

29. The projects are primarily intersection orientated and reflect the crash locations that would be expected in an urban metro city.

30. The proposed funding is set out in the table below:

LCLR Road to Zero Activity	Proposed work to be completed	Proposed funding for 2022/23
Safety improvements	Treatments determined on a case by case basis to address the safety issues	9,174,000
Speed Management	Implementation of 40km/h safer speed areas and	500,000
	30km/h school speed zones (both speed limits and supporting infrastructure changes)	200,000
	30km/h speed limits in areas of high pedestrian and cycling activities	35,000
Total funding		**$9,990,000**

Low Cost Low Risk Walking and Cycling

31. This funding is focused on improvements for safety and accessibility for walking and biking activities.

32. It allows for improvements to the footpath network via sections of new footpath or localised widening of existing footpaths in conjunction with the footpath renewals programme. New or improved pedestrian crossing facilities eg at shopping centres have been included.

33. Funding has also been allocated for small, localised biking connectivity improvements to supplement the larger scale activities covered by the Biking and Micro-mobility citywide projects budget. These larger projects are discussed further in the Biking and Micro-mobility Business Case report to the 27 April 2021 Infrastructure Operations Committee.

34. The programme has been broadly developed using the following allocation of the funding:

LCLR Walking and Cycling Activity	Proposed work to be completed	Proposed funding for 2022/23
New footpath	to fill gaps in the footpath network	500,000
Pedestrian facility upgrades	installation of signals, raised safety platforms, refuge islands or splitter islands. Localised widening in association with footpath renewals.	3,300,000
Biking connectivity localised improvements	localised interventions including installation of bike parks, signage, wands to improve safety	750,000

Accessibility improvements	localised improvements including installation of cut downs, tactiles, adjusting footpath angles/slopes	50,000
	Improvements to mobility carparking in CBD	50,000
Total funding		**$4,650,000**

35. Prioritisation of the projects is based on an assessment of the following:

    i. requests for service;

    ii. traffic volumes;

    iii. numbers of people walking and/or cycling;

    iv. proximity to high use 'generators' e.g. schools, shops, aged care facilities, retirement villages, bus stops; and

    v. safety data – including crash records and red light running (where applicable).

Low Cost Low Risk Public Transport Infrastructure

36. The development and prioritisation of the Public Transport Infrastructure programme is undertaken in consultation with the Waikato Regional Council who manage the public transport services.

37. The final list of sites will be presented to the Regional Connections Committee meeting.

38. The programme has been broadly developed using the following allocation of the funding:

LCLR Public Transport Infrastructure Activity	Proposed work to be completed	Funding for 2022/23
Bus Stop Infrastructure	Accessible kerbs, hard stands and at bus stops	350,000
Bus Shelters	New bus shelters	350,000
Total funding		**$700,000**

Low Cost Low Risk Local Road Improvements

39. This work activity allows for the other LCLR activities which do not fit into the other LCLR work categories.

40. For the 2022/23 financial year, we have planned for ongoing development of advanced traffic management systems that ensure that we have good data available on all transport modes (including walking and cycling) and are able to operate the existing network efficiency.

41. Allowance for $75,000 for new guardrail installation is also included in the indicative budget.

LCLR Local Road Improvements Activity	Proposed work to be completed	Funding for 2022/23 $
Advance Traffic Management initiatives	Purchase of sensors, cameras etc to allow for ongoing data collection across the transport network	200,000
Guardrails	Installation of NEW guardrails at high risk locations	75,000
Total funding		**$275,000**

Financial Considerations - *Whaiwhakaaro Puutea*

42. The following table sets out the funding allocation that was approved in the 2021-31 Long Term Plan and Waka Kotahi for these activities for the remaining two years:

Low Cost Low Risk Programme – budget (gross)	2022/23	2023/24
Road to Zero	9,990,000	7,240,000
Walking and Cycling*	4,650,000	2,050,000
Public Transport Infrastructure	700,000	700,000
Local Road improvements	275,000	3,420,000

*Note the Walking and Cycling funding from Waka Kotahi when approved late 2021 was greater than expected and the figures in the above table reflect the resolutions from the 7 December 2021 Infrastructure Operations Committee consideration on the 'Implications of the National Land Transport Programme 2021-24' report.

43. Waka Kotahi consider the LCLR programme to be a 3-year programme, so any under or overspend in the initial two years is accommodated within the third and final year.

44. A 51% co-investment (subsidy) from Waka Kotahi was assumed for all these programmes.

Legal and Policy Considerations - *Whaiwhakaaro-aa-ture*

45. Staff confirm that staff recommendations comply with Council's legal and policy requirements.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

46. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

47. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report.

48. The recommendations set out in this report are consistent with that purpose as outlined below.

49. Further opportunities for promotion of the 4 wellbeings will be undertaken as part of the development process for each of the projects as they are further developed and implemented.

Social

50. The projects and activities outlined in this report will help provide for a connected city allowing communities to access employment, education, health and other essential services as well as access to recreational and social opportunities.

51. The programme of work provides Council with an opportunity to adapt streets to better support active and safe transport needs by contributing to the creation of more safe people-friendly spaces in our towns and cities.

Economic

52. The proposed LCLR programme improves the ability for businesses to move goods and services safely and effectively within the city. The programme also has improvements for pedestrians and people on bikes to be able to access shopping locations safely.

Environmental

53. Completion of the LCLR programme supports alternative modes of transportation and the ability for the community to traverse across and around the city in a safe way without the need for a vehicle.

Cultural

54. The project plans that will be developed for this programme of work will consider how to properly engage with tangata whenua.

Risks - *Tuuraru*

55. If the recommendations are not approved there will be delays in the implementation of the 2022/23 programme of works.

Significance & Engagement Policy - *Kaupapa here whakahira/anganui*

Significance

56. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the matter(s) in this report has/have a low level of significance.

Engagement

57. As part of the delivery of the projects within this programme, engagement and consultation will be undertaken with adjacent property owners and residents/businesses along with key stakeholders including:

    i. Waka Kotahi
    ii. Road Transport Association
    iii. Automobile Association (AA)
    iv. CCS Disability Action
    v. Disabled Persons Assembly
    vi. Blind Foundation
    vii. Bike Waikato
    viii. Generation Zero

58. Given the low level of significance determined, the engagement level is low for the matters presented in this report and no engagement is required at this stage.

Attachments

Attachment 1 - Proposed 2022/23 Low Cost Low Risk Programme of Works .

HCC 2021/24 LCLR Transport Improvement Programme - draft programme for Years 2 & 3

Site	Project Location	Problem Description	Proposed Treatment	Year 2 - 22/23	Year 3 - 23/24
LCLR - Road To Zero - programme and budget (WO 3854)				$9.99m	$7.24m
1	Ward / Tristram Intersection upgrade		Raised safety platforms and signal improvements including Nisbet Street intersection	$ 1,500,000	
2	Clyde/Peachgrove Intersection Improvements	Safer Intersections	Signal upgrade and raised safety platforms. Upgrade to walking, cycling and PT Aim to deliver via Eastern Pathways Schools link		$ 2,000,000
3	Tristram St & Rostrevor St intersection	Pedestrian safety crossing at intersection	Raised zebra on all four approaches following on from Innovating Streets trial	$ 600,000	
4	Victoria/London Intersection Improvements	Safer Intersections	Raised safety platforms and upgrade of signals, walking and cycling facilities		$ 1,300,000
5	Victoria/ Bryce Intersection Improvements	Safer Intersections	Raised safety platforms and upgrade of signals and walking and cycling facilities		$ 1,300,000
6	Pukete/Northpark Intersection Improvements	Safety Management	Northpark raised safety platform and LILO	$ 300,000	
7	Tristram/Bryce Intersection Improvement	Safer Intersections	Raised intersection treatment and signal upgrade include PT options. General upgrade for walking and cycling facilities.		$ 1,300,000
8	Tristram/Norton Intersection Improvement	Safer Intersections	Remove Left turn slip lane, raised intersection and signal upgrade plus walking and cycling facilities		$ 1,000,000
9	Hukanui/Wairere Intersection Improvements	Safer Intersections	Urban roundabout with approach Raised safety platforms for improved walking and cycling and slower speeds	$ 800,000	
10	Galloway/Naylor Intersection Improvements	Safer Intersections	Provision for cyclist/greening. Raised safety platform and signal upgrade following completion of Wairere/Cobham intersection	$ 800,000	
11	Comries/Hukanui Intersection Improvements	Safer Intersections	Raised signalised intersection to cater for PT movements, improve walking and cycling safety Aim to deliver via Eastern Pathways Schools link		$ 2,000,000
12	Victoria/Claudelands Intersection Improvements	Cyclist and ped safety	Raised safety platform across Claudelands Road plus other associated safety works		$ 500,000
13	Brymer/Newcastle Intersection Improvements	Safe System Transformation	Approach raised safety platforms, shared path, cycle greening etc	$ 1,500,000	
14	Lake Domain Drive/Killarney Intersection Improvements	Safer Intersections - through traffic	Discourage through traffic movement. raise safety platform across Lake Domain and other minor works.	$ 900,000	
15	Mill/Willoughby Intersection Improvements	Safer Intersections	Raised intersection treatment, LT slip lane removal plus footpath widening works. Mill Street delineation improvements.		$ 1,640,000
16	River/Te Aroha Intersection Improvements	Safer Intersections	Intersection priority change with raised safety platform across River Road southern leg.	$ 600,000	
17	Grey/Beale Street Intersection Improvements	Safe System Transformation	Raised signalised intersection to improve safety - improve walking and cycling opportunities		$ 2,000,000
18	Naylor/Grey Intersection Improvements	Safer Intersections	Raised safety platforms on approaches to roundabouts and removal of Left turn slip lane	$ 900,000	
19	Kaihikatea /Higgins Intersection	Safer Intersections	Raised safety platforms on approaches to intersection.	$ 800,000	
20	Wairere/Crosby/Gordonton Improvements	Safer Intersection	replacement of central guardrail and raised safety platforms on key approaches	$ 1,600,000	
21	**Safer Speed Areas City Wide**				
21.1	Mahoe Street Area	Implementation of Speed Management Plan (Safer Speed Areas) in local residential streets.	40k Safer speeds area	$ 500,000	
21.2	Fairview Street Area or Crawshaw Drive Area	Implementation of Speed Management Plan (Safer Speed Areas) in local residential streets.	40k Safer speeds area		$ 500,000
22	**Safer School Zones - 30km/h**	Speed management works outside schools	Physical works to support future 30k and making areas outside schools safer.		
22.1	Hamilton West School - Horne/Hammond	Speed and behaviour concerns outside school	Physical works to support future 30k and making areas outside schools safer.	$ 200,000	
22.2	Te Rapa Primary - Ashurst Ave	Existing crossing is not at the correct location as per school feedback. It is not very well utilised and there has been incidents relating to this.	New Raised kea crossing on desire line outside school to the south - exact location to be confirmed.		$ 200,000
22.3	Rhode Street - Rhode Street School	Existing at grade kea crossing - through traffic speed concerns	Add raised safety plathform	$ 200,000	
23	**Safer Shopping Areas - 30km/h**	Speeds issues at shopping areas.	Gated 30km/h threshold signage and pavement marking at these shopping precincts.		

23.1	Te Aroha/Grey shops	unsafe speeds outside shopping areas	30km/h shopping area works	$ 30,000	
23.2	Clarkin/Heaphy shops	unsafe speeds outside shopping areas	30km/h shopping area works	$ 20,000	
23.3	Hyde Ave shops	unsafe speeds outside shopping areas	30km/h shopping area works	$ 20,000	
23.4	Cambridge Road Shops - by Masters Ave and Flynn Road.	unsafe speeds outside shopping areas	30km/h shopping area works		$ 30,000
				$ 11,270,000	**$ 9,770,000**
LC/LR - Walking and Cycling Improvements - programme and budget				**$4.65m**	**$2.05m**
New Footpaths					
1	River Road - Wairere to Comries western side	New footpath Missing links. To fill in gaps on the footpath network aiming to achieve improved accessibility.	New 1.8 - 2.0m wide footpath with 1 - 2 % cross fall.	$ 500,000	
2	Fox Street - Brookfield Street to Fox Lane and along Brookfield Street east	New footpath Missing links. To fill in gaps on the footpath network aiming to achieve improved accessibility.	New 1.8 - 2.0m wide footpath with 1 - 2 % cross fall.		$ 150,000
3	Fox Street - Outside Galloway Park	New footpath Missing links. To fill in gaps on the footpath network aiming to achieve improved accessibility.	New 1.8 - 2.0m wide footpath with 1 - 2 % cross fall.		$ 150,000
Accessibility Improvements					
4	Fairfield area	Reduced accessibility resulting in barrier to essential trips	Accessibility Improvements Works	$ 50,000	
5	CBD area	mobility carparks not fit for purpose, wrong locations or gaps in network	Accessibility Improvements Works	$ 50,000	
6	Fitzroy area	Reduced accessibility resulting in barrier to essential trips	Accessibility Improvements Works		$ 50,000
Pedestrian Facility Upgrades					
7	Footpath widening - City Wide	Narrow footpath widths. E.g. by schools, shops, retirement village etc.	Footpath widening to desired 1.8m wide. Works to be carried inline with IA footpath renewal works.	$ 100,000	$ 100,000
8	Resolution/Thomas Road, Resolution/Discovery Drive	Safety of pedestrians and cyclists at roundabouts.	Improved/provide new cycle facilities e.g. cycle lanes shared paths etc. Vulnerable road user safety and improved link to the bus stop.	$ 500,000	
9	Tristram/Mill Street	Speeds on the LT slip lane. Vulnerable road user safety risk.	Raised pedestrian platform at the LT slip lanes. Raised pedestrian platform on Tristram St north on approach to Mill Street - splitter island to remain.	$ 500,000	
10	Melville Primary - outside 49 Urlich Ave - rear entrance to the school.	Issues with speeds at the back entrance to school and no safe crossing point for vulnerable users. School has requested for a kea crossing	Raised pedestrian platform with kea crossing for vulnerable road user safety. To be located outside 49 Urlich Ave. Will require kerbing works, parking	$ 120,000	
11	Insoll Primary - outside 214 Tramway Road	Existing zebra crossing, failure to give way to pedestrians at priority crossing point. School Patrol Crossing	Raised pedestrian platform with zebra. Existing refuge island to remain in place to help narrow the road carriageway.	$ 120,000	
12	Glenview Primary - outside 60 Lewis Street	Conspicuity of crossing point - close to side road.	Raised pedestrian platform with kea crossing.	$ 120,000	
13	Rifle Range Road - St Columba's Primary School	Speed issues. Conspicuity of crossing point	RSP at the existing kea crossing.	$ 120,000	
14	Crawshaw Primary on Crawshaw Drive outside school	Speed concerns outside the school	Raised kea crossing	$ 120,000	
15	Collins Road outside # 65 -Deanwell School	Speed concerns along Collins Road - existing pedestrian signals at grade.	Add raised pedestrian platform to the midblock signals	$ 120,000	
16	Clyde Street - Knighton Normal School	Existing zebra crossing, failure to give way to pedestrians at priority crossing point.	Raised existing zebra crossing and tidy up walking facilities in this area.	$ 120,000	
17	Dawson Street - Hamilton East School	Existing zebra crossing, failure to give way to pedestrians at priority crossing point.	Raised existing zebra crossing	$ 120,000	
18	Cambridge Rd - shops outside # 134 by Masters Ave	Existing at grade zebra crossing, failure to give way to pedestrians at priority crossing point. Speed concerns	Raised signalised pedestrian crossing to replace existing zebra crossing at shops (near Masters)	$ 350,000	
19	Cambridge Rd - outside Hillcrest Park - west of Flynn Road	Existing refuge crossing with speeding concerns	New raised zebra (or raised Signals) xing near Flynn	$ 350,000	
20	Willoughby Street - entrance to Pac N Save	Pedestrian difficulty crossing entrance to Pac N Save	Raised pedestrian platform across entrance to pac n save.	$ 120,000	
21	River Road near Tauhara Drive	No safe crossing for pedestrian to get across the road at this location	Install raised pedestrian platform	$ 120,000	
22	Grandview Road - just south of Clancy Pl outside shops	Speeds issues along this road and a lack of safe crossing points for vulnerable users. Schools, park and mall etc within close vicinity	New Midblock Signal Crossing - active user survey completed 20/21 FYR.	$ 300,000	
23	Ward / Anglesea Intersection upgrade	opportunities for upgrade identified via Innovating Streets project. Tie in with full upgrade pending Taupapa development timing	Signals upgrade		$ 1,200,000
24	Ruakiwi Road at Collingwood Street	Lack of safe pedestrian facility to get across Ruakiwi Road . Inappropriate vehicle behaviour and speeds along Ruakiwi Road.	Refuge island on Ruakiwi Road outside NZI.		$ 50,000
25	Anglesea/Thackeray/Hood	Speeds on the LT slip lane. Vulnerable road user safety risk.	Raised pedestrian platform at the LT slip lane - Anglesea into Thackeray and Anglesea into Hood.		$ 200,000

26	Thomson Ave - Aberdeen primary School	Existing at grade kea crossing - through traffic speed concerns	Add raised safety plathform		$ 120,000
27	Cunningham Road - Vardon Primary	Existing at grade kea crossing - through traffic speed concerns	Add raised safety plathform		$ 120,000
28	Foreman Road - Te Kopuku High	Speed and lack of safe crossing facility	Kerb build outs with coloured surfacing		$ 80,000
29	Wairere Drive - Dey Street to Cambridge Road	Existing pedestrian signals - issues with red light runners. Situation will get worse with Wairere Drive extenion opening up	Add Raised pedestrian Platform to the midblock signals		$ 200,000
30	Ruakiwi Road @ Pembroke Street	Safety concers for pedestrians crossing at this intersection and entrance to the lake	Provide raised pedestrian plathform on Ruakiwi and Rotoroa Drive and footpath tidy up works		$ 300,000
31	St Johns College - Hillcrest Road	No safe crossing for pedestrian to get across the road at this location	Install raised pedestrian platform with kerb buildouts to minimise parking loss		$ 150,000
32	Grantham/Tisdall	Lack of safe pedestrian facility - footpath, crossing point etc - area not very active user friendly	Install new raised pedestrian platform and connect to existing footpath network		$ 500,000
				$ 3,900,000	**$ 3,370,000**
Biking Connectivity Localised Improvements- City Wide				**$ 750,000**	**$ 750,000**
33	Bike Parking - City Wide	Inadequate cycle parking	Install bike racks	$ 150,000	$ 150,000
34	Cycle Wands - city wide	Cyclist safety concerns at intersections	Cycle wands and associated road marking plus apple green surfacing.	$ 210,000	$ 210,000
35	Cycle Wayfinding Signage - City wide	Lack of cyclist signage	Cycle wayfinding signage	$ 50,000	$ 50,000
36	Sharrows - City Wide	Cyclists are expected to use the carriageway but it is not clear on where they should be positioned.	Install sharrow markings	$ 20,000	$ 20,000
37	Bike Repair stations	No facility for bike repair city wide	Provide bike repair facilities - target four sites a year	$ 20,000	$ 20,000
38	River Road Cycle Bridge - O/S 105 Kirikiriroa Stream	Very narrow footpath, no provision for cyclists at the existing bridge.	Provide a new cycle bridge adjacent to traffic bridge	$ 500,000	
39	Covered Bike Parking Station	Currently no safe covered bike parking available.	Central City Year 3 TBC.	$ 150,000	$ 150,000
40	Additional bike infrastructure - city wide	Lack of bike infrastructure and improvements to existing facilities (eg cycle barrier spacing)	Better connections and help link communities together. Access for all.	$ 150,000	$ 150,000
				$ 1,250,000	**$ 750,000**
			ROC Walking and Cycling	**$ 5,150,000**	**$ 4,120,000**
LCLR Public Transport Improvements - programme and budget				**$ 700,000**	**$ 700,000**
1	Bus Stop Infrastructure Works - City Wide	Lack of public transport facilities in some areas, increase in user demands.	New bus stop infrastructure works e.g. bus shelters, accessible kerbs,hard stand areas paths leading to stops etc.	$ 700,000	$ 700,000
				$ 700,000	**$ 700,000**
LCLR Local Road				**$0.275m**	**$3.42m**
1	LC/LR Smart Initiatives - Advanced Transport Management	Rapid population growth and increased congestion across the transport network is demanding a more proactive and smart approach to safely manage	Turning data into useful information. To help improved decision marking and implementation on the network, safety/optimization and better	$ 200,000	$ 200,000
2	Guardrailing (LC/LR Other Improvements)	Lack of road safety barrier on the network at hazards	Network assessment. Hazard removal, clear zone improvements where possible or potential new guard rail.	$ 75,000	
3	Bridge Stabilisation and Seismic Improvements	Addressing seismic deficiencies identified as part of the Bridge Inspections Programme	Resilience		$ 3,220,000
				$ 275,000	**$ 3,420,000**

Item 9

Council Report

Committee: Infrastructure Operations Committee
Date: 31 May 2022

Author: Robyn Denton
Authoriser: Eeva-Liisa Wright

Position: Network Operations and Use Leader
Position: General Manager Infrastructure Operations

Report Name: SH26 Morrinsville Road - Revocation Update

Report Status	*Open*

Purpose - *Take*

1. To inform the Infrastructure Operations Committee on progress that Waka Kotahi NZ Transport Agency have made on the revocation of SH26 Morrinsville Road within the city.
2. To seek approval for Hamilton City to lead the capital improvements on SH26 Morrinsville Road to upgrade it to be 'fit for purpose.

Staff Recommendation - *Tuutohu-aa-kaimahi*

3. That the Infrastructure Operations Committee:
    a) approves the delivery of the Fit for Purpose Capital improvements on SH26 associated with the revocation of the State Highway status be managed by Hamilton City.
    b) requests staff to investigate and confirm the costs for installation of traffic signals at the intersection of Silverdale Road, Morrinsville Road, Matangi Road intersection over and above that for the proposed roundabout and report back to an appropriate committee in early 2023; and
    c) notes the revocation of SH26 State Highway status is currently planned for late 2022 and at that time Hamilton City will be responsible for the operations, maintenance and renewal of this section of Morrinsville Road between Cambridge Road and the city boundary;

Executive Summary - *Whakaraapopototanga matua*

4. At the 27 April 2021 meeting the Infrastructure Operations Committee considered the State Highway 26 - Morrinsville Road (SH26) Revocation Fit for Purpose Business Case (the Business Case) that had been prepared by Waka Kotahi NZ Transport Agency (Waka Kotahi).
5. This business case had been completed as part of the revocation process associated with the opening of the Hamilton section of the Waikato Expressway.
6. The Waka Kotahi Board have approved the business case, and this report provides an update on the next steps in the revocation process.

7. There are several improvements to be made to the section of Morrinsville Road (SH26) within the city and staff recommend that Hamilton City manages the implementation of these changes as detailed in paragraph 19 below**.**

8. Staff consider the decision in this report have low significance and that the recommendations comply with Council's legal requirements.

Background - *Koorero whaimaarama*

9. At the 27 April 2021 meeting of the Infrastructure Operations Committee considered a report outlining the State Highway 26 - Morrinsville Road (SH26) Revocation Fit for Purpose Business Case (the Business Case) that had been prepared by Waka Kotahi NZ Transport Agency (Waka Kotahi) as part of the revocation process associated with the opening of the Hamilton section of the Waikato Expressway.

10. It was resolved at the 27 April 2021 Infrastructure Operations Committee:

    a) *receives the report;*

    b) *endorses the SH26 Revocation Fit for Purpose Business case prepared by Waka Kotahi NZ Transport Agency for approval by the Waka Kotahi NZ Transport Agency Board;*

    c) *notes that the improvement works required to make Morrinsville Road Fit for Purpose following the revocation of the State Highway status, will be 100% funded by Waka Kotahi NZ Transport Agency with funding being made available for Hamilton City Council to implement the works from 1 July 2022 onwards;*

    d) *notes that the specific details of any improvements on the revoked section of SH26 Morrinsville Road within the city will be developed in consultation with Members, the local community and key stakeholders prior to implementation; and*

    e) *notes that if Hamilton City Council wishes to install traffic signals at the intersection of Morrinsville, Matangi and Silverdale roads, then the extra cost above that allowed for the roundabout will have to be funded 100% by Hamilton City Council.*

11. The Business Case has now been approved from the Waka Kotahi Board, and with the opening of the Hamilton section of the Waikato Expressway (WEX) expected in June 2022, planning has now commenced for the revocation process.

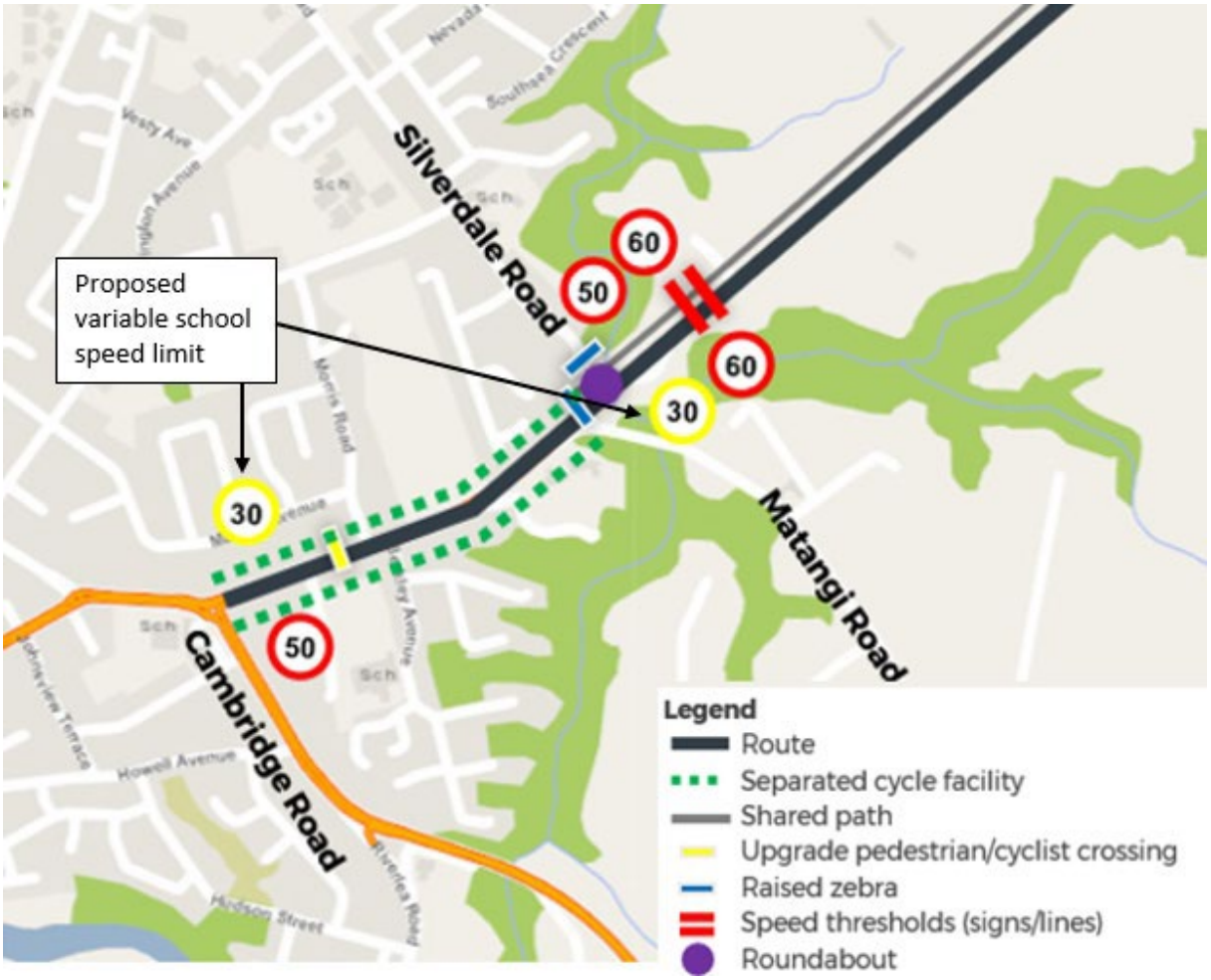
Discussion - *Matapaki*

12. There are two key activities that result from the revocation of the state highway status on the section of SH26:

    i. Hamilton City Council will be responsible for the operation, maintenance and renewal activities. Currently this is planned to commence in October 2022, and inspections of the network will be completed prior to this date to ensure that all components of the network are in good condition; and

    ii. delivery of the Fit for Purpose capital improvements as outlined in the business case including review of the concept plans, community engagement and consultation, detailed design and construction of the infrastructure changes.

13. The following plan summarises the planned works for the section of SH26 Morrinsville Road within the Hamilton City boundary:



SH26 Proposed speed limits and interventions

14. Upgrading of the existing streetlighting to the Hamilton City LED standard and improvements to stormwater treatment is also included.

15. The Waka Kotahi business case determined that the single roundabout option is the best economically, the cheapest option, the best for vehicular traffic, and could accommodate pedestrians and cyclist through use of raised zebra crossings aligning with pedestrian desire lines.

Indicative layout of a roundabout proposed at the intersection of Morrinsville Road, Silverdale Road and Matangi Road

16. The upgrade of the Morrinsville Road, Silverdale Road and Matangi Road intersection provides an option for Hamilton City to consider investing additional funding for installation of traffic signals on a raised platform instead of the roundabout option identified as 'Fit for Purpose' in the Business Case.

17. It has been estimated that the 'extra over' cost would be in the order of $1.85M and this would have to be 100% funded by Council i.e. would not be covered in the funding provided by Waka Kotahi as part of the revocation process and unlikely to be approved for co-investment at the normal 51% subsidy.

18. Further investigation into this option could be undertaken at the time of developing the current concept designs through to detailed design to ensure a future-proofed option.

19. Staff recommend that Hamilton City Council manage the completion of the Fit for Purpose capital improvements rather than requesting Waka Kotahi to complete this work. This will enable Hamilton City to complete the engagement with our community and ensure all works are completed in accordance with the Council standards including the defects liability periods associated with all physical works. All costs associated with the work will be covered by Waka Kotahi – who have an allocation for risk associated with inflation.

20. It is also noted that as part of the revocation of SH1B the current temporary closure of the Telephone Road rail crossing at Holland Road intersection is likely to be made permanent due to the ongoing safety issues that have been experienced at this crossing. Investigations are being undertaken to determine what alternative route improvements need to be completed to cater for the diverted traffic.

Financial Considerations - *Whaiwhakaaro Puutea*

21. The total costs to complete the 'fit for purpose' upgrade of the section of Morrinsville Road between SH1 Cambridge Road and the Waikato Expressway overbridge has been approved for 100% cost recovery from Waka Kotahi.

22. Hamilton City have the option of providing an estimated additional $1.85M funding to upgrade the Morrinsville Road, Silverdale Road and Matangi Road intersection by installation of traffic signals on a raised platform instead of the roundabout option identified as 'Fit for Purpose' in the Business Case.

Legal and Policy Considerations - *Whaiwhakaaro-aa-ture*

23. Staff confirm that the staff recommendations comply with the Council's legal and policy requirements.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

24. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

25. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report as outlined below.

26. The recommendations set out in this report are consistent with that purpose.

Social

27. The proposed improvements will strengthen the community networks by providing safe connections and improve equity of opportunity for those who live and attend schools in this area.

Economic

28. The intersection upgrade at Silverdale/Matangi will provide safe access to locations of employment in both Matangi and Hamilton.

Environmental

29. The provision of safe walking and cycling facilities will improve transport choices and facilitate travel that does not rely of vehicles and therefore reduce emissions.

30. Stormwater management will also be improved as part of the project resulting in improved quality of water discharge into the adjacent gully network.

Cultural

31. The workshops for the Fit for Purpose business case process considered both the section of SH26 being revoked along with the full length of SH1B between Cambridge and Taupiri. The following Iwi representatives were involved in the workshops:

    - A representative from Ngāti Wairere, Hukanui Marae, Gordonton. Who is a member of the Tangata Whenua Working Group (TWWG) but also is a member of Te Hā o te Whenua a Kirikiriroa. He is a kaumatua on his own Marae, Hukanui.
    - A representative from Ngāti Hauā Iwi, they have 5 Marae, being Waimakariri Marae (between Pukemoremore and Cambridge), Te Iti o Hauā Marae in Tauwhare, Kai-a-te-mata Marae (Tumohe's Marae) and Rukumoana Marae in Morrinsville, and Raungaiti Marae in Waharoa. They cover 4 hapū, Ngāti Waenganui, Ngāti Rangitaupi, Ngāti Werewere and Ngāti Te Oro. He is a kaumatua for his Marae, a member of Te Kāhui Kaumātua o Ngāti Hauā (Elders Council) and Kaikōrero (Speaker). He is also the Ngāti Hauā rep on TWWG. He is also from Ngāti Korokī Kahukura of Maungatautari.

32. Consultation with THaWK and Ngāti Wairere will be undertaken as part of the development of future stages of this project.

Risks - *Tuuraru*

33. There are no known risks associated with the decisions required for this matter.

Significance & Engagement Policy - *Kaupapa here whakahira/anganui*

Significance

34. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the recommendation(s) in this report has/have a low level of significance.

Engagement

35. Engagement with the community will be undertaken at the time of developing the concept designs for 'fit for purpose' improvements.

36. Given the low level of significance determined, the engagement level is low for this part of the process and no engagement is required at this stage.

Attachments - *Ngaa taapirihanga*

There are no attachments for this report.

Item 10

Council Report

Committee: Infrastructure Operations Committee
Date: 31 May 2022

Author: Grant Tregidga
Authoriser: Chris Allen

Position: Project Director
Position: General Manager Development

Report Name: Tristram Collingwood Intersection Upgrade

Report Status	*Open*

Purpose - *Take*

1. To seek approval from the Infrastructure Operations Committee on the Tristram Street raised zebra crossing placement/location for the planned and funded upgrade of the intersection of Tristram Street and Collingwood Street.

Staff Recommendation - *Tuutohu-aa-kaimahi*

2. That the Infrastructure Operations Committee:

   a) receives the report;

   b) notes that the macro-scope of the Tristram/Collingwood intersection upgrade and the walking and cycling improvements along the Tristram Street Corridor between Ward Street and Thackery Street, as set out in **Attachment 1** of the staff report, was approved at the 24 February 2022 meeting of the Infrastructure Operations Committee, subject to staff reporting back on alternative placements of the Tristram Street pedestrian facilities;

   c) approves the placements of the Tristram Street Pedestrian Crossings as shown in **Attachment 1** of the staff report; and

   d) notes that staff will implement this project using the Minor Improvements Low Cost Contract which is recommended for award in a separate report to this Committee meeting.

Executive Summary - *Whakaraapopototanga matua*

3. The existing Tristram Street and Collingwood Street intersection in the Hamilton CBD is a roundabout with very limited safe pedestrian and cycle crossing facilities and a history of incidents.

4. On the south-east corner of the intersection a new large office building is currently being constructed for ACC which is planned to accommodate around 700 employees. The ACC building is anticipated to be opened in January 2023 which will further increase walking and cycling demand at this site.

5. A project to complete an upgrade is planned and funded in the 2021-31 Long Term Plan.

6. Council have assessed a number of options to complete this upgrade, including consideration of traffic lights and roundabout intersection options.

7. The 24 February 2022 meeting of the Infrastructure Operations Committee resolved to:

> *approves the macro-scope, subject to staff reporting back on alternative placements of the Tristram Street pedestrian crossings, of the Tristram / Collingwood intersection upgrade to retain the existing roundabout and provide raised safety platforms with zebra crossings on each leg of the intersection as shown on* ***Attachment 1*** *of the staff report.*

8. Staff have assessed alternative locations to move the pedestrian crossing closer to the roundabout, but independent review has highlighted competing demands for drivers' attention at the merge point and increased traffic delays and therefore the alternative options are not recommended.

9. Staff consider the matters and decisions in this report have low significance in accordance with Council's Significance and Engagement policy and that the recommendations comply with the Council's legal requirements.

Background - *Koorero whaimaarama*

10. The Tristram/Collingwood roundabout is an existing intersection in the southwestern quadrant of Hamilton's Central Business District adjacent to Wintec (north-east corner), BP Service Station (south-east corner) and the proposed new ACC office building (south-west corner) as shown below:

Figure 1: Site Location Plan

11. The current form of the intersection is a two-lane urban roundabout without safe pedestrian crossing facilities or cycle provisions.

12. A new Accident Compensation Corporation (ACC) building is being constructed on the south-eastern corner of the roundabout which will cater for approximately 700 employees. The ACC building will only have approximately 30 car parking spaces provided, which will mean the majority of the staff will need to access the site via walking or cycling irrespective if they choose to drive private vehicles as they will need to park elsewhere.

13. There is a high volume of pedestrians crossing Tristram and Collingwood Street which is expected to increase significantly once the ACC offices open. It is observed that pedestrians try to cross at the dual lane entry and exit to the roundabout putting themselves at risk. At this point vehicles are more focused on finding a gap in traffic and not actively searching for active users – which results in a high risk of incidents.

14. The ACC building site was previously utilised as a car park for WINTEC and the recent removal of the parking facility to make room for the new office building has put increased crossing demands and active travel activities at this intersection.

15. In the proposed immediate development of this area there will be a planned increase in cycle and walking demand at this intersection, resulting in the need to address the absence of facilities for these active mode users safely and to ensure vehicular users appropriately behave at the intersection so that death and serious injury crash outcomes do not occur.

16. During busy times the traffic flows are such that crossing of the roads for active modes such as walking & cycling are difficult and potentially dangerous, which may well also be resulting in a supressed demand by these user groups.

17. As per the strategic road network hierarchy in the operative District Plan Tristram Street in this location is a major arterial and Collingwood Street is a collector road.

18. Tristram Street has also been identified as a key biking network connector route in the recently developed biking and micro-mobility programme.

19. A previous report was presented to the 24 February 2022 Infrastructure Operations Committee meeting outlining upgrade options including roundabout and traffic signal controlled alternatives. The Committee resolved the following:

    That the Infrastructure Operations Committee:

    a) receives the report;

    b) approves the macro-scope, subject to staff reporting back on alternative placements of the Tristram Street pedestrian crossings, of the Tristram / Collingwood intersection upgrade to retain the existing roundabout and provide raised safety platforms with zebra crossings on each leg of the intersection as shown on Attachment 1 of the staff report; and

    c) approves the macro-scope of walking and cycling improvements along the Tristram Street corridor between Ward Street and Thackeray Street as shown on Attachment 1 of the staff report;

    d) notes staff will continue to provide opportunities for Members to be involved in the finalisation of the design of the intersection and associated walking and cycling connections; and

    e) notes staff will continue to seek co-funding from Waka Kotahi and, if successful, requests staff to report back with options to extend the walking and cycling connections to/from the intersection with no additional local share funding.

20. **Attachment 1** to this report is the plan showing the macro-scope approved at the 24 February 2022 Infrastructure Operations Committee meeting.

Discussion - *Matapaki*

21. As a result of the request from Members, alternative locations for pedestrian crossing on Tristram Street were identified to locate the Raise Safety Platforms (RSP) as close as possible to the intersection without conflicting with the driveways and the Tristram/Collingwood dual lane roundabout exits. Refer **Attachment 2** for plan of alternative locations considered.

22. Independent safety and operation review of the alternative zebra locations have been undertaken to identify the best location for the raised zebra crossings along Tristram Street.

23. The review has determined that placement of the raised zebra crossing closer to the roundabout (Options 1 & 2 shown in **Attachment 2**) while in line with the pedestrian desire line are not considered a better option to the location included in original plan for the following reasons:

    i. the alternative locations will have an adverse safety impact as the drivers exiting the roundabout may be overtasked due to the competing demands for drivers' attention increasing the likelihood of crashes. Drivers merging with adjacent vehicles will be focusing on the adjacent vehicles and drivers may miss seeing and stopping for a pedestrian on the priority crossing point;

    ii. the "throttling" effect of the RSPs will negate the efficiency benefits of dual through lanes on Tristram Street at the roundabout resulting in queuing back into the roundabout and beyond on Tristram Street; and

    iii. the safety review has also identified that the safety benefits of the proposed mid-block crossings are greater than the raised zebra placement near the dual lane roundabout entry and exits on the current desire (pedestrian amenity). Prioritising pedestrian safety over pedestrian amenity aligns with the Road to Zero strategy

Options Investigated for the Tristram Street Raised Pedestrian Crossing

24. As per previous Council resolution staff have considered options to bring the Tristram Street midblock raised pedestrian crossing closer to the Tristram/Collingwood Roundabout. Options considered by staff are listed as follows:

Option 1: Original Midblock Option *(Staff recommendation)*

25. Tristram Street midblock raised pedestrian crossing – original option as recommended at the 24 February Infrastructure Operations Committee meeting. In this option the raised pedestrian crossing is located midblock on single lane approaches and provides sufficient visibility to the priority pedestrian crossing from an approaching driver and vice versa. This option is located where the current refuge islands are along Tristram Street approximately 80m back from the roundabout. These refuge islands are well utilised and the proposed raised pedestrian crossing at this location will enhance the levels of service for pedestrians and cyclists trying to cross at these locations. This option is a balanced solution which provides for both the active and motorised mode users.

Option 2: Raised Pedestrian Crossing at the Roundabout

26. This option looked at placement of the raised pedestrian crossing closer to the roundabout approximately 20m from the existing roundabout just after the exit merge of the roundabout. An independent safety review has identified this option to compromise the safety of pedestrians at the priority raised crossing point due to the close proximity of the exit merge to the raised crossing location. It is highlighted that the approaching driver may not identify a pedestrian at the priority crossing point in time and stop as they may be focusing on merging back into the stream of traffic resulting in a likely hood of pedestrian/cyclist related crash. Based on the safety concerns this is not a viable option for further consideration.

Option 3: Other locations

27. Staff have also considered the placement of the raised pedestrian crossing at other locations between the midblock option and the roundabout. More information into these as follows:

    i. Placement of the raised pedestrian crossing across the dual lane entry/exit section at the roundabout. Placing crossings across dual traffic lanes causes shadowing of any pedestrians on the crossing. This puts active users at high risk of getting hit by vehicles approaching on the inside lane at speed with high likely hood of a death and serious injury type of outcome. Due to the shadowing safety concern and higher level of risk for mobility impaired pedestrians this location has been discounted.

    ii. Locations between **option one** and **option two** above have also been considered but due to the presence of well-established trees, vehicle crossing which cannot be easily relocated without substantial cost to council, disruption to residents and users in the area given that these are commercial type crossings this option is also not seen as a viable option for further consideration. Any option to relocate the existing vehicle crossings is likely to cause significant delays to this project meaning the safety improvement works won't be in place before the scheduled opening of the ACC building in January 2023.

28. Investigation undertaken by staff concluded that Option 2 and 3 above are not viable and therefore staff do not suggest any alternative placements for the raised pedestrian crossing.

29. Staff recommend placement of the raised pedestrian crossing at the midblock location as per **Option 1** above and as recommended by staff at the 24 February Infrastructure Operations Committee meeting.

Delivery Plan

30. Subject to approval of the recommended pedestrian zebra crossings, staff anticipate completing these works by January 2023 and prior to opening of the ACC building.

31. The construction of this upgrade is planned to be completed under our new Transportation Network Improvements Contract currently under procurement.

32. Detailed construction methodologies and associated traffic management plans are still to be confirmed; however, the recommended works will be less disruptive that construction of a protected roundabout and is unlikely to require any full road closures or result in significant network issues.

33. Staff are also working with H3 and other agencies to minimise any potential construction impact on key events currently planned for 2022.

34. Prior to construction commencing further stakeholder engagement is proposed including letter drops and face to face discussions with:

    i. businesses in the area including the BP service station,

    ii. Tainui Group Holdings who are developing the ACC building,

iii. WINTEC,

iv. Hamilton Girls High School,

v. all other sites with Tristram Street and Collingwood Street vehicle entrances in the vicinity of the project,

vi. transportation advocacy groups, and

vii. THaWK.

35. This will be a focus area for the project over the next 1-2 months – noting and acknowledging lessons learnt from previous construction works in the CBD.

36. Broader public communications will also be developed for implementation prior to and in alignment with construction works.

Financial Considerations - *Whaiwhakaaro Puutea*

37. The total budget to complete this project is $3,150,000 as funded in the 2021-31 Long Term Plan as shown below:

Approved Budgets	2021/22
Tristram Street / Collingwood Street Intersection Upgrade (as per 2021-31 Long Term Plan & 2021-22 Annual Plan)	**$3,150,000**

38. Current cost forecasts to deliver the recommended option (including network walking/cycling improvements) are within the project budget allocation.

39. Discussions with Waka Kotahi are ongoing and subject to confirmation of the final scope of work for this project.

40. Consequential operational and maintenance costs have been included in the 2021-31 Long Term Plan.

Legal and Policy Considerations - *Whaiwhakaaro-aa-ture*

41. Staff confirm that the recommendations of this report complies with the Council's legal and policy requirements.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

42. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

43. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report as outlined below.

44. The recommendations set out in this report are consistent with that purpose.

Social

45. Intersection upgrades will provide a safer and slower intersections for all users, which will help Council achieve our Vision Zero target.

Economic

46. During construction there are significant economic benefits to the local construction industry and supply chain through investment.

47. This project is also an enabler for development and investment in the CBD – particularly the new ACC building on the south-west corner of the intersection.

Environmental

48. Tristram Collingwood intersection upgrade to provide more opportunities for the active mode users to utilise the intersection will help open up the CBD to the Hamilton Lake recreational area on the western side and vice versa.

49. Will help advantage active mode user of this location in crossing Tristram Street which is heavily traffic dominated with the dual vehicle entry and exit lanes currently – this should help encourage more walking and cycling activities.

Cultural

50. Staff will engage with Te Haa o Te Whenua o Kirikiriroa Trust to further discuss the project and identify any opportunities to retain, interpret or express the cultural values of the site.

Risks - *Tuuraru*

51. This project is in the design stage and is subject to key risks including cost estimate updates, confirmation of consents and associated conditions, conflicts with existing services, traffic management requirements, unforeseen ground conditions and COVID Alert Level changes.

52. Timing of these works are important - with a plan to complete the intersection upgrade works before opening of the ACC building which is currently under construction. Construction timing will also need to be co-ordinated with TGH and their detailed construction programme and methodology for the adjacent ACC building.

53. Road construction works are reliant on prior replacement of an old watermain underneath the Tristram Collingwood intersection. Any delays in watermain relocation could delay commencement of the intersection works. If the water main works don't proceed prior to the intersections works, there is a very risk of watermain damage during construction. Watermains are currently programmed to be completed by October 2022.

54. Detailed engagement and consultation regarding the design and construction methodology with key external stakeholders including Wintec and BP is still to be completed.

55. As major construction works on a busy city road network, staff are working to minimise construction impacts on the network including key city events.

Significance & Engagement Policy - *Kaupapa here whakahira/anganui*

Significance

56. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the matter(s) in this report has/have a low level of significance.

Engagement

57. Community views and preferences on this project are already known to the Council through the 2021-31 Long Term Plan.

58. Given the medium level of significance determined, the engagement level is medium. Engagement is required.

59. Further consultation and engagement will be undertaken throughout the design process with key project stakeholders including neighbouring businesses and residents, TGH & ACC who are developing the adjacent site, transportation advocacy groups, THaWK and the wider public.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Tristram Collingwood Intersection Upgrade - macro-scope plan approved at Infrastructure Operations Committee - February 2022

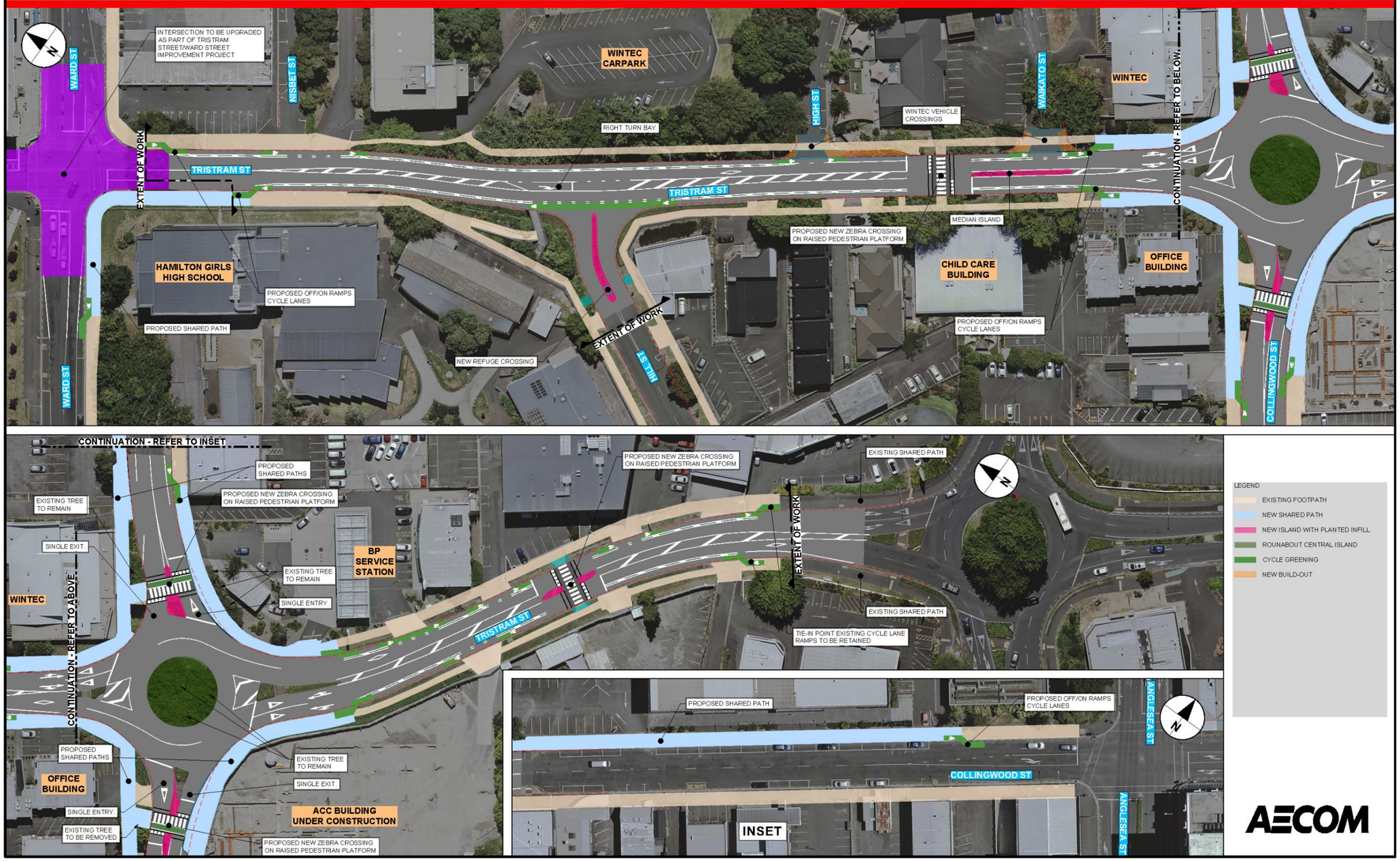
Attachment 2 - Tristram Collingwood Intersection Upgrade - Alternative Pedestrian Crossing Options on Tristram Street

ISO A1 841mm x 594mm

Hamilton City Council
Te kaunihera o Kirikiriroa

TRISTRAM COLLINGWOOD

PROPOSED INTERSECTION UPGRADE



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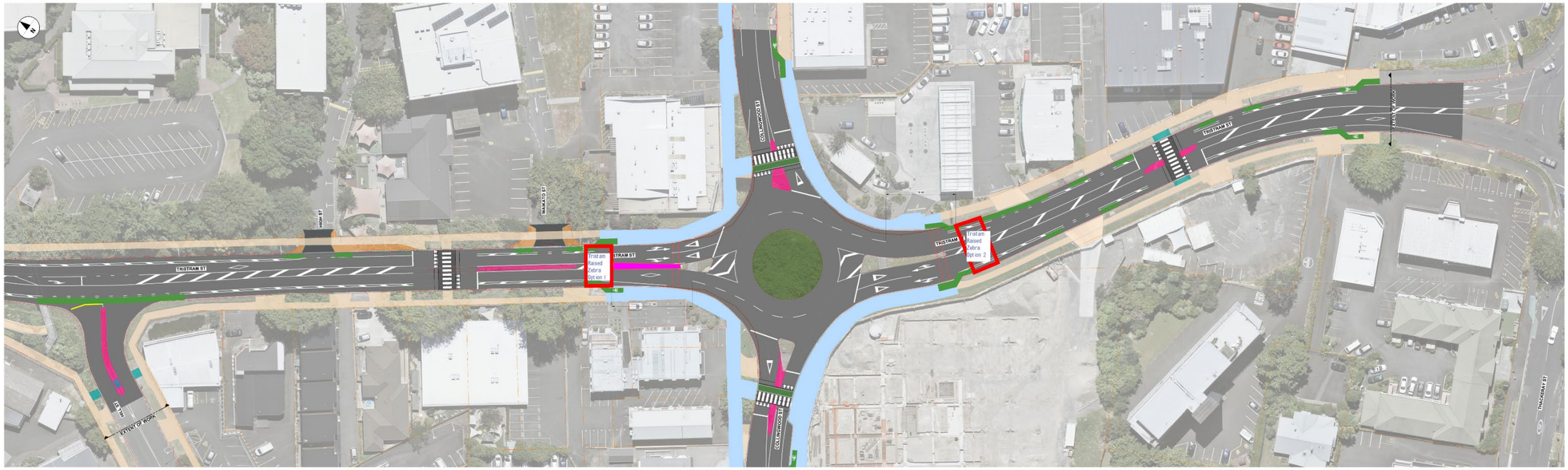

TRISTRAM ST
HIGH ST
WAKEFIELD ST
COLLINGWOOD ST
Tristram Raised Zebra Option 1
Tristram Raised Zebra Option 2
EXTENT OF WORK

Item 11

Council Report

Committee: Infrastructure Operations Committee

Date: 31 May 2022

Author: Louise Peat

Authoriser: Eeva-Liisa Wright

Position: Fleet Contoller

Position: General Manager Infrastructure Operations

Report Name: HCC Corporate Fleet Transition High-Level Roadmap

Report Status	*Open*

Purpose - *Take*

1. To inform the Infrastructure Operations Committee of a High-Level Roadmap and continued actions to guide a corporate fleet transition that will be required to reduce fleet emissions to meet a proposed target.

Staff Recommendation - *Tuutohu-aa-kaimahi*

2. That the Infrastructure Operations Committee:

   a) receives the report; and

   b) notes that staff propose:

      i. an increase in the Hamilton City Council Fleet Emission Reduction Targets from 25% to 44% by 2030 and that progress towards this target will be monitored and reviewed by the Environment Committee;

      ii. to use the Corporate Fleet High-Level Roadmap, **Attachment 1** of the staff report, will be used as the guiding document for the fleet transition required to meet the proposed corporate Fleet Emission Reduction Target; and

      iii. the completion of a pilot and trial for the use of Corporate Fleet alternative options for staff journeys starting in the 2022/23 Financial Year; and

   c) requests staff provide updates on the fleet transition against the High-Level Roadmap and updates on the pilots and trials for corporate fleet alternative options to the Environment Committee as part of the Climate Action Plan update report.

Executive Summary - *Whakaraapopototanga matua*

3. At the 26 August 2021 Environment Committee staff were requested to report back to the Infrastructure Operations committee regarding options for measurable targets for the electrification of corporate fleet.

4. Staff have briefed Members in an Environment Committee closed workshop on 29 November 2021 and an Elected Member Briefing on 9 March 2022 on current fleet, a scope and transition strategy plan to implement an agile and sustainable future for fleet.

5. A set of seven Principles, as set out in paragraph 18, have been developed by staff to guide future corporate fleet planning and decision making, signalling a significant departure from the current business as usual approach.
6. A fleet transition plan has been developed using these seven Principles and developed into a High-Level Roadmap to be used as the guiding document for the corporate fleet transition required to meet a Fleet Emission Reduction Target.
7. The Council's Climate Action Plan has a corporate emissions reduction target of 50% by 2030. Staff are proposing a fleet contribution to this target with a 44% reduction in tailpipe emissions from the Council fleet by 2030.
8. These proposed actions are in response to resolutions from the Environment Committee meeting on 26 August 2021 requiring the taking of a measured approach to our future fleet emission reductions.
9. The proposed fleet transition and High-Level Roadmap development over the next 12 months will provide greater insight into where future planning, research and strategy needs to take place to build robust measurable, accountable targets to keep us on track for the overall fleet emissions reduction target of 44% by 2030.
10. The High-Level Roadmap will also help prevent lock-in to specific technologies, avoid stranded assets, minimise expenditure and establish a broader approach to benchmark our future opportunities to deliver our targets.
11. The corporate fleet transition is anticipated to result in less energy usage, less vehicles, smaller vehicles, more active or alternative means of transport, less carparking, less maintenance requirements and less waste.
12. Full engagement and analysis/understanding of vehicle use is required to attain meaningful changes and this will be undertaken in depth over the next 12 months with the wider organisation to develop a methodical and cost-effective fleet transition towards our carbon neutral future.
13. Staff consider the decisions in this report have low significance and that the recommendations comply with Council's legal requirements.

Background - *Koorero whaimaarama*

14. In August 2021 staff were requested to provide options for measurable targets for the electrification of corporate fleet.
15. Staff completed a fleet audit in November 2021. The audit shows that Council has a diverse fleet including passenger, ute, truck, plant and machinery assets all of which are at various stages of age and condition.
16. Staff provided options for measurable targets and a proposal to increase the corporate Fleet Emission Reduction Target (the Target) from 25% to 44% by 2030 at the November 2021 Environment Committee Workshop.
17. At the Member briefing of 9 March 2022 staff discussed the scope of fleet transition model work undertaken and underpinned by seven Principles.
18. The seven Principles are as follows:
    i. Optimise Journey – Improving the way Council works for future resilience
    ii. Reduce Fleet Size – Minimizing risk and costs for future resilience
    iii. Optimise Efficiency – Using recourses and energy responsibly
    iv. Reduce Vehicle Size – Reducing costs and embedded emissions for future resilience

v. Eliminate Activity – Changing what the council does for future resilience

vi. Alternative Technology – Choosing the right technology to perform important work

vii. Eliminate the Fleet Vehicle from Activity – Will future technology change the way we work where a vehicle may no longer be required to complete a task all together? How opportunities to mitigate need for vehicle to perform council works for future resilience

19. Exploration into utilisation and work tasks within the organisation is ongoing. This work is informing a strategy to prepare future renewals and to identify new ways of undertaking our workplace travel task that will provide resilience and keep Council on track for the Target.

20. A High-Level Roadmap (the Roadmap) has been developed that considers a corporate fleet transition from where we are now with our current corporate fleet and our current needs to a future state that will meet our Target taking opportunities to:

    i. align with the Clean Car Amendment Bill introduced on 8 September 2021;

    ii. align with ongoing central government and Council policy development;

    iii. encourage the drive of carbon neutral fleets; and

    iv. align with the Climate Change Strategy in development.

21. The Roadmap content and visualisation (**Attachment 1**) is a working document that will evolve in time as we learn more in depth across units on future projects within Council that may have an impact on fleet.

22. The roadmap graph shows our current corporate fleet emission with a downward tailpipe target to achieve a 44% reduction by 2030. Learnings in the next 12 months will inform future procurement ensuring an agile transition to avoid stranded asset, mitigate costs where possible and keep accountable of tailpipe emission on downward trend.

23. Options are also being considered for pilots and trial for data gathering and analysis for Corporate Pool Fleet Taxi Services, public transport and active mode options for HCC staff journeys starting in 2022/23. These types of services will be an alternative to the traditional ownership model of corporate fleet pool vehicles and usage.

Discussion - *Matapaki*

24. The corporate fleet transition includes leading edge future fleet decisions that will have a positive impact on our environment and for our community, through reducing our emissions and promoting active well-being fleet initiatives for our staff and city.

25. The proposed fleet transition will contribute to improving the wellbeing of Hamiltonians by:

    i. making a contribution to climate change;

    ii. caring for the natural and physical world;

    iii. Ensuring the council is financially sustainable;

    iv. prioritising safety; and

    v. embracing the natural environment – through shift of workplace travel into active modes like walking, cycling and public transport that will help mitigate help towards reducing our city carbon emissions.

26. The fleet transition will align and feed into the Climate Change Strategy (currently in development) and Climate Change Action Plan. Fleet emissions will be measured and reported back through the Climate Change Action Plan to the Environment Committee. This monitoring will show if Council is on track to deliver our target of 44% emissions reduction by 2030.

27. Holistically changing the way which Council works by understanding how we can efficiently perform tasks and leveraging evolving technology can ultimately change the requirement for certain fleet needs in the future.

28. Key to success will be capturing quality and reliable data categorised by vehicle use in order to understand the activities that are being supported by the fleet and to highlight opportunities for innovation and to enable mutually beneficial connections with other projects being undertaken.

29. The various activities or projects currently being planned or undertaken by Council (or central government) which may have a direct or indirect impact on fleet need to be considered, but these also present opportunities where changes are already being planned.

30. Fleet trials and pilots will be used as a learning exercise throughout the fleet transition to demonstrate any opportunity for change in modes and to support active and service models. These pilots will encourage a broader scope of change to reduce our embedded emissions for the Council fleet transport task.

31. An important communication point for the fleet transition is that the fleet trials and pilots will be a dynamic learning and changing process. Research and analysis will be needed over the course of the transition, and this will lead to new ideas and innovation which will feed back into the Roadmap and the overall emissions reduction outcomes.

32. Behaviour change is part of any transition project and instilling the right culture within the various groups, units and teams who are using the fleet will be crucial in ensuring the success of meeting the Target.

33. Our Climate Change Action Plan includes a Monitoring Report which in turn includes the addition of “Ongoing behaviour change projects” to reduce fleet, waste, and energy emissions. These actions have been included to ensure that Council staff are part of the climate change response journey and are modelling sustainable behaviours.

34. Staff propose a change to the HCC Fleet emission reduction target of 25% to 44% by 2030. This increased will focus us more strongly and strategically on cost savings, work optimisation, fleet utilisation, fleet rationalisation and the need for a cultural shift around active modes of transport.

35. If the fleet emission target of 44% together with the Roadmap as a guide for fleet transition are not approved by Council then there is a greater risk of not achieving our overall corporate emissions targets which are outlined in the Climate Change Action Plan and will be included in the Climate Change Strategy (currently under development).

Options

36. Staff have assessed that there are two reasonable and viable options for the Committee to consider. This assessment reflects the level of significance. The options are set out below.

Option One – Continue Business as Usual, Upgrade Fleet as and When Required

37. To make no significant change to the way in which we procure, manage and operate our fleet.

38. There is a risk of continuing this business-as-usual approach as Council will miss opportunities to take a broader approach and will be unable to adopt more innovative procurement opportunities that result in more significant tailpipe emission reductions and opportunities for cost savings in renewals.

39. This option requires no extra time in planning and is only constrained by the lead-time on fleet renewals and financial budgets allocated.

40. If we go for option one, we won't be leading by example for our community – as it will go against the organisation-wide direction for climate change.

41. If we don't follow the roadmap this opens us up to all these expected cost increases in the future which are likely to be higher with the likes of fuel. Government has signalled a shift to electric vehicles, public transport and active modes in their climate change response. Therefore, we can't rely on business-as-usual internal combustions petrol/diesel vehicles anymore – not only to keep up with national direction but specifically for potential funding opportunities as well.

Option Two – Fleet Long Term Strategy and Roadmap Development

42. Developing a transition roadmap of tailpipe emissions and doing in-depth consulting across the organisation to better understand way work currently and what opportunity we have for changing way work and how prepare renewals following the principals (from paragraph 18). This will take a longer process than business as usual approach but has greater opportunity for meaningful longer term sustainable changes and reduction in emissions. The scope anticipated for the roadmap planning will be in the next 12-18 months with staff being able to report through briefings and a report to Council by July 2023 on update and progress on fleet transitions within that time.

43. To undertake a fleet transition following the Roadmap, which is underpinned by in-depth investigation across the organisation to better understand the way we currently work, what opportunity we have for changing the way we work and to prepare renewals following the 7 developed principles, to significantly reduce tailpipe emissions.

44. This will be a longer process than if we took the business-as-usual approach, but it has greater opportunity for meaningful longer term sustainable change and reduction in emissions, plus cost savings, health and wellbeing benefits for staff and our environment.

45. The scope anticipated for the Roadmap planning will be refined in the next 12-18 months with staff being able to report progress through further briefings and an annual report to Council by July 2023 on update and progress on fleet transitions within that time.

46. Staff recommend **option two** because having a fleet transition plan and a Roadmap informing our direction of travel will ensure that Council is accountable and able to meet future emission targets as proposed in our Climate Change Action Plan.

Financial Considerations - *Whaiwhakaaro Puutea*

47. Currently, the approved budget in the 2021-31 Long Term Plan is based on Option 1 being the cost of delivering and upgrading existing corporate fleet on a like for like basis, across the organisation.

48. Further work will be undertaken by staff in regards to the proposed Roadmap to take account of central government policy changes, adopted emission targets, transition fleet, changes to business and potential variation of fleet sizes.

49. Any financial impacts will be managed within existing approved 2021-31 Long Term Plan budgets, and with any additional budget requirements being identified and sought through subsequent Annual Plan and Long Term Plan processes.

Legal and Policy Considerations - *Whaiwhakaaro-aa-ture*

50. Staff confirm that the staff recommendation complies with Council's legal and policy requirements.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

50. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

51. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report as outlined below.

52. The recommendations set out in this report are consistent with that purpose.

Social

53. Climate change has the potential to reduce our community's social wellbeing, especially our more vulnerable community members. The Fleet Emission reduction target of 44% and our High-Level Road Map aligns with our 2021/22 Climate Change Action Plan including actions that will support Council to identify these potential risks and to take action to minimise the risks and enhance social wellbeing

Economic

54. The delivery of the Fleet Emission Reduction High-Level Road Map and 44% target to 2030 supports our 2021/22 Climate Change Action Plan showing how we are supporting the transition to a low-carbon economy in Hamilton. As we gain a better understanding of the potential economic risks and opportunities facing the city, we can collaborate with others in staff and external to address them.

Environmental

55. The delivery of the Fleet Emission Reduction Road Map from now to 2030 will support our Council Climate Change Action Plan and Climate Change Strategy (currently in development) in reducing greenhouse gas emissions and building our resilience. This includes optimising Council's operating and enabling others to reduce emissions through actions like work active modes, cycleways and public transport.

Cultural

56. The long-term impacts of climate change may affect the cultural wellbeing of our community, for example if values and customs are unable to be undertaken.

57. Delivery of the Fleet Emission Reduction target of 44% will require collaboration across the organisation and with the community, to understand these risks and build consideration of them into long-term decisions.

58. In line with He Pou Manawa Ora, the delivery of this roadmap will contribute towards He Pou Manawa Koorero (Pillar of History). This pillar reminds us of the value of our unique history of language, people, and place. By responding to climate change and protecting the values, customs, and other cultural aspects of our community, we will protect and restore the unique history of Kirikiriroa Hamilton.

59. Delivery of the HCC Fleet emission reduction target also contributes to He Pou Manawa Taurika (Pillar of Prosperity) as responding to climate change will provide safety, security and opportunities for our community and culture to prosper in a changing environment.

60. Projects in the Action Plan also speak to the Pillar of Restoration, He Pou Manawa Taiao, as restoring and enhancing our natural environment is a key part of our climate change response.

Risks - *Tuuraru*

61. If the plan and the emission reduction target are not supported, there is a risk that HCC is not able to meet the outcomes of the Climate Change Strategy (currently in development), Climate Change Action Plan and any other Central Government emission targets.

Significance & Engagement Policy - *Kaupapa here whakahira/anganui*

Significance

62. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the recommendation(s) in this report has/have a low level of significance.

Engagement

63. There has been no community engagement relating to this report, however, Community views and preferences are already known to the Council through previous Climate Change Action Plan discussions.

64. Given the low level of significance determined, the engagement level is low. No engagement is required.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Fleet High-Level Roadmap to 2030 - May 2022

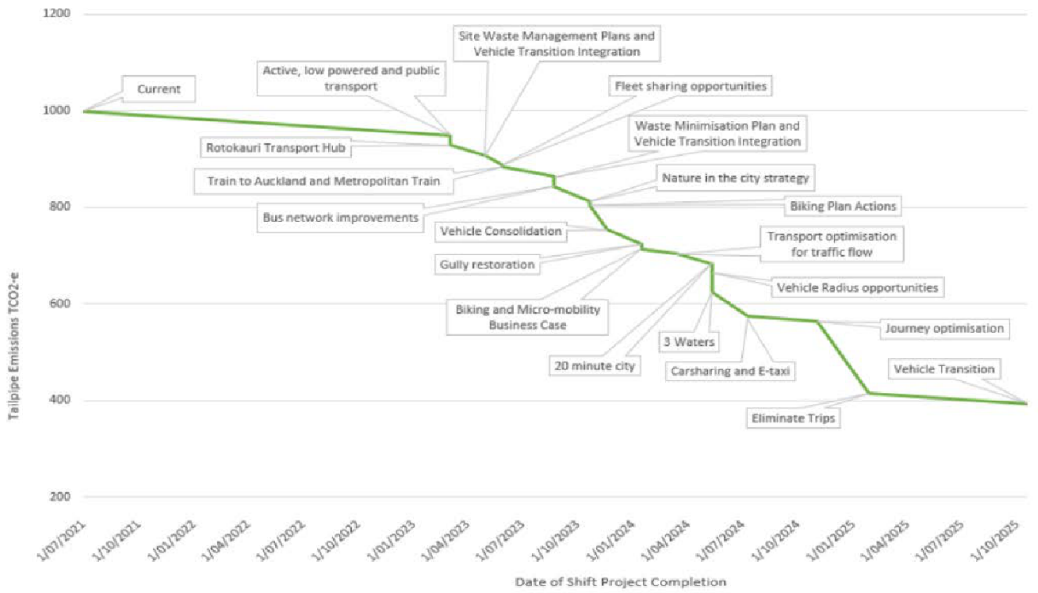
Background – The Programme overview and next phase

Key points

- Indicative roadmap starting point
- To be co-developed / validated in conjunction with relevant stakeholders and users
- Programme activity to include a range of soft and hard initiatives and projects, including:
  - Data collection and analysis
  - Technology, innovation
  - Organisational change
  - Culture evolution

Fleet High-Level Roadmap to 2030

Fleet tailpipe emission projections for achieving 44% emission reduction target by 2030



The context of the Hamilton City Council Fleet Tailpipe Emission graph:

This is an evolving graph with calculations and shift projects in the background that need to be further understood to prepare for the future procurement needs and to keep Fleet on track to delivering 44% emission reduction tailpipe by 2030.

In Fleet Transition staff need to ensure the targets and calculations include the various Council projects and future Hamilton City Transport opportunities that will be able to assist in our Fleet Transition of workplace travel and assist in delivering Emission Reduction Target of 44% by 2030

Shift Projects ahead:

Strategic work - Integrating with existing Council Plans and Projects

Fleet alternatives - Changing the how (active/public transport, opportunity for future evolution in the way staff perform tasks)

Optimisation - Improving utilisation

Technology Changes - Preparing for transition in fleet technology

3

Item 11

Attachment 1

Item 12

Council Report

Committee: Infrastructure Operations Committee

Date: 31 May 2022

Author: Chelsey Stewart

Authoriser: Eeva-Liisa Wright

Position: Project Manager

Position: General Manager Infrastructure Operations

Report Name: Strategic Approach to Developing Electric Vehicle Charging Network

Report Status	*Open*

Purpose - *Take*

1. To inform the Infrastructure Operations Committee on a range of approaches Council may take to support the development of an electric vehicle charging network, as was requested at the 24 February 2022 Infrastructure and Operations Committee.

2. To inform the Infrastructure Operations Committee of inter-council collaborations underway in relation to the electric vehicle charging network in the Waikato.

Staff Recommendation - *Tuutohu-aa-kaimahi*

3. That the infrastructure Operations Committee:

   a) receives the report; and

   b) notes that collective work is underway between Waikato Regional, Waikato District, Waipā District and Hamilton City councils to explore a consistent approach to support the development of an electric vehicle charging network.

Executive Summary - *Whakaraapopototanga matua*

4. Climate change, and how organisations and communities reduce their contribution to it, is fast becoming one of the greatest concerns of our time. Reducing carbon emissions is seen as key to halting climate change and encouraging the uptake of Electric Vehicles (EVs) over Internal Combustion Engine (ICE) vehicles is an important lever to drive this reduction.

5. Making the switch from ICEs to EVs is a solution widely promoted in strategies, plans and policies at local, regional and national governance levels and within public and private organisations seeking to reduce their carbon emissions.

6. Over the last year, Council staff have increasingly been approached by commercial operators seeking to install EV charging infrastructure at Council owned sites and facilities. While staff have been engaging in conversations with these providers it has become clear that there is a need for some direction as to the role Council wishes to play in this space – and therefore how Council wishes to engage in potential partnerships to develop the EV charging infrastructure network.

7. The General Managers report to the 24 February 2022 Infrastructure Operations Committee outlined recent activity relating to EV charging infrastructure. It recommended the need to explore a broader strategic approach to developing the EV charger network before considering a greater level of commitment or potential procurement processes with operators.

8. In response, the Committee directed staff to bring back a range of options for the development of a strategic network for consideration at this meeting. This report acts as a discussion document with the intent to support Committee members to indicate a preferred approach to the role Council should take in developing the EV charging network.

9. This report covers the following:

    i. an introduction to EVs, EV charging infrastructure and how it is used;

    ii. relevant strategic context for considering Council's approach to EV networks;

    iii. key considerations when determining what approach Council adopts; and

    iv. five approaches or roles Council could play in developing the EV network further:

        a) promoter/supporter;

        b) enabler;

        c) active facilitator;

        d) prescriptive; and

        e) service provider.

10. The advantages and disadvantages of each of the five approaches are outlined. It should be noted that a combination of these roles is a likely outcome and that a Council may move through them over time as it increases (or decreases) its level of involvement.

11. There are many benefits to regional collaboration throughout the development of the EV charger network. To this end, there is currently a very active collaboration underway in the form of a staff working group (interacting with a broader staff and Elected Member group). The following councils are participating in this collaboration: Waikato Regional, Waipā District, Waikato District, Hamilton City, along with support from Waka Kotahi.

12. The approaches in this paper have been developed collectively with that inter-council working group. Staff intend to present these to other participating councils (along with a proposed programme of work for the group) to encourage collective consideration and development of a cohesive approach to an EV charging network across the Waikato.

13. As such, while staff do suggest a preferred approach in this report ('enabler' transitioning to 'active facilitator' over time), it is also recommended the Committee hold off any final direction to staff while the working group continues to support the other councils to join the conversation - so that a regionally consistent approach to EV infrastructure may be developed collaboratively.

14. Financial considerations have yet to be determined and are dependant and subject to, the approach approved by Council. Financial considerations and impacts on the approved 2021 – 31 Long Term Plan will be presented at the appropriate time for consideration.

15. Staff consider the matters in this report have low significance and that the recommendations comply with Council's legal requirements.

Background - *Koorero whaimaarama*

16. New Zealand has committed internationally to reducing carbon emissions by 50 per cent by 2030. A suite of government entities, strategies, plans and recommendations have been made that commit to this at a national level. Many of these identify road transport as the second largest source of emissions in New Zealand.

17. Accordingly, the Climate Change Commission has recommended, with the backing of the Ministry of Transport, that petrol and diesel car imports be banned, ideally by 2030. This suggests that electric vehicles (EVs) will be ubiquitous on our roads, with a predicted 50 per cent of all cars and motorbikes entering the country being powered by electricity by 2029.

18. Hamilton City Council is also increasingly committed to strategies and plans that aim to reduce its contribution to climate change and that of the networks and facilities it operates. An important part of this commitment is encouraging the community to adopt more environmentally sustainable behaviours and ensuring the infrastructure is in place to do so.

19. Supporting transport network users to get out of internal combustion engine (ICE) vehicles and into modes of travel that produce less stress on the network in terms of congestion and maintenance remains a Council priority. However, supporting users who will continue to drive private vehicles to switch to more environmentally sustainable EVs is a clear way the transport system can help deliver on Council's intent to reduce emissions.

An introduction to EV charging networks

20. Globally, the uptake of EVs is increasing rapidly and New Zealand is beginning to follow the trend. There are 38,000 EVs in NZ (March 2022), and these are projected to increase by 15 per cent by 2030, climbing to 53 per cent by 2040 and 90 per cent by 2050.

21. Overseas experience suggests EV networks need good coverage and an appropriate mix of fast and slow chargers to provide a reliable and convenient service for EV users.

22. Put simply, there are two main types of EV chargers – Alternating Current (AC which is converted to DC inside the vehicle) and Direct Current (DC which converts AC to DC inside the charger before feeding it into the vehicle).

23. AC chargers are a lower voltage and take longer to charge (e.g. a 40km range charge per hour with a 7kW single phase voltage). Users may choose to plug into these when they expect to stay somewhere for several hours such as at a shopping centre or visitor destination. DC chargers are higher voltage and much quicker to charge (e.g. 150km range charge per hour with a 25kW charger or 400km in 15 minutes with a 300kW).

24. DC chargers are mostly used for travellers to recharge en route when making longer journeys. It should be noted that even if a charger provides a rapid charge capacity, different models of EVs have differing capacity to accept that rate of charge – so a top-of-the-line charging network can only deliver the service the EV itself can accommodate.

25. Both are vital for a complete and convenient network but when making decisions about what types of charging infrastructure to support on Council property, careful consideration should be given to the appropriate locations for each and when and where EV owners are likely to want to charge.

26. For example, most EV owners living in Hamilton will be slowly charging their vehicles overnight at home and are unlikely to have a need for pay to use DC chargers in the city. However, EV drivers who may be commuting from neighbouring towns or districts may use a DC charger while at the supermarket before heading home or an AC charger while attending an event or visiting one of the city's visitor destinations.

Looking to the future

27. EVs and the technology that supports them, are becoming increasingly affordable. Combined with growing consumer demand for more environmentally sustainable choices, EV ownership is on the rise - and so is the presence of EV charging infrastructure. This makes it an opportune time to consider the role of Council in supporting the availability of EV infrastructure as it begins to represent a lower risk for investment or partnerships. There is now better understanding of EVs and their associated technology in terms of:

    i. how charging networks can best support EV owners;

    ii. how owners choose to charge their EVs in different circumstances;

    iii. Technological developments (and for a degree of standardisation to have occurred);

    iv. industry standards becoming more consistent;

    v. Challenges posed by EV use such as the impact of increased pressure on the energy grid;

    vi. challenges for policy and enforcement; and

    vii. likely future trends (such as EV charging station forecourt facilities off main routes and highways like existing petrol stations).

28. So far in New Zealand however, the distribution of EV charging infrastructure is inconsistent across the country and does not yet provide a fully reliable network for users beyond the largest cities and highways.

29. Those EV chargers that do exist are primarily due to investment of either EV providers like Tesla, EV charge point operators (e.g. ChargeNet), electricity network providers (e.g. WEL/Meridian) or other enterprises using the stations as a conduit to generate revenue from another service such as marketing. The Energy Efficiency and Conservation Authority have been a key player in co-funding EV charging infrastructure across the country.

30. Different Councils have had some involvement (all in the Waikato have been approached by numerous providers) but for most action to move on this has so far been minimal. Christchurch City Council is one that has been proactive in supporting the installation of chargers since its first in 2016. There are now 32 AC chargers across the city which it owns and operates through a Council Controlled Trading Organisation (Orion).

31. Other councils like Auckland are in a similar position to Hamilton City in looking to understand the role they should play and how EV charging infrastructure sits alongside other transport network priorities and the strategies/policies/plans and processes needed to support activity in this area. In 2019 Dunedin had the highest level of EV ownership in the country and is considering how to continue to support this trend (while balancing this with the need to encourage public and active modes of travel). Wellington City Council is also gearing up to substantially increase the availability of EV chargers in the central city and greater Wellington region and currently considering its strategic approach over the long term.

32. As enthusiasm for EVs and the need for supporting infrastructure grows, there are still major changes that may come about. It is important for Council to be clear on the role it will have in supporting EV charging infrastructure and why.

Discussion - *Matapaki*

Strategic environment

33. Council may look to be active in tackling climate change and reducing carbon emissions in many areas of Council policy, service provision, operation and collaborations. Supporting the increased uptake of EVs in Hamilton is one approach with clear links from action to outcome.

34. Encouraging drivers to switch to EVs aligns with the following strategic objectives of Council:

    i. Climate Change Action Plan – This recognises the need to reduce carbon emissions through levers in our transport system;

    ii. Future Council Climate Strategy currently under development;

    iii. Access Hamilton - The existing outcome areas of smart, choice and growth are all served by increasing availability of EV charging stations in the city's transport network for users;

    iv. Delivering on targets to reduce carbon emissions by at least 30 per cent by 2030 under the Regional Land Transport Plan 2021-2051. This aim is supported by Action 2.1.5 of the Waikato Plan: Encourage electric and driverless vehicle uptake; and

    v. Giving effect to a range of central government plans, legislation and arrangements that aim to reduce emissions (e.g. Climate Change Response (Zero Carbon) Amendment Act 2019, Government Policy Statements on Transport (transitioning to net zero carbon emissions is part of a key outcome), Climate Commission recommendations, subsidies on EV purchases, Carbon Neutral Government Programme and Emissions Reduction Plan).

Considerations when deciding what approach to take to developing the EV charger network

35. There are numerous factors to consider when determining who and how to engage with on developing the EV charging infrastructure network.

36. *Prioritisation of objectives*

37. When considering the type of role Council might play in the provision of EV charging infrastructure, it is important to be clear on what strategic priorities it aims to achieve with that involvement. Potential outcomes of increased EV charging infrastructure could include:

    i. reduced carbon emissions from the transport network;

    ii. enhanced service provision for the community and visitors at Council sites and facilities;

    iii. improved convenience and choice for EV users of the transport network;

    iv. enlivening areas/communities by helping to draw people into them with the service;

    v. support of, and alignment with national, regional and Council strategies and plans;

    vi. increased inter-council collaboration and partnership opportunities;

    vii. new revenue stream opportunities or other financial benefits (such as profit share or discounted marketing space);

    viii. supporting local enterprise (where appropriate) over foreign commercial operations; and

    ix. embracing transformation in terms of new technologies and innovation that support Hamilton's reputation as a smart city.

38. How strongly Council prioritises the reduction of carbon emissions over other goals will influence the level of involvement it will seek in supporting or driving an increase in the EV charging network in Hamilton.

Consistency of service across borders

39. Regional alignment offers benefits for both Council and suppliers of EV charger infrastructure and associated technology. This is in terms of ease of procurement process, having clear and shared outcomes and expectations, consistent contractual arrangements and potential opportunities for leveraging partnerships.

40. For EV users, having a degree of consistency in infrastructure providers, software and signage supports a more seamless customer experience across council borders and within the city.

Unintended consequences

41. A primary reason for encouraging the Committee to consider the wider approach it might take in developing an EV charging network is to reduce the risk of unintended consequences or outcomes that may prove contrary to other Council priorities. For example:

    i. EV chargers with built in digital advertising panels offering free public charging and financial and in-kind marketing benefits for Council. While this has merits in terms of community and financial benefit, it may have disadvantages for community safety through pedestrian/cyclist/driver distraction as the commercial interest will be for these to be placed in high visibility public places and on-street parking.

    ii. In addition, digital advertising around the city overall is increasingly rapidly, either as a primary commercial offering (billboards) or with supplementary offerings such as on bike parking stations or EV chargers. Council policy or regulation in terms of the visual/amenity impact of this on the city is not strongly articulated and staff suggest this should be better understood to protect against potential negative impacts.

    iii. Reducing general parking availability. Increasing EV charging infrastructure takes parking spaces from ICE vehicles. While EV drivers can park in ICE vehicle carparks, ICE vehicles (usually) may not park in EV charger carparks - this may not be received well by non-EV users in the community who may already perceive a lack of parking across the city. Careful consideration of where car parks may be converted to EV and communications around the strategy behind the move would be recommended.

    iv. Contracts need to be carefully managed and require a good understanding of future use of any sites intended to be occupied by charging infrastructure. Staff experience of proposals from large commercial providers to-date is that these usually seek long terms and allow very limited flexibility to adapt to future changes. This would likely impact the ability of the transport network to be responsive to changing needs.

Regional alignment

42. As mentioned, there are strategic imperatives for collective regional action in this space. Over recent months an active collaboration has got underway in the form of a staff working group between the following councils - Waikato Regional, Waipā District, Waikato District, Hamilton City – and with input from Waka Kotahi.

43. This collaboration is looking to understand the EV environment collectively, how to strategically plan EV charger networks across the region, and to develop consistent approaches to establishing EV charging networks (including for example consistent guiding principles and procurement processes, data collection, signage and user experience).

44. At the time of writing, the draft work plan of this group includes assessing:

    i. Council's role, purpose and priorities in establishing EV charger networks (influencing approach and procurement and development of weighting criteria);

    ii. legal considerations;

    iii. regulatory environment, barriers and opportunities to influence;

iv. community co-benefits;

v. operational considerations; and

vi. carbon emissions impact.

45. The proposed approaches in this report have been developed in consultation with that working group and with the intention that each council will have the opportunity to consider these individually and then collectively. The intention is that this will act as a catalyst for further conversations and action towards a regionally consistent approach to EV infrastructure.

Options

46. Staff suggest there are five main approaches that Council may choose to adopt when deciding how to be involved in the development of EV charging networks:

i. Promoter/supporter

ii. Enabler

iii. Active facilitator

iv. Prescriptive

v. Service provider

47. Each of the approaches (described below and possibly with the exception of the service provider role) may be taken to layer upon the previous. For example, a council adopting the 'enabler' role is also likely to be acting in the 'promoter/supporter' role too.

48. It is also possible to pick and choose different aspects of each approach or to plan to work towards one with the intention of achieving another at a later date (e.g. recognise the Council is at 'promoter', commit to becoming an 'enabler' with the intention to grow into 'active facilitator') over time.

Promoter/supporter role: Essentially an enhanced status quo for Hamilton City Council

49. Council may choose not to be directly involved in increasing the availability of EV charging infrastructure, but rather to promote and demonstrate the use of EVs where possible in strategy, policy and operational sense (e.g. incorporating EVs into the Council fleet).

50. Under this approach, provision of EV charging infrastructure is not a service provided at Council sites or facilities and this infrastructure remains limited to that on private land or national arterial routes.

51. The following is a summary of anticipated implications of the promoter/supporter role:

Advantages	Disadvantages
▪ Minimal resource required from Council. ▪ Demonstrates support and encouragement of EV use in strategies/plans. ▪ Allows market forces to determine the number and type of chargers.	▪ Doesn't respond to increased urgency and community concern around climate change and reducing carbon emissions. ▪ Without dedicated strategy or policy, it is difficult to determine how to support EV use and network growth. ▪ Not proactive and may be seen as a token gesture. ▪ No guarantee of increase to service for EV users (relies on the private market). ▪ Risk of adverse use of commercial land (potentially not best use of the land)

May need to consider District Plan changes in terms of ensuring optimal use of land, electricity, infrastructure and road network.

Enabler role: Responsive but not proactive

52. Under this approach, Council responds to requests from service providers. It does not actively seek out opportunities to develop EV infrastructure but may partner with providers to allow operation of their charging infrastructure at Council sites and facilities.

53. Council enables suppliers to construct and manage EV charging infrastructure by working with them to address any barriers to installation that discourage and subsequently hinder EV uptake. Council may also participate in determining the application of any standards/ specifications the parties consider appropriate.

54. This model presents opportunities for different partnership arrangements that may mean service provision at no cost to council or with other additional benefits or revenue possibilities (such as with the Memorandum of Understanding to trial EV infrastructure proposed in an accompanying report for this meeting).

55. However, this approach assumes no clear understanding of priority outcomes or standardised procurement criteria or process against which to assess individual proposals. Instead, it anticipates an ad hoc assessment of individual proposals as they arise based on apparent merit.

56. Potential implications of this approach are summarised below:

Advantages	**Disadvantages**
▪ Less council resources/investment required in understanding the wider EV environment and community needs, or development of detailed strategy, policy and procurement tools (though this would be helpful at this level). ▪ Positive reputational outcomes that Council is working to address climate concerns. ▪ Supports goals of regional policy aspirations and plans. ▪ Market forces have a large role in determining the need and location of chargers. ▪ Council is able to consider individual proposals on their own merits. ▪ Opportunity to add bespoke conditions to partnership arrangements, MOUs and Licences to Occupy.	▪ Without detailed strategy or policy, it is difficult to determine why one request should be approved over another. ▪ The most suitable applications are not necessarily the first to come in, so assessing them as they arrive based primarily on perceived merits may not result in the best outcomes for the community. ▪ Dealing with each supplier individually rather than channelling them through a EOI process increases resource to consider them. ▪ Network development without a clear overall plan may adversely affect other public use and access at locations. ▪ Potential for inconsistencies in agreements with different companies, leading to an inequitable marketplace. ▪ Less ability to support regional cohesiveness.
<u>Potential District Plan requirements</u> Removal of barriers in District Plan that would hinder the construction or location of charging infrastructure e.g.: ▪ Include or exclude charging infrastructure from definitions such as road corridor, road corridor services, minor infrastructure structure etc as appropriate; and ▪ Provide for charging infrastructure as a permitted activity in appropriate zone.	

Active facilitator role: Proactive in setting up an environment that encourages and supports the increased provision of EV infrastructure.

57. This approach recognises increased EV use and supporting infrastructure as a strategic priority. It requires strengthening of strategy and the development of evidence-based policy and plans to ensure development of an EV charging network that meets strategic and community outcomes.

58. Active facilitation means understanding and articulating identified EV user and network needs and actively seeking out providers to fulfil these. Under this approach, strategic priorities and policy guides partnership opportunities and supports consistent procurement weighting/ criteria assessment and contractual expectations. Council is in a better position to undertake open market EOI processes.

59. Council sees provision of EV chargers at its sites and facilities as standard service provision and partners with providers to install these. This model presents opportunities for different partnership arrangements that may mean service provision at no cost to council or with other additional benefits or revenue possibilities.

60. Council is likely to be in a better position to understand community need and opportunities and request providers meet these alongside their commercial preferences (e.g. a provider may request a CBD location for a charger and in return be asked to also supply a charger in a less 'commercially desirable' location but one in a community in need of revitalisation).

61. A summary of anticipated implications is below:

Advantages	**Disadvantages**
▪ Planned, strategic evidence-based placement of charging facilities that best serves the community and through-traffic. ▪ Creating greater consistency of planning and supply. ▪ Encourages greater collaboration across electricity networks and broader E-mobility ecosystem. ▪ Actively working to deliver on goals of regional policy aspirations and national emissions reduction. ▪ By calling for tenders or interest in a given location, Council can assess competing applications alongside each other to select the most suitable supplier. ▪ Potential to extend reach to home-based and close to home charging requirements (residential charging as in Wellington). ▪ There are set criteria to assess applications against (clearly articulated) Council priorities and community outcomes. ▪ Greater ability to ensure standard signage and road marking across all charger sites - making them easily identifiable to users. ▪ Potential for profit share of licensing arrangements as part of partnerships to provide for minor revenue generation.	▪ Greater Council investment in terms of time and resources. ▪ Requires Council to assess and anticipate EV charging demand now and into the future. ▪ Council may be considered more accountable if the approved supplier or facilities do not meet community needs. ▪ May be budget considerations depending on if the Council commits to financial support in agreeing partnerships.

Potential District Plan requirements

May need to remove barriers in District Plan that would hinder the construction or location of charging infrastructure e.g.:

- Include or exclude charging infrastructure from definitions such as road corridor, road corridor services, minor infrastructure structure etc as appropriate.
- provide for charging infrastructure as a permitted activity in appropriate zone.

Prescriptive role: Council has comprehensive provisions and regulations to control network development.

62. This approach replicates the strategic prioritisation and supportive policy and planning environment described in the active facilitator role. However, it goes one step further in applying provisions to strongly deter and/or encourage EV infrastructure development in a way that matches Council objectives in that space.

63. This would likely include development of a plan showing Council's preferred locations for different types of chargers to ensure accessibility across the city including less 'commercially desirable' locations. A plan would provide clarity to suppliers on Council priorities for partnerships and could link to incentives or disincentives.

64. This option may be particularly suited to district councils looking to draw attention to servicing EVs in smaller towns consistently across the region and as a way to draw visitors off the highways to these communities.

65. Some potential implications of this approach are below:

Advantages (mostly the same as 'active facilitator')	**Disadvantages**
▪ Tightly controls and seeks to direct commercialisation of public spaces. ▪ Planned, strategic evidence-based placement of charging facilities that best serves the community. ▪ Actively working to deliver on goals of regional policy aspirations and national emissions reduction. ▪ Greater consistency of planning and supply. ▪ Encourages greater collaboration across electricity networks and broader E-mobility ecosystem. ▪ By calling for tenders or interest in a given location, Council can assess competing applications alongside each other to select the most suitable supplier. ▪ There are set criteria to assess applications against (clearly articulated) Council priorities and community outcomes. ▪ Greater ability to ensure standard signage and road marking across all charger sites - making them easily identifiable to users. ▪ Potential for profit share of licensing arrangements as part of partnerships to provide for minor revenue generation.	▪ Large commitment of Council resources and potentially financial investment. ▪ May deter companies that could provide facilities of benefit to the community. ▪ Sets a precedent for local government involvement in other commercial activities (e.g. hydrogen fuel outlets). ▪ Potentially increased Council liability/ accountability for unsuccessful installations and use of public space or funds. ▪ Likely more substantial District Plan changes would be required (and this takes time).

Potential District Plan requirements: Likely to require addition of appropriate definitions, objectives, policies and rules to direct location, size, style etc of charging infrastructure.

Service provider role: Council invests in and owns the infrastructure.

66. This could involve the purchase, operation and maintenance of charging infrastructure at Council owned sites and facilities. Alternatively, Council could purchase the infrastructure and outsource the operation and maintenance of it (to Infrastructure Alliance for example). Council may provide the service free to the community or as pay to use for a minor revenue stream.

67. It is recommended if Council was to adopt this approach to couple it with the 'active facilitator' role to ensure sound strategic support for decision-making and performance monitoring.

68. Summary of likely implications:

Advantages	**Disadvantages**
▪ Council is able to determine all aspects of the EV infrastructure provided at its sites. ▪ Planned, strategic evidence-based placement of charging facilities that best serves the community. ▪ Actively working to deliver on goals of regional policy aspirations and national emissions reduction. ▪ Greater ability to ensure standard signage and road marking across all charger sites - making them easily identifiable to users ▪ Potential to extend reach to home-based and close to home charging requirements (residential charging as in Wellington). ▪	▪ High cost to Council in purchasing and resource required to plan, operate, maintain and upgrade infrastructure (or funding to outsource this). ▪ Higher risk to Council in terms of investment in a technology. ▪ May limit opportunities to partner with others in the EV network if Council is perceived as a competitor. ▪ Sets a precedent for local government involvement in other commercial activities.
Potential District Plan requirements Remove barriers in district plan that would hinder the construction or location of charging infrastructure e.g. ▪ Include or exclude charging infrastructure from definitions such as road corridor, road corridor services, minor infrastructure structure etc as appropriate. ▪ Provide for charging infrastructure as a permitted activity in appropriate zone.	

Staff advice

69. Whilst five separate approaches Council may take towards developing the EV charger network have been identified, it is possible for Council to choose to adopt certain aspects of one or more together.

70. It could also be beneficial to take a staged approach over time – perhaps choosing a lower level of involvement initially, but with a commitment to begin planning and identifying resource and budget to move to a higher level over an agreed time period. Staff encourage this approach.

71. Recognising that Council is currently closest to the promoter/supporter role, staff suggest that adopting the enabler role is viable now, with the intention to work towards an active facilitator role in the near future.

72. This allows Council to explore existing opportunities and not hinder development of the EV network, but also provides space to establish sound strategy and supporting policy and procurement environment (and to collaborate with regional and neighbouring councils on this as appropriate) before engaging in more significant activity.

73. However, given the regional collaboration underway at this time staff suggest it would be valuable to workshop these options before committing to an approach. While this may be done with the members of this Committee, staff suggest it may be preferable to work through the existing regional collaboration group that has Elected Member representation and report back on progress.

Financial Considerations - *Whaiwhakaaro Puutea*

74. There are no financial implications for the matters in this report at this stage.

75. Future financial considerations have yet to be determined and are dependant and subject to the approach approved by Council. Financial considerations and impacts on the approved 2021-31 Long Term Plan will be presented at the appropriate time for consideration.

Legal and Policy Considerations - *Whaiwhakaaro-aa-ture*

76. Staff confirm that the options discussed in this report complies with the Council's legal and policy requirements.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

77. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

78. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report as outlined below.

79. The recommendations set out in this report are consistent with that purpose.

Social

80. In itself, increasing the availability of EV charging infrastructure across the city has a limited impact on wider social wellbeing with the exception of positive health benefits of cleaner air from reduced carbon emissions from the transport network.

81. There are some instances where how and where infrastructure is established may impact the way the community experiences the city or potentially create some safety issues. These could be mitigated through careful consideration of location and other aspects such as digital advertising on the chargers.

82. The approaches in this report do support those who want to choose to make the switch to EVs (but see barriers in terms of convenience in the transport network) to make that choice with greater confidence.

Economic

83. While EVs are still currently not affordable for many households, costs are coming down and over time are likely to become a less expensive option than ICE vehicles.

84. Some of the approaches provide opportunities for partnerships that could be leveraged to direct EV charger patrons to communities in need of 'enlivening' and economic support (if drivers visit a café or shop while they charge).

Environmental

85. Encouraging drivers to make the switch to EVs is fundamental to reducing carbon emissions. This is supported by a vast evidence base, demonstrated in national and local government strategy and plans and globally accepted as an important step towards tackling climate change.

86. The approaches outlined in this report advocate increasing the visibility and availability of EV charging infrastructure to encourage more drivers to see EVs as a viable and convenient alternative to ICE vehicles.

Cultural

87. The matters in this report do not have any significant cultural impact on Maaori or implications for the community.

Risks - *Tuuraru*

88. There are no major risks anticipated with the direction sought in this report.

Significance & Engagement Policy - *Kaupapa here whakahira/anganui*

Significance

89. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the matter(s) in this report has/have a low level of significance.

Engagement

90. Given the low level of significance determined, the engagement level is low. No engagement is required.

Attachments - *Ngaa taapirihanga*

There are no attachments for this report.

Council Report

Committee: Infrastructure Operations Committee
Date: 31 May 2022

Author: Maire Porter
Authoriser: Eeva-Liisa Wright

Position: Director Strategic Water Operations
Position: General Manager Infrastructure Operations

Report Name: Waters Stimulus Project Delivery Update

Report Status	*Open*

Purpose - *Take*

1. To inform the Infrastructure Operations Committee on the delivery of the programme of central government funded waters activity works.

Staff Recommendation - *Tuutohu-aa-kaimahi*

2. That the Infrastructure Operations Committee

   a) receives the report; and

   b) notes the re-allocation of central government funding between projects within the Delivery Plan, noting that the overall programme budget remains $17,460,000 as approved by Council and the Department of Internal Affairs.

Executive Summary - *Whakaraapopototanga matua*

3. In conjunction with the current reform programme for Three Waters (drinking water, wastewater and stormwater) being undertaken by the New Zealand Government, the Government is investing in water service delivery to both improve waters network systems and support economic recovery from the COVID-19 pandemic through job creation and supply chain investment.

4. Hamilton City Council have entered into a Funding Agreement with the Government to complete a programme of three waters projects to a total value of $17,460,000 by 30 June 2022 which are fully funded by a Government Stimulus grant.

5. The delivery programme is comprised of 19 projects. Since confirmation of funding in late 2020 staff have established and set up the programme and projects, including confirmation of project scopes, milestone programmes and procurement strategies as well as establishment of internal project governance and reporting structures.

6. Due to variations and actual cost overs and unders with some completed projects, some re-allocation of funding is required between projects, however the expected cost to deliver all agreed projects remains $17,460,000.

7. In general, the projects within the stimulus programme are progressing well, with seven projects now complete and the remaining projects within the programme on track to deliver agreed outcomes by the 30 June 2022 completion date.

8. As of 30 April 2022, delivery of the programme has utilised 90 different consultancies, contractors, and service providers with 61% of the value of works to date expended with Hamilton or Waikato based companies.

9. In March 2022, Crown Infrastructure Partners (CIP) informed staff that Hamilton City Councils Stimulus programme has been selected to be audited. The audit was completed on 12-13 April 2022 and no significant issues were identified by CIP. The audit report is expected to be received in late May 2022.

10. It is noted that this report is focussed on delivery of the stimulus investment programme, and updates on progress and matters relating to the wider three waters reform programme will be reported to full Council meetings in a separate report.

11. Staff consider the matters and decisions in this report have low significance and that the recommendations comply with Council's legal requirements.

Background - *Koorero whaimaarama*

12. Hamilton City Council (HCC) entered into a funding agreement in October 2020 with the Department of Internal Affairs (DIA) who, in conjunction with Crown Infrastructure Partners (CIP), are administering the three waters reform stimulus delivery programmes on behalf of the New Zealand Government.

13. The funding agreement allocated HCC a grant of $17,460,000 to deliver projects that:

    i. support economic recovery through job creation; and

    ii. maintains, increases, and/or accelerates investment in core water infrastructure renewal and maintenance.

14. Within the Delivery Plan, six packages of works and 19 projects were identified. The work packages focus on strategic priorities, renewals, asset information, asset conditions, resilience, demand management, environmental compliance and preparing for the Three Waters reform, and includes a combination of capital and operational projects.

15. Five initially unfunded contingency projects were included in the approved Delivery Plan which could be progressed if funding became available elsewhere in the programme.

16. DIA have appointed CIP to monitor progress against the approved Delivery Plan, to ensure spending has been undertaken with public sector financial management requirements.

17. In November 2021, in recognition of the impact of COVID lockdowns on programme delivery, DIA confirmed that the programme delivery date would be extended from 31 March 2022 until 30 June 2022.

18. Programme reporting to CIP is completed on a quarterly basis as per their reporting template. Five quarterly reports on the programme have now been submitted in January 2021, April 2021, July 2021, October 2021 and January 2022, with the most recent report for the January – March 2022 quarter submitted on 14 April 2022. A copy of this report can be found in **Attachment 1.**

19. The final quarterly report for the April to June 2022 period and programme close out report is required to be submitted to CIP in July 2022.

20. It is noted that this report is focussed on delivery of the stimulus investment programme, and updates on progress and matters relating to the wider three waters reform programme will be reported to full Council meetings in a separate report.

Discussion - *Matapaki*

Programme Update

21. Since confirmation of funding in late 2020 staff have established and set up the programme and projects, including confirmation of project scopes, milestone programmes and procurement strategies.

22. Internal project governance and reporting structures are in place and provide operational oversight over the stimulus programme delivery.

23. Overall, the stimulus programme is progressing well with a total of seven projects now completed and all others on track to be delivered by the programme completion date of 30 June 2022.

24. Projects that have completed the scope funded and agreed in the approved Delivery Plan include:

    i. WRS 4a – Additional Asset Renewals

    ii. WRS 4b – Improved Asset Data Information

    iii. WRS 9 –Low River Contingency Deployment and Pumping Capacity Upgrade

    iv. WRS 8 – Taitua Arboretum Bore Upgrade

    v. WRS 11 – Citywide Inflow & Infiltration Investigation

    vi. WRS 17 – Water Leak Detection

    vii. WRS 20 – Eastern Resilience Bulk Water Main

25. Staff continue to monitor emerging cost escalation risks associated with WRS - 12 Te Wetini Drive Crossing Upsize and WRS 19 - Rotokauri Wastewater Upsizing for Unconnected Communities projects. Negotiations to confirm the impact of proposed variations to forecasted costs of these two projects are currently underway with the Developer and Contractors.

26. A high-level summary of progress achieved with each of the projects can be found in **Attachment 2**.

Programme Audit by Crown Infrastructure Partners

27. As part of CIP's role to monitor the delivery of the Three Waters Stimulus programme undertaken by Councils, CIP is required to undertake Quality Assurance audits on some of the grant recipients.

28. In March 2022, CIP advised staff that HCC has been selected to be audited.

29. The audit scope was to verify information provided within quarterly reports and focus on three main aspects:

    i. costs allocated to projects as reported as part of the quarterly reporting processes;

    ii. validation of project output metrics; and

    iii. validation of the employment outcomes.

30. The audit was undertaken on the 12-13 April 2022 with no significant issues being identified during the audit by CIP. The audit report is expected to be received in late May 2022.

Financial Considerations - *Whaiwhakaaro Puutea*

31. The total budget and funding allocated to HCC to complete the programme is $17,460,000, which is fully funded by Central Government in accordance with the existing Funding Agreement.

32. Under the funding agreement, as at 30 April 2022, HCC has received a total of $15,324,600 or 88% of the $17,460,000 available HCC allocation in three funding instalments:

    i. $8,730,000 in December 2020;

    ii. $4,605,600 in November 2021; and

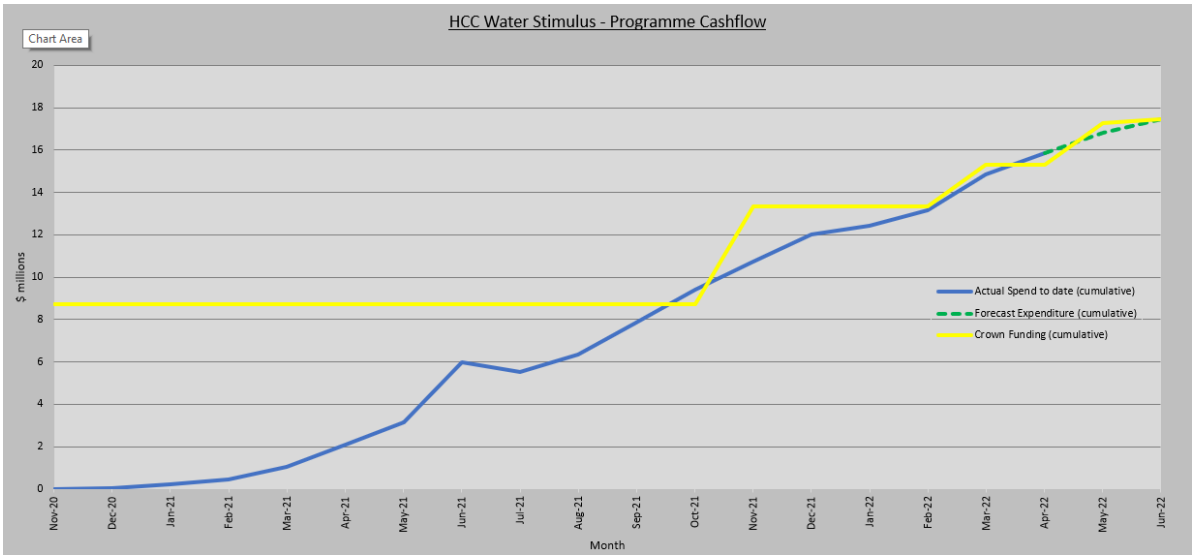
    iii. $1,989,000 in March 2022.

33. The next funding instalment was considered by CIP and DIA in early May 2022 following their review of HCC's Quarter 6 report, submitted in April, for the January - March 2022 quarter.

34. CIP have advised that the May 2022 funding instalment is expected to be $1,262,400 which, once received, will mean HCC has access to 95% or $16,587,400 of HCCs allocated stimulus funding. The remaining 5% or $872,600 of HCC allocated funds is expected to be released once HCC has submitted its final programme close out report in July 2022 and demonstrated achievement of agreed programme outcomes.

35. Programme expenditure to 30 April 2022 is $15,463,297 which is equivalent to approximately 89% of HCC's $17,460,000 allocated stimulus funding.

36. The overall delivery of the programme is progressing well as reflected in the cashflow profile below:



Programme Funding Reallocation

37. As resolved at the at the 17 September 2020 Council meeting and approved in the Water Stimulus Delivery Plan, Council have adopted a programme approach to delivery of the stimulus projects to enable flexibility across the programme and manage trade-offs or "overs and unders" associated with the projects within the programme – noting that elected members are to be consulted as part of the change approval process.

38. Staff recommend that this regular report to the Infrastructure Operations Committee will be the mechanism to communicate any proposed changes to the programme.

39. As many of the projects within the programme approach or come to completion, some final budget allocation adjustments are now required across the programme to ensure the full utilisation of the overall $17,460,000 grant is achieved and that the agreed project outcomes are delivered on.

40. As outlined in the project summary in Attachment 2 and summarised in the table below, some funding reallocations are recommended in accordance with revised project costs forecasts. A total of $395,264 is recommended for reallocation to offset expected increased expenditure on projects including WRS - 12 Te Wetini Drive Crossing Upsize and WRS 19 - Rotokauri Wastewater Upsizing for Unconnected Communities, as well as other completed projects where final costs slightly exceed the budgeted value.

41. The inclusion of the Eastern Resilience Bulk Water Main project in the funded programme (8 June 2021 Infrastructure Operations Committee) was always intended, along with cost savings in any projects, to provide flexibility for any cost variations that might occur late in the programme. The intention of this approach was always intended to ensure that the entire $17,460,000 funding allocation can be utilised.

42. The reallocation of this funding within the programme will ensure we are able to fully utilise the $17,460,000 funding available and deliver on all of the programme deliverables.

Stimulus Project	**Current Project Budget***	**Funding Allocation Variations $**		**Revised Project Expenditure Forecast $**
		Decreases	**Increases**	
WRS 4a – Additional Asset Renewals *(Stimulus component of this project is complete)*	$1,500,000		$16,475	$1,516,475
WRS 4b – Improved Asset Data Information *(Stimulus component of this project is complete)*	$2,135,000	($64,337)		$2,070,663
WRS 8 – Taitua Arboretum Bore Upgrade *(Stimulus component of this project is complete)*	$172,100		$17,992	$190,092
WRS 9 –Low River Contingency Deployment and Pumping Capacity Upgrade *(Stimulus component of this project is complete)*	$190,500		$4,858	$194,858
WRS 11 – Citywide Inflow & Infiltration Investigation *(Stimulus component of this project is complete)*	$600,000		$4,788	$604,788
WRS 12 Te Wetini Drive Crossing Upsize *(Project in progress and forecasting additional costs)*	$1,300,000		$243,706	$1,543,706
WRS 17 – Water Leak Detection *(Stimulus component of this project is complete)*	$475,000		$4,445	$479,532
WRS 19 Rotokauri Wastewater Upsizing for Unconnected Communities *(Project in progress and forecasting additional costs)*	$1,050,000		$103,000	$1,153,000

WRS 20 Eastern Resilience Bulk Water Main *(Stimulus component of this project is complete)*	$1,934,000	($330,927)		$1,603,073
** As reported at 29 March 2022 Infrastructure Operations Committee*	**Total Variation**	($395,264)	$395,264	

43. The final programme report to CIP and DIA will be required to be submitted in July 2022, prior to the next scheduled Infrastructure Operations Committee. Staff propose that if required they will undertake any further adjustments to the funding allocations across the programme to capture residual minor "overs and unders" to ensure that HCC can fully utilise the $17,460,00 grant allocated to HCC.

Legal and Policy Considerations - *Whaiwhakaaro-aa-ture*

44. Staff confirm that the matters and recommendations in this report comply with Council's legal and policy requirements.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

45. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

46. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report as outlined below.

47. The recommendations set out in this report are consistent with that purpose.

Social

48. Within the programme, opportunities have been taken to leverage and implement social procurement initiatives, such as supply chain diversity and targeted employment initiatives to support social enterprises and employment opportunities for priority social groups.

49. This has been particularly successful in the Stormwater Gully Improvements project underway in Mangaiti gully in which Ngaati Hauaa Mahi Trust was engaged in partnership with Hamilton City Council to supply and plant 27,837 native plants for the project (70,438 plants are needed overall, with Council's nursery supplying the balance). This partnering with Hamilton City Council and the Trust's nursery teams includes sharing and learning horticulture and Maatauranga Maaori.

50. The Mangaiti Gully Project has also created new jobs for mana whenua and brought Council, community, and Iwi together to focus on gully restoration and supporting people into employment.

Economic

51. A key investment objective of this programme is to support economic recovery from the COVID-19 pandemic through job creation and supply chain investment.

52. Metrics in terms of employment outcomes from this investment are being monitored and reported to DIA, some of the high-level metrics arising from the delivery of the programme up until 30 April 2022 are:

    i. 37 different professional services and consultancy entities involved across programme;

    ii. 53 different contracting, service providers or suppliers involved across programme;

    iii. approximately 49% of the consultants, suppliers, contractors, and service providers used have been Hamilton or Waikato based companies; and

iv. approximately 61% of expenditure from the programme has been with Hamilton or Waikato based companies.

Environmental

53. Most projects within this programme have a specific focus on developing infrastructure and/or the natural environment to support, in a sustainable way, three waters operational activities.

54. Examples of projects within the stimulus programme that are expected to have a direct positive environmental impact are:

    i. the gully stormwater restoration project being undertaken in Mangaiti gully. This project is expected to improve water quality and enhance biodiversity within the Kirikiriroa stream catchment through the upgrading of erosion control structures, weed clearance, gully planting and creating future access to undertake maintenance in and around the stream;

    ii. the Inflow and Infiltration project continues to identify and resolve deficiencies in public and private wastewater networks around the city to reduce the likelihood of wastewater entering the environment; and

    iii. the Urban Stormwater Quality Management project is building on current practice and knowledge in relation to urban stormwater management in the Mangakotukutuku stream and will assist with the development and calibration of an urban hydrology and water quality model. It is anticipated that this model may be used to improve the design, selection, and location of site stormwater mitigation tools, and contribute to cost-benefit assessments of alternative stormwater management approaches. The results from these investigations will be applicable across the city and ultimately across urban areas throughout New Zealand.

Cultural

55. As projects progress, engagement will continue to be undertaken with Te Haa o te Whenua o Kirikiriroa (THaWK) and Waikato Tainui to ensure projects consider and align with the culture and traditions of water, ancestral land, sites, waahi tapu, valued flora and fauna, and other taonga as well as optimise opportunities to support communities and Maaori to share their heritage, language and stories.

56. Examples of engagement with iwi and mana whenua within the stimulus projects include:

    i. involvement of Waikato Tainui and THaWk within project delivery and governance of the Metrospatial Wastewater Detailed Business case project;

    ii. engagement with THaWK in relation to the Sustainability Strategy project;

    iii. engagement with Te Ngaawhaa Whakatupu Ake, Waikato Regional Council River schools and House of Science on the development of an interactive three waters education model and mauri educational resources as part of the Mobile Educational Hub project. Piloting of mauri resource was undertaken in partnership with Te Wharekura o Kirikiriroa; and

    iv. engagement via workshops with THaWK as part of the Rotokauri Greenway Conditions project in the development of a Mudfish Strategy to guide a future Mudfish Management Plan.

Risks - *Tuuraru*

57. Council's approved Delivery Plan was developed based on the best information available at the time. Accordingly, the costs to complete each project were preliminary estimates and it was expected that there would be overs-and-unders in the cost of each project. To mitigate the financial risk of each individual project, or the risk of not maximising the entire $17,460,000 funding allocation, Council proposed to manage the stimulus funding at a programme level, allowing flexibility in approach at a project level.

58. There is a potential reputational risk to Council with government should the Stimulus Projects not be completed by the revised date of 30 June 2022. This risk is mitigated by the ability to allocate funding to another existing or contingency project detailed in the approved Delivery plan. In addition, internal project governance and reporting structures are in place and provide operational oversight over the stimulus programme delivery.

59. COVID-19 has resulted in varying levels of impact on the delivery of stimulus projects. It is expected that widespread community transmission of the Omicron COVID-19 variant could also result in some disruptions to programme delivery and costs. However, the impact on delivery risk has been mitigated by confirmation in October 2021 from CIP and DIA that the programme delivery date of 31 March 2022 had been extended until 30 June 2022. Staff will continue to monitor this risk.

60. A residual risk of additional costs remains in relation to project WRS - 12 Te Wetini Drive Crossing Upsize subject to confirmation of contractual variation values and commercial cost apportionment negotiations. If additional costs are realised this will either be addressed through the final water stimulus programme minor adjustments for the final DIA report in July 2022, or within the allocated Te Wetini Programme for this project which is available in addition to the water stimulus funding.

Significance & Engagement Policy - *Kaupapa here whakahira/anganui*

Significance

61. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the recommendations(s) in this report has/have a low level of significance.

Engagement

62. Given the low level of significance determined, the engagement level is low. No engagement is required.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Water Reform Stimulus Progamme - Quarter 6 Report - January to March 2022

Attachment 2 - Water Reform Stimulus Programme - Project Updates - May 2022

Three Waters Stimulus Funding - Cash Flow Profile Commentary

Pre-work / Long term commentary

Question #	Initial Update					Quarter 5 (January 2022) Update			Quarter 6 (April 2022) Update		
	Top 5 Risks and Contractor Claims					**Top 5 Risks and Contractor Claims**			**Top 5 Risks and Contractor Claims**		
	Risk # (Highest to lowest)	**Risk Name**	**Impact**	**Likelihood**	**Commentary on mitigants**	**Risk Name**	**Risk Level**	**Commentary**	**Risk Name**	**Risk Level**	**Commentary**
1	Mandatory	Completion of programme by 30 June 2022	High	Low	All projects on track to complete by 31 March 2022	Completion of programme by 30 June 2022	Medium	Hamilton City Council is confident that the overall programme remains on track for completion however ongoing management and mitigation of risk is required due to the complexity of the projects within the programme and particularly due to the impact of multiple COVID Alert level lockdowns, nationally and regionally on programme delivery. The impact of the current Covid-19 framework continues to be actively monitored by the PSG. An approved contingency project (Eastern resilience bulk water Supply project) was activated in Quarter 3 as communicated in quarter 3 report and associated Project Change Request submitted 14 July 2021 (Notice No. 4) and subsequent project change requests submitted 28 July 2021 (Notice No. 5) and 27 September 2021 (Notice No. 6). A further memo providing an overview of the project was submitted 21 December 2021 to provide DIAC/IP with further detail to ensure that this approved contingency project is formally included in the programme. The 'unders-and-overs' approach as outlined in the approved Delivery Plan will continue to be used to redirect budget where necessary to approved projects with more certainty of completion.	Completion of programme by 30 June 2022	Low	Hamilton City Council is confident that the overall programme remains on track for completion by 30 June 2022.
2	1	Budget variations	High	Low	Programme expenditure tracked and monitored. Utilising an 'overs-and-unders' approach between projects in the programme.	Budget variations	Low	Hamilton City Council is confident that the overall programme budget will be fully utilised in the delivery of the programme by 30 June 2022..	Budget variations	Low	Hamilton City Council is confident that the overall programme budget will be fully utilised in the delivery of the programme by 30 June 2022. Discussions are underway with contractors in relation to proposed contract variations relating to 2 projects (WRS 12 Te Wetini Dr SAV Crossing Rotokauri Rise and WRS 19 Rotokauri Wastewater upsizing for unconnected communities). The 'unders-and-overs' approach as outlined in the approved Delivery Plan will continue to be used to redirect budget between projects across the programme where necessary to ensure delivery of agreed project outcomes within overall programme budget.
3	2	Availability of, and timely engagement with, suppliers, consultants and contractors	Medium	High	Engage with suppliers, consultants & contractors early, utilising agile procurement methods to fast-track procurement and secure resources	Availability of, and timely engagement with, suppliers, consultants and contractors	Low	The current programme has not reported and does not foresee issues with consultant and/or contractor availability. The impact of the current Covid-19 framework continues to be actively monitored by the PSG.	Availability of, and timely engagement with, suppliers, consultants and contractors	Low	The current programme has not reported and does not foresee issues with consultant and/or contractor availability. The impact of the current COVID-19 framework continues to be actively monitored by the PSG.
4	3	Achieving competitive pricing using agile procurement methods required to meet programme	Medium	High	Utilise existing contracts where possible where rates have been competitively tendered, and use price benchmarking to support rates / lump sums provided for projects.	Achieving competitive pricing using agile procurement methods required to meet programme	Low	All procurement has now been completed with a few minor outstanding activities. Procurement was via the WLASS panel being used for consultant appointments, and open tender/extensions to existing competitively tendered contracts for construction works.	Achieving competitive pricing using agile procurement methods required to meet programme	Low	All procurement has now been completed. Procurement utilised the Waikato Local Authority Shared Service (WLASS) Professional Services panel being used for consultant engagements and open tender or extensions to existing competitively tendered contracts for construction works.
5	4	Stakeholder expectations not met	Medium	Medium	Plan stakeholder management activities at both project and programme level. Engage specialists incl. HCC comms team early, and again at appropriate intervals.	Stakeholder expectations not met	Low	Programme level stakeholders have been reviewed at the Steering Group level. Project managers undertake stakeholder management activities at a project level, with strategies and actions being captured in the project plans.	Stakeholder expectations not met	Low	Programme level stakeholders have been reviewed at the Steering Group level. Project managers undertake stakeholder management activities at a project level, with strategies and actions being captured in the project plans.
6	5	Project scope creep	Medium	High	Project scopes still being defined via Project Plans, which need to be signed off by WRS Programme Management	Project scope creep	Low	Project plans have all been completed and the project scopes are defined and approved by the established Steering Group providing oversight of the programme.	Project scope creep	Low	Project plans have all been completed and the project scopes are defined and approved by the established Steering Group providing oversight of the programme.
	Conditions agreed upon in delivery plan					**Conditions agreed upon in delivery plan**			**Conditions agreed upon in delivery plan**		
	Condition	**Commentary**				**Condition**	**Commentary**		**Condition**	**Commentary**	
7	No conditions agreed in Delivery Plan	N/A				No conditions agreed in Delivery Plan	N/A		No conditions agreed in Delivery Plan	N/A	
8	No conditions agreed in Delivery Plan	N/A				No conditions agreed in Delivery Plan	N/A		No conditions agreed in Delivery Plan	N/A	
9	No conditions agreed in Delivery Plan	N/A				No conditions agreed in Delivery Plan	N/A		No conditions agreed in Delivery Plan	N/A	
10	No conditions agreed in Delivery Plan	N/A				No conditions agreed in Delivery Plan	N/A		No conditions agreed in Delivery Plan	N/A	
11	No conditions agreed in Delivery Plan	N/A				No conditions agreed in Delivery Plan	N/A		No conditions agreed in Delivery Plan	N/A	
	Pre-work commencement status					**Pre-work commencement status**			**Pre-work commencement status**		
	Roadblock	**Status**	**Commentary**			**Roadblock**	**Status**	**Commentary**	**Roadblock**	**Status**	**Commentary**
12	RMA	N/A	N/A - RMA processes are not expected to be a roadblock to this programme.			RMA	N/A	No change from initial update	RMA	N/A	No change from initial update
13	Building Consent	N/A	N/A - Building Consent processes are not expected to be a roadblock to this programme.			Building Consent	N/A	No change from initial update	Building Consent	N/A	No change from initial update
14	Other Consents (i.e. CARs, iwi, Heritage)	N/A	N/A - other consent processes are not expected to be a roadblock to this programme.			Other Consents (i.e. CARs, iwi, Heritage)	N/A	No change from initial update	Other Consents (i.e. CARs, iwi, Heritage)	N/A	No change from initial update
15	Design	N/A	Design is underway at project-level across the programme, in line with project-level schedules, with progress ranging from 'yet-to-commence' on some projects, to 'completed' on others. At this stage no roadblocks are present.			Design	N/A	Consultant design, specification, interpretation projects are all underway; Projects requiring site based delivery are underway	Design	N/A	Consultant design, specification, interpretation projects are all underway; Projects requiring site based delivery are underway

Sensitivity: General

16	Procurement	N/A	Procurement is underway at project-level across the programme, in line with project-level schedules, with progress ranging from 'yet-to-commence' on some projects, to 'completed' on others. At this stage no roadblocks are present.	Procurement	N/A	All procurement has now been completed with a few minor outstanding activities. Procurement was via the WLASS panel being used for consultant appointments, and open tender/extensions to existing competitively tendered contracts for construction works.	Procurement	N/A	All procurement has now been completed. Procurement was via the WLASS panel being used for consultant appointments, and open tender/extensions to existing competitively tendered contracts for construction works.
17	Main Contract	N/A	Contracting is underway at project-level across the programme, in line with project-level schedules, with progress ranging from 'yet-to-commence' on some projects, to 'completed' on others. At this stage no roadblocks are present.	Main Contract	N/A	Contracting is underway at project-level across the programme, in line with project-level schedules, all physical works have commenced on site. The impact of the current Covid-19 framework continues to be actively monitored by the PSG.	Main Contract	N/A	Contracting is underway at project-level across the programme, in line with project-level schedules, all physical works have commenced on site. The impact of the current Covid-19 framework continues to be actively monitored by the PSG. There are 2 projects/contracts (WRS 12 Te Wetini Dr SAV Crossing Rotokauri Rise and WRS 19 Rotokauri Wastewater upsizing for unconnected communities), that have recently indicated emerging high-cost variations. The intention is to manage any financial impact of these using the under and overs approach outlined in the approved Delivery Plan to smooth the cost impacts across the programme.

Quarterly commentary

18	Programme costs	Programme costs commentary	Programme costs commentary	Programme costs commentary	
	Commentary on Government Funded programme	The overall programme remains on track for completion however ongoing management and mitigation of risk is required due to the complexity of the projects within the programme and particularly due to the impact of multiple COVID Alert level lockdowns, nationally and regionally on programme delivery. The impact of the current Covid-19 framework continues to be actively monitored by the PSG.		The overall programme remains on track for completion however ongoing management and mitigation of risk is required due to the complexity of the projects within the programme, particularly associated with managing increasing construction costs and variations for the physical work projects. Capturing expenditure in June, in time for the reporting cutoff in early July will be critical to accurately reporting the close out of the programme.	
19	Commentary on LTP programme	Approximately 33.6% of total annual budget has been spent to date on the 2021/22 AP. Please note that this percentage does not consider planned budget and project delivery phasing. The impact of the current Covid-19 framework continues to be actively monitored by the PSG.		Reporting on existing three water projects in the annual plan and the LTP is detailed in the LTP information tab. Approximately 50% of annual budget has been spent to date on the 2021/22 Annual Plan. Please note that this percentage does not consider planned budget and project delivery phasing. There have been a number of factors that have impacted the extent of programme delivery possible over the past year. As part of Hamilton City Councils COVID response, physical access restrictions were put in place at key operational sites, such as the Pukete Wastewater Treatment and Waiora Water Treatment Plants. This action was required to protect critical operational staff from exposure to COVID and ensured the continued operational of critical infrastructure and services. However, this response did constrain the ability for external consultants and contractors to access some operational sites to undertake some planned maintenance, renewals, and minor capital work programmes. COVID-19 has also imposed other constraints generally on the LTP programme delivery particularly in relation to supply chain delays as well as staff and contractor availability and productivity. As COVID-19 restrictions are eased, any delayed work programmes will be re-prioritised and re-programmed, however in some cases that may require work and funding to be deferred into the 2022/23 financial year. In addition to COVID-19 impacts, there have also been other factors that have impacted programme delivery including responses to central government policy changes (NPS-UD, and funding proposals such as IAF), third party dependencies (alignment of projects with developer timing), and skills shortages in relation to engagement and retention of staff and finding consultants with necessary skills for some projects.	
20	Reform funding	Reform funding commentary	Reform funding commentary	Reform funding commentary	
	Reform Funding Activities	Hamilton City Council (HCC) elected members and senior reform staff are engaged in the reform process and continue to work collaboratively with DIA, LGNZ, Taumata Arowai and other councils in the Waikato and Bay of Plenty Region, proposed Entity B area and around New Zealand. HCC formally provided feedback to LGNZ and Minister Mahuta on 1 October 2021 on Council's areas of concern associated with key factors in relation to the Governments Three Waters Reform proposal. Overall, Councils feedback indicated that HCC supports the Government's goals of ensuring safe, sustainable, and economically efficient delivery of three waters services but notes effective transition to any new structure must be in full and equitable partnership with local government. Council has identified that effective communication, governance and aligned delivery with other reforms are the big critical success factors that need work. An internal staff reform project team has been established to support the Three Waters Reform process with expertise in communications, strategic finance, water management, Human resources, iwi engagement and collaboration, with a governance reference group established made up of the Mayor, Committee Chairs and Maangai Maaori representatives. A standing report summarising progress with the Governments Three Waters Reform programme is presented at every ordinary Council meeting. Planning for the subsequent reform phases is on-going and updates have also been reported to the Waikato Tainui and HCC Co-governance forum. The internal reform project team and elected members have regularly participated in industry forum s held by Water New Zealand, LGNZ, DIA and Taumata Arowai to discuss and understand the Governments Three Waters Regulatory and Structural Reform proposals. HCC were also active participants in the development of Entity B Councils combined feedback on the Governments Three Waters Reform proposal. HCC are a funding partner along with other Waikato Councils in the engagement of Waikato Local Authority Shared Service (WLASS) to provide services relating to three waters activity management through the centre of excellence for activity management, known as the Regional Asset Technical Accord (RATA).		Hamilton City Council (HCC) elected members and senior reform staff are engaged in the reform process and continue to work collaboratively with DIA, LGNZ, Taumata Arowai and other councils in the Waikato and Bay of Plenty Region, proposed Entity B area and around New Zealand. HCC formally provided feedback to LGNZ and Minister Mahuta on 1 October 2021 on Council's areas of concern associated with key factors in relation to the Governments Three Waters Reform proposal. Overall, Council's feedback indicated that HCC supports the Government's goals of ensuring safe, sustainable, and economically efficient delivery of three waters services but notes effective transition to any new structure must be in full and equitable partnership with local government. Council has identified that effective communication, governance and aligned delivery with other reforms are the big critical success factors that need work. An internal staff reform project team has been established to support the Three Waters Reform process with expertise in communications, strategic finance, water management, Human resources, iwi engagement and collaboration, with a governance reference group established made up of the Mayor, Committee Chairs and Maangai Maaori representatives. A standing report summarising progress with the Governments Three Waters Reform programme is presented at every ordinary Council meeting. Planning for the subsequent reform phases is on-going and updates have also been reported to the Waikato Tainui and HCC Co-governance forum. The internal reform project team and elected members have regularly participated in industry forum s held by Water New Zealand, LGNZ, DIA and Taumata Arowai to discuss and understand the Governments Three Waters Regulatory and Structural Reform proposals. HCC were also active participants in the development of Entity B Councils combined feedback on the Governments Three Waters Reform proposal. HCC are a funding partner along with other Waikato Councils in the engagement of Waikato Local Authority Shared Service (WLASS) to provide services relating to three waters activity management through the centre of excellence for activity management, known as the Regional Asset Technical Accord (RATA).	
21	RFI funding ($60k)	Expenditure against the RFI funding is reported against project WRS 3 - Reform Engagement.		Expenditure against the RFI funding is reported against project WRS 3 - Reform Engagement.	

22	Scope and Progress commentary	Scope and Progress commentary commentary	Scope and Progress commentary commentary
	Commentary	Programme is now in delivery phase with all projects on track.	Programme is now in delivery phase with all projects on track to be delivered by 30 June 2022.
23	Media Announcements	No media announcements to report	No media announcements to report

Sensitivity: General

Three Waters Stimulus Funding - Cash Flow Profile

Territorial Summary/Inputs

Territorial Authority	Hamilton City Council
Territorial Code	WKT-05
Reporting date	Mar-22
Reporting period	Final period
Total funding allocated	17.46
Total cofunding	-
Total estimated programme costs	17.46
Upfront payment	8.73
Total final payments	
Milestone payment total	8.73

KEY

	Primary/forecast inputs
	Actuals inputs

Master checks

Master check	Warning	
Spend = Cost	-	Ok
Cofunding check	-	Ok
Upfront funding	-	Ok
Final payments	-	Ok
Total Crown funding	-	Ok
Capex/Opex	-	Ok
Cash position	6.00	One or more projects have a negative cash position

Territorial contact

Project Manager	Maire Porter
Email	Maire.Porter@hcc.govt.nz
Phone	+64 7 958 5976
Lead Engineer	Lorraine Kendrick
Email	Lorraine.Kendrick@beca.com
Phone	+64 7 838 3828

Project Inputs

	Nov-20 Actual	Dec-20 Actual	Jan-21 Actual	Feb-21 Actual	Mar-21 Actual	Apr-21 Actual	May-21 Actual	Jun-21 Actual	Jul-21 Actual	Aug-21 Actual	Sep-21 Actual	Oct-21 Actual	Nov-21 Actual	Dec-21 Actual	Jan-22 Actual	Feb-22 Actual	Mar-22 Forecast	Apr-22 Forecast	May-22 Forecast	Jun-22 Forecast	Total
1 Project Name	**Future Proof Growth Partnership 3 Water Detailed Business Case (Hamilton Share)**																				
Project Type	**OTHER - Strategy Study or Report**																				
Start date	[Select date]																				
End date	[Select date]																				
Total upfront payment	-																				
Total final payment																					
Total project spend	-																				
Total project funding	-																				
Check	-																				
Capex																					
Opex																					
N/A																					
Check	*Ok*																				
Project Spend	As discussed at the meeting with John Mackie on 02 July 2021 and outlined in Project Change Request within the revised quarter 3 Report submitted 28 July 2021 (Notice No. 5) and Revised Project Change Request submitted 27 September 2021 (Notice No. 6)																				
Spend from Crown funding	*$NZ'm*																				-
Spend from cofunding	*$NZ'm*																				-
Total project spend	*$NZ'm*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Project Funding	*$NZ'm*																				
Upfront payment portion	*$NZ'm*	-																			-
Crown funding required	*$NZ'm*			-			-			-			-			-					-
Cofunding required	*$NZ'm*																				-
Final payment portion	*$NZ'm*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	*$NZ'm*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash position																					
Opening cash position	*$NZ'm*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Project spend	*$NZ'm*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Project funding	*$NZ'm*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ok
Worker hours	*Hours*																				-
% complete	*# or %*																				0%
N/A	*# or %*																				-
N/A	*# or %*																				-
2 Project Name	**Hamilton-Waikato Metropolitan Spatial Plan Wastewater Detailed Business Cases (Hamilt**																				
Project Type	**OTHER - Strategy Study or Report**																				
Start date	Jan-21																				
End date	Jun-22																				
Total upfront payment	0.5250																				
Total final payment																					
Total project spend	1.0500																				
Total project funding	1.0500																				
Check	-																				
Capex																					
Opex	1.0500																				
N/A																					
Check	*Ok*																				
Project Spend	As discussed at the meeting with John Mackie on 02 July 2021 and outlined in Project Change Request within the revised quarter 3 Report submitted 28 July 2021 (Notice No. 5) and Revised Project Change Request submitted 27 September 2021 (Notice No. 6)																				
Spend from Crown funding	*$NZ'm*										0.0355	0.0411	0.0763	0.4695	0.0407	0.1412	0.2048	0.0409			1.0500
Spend from cofunding	*$NZ'm*																				-
Total project spend	*$NZ'm*	-	-	-	-	-	-	-	-	-	0.0355	0.0411	0.0763	0.4695	0.0407	0.1412	0.2048	0.0409	-	-	1.0500
Project Funding	*$NZ'm*																				
Upfront payment portion	*$NZ'm*	0.5250																			0.53
Crown funding required	*$NZ'm*														0.52500						0.53
Cofunding required	*$NZ'm*																				-
Final payment portion	*$NZ'm*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	*$NZ'm*	0.53	-	-	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	1.05
Cash position																					
Opening cash position	*$NZ'm*	-	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.49	0.45	0.37	(0.10)	0.39	0.25	0.04	-	
Project spend	*$NZ'm*	-	-	-	-	-	-	-	-	-	-	(0.04)	(0.04)	(0.08)	(0.47)	(0.04)	(0.14)	(0.20)	(0.04)	-	
Project funding	*$NZ'm*	0.53	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	
Closing cash position	*$NZ'm*	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.49	0.45	0.37	(0.10)	0.39	0.25	0.04	-	-	Warning
Worker hours	*Hours*	-	-	2,824	223	187	715	305	166	0.00 -	293	1,079	141	320	1,586	141	476	684	137	-	9,277
% complete	*# or %*			0%	0%	0%	0%	0%	0%	0%	0%	3%	4%	7%	45%	4%	13%	20%	4%	0%	100%

Hourly Rate: 200.00

Sensitivity: General

N/A	# or %																						-
N/A	# or %																						-
3 Project Name	**Preparation and participation in 3 waters reform programme**																						
Project Type	**REFRM - Preparation for Reform**																						
Start date	Dec-20		**N/A**																				
End date	Jun-22		**N/A**																				
Total upfront payment	0.3800		**Other/Reform**	0.7600																			
Total final payment			*Check*	*Ok*																			
Total project spend	0.7600																						
Total project funding	0.7600																						
Check	-																						
Project Spend																							
Spend from Crown funding	*$NZ'm*			-	0.0171	0.0208	0.0370	0.0132	0.1096	0.0270	0.0356	0.0292	0.0196	0.0334	0.1397	(0.0328)	0.0325	0.0258	0.0285	0.0310	0.0643	0.0643	0.0643	**0.7600**
Spend from cofunding	*$NZ'm*																						**-**
Total project spend	*$NZ'm*			**-**	**0.0171**	**0.0208**	**0.0370**	**0.0132**	**0.1096**	**0.0270**	**0.0356**	**0.0292**	**0.0196**	**0.0334**	**0.1397**	**(0.0328)**	**0.0325**	**0.0258**	**0.0285**	**0.0310**	**0.0643**	**0.0643**	**0.0643**	**0.7600**
Project Funding	*$NZ'm*																						
Upfront payment portion	*$NZ'm*			0.3800																				**0.3800**
Crown funding required	*$NZ'm*											0.1267			0.1267			0.1267						**0.3800**
Cofunding required	*$NZ'm*																							**-**
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	*$NZ'm*			**0.38**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.13**	**-**	**-**	**0.13**	**-**	**-**	**0.13**	**-**	**-**	**-**	**-**	**-**	**0.76**
Cash position																								
Opening cash position	*$NZ'm*			-	0.38	0.36	0.34	0.31	0.29	0.18	0.16	0.12	0.22	0.20	0.16	0.15	0.18	0.15	0.25	0.22	0.19	0.13	0.06	
Project spend	*$NZ'm*			-	(0.02)	(0.02)	(0.04)	(0.01)	(0.11)	(0.03)	(0.04)	(0.03)	(0.02)	(0.03)	(0.14)	0.03	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.06)	(0.06)	
Project funding	*$NZ'm*			0.38	-	-	-	-	-	-	-	0.13	-	-	0.13	-	-	0.13	-	-	-	-	-	
Closing cash position	*$NZ'm*			**0.38**	**0.36**	**0.34**	**0.31**	**0.29**	**0.18**	**0.16**	**0.12**	**0.22**	**0.20**	**0.16**	**0.15**	**0.18**	**0.15**	**0.25**	**0.22**	**0.19**	**0.13**	**0.06**	**0.00**	**Ok**
Worker hours	*Hours*	Hourly Rate:	200.00	-	-	-	19	187	197	320	252	273	313	317	198	295	149	230	252	190	315	275	265	**4,046**
% complete	# or %				2%	3%	5%	2%	14%	4%	5%	4%	3%	4%	18%	-4%	4%	3%	4%	4%	8%	8%	8%	**100%**
N/A	# or %																							**-**
N/A	# or %																							**-**
4a Project Name	**Invest in additional renewals**																							
Project Type	**WASTE - Wastewater pipes upgraded / renewed or new**																							
Start date	Apr-21		**Capex**	1.5000																				
End date	Feb-22		**Opex**																					
Total upfront payment	0.7500		**N/A**																					
Total final payment			*Check*	*Ok*																				
Total project spend	1.5000																							
Total project funding	1.5000																							
Check	-																							
Project Spend																								
Spend from Crown funding	*$NZ'm*						0.000		0.467	0.303	0.027	0.015	0.083	0.075	0.318	0.121	0.023	0.068		-	-	-	-	**1.500**
Spend from cofunding	*$NZ'm*																							**-**
Total project spend	*$NZ'm*			**-**	**-**	**-**	**0.000**	**-**	**0.467**	**0.303**	**0.027**	**0.015**	**0.083**	**0.075**	**0.318**	**0.121**	**0.023**	**0.068**	**-**	**-**	**-**	**-**	**-**	**1.500**
Project Funding	*$NZ'm*																							
Upfront payment portion	*$NZ'm*			0.75																				**0.7500**
Crown funding required	*$NZ'm*											0.75												**0.7500**
Cofunding required	*$NZ'm*																							**-**
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	*$NZ'm*			**0.75**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.75**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.50**
Cash position																								
Opening cash position	*$NZ'm*			-	0.75	0.75	0.75	0.75	0.75	0.28	(0.02)	(0.05)	0.69	0.60	0.53	0.21	0.09	0.07	-	-	-	-	-	
Project spend	*$NZ'm*			-	-	-	(0.00)	-	(0.47)	(0.30)	(0.03)	(0.01)	(0.08)	(0.07)	(0.32)	(0.12)	(0.02)	(0.07)	-	-	-	-	-	
Project funding	*$NZ'm*			0.75	-	-	-	-	-	-	-	0.75	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*			**0.75**	**0.75**	**0.75**	**0.75**	**0.75**	**0.28**	**(0.02)**	**(0.05)**	**0.69**	**0.60**	**0.53**	**0.21**	**0.09**	**0.07**	**-**	**-**	**-**	**-**	**-**	**-**	**Warning**
Worker hours	*Hours*	Hourly Rate:	100.00	-	-	-	0.25	689	741	297	112.5	100	185	195	989	395	26	-	-	-	-	-	-	**3,728.75**
Length (metres)	# or %											-	-	-	73	54	-	-						**127.00**
N/A	# or %																							**-**
N/A	# or %																							**-**
4a(ii) Project Name	**Invest in additional renewals**																							
Project Type	**WATER - Potable water mains / pipes upgraded / renewed or new**																							
Start date	Apr-21		**Capex**																					
End date	Feb-22		**Opex**																					
Total upfront payment	-		**N/A**																					
Total final payment			*Check*	*Ok*																				
Total project spend	-																							
Total project funding	-																							
Check	-																							
Project Spend		Refer to Project 4a																						
Spend from Crown funding	*$NZ'm*																							-
Spend from cofunding	*$NZ'm*																							-
Total project spend	*$NZ'm*			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Project Funding	*$NZ'm*																							
Upfront payment portion	*$NZ'm*																							-

Sensitivity: General

Crown funding required	$NZ'm																					-
Cofunding required	$NZ'm																					-
Final payment portion	$NZ'm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	$NZ'm	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Cash position																						
Opening cash position	$NZ'm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Project spend	$NZ'm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Project funding	$NZ'm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	$NZ'm	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	Ok
Worker hours	Hours																					-
Length (metres)	# or %	-	-	-	-	531	426	160	110	8	99	111	39	38	38	-	-	-	-	-	-	1,560
N/A	# or %																					-
N/A	# or %																					-

4b Project Name — Asset data information management and three waters data collection technology (GPR) f
Project Type — OTHER - Asset data and GIS improvements/update/maintenance

Start date	Nov-20	**Capex**	2.1350
End date	Apr-22	**Opex**	
Total upfront payment	1.0675	**N/A**	
Total final payment		*Check*	Ok
Total project spend	2.1350		
Total project funding	2.1350		
Check	-		

Project Spend																						
Spend from Crown funding	$NZ'm		0.0015	0.0045	0.0147	0.1029	0.0687	0.0983	0.2505	0.1373	0.1811	0.4209	0.1722	0.2964	0.1240	0.1464	0.0132	0.0022	0.1003			**2.1350**
Spend from cofunding	$NZ'm																					-
Total project spend	$NZ'm	**-**	**0.0015**	**0.0045**	**0.0147**	**0.1029**	**0.0687**	**0.0983**	**0.2505**	**0.1373**	**0.1811**	**0.4209**	**0.1722**	**0.2964**	**0.1240**	**0.1464**	**0.0132**	**0.0022**	**0.1003**	**-**	**-**	**2.1350**
Project Funding	$NZ'm																					
Upfront payment portion	$NZ'm	1.0675																				**1.0675**
Crown funding required	$NZ'm									0.53			0.53									**1.0675**
Cofunding required	$NZ'm																					-
Final payment portion	$NZ'm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	$NZ'm	**1.07**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.53**	**-**	**-**	**0.53**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.1350**
Cash position																						
Opening cash position	$NZ'm	-	1.07	1.07	1.06	1.05	0.94	0.88	0.78	0.53	0.92	0.74	0.32	0.68	0.39	0.26	0.12	0.10	0.10	0.00	0.00	
Project spend	$NZ'm	-	(0.00)	(0.00)	(0.01)	(0.10)	(0.07)	(0.10)	(0.25)	(0.14)	(0.18)	(0.42)	(0.17)	(0.30)	(0.12)	(0.15)	(0.01)	(0.00)	(0.10)	-	-	
Project funding	$NZ'm	1.07	-	-	-	-	-	-	-	0.53	-	-	0.53	-	-	-	-	-	-	-	-	
Closing cash position	$NZ'm	**1.07**	**1.07**	**1.06**	**1.05**	**0.94**	**0.88**	**0.78**	**0.53**	**0.92**	**0.74**	**0.32**	**0.68**	**0.39**	**0.26**	**0.12**	**0.10**	**0.10**	**0.00**	**0.00**	Ok	
Worker hours	Hours	-	313.3	423	90	250	645	1,314	1,901	1,872	1,260	1,231	776	343	164	94	501	-	-			**11,176**
% complete	# or %	0%	0%	0%	1%	5%	3%	5%	12%	6%	8%	20%	8%	14%	6%	7%	1%	0%	5%	0%	0%	**100%**
N/A	# or %																					-
N/A	# or %																					-

Hourly Rate: 200.00

5 Project Name — Water infrastructure security measures e.g. CCTV, Cyber Security assessments
Project Type — WATER - Water security / fencing

Start date	Nov-20	**Capex**	0.4750
End date	May-22	**Opex**	0.4750
Total upfront payment	0.4750	**N/A**	
Total final payment		*Check*	Ok
Total project spend	0.9500		
Total project funding	0.9500		
Check	-		

Project Spend																						
Spend from Crown funding	$NZ'm		0.0065		0.0058	0.0350	0.0942	0.1970	0.1104	0.0044	0.0614	0.0619	0.0691	0.0127	0.0541	0.0073	0.0369	0.0976	0.0479	0.0479		**0.9500**
Spend from cofunding	$NZ'm																					-
Total project spend	$NZ'm	**-**	**0.0065**	**-**	**0.0058**	**0.0350**	**0.0942**	**0.1970**	**0.1104**	**0.0044**	**0.0614**	**0.0619**	**0.0691**	**0.0127**	**0.0541**	**0.0073**	**0.0369**	**0.0976**	**0.0479**	**0.0479**	**-**	**0.9500**
Project Funding	$NZ'm																					
Upfront payment portion	$NZ'm	0.48																				**0.48**
Crown funding required	$NZ'm									0.48												**0.48**
Cofunding required	$NZ'm																					-
Final payment portion	$NZ'm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	$NZ'm	**0.48**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.48**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.95**
Cash position																						
Opening cash position	$NZ'm	-	0.48	0.47	0.47	0.46	0.43	0.34	0.14	0.03	0.50	0.44	0.38	0.31	0.30	0.25	0.24	0.20	0.10	0.05	-	
Project spend	$NZ'm	-	(0.01)	-	(0.01)	(0.03)	(0.09)	(0.20)	(0.11)	(0.00)	(0.06)	(0.06)	(0.07)	(0.01)	(0.05)	(0.01)	(0.04)	(0.10)	(0.05)	(0.05)	-	
Project funding	$NZ'm	0.48	-	-	-	-	-	-	-	0.48	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	$NZ'm	**0.48**	**0.47**	**0.47**	**0.46**	**0.43**	**0.34**	**0.14**	**0.03**	**0.50**	**0.44**	**0.38**	**0.31**	**0.30**	**0.25**	**0.24**	**0.20**	**0.10**	**0.05**	**-**	**-**	Ok
Worker hours	Hours				22.5	311.5	646	258	522	540	696	541	441	650	279.00	237	685	552	399	399		**7,179**
Length (metres)	# or %							452.00														**452.00**
%age complete	# or %		1%	0%	1%	4%	10%	21%	12%	0%	6%	7%	7%	1%	6%	1%	4%	10%	5%	5%		**100%**
N/A	# or %																					-

50% Labour
Hourly Rate: 120.00
Fencing

6 Project Name — Water Sustainability strategy
Project Type — OTHER - Strategy Study or Report

Start date	Feb-21	**Capex**	
End date	Jun-22	**Opex**	0.2000
Total upfront payment	0.1000	**N/A**	

Sensitivity: General

Total final payment			*Check*	*Ok*																		
Total project spend	0.2000																					
Total project funding	0.2000																					
Check	-																					
Project Spend																						
Spend from Crown funding	*$NZ'm*					0.0025	0.0006	0.0003	0.0072	0.0288	0.0015	0.0324	0.0166	0.0218	0.0054	0.0321	0.0013	0.0077	0.0080	0.0102	0.0102	0.0133	**0.2000**
Spend from cofunding	*$NZ'm*																						-
Total project spend	*$NZ'm*			**-**	**-**	**-**	**0.0025**	**0.0006**	**0.0003**	**0.0072**	**0.0288**	**0.0015**	**0.0324**	**0.0166**	**0.0218**	**0.0054**	**0.0321**	**0.0013**	**0.0077**	**0.0080**	**0.0102**	**0.0102**	**0.0133**	**0.2000**
Project Funding	*$NZ'm*																						
Upfront payment portion	*$NZ'm*			0.10																			**0.10**
Crown funding required	*$NZ'm*										0.10												**0.10**
Cofunding required	*$NZ'm*																						-
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	*$NZ'm*			**0.10**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.10**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.20**
Cash position																							
Opening cash position	*$NZ'm*			-	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.06	0.16	0.13	0.11	0.09	0.08	0.05	0.05	0.04	0.03	0.02	0.01	
Project spend	*$NZ'm*			-	-	-	(0.00)	(0.00)	(0.00)	(0.01)	(0.03)	(0.00)	(0.03)	(0.02)	(0.02)	(0.01)	(0.03)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	
Project funding	*$NZ'm*			0.10	-	-	-	-	-	-	-	0.10	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*			**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.09**	**0.06**	**0.16**	**0.13**	**0.11**	**0.09**	**0.08**	**0.05**	**0.05**	**0.04**	**0.03**	**0.02**	**0.01**	**0.00**	**Ok**
Worker hours	*Hours*	Hourly Rate:	200.00				16	4	32	82	34	87	94	102	124	134	99	20	83	87	51	51	67	**1,165**
% complete	*# or %*						1%	0%	0%	4%	14%	1%	16%	8%	11%	3%	16%	1%	4%	4%	5%	5%	7%	**100%**
N/A	*# or %*																							-
N/A	*# or %*																							-

7	**Project Name**	**3 Waters City Wide Asset Resilience Study**
	Project Type	**OTHER - Strategy Study or Report**

Start date	Feb-21		**Capex**																			
End date	Jun-22		**Opex**	0.7125																		
Total upfront payment	0.3563		**N/A**																			
Total final payment			*Check*	*Ok*																		
Total project spend	0.7125																					
Total project funding	0.7125																					
Check	-																					
Project Spend																						
Spend from Crown funding	*$NZ'm*					0.0004	0.0434	0.0586	0.0085	0.0326	0.0219	0.0362	0.0359	0.0454	0.0115	0.0899	0.0360	0.0029	0.0498	0.0800	0.0870	0.0725	**0.7125**
Spend from cofunding	*$NZ'm*																						**0.0000**
Total project spend	*$NZ'm*			**0.0000**	**0.0000**	**0.0000**	**0.0004**	**0.0434**	**0.0586**	**0.0085**	**0.0326**	**0.0219**	**0.0362**	**0.0359**	**0.0454**	**0.0115**	**0.0899**	**0.0360**	**0.0029**	**0.0498**	**0.0800**	**0.0870**	**0.0725**	**0.7125**
Project Funding	*$NZ'm*																						
Upfront payment portion	*$NZ'm*			0.36																			**0.36**
Crown funding required	*$NZ'm*													0.18			0.18						**0.36**
Cofunding required	*$NZ'm*																						-
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	*$NZ'm*			**0.36**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.18**	**-**	**-**	**0.18**	**-**	**-**	**-**	**-**	**-**	**0.7125**
Cash position																							
Opening cash position	*$NZ'm*			-	0.36	0.36	0.36	0.36	0.32	0.26	0.25	0.22	0.20	0.16	0.12	0.25	0.24	0.15	0.29	0.29	0.24	0.16	0.07	
Project spend	*$NZ'm*			-	-	-	(0.00)	(0.04)	(0.06)	(0.01)	(0.03)	(0.02)	(0.04)	(0.04)	(0.05)	(0.01)	(0.09)	(0.04)	(0.00)	(0.05)	(0.08)	(0.09)	(0.07)	
Project funding	*$NZ'm*			0.36	-	-	-	-	-	-	-	-	-	-	0.18	-	-	0.18	-	-	-	-	-	
Closing cash position	*$NZ'm*			**0.36**	**0.36**	**0.36**	**0.36**	**0.32**	**0.26**	**0.25**	**0.22**	**0.20**	**0.16**	**0.12**	**0.25**	**0.24**	**0.15**	**0.29**	**0.29**	**0.24**	**0.16**	**0.07**	**-**	**Ok**
Worker hours	*Hours*	Hourly Rate:	200.00				106.25	253	146.25	186.25	183	121	200	207	249	422	202	194	261	390	400	435	363	**4,318**
% complete	*# or %*						0%	6%	8%	1%	5%	3%	5%	5%	6%	2%	13%	5%	0%	7%	11%	12%	10%	**100%**
N/A	*# or %*																							-
N/A	*# or %*																							-

8	**Project Name**	**Upgrade of the bore supply at Taitua Arboretum**
	Project Type	**WATER - Bore upgrades**

Start date	Dec-20		**Capex**	0.1721																		
End date	Jun-21		**Opex**																			
Total upfront payment	0.0861		**N/A**																			
Total final payment			*Check*	*Ok*																		
Total project spend	0.1721																					
Total project funding	0.1721																					
Check	-																					
Project Spend																						
Spend from Crown funding	*$NZ'm*				0.0002	0.0080	0.0507	0.0253	0.0039	0.0611	0.0228										-	-	-	**0.1721**
Spend from cofunding	*$NZ'm*																							-
Total project spend	*$NZ'm*			**-**	**0.0002**	**0.0080**	**0.0507**	**0.0253**	**0.0039**	**0.0611**	**0.0228**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.1721**
Project Funding	*$NZ'm*																							
Upfront payment portion	*$NZ'm*			0.0861																				**0.09**
Crown funding required	*$NZ'm*										0.09													**0.09**
Cofunding required	*$NZ'm*																							-
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	*$NZ'm*			**0.09**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.09**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.17**
Cash position																								
Opening cash position	*$NZ'm*			-	0.09	0.09	0.08	0.03	-	-	(0.06)	(0.08)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Project spend	*$NZ'm*			-	(0.00)	(0.01)	(0.05)	(0.03)	(0.00)	(0.06)	(0.02)	-	-	-	-	-	-	-	-	-	-	-	-	-	
Project funding	*$NZ'm*			0.09	-	-	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	-	-	

Sensitivity: General

Closing cash position	*$NZ'm*			**0.09**	**0.09**	**0.08**	**0.03**	**-**	**-**	**(0.06)**	**(0.08)**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**Warning**
Worker hours	*Hours*	Hourly Rate:	120.00		238	301	249	30	12	32	32									-				**892**
Number of bore uprades #	*# or %*			-	-	-	-	-	-	-	1.00													**1.00**
Physical works % complete	*# or %*			0%	0%	5%	29%	15%	2%	35%	13%													**100%**
N/A	*# or %*																							**-**

9	**Project Name**	**Undertake a trial set up and operation of the low river contingency infrastructure, with ad**	
	Project Type	**WATER - Pump station upgrades**	

Start date	Nov-20	**Capex**	0.1900
End date	Nov-21	**Opex**	
Total upfront payment	0.0950	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	0.1900		
Total project funding	0.1900		
Check	-		

Project Spend																					
Spend from Crown funding	*$NZ'm*							0.0001	0.0329	0.0654	0.0479	0.0076	-	0.0010	0.0100	0.0250						**0.1900**
Spend from cofunding	*$NZ'm*																					**-**
Total project spend	*$NZ'm*			**-**	**-**	**-**	**-**	**0.0001**	**0.0329**	**0.0654**	**0.0479**	**0.0076**	**-**	**0.0010**	**0.0100**	**0.0250**	**-**	**-**	**-**	**-**	**-**	**0.1900**
Project Funding	*$NZ'm*																					
Upfront payment portion	*$NZ'm*			0.0950																		**0.0950**
Crown funding required	*$NZ'm*											0.0950										**0.0950**
Cofunding required	*$NZ'm*																					**-**
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	*$NZ'm*			**0.0950**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0950**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.1900**
Cash position																						
Opening cash position	*$NZ'm*			-	0.0950	0.0950	0.0950	0.0950	0.0949	0.0620	(0.0034)	(0.0514)	0.0360	0.0360	0.0350	0.0250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Project spend	*$NZ'm*			-	-	-	-	(0.0001)	(0.0329)	(0.0654)	(0.0479)	(0.0076)	-	(0.0010)	(0.0100)	(0.0250)	-	-	-	-	-	-	-	
Project funding	*$NZ'm*			0.0950	-	-	-	-	-	-	-	0.0950	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*			**0.10**	**0.10**	**0.10**	**0.10**	**0.09**	**0.06**	**(0.00)**	**(0.05)**	**0.04**	**0.04**	**0.04**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**Warning**
Worker hours	*Hours*	Mostly equipment						15.50	87	143	-	90	-	142.00	-	-								**478**
Number of PS upgrades #	*# or %*										1.00													**1.00**
Physical works % complete	*# or %*							0%	17%	34%	25%	4%	0%	1%	5%	13%								**100%**
N/A	*# or %*																							**-**

10	**Project Name**	**Scoping & benchmarking of incentives for Rainwater Storage Tanks for household instal**	
	Project Type	**OTHER - Strategy Study or Report**	

Start date	Feb-21	**Capex**	
End date	Jun-22	**Opex**	0.0700
Total upfront payment	0.0350	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	0.0700		
Total project funding	0.0700		
Check	-		

Project Spend																						
Spend from Crown funding	*$NZ'm*						0.0003	0.0005	0.0056	0.0128	0.0255	0.0003	0.0051	0.0019	0.0016	(0.0027)	0.0037	0.0019	0.0001	0.0021	0.0040	0.0042	0.0030	**0.0700**
Spend from cofunding	*$NZ'm*																							**-**
Total project spend	*$NZ'm*			**-**	**-**	**-**	**0.0003**	**0.0005**	**0.0056**	**0.0128**	**0.0255**	**0.0003**	**0.0051**	**0.0019**	**0.0016**	**(0.0027)**	**0.0037**	**0.0019**	**0.0001**	**0.0021**	**0.0040**	**0.0042**	**0.0030**	**0.0700**
Project Funding	*$NZ'm*																							
Upfront payment portion	*$NZ'm*			0.04																				**0.04**
Crown funding required	*$NZ'm*											0.04												**0.04**
Cofunding required	*$NZ'm*																							**-**
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	*$NZ'm*			**0.04**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.04**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0700**
Cash position																								
Opening cash position	*$NZ'm*			-	0.04	0.04	0.04	0.03	0.03	0.03	0.02	(0.01)	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.00	
Project spend	*$NZ'm*			-	-	-	(0.00)	(0.00)	(0.01)	(0.01)	(0.03)	(0.00)	(0.01)	(0.00)	(0.00)	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	
Project funding	*$NZ'm*			0.04	-	-	-	-	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*			**0.04**	**0.04**	**0.04**	**0.03**	**0.03**	**0.03**	**0.02**	**(0.01)**	**0.03**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**Warning**
Worker hours	*Hours*	Hourly Rate:	200.00				17	35	75	94	55	26	5	6.00	7.50	14.25	10.50	7.75	6.75	6.75	20.00	21.07	15.00	**421**
% complete	*# or %*						0%	1%	8%	18%	36%	0%	7%	3%	2%	-4%	5%	3%	0%	3%	6%	6%	4%	**100%**
N/A	*# or %*																							**-**
N/A	*# or %*																							**-**

11	**Project Name**	**Citywide I&I investigation (smoke testing) and programme of funding the repair of any pri**	
	Project Type	**WASTE - Wastewater pipe inspections**	

Start date	Feb-21	**Capex**	
End date	Apr-22	**Opex**	0.6000
Total upfront payment	0.3000	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	0.6000		
Total project funding	0.6000		
Check	-		

Project Spend																						
Spend from Crown funding	*$NZ'm*						0.0064	0.0082	0.0176	0.0341	0.1021	0.0624	0.0383	0.0444	0.0540	0.0413	0.0633	0.0186	0.04	0.06	0.01			**0.6000**
Spend from cofunding	*$NZ'm*																							**-**
Total project spend	*$NZ'm*			**-**	**-**	**-**	**0.0064**	**0.0082**	**0.0176**	**0.0341**	**0.1021**	**0.0624**	**0.0383**	**0.0444**	**0.0540**	**0.0413**	**0.0633**	**0.0186**	**0.04**	**0.06**	**0.01**	**-**	**-**	**0.6000**

Sensitivity: General

Project Funding	*$NZ'm*																						
Upfront payment portion	*$NZ'm*			0.3000																			**0.30**
Crown funding required	*$NZ'm*										0.15			0.15									**0.30**
Cofunding required	*$NZ'm*																						**-**
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	*$NZ'm*			**0.30**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.15**	**-**	**-**	**0.15**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.60**
Cash position																							
Opening cash position	*$NZ'm*			-	0.30	0.30	0.30	0.29	0.29	0.27	0.23	0.13	0.22	0.18	0.14	0.23	0.19	0.13	0.11	0.07	0.02	0.00	0.00	
Project spend	*$NZ'm*			-	-	-	(0.01)	(0.01)	(0.02)	(0.03)	(0.10)	(0.06)	(0.04)	(0.04)	(0.05)	(0.04)	(0.06)	(0.02)	(0.04)	(0.06)	(0.01)	-	-	
Project funding	*$NZ'm*			0.30	-	-	-	-	-	-	-	0.15	-	-	0.15	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*			**0.30**	**0.30**	**0.30**	**0.29**	**0.29**	**0.27**	**0.23**	**0.13**	**0.22**	**0.18**	**0.14**	**0.23**	**0.19**	**0.13**	**0.11**	**0.07**	**0.02**	**0.00**	**0.00**	**0.00**	**Ok**
Worker hours	*Hours*	Hourly Rate:	120.00				57	57	109	303	678	450	271	124	308	254	262	75.00	219.00	256.00	123.73			**3,545**
Length (metres)	*# or %*									9,700	15,000	12,400	10,600	11,400	11,195	11,230	11,400	6,400	8,600.00	10,590.00	-			**118,515**
N/A	*# or %*																							**-**
N/A	*# or %*																							**-**

12	**Project Name**	**Te Wetini Dr S/W Crossing and Rotokauri Rise - bulkwater**
	Project Type	**WATER - Potable water mains / pipes upgraded / renewed or new**

Start date	Feb-21	**Capex**	1.3000
End date	Jun-22	**Opex**	
Total upfront payment	0.6500	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	1.3000		
Total project funding	1.3000		
Check	-		

Project Spend																							
Spend from Crown funding	*$NZ'm*						0.0001	0.0053	0.0049	0.1821	0.4596	0.0063	0.0054	0.0880	0.0035	0.0041	0.0022	0.0008	0.0056	0.0082	0.4200	-	0.1040	**1.3000**
Spend from cofunding	*$NZ'm*																							**-**
Total project spend	*$NZ'm*			**-**	**-**	**-**	**0.0001**	**0.0053**	**0.0049**	**0.1821**	**0.4596**	**0.0063**	**0.0054**	**0.0880**	**0.0035**	**0.0041**	**0.0022**	**0.0008**	**0.0056**	**0.0082**	**0.4200**	**-**	**0.1040**	**1.3000**
Project Funding	*$NZ'm*																							
Upfront payment portion	*$NZ'm*			0.6500																				**0.65**
Crown funding required	*$NZ'm*											0.3250			0.33									**0.65**
Cofunding required	*$NZ'm*																							**-**
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	*$NZ'm*			**0.65**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.33**	**-**	**-**	**0.33**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.30**
Cash position																								
Opening cash position	*$NZ'm*			-	0.65	0.65	0.65	0.65	0.64	0.64	0.46	-	0.32	0.31	0.22	0.54	0.54	0.54	0.54	0.53	0.52	0.10	0.10	
Project spend	*$NZ'm*			-	-	-	(0.00)	(0.01)	(0.00)	(0.18)	(0.46)	(0.01)	(0.01)	(0.09)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.42)	-	(0.10)	
Project funding	*$NZ'm*			0.65	-	-	-	-	-	-	-	0.33	-	-	0.33	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*			**0.65**	**0.65**	**0.65**	**0.65**	**0.64**	**0.64**	**0.46**	**-**	**0.32**	**0.31**	**0.22**	**0.54**	**0.54**	**0.54**	**0.54**	**0.53**	**0.52**	**0.10**	**0.10**	**-**	**Ok**
Worker hours	*Hours*	Hourly Rate:	120.00				391.50	817.50	603.50	651	222	510.50	259.50	289	181	333	274	338.00	402.50	423.00	3,500.00	-	866.63	**10,061**
Length (metres)	*# or %*																						90.00	**90**
N/A	*# or %*																							**-**
N/A	*# or %*																							**-**

12a	**Project Name**	**Te Wetini Dr S/W Crossing and Rotokauri Rise - bulk wastewater**
	Project Type	**WASTE - Wastewater pipes upgraded / renewed or new**

Start date	Feb-21	**Capex**	
End date	Jun-22	**Opex**	
Total upfront payment	-	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	-		
Total project funding	-		
Check	-		

Refer to Project 12

Project Spend																							
Spend from Crown funding	*$NZ'm*																						**-**
Spend from cofunding	*$NZ'm*																						**-**
Total project spend	*$NZ'm*			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Project Funding	*$NZ'm*																							
Upfront payment portion	*$NZ'm*			-																				**-**
Crown funding required	*$NZ'm*																							**-**
Cofunding required	*$NZ'm*																							**-**
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	*$NZ'm*			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Cash position																								
Opening cash position	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Project spend	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Project funding	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**Ok**
Worker hours	*Hours*																							**-**
Length (metres)	*# or %*																			115.80	77.20			**193.00**
N/A	*# or %*																							**-**
N/A	*# or %*																							**-**

12b	**Project Name**	**Te Wetini Dr S/W Crossing and Rotokauri Rise - stormwater swale works**
	Project Type	**STORM - Stormwater pipes upgraded / renewed or new**

Sensitivity: General

Start date	Feb-21		**Capex**																				
End date	Jun-22		**Opex**																				
Total upfront payment	-		**N/A**																				
Total final payment			*Check*	*Ok*																			
Total project spend	-																						
Total project funding	-																						
Check	-																						
Project Spend		Refer to Project 12																					
Spend from Crown funding	*$NZ'm*																						-
Spend from cofunding	*$NZ'm*																						-
Total project spend	*$NZ'm*				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Project Funding	*$NZ'm*																						
Upfront payment portion	*$NZ'm*				-																		-
Crown funding required	*$NZ'm*																						-
Cofunding required	*$NZ'm*																						-
Final payment portion	*$NZ'm*				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	*$NZ'm*				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash position																							
Opening cash position	*$NZ'm*				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Project spend	*$NZ'm*				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Project funding	*$NZ'm*				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ok
Worker hours	*Hours*																						-
Length (metres)	*# or %*																			172.80	43.20		216.00
N/A	*# or %*																						-
N/A	*# or %*																						-

13 Project Name Ecological improvements for erosion, water quality, SW control, gully network improvem
Project Type STORM - Stormwater treatment

Start date	Feb-21		**Capex**	1.1875																			
End date	Jun-22		**Opex**	1.1875																			
Total upfront payment	1.1875		**N/A**																				
Total final payment			*Check*	*Ok*																			
Total project spend	2.3750																						
Total project funding	2.3750																						
Check	-																						
Project Spend																							
Spend from Crown funding	*$NZ'm*						0.0054	0.0341	0.0099	0.1645	0.1789	0.1307	0.0588	0.0406	0.1443	0.1970	0.1406	0.1770	0.1631	0.6613	0.1700	0.0500	0.0489	**2.3750**
Spend from cofunding	*$NZ'm*																							-
Total project spend	*$NZ'm*				-	-	**0.0054**	**0.0341**	**0.0099**	**0.1645**	**0.1789**	**0.1307**	**0.0588**	**0.0406**	**0.1443**	**0.1970**	**0.1406**	**0.1770**	**0.1631**	**0.6613**	**0.1700**	**0.0500**	**0.0489**	**2.3750**
Project Funding	*$NZ'm*																							
Upfront payment portion	*$NZ'm*				1.1875																			**1.1875**
Crown funding required	*$NZ'm*											1.1875												**1.1875**
Cofunding required	*$NZ'm*																							-
Final payment portion	*$NZ'm*				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	*$NZ'm*				**1.1875**	-	-	-	-	-	-	**1.19**	-	-	-	-	-	-	-	-	-	-	-	**2.3750**
Cash position																								
Opening cash position	*$NZ'm*				-	1.19	1.19	1.19	1.18	1.15	1.14	0.97	0.79	1.85	1.79	1.75	1.61	1.41	1.27	1.09	0.93	0.27	0.10	0.05	
Project spend	*$NZ'm*				-	-	-	(0.01)	(0.03)	(0.01)	(0.16)	(0.18)	(0.13)	(0.06)	(0.04)	(0.14)	(0.20)	(0.14)	(0.18)	(0.16)	(0.66)	(0.17)	(0.05)	(0.05)	
Project funding	*$NZ'm*				1.19	-	-	-	-	-	-	-	1.19	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*				**1.19**	**1.19**	**1.19**	**1.18**	**1.15**	**1.14**	**0.97**	**0.79**	**1.85**	**1.79**	**1.75**	**1.61**	**1.41**	**1.27**	**1.09**	**0.93**	**0.27**	**0.10**	**0.05**	-	**Ok**
Worker hours	*Hours*	Hourly Rate:	120.00				34	42	487	502	493	828	481	537	405	1,271	661	683	1,669	1,206	275	120	120		**9,813**
Number of SW treatment project	*# or %*						N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		-
Physicals works % complete	*# or %*						0%	1%	0%	7%	8%	6%	2%	2%	6%	8%	6%	7%	7%	28%	7%	2%	2%		**100%**
N/A	*# or %*																								-

14 Project Name Investigations into Urban Stormwater Quality Management approaches
Project Type OTHER - Strategy Study or Report

Start date	Feb-21		**Capex**																				
End date	Jun-22		**Opex**	0.2500																			
Total upfront payment	0.1250		**N/A**																				
Total final payment			*Check*	*Ok*																			
Total project spend	0.2500																						
Total project funding	0.2500																						
Check	-																						
Project Spend																							
Spend from Crown funding	*$NZ'm*						0.0001			0.0009	0.0021	-	0.1100	-	-	-	0.0011	-	0.1000	-	0.0119	0.0119	0.0120	**0.2500**
Spend from cofunding	*$NZ'm*																							-
Total project spend	*$NZ'm*				-	-	**0.0001**	-	-	**0.0009**	**0.0021**	-	**0.1100**	-	-	-	**0.0011**	-	**0.1000**	-	**0.0119**	**0.0119**	**0.0120**	**0.2500**
Project Funding	*$NZ'm*																							
Upfront payment portion	*$NZ'm*				0.1250																			**0.13**
Crown funding required	*$NZ'm*														0.1250									**0.13**
Cofunding required	*$NZ'm*																							-
Final payment portion	*$NZ'm*				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	*$NZ'm*				**0.13**	-	-	-	-	-	-	-	-	-	**0.13**	-	-	-	-	-	-	-	-	**0.25**

Sensitivity: General

Cash position																							
Opening cash position	$NZ'm			-	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.02	0.02	0.15	0.15	0.15	0.15	0.05	0.05	0.04	0.03	
Project spend	$NZ'm			-	-	-	(0.00)	-	-	(0.00)	(0.00)	-	(0.11)	-	-	-	(0.00)	-	(0.10)	-	(0.01)	(0.01)	(0.01)	
Project funding	$NZ'm			0.13	-	-	-	-	-	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-	
Closing cash position	$NZ'm			**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.02**	**0.02**	**0.15**	**0.15**	**0.15**	**0.15**	**0.05**	**0.05**	**0.04**	**0.03**	**0.02**	Ok
			75% labour																				
Worker hours	Hours	Hourly Rate:	120.00				0.50	-	-	-	10	-	118	18	22	61	107	-	625.00	-	74.68	74.68	74.69	**1,186**
% complete	# or %						0%	0%	0%	0%	1%	0%	44%	0%	0%	0%	0%	0%	40%	0%	5%	5%	5%	**100%**
N/A	# or %																							**-**
N/A	# or %																							**-**

15 Project Name — **Rotokauri Swale Designation conditions implementation**
Project Type — **OTHER - Strategy Study or Report**

Start date	Feb-21	**Capex**	
End date	Mar-22	**Opex**	0.7000
Total upfront payment	0.3500	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	0.7000		
Total project funding	0.7000		
Check	-		

Project Spend																							
Spend from Crown funding	$NZ'm						0.0139	0.2055	0.0148	0.0652	0.0396	0.0112	0.0213	(0.0014)	0.0715	0.1316	0.0810	-	-	0.0460				**0.7000**
Spend from cofunding	$NZ'm																							**-**
Total project spend	$NZ'm			**-**	**-**	**-**	**0.0139**	**0.2055**	**0.0148**	**0.0652**	**0.0396**	**0.0112**	**0.0213**	**(0.0014)**	**0.0715**	**0.1316**	**0.0810**	**-**	**-**	**0.0460**	**-**	**-**	**-**	**0.7000**
Project Funding	$NZ'm																							
Upfront payment portion	$NZ'm			0.3500																				**0.35**
Crown funding required	$NZ'm											0.3500												**0.35**
Cofunding required	$NZ'm																							**-**
Final payment portion	$NZ'm			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	$NZ'm			**0.35**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.35**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.70**
Cash position																								
Opening cash position	$NZ'm			-	0.35	0.35	0.35	0.34	0.13	0.12	0.05	0.01	0.35	0.33	0.33	0.26	0.13	0.05	0.05	0.05	(0.00)	(0.00)	(0.00)	
Project spend	$NZ'm			-	-	-	(0.01)	(0.21)	(0.01)	(0.07)	(0.04)	(0.01)	(0.02)	0.00	(0.07)	(0.13)	(0.08)	-	-	(0.05)	-	-	-	
Project funding	$NZ'm			0.35	-	-	-	-	-	-	-	0.35	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	$NZ'm			**0.35**	**0.35**	**0.35**	**0.34**	**0.13**	**0.12**	**0.05**	**0.01**	**0.35**	**0.33**	**0.33**	**0.26**	**0.13**	**0.05**	**0.05**	**0.05**	**(0.00)**	**(0.00)**	**(0.00)**	**(0.00)**	Warning
Worker hours	Hours	Hourly Rate:	200.00				75	108	139.75	230.75	118	228	183	373	397	279	182	187.00	242.00	335.50				**3,078.00**
% complete	# or %						2%	29%	2%	9%	6%	2%	3%	0%	10%	19%	12%	0%	0%	7%				**100%**
N/A	# or %																							**-**
N/A	# or %																							**-**

16 Project Name — **Education Hub for Three Waters including videos/virtual reality educational tools and ma**
Project Type — **OTHER - Strategy Study or Report**

Start date	Feb-21	**Capex**	0.14725
End date	Jun-22	**Opex**	0.14725
Total upfront payment	0.1473	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	0.2945		
Total project funding	0.2945		
Check	-		

Project Spend																							
Spend from Crown funding	$NZ'm						0.0012	0.0004		0.0003	0.0083	-	0.0103	0.0245	0.0043	0.0154	0.0201	0.0086	0.0423	0.0139	0.0483	0.0483	0.0483	**0.2945**
Spend from cofunding	$NZ'm																							**-**
Total project spend	$NZ'm			**-**	**-**	**-**	**0.0012**	**0.0004**	**-**	**0.0003**	**0.0083**	**-**	**0.0103**	**0.0245**	**0.0043**	**0.0154**	**0.0201**	**0.0086**	**0.0423**	**0.0139**	**0.0483**	**0.0483**	**0.0483**	**0.2945**
Project Funding	$NZ'm																							
Upfront payment portion	$NZ'm			0.14725																				**0.15**
Crown funding required	$NZ'm														0.14725									**0.15**
Cofunding required	$NZ'm																							**-**
Final payment portion	$NZ'm			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	$NZ'm			**0.15**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.15**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.29**
Cash position																								
Opening cash position	$NZ'm			-	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.13	0.10	0.25	0.23	0.21	0.20	0.16	0.15	0.10	0.05	
Project spend	$NZ'm			-	-	-	(0.00)	(0.00)	-	(0.00)	(0.01)	-	(0.01)	(0.02)	(0.00)	(0.02)	(0.02)	(0.01)	(0.04)	(0.01)	(0.05)	(0.05)	(0.05)	
Project funding	$NZ'm			0.15	-	-	-	-	-	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	
Closing cash position	$NZ'm			**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	**0.14**	**0.14**	**0.13**	**0.10**	**0.25**	**0.23**	**0.21**	**0.20**	**0.16**	**0.15**	**0.10**	**0.05**	**0.00**	Ok
Worker hours	Hours	Hourly Rate:	120.00				16	1	-	2	69	82	80	71	87	78	50	93.45	111.40	115.90	402.60	402.60	402.60	**2,064.40**
% complete	# or %						0%	0%	0%	0%	3%	0%	3%	8%	1%	5%	7%	3%	14%	5%	16%	16%	16%	**100%**
N/A	# or %																							**-**
N/A	# or %																							**-**

17 Project Name — **Expansion of the water leak detection programme and repair of any private leaks identifie**
Project Type — **WATER - Water pipe inspections**

Start date	Feb-21	**Capex**	
End date	Dec-21	**Opex**	0.4750
Total upfront payment	0.2375	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	0.4750		
Total project funding	0.4750		
Check	-		

Sensitivity: General

Project Spend																						
Spend from Crown funding	$NZ'm						0.0081	0.0074	0.0404	0.0771	0.0966	0.0016	0.0329	0.0437	0.0416	0.0645	0.0611						0.4750
Spend from cofunding	$NZ'm																						-
Total project spend	$NZ'm			-	-	-	**0.0081**	**0.0074**	**0.0404**	**0.0771**	**0.0966**	**0.0016**	**0.0329**	**0.0437**	**0.0416**	**0.0645**	**0.0611**	-	-	-	-	-	-	**0.4750**
Project Funding	$NZ'm																						
Upfront payment portion	$NZ'm			0.2375																			**0.2375**
Crown funding required	$NZ'm											0.2375											**0.2375**
Cofunding required	$NZ'm																						-
Final payment portion	$NZ'm			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	$NZ'm			**0.2375**	-	-	-	-	-	-	-	**0.2375**	-	-	-	-	-	-	-	-	-	-	**0.4750**
Cash position																							
Opening cash position	$NZ'm			-	0.24	0.24	0.24	0.23	0.22	0.18	0.10	0.01	0.24	0.21	0.17	0.13	0.06	-	-	-	-	-	-	
Project spend	$NZ'm			-	-	-	(0.01)	(0.01)	(0.04)	(0.08)	(0.10)	(0.00)	(0.03)	(0.04)	(0.04)	(0.06)	(0.06)	-	-	-	-	-	-	
Project funding	$NZ'm			0.24	-	-	-	-	-	-	-	0.24	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	$NZ'm			**0.24**	**0.24**	**0.24**	**0.23**	**0.22**	**0.18**	**0.10**	**0.01**	**0.24**	**0.21**	**0.17**	**0.13**	**0.06**	-	-	-	-	-	-	-	**Ok**
Worker hours	Hours	Hourly Rate:	120.00				73	53	304	233	140	107	185	182	254	328	12	26						**1,895**
Length (metres)	# or %							5,000	11,300	9,450	6,750	11,400	11,400	11,400	11,400	11,400	-	-						**89,500**
N/A	# or %																							-
N/A	# or %																							-

18	**Project Name**	**Installation of dedicated water sampling points around the city**
	Project Type	**WATER - Water filling station**

Start date	Feb-21	**Capex**	0.0950
End date	Jun-22	**Opex**	
Total upfront payment	0.0475	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	0.0950		
Total project funding	0.0950		
Check	-		

Project Spend																						
Spend from Crown funding	$NZ'm						0.0001	0.0023	0.0009		0.0195	(0.0194)	0.0011	0.0078	0.0007	0.0004	0.02	0.0000	-	-	0.04	0.02		**0.0950**
Spend from cofunding	$NZ'm																							-
Total project spend	$NZ'm			-	-	-	**0.0001**	**0.0023**	**0.0009**	-	**0.0195**	**(0.0194)**	**0.0011**	**0.0078**	**0.0007**	**0.0004**	**0.02**	**0.00**	-	-	**0.04**	**0.02**	-	**0.0950**
Project Funding	$NZ'm																							
Upfront payment portion	$NZ'm			0.0475																				**0.05**
Crown funding required	$NZ'm											0.0475												**0.05**
Cofunding required	$NZ'm																							-
Final payment portion	$NZ'm			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	$NZ'm			**0.05**	-	-	-	-	-	-	-	**0.05**	-	-	-	-	-	-	-	-	-	-	-	**0.095**
Cash position																								
Opening cash position	$NZ'm			-	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.02	0.09	0.09	0.08	0.08	0.08	0.06	0.06	0.06	0.06	0.02	0.00	
Project spend	$NZ'm			-	-	-	(0.00)	(0.00)	(0.00)	-	(0.02)	0.02	(0.00)	(0.01)	(0.00)	(0.00)	(0.02)	(0.00)	-	-	(0.04)	(0.02)	-	
Project funding	$NZ'm			0.05	-	-	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	$NZ'm			**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.04**	**0.04**	**0.02**	**0.09**	**0.09**	**0.08**	**0.08**	**0.08**	**0.06**	**0.06**	**0.06**	**0.06250**	**0.02450**	**0.00010**	**0.00010**	**Ok**
Worker hours	Hours	Hourly Rate:	120.00				8.50	21	12.25	4	1	4	16	7	8	5	2.50	0.38	-	-	316.67	203.43		**608**
Water supply meters installed #	# or %						N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		-
Physical works % complete	# or %						0%	2%	1%	0%	21%	-20%	1%	8%	1%	0%	20%	0%	0%	0%	40%	26%		**100%**
N/A	# or %																							-

19	**Project Name**	**Rotokauri Wastewater upsizing for unconnected communities**
	Project Type	**WASTE - Wastewater pipes upgraded / renewed or new**

Start date	Feb-21	**Capex**	1.0500
End date	Jun-22	**Opex**	
Total upfront payment	0.5250	**N/A**	
Total final payment		*Check*	*Ok*
Total project spend	1.0500		
Total project funding	1.0500		
Check	-		

Project Spend																						
Spend from Crown funding	$NZ'm						0.0001	0.0032	0.0033	0.0113	0.0478	0.0073	0.0217	0.0037	0.0048	0.0759	0.0159	0.0366	0.1298	0.4103	0.2272	0.0514		**1.0500**
Spend from cofunding	$NZ'm																							-
Total project spend	$NZ'm			-	-	-	**0.0001**	**0.0032**	**0.0033**	**0.0113**	**0.0478**	**0.0073**	**0.0217**	**0.0037**	**0.0048**	**0.0759**	**0.0159**	**0.0366**	**0.1298**	**0.4103**	**0.2272**	**0.0514**	-	**1.0500**
Project Funding	$NZ'm																							
Upfront payment portion	$NZ'm			0.5250																				**0.53**
Crown funding required	$NZ'm														0.53									**0.53**
Cofunding required	$NZ'm																							-
Final payment portion	$NZ'm			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total project funding	$NZ'm			**0.53**	-	-	-	-	-	-	-	-	-	-	**0.53**	-	-	-	-	-	-	-	-	**1.05**
Cash position																								
Opening cash position	$NZ'm			-	0.53	0.53	0.53	0.53	0.53	0.53	0.52	0.47	0.46	0.44	0.44	0.96	0.88	0.86	0.82	0.69	0.28	0.05	-	
Project spend	$NZ'm			-	-	-	(0.00)	(0.00)	(0.00)	(0.01)	(0.05)	(0.01)	(0.02)	(0.00)	(0.00)	(0.08)	(0.02)	(0.04)	(0.13)	(0.41)	(0.23)	(0.05)	-	
Project funding	$NZ'm			0.53	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	-	-	-	
Closing cash position	$NZ'm			**0.53**	**0.53**	**0.53**	**0.53**	**0.53**	**0.53**	**0.52**	**0.47**	**0.46**	**0.44**	**0.44**	**0.96**	**0.88**	**0.86**	**0.82**	**0.69**	**0.28**	**0.05**	-	-	**Ok**
Worker hours	Hours	Hourly Rate:	120.00				0.50	19.00	44.00	117.00	242.00	121	43	58	79	112	207	80	1,256	6,080	1,893	428	-	**10,778**
Length (metres)	# or %																	12.00	74.00	238.00	200.00	120.00		**544**
N/A	# or %																							-

Sensitivity: General

N/A	# or %																						-
20 **Project Name**	**Eastern Resilience Bulk Water Supply**																						
Project Type	**WATER - Potable water mains / pipes upgraded / renewed or new**																						
Start date	Jun-21		**Capex**	1.93																			
End date	Jun-22		**Opex**																				
Total upfront payment	0.9652		**N/A**																				
Total final payment			*Check*	*Ok*																			
Total project spend	1.93040																						
Total project funding	1.93040																						
Check	-																						
Project Spend																							
Spend from Crown funding	*$NZ'm*									0.9450			0.2558	0.4023						0.3273			**1.9304**
Spend from cofunding	*$NZ'm*																						**-**
Total project spend	*$NZ'm*			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.9450**	**-**	**-**	**0.2558**	**0.4023**	**-**	**-**	**-**	**-**	**-**	**0.3273**	**-**	**-**	**1.9304**
Project Funding	*$NZ'm*																						
Upfront payment portion	*$NZ'm*			0.97																			**0.97**
Crown funding required	*$NZ'm*										0.97												**0.97**
Cofunding required	*$NZ'm*																						**-**
Final payment portion	*$NZ'm*			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Total project funding	*$NZ'm*			**0.97**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.97**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.93**
Cash position																							
Opening cash position	*$NZ'm*			-	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.02	0.99	0.99	0.73	0.33	0.33	0.33	0.33	0.33	0.33	-	-	
Project spend	*$NZ'm*			-	-	-	-	-	-	-	(0.95)	-	-	(0.26)	(0.40)	-	-	-	-	-	(0.33)	-	-	
Project funding	*$NZ'm*			0.97	-	-	-	-	-	-	-	0.97	-	-	-	-	-	-	-	-	-	-	-	
Closing cash position	*$NZ'm*			**0.97**	**0.97**	**0.97**	**0.97**	**0.97**	**0.97**	**0.97**	**0.02**	**0.99**	**0.99**	**0.73**	**0.33**	**0.33**	**0.33**	**0.33**	**0.33**	**0.33**	**-**	**-**	**-**	**Ok**
Worker hours	*Hours*	Hourly Rate:	200.00							4,725	-	-	1,279	2,011	-	-	-	-	-	1,637	-	-	**9,652**
Length (metres)	# or %																						**0%**
N/A	# or %																						**-**
N/A	# or %																						**-**

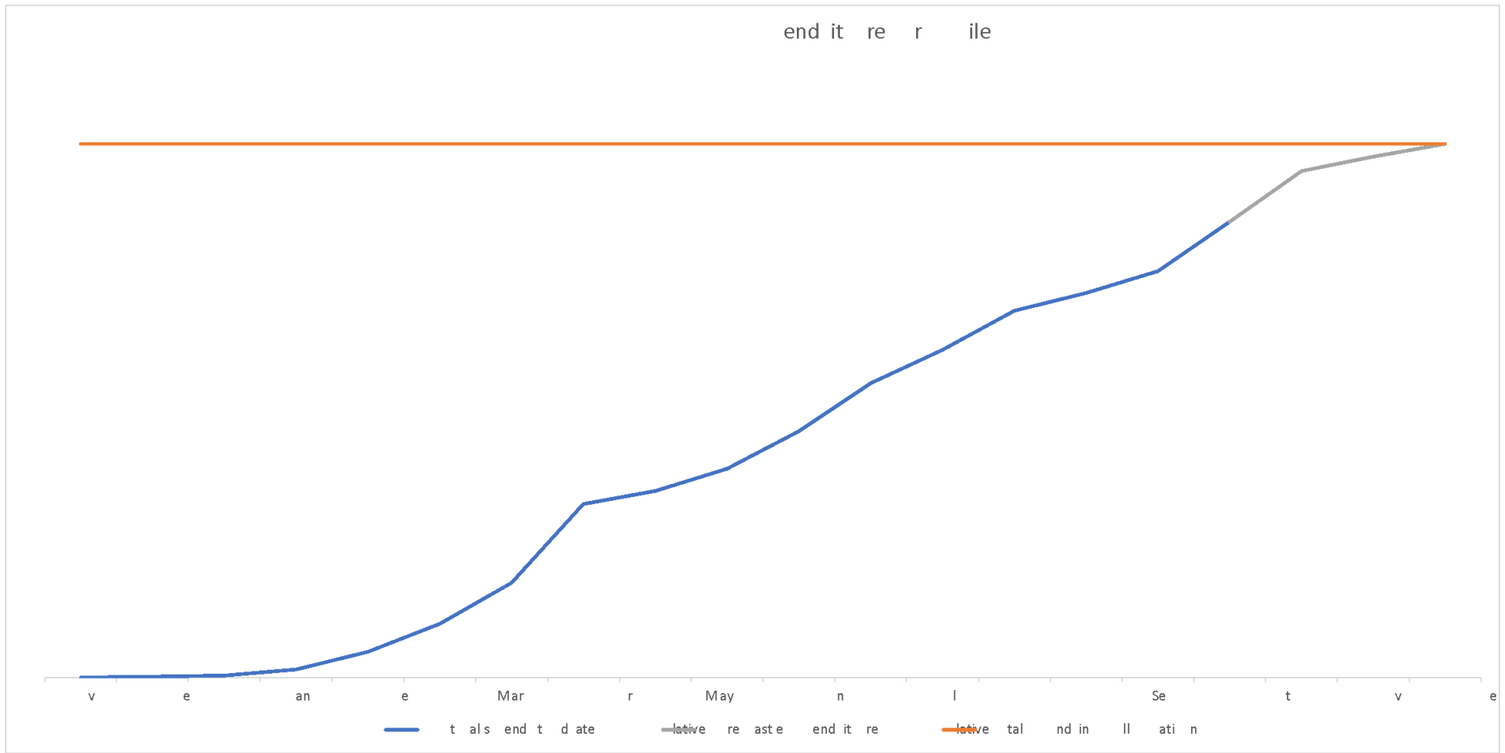
Sensitivity: General

Three Waters Stimulus Funding - LTP information collection

LTP information					Actual LTP Spend																							
		FY19/20 Actual	FY20/21 Plan	FY21/22 Plan	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
Water Supply																												
Potable water mains / pipes upgraded / renewed or new	$NZ'm	6.13	7.12	4.32	0.30	0.85	0.66	0.70	1.44	0.12	0.67	0.27	1.17	0.31	0.77	1.60	0.22	0.38	0.73	0.83	0.60	0.48	1.33	0.82	0.71			
Water pipe inspections	$NZ'm																											
Leak detection	$NZ'm	0.09		0.10								0.01	0.01	0.04	0.08	0.10	0.00	0.03	0.04	0.04	0.06	0.06	0.05	0.02	0.00			
Water Treatment Plant upgrades	$NZ'm	4.39	7.12	15.71	0.83	0.27	0.11	0.31	0.54	0.51	0.20	-0.24	0.46	0.64	0.49	1.40	-0.07	0.26	0.53	0.46	0.30	-0.09	0.27	0.09	-0.01			
Pump station upgrades	$NZ'm																											
Bore upgrades	$NZ'm																											
New water source added	$NZ'm																											
Raw water storage	$NZ'm																											
Treated water storage (refurbished or new)	$NZ'm	9.96	2.49	0.06	0.34	0.20	0.08	0.09	-0.05	0.15	0.08	0.03	0.06	-0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Boundary backflow preventors	$NZ'm																											
Water meters installed	$NZ'm	0.34	2.10	0.70	0.02	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.09	0.02	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00			
Water filling station	$NZ'm																											
Water security / fencing	$NZ'm											0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Other	$NZ'm	1.86	2.37	12.61	0.23	0.27	0.12	0.09	0.08	0.23	0.03	0.13	0.13	0.17	0.36	0.33	-0.01	0.24	0.27	1.46	0.83	0.62	0.57	0.33	1.65			
Total Water Supply		22.57	21.18	33.51	1.72	1.59	0.98	1.20	2.02	1.02	0.98	0.20	1.83	1.16	1.70	3.54	0.16	0.93	1.59	2.79	1.89	1.07	2.23	1.07	2.35	-	-	-
Wastewater																												
Wastewater pipes upgraded / renewed or new	$NZ'm	17.51	46.54	23.99	1.86	2.12	2.51	2.32	2.26	1.54	4.29	1.22	2.69	2.35	2.45	2.79	2.65	2.19	2.37	2.09	6.12	3.33	0.26	1.21	-2.03			
Wastewater pipe inspections	$NZ'm											0.01	0.01	0.02	0.03	0.10	0.06	0.04	0.04	0.05	0.04	0.06	0.02	0.04	0.06			
Sludge removal from ponds #	$NZ'm	1.51	1.72	1.74																								
Pump station upgrades	$NZ'm	1.52	2.28	2.37	0.11	0.14	0.14	0.17	0.07	0.02	0.06	0.05	0.03	0.04	0.25	0.43	0.02	0.12	0.09	0.01	0.01	0.10	0.00	0.02	0.15			
Wastewater Treatment Plant upgrades	$NZ'm	18.28	14.13	6.13	0.16	2.35	2.37	1.86	0.94	1.30	1.05	0.29	1.15	1.06	0.59	0.96	0.18	-0.10	0.49	0.22	0.23	0.11	0.12	0.15	0.05			
Other	$NZ'm	2.73	4.86	8.31	0.14	0.19	0.40	0.45	0.31	0.15	0.01	0.36	0.39	0.36	0.48	0.68	0.02	0.19	0.69	0.81	0.61	0.35	0.37	0.14	1.15			
Total Wastewater		41.54	69.53	42.53	2.26	4.79	5.41	4.80	3.58	3.00	5.42	1.92	4.27	3.82	3.80	4.96	2.93	2.44	3.69	3.19	7.02	3.95	0.77	1.56	-0.62	-	-	-
Storm																												
Stormwater pipe inspections	$NZ'm		0.17	0.67																								
Stormwater pipes upgraded / renewed or new	$NZ'm	7.28	15.37	11.31	0.30	0.37	0.39	0.61	0.41	0.68	1.02	-0.19	0.47	0.33	0.67	1.39	0.17	0.72	0.34	0.40	0.71	0.53	0.47	0.43	1.59			
Stormwater treatment	$NZ'm																											
Other	$NZ'm	1.26	2.20	6.23	0.06	0.02	0.05	0.26	0.06	0.06	0.02	0.06	0.11	0.54	0.11	1.08	0.06	0.03	-0.01	0.11	0.04	0.03	0.03	0.00	0.11			
Total Storm		8.54	17.74	18.22	0.36	0.39	0.44	0.87	0.47	0.73	1.04	- 0.12	0.58	0.86	0.77	2.48	0.23	0.75	0.33	0.52	0.75	0.55	0.50	0.43	1.70	-	-	-
Other																												
Asset data and GIS improvements/update/maintenance	$NZ'm	0.36	1.97	0.84	-0.05	0.10	0.04	0.05	0.04	0.08	0.02	0.03	0.18	0.31	0.26	0.55	0.06	0.26	0.15	0.26	0.18	0.07	0.20	0.09	0.23			
SCADA upgrades or new	$NZ'm	0.02	0.13	0.13																								
Hydraulic modelling of network	$NZ'm	0.05	1.29	0.20		0.01	0.00		0.01		0.01		0.00	0.00	0.00	0.02	0.00	0.03		0.00	0.00	0.00	0.01	0.01	0.06			
Strategy Study or Report	$NZ'm	2.69	2.32	4.01	0.07	0.15	0.61	0.24	0.20	0.24	0.23	0.12	0.48	0.31	0.14	0.80	0.03	0.39	0.12	0.24	0.41	0.93	0.25	0.44	0.68			
Co-ordination initiatives undertaken	$NZ'm																											
Preparation for Reform	$NZ'm									0.02	0.07	0.04	0.01	0.11	0.03	0.04	0.03	0.02	0.03	0.14	-0.03	0.03	0.03	0.03	0.03			
Programme management	$NZ'm											0.06	0.04	-0.02	0.03	0.10	0.01	0.01	0.03	0.02	0.05	0.05	0.01	0.00	0.03			
Total Other		3.11	5.61	5.18	0.01	0.26	0.66	0.29	0.25	0.34	0.33	0.24	0.72	0.72	0.45	1.50	0.12	0.71	0.34	0.67	0.61	1.09	0.50	0.57	1.03	-	-	-
Total	$NZ'm	75.76	114.05	99.43	4.35	7.03	7.49	7.15	6.32	5.09	7.78	2.24	7.41	6.56	6.71	12.47	3.44	4.81	5.95	7.17	10.27	6.66	4.00	3.63	4.47	-	-	-

Sensitivity: General

Category	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22
Cumulative cash position (template)	8.73	8.704687	8.671379	8.466535	7.889586	6.971697	5.629184	3.051435	2.627979	1.900426	0.677822	4.097211	3.003441	1.724122	4.880823	4.171679	2.555007	0.888476	0.427539
Upfront Payment Portion	8.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spend from Crown funding	0	0.025313	0.033308	0.204844	0.576949	0.917889	1.342513	2.577749	0.423456	0.727553	1.222604	1.570611	1.09377	1.279319	0.583299	0.709144	1.616672	1.666531	0.460937
Crown funding required (template)	0	0	0	0	0	0	0	0	0	0	0	4.99	0	0	3.74	0	0	0	0
Actual spend to date (cumulative)	0	0.025313	0.058621	0.263465	0.840414	1.758303	3.100816	5.678565	6.102021	6.829574	8.052178	9.622789	10.716559	11.995878	12.579177	13.288321	14.904993		
Forecast expenditure (cumulative)																	14.904993	16.571524	17.032461
Total Funding Allocation	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46	17.46
Cumulative cash position (no funding)	8.73	8.704687	8.671379	8.466535	7.889586	6.971697	5.629184	3.051435	2.627979	1.900426	0.677822	-0.892789	-1.986559	-3.265878	-3.849177	-4.558321	-6.174993	-7.841524	-8.302461



Attachment 2 **Item 13**

Hamilton City Council - Three Waters Reform Stimulus Programme

Project Updates – May 2022

Strategic Planning Work Package:

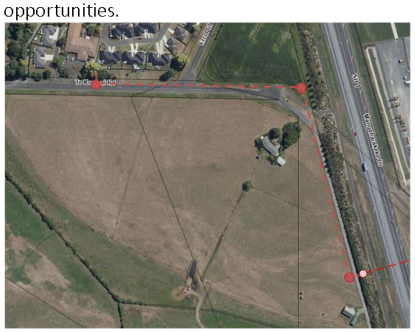
Project	WRS 2 - Metrospatial Wastewater Detailed Business Case	Overall Project Status	On Track
Objective	To deliver detailed business cases for strategic wastewater treatment facilities for the Hamilton-Waikato Metro Area		
Allocated Budget	$1,050,000 (HCC Cost Share)		
Actual Expenditure (April 2022)	$1,050,000		
Expected Completion Date	June 2022		
Background	The pressure on water resources is evident globally, nationally, and locally. These pressures manifest as degraded environmental quality, loss of biodiversity, diminished mauri and constraints on development. Local authorities, iwi, communities, and industry face significant challenges in meeting their current and future three waters service needs. The Waikato Metro Wastewater Detailed Business Case project seeks to provide a long-term wastewater infrastructure solution for the Hamilton-Waikato Metropolitan Areas.		
What will be done	This project will evaluate sub-regional wastewater solutions that operate across territorial boundaries, to deliver greater outcomes, community benefits and overall efficiencies compared to solutions which are constrained by territorial boundaries. The project will develop Metro area Wastewater Detailed Business Cases and supporting Strategic Studies. Waipa and Waikato Districts are co-contributors of stimulus funding to deliver this project.		
May 2022 Update	The Southern Business Case is now substantively complete and was approved and endorsed by the future proof governance group in April 2022. The Northern Business Case continues to progress, with the short-list options assessment nearing completion. A recommended preferred option to take forward in the Northern Business case will be presented to the Project Governance Group on 30 May 2022 and reported to the 26 July 2022 Strategic Growth Committee meeting. More detailed updates on this work are reported to the Strategic Growth committee.		

Project	WRS 12 Te Wetini Drive Crossing Upsize	Overall Project Status	Monitoring - Budget Risk
Objective	Construct strategic three waters infrastructure required to support the future development of the Rotokauri Growth Cell.		
Allocated Budget	Revised funding allocation $1,543,706 (previously $1,300,000)		
Actual Expenditure (April 2022)	$783,914		
Expected Completion Date	June 2022		
Background	The Te Wetini Drive extension is intended to enable better access, transport and PT connection to the development starting to occur in Rotokauri Stage 1. This has been unable to proceed as the proposed road connection crosses over the designated footprint of the future Rotokauri Greenway, which is required to manage all development driven stormwater runoff. The connection will enable better access to the surrounding city networks and amenities for the existing Rotokauri Rise community, those that will follow, and the broader city community given the strategic nature of the transport link for public transport services and active modes. The strategic transport connection Te Wetini provides will enable the developer who is undertaking the works to start to realise their master plan for a further 700 dwellings. Following this the connection unlocks the wider growth cell of Rotokauri stage 1 for a further estimated yield of 3100 dwellings.		

	The connection also provides utilities connections to the growth cell including strategic water pipes, strategic wastewater and third-party services such as gas and power. Te Wetini extension acknowledges the future greenway in its design, and this requires a 4.5m culvert and consented dam structure to be built to support the road across the future greenway to enable the greenway to operate as intended. The Water Stimulus Package has unlocked the ability for this initial stage of works to proceed in advance of Councils funding LTP, and thereby start to unlock the potential of the growth cell. The construction of the culvert structure is the first significant portion of the Greenway that is being constructed to manage stormwater effects from development.
What will be done	Construct the Te Wetini Drive stormwater crossing and Rotokauri Rise bulk water, bulk wastewater, and stormwater swale works.
May 2022 Update	This project is being delivered by a developer for Council via a PDA upsize and requires a 4.5m deep excavation to install 3 x 1050mm pipe/culverts and has encountered significant challenges around ground water management and required subsequent revised consents. The revised consents took nearly 6 months to secure which has delayed works, however the project work is still expecting to be completed by June 2022. The groundwater was initially expected to be managed by a 250m^3/day consent, however in the end required a 1500m^3/day consent. The financial impact associated with increased ground water management is currently being confirmed with the developer, however a funding reallocation within the programme has been undertaken to accommodate some of the expected additional costs. FUNDING REALLOCATION: The funding allocation for this project was previously $1,300,000 and has been increased by a value of $243,706 to a revised budget allocation of $1,543,706

Project	WRS 15 – Rotokauri Greenway Conditions	Overall Project Status	On Track
Objective	Give effect to and accelerate growth of Rotokauri greenway designated growth cell which is included in the Hamilton City and Waikato District plans by advancing the long lead time consenting requirements of the Rotokauri Greenway corridor.		
Allocated Budget	$700,000		
Actual Expenditure (April 2022)	$654,043		
Expected Completion Date	May 2022		
Background	Hamilton City Council is constructing approximately 3.8 km of new stormwater swales and detention ponds within a greenway corridor that is between 65m and 130m width. The greenway corridor will provide for stormwater management for the developing Rotokauri urban growth cell in northern Hamilton, in accordance with the Rotokauri Structure Plan.		
What will be done	Implementation of Stage 1 Rotokauri Greenway Designation and conditions, including establishment of groundwater monitoring and developing of a Mudfish Management Plan.		
May 2022 Update	The project continues to progress well with improved understanding of ground water interactions with the biodiversity, and indications that this is not as critical as first indicated through modelling. Due to the relatively unknown mitigations for mudfish, a Mudfish Strategy has been developed with significant stakeholder engagement from Te Haa o te Whenua o Kirikiriroa, mana whenua, Waikato Regional Council, and Department of Conservation to ensure alignment on outcomes and mitigation options reflected in the Mudfish Management Plan are accepted by all. The Strategy will provide a foundation for all developers in the catchment to leverage off as they develop.		

Project	WRS 19 – Rotokauri Wastewater Upsizing for Unconnected Communities	Overall Project Status	Monitoring – Budget Risk

Objective	Install wastewater infrastructure to give the ability for connection for currently unconnected communities and future proofing for development in Rotokauri, specifically for wastewater services.
Allocated Budget	Revised funding allocation $1,153,000 (previously $1,050,000)
Actual Expenditure (April 2022)	$777,322
Expected Completion Date	May 2022
Background	A community located in Te Kowhai Rd in Rotokauri is currently unconnected to a wastewater reticulation network and rely on a septic tank system that is degrading with time. This project serves to mitigate this environmental and public health issue by constructing a pipeline to allow connection to Hamilton's wastewater reticulation network and additionally to future proof wastewater servicing in the wider area to support future growth.
What will be done	Installation of approximately 460m of new wastewater pipe from the far western Interceptor up to Te Kowhai Rd to enable an isolated un serviced residential community to connect to the wastewater reticulation network.
May 2022 Update	Construction work continues to progress with a forecast construction completion date of May 2022. Additional cost variation agreed in relation to construction methodologies and ensuring maximum opportunity for future development opportunities.  *Schematic showing proposed path of new wastewater main* <u>FUNDING REALLOCATION:</u> The funding allocation for this project was previously $1,050,000 and has been increased by a value of $103,000 to a revised budget allocation of $1,153,000.

Renewals and Asset Information Work Package:

Project	WRS 4a – Additional Asset Renewals	Overall Project Status	COMPLETE
Objective	Accelerate renewals programme to provide improved resilience on water and wastewater networks, reduce pipe failures and leakages.		
Allocated Budget	Revised funding allocation $1,516,475 (previously $1,500,000)		
Actual Expenditure (April 2022)	$1,516,475		
Expected Completion Date	April 2022		
Background	Council is responsible for providing water and wastewater services that are reliable and which protect people's health and our waterways. Council uses condition assessment data with industry standard life expectancy curves to forecast assets likely end of life and plan for the renewal of those assets.		

What will be done	Undertake 473m of specialised aerial wastewater main and 1000m water main renewals in addition to LTP approved renewals programme.
May 2022 Update	The Physical works associated with this project are now complete with a total of 1560m of water mains renewals completed and 126.5m of specialised aerial wastewater main renewals completed. Two of the six original aerial wastewater pipe renewal projects intended to be delivered were unable to be completed within the time allocated due to unexpected access constraints and challenging environment and terrains (gully location) that were identified in the planning process. These projects will now be re-prioritised to be delivered as part of the future renewals programme outside of the stimulus programme to allow further planning to be undertaken. The overall combined length of water and wastewater pipe renewed exceeded the original proposed length. FUNDING REALLOCATION: The funding allocation for this project was previously $1,500,000 and has been increased by a value of $16,475 to reflect the actual expenditure at completion of stimulus component of this project of $1,516,475.  *Photos showing various wastewater and water renewal sites*

Project	WRS 4b – Improved Asset Data Information	Overall Project Status	COMPLETE
Objective	Improve understanding of asset conditions across the network to inform our asset management processes.		
Allocated Budget	Revised funding allocation $2,070,663 (previously $2,135,000)		
Actual Expenditure (April 2022)	$2,070,663		
Expected Completion Date	June 2022		
Background	Accurate and reliable asset information and systems are integral to being able to manage critical water and wastewater assets. Looking for new and enhanced ways of collecting, processing, accessing, and analysing asset data underpins risk management and our journey to enhanced asset management practices.		
What will be done	Review three waters asset data management and functionality to streamline and integrate systems, improve functionality and consistency and aligning with best practice. Improve existing asset attribute and location data to inform renewals and assist with asset location in the field. Improve asset data by eliminating backlog of asset information to be entered into IPS/GIS and development and implementation of asset criticality frameworks for treatment plant and network assets		
May 2022 Update	Asset system and asset technology reviews are complete along with asset criticality assessments and frameworks, hydraulic model improvement actions and Asset Management Information system improvements.		

	FUNDING REALLOCATION: The funding allocation for this project was previously $2,135,000 and has been decreased by a value of $64,337 to reflect the actual expenditure at completion of stimulus component of this project of $2,070,663.

Asset Condition Assessment and Resilience Work Package:

Project	WRS 7 – Three Waters Asset Resilience Study	Overall Project Status	On Track
Objective	To improve the understanding of current vulnerability and level of resilience of the Three Waters Infrastructure and services		
Allocated Budget	$712,500		
Actual Expenditure (April 2022)	$545,925		
Expected Completion Date	May 2022		
Background	Three waters activities have many vulnerabilities and need standardised business processes to ensure activity and infrastructure planning appropriately addresses known vulnerabilities. It is important that three waters activities have the adaptive capacity to respond to the unexpected. By mapping and assessing vulnerabilities we will increase the level of certainty that our existing planning approaches are robust or identify gaps in our current programmes to enhance our resilience. Establishing standardised processes will guide future reviews and enable us to adapt as our knowledge increases or factors change. This project will result in a map or matrices of vulnerabilities, current programmes / mitigations and the development of a waters centric risk and resilience policy to guide consistent resilience planning.		
What will be done	The project will review how other utility organisations approach resilience and where possible align with industry best practice. HCC is on a journey to enhance three waters asset management maturity. This project will contribute to enhancing the policy, risk management and asset management systems attributes. Once key vulnerabilities are assessed and prioritised, priority packages of work will be developed within the project budget.		
May 2022 Update	The majority of work packages within the scope of this project are now complete, and work is underway to develop a draft management policy on Three Waters Risk and Resilience. The project is on track for completion by June 2022. A Three Waters Resilience Scorecard has been developed based on the United Nations Resilience scorecard and an assessment completed to identify priority areas for further assessment in relation to the resilience of Hamilton's three waters activities. These assessments have focused on Risk assessments, contractors and suppliers, emergency response plans, design standards, Power and Telecommunications, natural hazard vulnerability and alternative emergency water source options. The assessments are nearing completion and will inform future infrastructure planning. Progress with implementation of any improvements can be measured through reassessment of the Three Waters Resilience Scorecard.		

Project	WRS 9 –Low River Contingency Deployment and Pumping Capacity Upgrade	Overall Project Status	COMPLETE
Objective	Trial deployment of the Low River Contingency plan to ensure operational readiness for a future low river level and flow scenario.		
Allocated Budget	Revised funding allocation $194,858 (previously $190,000)		
Actual Expenditure (April 2022)	$194,858		
Expected Completion Date	February 2022		
Background	The Waiora Water Treatment Plant's water inlet pipe is set at a fixed level in the Waikato River. If river levels drop below the level of this pipe, the treatment plant is unable to physically pump water from the river to the treatment plant. In 2016, a dedicated floating platform with pumps was built to enable the pumping of water from the deeper part of the Waikato River into the water treatment plant during exceptionally low river		

	levels. This contingency plan, if required, will ensure that the treatment plant can continue to treat and supply Hamilton with up to 70 million litres of treated water per day. The low river contingency infrastructure has not needed to be deployed since it was commissioned in 2016.
What will be done	Assembly, installation, operation, disassembly and storage of the Low River Contingency infrastructure. Procurement of additional pumps to increase available pumping capacity.
May 2022 Update	This project is now complete. Deployment of the Low River floating platform and pumps was undertaken successfully in April 2021 and following trial operation, the operational management plan was updated. Additional pumps were procured and installed in late 2021 to increase pumping capacity from 70 to 90 million litres per day. FUNDING REALLOCATION: The funding allocation for this project was previously $190,000 and has been increased by a value of $4,854 to reflect the actual expenditure at project completion of $194,858.  *Photos showing low river floating platform being assembled and craned into position on the Waikato River next to the Waiora Water Treatment Plant intake structure*

Project	WRS 20 – Eastern Resilience Bulk Water Main	Overall Project Status	COMPLETE
Objective	To improve the resilience of the water supply to the eastern side of Hamilton from the Water Treatment plant.		
Allocated Budget	Revised funding allocation $1,603,073 (previously $1,930,400)		
Actual Expenditure (April 2022)	$1,603,073		
Expected Completion Date	June 2022		
Background	Currently, the main supply of water to over 30,000 households, schools and businesses on the eastern side of the Hamilton is provided via twin bulk water mains located under the Waikato River. In 2017 an unexpected subsidence to the northern bank of the Waikato River, in the vicinity of the twin eastern bulk water mains, put the continuity of the supply to the eastern side of the city at significant risk. In mid-2020 as part of the planning for the construction of a new bridge crossing to service the Peacocke growth cell, HCC identified an opportunity to install an alternative bulk water main supply from the Water Treatment Plant across the Waikato River to the eastern side of Hamilton. The inclusion of a new bulk water main utilising the new bridge crossing would improve the resilience risk in relation to the bulk main supply of water to the eastern side of Hamilton.		

	This project was originally identified as an unfunded contingency project and was promoted to be delivered within the funded programme in June 2021 following identification of forecasted cost savings in other projects within the programme. This project provides flexibility to balance any potential cost variations that might occur late in the programme to ensure the full $17,460,000 of grant funding can be utilised.
What will be done	Procurement and installation of two bulk water mains from the Waiora Water Treatment plant to the Peacocke Waikato River Bridge. The alignment is to travel down the service corridor to the east of the Waiora Water Treatment Plant, along Peacocke Road and Weston Lea Drive to the new bridge.
May 2022 Update	The stimulus component of this project is now complete. FUNDING REALLOCATION: The funding allocation for this project was previously $1,930,400 and has been decreased by a value of $330,927 to reflect the actual expenditure at completion of stimulus component of this project of $194,858.  *Photos of new water main pipes and pipe installation work*

Demand Management Work Package:

Project	WRS 6 - Water Sustainability Strategy	Overall Project Status	On track
Objective	To develop a Sustainability Strategy to guide Hamilton City Council's Water supply activity and develop internal guidelines to guide asset management and infrastructure planning recommendations.		
Allocated Budget	$200,000		
Actual Expenditure (April 2022)	$187,422		
Expected Completion Date	June 2022		
Background	Water supply contributes to the wellbeing of Hamiltonians and as the city grows, we face a number of challenges, our water resource will become constrained, the costs are increasing, and we have competing demands for our water supply to support social outcomes. Our water source is the Waikato River, we are committed to protecting and enhancing the awa. A strategic plan is needed to ensure that we take appropriate action now to ensure future generations continue to have access to reliable water supply.		
What will be done	Development of a sustainability strategy for the water supply activity (initially internally facing). This will include a vision, strategic outcomes, outcome measures and targets, as well as its 'strategic fit' alongside other HCC strategies, policies and plans.		

	Development of a Management Level Policy which will guide staff in decision making and help them meet the outcomes of the strategy. It is anticipated that the Action Plan for this strategy will be the next step in its implementation (this is outside the current timeframes and budget under this project)
May 2022 Update	As part of stage 1 of this project, Information collection, a review of relevant legislative and policy drivers and water sustainability case studies have been completed. A draft water sustainability strategy including the vision, outcomes and focus areas has been developed with iwi partners. Ongoing refinement is continuing to ensure alignment of the draft strategy with requirements of legislation, regulation and relevant policies continues. The water sustainability strategy provides a vision for the future of sustainable water supply services, aligns with legislative and policy drivers and interprets how the water supply activity can contribute to the United Nations Sustainable Development Goals. The strategy will be used to help guide water supply decision making. Opportunities for engagement with elected members to provide input and feedback on the draft strategy are currently being investigated. The project remains on track for completion in June 2022.

Project	WRS 10 – Scoping and Benchmarking of Incentives for Rainwater Storage Tanks for household installation	Overall Project Status	On track
Objective	To investigate the use, benefits and incentives for rainwater tanks and greywater re-use as a tool/intervention for the purposes of assisting with achieving sustainable future potable water demand.		
Allocated Budget	$70,000		
Actual Expenditure (April 2022)	$62,286		
Expected Completion Date	June 2022		
Background	To meet the capacity and availability needs for Hamilton's future water supply there is a need to address security of water allocation and supply from the Waikato River to meet the demand of a growing city. The level of service currently provided is that demand does not outstrip the available capacity. The average consumption of drinking water per Hamilton resident, per day is approximately 378 litres per person per day with an annualised target demand of less than 400 litres per person per day. The level of service is currently being met but consented limits for abstraction of water from the Waikato River are expected to be reached by expiry of the current water abstraction consent in 2044. Interventions currently being used, (or proposed) to manage demand include water loss reduction, water metering, education (Smart Water Programme), planning controls (ICMPs and Water Impact Assessments) and regulation (Water Supply Bylaw and Three Waters Connection Policy).		
What will be done	Report on rainwater tank and greywater use including findings of HCC review, case studies, rainfall analysis and options for incentives and/or rule changes. The key outcome of this project will be to understand the benefits which rainwater and greywater use could potentially provide and assist with developing policy position on whether HCC wish to progress with initiatives to increase their use across the city.		
May 2022 Update	Rainwater and greywater tank use case studies (Watercare, Wellington City Council, Kapiti Coast District Council, Western Australia, Victoria and Tauranga City Council) and Hamilton high level rainwater analysis is completed, and a report drafted outlining the benefits of Rainwater and greywater tanks from a water demand management perspective. The report is currently being considered alongside other technical work relating to the district plan review and opportunities for engagement with elected members to provide input and feedback on potential options for incentivisation are currently being determined.		

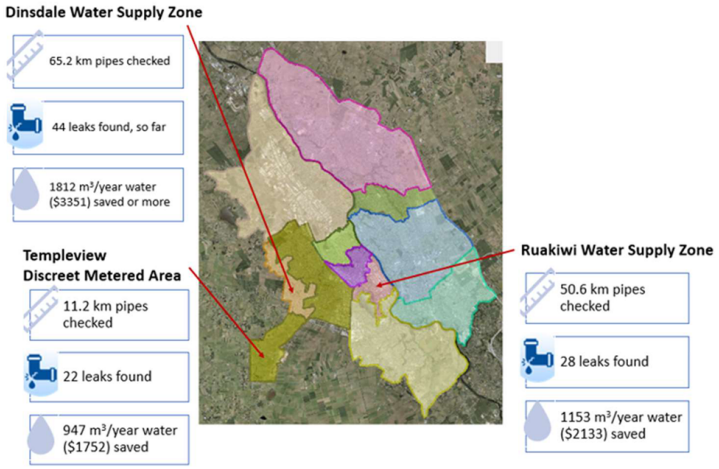
Project	WRS 11 – Citywide Inflow & Infiltration Investigation	Overall Project Status	COMPLETE
Objective	Expansion of the Inflow and Infiltration investigation programme to identify and repair any identified defects to reduce the level of stormwater entering the Hamilton wastewater network.		
Allocated Budget	Revised funding allocation $604,788 (previously $600,000)		
Actual Expenditure (April 2022)	$604,788		
Expected Completion Date	June 2022		
Background	Gully traps at many homes are incorrectly designed and installed and are located at a level that allow stormwater to enter the wastewater not the stormwater system. This additional flow of stormwater entering the wastewater system reduces the wastewater network capacity, increases the risk of wastewater overflowing and entering the environment and can also increase operational costs associated with additional wastewater pumping and treatment. Gully traps that are incorrectly designed or installed need to be identified and modified to reduce these effects.		
What will be done	Conduct targeted inflow and infiltration investigation in at least 2 wastewater pump station catchments in the city to identify properties with non-compliant gully traps and storm water drainage and undertake repairs and improvements.		
May 2022 Update	The project is now complete with 894 site visits undertaken in the Temple View, Collins Road, Rimu/Rata, Fitzroy/Hamilton Lake and Maeroa wastewater catchment areas. A total of 505 sites have now had remedial works completed. Most of the remedial work undertaken is either raising gully traps or diverting stormwater out of gully traps. FUNDING REALLOCATION: The funding allocation for this project was previously $600,000 and has been increased by a value of $4,788 to reflect the actual expenditure at completion of the stimulus component of this project of $604,788. 		

	  *Photos showing examples of defects before and after remedial works completed.*

Project	WRS 16 – Three Waters Mobile Education Hub	Overall Project Status	On Track
Objective	To enhance the community's connection to the Waikato River and increase the communities understanding of three waters infrastructure and activities and how their interaction with those activities can add value and protect the environment and Waikato River.		
Allocated Budget	$294,500		
Actual Expenditure (April 2022)	$199,412		
Expected Completion Date	June 2022		
Background	Hamilton City Council manages large infrastructure networks, the residents of the city interact with this network many times every day. There are interactions that the community can have with the network that greatly supports the sustainability of both the network and the environment. Hamilton City Council has undertaken a number of education campaigns in the past and would like to build on the current programme with a mobile education hub that contains a number of resources that can be taken to schools, community events and other locations to support education.		
What will be done	Development of resources for education officers and waters team members that can be used to engage the community and increase knowledge in relation to three waters services and infrastructure and support changing behaviours in the way the community interacts with three water services. The project will develop 3 curriculum-based activities and supporting mobile resources which are shared and undertaken with 5 schools.		
May 2022 Update	This project is progressing well with curriculum activities and supporting resources being developed in partnership with Waikato Regional Council Waikato River Schools programme and House of Science (national teacher support and resource provider for Scientific learning. The Mauri curriculum resource activities developed as part of this project have been used in 3 Hamilton schools during term 1 with 2 further schools confirmed to utilise the curriculum activities and resources in term 2. To support the curriculum resources, a successful tira hoe was undertaken on 3 May 2022 with approximately 25-year 9 and 10 students from Te Wharekura o Kirikiriroa. The students paddled from Hamilton to Ngaaruawaahia to explore sites of significance along the Awa and learn hapuu narratives from Ngaati Wairere. The construction of the interactive and mobile three waters model is now predominantly complete with artwork being developed with year 7 and 8 students from Te Wharekura o Kirikiriroa to design the table skirt that will depict the Awa from source to ocean and its journey through sites of significance. The riverbanks on the model will show the many ways we connect and interact with the Awa in Hamilton. The model is intended to assist with explaining the water cycle, how three water services and infrastructure operate and interact with the environment, with particular focus and linkages back the Awa. Work to develop the curriculum resources to support the model continues to be developed and the project team are		

	working with local teachers to showcase the water model at a House of Science event on 1 June 2022. Several schools have already indicated interest in utilising the model in the coming months. The project team are intending to have the model available for the community to interact with at the Your Neighbourhood event on 18 June 2022.  *Photo 1 and 2 above show the concept design and constructed interactive mobile model of Hamilton's three waters system. Photos 3 and 4 show the completed Mauri model - water analysis resource kits and curriculum guidance ready for use in the classroom. The resource kits have been developed to support a waters-based curriculum activity focusing on Te Mauri o te Wai and are available for local schools to utilise through House of Science Central Waikato Charitable Trust.*

Project	WRS 17 – Water Leak Detection	Overall Project Status	COMPLETE
Objective	Expansion of the water leak detection programme and identify and repair of any identified leaks to reduce the water lost from the Hamilton City water network.		
Allocated Budget	Revised funding allocation $479,532 (previously $475,000)		
Actual Expenditure (April 2022)	$479,532		
Expected Completion Date	February 2022		
Background	Water leaks are often identified through reports from the public or members of Council staff once they are visible at the ground surface. Leaks are reported more frequently in summer due to the Smart Water campaigns and water restrictions, plus the dry weather makes leaks more visually obvious (i.e. a wet patch on dry ground). Over the past three years an average of 1457 of leaks were reported each year. Hamilton's water infrastructure leakage Index (ILI) in the 2020/21 year was estimated at a level of 3.1. A calculated ILI of between 2 - 4 indicates that there is possibility for further improvement in relation to system water losses. An ILI less than 2.0 indicates that further losses below this level may be uneconomic unless there are water shortages. Leak detection programmes target a specific area of a network, listening for leaks on pipes using acoustic loggers, then pinpointing leaks with trained staff using listening equipment. This allows small leaks that haven't yet reached the surface to be located, as well as visible leaks. The work is time consuming, particularly in noisy areas where it can be difficult to hear clearly and repeated or night visits are required.		
What will be done	Water leak detection investigation completed in at least 1 water demand management area. Any identified leaks on private property are to be repaired by a contracted plumber and identified network (public) water leaks to be repaired by Hamilton City Council's City Delivery Unit. The areas selected for leak detection analysis were the Temple View, Ruakiwi and Dinsdale areas. These areas were selected as they have older pipework that may have deteriorated over time and could have increased levels of leakage occurring.		

May 2022 Update	This project is now complete, a high-level summary of the project outcomes is detailed below. A total of 127km of water mains and 5511 connections were assessed with 94 water leaks identified and repaired. FUNDING REALLOCATION: The funding allocation for this project was previously $475,000 and has been increased by a value of $4,445 to reflect the actual expenditure at completion of the stimulus component of this project of $479,532.  *Map shows high level summary of WRS17 project outcomes with coloured areas representing the planned water supply zones*

Three Water Strategy and Environmental Compliance Work Package:

Project	WRS 5 - Water Infrastructure Security Measures	Overall Project Status	On Track
Objective	Extra security measures and technology to improve the physical and cyber security of our critical water and wastewater infrastructure.		
Allocated Budget	$950,000		
Actual Expenditure (April 2022)	$924,640		
Expected Completion Date	May 2022		
Background	Council is responsible for two large, advanced treatment facilities (Wairoa water treatment plant and Pukete Wastewater treatment plant) and nine reservoirs across the city.		

	These facilities and reservoirs are in public spaces which makes them vulnerable to vandalism and other malicious acts. Our existing security measures are designed to deter these acts and alert staff if they occur. In the last year or two we have had vandalism and damage to property, theft of equipment and unauthorised access at multiple water and wastewater sites across the city. Providing water and wastewater services to our community relies on highly specialised computer control and automation systems. Increasing cyber security threats in New Zealand and the world mean robust, effective, and continuously updated cyber security protection is essential.
What will be done	Assessment and upgrade where required of CCTV, Cardax access, security lighting and fencing requirements for all water and wastewater treatment plant and reservoir sites and implementation of identified priority cyber security measures for operational control systems.
May 2022 Update	This project is approaching completion with the expanded CCTV, Cardax systems and installation of new security lighting complete at all sites. Installation of security fencing at Rototuna Reservoir is also complete and fully operational. The remaining project works relating to completion of cyber security actions and the encryption of the microwave communication link are underway and expected to be finished by the end of May.  *Photos showing sections of the new installed security fencing at Rototuna Reservoir.*

Project	WRS 8 – Taitua Arboretum Bore Upgrade	Overall Project Status	COMPLETE
Objective	Provision of a safe and reliable non-fluoridated bore water supply		
Allocated Budget	Revised funding allocation $190,092 (previously $172,100)		
Actual Expenditure (April 2022)	$190,092		
Expected Completion Date	March 2022		
Background	The Taitua Arboretum is a bore supply, believed to be commissioned in approximately 1980. The supply was unregistered and untreated water supply consisting of a shallow unprotected bore, pump and reservoir. The supply was upgraded in 2016 to include cartridge filtration and UV disinfection treatment to ensure water was safe to drink. The site was subsequently promoted as an un-fluoridated supply to the public, from where water could be collected from. A booster pump was installed to increase pressure and flow from the tap. In 2020 routine sampling identified the presence of E.coli in the water. In response the supply to the public was stopped and investigations into the cause of the contamination were undertaken. A water safety plan assessment was completed, and 21 improvement actions were identified as being needed to ensure the safety of the water supply.		
What will be done	Upgrade and/or maintenance of the Taitua Arboretum water supply bore, storage, treatment and distribution components to provide safe drinking water. This includes the completion of 21 improvement actions identified in the development of the Taitua Arboretum water safety plan.		
May 2022 Update	Physical upgrade and maintenance works associated with this project are complete. Project included the construction of a new bore shed, bore pump pad, refurbishment of the bore pump and improved pump enclosure. Supply pipework, metering, valve and sample points were all installed or renewed. New treatment plant equipment including pumps, cartridge filtration, UV disinfection, flow metering and associated valving		

	and pipework and remote SCADA and alarming capabilities were also installed and enclosed in a new treatment plant shed. The existing small water reservoir was refurbished with new liners and roof and security installed on chamber and hatches. Water quality monitoring has indicated UV system is not achieving the required level of performance and discussions are continuing between the City Waters teams and the UV system supplier to resolve the issues so that the supply can be re-opened to the public.. FUNDING REALLOCATION: The funding allocation for this project was previously $172,100 and has been increased by a value of $17,992 to reflect the actual expenditure at completion of the stimulus component of this project of $190,092  *Photos showing new and upgraded bore pump, treatment, storage, and monitoring facilities at Taitua Arboretum*

Project	WRS 13 - Ecological Improvements for Erosion, water quality, Stormwater Control and Gully Network Improvements (Mangaiti Gully)	Overall Project Status	On Track
Objective	To expand ecological connections, improve water quality and enhance biodiversity within the Kirikiriroa catchment. This project will help prevent erosion and sedimentation, increase water quality, reduce peak stormwater flows and enable gully access for maintenance and enhancement.		
Allocated Budget	$2,375,000		
Actual Expenditure (April 2022)	$2,079,173		
Expected Completion Date	June 2022		
Background	Stormwater management is an evolving multi-disciplinary practice that accommodates growth and requires compliance with regulatory requirements. Hamilton is growing rapidly in greenfield and brownfield areas. This can affect the quality and quantity of stormwater discharged to receiving environments. The health and wellbeing of the Waikato River and associated tributaries is a priority focus area with waterways needing to be restored and protected, and natural hazards minimised. This can be achieved through the design of stormwater management that provides for a high level of water quality and the naturalisation of existing watercourse to redevelop hydraulic and natural habitat diversity through gully restoration.		
What will be done	The project will include design, tender preparation, and resource consent applications for any erosion control work in the streambed and access tracks along the gully through vegetation clearance.		

	Physical work activities will include the construction or upgrade/maintenance of erosion control structures, weed clearance and control, planting of approximately 70,000 indigenous plants, construction of new DOC style access tracks and the creation of boardwalks over seepages, flows and permanently wet areas.
May 2022 Update	Overall, the project is progressing well. The planting of the gully floor has now been completed and Ngaati Haaua Mahi Trust is finishing the planting on the gully slopes. Most of the boardwalks are now complete and the contractor is has started in-stream work. The last load of rocks will be helicoptered into gully during May to construct the rock riffles and the project is on track for completion in June. 

	   *Map showing gully arm section where planting, access way creation and stormwater improvement works will be undertaken and various photos of gully and access track construction works.*

Project	WRS 14 – Urban Stormwater Quality Management Investigation	Overall Project Status	On Track
Objective	Build on current practice and knowledge in relation to urban stormwater management is meeting best practice and environmental performance expectations.		
Allocated Budget	$250,000		
Actual Expenditure (April 2022)	$219,502		
Expected Completion Date	June 2022		
Background	This project builds on the existing relationship HCC and NIWA have in the Mangakōtukutuku Urban Research Hub. The findings will in part assist in ensuring that stormwater management is meeting BPO and environmental performance requirements. The results from these investigations will be applicable across the city and ultimately across urban areas throughout New Zealand.		
What will be done	The information and insights derived from monitoring and assessment completed in Mangakōtukutuku stream area as part of this project will be summarised into a technical report and will inform the development and calibration of an urban hydrology and water quality model. It is anticipated that this model may be used to improve the design, selection, and location of site stormwater mitigation tools, and contribute to cost-benefit assessments of alternative stormwater management approaches. Performance monitoring of an actual stormwater management device will add to the body of knowledge regarding the efficacy of constructed wetlands for stormwater management and water quality improvement purposes.		
May 2022 Update	Works are underway and on-track. NIWA are continuing with investigations and monitoring in the Mangakōtukutuku stream and work to complete a high-level assessment of on lot stormwater device management (with particular focus on brownfields retrofit) and how it compares to best practice across other Councils is underway. This assessment will support the on-lot treatment toolbox for updated practice notes.		

Project	WRS 18 - Water Sampling Points	Overall Project Status	On Track
Objective	To ensure best practice drinking water monitoring infrastructure and procedures are utilised to demonstrate compliance with the Drinking Water Standards of New Zealand.		
Allocated Budget	$ 95,000		

Actual Expenditure (April 2022)	$ 33,778
Expected Completion Date	May 2022
Background	Microbiological monitoring of drinking water required to be undertaken every day in Hamilton City in order to demonstrate compliance with the Drinking-water Standards for New Zealand 2005 (Revised 2018). Historically sampling is carried out using external taps of residential and some commercial properties, however this is not considered best practice as monitoring resulted can be impacted by activities undertaken on private property and so results may not reflect the quality of the drinking water in the network.
What will be done	Design, fabrication, and installation of 35 dedicated sampling cabinets to be used for drinking water compliance monitoring
May 2022 Update	Project is progressing well and on track for completion. 29 of the proposed 35 cabinets installed with the remaining cabinets to be installed in May. Once all cabinets are installed, City Delivery will then be able to progress with connecting sampling taps to the water supply.  *Photos of installed sampling box and map showing proposed locations of new sampling cabinets (Purple dots are proposed sites, red dots are possible sites under investigation, yellow dots indicate existing sampling cabinets and blue circles indicate water reservoirs.*

Preparation for Reform & Programme Management Work Package:

Project	WRS 0 – Programme Management	Overall Project Status	On track
Objective	To ensure the effective management and delivery of the approved Three Waters Stimulus Grant Delivery Plan.		
Allocated Budget	$650,500		
Actual Expenditure (April 2022)	$487,678		
Expected Completion Date	June 2022		
Background	Hamilton City Council (HCC) entered into a funding agreement in October 2020 with the Department of Internal Affairs, who in conjunction with Crown Infrastructure Partners (CIP) are administering the Three Waters Reform Stimulus delivery programmes on behalf of the New Zealand Government.		

	Under the funding agreement, HCC was allocated $17,460,000 to deliver projects agreed in the Three Waters Stimulus Grant Delivery Plan between HCC and DIA.
What will be done	Stimulus programme delivery oversight and reporting to meet required outcomes and metrics of the approved Three Waters Stimulus Grant Delivery Plan and Funding Agreement.
May 2022 Update	Programme management resources and structures in place to support and direct delivery of the programme. All DIA and CIP reporting requirements continue to be met.

Project	WRS 3 – Three Waters Reform Engagement	Overall Project Status	On Track
Objective	Ensure resourcing is available to undertaken initial preparatory work in relation to the Three Waters Reform		
Allocated Budget	$760,000		
Actual Expenditure (April 2022)	$ 597,276		
Expected Completion Date	June 2022		
Background	Based on Councils previous investigations in relation to the Waters CCO project, Council anticipates that significant expenditure will be required to participate, transition, and transform Council in response to the Three Waters Reform. Council's expectation is Government will cover all reasonable costs incurred as a direct result of the Three Waters Reform.		
What will be done	Provision of resources to respond to Information Requests and submissions associated with the Three Waters Reform and enable Hamilton City Council to participate in reform discussions and forums.		
May 2022 Update	Works are underway. Further details on progress with the Three Waters Reform are presented in a separate regular report to Council.		

Council Report

Committee: Infrastructure Operations Committee
Date: 31 May 2022

Author: Eeva-Liisa Wright
Authoriser: Eeva-Liisa Wright

Position: General Manager Infrastructure Operations
Position: General Manager Infrastructure Operations

Report Name: General Managers Report

Report Status	*Open*

Purpose - *Take*

1. To inform the Infrastructure Operations Committee on topical issues, areas of concern and items which need to be brought to Elected Member's attention, but which do not necessitate a separate report or decision.

Staff Recommendation - *Tuutohu-aa-kaimahi* *(Recommendation to the Council)*

2. That the Infrastructure Operations Committee:

    a) receives the report;

    b) notes that Hamilton City Council will not be making a submission to – Proposed Changes to Land Transport Regulatory Fees, Charges and Funding – March 2022 Consultation Document (Waka Kotahi NZ Transport Agency); and

    c) recommends that the Council revokes the Hamilton City Speed Limits Bylaw 2018, effective 20 July 2022, as a result of the introduction of the Land Transport Rule: Setting of Speed Limits 2022.

Executive Summary - *Whakaraapopototanga matua*

3. This report provides updates to Infrastructure Operations Committee Members on activities, actions or projects contained within the plans or strategies for which this Committee and the relevant General Manager have responsibility over and for which significant progress has been made.

4. The following updates are included in this report:

    i. Land Transport Rule: Setting of Speed Limits 2022

    ii. Hamilton City Council Submission Updates

    iii. Vision Zero progress update

    iv. Collaborative Corridor Agreement (Transport Maintenance and Renewal) update

    v. Parking Activity Update

    vi. Access Hamilton Refresh and Hamilton Parking Policy Update

vii. Personal Hire (Transport) Device Update

viii. Transport Centre Rejuvenation Project Update

ix. Biking and Micro-mobility Update

x. Eastern Pathways School Link Business Case

xi. Wastewater Overflow Mitigation Update

5. Staff consider the recommendations in this report to have a low level of significance and that the recommendations comply with Council's legal requirements.

Discussion - *Matapaki*

Land Transport Rule: Setting of Speed Limits 2022

6. On Tuesday 18 April 2022, Transport Minister Wood signed the new Land Transport Rule - "Setting of Speed Limits 2022 (the Rule)" into legislation, which will come into force on 19 May 2022. The Rule replaces the previous Land Transport Rule - "Setting of Speed Limits 2017".

7. Hamilton City Council made a submission on the draft Rule in June 2021, which can be found here. A total of 325 submissions were received and the feedback used to refine the Rule.

8. A summary of submissions document analyses and provides a summary of the submissions and feedback from Waka Kotahi.

9. The Rule forms the new regulatory framework, designed to improve how road controlling authorities (RCAs), including Waka Kotahi, as an RCA, plan for, consult on, and implement speed management changes.

10. The Rule:

    i. takes a whole of network approach where decisions about safety-related infrastructure improvements, speed limit changes and safety camera placement are made together

    ii. requires road controlling authorities to follow a new speed management planning process to set new speed limits, shifting from a risk-based to a principles-based approach

    iii. specifies a process for preparing speed management plans as the primary means by which proposed speed limit changes are developed, shared and certified

    iv. introduces a regional speed management planning approach on a three-year cycle that aligns with the three-year cycle of the National Land Transport Programme

    v. transitions to lower speed limits around all schools (including the word 'kura' – meaning school) by 2027 (40% by 2024)

    vi. removes the requirement to set speed limits through bylaws

    vii. requires all speed limits (other than temporary speed limits) to be entered into a national register which will give legal effect to all speed limits (other than temporary speed limits)

    viii. acknowledges the status of Māori as our Treaty partners and specifies that Māori are involved in the development of speed management plans and consulted on aspects of the plan that are important to them.

11. The Road to Zero edition provides road controlling authorities with the tools they need to support New Zealand's road safety strategy and Road to Zero – including the following resources:
    i. the new Speed Management Guide – Road to Zero edition,
    ii. the National Speed Limit Register (the single source of truth for speed limits on all New Zealand roads), and
    iii. the updated MegaMaps.
12. Further information can be found here.
13. Hamilton City Council staff have been working with Waka Kotahi to migrate speed limit data, in preparation for the National Speed Limit Register (NSLR) going live when the new Rule comes into force on 19 May 2022. While it is anticipated all data will be migrated by this time, there is provision under the Rule that allows road controlling authorities until 19 July 2022 to complete this migration.
14. In preparation, staff have also been working on the Hamilton Speed Management Plan. The consultation on the refreshed Hamilton Speed Management Plan has been completed and the results of this work will be reported to the Hearings and Engagement Committee on 21 June 2022.
15. The work associated with transitioning to lower speed limits around schools is included in the Low-Cost Low Risk programme which will be discussed via a workshop with Elected Members on 11 May 2022, and then confirmed through the Infrastructure Operations Committee meeting on 31 May 2022.
16. As a result of the changes made to the Rule, the NSLR will become the legal instrument for setting speed limits on Aotearoa New Zealand roads removing the requirement to pass a bylaw to set speed limits. Speed limits will be required to be in the NSLR to be legally enforceable. It is therefore recommended that the Hamilton City Speed Limit Bylaw 2018 is revoked effective 20 July 2022.

Hamilton City Council Submission Updates

Draft Land Transport Rule: Traffic Control Devices (Kura/School signs) amendment

17. Between 4 November and 17 December 2021, Waka Kotahi consulted on the *Draft Land Transport Rule: Traffic Control Devices (Kura/School Signs) Amendment* and changes to the *Land Transport Rule: Traffic Control Devices 2004*.
18. This consultation was part of a programme of work Waka Kotahi is undertaking in partnership with Te Mātāwai to support the use of te reo Māori on traffic signs in New Zealand. Waka Kotahi is also working with Local Government and supported by Te Manatū Waka Ministry of Transport and Te Taura Whiri I te reo Māori Māori Language Commission.
19. Waka Kotahi received a total of 564 submissions to this consultation. Hamilton City Council's 17 December 2021 submission can be accessed **HERE**
20. On 6 April 2022, Waka Kotahi advised all submitters that:
    i. A Summary of Submissions document that briefly summarises the responses from submitters and provides feedback from Waka Kotahi is now available.
    ii. The Transport Rule: Traffic Control Devices (Kura/School Signs) Amendment 2022 has been approved by the Minister of Transport and came into force on 5 April 2022.
    iii. Kura/School signs will be required to be used by Road Controlling Authorities when existing signs on the network need to be replaced or new signs are introduced to the network. Existing English only School signs remain legal traffic signs until they are replaced.

iv. Technical specifications and images for the signs are now available on the Waka Kotahi website.

v. He Tohu Huarahi Māori Bilingual Traffic Signs Programme forms part of the Waka Kotahi contribution to Maihi Karauna (the Crown's strategy for Māori language revitalisation 2018–2023). Maihi Karauna is aimed at ensuring there are everyday opportunities for New Zealanders to engage with and use te reo Māori.

21. Further detail about the He Tohu Huarahi Māori bilingual traffic signs programme can be accessed **HERE**

Transforming Recycling - March 2022 Consultation Document (Ministry for the Environment)

22. The 12 April 2022 Infrastructure Operations Committee meeting resolved that the Chair and Deputy Chair be provided delegated authority to work with staff to develop and approve Council's submission.

23. The Council submission was lodged on 19 May 2022 and also been uploaded to Council's website and can be accessed **HERE**

Proposed Changes to Land Transport Regulatory Fees, Charges and Funding - March 2022 Consultation Document (Waka Kotahi NZ Transport Agency)

24. The 12 April 2022 Infrastructure Operations Committee meeting resolved that the Chair and Deputy Chair be provided delegated authority to work with staff to develop and approve Council's submission.

25. With agreement of the Chair and Deputy Chair of the Infrastructure Operations Committee, Waka Kotahi NZ Transport Agency was advised on 18/05/22 that Hamilton City Council will not now be making a submission, with our response noting that:

> *After closer investigation/analysis of Waka Kotahi NZ Transport Agency's March 2022 consultation document* ***Proposed Changes to Land Transport Regulatory Fees, Charges and Funding*** *(and taking into account our limited staff availability at the moment and the large number of key Government consultations currently being undertaken),* ***on this occasion Hamilton City Council has now decided not to make a submission****.*

26. While there are a number of proposed changes in Waka Kotahi NZ Transport Agency's March 2022 consultation document, the following two items were of particular interest to Hamilton City Council:

    i. Potential increased charges for Hamilton City Council to access data from the Motor Vehicle Registry. Subsequent information provided by Waka Kotahi NZ Transport Agency indicates that these increased charges will be very minimal.

    ii. The impact on funding available via the National Land Transport Fund due to the proposal to pay for regulatory activities out of this Fund. While this will have an impact on the Fund, the reality is that there are going to be bigger impacts coming through on the revenue sources for this Fund via climate change requirements (e.g., EV vehicles and less fuel tax), which we believe will require the Government to look carefully at how they fund transport operations, maintenance, renewals and capital works into the future.

New Zealand Freight and Supply Chain Issues Paper - Preparing Our Freight and Supply Chain System for The Future (April 2022) (Ministry of Transport)

27. Yet to be determined which Council Committee we will seek delegated authority from for key Elected Members to work with staff to develop and approve the Council submission.

28. Although the submission closing date is 3 June 2022, staff have requested an extension from the Ministry of Transport through to 10 June 2022.

Long-Term Insights Briefing: The Impact of Automated Vehicles Operating On Aotearoa New Zealand Roads - Consultation Document (Ministry Of Transport)

29. City Transportation staff have analysed the consultation document and determined that a staff submission is not required.

30. Submissions were only called for on 6 May 2022, with the closing date being 27 May 2022.

Vision Zero Progress Update

31. Hamilton City Council (HCC) has adopted Vision Zero as the philosophy for road safety in the city, an aspiration to achieve zero road deaths and serious injury within Hamilton city.

32. The following table provides information on the types of users that were seriously injured in the city this financial year on a quarterly basis (1 July 2021 to 3 May 2022 inclusive).

33. The data is based on NZ Police reports which are prepared when they attend the crash. It is noted that some crash data can be a little slow in getting entered into the system, so the figures below are subject to change, but are a general reflection of safety performance on the local roads (excluding State Highways) for the period.

Road User Type	**Number Seriously Injured 2021/22 as at 3 May 2022**				**Number of Fatalities**	**Total Deaths and Serious Injuries (DSI)**	**DSI by mode**	**Mode share of total trips**
	July 2021 to Sept 2021	**Oct 2021 to Dec 2021**	**Jan 2022 to March 2022**	**April 2022 to June 2022**				
Cyclist	2	-	1		0	3	9%	1%
Driver	4	4	5	3	1	17	58%	87%
Passenger		1		1	0	2		
Pedestrian		2	5	2	1	10	33%	12%
Wheeled pedestrian (wheelchairs, mobility scooters)		1			0	1		
Total	6	**8**	**11**	**6**	**2**	**33**	**100%**	**100%**

Collaborative Corridor Agreement Update – (Transport Maintenance and Renewal)

34. At the 16 April 2020 Infrastructure Operations Committee meeting (Item 11), a decision was made to support the 3-year extension of Contract 12080 with Downer from 1 July 2020 to 30 June 2023. This decision noted that staff will investigate and identify a preferred procurement model for its Transportation Corridor Maintenance and Renewal Activities to be ready to start from 1 July 2023.

35. A General Manager update was provided to the 17 August 2021 Infrastructure Operations Committee meeting noting that, the City Transportation Unit has chosen to refresh the contract and procurement model develop a similar 'collaborative-style' contract that introduces some improvements identified as a result of the investigation. The new contract model will clearly define the scope of works and levels of service, whilst allowing for innovation, enabling efficient contract delivery through clear governance and reporting, and providing for transparent pricing to deliver optimal outcomes within the Long-Term Plan.

36. General Manager updates have been provided to the 24 February 2022 and the 12 April 2022 Infrastructure Operations Committee meetings noting that the Collaborative Corridor Agreement (CCA) is currently being drafted for tendering in July 2022. The updates have provided details of the Expressions of Interest process, and an outline of the procurement plan to attract bidders that will bring their best offers to work with HCC in delivering on its objectives, particularly through achieving best practice industry leading asset management and proactive maintenance that maximises network lifespan and availability and drives strong customer outcomes.

37. In April 2022 Members were advised that a staff engagement and communications plan is underway to ensure HCC staff embedded in the Infrastructure Alliance feel supported through the procurement and new contract establishment process.

38. **Attachment 1** is an update to our proposed CCA procurement flow chart identifying our current progress. Progress is on track we have proposed a tender period start date of 20 July 2022.

39. The procurement team has now met with the three suppliers that remain registered as interested in bidding. The feedback from suppliers on the proposed CCA contract model was positive and generally the model was supported.

40. The key points of note related to the current volatility of material prices and the ability for suppliers to competitively bid against the current incumbent supplier. A shift from pricing for the first year to pricing for the first three years was seen as more suitable for fairer evaluation of the price component of the bids. This would include the ability for HCC to choose to shift to a review of pricing through development of a full Target Cost Estimate (TCE) from year two onwards depending on pricing volatility or budget availability.

41. A key focus for this new contract is performance monitoring for improved outcomes and better investment decisions. To achieve this, staff have developed a performance model that will be based on Key Performance Indicators that are set by HCC and agreed by the CCA Governance Group to deliver on the contract outcomes. The contract model includes a nominated percentage of margin that will be at-risk based on the performance of the supplier against the KPIs. The At-risk payment is proposed to be calculated on a pro-rata basis for a KPI performance score of 65% to 85%, with scores above 85% receiving full payment. A performance score below 65% against the KPIs will result in loss of the full At-risk payment.

42. Staff will be reporting to the appropriate Council/Committee meeting seeking approval to delegate to the Chief Executive on matters relating to the contract during the new Council establishment phase, as we progress through the procurement phases of the contract.

Parking Activity Update

43. Parking staff have been working on numerous processes and technology that will both raise vehicular compliance around the city as well as supporting the delivery of these wider Transportation Unit network and technology improvements. **Attachment 2** has full detail of these activities for Members information.

Access Hamilton Refresh and Hamilton Parking Policy Update

Access Hamilton (Transport Strategy) Refresh

44. The Access Hamilton refresh will have held its fourth and final content-development-based workshop on Wednesday 18 May 2022. In addition, staff have held two webinars and a citizen's panel session primarily to gauge feedback on the draft principles.

45. Work is also on-going to develop a Te Reo name to use with Access Hamilton and our engagement with Mana Whenua is on-going. By the end of May, we will also have had some sessions at a staff level with both Waikato and Waipa District Councils and our liaison with Waikato Regional Council and Waka Kotahi on the draft strategy development is on-going.

46. Engagement will continue with the Elected Member Steering group to refine content and design with the refreshed transport strategy planned to be reported to the 9 August 2022 Infrastructure Operations Committee.

Hamilton Parking Policy Update

47. Following on from the approval of the draft Hamilton Parking Policy and guiding principles at the 7 December 2021 Infrastructure Operations Committee, staff have continued to work on the proposed implementation of the draft Hamilton Parking Policy and guiding principles through the development of a draft parking implementation plan (PIP), that can be applied to a variety of different land uses and city environments.

48. Staff have commenced working on the develop of the draft Rototuna Village Parking Implementation Plan as a pilot project for not only applying the draft parking policy and guiding principles, but to also use this as an exercise to develop the "Parking methodology" and test it over several land uses experienced in this project's boundary i.e., Schools, Parks and recreation, Residential fringe, and Retail. One workshop to discuss the approach to the Rototuna has already been undertaken.

49. The Hamilton Parking Policy and guiding principles will continue to be delivered in alignment with the Access Hamilton (Transport Strategy) refresh.

Personal Hire (Transport) Device Update

50. Following a report to the 27 April 2021 Infrastructure Operations Committee, the committee noted that staff will administer the personal hire (transport) device permit process under the provisions of the Public Places Bylaw 2016.

51. Lime and Neuron were granted permits to operate in July 2021 for a 12-month period. Their period of operation was significantly impacted by Covid lockdowns and significant reductions in foot traffic through the city. Operators were forced to maintain their warehouses and staffing and have had to cope with significant disruptions to their supply chain for e-bikes and replacement e-scooters parts.

52. Staff have reviewed the existing permits in place and determined that the permits will be extended for a further 12-month period from 1 July 2022 - 30 June 2023.

53. A 12- month extension to the current permits was viewed as being appropriate in the circumstances. The permit extension is issued on the existing terms. To recap the terms of the permits for each operator is that:

    - the permit is to operate up to 500 PHD's, at least 50 of which are required to be e-bikes. Operators have the freedom to increase the numbers of e-bikes in their fleet provided that the total number of devices does not exceed the permit total of 500.

54. Observations of e-scooter operating data from the past 10 months reveals:

    i. Neuron's market share has increased steadily in the last two months;

    ii. seasonality is still present in the trip data as we see for other active mode trips. There was a large spike in trips in December 2021. Trip numbers have sustained at ~1000 trips/day right through to April with only a small decrease. We would expect numbers to fall coming into winter;

    iii. weekends have more daily trips than weekdays (53% vs 47%). Neuron is actually closer to 50/50 across trips while Lime is at 55% weekends, 45% weekdays;

    iv. the most popular time of day for hire device trips is 4pm-5pm;

    v. average trip distance is 2.5km for both providers. Average trip duration is 15 minutes;

    vi. there are an average of 70 bicycle trips per day, although trip numbers are quite variable; and

    vii. E-Bike trips are more concentrated in the central city and eastern side of the city – mostly Claudelands, Fairfield, Chartwell, Rototuna and Flagstaff. Recently there are also quite a few trips in Hamilton East.

55. Neuron have advised that they will commence a process to upgrade their existing e-scooter fleet in the city in the first quarter of the next financial year. They aim to upgrade their existing fleet of N3 scooters to a newer OKAI ES400A model.

56. Key advantages of upgrade from a safety and rider point of view are the addition of dual suspension, battery swapping, a larger battery capacity and a larger front wheel. It will also have front and rear electromagnetic and mechanical drum brakes.

57. The Neuron fleet of e-scooters in Dunedin have already been upgraded to the newer model OKAI ES400A scooters and the Christchurch fleet upgrade commences in early May 2022.

Transport Centre Rejuvenation Project Update

58. Tendering for the detailed design component of the Transport Centre Rejuvenation project has closed. At the time of writing this report the tender evaluation team are in the process of reviewing these documents. Staff are expecting the contract to be awarded by end of May 2022. Elected Members will be informed about who the successful tenderer is via an Executive Update.

59. Stakeholder engagement will steadily increase in the coming weeks and months. A presentation to the Central City River Plan Advisory Group was presented on 5 May 2022. The purpose of this was to talk to the group about temporary bus stop locations whilst the Transport Centre is shut down for construction.

60. Staff also attend the Safest City Taskforce on 6 May 2022 to discuss safety concerns associated with the existing Transport Centre layout and operation. Terms of Reference have been issued to the wider stakeholder advisory group with the intention for meetings to start once the design team are formally engaged.

Biking & Micro-Mobility Activity Update

61. The following activities have been planned and are either completed or due to be completed in the coming months. Details of each of these activities will be further provided to members through regular Executive Updates:

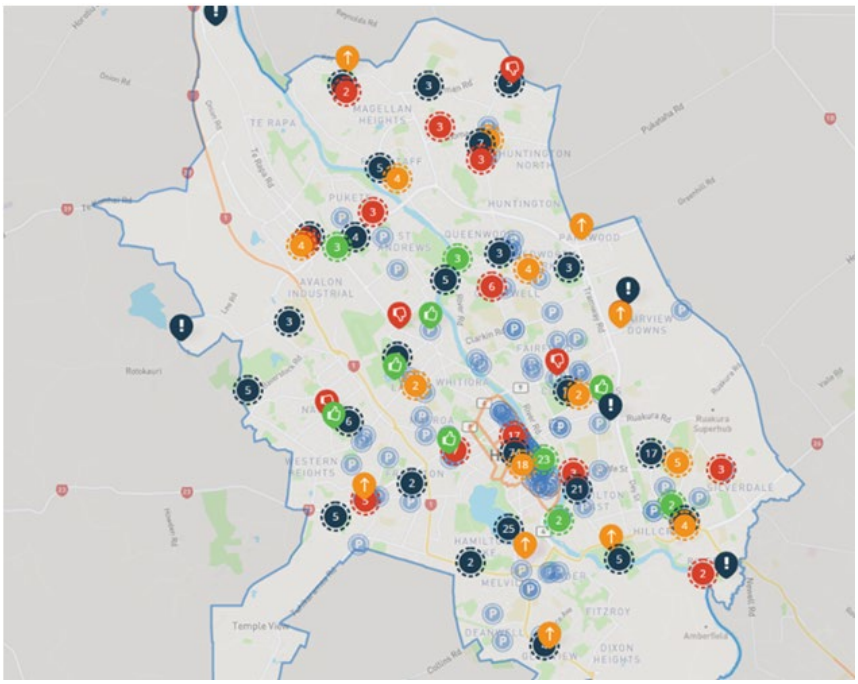
    - Cycle Sharrow Markings, Barton Street
    - Bike Parklets Upgrade – monitoring underway
    - Bike Parking Cook Street – bike parking and bike repair station
    - Claudelands Road/Grey Street intersection through to Heaphy Terrace/O'Neill Street/Brooklyn Road – expected to start late May 2022
    - Te Awa River Path Safety Signage
    - Cycle transition safety treatments - Mill Street at the intersections with Lake Road, Norton Road, Tristram Street, Willoughby Street, Ulster Street and Victoria Street

Cycle safety transition treatment locations on Mill Street

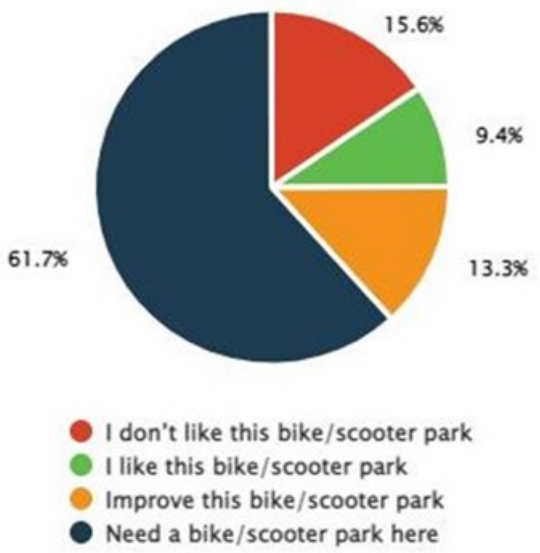
Bike and Scooter Parking Survey

62. As previously reported to at the 27 April 2022 meeting of the Infrastructure Operations Committee, a month-long survey about end of trip bike and scooter parking facilities ran from 28 February to 28 March 2022. Previous community feedback about cycling suggests better end-of-trip facilities will encourage more people to bike and scooter around the city. A summary of some of the results from the survey are shown below and can be viewed here https://hcc.mysocialpinpoint.com/bikeandscooterparking#/

63. Details of the responses are currently being reviewed, especially reasons for not liking a parking location, with next steps being to work with Bike Hamilton and other key stakeholders to prioritise sites and develop a programme for implementation over the next few years.



Bike & Scooter Parking Survey – Social pinpoint map



Bike & Scooter Parking Survey – Breakdown of feedback

Lake Domain Road / Killarney Road Safety & Active Modes Improvements -

64. The intersection of Lake Domain Road and Killarney Road has been identified as a 'Road to Zero' high-risk site with a significant number of crashes recorded in the last five years. As well as safety improvements, an opportunity has been identified to install cycle facilities and pedestrian crossings to better connect the Western Rail Trail to the Lake Rotoroa area.

65. A detailed assessment and concept design work is underway. One option being considered is converting the existing intersection to a standard T-intersection with a give-way control on Killarney Road. Other measures being considered are raised safety platforms and zebra crossings.

Engagement with residents is planned to take place in June 2022. Subject to a successful engagement process, construction is expected to be completed under the Low Cost Low Risk 2022/23 Programme of works.

Eastern Pathways School Link Business Case

66. At the Infrastructure Operations Committee on 27 April 2021 [Agenda, Minutes], the Committee approved the final draft School Link Single Stage Business Case for submission to Waka Kotahi NZ Transport Agency. Waka Kotahi then undertook a review of the final draft business case ahead of it being submitted to their Board.

67. During the review process, between April 2021 and October 2021, some changes to the business case were required prior to submission to the Waka Kotahi board. These are detailed below:

    i. It was agreed to integrate biking connections into the School Link programme to support the business case.
    ii. It was agreed that additional investigations for the Five Cross Roads area is required given the complexity of the site.
    iii. The final business case provided further analysis and assessment on the procurement model and staging at pre-implementation and implementation for the programme of work. These became more defined based on Council's funding in the Long-Term Plan (2021-31).

68. In December 2021, the Eastern Pathways School Link Single Stage Business Case was presented to Waka Kotahi NZ Transport Agency's board resulting in funding for the programme being approved.

69. The Waka Kotahi Board approved the following recommendations:

    i. **Endorses** the Eastern Pathways School Link Single Stage Business case.
    ii. **Approves** funding to Hamilton City Council for the Stage 1 and Stage 2a Pre-Implementation phase of Eastern Pathways School Link at an estimated cost of $2.8m with a funding assistance rate of 51% (NLTF share $1.43m) from the Walking and Cycling Activity Class.
    iii. **Approves** delegation to the Chief Executive to approve release of funding up to P95.

70. The last bullet point means any future funding decisions about implementation for stages 1 and 2a, and pre-implementation/implementation for stages 2b and 3 are delegated to Waka Kotahi CEO.

71. A link to the final approved Eastern Pathways School Link Single Stage Business case can be found HERE- within the Hamilton City Council Website.

Wastewater Overflows Mitigation Update

72. As previously reported to the Infrastructure Operations Committee 24 February 2022, staff are continuing to review and remove the 24 unmonitored overflow points that are located within the wastewater network. This work was requested by the Infrastructure Operations Committee 9 November 2021 in relation to the Delia Court overflow.

73. To date twelve engineered overflow points have been removed, including Delia Court. Following ongoing survey work, a further four overflow points have been identified as being able to be removed. This work will happen over the next few months.

74. Two overflow points have been confirmed as necessary to remain for current network operation. For example, an overflow in Lorne is required, as without it, significant flooding in the road reserve could occur during a rain event. Staff are accessing if the installation of battery powered loggers connected to our alarm system would be beneficial. These devices are currently being trailed in other parts of the network.

75. Survey works are ongoing to determine how many more of the remaining 6 engineered overflow points can be removed without impacting current network operations.

76. Streams into which the engineered overflows discharge continue to be monitored. In some instances, the engineered overflow is connected to the stormwater network, in others there is an immediate connection from the wastewater network to the natural environment. Visual and odour stream inspections completed to date show no evidence of overflows occurring recently at any identified overflow sites.

Legal and Policy Considerations - Whaiwhakaaro-aa-ture

77. Staff confirm that the staff recommendation complies with Council's legal and policy requirements.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

78. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

79. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report.

80. The recommendations set out in this report are consistent with that purpose.

81. There are no known social, economic, environmental or cultural considerations associated with this matter.

Risks - *Tuuraru*

82. There are no known risks associated with the decisions required for this matter.

Significance & Engagement Policy - *Kaupapa here whakahira/anganui*

83. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the recommendations in this report have a low level of significance and no engagement is required.

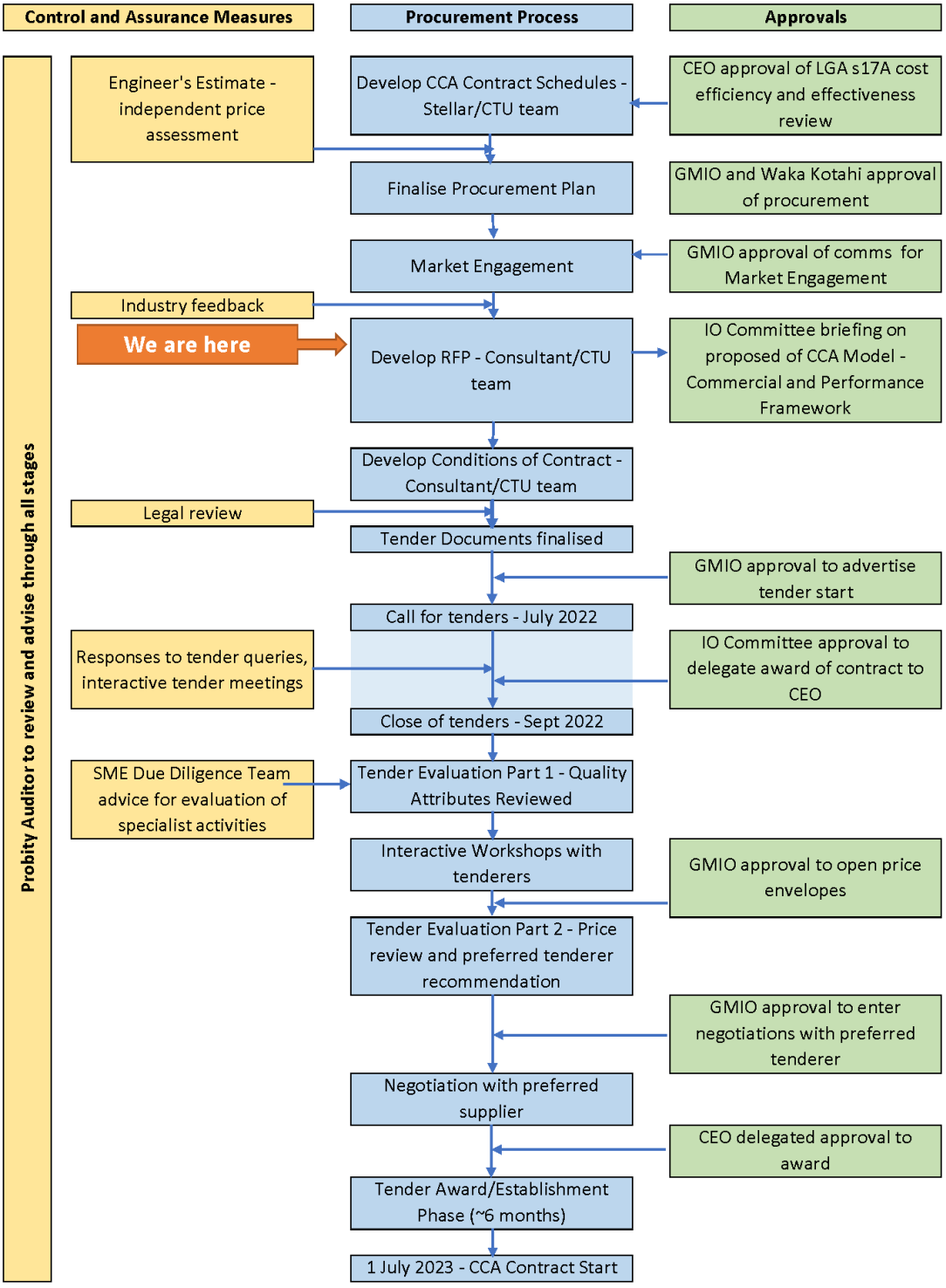
Attachments - *Ngaa taapirihanga*

Attachment 1 - Collaborative Corridor Agreement procurement flow chart

Attachment 2 - Parking Technology Update

Collaborative Corridor Agreement (CCA) - Procurement Process Map

Updated: 6-May-22



Parking Activity Update

1. Parking related processes and motorist compliance underpins many City Transportation's initiatives. Supporting the Parking Team in the delivery of efficient and integrated systems will heighten success rates for many of the city's transportation related improvements. Parking staff have been working on numerous processes and technology that will both raise vehicular compliance around the city as well as supporting the delivery of these wider Transportation Unit network improvements. The following is an update on a number of current significant projects.

Single Head Parking Meters

2. The 850 (more or less) single head parking meters are obsolete and needs replacing; investigations into an acceptable alternative have been on-going.
3. The auditing equipment used to record money collected from parking meters has ceased functioning and is both unrepairable and unreplaceable (circa 1980's/1990's). The cash collected from these obsolete machines is now no-longer being recorded and thus fall outside appropriate cash handling practices. This therefore requires an alternative system to be deployed.
4. Integrated Pay & Display meters were first trialled before 2010 with approximately a dozen deployed for both on and off-street applications.
5. The 2015 staff proposed a complete change-out to an information rich fully integrated parking system including kiosks and phone applications. The kiosks were subsequently removed from the project during AP budget setting due to financial limitations.
6. Replacement systems for the obsolete meters have since been discussed by Elected Member at Committees and the Parking Task Force since 2017.
7. The non-integrated nature of the parking meters inhibits knowledge of parking event status and is a hinderance to the efficient management of parking compliance within the CBD.
8. Staff put forward the "Long Stay" parking initiative around the CBD's periphery in part to reduce the number of meters and therefore the exposure to the aged technology as well as to supply spare parts until an alternative technology for the meters could be agreed and deployed.
9. Replacement of the non-integrated parking meters with networked devices will provide the following benefits:

    - Support and compliance with CBD parking offers (present and future) through parking event information being relayed in "Real-time"
    - Increase efficiencies in parking enforcement operations leading to the freeing up of resources to support many other transportation related initiatives including cycling, school programmes, management of restricted vehicle lanes etc
    - Improvement to financial reporting systems to address Council's audit obligations
    - Flexibility to manage almost any parking strategy that may be deployed (future proofed)
    - Reduce the amount of on-street "furniture" increasing amenity values and the safety of our CBD streets
    - Surpass previous pay and display options for customer convenience
    - Provide the infrastructure to support the successful delivery and community outcomes of transportation strategies, modal shift initiatives and many other Council outcomes
    - Budget are available and the solution is affordable for delivery in the 22/23 financial year.
    - Quick, simple convenient for customers to use, the following is on trial in Sonning Carpark.

Long-stay parking

10. Deployment of long stay parking areas is underway; this will yield the following benefits:

    - Deliver a new compliance-based parking revenue stream
    - Reduce the number of parking meters required on-street
    - Provide customers with convenience and easy to use all day parking
    - Increase the use of the Parking Ph App enabling its other benefits to be more widely utilised
    - Introduce Licence Plate Recognition as the surveillance method to ensure compliance of paid parking areas.

11. Council had requested that the Infrastructure Operations Committee work through the following issues and report back to Council:

    I. Identify which parts of the previously mapped fringe area will become a charged activity
    II. When the charging programme will be rolled out
    III. Information on resident and local business exemptions
    IV. Administration processes and charging methods
    V. Information on the public engagement to be used.

12. Response to above points:

    I. The city fringe commuter parking catchment maps all remain relevant. A product growth methodology is recommended where growth of the product from the centremost areas outwards is adopted - as closer in areas return a high average utilisation factor, additional areas would be added.
    Product development in this manner will minimise complaints and encourage a controlled uptake of other transport options as paid parking radiates from the centre outwards.

A standing topic should be added to committee that reports each meeting on the utilisation of existing Long-Stay parking areas and gains approval for additional areas to meet demands.

II. Charging for each additional area will be implemented as the area is added to the product portfolio, this will be as demand identifies a market for the product.

III. As previously tabled, areas identified for long-stay parking deployments will on most occasions be restricted to one side of the street to ensure that ample parking remains for the purposes of businesses to trade and residents to accommodate on street parking for visitors.

IV. All charging for long-stay parking is to be completed by way of the Phone application or a web interface. Casual day to day parking will be the norm however the system has the capability to manage non-guaranteed weekly or monthly permits.

V. The concept of paid long-stay parking has been communicated to the public through both the AP and LTP processes for feedback. Consultation also occurs as an area completes the gazetting process; this is standard practice during all changes to on-street parking restrictions.

Licence Plate Recognition (LPR)

13. The deployment of LPR has been well reported to Council on a number of occasions. Staff currently have two vehicles in the final stages of testing and a further two static installations located in Sonning and Garden Place Carparks. Further to these, relocatable installations are being looked into to manage areas where Council has received parking complaints of a recurring, transient and recidivist nature.

14. LPR will deliver an efficient surveillance method to ensure parking compliance, this is expected to result in:

    - Improved staff safety
    - Reduced revenue leakage
    - Greater coverage of Warden activity
    - Improved support of Transportation Strategies and Transportation initiatives

15. Dates and locations for a demonstration of LPR capabilities and other technologies are currently being explored.

On-Line Infringement Payment Upgrade

16. The Council Web interface with the public is being upgraded. The Parking Team are looking to include an improvement for infringement payments. The current website has on-line payment capability however the upgrade being explored will enable customers to view infringement evidence. This will result in:

    - More prompt infringement payments
    - Less appeals for adjudication staff to review

17. This improvement is necessary with the likelihood of increasing infringement collection through LPR and the future possibility of providing a wider regional parking service.

Disability Parking Space Compliance Improvements

18. The Parking Activity Leader, as Chair of the NZPA, has initiated a national response to the significant misuse of disability parking spaces. A scoping study between the New Zealand Parking

Association and CCS Disability Action has been set-up with a trial of technologies to follow. Outcome will be reported including the identification of a preferred technology to manage this. A joint recommendation will be provided to Councils around New Zealand. As this is a nationwide problem, the solution would be better managed in a congruent way across the country including a national awareness campaign.

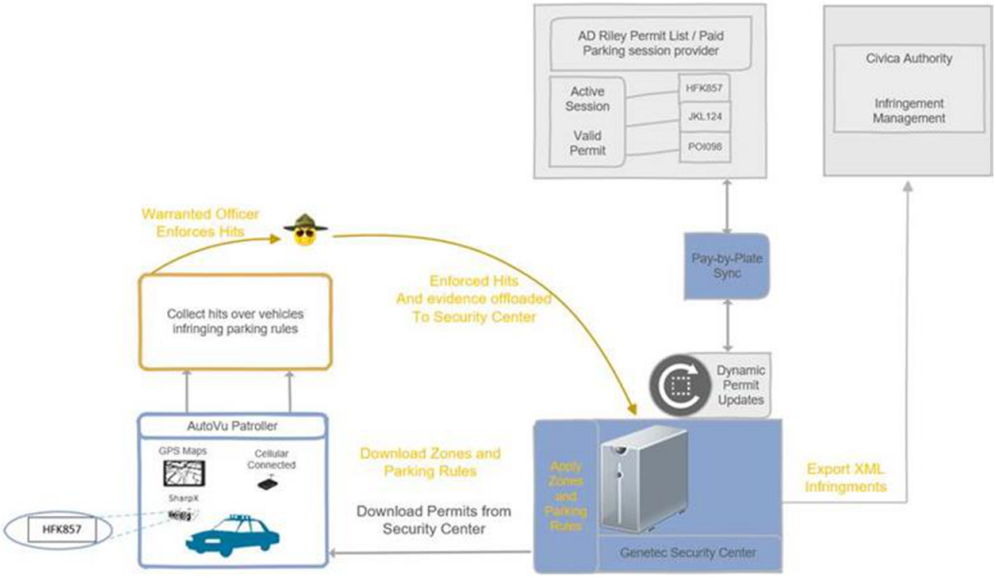
Parking Staff Safety Initiative

19. The Parking Activity Leader, as Chair of the NZPA, has initiated a national response to the significant abuse of Parking Officers. The NZPA has both engaged and been working with a communications firm to develop a campaign that will raise national awareness of the need and benefits for parking controls. The draft campaign is expected to be promoted at the national conference in Christchurch late August.

Remote Infringement Management

20. A large portion of future infringements will be raised in the parking operations centre, remote from the streets; this secure location will provide a much safer environment for Parking Staff to complete their duties.

21. Warranted Officers will review "Hits" (a recorded event that the algorithm assesses as non-compliant given the locations gazetted restrictions). These files will have been received from various LPR field deployed systems as described earlier. The Officer will then accept or reject the evidence and confirm an infringement where appropriate.



22. System integrations and test runs are currently being assessed; it is expected that live infringements will have been raised through this new process before this report is tabled.

23. Confirmed LPR derived infringements enter the Ticketor infringement management system and will then follow the same workflow as manually raised infringements.

Ministry of Justice, Police and NZTA integrations

24. The Parking Rights Database (PRDB) is a digital canister where vehicle registrations are passed across a myriad of articles and conditions. The PRDB will assess spatial data, gazetted restrictions, payments and permits etc to give a compliant or non-compliant output. On a non-compliant assessment, the event will pass through to the processing stack for Warranted Officer perusal.

25. Connections/outputs from this database to other crown entities is being explored where public safety and or benefits exist. Appropriate consultation over privacy issues will be duly considered.

Council Report

Committee: Infrastructure Operations Committee
Date: 31 May 2022

Author: Eeva-Liisa Wright
Authoriser: Eeva-Liisa Wright

Position: General Manager Infrastructure Operations
Position: General Manager Infrastructure Operations

Report Name: External Committees Updates

Report Status	*Open*

Purpose - *Take*

1. To provide an update to the Infrastructure Operations Committee on External/Joint Committees relating to Infrastructure Operations that have Elected Member or Hamilton City Council staff appointments.

Staff Recommendation - *Tuutohu-aa-kaimahi*

2. That the Infrastructure Operations Committee receives the report.

Executive Summary - *Whakaraapopototanga matua*

3. This report provides updates to Committee Members on External/Joint Committees relating to Infrastructure Operations Committee which Elected Members or Hamilton City Council staff are appointed to.

4. The following updates are included in this report:

   i. Waikato Regional Council – Regional Transport Committee
   ii. Waikato Regional Council – Regional Connections Committee

5. Staff consider the recommendations in this report to have a low level of significance and that the recommendations comply with Council's legal requirements.

Discussion - *Matapaki*

Waikato Regional Council – Regional Transport Committee

6. The objective of the Regional Transport Committee (RTC) is:

   'To undertake the functions as prescribed in the Land Transport Management Act 2003 (LTMA), and to provide a regional forum for the consideration of regionally significant transport matters.'

7. Councillor O'Leary is the Hamilton City Council (HCC) nominated representative with Councillor Macpherson being the nominated alternative representative.

8. The RTC met on 16 May 2022 and the link to the agenda can be found here.

9. Agenda items for the meeting were:

   i. **Waka Kotahi New Zealand Transport Agency** - The purpose of the report is to provide the Committee with an update from Waka Kotahi New Zealand Transport Agency Director Regional Relationships (Waikato and Bay of Plenty), David Speirs.

      Staff recommendation – That the report be received

   ii. **Regional Road Safety Forum Update** - The purpose of the report is to update the Committee on regional road safety issues including speed management and regional road safety statistics.

      Staff recommendation – That the report be received

   iii. **Transport Emissions Reduction Working Group Update** - The purpose of the report is to provide the Committee with an update on the work of the Transport Emissions Reduction Working Group

      Staff recommendation – That the report be received

   iv. **Regional Public transport Projects Update** – the purpose of the report is to provide the Committee with an update on key regional public transport projects.

      Staff recommendation – That the report be received

   v. **Public Transport Business Improvement Review & Annual Plan Rating Change Proposal** – the purpose of the report is to update the Committee on initiatives to improve the Region's approach to managing public transport.

      Staff recommendation – That the report be received

   vi. **Members Report: Thames-Coromandel District Council Shoreline Management Plan Project** – the RTC representative from Thames-Coromandel District Council has requested a members report be presented to the Committee regarding the Shoreline Management Plan in the Thames-Coromandel District.

      Staff recommendation – that the report be received.

   vii. **Transport Projects and Planning Report** - The purpose of the report is to update the Committee on current regional transport policy and planning matters as of 3 May 2022

      Staff recommendation – That the report be received

   viii. **Regional Transport Issues forum -** To provide the Committee with an opportunity to raise and discuss regionally significant transport issues in an open forum

      Staff recommendation
      – That the report be received.
      - The following Issues (per the numbering of the action table in attachment 1) are 'Closed' having reached a functional conclusion to the satisfaction of the Committee: (3), (4), (17), and (19).

10. A verbal update will be provided at this Infrastructure Operations Committee meeting.

11. The final RTC meeting for this triennium is scheduled for 22 August 2022.

Waikato Regional Council – Regional Connections Committee update

12. The Hamilton City Council nominated representatives of the Waikato Regional Council Regional Connections Committee (RCC) are Councillor O'Leary (Deputy Chair), Councillor Macpherson, Councillor Wilson and Councillor Thompson.

13. The objective of the Regional Connections Committee is:

    'To enhance the wellbeing of our communities through the achievement of the goals set out in the Regional Public Transport Plan.'

14. Since the last Infrastructure Operations Committee (12 April 2022), the Regional Connections Committee (RCC) has not convened. The next RCC is due to be held on Friday 10 June 2022.

15. However, a Regional Connections Committee Workshop (#3 – to inform the update of the RPTP) was held on 6 May 2022. The purpose of the workshop 3 was to enable committee members to shape the future aspirations of public transport in the Waikato to inform the Draft Regional Public Transport Plan (RPTP).

Legal and Policy Considerations - Whaiwhakaaro-aa-ture

16. Staff confirm that the recommendations in this report comply with Council's legal and policy requirements.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

17. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

18. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report as outlined below. The recommendations set out in this report are consistent with that purpose.

19. There are no known social, economic, environmental or cultural considerations associated with this matter due to this report being for information only.

Risks - *Tuuraru*

20. There were no known risks identify during the formation of this report.

Significance & Engagement Policy - *Kaupapa here whakahira/anganui*

21. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the recommendations in this report have a low level of significance and no engagement is required.

Attachments - *Ngaa taapirihanga*

There are no attachments for this report.

Resolution to Exclude the Public

Section 48, Local Government Official Information and Meetings Act 1987

The following motion is submitted for consideration:

That the public be excluded from the following parts of the proceedings of this meeting, namely consideration of the public excluded agenda.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution follows.

General subject of each matter to be considered	Reasons for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
C1. Refuse Transfer Station & Hamilton Organic Centre - Proposed Gate Fees 2022/23 C2. 3 Waters Service Connections Process Review C3. Contract Award Minor Improvements Low Cost and Contract Extension Water Reticulation Replacement C4. Charging Infrastructure Proposal - Council Sites and Facilities C5. General Managers Update Report	) Good reason to withhold) information exists under) Section 7 Local Government) Official Information and) Meetings Act 1987)	Section 48(1)(a)

This resolution is made in reliance on section 48(1)(a) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by Section 6 or Section 7 of that Act which would be prejudiced by the holding of the whole or relevant part of the proceedings of the meeting in public, as follows:

Item C1.	to enable Council to carry out commercial activities without disadvantage	Section 7 (2) (h)
	to enable Council to carry out negotiations	Section 7 (2) (i)
	to prevent the disclosure or use of official information for improper gain or improper advantage	Section 7 (2) (j)
Item C2.	to enable Council to carry out negotiations	Section 7 (2) (i)
Item C3.	to enable Council to carry out commercial activities without disadvantage	Section 7 (2) (h)
Item C4.	to enable Council to carry out negotiations	Section 7 (2) (i)
Item C5.	to enable Council to carry out negotiations	Section 7 (2) (i)