Notice of Meeting:

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

Date:	**Wednesday 7 September 2022**
Time:	**9.30am**
Meeting Room:	**Council Chamber and Audio Visual link**
Venue:	**Municipal Building, Garden Place, Hamilton**

Lance Vervoort
Chief Executive

Strategic Growth Committee
Komiti Rautaki
OPEN AGENDA

Membership		
Chairperson ***Heamana***	Cr D Macpherson	
Deputy Chairperson ***Heamana Tuarua***	Cr R Hamilton	
Members	Mayor P Southgate Deputy Mayor G Taylor Cr M Bunting Cr M Gallagher Cr K Naidoo-Rauf Cr A O'Leary Cr R Pascoe	Cr S Thomson Cr M van Oosten Cr E Wilson Cr M Donovan Maangai J Whetu Maangai O Te Ua
Quorum:	**A majority of members (including vacancies)**	
Meeting Frequency:	**Six weekly**	

Amy Viggers
Mana Whakahaere
Governance

31 August 2022

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Purpose

The Strategic Growth Committee is responsible for:

1. Guiding sustainable physical development and growth of Hamilton to meet current and future needs, including oversight of strategic land-use planning, boundary alignment, and existing and alternative planning, funding and financing models for growth-related projects.
2. Driving collaboration with neighboring Councils, Iwi, private sector and central government to meet Hamilton's growth ambitions.

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

Terms of Reference:

1. To monitor and provide advice on the overall development and implementation of urban growth and development strategies, strategic land use, and spatial plans (e.g. Hamilton to Auckland Corridor and Hamilton-Waikato Metropolitan Spatial Plan), and long-term network infrastructure planning in line with national policy requirements.
2. To provide direction and monitor Council's approach to the levying and use of rates for growth, as well as development contributions.
3. To develop, and monitor the implementation of the infrastructure Activity Management Plans to inform the 2021-31 Long Term Plan to ensure that Council looks after its existing assets and provides agreed levels of service.
4. To provide direction on and assess proposals for seeking alternative funding models, such as special purpose vehicles and infrastructure funding and financing.
5. To provide direction on strategic priorities for network infrastructure aligned to city development, and oversight of strategic projects associated with those activities.
6. To provide advice on the development and implementation of the Long Term Infrastructure Strategy.
7. To assess proposals for Private Developer Agreements that exceed the Chief Executive's delegations for Unfunded Growth Projects[i] and, if appropriate for Unfunded Growth Projects[i] to recommend such agreements to the Council for approval.
8. To provide direction regarding Council's involvement in and with Urban Development Authorities, regional alliances, plans, initiatives and forums for spatial planning (for example, Future Proof, strategic boundary land use agreements and joint council growth related discussions).
9. To consider the impacts of land use and urban development on the environment.
10. To provide clear direction on Council's strategic priorities to organisations and groups, for which Council facilitates funding, aligned with these Terms of Reference, and to oversee those funding arrangements and receive their strategic and business plans and annual performance reports.
11. To monitor and oversee the delivery of Council's non-financial performance and non-financial key projects, against the Long Term Plan, excluding key performance indicator reporting which is the responsibility of the Finance Committee.
12. To oversee the development of the City's Smart City Strategy.

The Committee is delegated the following powers to act:

- Approval of purchase or disposal of land for network infrastructure, or parks and reserves for works and other purposes within this Committee's area of responsibility that exceeds the Chief Executive's delegation and is in accordance with the Annual plan or Long Term Plan.

The Committee is delegated the following recommendatory powers:

- Adoption of the Long Term Infrastructure Strategy to the Council.
- Approval of additional borrowing to the Finance Committee.
- Approval of city boundary changes to the Council, including in respect of Strategic Boundary Land Use Agreements.
- Approval of infrastructure Activity Management Plans to inform the 2021-31 Long Term Plan to the Council.
- The Committee may make recommendations to Council and other Committees

Recommendatory Oversight of Policies and Bylaws:

- *Development Contributions Policy*
- *Growth Funding Policy*
- *Hamilton Gateways Policy*
- *Sale and Disposal of Council Land Policy*

[i] Unfunded Growth Projects are defined in the Growth Funding Policy as:

a) Not funded projects
b) Funded projects but which are proposed to commence earlier than the sequencing and timing established in the long term plan; and/or
c) Funded projects but which are now proposed to occur beyond the scale, scope and cost prescribed or anticipated for those projects in the long term plan.

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 Committee Room 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: Strategic Growth Committee **Date:** 07 September 2022

Author: Amy Viggers **Authoriser:** Michelle Hawthorne

Position: Governance **Position:** Governance and Assurance Manager

Report Name: Confirmation of the Strategic Growth Committee Open Minutes for 26 July 2022

Report Status	*Open*

Staff Recommendation - *Tuutohu-aa-kaimahi*

That the Strategic Growth Committee confirm the Open Minutes of the Strategic Growth Committee Meeting held on 26 July 2022 as a true and correct record.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Strategic Growth Committee Unconfirmed Open Minutes 26 July 2022

Hamilton City Council
Te kaunihera o Kirikiriroa

Strategic Growth Committee
Komiti Rautaki
OPEN MINUTES

Minutes of a meeting of the Strategic Growth Committee held in the Council Chamber, Municipal Building, Garden Place, Hamilton and via audio-visual link on Tuesday 26 July 2022 at 9.32am.

PRESENT

Chairperson *Heamana*	Cr D Macpherson
Deputy Chairperson *Heamana Tuarua*	Cr Ryan Hamilton
Members	Mayor P Southgate Deputy Mayor G Taylor Cr M Bunting Cr M Gallagher (exclusively via audio-visual link) Cr K Naidoo-Rauf Cr A O'Leary (exclusively via audio-visual link) Cr R Pascoe Cr S Thomson Cr M van Oosten (exclusively via audio-visual link) Cr E Wilson Cr M Donovan (exclusively via audio-visual link) Maangai J Whetu (exclusively via audio-visual link) Maangai O Te Ua
In Attendance	Lance Vervoort – Chief Executive Blair Bowcott – General Manager Growth Chris Allen – General Manager Development Andrew Parsons – Executive Director - Strategic Infrastructure Mark Davey – City Planning Unit Manager Jackie Colliar – Strategic Manager Infrastructure Phil Haizelden – Transport Strategy Principal Jackie Colliar – Strategic Manager Karen Saunders – Growth Programmes Manager Stafford Hodgson – Project Manager Keith Hornby – Principal Planner
Governance Staff	Amy Viggers – Governance Lead Narelle Waite – Governance Advisor Chantel Jansen – Governance Officer

1. Apologies - *Tono aroha*

Resolved: (Cr Macpherson/Cr Hamilton)

That the apologies for absence from Cr Naidoo-Rauf, for lateness from Mayor Southgate and for early absence from Crs Wilson, van Oosten, Bunting and Maangai Te Ua are accepted.

2. Confirmation of Agenda - *Whakatau raarangi take*

Resolved: (Cr Macpherson/Cr Hamilton)

That the agenda is confirmed noting that:

a) the late Item 6 (Chair's Report) is accepted. The report was circulated under separate cover to enable the most up to date information to be included; and

b) Item 10 (Revised Future Proof Strategy for Adoption), Item 9 (HUGS Review – approval of outcomes) and Item 8 (Next Steps R2, WA and SL1) will be taken after Item 7(Hamilton – Waikato Metro Wastewater Detailed Business Case Update) at the request of the General Manager.

3. Declarations of Interest - *Tauaakii whaipaanga*

No members of the Council declared a Conflict of Interest.

4. Public Forum - *AAtea koorero*

No members of the public wished to speak.

5. Confirmation of the Strategic Growth Committee Open Minutes for 19 May 2022

Resolved: (Cr Wilson/Deputy Mayor Taylor)

That the Strategic Growth Committee confirm the Open Minutes of the Strategic Growth Committee Meeting held on 19 May 2022 as a true and correct record.

6. Chair's Report

The Chair introduced the report, noting an amendment to the proposed recommendations in the Chair's report and the NextSteps R2, WA & SL1 report. He spoke to the need for growth in Hamilton, changes to Future Proof, and collaboration with Waipa District Council. The Chair and the General Manager Growth responded to questions from Members concerning cost neutrality of boundary changes and relationship with neighbouring councils, communities of interest for integration, ongoing discussions with Waipā, transfer of rates revenue during land transfer, timeline/readiness of growth areas for transfer, budget for legal advice and discussions with the Local Government Commission, and environmental concerns around developing on peat.

Resolved: (Cr Macpherson/Cr Bunting)

That the Strategic Growth Committee receives the report.

Mayor Southgate joined the meeting (10.10am) at the conclusion of the above item. She was not present when the matter was voted on.

7. Hamilton-Waikato Metro Wastewater Detailed Business Case Update

The Strategic Manager spoke to the report, noting that approval is sought to centralise wastewater treatment, staff considerations of the provided options, support from stakeholders for the proposed option, assessment of the impacts of development acceleration, and ongoing conversations with neighbouring Councils on the multi-party funding agreement. Staff responded to questions from Members concerning the ability for staff to continue multi-party funding conversations during the Local Government election period, funding for Metro Wastewater in all

local Councils'Long Term Plan (LTP) funding, co-ownership model risks, setting and compliance with discharge standards, and increasing water quality standards.

Resolved: (Cr Macpherson/Cr Hamilton)

That the Strategic Growth Committee:

a) receives the report;

b) approves Option A (centralisation of wastewater treatment at the Pukete Wastewater Treatment Plant) as the preferred option for further refinement and completion of the Northern Metro WW DBC;

c) notes that Option A was presented at the 19 May 2022 Strategic Growth Committee meeting as the preferred option; and

d) notes that Option A was subsequently endorsed by the Project Governance Group on 30 May 2022 and by Waikato District Council on 30 June 2022.

Item 10 (Revised Future Proof Strategy for Adoption) was taken after item 7 (Hamilton-Waikato Metro Wastewater Detailed Business Case Update) to accommodate speaker availability.

10. Revised Future Proof Strategy for Adoption

The Principal Planner spoke to the report, noting the staff recommendation to adopt the Future Proof Strategy, the recommendation from the Future Proof Implementation Committee, and next steps including consultation and hearings. He responded to questions from Members concerning next steps and prioritisation of decisions concerning Brymer Road.

Resolved: (Cr Macpherson/Mayor Southgate)

That the Strategic Growth Committee:

a) receives the report;

b) adopts the revised Future Proof Strategy 2022; and

c) notes the resolutions made by the Future Proof Implementation Committee (FPIC) when adopting the Strategy regarding the scope of the work to develop the Future Development Strategy, as set out in paragraph 27 of the staff report.

Cr Bunting left the meeting (10.53am) during discussion on the above item. He was not present when the matter was voted on.

The meeting was adjourned from 10.57am to 11.10am.

Cr O'Leary left the meeting during the above adjournment.
Cr Bunting re-joined the meeting during the above adjournment.

Item 9 (HUGS review – approval of outcomes) was taken after Item 10 (Revised Future Proof Strategy for Adoption) to accommodate speaker availability.

9. HUGS review – approval of outcomes

The Project Manager and Growth Programmes Manager introduced the report noting the suggested timeline for next steps, including consultation. They responded to questions from Members concerning Hamilton's intensification levels, alignment with liveable neighbourhoods and public health and wellbeing concerns, prioritising greenfield developments, planning for various growth areas and impact of market demand on the strategy, opportunities to establish

development rules that support liveability including amenities and streetscape, limitations on design control enforced by the National Policy Statement – Urban Development, embedding Crime Prevention Through Environmental Design (CPTED) within the strategy, HUGS' connection to the transport business case, identifying the impact of neighbouring suburbs inclusion within the consultation document, and current city boundaries and surrounding suburbs.

Resolved: (Cr Macpherson/Cr Hamilton)

That the Strategic Growth Committee:

a) receives the report;

b) approves the outcomes of the revised draft Hamilton Urban Growth Strategy as:

   i. "Grow up and out from the central city",

   ii. "Focus investment, growth and density along transport corridors", and

   iii. "Support the development of new neighbourhoods that promote liveability";

c) delegates authority to the General Manager Growth and Chair and Deputy Chair of the Strategic Growth Committee to finalise and approve the draft Hamilton Urban Growth Strategy and its Statement of Proposal for consultation;

d) notes that the General Manager Growth will work with the Hamilton Urban Growth Strategy Reference Group on the content of the draft Hamilton Urban Growth Strategy and Statement of Proposal;

e) notes that consultation will occur in October/November 2022; and

f) requests staff brief the incoming Council on the draft HUGS prior to Christmas 2022.

Deputy Mayor Taylor Dissenting.

Cr O'Leary re-joined the meeting (11.34am) during discussion of the above item. She was present when the matter was voted on.

The meeting was adjourned from 12.54pm to 1.41pm.

8. Next steps R2, WA & SL1

The Growth Programmes Manager and the City Planning Unit Manager spoke to the report noting the purpose of the report, the attachment numbering errors in the staff report, and scoping studies as the next step for the identified areas. The Chair provided an update concerning the ongoing discussions with Waipā District Council and the timeline of growth cells. They responded to questions from Members concerning the staff recommendations, opportunities to go to the Local Government Commission, negotiations with Waipā District Council, staff budget, the Local Government Commission process and timeline, growth pressures on roading networks, and the role and timeline of the scoping studies.

Staff Action: *Staff undertook to include detail on costings for the scoping studies and potential Local Government Commission process in the 7 September 2022 report.*

Resolved: (Cr Macpherson/Cr Hamilton)

That the Strategic Growth Committee:

a) receives the report;

b) notes the Emerging Strategic Areas Process which, along with the Out-of-Boundary Principles, guides the steps required to effectively bring new areas into the city boundaries;

c) notes that staff will commence scoping studies for R2, WA and SL1 and that this work will

be carried out with existing resources and budgets and completed in early 2023;

d) notes that the outcomes of the scoping studies will be reported to the 2022-25 Council along with any next steps and associated resourcing and funding requirements, in accordance with the Emerging Strategic Areas Process;

e) notes that alongside the adoption of the Future Proof Strategy, the Future Proof Implementation Committee resolved that the potential for greenfield development in SL1 and other areas is to be investigated as part of the Future Development Strategy;

f) delegates the CE to propose to the Local Government Commission that area to the south of the city, including the full SL1 area defined by Future Proof, be incorporated into Hamilton, should Waipā District Council not agree to all of SL1 not be included in the Strategic Land Agreement;

g) requests staff report to the 7 September 2022 Strategic Growth Committee meeting on the pathway forward for resolving the issue in f) above and in the Chair's Report; and

h) requests staff report to the 7 September 2022 meeting of the Strategic Growth Committee with an MoU with the relevant developers on the pathway forward, including the workplan and milestones, for incorporating growth area WA into the City, and enabling housing development to commence.

11. Open Information Only Reports

The General Manager Growth noted the updates in the General Manager's report were able to be discussed with him as needed. He responded to questions from Members concerning the Waikato Wellbeing Project funding, the Infrastructure Acceleration Funding of the pedestrian bridge, and the affordability of Council's growth programme.

Staff Action: *Staff undertook to organise an information session concerning housing affordability and Council's growth programme in the next triennium.*

Resolved: (Cr Macpherson/Cr Hamilton)

That the Strategic Growth Committee receives the following information only reports:

i. General Manager's Report;

ii. Growth Programmes Update; and

iii. Development Contributions Remissions Quarter 4 2021/22

Deputy Mayor Taylor left the meeting (2.55pm) during discussion of the above item. He was not present when the matter was voted on.

Cr Bunting retired from the meeting (2.55pm) during discussion of the above item. He was not present when the matter was voted on.

12. Resolution to Exclude the Public

Resolved: (Cr Macpherson/Cr Wilson)
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. Confirmation of the Strategic Growth Committee Public Excluded Minutes 19 May 2022 C2. Amberfield PDA Agreement and Road Stopping C3. Southern Wastewater Treatment Plant Land Acquisition	) 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 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 commercial activities without disadvantage to enable Council to carry out negotiations	Section 7 (2) (h) Section 7 (2) (i)
Item C3.	to enable Council to carry out negotiations	Section 7 (2) (i)

The meeting went into Public Excluded session at 2.57pm

The meeting was declared closed at 3.34pm.

Council Report

Item 6

Committee: Strategic Growth Committee **Date:** 07 September 2022

Author: Tyler Gaukrodger **Authoriser:** Amy Viggers

Position: Governance Advisor **Position:** Governance

Report Name: Chair's Report

Report Status	*Open*

Recommendation - *Tuutohu*

That the Strategic Growth Committee receives the report.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Chair's Report

Chair's report

Kia ora koutou

As this is my last-ever official report to a Council Committee, I thought I would surprise you all by keeping it short 😉

For the last six years, I've been involved in the area of growth and high-level infrastructure, and have very much enjoyed having responsibilities which impact on 'future proofing' Hamilton and the greater metro area.

If there's one thing I've learnt, it's that predictions and projections for the level of growth in an area like the Hamilton urban area will certainly be wrong – and that we have to have policies and plans in place that will allow us to (as deputy Chair Ryan would say) 'pivot' as new evidence comes to light.

The second thing I've learnt is that foresight is a wonderful thing, if you can get it right, and lack of foresight causes long-term problems…. the worst example being the failure of the 1989 City Council to understand that the Hamilton urban area needed to have room to move and grow, and should not be beholden to surrounding rural Councils for that.

Clearly transport and 3 Waters infrastructure is also vital to enable growth, and I think we've been blessed with staff and Councils who, by and large, nowdays think strategically, and plan a long way ahead. Going forward, the Council needs to make sure its short and medium term planning aligns, and keeps up with, our strategic vision.

There are reports and resolutions coming forward today that will lock in the scene for our short and medium term growth in the priority areas of WA, SL1 and R2.

I particularly want to thank all the staff who work so hard and so well on our strategic growth and infrastructure issues – you are among the best in the country, and I'm thankful the CEO is paying you so much, to stop you being poached by other, jealous, Councils!

I'd also like to thank Elected Members for taking a strong interest in the growth issues facing the Council – when I compare what we discuss with the type of issues that dominate other Councils, it's clear most of them could learn a lot from Hamilton.

Chair Recommendation:

That the Strategic Growth Committee receives the report.

Ngaa Mihi

Councillor Dave Macpherson

Kirikiriroa/Hamilton City Council

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Council Report

Committee: Strategic Growth Committee **Date:** 07 September 2022

Author: Jackie Colliar **Authoriser:** Blair Bowcott

Position: Strategic Manager - Infrastructure City Development **Position:** General Manager Growth

Report Name: Hamilton-Waikato Metro Wastewater Detailed Business Case Update

Report Status	*Open*

Purpose - *Take*

1. To update the Strategic Growth Committee on progress on the Hamilton-Waikato Metropolitan (Metro) Wastewater (WW) Detailed Business Case (DBC) project and seek approval of the Northern Metro Wastewater Detailed Business Case.

Staff Recommendation - *Tuutohu-aa-kaimahi*

2. That the Strategic Growth Committee:

   a) receives the report;

   b) approves the Northern Metro Wastewater Detailed Business Case noting the preferred option was approved at the 26 July 2022 meeting;

   c) delegates authority to the General Manager Growth to finalise any outstanding matters including review feedback related to the Business Case documents;

   d) notes that Schedule 3 of the approved Memorandum of Understanding will be updated to reflect the preferred option for the Northern Metro area

   e) approves continued use of 2021-2031 LTP funding to progress planning and investigations to support delivery of the Southern Sub-Regional WWTP.

   f) notes that the supplementary assessment to evaluate the impacts of accelerated development of the Southern Sub-Regional WWTP (i.e., more capacity earlier than assumed for the Southern WW DBC and MoU) will be reported back to the new Council.

   g) notes that the Northern and Southern WW DBC programmes will need to be integrated into planned investment programmes, including further consideration of WW system investment timing and triggers and development and implementation of the sub-regional WW consenting strategy.

Executive Summary - *Whakaraapopototanga matua*

3. The Strategic Growth Committee approved the Southern Metro WW DBC and associated Memorandum of Understanding (MOU) at the 19 May 2022 meeting. Waipā DC, Waikato DC and Waikato-Tainui Executive Committee approved these documents on 21 June 2022, 30 June 2022 and 15 July 2022 respectively.

4. The Northern Metro WW DBC project builds on the Southern Metro WW DBC work, including the project vision, objectives, growth assumptions, short-listed options to be considered to determine the preferred option, minimum treatment standards, funding and ownership principles.

5. On 26 July 2022, the Committee approved Option A (centralisation of wastewater treatment at the Pukete Wastewater Treatment Plant) as the preferred option for further refinement and completion of the Northern Metro WW DBC. The key considerations and processes used to identify the preferred option and the details of the preferred option were presented at the 19 May 2022 and 26 July 2022 meetings.

6. The Project Governance Group (PGG), Waikato District Council and Waikato-Tainui have also endorsed Option A as the preferred option for further refinement and completion of the Northern Metro WW DBC.

7. Option A includes:

    i. Upgrading and expanding the Pukete WWTP including moving to a Membrane Bioreactor (MBR) process;
    ii. Conveying Taupiri/Hopuhopu/Ngaaruawaahia/Horotiu/Te Kowhai to Pukete WWTP;
    iii. Decommissioning and rehabilitating the Ngaaruawaahia WWTP site;
    iv. Significant improvement in discharge quality; and
    v. Improved opportunities for resource reuse and recovery.

8. The Northern Metro WW DBC document has been prepared to reflect further refinement of Option A, with particular focus on staged implementation. The recommendations from the commercial, financial and management workstreams completed through the Southern Metro WW DBC; and the agreements in the MoU have also informed completion of the Northern Metro WW DBC. The HCC and Waikato DC asset management and finance teams have informed and supporting the financial modelling undertaken to evaluated funding impacts for the Northern DBC.

9. Key elements of the Northern DBC are detailed in the Summary document (unformatted) in Attachment 1. The Northern DBC document (unformatted) is in Attachment 2.

10. Approval of the Northern Metro WW DBC document is now being sought. Peer review of the cost estimates and the overall DBC is in progress. Editorial reviews and graphic design will be completed following the peer review and feedback from the partner organisations and the document finalised.

11. Consideration of the impacts of accelerating the development of the Southern Subregional WWTP (SS WWTP) is still being undertaken. This work will be presented to Council on completion.

12. Due diligence investigations to support the pre-implementation phases of the SS WWTP continue, alongside consideration of potential property acquisition opportunities. HCC LTP funding is being used to progress these activities. Development of the Multi-Party Funding Agreement (MPFA) between HCC, Waipa DC and Waikato DC for the SS WWTP continues. However, if an MPFA cannot be agreed between the parties, alternative funding options will be required, or the work stopped.

13. Staff consider that it is important to continue to drive the SS WWTP project forward to achieve the objectives outlined in the Southern WW DBC and have outlined potential funding options in the report.

14. Staff consider the decisions in this report have low significance and the recommendations comply with Council's legal requirements.

Background - *Koorero whaimaarama*

15. This is the twelfth project update report to the SG Committee. This report covers the period of August 2022. Previous reports to the SG Committee were provided at the 1 October 2020, 12 November 2020, 30 March 2021, 20 May 2021, 29 July 2021, 7 September 2021, 2 December 2021, 31 March 2022, 19 May 2022, 26 July 2022 meetings. Further updates have been provided through the General Manager's reports at the 19 October 2021, 15 February 2022 and 31 March 2022 meetings.

16. The project is being delivered in partnership with mana whenua, Waikato-Tainui, Waikato DC and Waipa DC. A project governance group (PGG) made up of governance representatives of each member of the partnership has overseen and guided the delivery of the project since 2020. Council's representative on the PGG is Mayor Southgate; the alternate member is Councillor Macpherson.

17. Endorsement of all key project recommendations is sought from the PGG ahead of those recommendations being made to each individual partner organisation. The draft Northern Metro WW DBC will be presented for endorsement by the PGG at their meeting on the 5 September 2022.

18. At the 19 May 2022 meeting, the Strategic Growth Committee approved the Southern Metro Wastewater Detailed Business case, and the associated Memorandum of Understanding (see Agenda and Minutes). Waipā DC, Waikato DC subsequently and Waikato-Tainui Executive Committee approved these documents on 21 June 2022, 30 June 2022 and 15 July 2022 respectively.

19. The Northern Metro WW DBC project builds on the Southern Metro WW DBC decisions, including the project vision and objectives, the communities included in the investigations, minimum treatment performance standards and the two short-listed options identified for the northern metropolitan area.

20. The Northern Metro Area communities being considered as part of the project are Taupiri, Hopuhopu, Ngaaruawaahia, Horotiu, Te Kowhai and Hamilton. Whatawhata and major industrial facilities with their own water services (i.e., Open Country Dairy/AFFCO and Fonterra Te Rapa) are not included in the scope of the project.

21. An update on the Northern Metro WW DBC was provided at the 26 April 2022 meeting. The update re-affirmed the project objectives, KPIs, options assessment criteria, population and growth assumptions and the minimum wastewater treatment standards. These elements were drawn primarily from the work completed for the Southern Metro WW DBC.

22. At the 19 May 2022 meeting, details of the Northern Metro short-listed options were provided, and the emerging preferred option noted (Option A – to divert flows from the northern communities (Taupiri, Hopuhopu, Ngaruawahia, Te Kowhai, Horotiu) to the Pukete WWTP). Capital and operating cost estimates for the short-listed options and key elements of the options assessment were also included in the report.

23. At the 26 July 2022 meeting, further details on the preferred option and short-list options assessment were provided. Details of the capital and operating cost estimates for the short-listed and preferred option were presented. Details of the options evaluation process was also provided (see Agenda and Minutes).

24. At the 26 July 2022 meeting the Committee approved Option A as the preferred option for further refinement and completion of the Northern Metro WW DBC. The PGG, Waikato District Council and Waikato-Tainui have also endorsed Option A as the preferred option for further refinement and completion of the Northern Metro WW DBC.

Southern Sub-Regional (SS) WWTP Project

25. The Southern Metro WW DBC preferred option includes development of a new Southern Sub-Regional WWTP (SS WWTP).

26. HCC is the lead council for the SS WWTP. As outlined in the approved MOU key roles of the lead Council include driving delivery and financing of the project. HCC has some funding in the 2021-2031 LTP for the pre-implementation phases of the SS WWTP project. The scope of the pre-implementation phases for the SS WWTP includes:

    i. Land acquisition for wastewater activities

    ii. Site designation and consenting activities including associated investigations and engagement.

27. As noted in the 26 July meeting, staff have proceeded with the pre-implementation phases of the SS WWTP Project. An update on these activities is included in this report.

Discussion - *Matapaki*

Northern Metro WW DBC

28. The Northern Metro WW DBC is a substantial document that pulls together key elements of the project in order to meet the requirements of the Treasury Better Business Case model and support the recommended investments.

29. A summary of the Northern Metro DBC has been produced to support the approval process and is attached to this report (Attachment 1). This summary document draws out and aims to communicate the key elements of the DBC.

30. The Northern Metro DBC document (including the core content for each case but excluding forewords, acknowledgements and appendices) is included in Attachment 2. Forewords, acknowledgements, cross referencing, revised graphics and all appendices will be included in the final formatted document. In preparing the Northern Metro WW DBC, the authors have sought to minimise duplicating relevant components of the Southern Metro WW DBC, but rather make reference to that document.

31. The Northern Metro WW DBC cost estimates have been independently peer reviewed by Stantec and Alta. The peer review comments are being worked through. The Northern Metro WW DBC document is being independently peer reviewed by Stantec using the Treasury Better Business Case Peer Review template. The peer reviewers' comments will be worked through and addressed to finalise the DBC. Should the peer review identify any fatal flaws in the approach taken to deliver the DBC, these will be brought back to the Committee.

Strategic Case

32. The content of the Southern Metro WW DBC Strategic Case is directly relevant to the Northern Metro WW DBC. For example, the problems, benefits, vision, objectives, context are common to both DBCs. The authors have sought to minimise duplicating relevant components of the Southern Metro WW DBC, but rather make reference to that document where appropriate.

Economic Case

33. Details of the short-list assessment processes, identification of the preferred option, and details of the preferred option including site layouts, capital and operating cost estimates are in the economic case.

34. The capital and operating cost estimates for the preferred option are included below. These estimates have been reported previously and are included for completeness. An estimating tolerance has been included to account for general unknowns in the design and for any discrepancies in the design information prepared to date. These estimates are Class 5 estimates as per the AACE Cost estimate Classification System and have an expected range of -30% / +50%.

35. The P50 (Most Likely) and P95 capital costs for the preferred option are:

	Conveyancing	Treatment	Total
P50 most likely cost	$103M	$772M	$875M
P95 cost	$126M	$1,133M	$1,259M

36. The capital cost estimates do not include capital costs for any required interim upgrades to the Ngaaruawaahia WWTP prior to diversion of flows to Pukete. Capital costs associated with options to include biological phosphorus removal (extra reactors required) and incineration of biosolids are included in the P95 costs but not P50.

37. The capital cost estimate (P50) for each 10-year period is:

	2022 - 2031	2032 - 2041	2042- 2051	2052-2061
Pukete WWTP	$430M	$250M	$32M	$50M
Conveyance: Te Kowhai to Horotiu	$9.7M			
Conveyance: Taupiri to Ngaaruawaahia	$10M			$6.4M
Conveyance: Ngaaruawaahia to Horotiu	$36M			$5.0M
Conveyance: Horotiu to Pukete	$30M			$5.6M
Total	**$515.7M**	**$250M**	**$32M**	**$67M**

38. The expected annual operational costs at 2031, 2041, 2051, and 2061 are:

Year	2031	2041	2051	2061
Pukete WWTP	$17.7M	$20.3M	$23.0M	$21.8M
Conveyance	$0.41M	$0.49M	$0.55M	$0.67M
Total	**$18.1M**	**$20.8M**	**$23.6M**	**$22.5M**

39. The operational costs assume thermal hydrolysis and thermal drying are implemented by 2041 and that Hamilton South is diverted to the new SS WWTP by 2061.

Financial Case

40. The cost allocation and financing principles used for the Southern Metro WW DBC and agreed in the MoU have been used for the Northern Metro WW DBC. WWTP capital costs have been allocated between the Councils based on the proportion of population equivalents serviced by the WWTP. Conveyance capital and operating costs will be allocated to the council whose beneficiaries require such conveyance. For the Northern Metro DBC all conveyance capital and operating costs will all be allocated to WDC.

41. The financial analysis in the Northern Metro WW DBC considers future costs only, no allowance for costs incurred to date is included. The analysis also does not consider the historical investment by HCC in the Pukete WWTP as a means for reallocating future capital costs between councils given that this is a sunk cost.

42. An evaluation of funding and financing options available to councils was undertaken and assessed during the development of the Southern DBC and the outcomes adopted for the Northern Metro DBC. Based on this, the preferred approach is for each Council to leverage its existing funding tools (i.e., general rates, targeted rates, development contributions etc) as per existing policies.

43. An assessment of the proportion of costs attributable to Growth, Levels of Service and Renewals have been used to complete the financial analysis for the DBC. While elements of the cost estimates include some renewals, not all renewals associated with the WWTP are captured in these estimates.

44. The financial case includes a high-level affordability assessment based on:

    i. The burden on ratepayers to fund the additional general and/or targeted rates;

    ii. The cost to developers of development contributions; and

    iii. The debt headroom under the current relevant Local Government Funding Agency (LGFA) covenants for each Council.

45. This assessment indicates the work is affordable for each Council. However, this should continue to be tested against the financial risks and complexities.

46. The HCC and Waikato DC asset management and finance teams have informed the financial modelling for the Northern DBC. This work included assessing the cost allocation (Level of Service, Renewal, Growth) for key process areas of the Pukete WWTP and reviewing overall methodology used for the financial analysis.

Commercial Case

47. The proposed approach to packaging and contracting components of the preferred option is outlined in the commercial case. The commercial case draws on the findings and recommendations from the Southern Metro WW DBC assessments.

Management Case

48. The management case draws on the direction and approaches to project governance and delivery agreed in the MoU. The programme plan is outlined along with key change and benefits management implications and responsibilities. Key risks and opportunity management is documented including specific consenting and legislative considerations for project implementation. The next steps for implementation are also outlined.

49. The Management Case includes sensitivity testing to look at questions like “what happens if we get additional wet industry growth in Horotiu”, “what happens if growth cell HT1 is developed early”, or “what happens if we have more infill intensification in the Hamilton CBD”. There are a number of “trigger” points where the next stage of infrastructure development is required at Pukete WWTP (e.g. a sixth primary sediment tank or a seventh bioreactor). Under a high growth scenario, these triggers may be reached 10 years earlier than anticipated. Before flows reach these trigger levels, HCC will need to decide whether to progress these upgrades at Pukete WWTP or divert a portion of flows to the new SS WWTP.

Southern and Northern Metro WW DBC Integration Activities

50. The PGG and Committee requested a supplementary assessment evaluating the impacts of accelerated development of the SS WWTP (i.e., more capacity earlier than assumed for the Southern WW DBC and MoU). This work is not yet complete; however, it is in progress and will be delivered to the new Council.

51. Implementing the recommendations of the Southern Metro WW DBC is closely linked to implementation of the Northern Metro WW DBC. Integration of each of the DBCs will be necessary to deliver and implement a cohesive sub-regional investment plan. This integration will need to include closer examination of investment timing and triggers (e.g., what are the likely triggers for initiating the diversion of Hamilton South (and/or other areas) to the new SS WWTP) and finalising and implementing a sub-regional WW consenting strategy.

Southern Sub-Regional (SS) WWTP Project

52. HCC is the lead council for the SS WWTP. As outlined in the approved MOU key roles of the lead Council include driving delivery and financing of the project.

53. The SS WWTP Project Management Plan is being drafted and roles and responsibilities worked through. A key area of focus is the overall project governance and delivery structure, given the multiple local authorities with interests in the project, and importance of ensuring that appropriate provision is made for Iwi/Mana Whenua representation and participation in the project.

54. In parallel with project establishment, proposals were sought from selected consultants to complete due diligence investigations on several potential sites. These proposals have been evaluated and BECA consultants engaged to complete the assessments. This work will identify a preferred site for the WWTP.

55. Further professional services will be required to complete the site due diligence work and inform designation and consenting applications. These services include engagement specialists, cultural advisors, property advisors, valuers, planners, engineers, ecologists and environmental scientists.

56. Staff consider that it is important to continue with this work, to inform and support an integrated approach to wastewater consenting activities across the Metro Area (including those relating to the Pukete WWTP) and to seek to provide sustainable wastewater servicing solutions for the South Hamilton and airport areas.

57. HCC LTP funding in FY2022/23 is being used to continue with this work and maintain momentum while the funding agreements with Waikato and Waipa DC are worked through. As HCC funding was based on a proportion of the total estimated cost to complete this work, it is unlikely that the current funding will be adequate to complete the pre-implementation activities.

Multi Party Funding Agreement (MPFA)

58. At the 19 May 2022 meeting, the Committee delegated authority to the CEO to start negotiating a multi-party funding agreement with Waipa and Waikato DC to fund the pre-implementation phases for the SS WWTP.

59. The MPFA has been drafted to reflect project funding and cost allocation for the pre-implementation phase of SS WWTP and decision making (pre-implementation activities, land purchase and consenting) project management, cost escalation and payment. The draft MPFA is informed by the principles in the MOU.

60. As neither Waipa nor Waikato DC have included funding in their LTPs to contribute toward the SS WWTP project, it is uncertain whether they will be able to secure funding to contribute upfront in the timeframes we are working to, particularly given 3 Waters reforms.

61. In the long term, HCC will be the primary benefactor of the SS WWTP, and accordingly the largest funder. There is potential to spend a lot of time and effort seeking to agree an MPFA with Waipa and Waikato DC for minimal return. The CEs from each organization are working through these matters, and staff will bring a recommendation back to Council.

62. If an MPFA cannot be agreed, an alternative is for HCC to fund the pre-implementation phase costs and recoup these later through connection charges as users come on-line or transfer these costs over to the new Water Services Entity if 3 Waters Reforms proceed.

Financial Considerations - *Whaiwhakaaro Puutea*

Northern Metro WW DBC

63. Implementing the Northern Metro DBC recommendations will have significant financial implications for the HCC and WDC.

64. The cost estimates for the Pukete WWTP upgrades ($767M) are significantly higher than the previous high-level estimates completed in 2020 to support the current LTP (the LTP includes $116.8M for wastewater treatment plant upgrades and a further $37.9M for wastewater treatment renewals).

65. Waikato District Council has allowed for $53M for upgrades at the Ngaaruawaahia WWTP and $10.5M for district wide pump station and reticulation renewals.

66. Further funding from HCC and Waikato District Council will be required to implement the Northern Metro DBC and realise the servicing benefits that it will provide to the Northern Metro area. A full breakdown of potential costs for the Pukete WWTP MBR upgrade and changes to the conveyance network is presented in the final DBC and summarised in the Summary document.

Southern Sub-Regional (SS) WWTP Project

67. Implementing the Southern Metro WW DBC recommendations is likely to have significant financial implications for the 2021–31 LTP. HCC has included a funding provision of $9.6M (inflated) to secure a site and consents for a new WWTP in years 1 – 3 of the 2021 – 31 LTP.

68. HCC's funding for the SS WWTP in the 2021-2031 LTP was based on approximately 40% portion of the estimated land acquisition and planning costs (e.g. consenting, designations). The 40% funding portion was based on the assumed proportion of flow to the SS WWTP generated from HCC communities at 2061.

69. As noted in previous Strategic Growth Committee Reports the proportion of flow to the SS WWTP generated from HCC communities is likely to be a significantly higher than assumed for the 2021-2031 LTP and therefore require a significantly higher proportion of funding from HCC. Based on current flow assumptions, the HCC contribution to the land acquisition and planning phase is likely to be approximately 80%.

70. As noted in previous reports, Waikato DC has not allowed for any costs associated with the SS WWTP in its LTP but has noted an unbudgeted provisional sum of $4M towards upfront investment in land acquisition, designation, and consenting processes to signal a commitment to delivering sub-regional solutions. Waipā DC has not included or noted any funded or unfunded provision to contribute toward the new SS WWTP in its 2021-2031 LTP.

71. Further funding from HCC will be required to construct the SS WWTP and realise the servicing benefits that it will provide to Hamilton and the wider Metro area. A full breakdown of potential costs for the new SS WWTP was presented in the final DBC and summarised in the Summary document and MoU.

72. If an MPFA with Waipa and Waikato DC cannot be agreed, additional funding will be required to complete the pre-implementation phase of the SS WWTP. At present the process for seeking additional funding is unclear, given 3-Waters Reforms, however given that this work can be linked to the Pukete WWTP consenting activities, it may be possible to utilise LTP funding for the Pukete WW Discharge consent renewal to complete the Notice of Requirements and Consent applications for the SS WWTP. This option requires further exploration.

73. New funding will be required to finance construction of the plant with timing expected to be beyond 2024/25. This request will be included in the next Wastewater Asset Management Plan and future funding requests.

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

74. Staff confirm that this project and the matters in this report comply with Council's legal and policy requirements.

75. Staff have considered the key considerations under the Climate Change Policy and have determined that an adaptation assessment and emissions assessment is not required for the matter(s) in this report.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

76. 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').

77. Both the Southern and Northern Metro Area WW DBCs adopt the Treasury Better Business Case Programme Business Case model. The 4 well-beings are core considerations in delivering the business case in addition to Te Ture Whaimana o te Awa Waikato – The Vision and Strategy for the Waikato River and relevant Iwi Management Plans.

Risks - *Tuuraru*

78. There are no known risks associated with the decisions sought in this report. However, there are a series of significant risks associated with the successful delivery of the overall project. A project risk register and mitigation strategy has been prepared for the project. The significant risks relate to:

    i. lack of alignment across partner organisations leading to conflicting aspirations, inconsistent messaging, partner disagreement at key decision points;

    ii. funding and affordability challenges to implement the Southern Metro WW DBC recommendations and the investment needed in at Pukete WWTP over time; and

    iii. timing constraints arising for Cambridge Wastewater short-term consent conditions.

79. Risk management plans will be developed as part of completing the DBCs and included in subsequent project management plans.

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

Significance

80. Having considered the Significance and Engagement Policy, staff have assessed that the matters in this report have a low level of significance.

Engagement

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

82. This project is a partnership delivered through collaboration of the project partners: HCC, Waikato DC, Waipā DC, Waikato-Tainui and mana whenua.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Northern Metro WW DBC Summary Document

Attachment 2 - Northern Metro Wastewater Detailed Business Case (Rev. 1.0) Unformatted

Waikato Northern Metro Wastewater Treatment

Detailed Business Case Summary

Prepared for Hamilton City Council
Prepared by Beca Limited

29 August 2022

Creative people together transforming our world

Revision History

Revision Nº	Prepared By	Description	Date
1	Mhairi Rademaker	Draft for Approval	2022-08-29

Document Acceptance

Action	Name	Signed	Date
Prepared by	Mhairi Rademaker		
Reviewed by	Robert Brodnax		
Approved by	Robert Brodnax		
on behalf of	Beca Limited		

The Waikato Northern Metro Wastewater Treatment Detailed Business Case project is a collaboration between three councils (Hamilton City, Waipā District, and Waikato District) and taangata whenua to identify the best future option for managing wastewater for urban communities in the Northern Metro area.

This document is a summary of the Northern Metro Wastewater Detailed Business Case. The Southern Metro Wastewater Detailed Business Case has also been completed.

This document summarises five sections of a Detailed Business Case: the Strategic Case, the Economic Case, the Financial Case, the Commercial Case and the Management Case. The full Detailed Business Case (DBC) is available at (add link here).

The DBC investigates and presents a rationale for a new way of delivering long-term wastewater services across territorial boundaries. The work builds on the Waikato Sub-Regional Three Waters Strategic Case (Future Proof, 2019), the High-Level Waikato Metro Wastewater Assessment (Future Proof, 2020) and the Southern Metro DBC.

A team of specialist consultants were engaged to support delivery of the project including technical investigations and analysis needed to inform the DBC and writing the DBC cases. An independent peer review of the DBC has also been completed to support the overall findings of the DBC.

At the time of writing, the impact of the Government's Three Waters Reform process was unknown. This document has been prepared on the basis of 'business as usual' service delivery structures, noting any proposed structures could transition into new management arrangements if required.

Abbreviations

DBC = Detailed Business Case

HCC = Hamilton City Council

HUEs = Household Unit Equivalents

KPIs = Key performance indicators

LGFA = Local Government Funding Agency

MCA = multi-criteria assessment

NPV = Net Present Value

PE = Population Equivalent demand

PPG = Project Partnership Group

WDC = Waikato District Council

Waipā = Waipā District Council

WWTP = Wastewater Treatment Plant

Introduction

Context

The Waikato - Hamilton – Waipā Southern and Northern Metro Wastewater Detailed Business Cases are being jointly delivered through strong collaboration between the Iwi, mana whenua and Waikato, Hamilton and Waipā Councils.

The Waikato region has seen tremendous growth and development in commercial, industrial, and residential areas, placing pressure on existing wastewater services and creating further demand for wastewater treatment and management services.

The collaborative relationships established to deliver this project represents the era of co-management in respect of the Waikato River and activities within its catchment and joint recognition of the benefits of "boundaryless" planning to restore and protect the health and wellbeing of the Waikato River and meet the current and future needs of the Metro Area.

Te Ture Whaimana o Te Awa o Waikato – the Vision and Strategy for the Waikato River (Te Ture Whaimana) is the primary direction setting document for the Waikato River and for activities within its catchment and forms the foundation for this project.

The recommendations in the DBC seek to actively contribute to achieving the vision and objectives set out in Te Ture Whaimana by delivering "best for river" wastewater management solutions, recognising and providing for the unique relationship that taangata whenua have with the awa as well as contribute to the social and cultural wellbeing of the community.

Through the DBC, the parties have identified preferred servicing solutions for wastewater infrastructure and have worked through how these might be planned for, constructed, and funded.

Project delivery through partnership

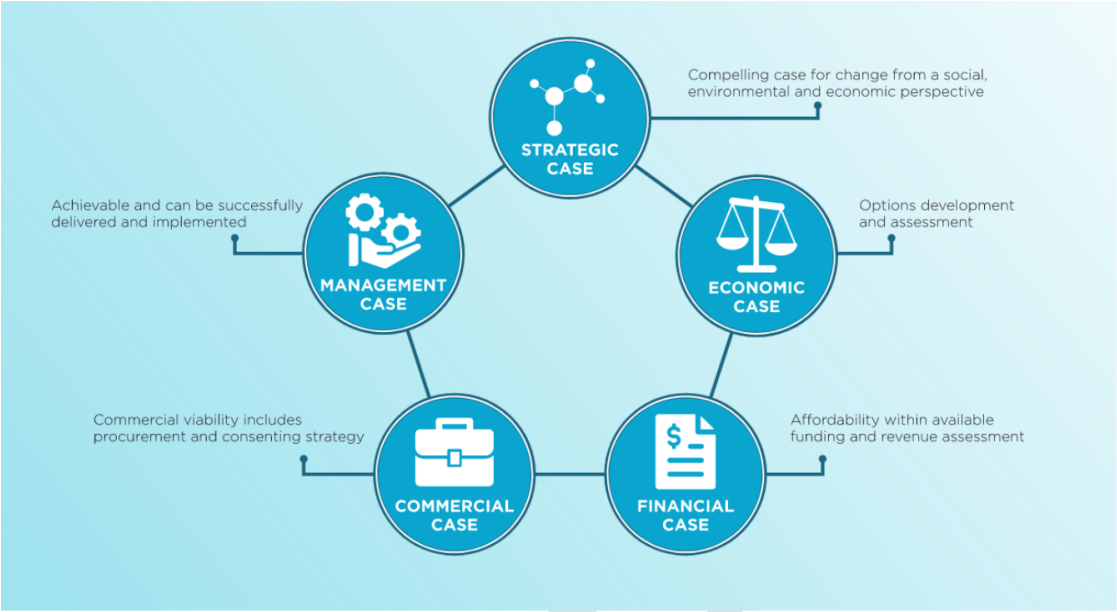
A fundamental principle adopted for this project is giving effect to treaty-based partnerships through strong collaboration, co-design and decision making by council and taangata whenua representatives. This occurred throughout the project at all levels from detailed technical analysis through to overall project governance.

The project governance group made up of elected representatives from each partner group have overseen the project and endorsed or approved the key recommendations and decisions that inform this DBC over the course of the project including:

- Project Vision & Objectives
- Growth Assumptions
- Investment Objectives, KPIs and MCA Criteria
- Treatment Performance Standards
- Preferred Wastewater Servicing Option
- Commercial delivery, contracting and packaging approach
- Funding and financing options
- Project management, governance and risk management arrangements

Treasury Better Business Case Model

The detailed business case has been developed to meet the requirements of the NZ Treasury Better Business Case Model. The Better Business Case Model involves five cases:



- **Strategic Case**: sets out the compelling case for change by identifying current problems, the benefits of addressing the problems and the overarching objectives that are being sought.
- **Economic case**: sets out the preferred WW servicing solution including the long-listing to preferred option assessments and concept details for the preferred option. The MCA used to assess the WW servicing options consider a range of factors including benefits, cost effectiveness, cultural, environmental and social factors.
- **Commercial case**: sets out the delivery structure and plans for the procurement arrangements needed to implement the preferred WW treatment solution. This includes procurement strategy and plan, risk sharing, payment mechanisms and contracting considerations.
- **Financial case**: sets out the preferred funding model and financing strategy. This includes affordability considerations.
- **Management case**: details the arrangements needed to both ensure successful delivery of the preferred solutions and to manage project risks, while maintaining a focus on delivery of benefits.

Purpose of the detailed business case

The DBC recommends long-term wastewater treatment solutions of the Northern Metro Area that give effect to the project vision and objectives.

Project vision and objectives

The vision adopted for the DBC is as stated in Te Ture Whaimana

Tooku awa koiora me oona pikonga he kura tangihia o te maataamuri

"The river of life, each curve more beautiful than the last"

…a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come.

The DBC has been developed to meet the requirements of the NZ Treasury Better Business Case Model and deliver "Best for River" outcomes.

The "Best of River" definition methodology developed through the Sub-Regional Three Waters Project has been used to develop the project investment objectives and key performance indicators for the DBC.

Investment objectives

The investment objectives are:

1. Investment Objective One: Before 2050 municipal wastewater discharges are no longer impacting on the ability of people to swim and collect Kai from the river and connected waterways thereby contributing to the restoration and protection of the health and wellbeing of the river
2. Investment Objective Two: The quality and extent of aquatic and terrestrial habitat and biodiversity in and around water bodies is enhanced through the reduction of wastewater treatment and discharge impacts before 2050
3. Investment Objective Three: Wastewater treatment solutions contribute to restoring and enhancing cultural connectivity with the river so that before 2050 Marae, Hapuu and Iwi access to the river and other sites of significance for cultural and customary practice within the metro spatial area are no longer impeded by wastewater treatment solutions
4. Investment Objective Four: Maximise efficient use of resources and resource recovery to contribute to net zero greenhouse gas related emissions from wastewater treatment systems before 2050
5. Investment Objective Five: The wastewater solution provides sufficient capacity to ensure sustainable growth in the metro spatial area in accordance with growth projection assumptions for the next 100 years

Historical context

Mana Whenua within the Metro Area are descended from the Tainui waka. Waikato-Tainui, Ngaati Wairere, Ngaati Koroki-Kahukura, Ngaati Hauaaa, Ngaati Tamainupoo, Ngaati Maahanga, Turangawaewae Marae (Ngaati Mahuta and Ngaati Te Wehi), Waikeri Marae (Ngaati Reko) and Taupiri Marae (Ngaati Kuiaarangi, Ngaati Mahuta, Ngaati Tai and Ngaati Whaawhaakia) hold mana with regards to decision making associated with this DBC.

Taangata whenua view the Waikato River as an ancestor who is a source of sustenance, identity and mana. They belong to and are part of the River and have an obligation to protect it.

Prior to European settlement, the Waikato River and all its tributaries would have had very high water-quality and would have been mostly free of contaminants. The River would have teemed with life and would have sustained people physically, mentally and spiritually

In 1858 the Kiingitanga movement began under the first Maaori King Pootatau Te Wherowhero to unite iwi and halt the alienation of Maaori land. In July 1863, British troops crossed the Mangataawhiri Stream, invading Waikato. In 1865, the Crown unjustly confiscated approximately 500,000ha of Waikato-Tainui land. New settlers occupied the confiscated lands, wetlands were drained, and farms and towns developed. The development contributed to economic growth but degraded the health of the Waikato River.

From the time of the Raupatu (the land confiscation), Waikato-Tainui were excluded from decision-making regarding the Waikato River.

Treaty settlements

From the 1860s, Waikato-Tainui sought justice for their Raupatu claim and protection for the Waikato River. Waikato-Tainui negotiated directly with the Crown and reached settlement of the Raupatu land claim in 1995 and the river claim in 2008.

The Waikato-Tainui Deed of Settlement for the Waikato River received royal assent in 2010. Its aim is to restore and protect the health and wellbeing of the Waikato River for future generations. Under this Settlement the Waikato River includes the river's main stem, from Huka Falls to the Waikato River mouth, and all its tributaries.

Among other redress, the Waikato-Tainui Raupatu Claims (Waikato River) Act 2010 established the Vision and Strategy for Waikato River, Te Ture Whaimana o Te Awa o Waikato as the primary direction-setting document for the Waikato River and its catchment.

Te Ture Whaimana sets out the vision, objectives and strategies to restore and protect the health and wellbeing of the River. It is the primary direction-setting document for the Waikato River and its catchments, which includes the Waipā River.

Te Ture Whaimana is deemed part of the Waikato Regional Policy Statement, and regional and district plans are legally required to give effect to it. The vision, reflected in this DBC is for:

> ***"A future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come."***

The ongoing development along the length of the river over the last century has seen an increase in target nutrients and the contamination from industries, communities and farmland and a decline in the health and wellbeing of the awa. The discharge of waste, particularly human waste, to the Waikato River or its tributaries, whether direct or diffuse, is particularly abhorrent to taangata whenua.

The strategic case

The Hamilton-Waikato Metropolitan Area (Metro Area) is the urban sub-region of the Waikato. It is centred around Hamilton City as the core but extends from Taupiri in the north to Te Awamutu and Cambridge in the south. The Metro Area sits across three local authority jurisdictions (Waikato District, Hamilton City, and Waipaa District).

Figure 1: Waikato Metro Area (highlighted in orange)

This DBC is concerned with the Northern Metro Area, which extends from Hamilton to Taupiri including Hopuhopu, Ngaaruawaahia, Horotiu, Te Kowhai, and the area east of Hamilton.

The Northern Metro Area is serviced by the Ngaaruawaahia and Pukete WWTPs. These WWTPs hold resource consents to discharge treated wastewater to the Waikato River. These consents expire in 2029 and 2027 respectively.

The Metro Area is growing faster than expected. New residential areas, infill development, and new mixed use and industrial developments all add to the wastewater generated in the area and put pressure on our wastewater conveyance and treatment systems. This growth is expected to continue.

Neither the WWTPs nor the pipe networks connecting our communities to the WWTPs have capacity to manage this growth without significant investment.

At the same time, we recognise that our awa and whenua not only cannot be allowed to degrade further as a result of human activities but must be restored in accordance with Te Ture Whaimana. Changes to legislation and the expectations of stakeholders and our community mean we cannot continue to discharge wastewater in the same way we have in the past.

The upcoming consent expiry, expected growth, and need to treat wastewater to a high standard provide us with an opportunity to look more strategically at how we manage wastewater in the Northern Metro Area in the long term.

Strategic wastewater management decisions need input from all three local authorities and mana whenua.

Four problems

Four broad problems in regard to three waters management including wastewater have been identified. The impact of these problems and specific wastewater examples are described.

Problem Statement One: Lack of integrated catchment management and urban waters long term planning, founded on a common vision and agreed future outcomes that are unconstrained by territorial boundaries, the application of both Mātauranga Māori and conventional science methods, and appropriate funding provisions is resulting in inefficient near-sighted decision making and degraded health and well-being of the Waikato River.

Problem Statement Two: Inconsistent, short term and parochial regulatory, planning and investment decisions on land use and urban water resource management have contributed to cultural disconnect, degraded water quality, poor ecosystem health and over allocated resources. As a consequence, the relationships and aspirations of communities with the Waikato River and the ability of Waikato River iwi to exercise mana whakaharere or conduct their tikanga and kawa have been severely compromised.

Problem Statement Three: Reactive infrastructure planning practices coupled with light handed regulation and compliance and inconsistent management practices, standards and performance expectations has led to variable urban water system performance across the region and has adversely impacted the health and well-being of the Waikato and Waipā Rivers.

Problem Statement Four: The legacy of under investment in urban water systems coupled with infrastructure reaching end of life and increasing regulatory requirements and environmental expectations, climate change impacts and greater growth demands has created a significant investment deficit resulting in unaffordable current and future costs for new infrastructure, maintenance and operations and human capacity and capability challenges within the waters sector.

Degraded health and well-being of the Waikato River (problems 1 & 3)

Our rivers show the signs of being affected by contaminants, with an increase in algal blooms and decrease in swimmability.

While the majority of nitrogen and phosphorus discharges to the river come from land use (through diffuse discharges) and natural processes, the Pukete and Ngaaruawaahia WWTP's remain significant contributors of nutrients to the Waikato River.

These WWTP discharges contribute to degraded water quality which, combined with the presence of diffuser structures and lack of any cultural or spiritual purification of the wastewater prior to discharge, results in on-going impacts to the health and well-being of the Waikato River

Lack of integrated, cross-boundary management (problems 1, 2, 3 & 4)

Historically, each of the three local authorities in the Metro Area have planned and funded wastewater infrastructure separately. In the Northern Metro Area HCC, WDC, and Waipā DC are individually responsible for three waters infrastructure and services in their respective communities.

The lack of integrated planning has resulted in:

- Limited cross boundary wastewater management - as an example, Horotiu is currently served by the Ngaaruawaahia WWTP despite being located closer to the Pukete WWTP
- Limited coordination of major wastewater discharges to the river at Hamilton and Ngaaruawaahia, despite the river's hydrological catchment crossing multiple council boundaries and the relatively short distance between these discharge points
- Differing approaches to overall asset management and long-term planning across the Metro Area,
- Differing requirements and expectations on treatment performance/standards, operation, maintenance, monitoring and reporting across the WWTPs , different consent standards and requirements, varying levels of compliance with resource consents, and different levels of engagement

Decisions relating to infrastructure and land development have contributed to a current state where:

- the water quality of the Waikato River is significantly degraded and does not meet current expectations or technical targets
- in general, three waters infrastructure is inefficient and ageing, no longer fit-for-purpose, with a significant legacy of underinvestment
- existing wastewater networks and treatment facilities do not have capacity for future development and intensification
- there is uncertainty around the abilities of councils to fund infrastructure, maintenance, and operations for future growth and the ability of ratepayers to afford appropriate three waters infrastructure in the future.

Exclusion of mana whenua from decision making (problem 1 & 2)

Maaori express a relationship with water as kaitiaki. There are many that consider the water of the Waikato River to be akin to the blood flowing through their veins and the health and wellbeing (mauri or life force) of the river being inextricably linked to that of taangata whenua who have lived along its banks.

Historically, mana whenua have been excluded from strategic infrastructure planning. This has

resulted in prioritisation of engineering design standards based on conventional science to the detriment of maatauranga Maaori science built up over hundreds of years.

Consequently, municipal wastewater servicing across the Metro Area was designed and implemented to meet a standard and level of service acceptable from a western perspective, this has resulted in:

- A prioritisation of discharge to water
- The current treatment plant locations, which were situated as close to the river as possible for discharge purposes
- Current standards of discharge.

Degradation of relationship with the Awa (*problem 2)*

Disposal of human sewage directly to water is offensive to mana whenua, destroying spiritual values and the relationship with the Awa. Waikato iwi, and many other Maaori, have a strong cultural belief that wastewater should be cleaned through contact with land before returning to water bodies and in doing so preserve the mauri of their tupuna.

Impacts on the Awa are further exacerbated by the presence of discharge structures that pierce the bed or banks of the river.

Wastewater disposal, along with the broader discharge of waste to the river, has caused degradation of both the physical and metaphysical condition of the river. Impacts on the ability to swim in and take food from the river have a direct impact on the relationship of Waikato Iwi with the river.

Population growth (*problem 1 & 4)*

The Northern Metro Area is growing. New residential areas, infill development, and new mixed use and industrial developments will add to the wastewater generated in the area.

The 2011-2021 Hamilton City Council Long Term Plan forecasted that Hamilton City would reach a population of 150,000 by 2021. Hamilton City reached this level by 2016. This growth puts pressure on the city's infrastructure, including the Pukete WWTP.

Neither the WWTPs nor the pipe networks connecting our communities to the WWTPs have capacity to manage expected growth without significant investment

Increasing regulatory and community expectations (*problem 3 & 4)*

Changes to national and regional legislation and regulation are requiring councils to provide for more housing development and intensification – with the corresponding increase in infrastructure requirements. At the same time, the importance of the health and wellbeing of the environment is being elevated. Councils must prepare to receive higher volumes of wastewater and treat that wastewater to a higher standard before discharge.

The resource consents for discharges to the Waikato River from the Pukete and Ngaaruawaahia WWTPs expire in the next 10 years. These WWTPs do not reliably comply with their existing consent conditions, let alone the higher discharge standards that will be required to give effect to Te Ture Whaimana and obtain new discharge consents beyond 2027.

Existing infrastructure unable to meet future needs (*problem 4)*

We know that the population base serviced by the Pukete and Ngaaruawaahia WWTPs is growing and that the requirement treatment standard will increase. The current WWTPs cannot:

1. service anticipated population growth
2. meet discharge standards required to give effect to Te Ture Whaimana and obtain new discharge consents.

Lack of appropriate funding sources (problem 1 & 4)

Competing funding priorities and community pressure to minimise rates increases have constrained investment in wastewater infrastructure. Significant investment is required to provide for growth and meet regulatory requirements.

There is a known misalignment between capital investment required to support development and available funding. The Hamilton City Council Infrastructure Strategy (2021-2051) shows a large portion of required investment over the next 10 years is unfunded due to budget constraints.

The economic case

The economic case builds on the strategic case and describes the process to develop and evaluate the long-list and short-list options and details the preferred option. The Northern Metro DBC adopts the long-list assessment and short-list of options developed in the Southern Metro DBC.

The options development and assessment process has been a collaborative effort between the project team and project partners (including HCC, WDC, Waipaa DC, and iwi and hapuu representatives). A series of technical workshop and hui were held with relevant parties to seek input to the options description and then options assessment.

Figure 2 outlines the process used to develop and identify the preferred option and shows the key engagement undertaken throughout the project.

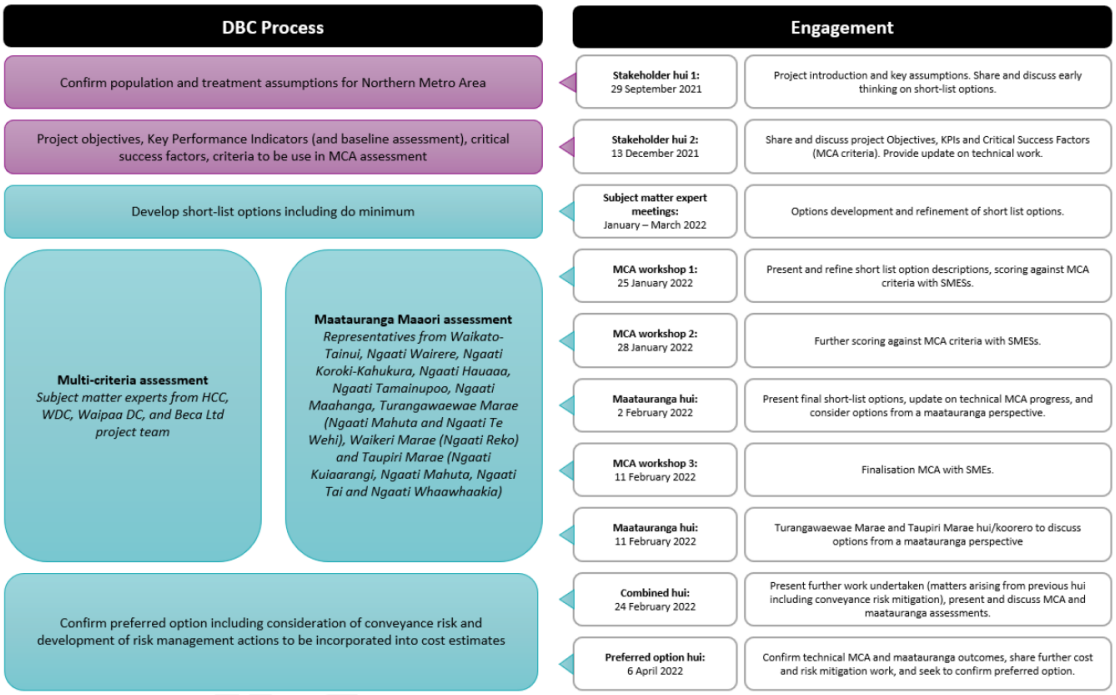


Figure 2: Options development process

Short-list development and assessment

The Southern Metro DBC developed eight long-list options. Building on the work undertaken for the Southern Metro DBC, two broad short-list options were identified for the Northern Metro area: conveying all wastewater to a centralised WWTP at Pukete and retaining both the Ngaaruawaahia and Pukete WWTPs

These were developed into four short-list options:

- Option A: all wastewater is conveyed to an upgraded Pukete WWTP
- Option B1: both the Pukete and Ngaaruawaahia WWTPs are retained and upgraded based on their current catchments
- Option B2: both the Pukete and Ngaaruawaahia WWTPs are retained and upgraded but Horotiu and Te Kowhai are serviced by Pukete WWTP.
- Option C: do minimum - Ngaaruawaahia is upgraded to an MBR while Pukete remains a conventional activated sludge process

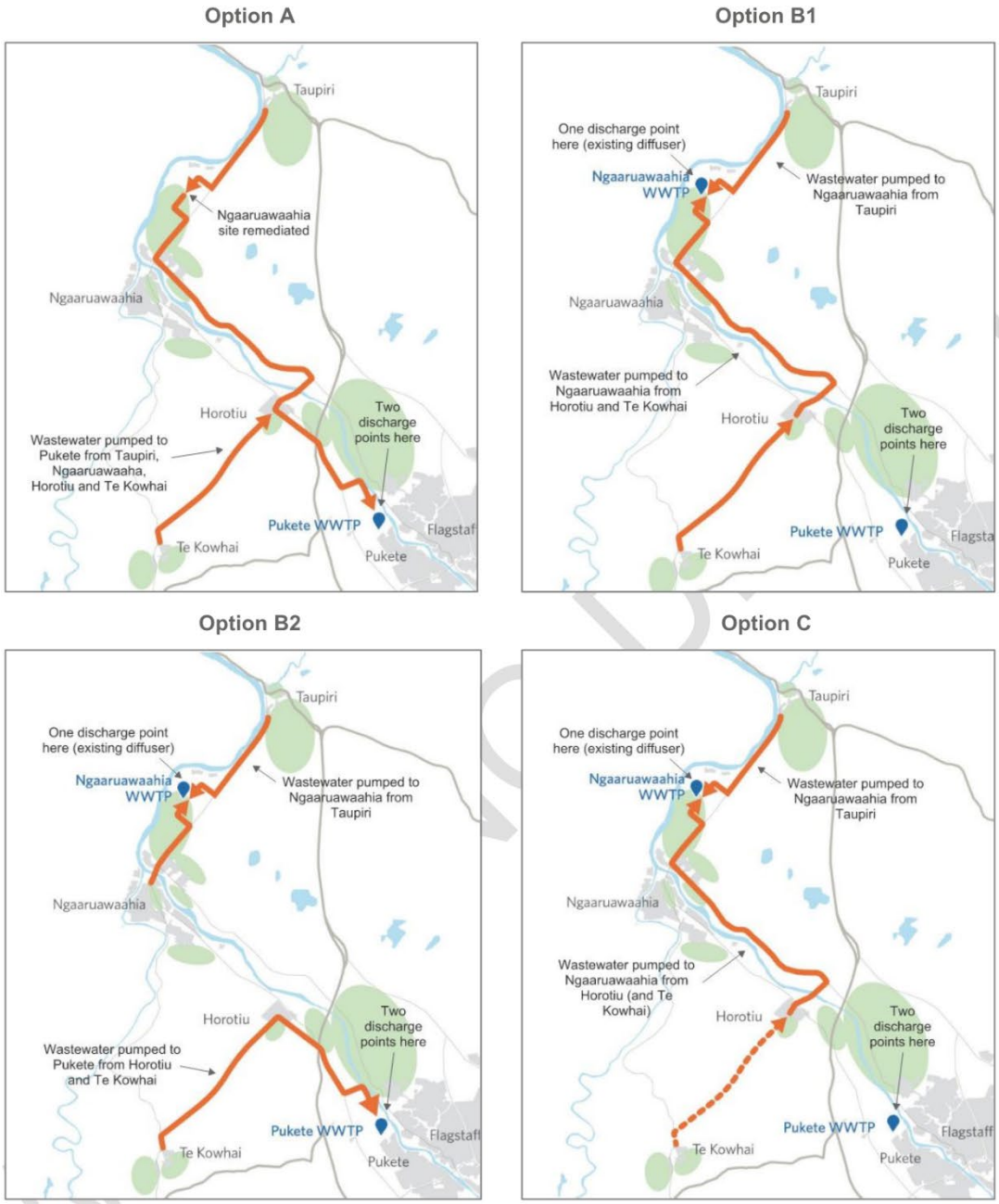


Figure 3: Overview of short-list options

Early assessment concluded that Option C (do minimum) performed poorly against the Project Objectives and that Option B1 did not provide any benefits over Option B2. Therefore, Options B2 and C were discounted.

Options A and B2 were assessed in more detail.

Maatauranga Maaori assessment

The Maatauranga assessment found Option A to be the emerging preferred option.

The assessment concluded that Option B2 could be a reasonable step towards achieving Option A by continuing to operate the Ngaaruawaahia WWTP until such time as it can be decommissioned.

Multi-criteria assessment

The technical MCA identified Option A as the preferred option, subject to management of conveyance risks. However, while Option A scored higher, it was not a clear preference.

Cost considerations

The difference in estimated capital and operational cost of Options A and B2 was negligible within the level of accuracy of the cost estimate.

Summary

Overall, Option A was assessed as preferred over Option B2 because it has lower operational requirements (by requiring only one WWTP), has more flexibility in day-to-day treatment, has a greater ability to respond to growth, has more opportunity for energy and resource recovery, and removes the Ngaaruawaahia WWTP discharge.

Preferred option

The preferred option is Option A: A single centralised WWTP at Pukete with decommissioning of the Ngaaruawaahia WWTP.

This option consists of:

Conveyance	Single centralised WWTP (located at Pukete) to service Hamilton (South Hamilton diverted to the new Southern WWTP from 2061), Ngaaruawaahia, Taupiri, Horotiu, Hopuhopu, and Te Kowhai. Includes two new pump stations and upgrades to two existing pump stations.
Treatment standard	Total N: 4g/m3 Total P: < 0.5 g/m3
Liquid stream treatment	Two stage screening and primary sedimentation followed by Membrane Bioreactor (MBR) and Ultra-Violet (UV) Disinfection.
Reuse and recovery	Maximise reuse and energy recovery opportunities.
Footprint	Reduction in total footprint with option to provide remediation of Ngaaruawaahia site. New pump stations at Taupiri and Te Kowhai and upgrades at Ngaaruawaahia WWTP pump station and Horotiu pump station (Ports of Auckland).
Discharge point	Two (near Pukete) – new discharge point for main discharge with existing retained for future treated peak flow discharge.
Biosolids	Able to be reused subject to market. Advanced treatment options – thickening, thermal hydrolysis (THP), digestion and thermal drying (TD).
Staging	Dual pipelines could be used for all of the routes except Te Kowhai to Horotiu. Existing Taupiri pump stations and rising mains can be used until they reach capacity.
Delivery	Single operator.

[Placeholder for Pukete WWTP layout]

Capital costs

Capital costs were developed based on the scope of the preferred option. Both P50 (most likely) and P95 costs are presented below.

The capital cost estimates do not include capital costs for any required interim upgrades to the Ngaaruawaahia WWTP prior to diversion of flows to Pukete. Capital costs associated with options to include biological phosphorus removal (extra reactors required) and incineration of biosolids are included in the P95 costs but not P50.

Table 1: Preferred option capital cost estimate

	Conveyancing	Treatment	Total
P50 most likely cost	$103M	$772M	$875M
P95 cost	$126M	$1,133M	$1,259M

Table 2: Capital cost estimate (P50) for each 10-year period

	2022 - 2031	2032 - 2041	2042- 2051	2052-2061
Pukete WWTP	$430M	$250M	$32M	$50M
Conveyance: Te Kowhai to Horotiu	$9.7M			
Conveyance: Taupiri to Ngaaruawaahia	$10M			$6.4M
Conveyance: Ngaaruawaahia to Horotiu	$36M			$5.0M
Conveyance: Horotiu to Pukete	$30M			$5.6M
Total	**$515.7M**	**$250M**	**$32M**	**$67M**

Operational costs

Operating and maintenance costs will be incurred once the new WWTPs are operational, and upgrades have been completed at the existing WWTPs. Over time the total operational costs increase as flows increase. These costs cover power requirements, staff costs, maintenance costs, and finance costs.

The operational costs assume thermal hydrolysis and thermal drying are implemented by 2041 and that Hamilton South is diverted to the new Southern WWTP by 2061.

Table 3: Preferred option operational cost estimate

Year	2031	2041	2051	2061
Pukete WWTP	$17.7M	$20.3M	$23.0M	$21.8M
Conveyance	$0.41M	$0.49M	$0.55M	$0.67M
Total	**$18.1M**	**$20.8M**	**$23.6M**	**$22.5M**

Actual demand and timing of servicing from each area will likely vary from the assumptions used in the DBC. The triggers used to inform staging and diversion of the Hamilton South catchment to the new plant proposed by the Southern Metro DBC will need refinement to reflect a more detailed assessment of network capacity constraints.

Financial case

The financial case sets out allocation of costs, funding requirements, preferred funding and financing solutions, and affordability impacts.

There are financial risks and challenges in delivering a complex, long-term programme of works. They include:

- **Long-term programme**: The accuracy of cost estimates is likely to reduce the further out they are being forecast. The timing of elements of capital expenditure could change based on population growth, further reducing levels of certainty.
- **Level of design work to support costings**: Detailed design work has not yet been undertaken and this constrains the accuracy of cost estimates. Costs will be refined as the design work is progressed.
- **Three Waters Reform programme**: The Three Waters Reform programme may change the way wastewater projects and services are delivered and could affect funding and other assumptions.

Cost allocation

The Project will service communities across boundaries and costs will be allocated between councils. Allocation will be undertaken on a 'beneficiary pays' basis. This means costs will be split between councils depending on the proportion of people served and the time period over which they are served. Beneficiaries of the projects are the ones who will ultimately pay for them.

Cost allocation methodologies have been developed for each component of the Project. An overview of those methodologies is on the next page.

The Councils have previously agreed for Southern DBC that WWTP capital costs be allocated between the Councils based on the proportion of population equivalents serviced by the WWTP. This approach has also been adopted for the Northern Metro DBC.

Conveyance capital and operating costs will be allocated to the council whose beneficiaries require such conveyance. For the Northern Metro DBC all conveyance capital and operating costs will all be allocated to WDC.

The analysis considers future costs only, no allowance for costs incurred to date is included. The analysis also does not consider the historical investment by HCC in the Pukete WWTP as a means for reallocating future capital costs between councils given that this is a sunk cost.

Table 4: Cost allocation methodology

Component	Methodology
Local reticulation – capital costs	Costs for upgrades or new local reticulation (where applicable) are proposed to be met by the relevant council (or developer) on the basis that only beneficiaries within the territory would benefit from the works. The relevant council is expected to recover these funds as additional properties are connected.
WWTP - capital costs (upgrades and new plants)	WWTP capital cost allocation follows a 'beneficiary pays' basis, while also considering the asset's useful life. For example, the mechanical and electrical capital costs in a given year are allocated based on the population equivalent demand for the next 20 years.
WWTP - operating costs	Operating costs are allocated on a 'beneficiary pays' basis - the operating costs in a given year are allocated based on the council's proportion of total population equivalent demand in that year. As was the case for the Southern DBC, the calculation of the respective proportions will need to be updated regularly to reflect changes in the level of population equivalent demand in each district. The expectation is that the proportions will be estimated every three years (i.e. to align with Long Term Plan (LTP) cycles), and then confirmed at the start of each financial year as part of the annual planning process.
Conveyance - capital costs	Costs for upgrades or new conveyance are proposed to be met by the council relying on the conveyance for connection. This is because the beneficiaries of the conveyance would be located within that district (e.g. the capital cost of new pipes to connect Taupiri would be expected to be funded by WDC).
Conveyance - operating costs	As per conveyance capital costs, conveyance operating costs are proposed to be met by the council where the conveyance begins from.
Land and consenting costs (Pukete WWTP)	Given the land and consenting costs will benefit all stages of the Project, land acquisition, planning, and consenting costs for the WWTP are proposed to be shared pro-rata[1] according to the council's population equivalent proportion in the final year of capital spend, 2062.
Depreciation	Depreciation expenses are allocated on the same basis as the relevant capital or conveyance capital costs for assets that are depreciating.

Based on the methodologies above, a breakdown providing an indication of each Council's share has been developed. Note that the allocations for the Pukete WWTP use the growth assumptions agreed for this DBC project and will need to be reviewed as part of project implementation.

[1] These flows represent the final state of the preferred option.

Cost allocation for each project component ($000s)							
Capital costs	**Council**	**2022-31**	**2032-41**	**2042-51**	**2052-61**	**2062-71**	**Total**
Pukete WWTP	HCC	351,521	203,188	25,713	39,648	-	620,070
	WDC	25,594	16,905	2,225	3,603	-	48,327
	Total	**377,115**	**220,093**	**27,939**	**43,250**	**-**	**668,397**
Conveyance	WDC	85,470	-	-	16,930	-	102,400
Consenting	HCC	7,703	-	-	-	-	7,703
	WDC	697	-	-	-	-	697
Total		470,985	220,093	27,939	60,180	**-**	**779,197**
Operating costs[2]	**Council**	**2022-31**	**2032-41**	**2042-51**	**2052-61**	**2062-71**	**Total**
Pukete WWTP	HCC	95,793	167,768	191,319	212,500	200,171	867,552
	WDC	1,017	11,892	14,968	16,766	18,259	62,901
	Total	**96,810**	**179,660**	**206,287**	**229,266**	**218,430**	**930,453**
Conveyance	WDC	410	4,180	4,960	5,620	6,700	21,870
Ngaaruawaahia WWTP	WDC	6,174	-	-	-	-	6,174
Total		**103,394**	**183,840**	**211,247**	**234,886**	**225,130**	**958,497**

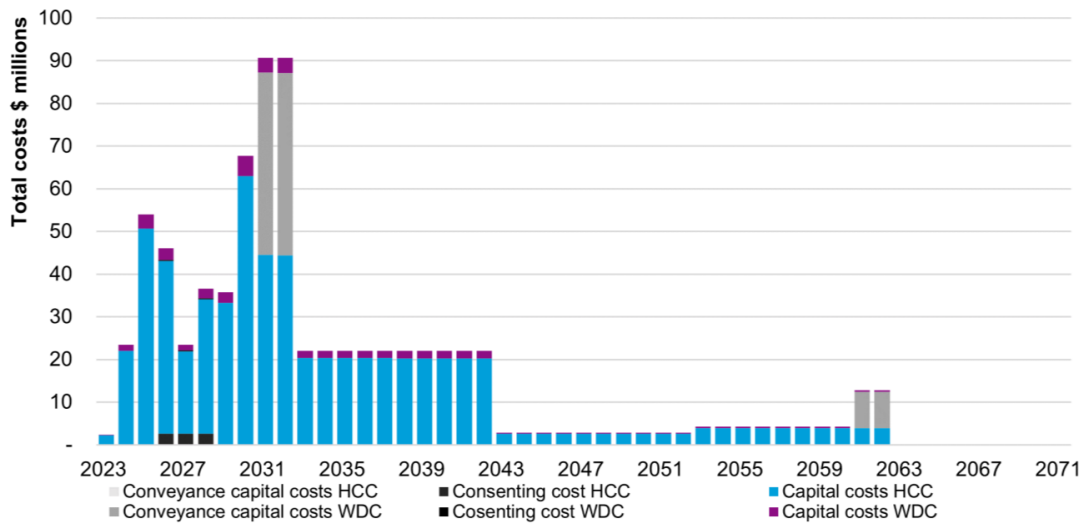


Figure 4: Capital cost council allocation

The cost allocation for the Pukete WWTP in 2022-71 reflects:

- The allocation of consenting costs allocated based on the councils' population equivalent proportion in the final year of capital spend, 2062; and
- The build costs which are predominantly allocated to HCC based on the population equivalents served.

[2] Operating costs continue will continue beyond 2071.

Financing

Similar to the approach adopted for the Southern DBC, the individual Programme projects will be delivered by a single council (the "lead council"). In the case of the Pukete WWTP, the lead council will deliver the project on behalf of the partners. The lead council will utilise its existing resources, policies and procedures for project delivery. Under the lead council model, the financing approach is broadly as follows:

- Financing of the full project cost is proposed to be undertaken by the lead council and where costs have been allocated to other councils (the non-lead council), costs (including financing costs) are proposed to be recouped through a service agreement.
- The non-lead council is expected to meet the service payment through applying its preferred funding tools to the communities that benefit from the Project within its respective territorial boundaries.

An overview of the proposed structure is provided below.

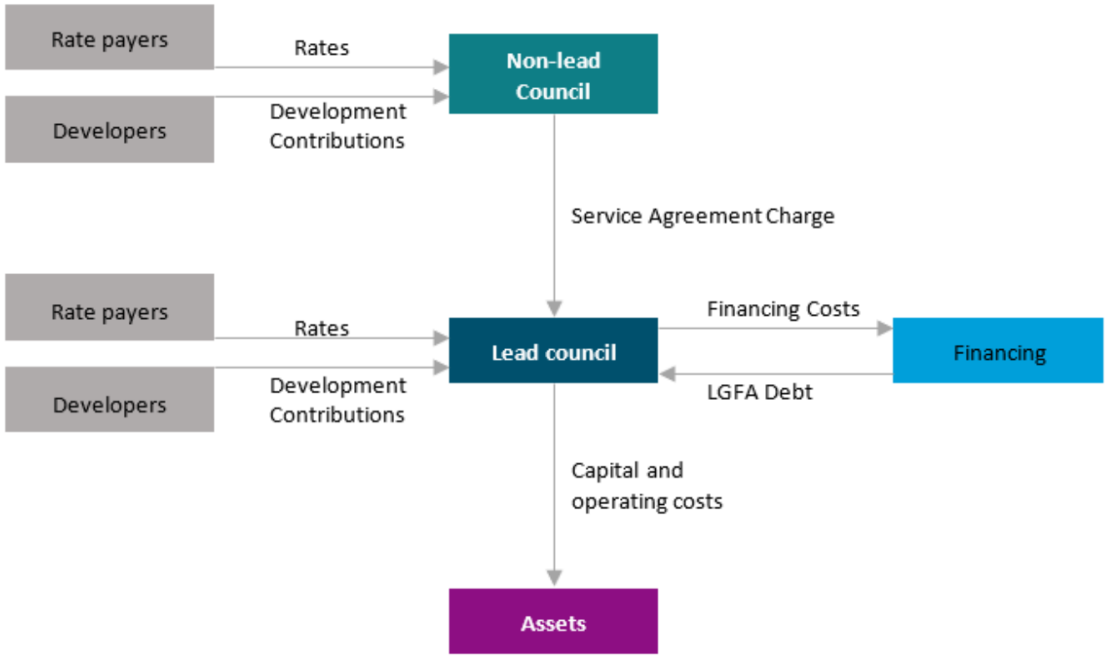


Figure 5: Funding and financing flows

An evaluation of funding and financing options available to councils was undertaken and assessed during the development of the Southern Metro DBC and the outcomes of that have been adopted for the Northern Metro DBC. Based on this, the preferred approach is for each Council to leverage its existing funding tools (i.e., general rates, targeted rates, development contributions etc) as per existing policies. These are outlined below.

Table 5: Preferred options – current council funding and financing approaches

Council	Current funding approach	Current financing approach
HCC	General rates and development contributions (including trade waste or bulk supply arrangements)	Generally debt funded through the LGFA
WDC	Wastewater targeted rate and development contributions (including trade waste or bulk supply arrangements)	Generally debt funded through the LGFA

Responsibility for collecting rates and development contributions will remain with respective councils who will also determine which funding tools are utilised for each project.

Affordability

A high-level affordability assessment was undertaken based on an assessment of:

- The burden on ratepayers to fund the additional general and/or targeted rates;
- The cost to developers of development contributions; and
- The debt headroom under the current relevant Local Government Funding Agency (LGFA) covenants for each Council.

This assessment indicates the work is affordable for each Council. However, this should continue to be tested against the financial risks and complexities. An estimated rating impact as well as a high-level rates affordability assessment are outlined below.

An overview of the estimated annual impact (i.e. the incremental increase in rates per ratepayer) of the Programme on ratepayers is provided below.

Table 6: Estimated average annual rating impact

Year	2032	2042	2052	2062	2072
Hamilton City Council – General rate	$464	$512	$493	$469	$416
Waikato District Council – Wastewater targeted rate	$366	$367	$354	$377	$324

An overview of the affordability of these rates increases is provided below. The assessment is based upon the five per-cent affordability threshold that was identified in the 2007 Local Government Rates Inquiry. Ratepayer affordability has been assessed based on adding the average rating impact for a ratepayer to the average household rates bill as outlined in the Ratepayer's Report[3].

The analysis shown below starts with the median household total (gross) income in Waikato for 2021 ($79,322)[4], assumes wage inflation of 2%, in line with the Labour Cost Index between 1996 and 2022. Average annual rates per household in 2021 of $2,540 and $2,608 for HCC and WDC respectively were increased by the planned rate increase as stated in each of the Councils' most recent LTP.

It should be noted that there are likely other costs that would need to be considered in more detail prior to implementing an increase in rates, such as additional water related costs, mortgage servicing costs and other cost of living increases.

Under current policies, HCC uses a general rate while WDC uses a wastewater targeted rate.

Table 7: High-level rates affordability assessment

Council	Waikato median household gross income (2031)	Affordability threshold (5%)	Average rates per household	Additional project rating impact (2031)	Total rating burden	Affordability check
HCC – general rate	$96,693	$4,835	$4,254	$304	$4,558	✓
WDC – wastewater targeted rate			$3,679	$139	$3,818	✓

This demonstrates that the rating impacts all sit under the affordability threshold set out in the 2007 Local Government Rates Inquiry based on the average additional project rating impact for both HCC and WDC ratepayers.

[3] Average annual rates are from https://www.ratepayersreport.nz/.

[4] StatsNZ.

Development contributions

Affordability of development contributions imposed on future development because of the Project was assessed through the following approach:

- The portion of the Project that is attributable to growth was estimated by Beca based on a high-level best judgement for each individual upgrade on the split between each factor. This split has been reviewed by HCC's asset management team and certain adjustments have been made. The analysis results in a split of 12% renewals, 55% Levels of Service and 33% Growth for Pukete WWTP and 63% Levels of Service and 37% Growth for Conveyance.
- The pro-rata allocation of capital costs to the amount that is attributable to growth was calculated. It is assumed these growth-related capital costs, and the associated debt financing costs, can be recovered from development contributions. Councils consider that a development should make a contribution based on the anticipated demand that it will impose on infrastructure and the cost of providing that infrastructure to avoid ratepayers subsidising these.
- The DC charge was solved for on the basis that the overall DC revenues offset the growth-related costs by the end of each of the Councils' maximum cost recovery period – 30 years for HCC and 25 years for WDC[5]. DC revenue is calculated as the DC charge multiplied by increase in HUE demand in a year, with the DC charge being escalated annually at a rate of 2%, in line with the New Zealand Treasury's inflation guidance[6].
- A new DC charge is calculated every 10 years to reflect how councils will reassess and update their DC models periodically and to demonstrate the impact of the Project on DCs over time, noting some capital expenditure sits outside the 25–30-year timeframes of the Councils' maximum cost recovery period.

A more detailed assessment of the proportion of total capital costs that are attributable to growth, service improvement and renewal expenditure will need to be completed once cost estimates are refined.

The estimated development contribution per HUE of demand for each Council is provided below. Population is converted to HUEs based on 2.7 people per household in the region, as per Census data and HCC's DC policy[7].

Table 8: Estimated development contributions (per HUD of demand)

Council	2022	2032	2042
Hamilton City Council	$4,436	$1,849	$373
Waikato District Council	$6,841	$1,245	$1,839

The development contributions set out above compare reasonably to existing levels charged by the Councils as they fall within the range of existing wastewater related development contribution charges currently outlined in HCC and WDCs respective development contribution policies, this is shown below.

Table 9: Current wastewater related development contribution charged under existing council policies

Council	Policy Reference	Average	Min	Max
Hamilton City Council	Development Contributions Policy 2022/23	$10,061	$7,337	$17,940
Waikato District Council	Development Contributions Policy 28 June 2021 to June 2024	$14,593	$6,807	$36,841

[5] In line with HCC and WDC development contribution policies.

[6] https://www.treasury.govt.nz/information-and-services/state-sector-leadership/guidance/financial-reporting-policies-and-guidance/discount-rates

[7] https://www.stats.govt.nz/information-releases/family-and-household-projections-2018base-2043/

Net present value

A Net Present Value (NPV) for the overall Project has been determined to understand the current value of all the future cash flows of the Project. This measure can be used to test the sensitivity of the Project to changes in the underlying assumptions (e.g. the discount rate or changes to costs).

The estimated NPV for the Project is -$912,823,346, which is based on the Projects capital and ongoing costs and a five percent real, pre-tax discount rate (as per the New Zealand Treasury guidance)[8].

While renewal capital costs and operating costs would continue beyond the end of the financial forecasting period, a terminal value is not included in the NPV calculation.

Sensitivity analysis was carried out to understand the potential impact on the NPV as a result of several key risks eventuating. The risks include changes to discount rate, operating costs, and capital costs.

The NPV sensitivity analysis indicates that the impact of these risks eventuating is relatively minor in the context of the overall NPV for the Project. In relative terms, capital costs have the greatest impact on NPV as compared to operating costs and discount rate, however this impact with respect to the overall Project costs remains minor. Accordingly, there is still expected to be a material impact on affordability if there are significant cost overruns.

Affordability for councils – Debt-to-revenue

The estimated financial impact on the debt-to-revenue ratio for each Council over the most current 10-year LTP period was assessed. Debt forecasts were not available beyond this period.

The councils are forecast to remain within the debt to revenue caps after allowing for the impact of the Project over the next 10 years, although WDC do get close to breaching their debt limit around 2029.

A sensitivity analysis on the debt to revenue ratios was completed by applying changes to capital costs (+10% and +20%). The analysis identified that HCC and WDC are not significantly impacted in the next 10 years due to the comparatively small capital expenditure.

[8] https://www.treasury.govt.nz/information-and-services/state-sector-leadership/guidance/financial-reporting-policies-and-guidance/discount-rates

Commercial case

The commercial case considers the approach to packing and contracting options, the procurement plan, potential for risk-sharing, and the planned contractual arrangements.

Procurement

Councils will be encouraged to follow Government Procurement Rules. Procurement for all Projects will be undertaken via competitive tender to ensure market tension and drive value for money.

A detailed procurement plan will be prepared for each package of works. A cross-functional tender evaluation team will evaluate the bids and recommend a preferred supplier. An independent Probity Auditor will shadow the tender process.

Contracting models

A number of contracting models were considered. The Southern Metro DBC has been used as a starting point for consideration of contracting models. The Southern Metro DBC assessed a variety of contract models but generally concluded that only Construction and Design & Build contracts were appropriate.

The preferred contracting, packaging and procurement strategy for each of the Projects is outlined below.

Ngaaruawaahia WWTP interim works

A single package for each stage is recommended: interim upgrades (short-term) and medium-term re-consenting/capacity upgrades (if required). It is proposed that these works would be delivered under existing WDC contract/procurement arrangements (using funding already committed in the WDC LTP).

Pukete WWTP upgrades

The procurement strategy is focussed on the works required to implement the initial MBR transition. The preferred strategy splits the upgrade into a number of packages including:

- Inlet works
- New buildings
- Pre-MBR transition works (4th primary sedimentation tank and solids upgrade stage 1)
- New outlet structure
- MRB transition works (conversion to MBR, 6th reactor, and UV replacement)
- Post-MRB transition works (stormwater upgrades and solids stage 2)

If an appropriate contractor is selected, some of these packages may be able to be aggregated.

It is proposed to tender these packages using a traditional “construction only” contact.

Conveyancing

The preferred strategy is to tender two separate work packages: a pump station package and a conveyance pipelines package. It is proposed to tender the pipelines package as a traditional ‘construction only’ contract with an opportunity to further explore a Design and Build contract for the pump stations package.

If concerns arise with contractor capacity to deliver these large packages within required timeframes, an option has been identified to engage two contractors in a “panel” arrangement and issue individual conveyance packages as design is completed.

Ngaaruawaahia WWTP decommissioning

At this stage, limited consideration has been given to future use of the Ngaaruawaahia WWTP site post-decommissioning. Beyond the conveyance infrastructure that will remain on the site, the site redevelopment could range from returning to pasture, to indigenous terrestrial or wetland planting, or to something more complex.

The preferred packaging will depend on the complexity and timing of the redevelopment and should be confirmed during design development

New Zealand Standard form contracts are expected to be used. The Lead Council will own the wastewater assets as an asset on their balance sheet. There is not anticipated to be any of-balance sheet treatment under the 'construction only' or 'design and build' contracting structures. Assets underpinning delivery of the services will be held on the balance sheet of the Lead Council.

The management case

The management case sets out the programme and project governance and management arrangements, roles and responsibilities, and change, benefits, and risk management.

Project delivery

Given the Projects will be undertaken at different times, locations and by different parties, strong collaboration between the respective councils, iwi and mana whenua will be required to successfully deliver the strategic outcomes agreed in the DBC. A Memorandum of Understanding (MoU) is intended to be entered into shortly after the finalisation of the DBC to capture these requirements.

The MoU outlines the parties' continued commitment to cooperation, collaboration and delivery of the strategic outcomes. It is expected items agreed in the MoU could transition into a three waters entity given the potential for significant structural change to three waters services delivery in New Zealand as a result of the Three Water Reform Programme.

Individual projects will be delivered by a single council (the Lead Council) on behalf of all partners. Lead Councils will retain oversight of core project delivery functions and will be responsible for consenting and planning, procurement, construction management and asset management. While Lead Councils will undertake consenting applications, any cost savings or joint benefits from a global approach must be considered.

Resourcing for each project will also be managed by Lead Councils.

HCC will be the lead council for the Pukete WWTP upgrades. WDC will be the lead council for works at the Ngaaruawaahia WWTP and for conveyancing packages.

Governance

The proposed joint governance structure will ensure strategic directives are being followed by Lead Councils and that opportunities for collaboration and integration are captured. The Project Partnership Group (PPG) will provide direct oversight but cannot make decisions on behalf of their home organisations.

The Programme Director will be independent of all partners, will sit across the whole programme and report to the PPG. The Programme Director will be the key intermediary between the individual projects and the PPG.

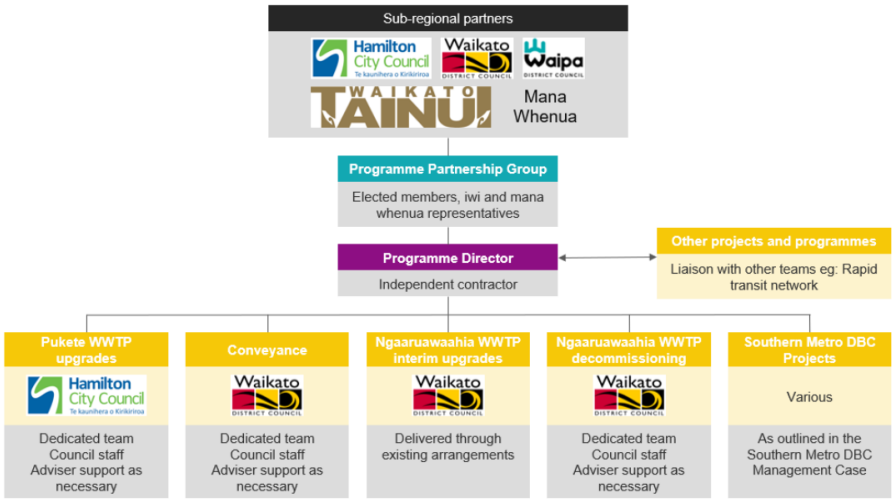


Figure 6: Governance and delivery structure

Risk and reporting

Key risks for the Northern Metro DBC are broadly similar to those identified for the Southern Metro DBC including risks associated with funding availability, cost estimation and escalation, achieving partner expectations, consentability, impacts of Three Waters reform, and integrated delivery.

The risk treatment and action plans set out in the Southern Metro DBC will be adopted.

There are additional risks specific to the Northern Metro DBC:

- Breakdown of relationship with iwi partners impacting particularly on re-consenting of Pukete discharge, design and consenting of the new Pukete outfall, and decommissioning and remediation of the Ngaaruawaahia WWTP
- Population growth exceeds assumption requiring future Pukete upgrades earlier than anticipated (if Southern WWTP is not available or flows cannot be diverted) or, in the shorter term, wastewater flows to Ngaaruawaahia WWTP exceed treatment capacity prior to flows being diverted to Pukete WWTP
- Challenges associated maintaining compliant operation during the Pukete MBR conversion and other upgrade and renewals at the Pukete WWTP
- Conveyancing: Through both the maatauranga evaluation and the technical MCA process, a number of participants highlighted the conveyance risks associated with the longer conveyance required for the preferred option including:
  - Greater residence time resulting in a higher risk of septicity and odour
  - Greater impact in the event of equipment breakdown/malfunction or pipe failure (third party damage or earthquake events)

  There are mitigation activities that can be undertaken to reduce the conveyance risks:
  - Use of twin mains to reduce septicity risk and increase resilience
  - Provision of backup generators/pumps
  - Isolation valves
  - Calamity storage
  - Material selection

  These mitigations were factored into the short-listed options development and costings

The Northern Metro DBC also identifies opportunities:

- **Alignment with other projects and programmes**: Some or all of the required conveyance network construction is likely to occur along the alignment of the proposed rapid transit network. There needs to be some effort put into aligning delivery of these projects (ie construct new wastewater mains when the rapid transit network is being constructed): both for cost effectiveness and to minimise disruption to local communities.
- **Sustainability and carbon reduction**: Opportunities for carbon reduction include:
  - Designing pump stations for future capacity (to minimise later re-work)
  - Minimising concrete manholes
  - Optimising design to minimise storage requirements and reduce pipe size and pressure class
  - Optimising Pukete WWTP design to minimise material use and investigate lower carbon concrete
  - Reuse existing assets where practicable
  - Selection of energy efficient equipment
  - Optimisation of energy recover and energy efficiency including through specifying high-efficiency and/or low power alternatives and using advanced process monitoring and control.

Operational changes

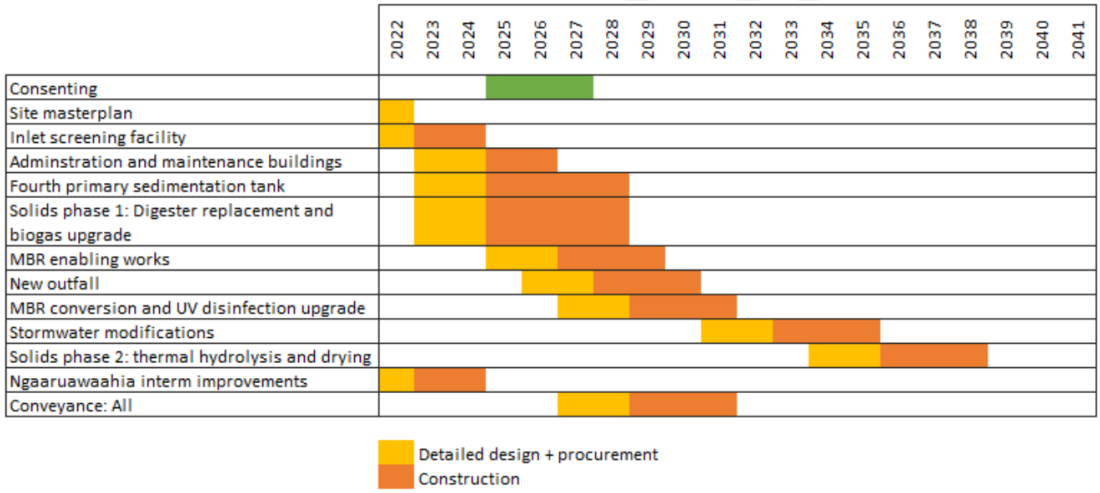
This DBC will result in two major operational changes:

- **Pukete WWTP**: The new MBR plant will be more demanding than the existing conventional plant from an operations and maintenance perspective. Operations will require at least three additional Full Time Equivalent employees and additional maintenance resource. Training of existing and new staff will be undertaken as part of project implementation to reflect changes to the treatment process and technology. The design team, contractor, and any process equipment suppliers are expected to be involved in this training.
- **Ngaaruawaahia WWTP**: Once decommissioned, operational staff will no longer be required at the Ngaaruawaahia WWTP. It is assumed they can be redeployed elsewhere within the Waikato DC wastewater service.

Existing asset management, risk management, and project delivery policies and procedures will be updated as required to reflect changes to the conveyance and treatment network. No material changes are anticipated.

Project plan

The high-level Project schedule for the Pukete WWTP MBR-transition and new conveyancing is provided below.



Decommissioning of the Ngaaruawaahia WWTP would progress post-2031.

Next steps

Formal approval from the Partners to progress the implementation of the preferred option recommended in this DBC is required.

The immediate next steps are outlined below:

1. Finalise and enter into the MoU (if not already complete).
2. Establish the proposed governance structure, including the PPG and the Programme Director.
3. Progress with the proposed project plans. The initial activities are outlined below:
   a) Pukete WWTP:
      i. Continue existing programme of works (including inlet screen replacement)
      ii. Complete Site Masterplan
      iii. Progress pre-MBR transition works (ie those works not impact by the discharge consent renewal including the fourth primary sedimentation tank and new buildings)
      iv. Complete consent applications
   b) Ngaaruawaahia WWTP:
      i. Progress works to bring WWTP back into compliance with current resource consent
      ii. Commence discussions regarding future use of site
   c) Conveyancing
      i. Complete design and consenting

Waikato Northern Metro Wastewater Treatment

Detailed Business Case

Prepared for Hamilton City Council
Prepared by Beca Limited

[Publish Date]

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Revision History

Revision N°	Prepared By	Description	Date
1	Mhairi Rademaker	Strategic Case working draft issued to HCC for comment	17/05/2022
		Strategic and economic case working drafts issued to HCC for comment	27/06/2022
		Commercial and management case working drafts issued to HCC for comment	19/08/2022
2	Mhairi Rademaker	Five cases combined into single working draft document and issued to HCC for comment	29/08/2022

Document Acceptance

Action	Name	Signed	Date
Prepared by	Mhairi Rademaker		
Reviewed by	Robert Brodnax		
Approved by	Robert Brodnax		
on behalf of	Beca Limited		

Contents

Appendices (to be added)

Appendix A – Northern Metro DBC Investment Logic Map

Appendix B – Short-list Options Assessment

Appendix C - Multi-Criteria Assessment Workshop Record

Appendix D - Preferred Option Technical Report

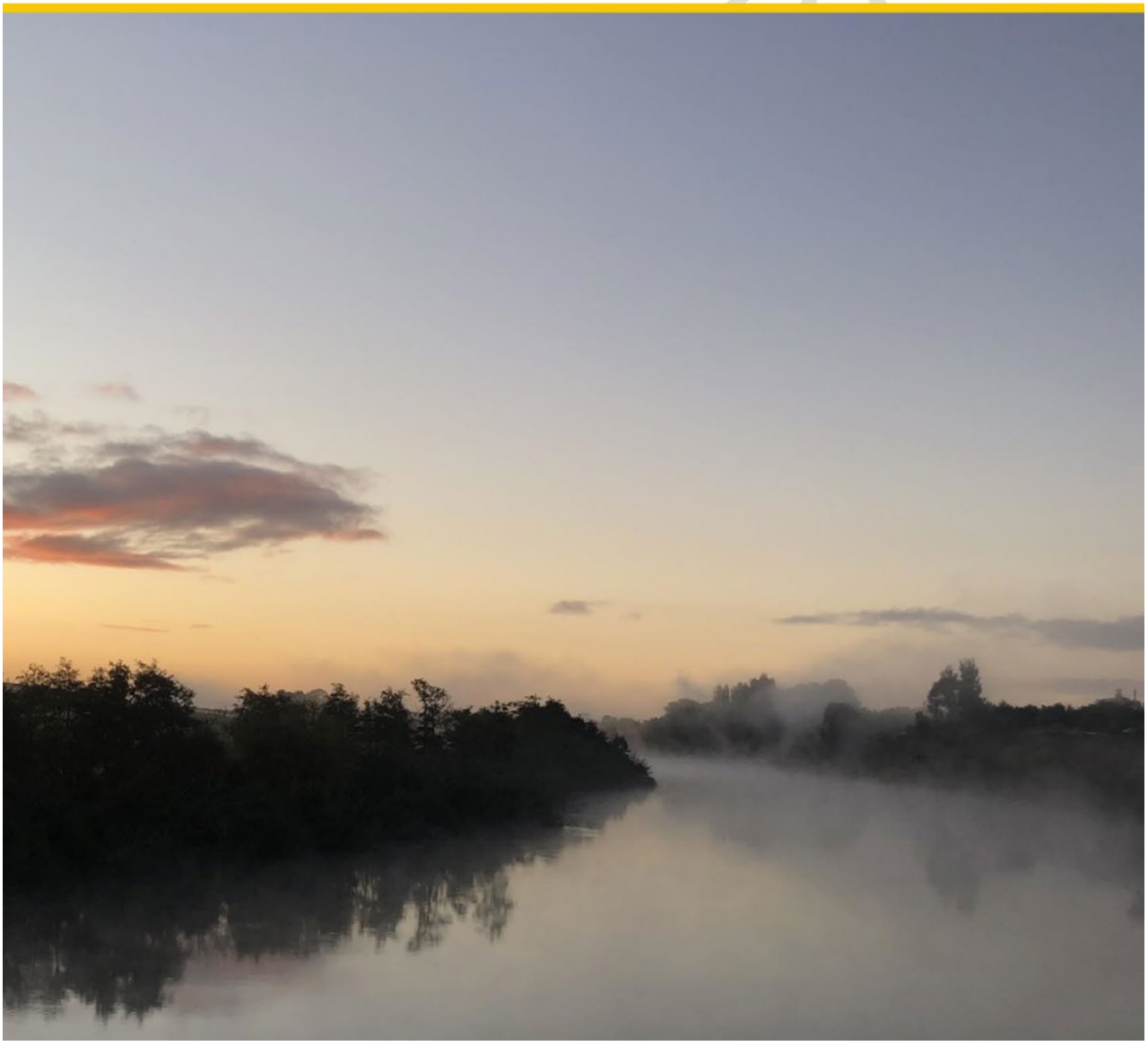
Appendix E – Full Financial Case – PriceWaterhouseCoopers

Appendix F - Contracting options

Appendix G – Project Risk Registers

Appendix H – Chief Executive Officer Letters

Strategic Case



1 Introduction

The Hamilton-Waikato Metropolitan Area (Metro Area) is the urban sub-region of the Waikato. It is centred around Hamilton City as the core but extends from Taupiri in the north to Te Awamutu and Cambridge in the south. The Metro Area sits across three local authority jurisdictions (Waikato District, Hamilton City, and Waipaa District).

This Detailed Business Case (DBC) is concerned with the Northern Metro Area, which extends from Hamilton to Taupiri including Hopuhopu, Ngaaruawaahia, Horotiu, Te Kowhai, Hamilton North, and the area east of Hamilton.

The Northern Metro Area is serviced by the Ngaaruawaahia and Pukete Wastewater Treatment Plants (WWTPs). These WWTPs hold resource consents to discharge treated wastewater to the Waikato River. These consents expire in 2029 and 2027 respectively.

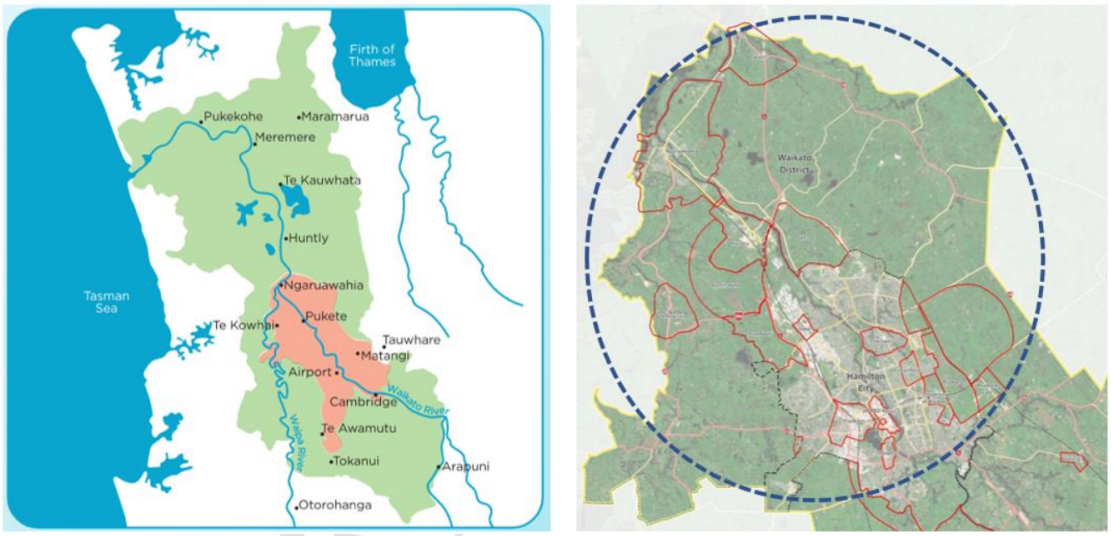


Figure 1: LEFT – Metro Area shown in orange. RIGHT – Northern Metro Area

The Metro Area is growing faster than expected. New residential areas, infill development, and new mixed use and industrial developments all add to the wastewater generated in the area and put pressure on our wastewater conveyance and treatment systems. This growth is expected to continue with the projected residential population rising from 232,000 in 2021 to 344,000 in 2061. The Metro Spatial Plan estimates up to 500,000 residents will call the Metro Area home within the next 100 years.

Wastewater network design is based on Population Equivalents: a parameter used to give an estimate of wastewater generation across a range of residential and non-residential activities. Between 2021 and 2061, the Northern Metro Area is expected to grow from approximately 190,000 to 316,000 population equivalents.

Neither the WWTPs nor the pipe networks connecting our communities to the WWTPs have capacity to manage this growth without significant investment.

At the same time, wastewater treatment standards are increasing. We recognise that our awa and whenua not only cannot be allowed to degrade further as a result of human activities but must be restored in accordance with Te Ture Whaimana. Changes to legislation and the expectations of stakeholders and our community mean we cannot continue to discharge wastewater in the same way we have in the past.

The upcoming consent expiry, expected growth, and need to treat wastewater to a high standard provide us with an opportunity to look more strategically at how we manage wastewater in the Northern Metro Area in the long term.

Strategic wastewater management decisions need input from all three local authorities and mana whenua. The project delivery structure includes equal representation from local authorities and mana whenua at all levels of the project from governance through to technical project teams.

This DBC identifies and recommends long-term wastewater treatment solutions for the Northern Metro Area and seeks formal approval to invest in a wastewater treatment solution. We aim to achieve "*Best for River, Best for Community*" outcomes that contribute to achieving the vision and objectives of Te Ture Whaimana o te Awa o Waikato – The Vision and Strategy for the Waikato River.

This project will aim to align with the overarching Waikato Sub-regional Three Waters vision:

Tooku awa koiora me oona pikonga he kura tangihia o te maataamuri

"The river of life, each curve more beautiful than the last"

…a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come.

It builds on the Waikato Sub-Regional Three Waters Strategic Case (December 2019), Waikato Sub-Regional Three Waters Programme Business Case, and Waikato Metro Wastewater Treatment DBC (referred to here as the Southern Metro DBC), refer Figure 2.

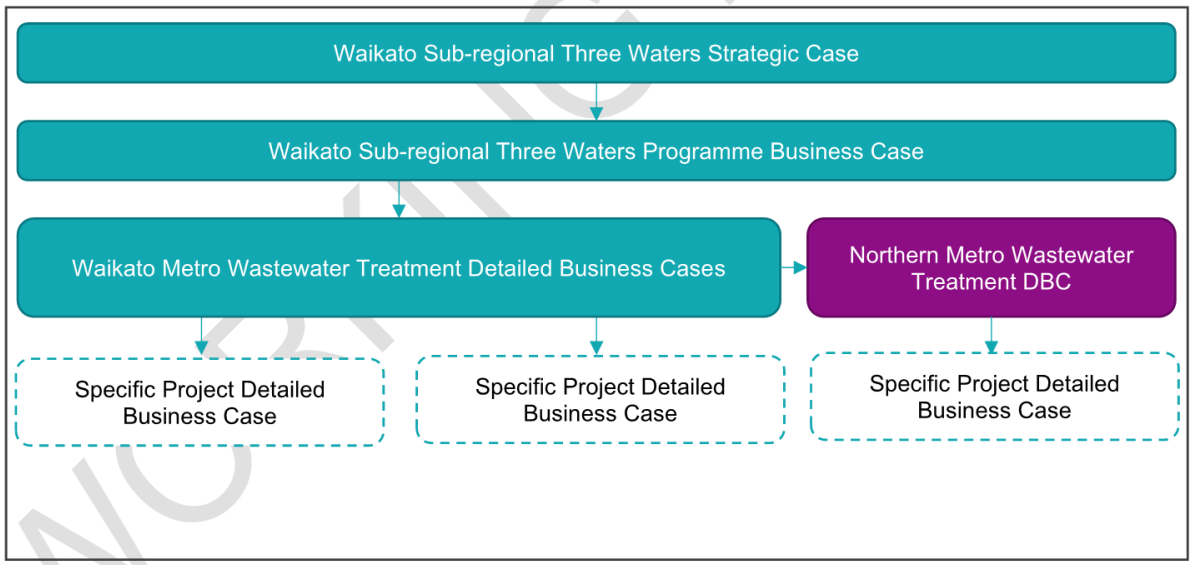


Figure 2: Relationship between different Business Cases

This Northern Metro DBC is one of a number of business case documents that map out the strategic intent for wastewater infrastructure in the metro area.

Where appropriate, this DBC does not repeat information set out in those previous documents. The problems, benefits, investment objectives, and key performance indicators (KPIs) have been generally adopted from the previous business cases (particularly the Southern Metro DBC). This DBC focusses on demonstrating how those previously agreed statements apply to the Northern Metro Area and whether there are any adjustments required.

Following the five case Better Business Cases model (BBC), this DBC is split into five sections:

- The **Strategic Case** evaluates the strategic need for the project and demonstrates the case for change. This DBC will focus on reviewing and refining the case for change set out in the Southern Metro DBC.
- The **Economic Case** develops options and evaluates which option is most economically, environmentally, and socially desirable. This DBC starts with the short-list options identified through the Southern Metro DBC, refines these short-list options, and then uses a Multi-Criteria Assessment (MCA) to determine a preferred way forward for the Northern Metro Area.
- The Financial Case sets out allocation of costs, funding requirements, preferred funding and financing solutions, and affordability impacts.
- The Commercial Case considers the approach to packing and contracting options, the procurement plan, potential for risk-sharing, and the planned contractual arrangements
- The Management Case sets out the programme and project governance and management arrangements, roles and responsibilities, and change, benefits, and risk management.

In summary, the purpose of this DBC is to:

- Demonstrate the need for investment
- Identify the investment option that most effectively delivers Best for River outcomes
- Prepare the investment proposal for procurement
- Plan the necessary funding and management arrangements for the successful delivery of the project
- Assist decision-makers to determine arrangements for implementation and funding of the project.

Dialectal conventions: For this DBC, the double vowel dialect has been adopted, except for direct quotes where tohutō (macrons) have been adopted.

2 Ko Taupiri te Maunga, ko Waikato te Awa

The following section provides an overview of the significance of the key areas and spaces of significance to mana whenua. In particular the focus on the Waikato River, Kirikiriroa-Hamilton, Ngaaruawaahia, and Taupiri. The information provided below is generally well known by mana whenua. It informed technical workshops and was a significant factor for mana whenua in determining their preferred option for the Northern Metro DBC.

To the Iwi of Waikato-Tainui, the story is told of Tongariro and Taupiri who grew up as brother and sister in the Taupo region, the lands of Tuwharetoa. Taupiri married a rangaatira maunga named Pirongia from the Tainui region. For some years Taupiri lived happily in her new home, just north of Ngaaruawaahia, although she sometimes felt homesick for Tongariro, her friends and whaanau in Tuwharetoa. It is said that the Hakarimata Range are the children of Taupiri and Pirongia. Sadly, she separated from Pirongia, eventually fell ill and none of the tohunga (*priests*) could cure her. Taupiri sent forth a servant to Tongariro, to bring back some water from a tapu (*sacred*) spring.

After an arduous journey south, the servant and his dog found Tongariro who sent waters from the spring high up the mountainside. Tongariro commanded that the stream follow the servant on his journey, so that Taupiri should have a constant supply of the sacred waters. The stream flowed into the great crater that is called Taupo-nui a-Tia, and then overflowed northward. The people of Te Arawa tried to entice the river to flow through their land, but the servant's dog dug a ditch to persuade it to turn westward, near Te Ohaaki, and then resume its northward journey. At Piarere, it was diverted again, to flow north through the Hinuera valley. It heard the surf on the beach of the Bay of Plenty, but it was blocked by the Kaimai Range, and so it flowed on out to sea in Hauraki. The servant and his dog were unable to stop the river, so they journeyed on to the home of Taupiri with their calabashes of sweet water from Tongariro.

Taupiri recovered from her illness and the Tainui people planned a return visit to Tongariro. During the preparation for this journey the servant told her of the runaway river Tongariro had sent to her, which had escaped to Hauraki. Taupiri began a karakia and her message was carried southward by the wind. Tongariro heard it and he too began a karakia that summoned Ruaumoko, the maker of earthquakes. He woke in a terrible fury, volcanoes erupted and the land shook and split. The river did not know where to turn, but it heard the familiar sound of the servant's dog barking, and it followed that to the home of Taupiri and eventually reached the sea of the western coast, Te Puuaha o Waikato. And so the Waikato River came to flow in its present course and provide sustenance for the Waikato tribes along its lower reaches, including the people of Kirikiriroa. Without Taupiri maunga, the Waikato River would not have traversed here. Without the Waikato River to invigorate the lands and its people, we would not have Kirikiriroa-Hamilton.

2.1 He piko he taniwha, Waikato taniwharau: Kirikiriroa

The earliest recorded settlers in the Hamilton area were Maaori from the Tainui waka. The taangata whenua (*people of the lands*) called an area on the west bank of the Waikato River Kirikiriroa (long reaching sands), which is the Maaori name for Hamilton today.

Kirikiriroa has a history of 700-800 years of Maaori occupation and settlement, highlighted by Paa sites, gardens, soils, and agricultural features along the Waikato River and surrounding waterbodies. There were many Paa sites in Kirikiriroa, including Kirikiriroa Paa itself. The main hapuu of Kirikiriroa and the surrounding areas are Ngaati Wairere, Ngaati Mahanga, Ngaati Hauaa, Ngaati Korokii Kahukura, Ngaati Tamainupoo and Waikato-Tainui. They are Taangata Whenua.

Taangata whenua, in simple terms, are naturally the people of the lands. Tangata whenua have a historic and spiritual affiliation to the lands, waters and all the taonga that they embrace. The people and marae of Kirikiriroa continue to occupy and acknowledge their affiliation and interests to the wider Hamilton area. Taangata Whenua are representative of their marae and whaanau in matters related to local and central Government, fisheries, aquaculture, farming, education, environmental, social and other affairs. The Taangata

Whenua hold political and occupational authority over Kirikiriroa that is determined by whakapapa (genealogical ties) and secured by ahi kaa (continued occupation). They have a responsibility to protect the natural resources, mahinga kai, and other values of Kirikiriroa for the benefit and use of their whaanau and people of Kirikiriroa.

Formal European settlement was established on 24 August 1864, when Captain William Steele came off the gunboat Rangiriri and established the first redoubt near what is now known as Memorial Park.

A military outpost was set up in Hamilton East, which was originally destined to be the main street of Hamilton. Evidence of planning for the centre of the village can be seen in the 'village square' concept of Steele Park and the planting of English trees along Grey Street. The area was later renamed Hamilton after Captain John Charles Fane Hamilton, who was killed at the battle of Gate Pa in Tauranga in 1864.

The Borough of Hamilton was established in 1877 with a population of 1,245 and an area of 752 hectares. In December 1945, Hamilton became a city with 20,000 citizens.

Kirikiriroa is populated with historic paa sites, especially along the banks of the Waikato River. There are also many cultural corridors which are recognised as visual shafts (to the Waikato River or other taonga) and ara tuupuna (ancestral walkways).

Figure 3: Paa sites in Kirikiriroa [Source: Te Huia Consultants Limited]

2.2 Ngaaruawaahia

The following information was provided by Kimai Huirama of Ngaati Tamainupoo, describing the commonly known story about the naming of Ngaaruawaahia.

Our story begins in the early 1600s with the chiefs, Kookako and Tuuheitia, who were mortal enemies. After Tuuheitia died of mysterious circumstances, the bitter feud continued between his son, Maahanga, and Kōkako.

Kōkako had a son with Whaeataapoko from Marokopa, who they named Tamainupō. Eventually, Tamainupō married the daughter of Maahanga, who was called Tuukotuku. After the birth of the couple's son, Wairere, peace was made between Maahanga and Kookako. According to Ngaati Tamainupoo traditions, Maahanga gifted half of his lands to Tamainupō and Tuukotuku as a peace offering. The other half was gifted to another

daughter, Waitaawake. The whakapapa ties between descendants of Ngaati Maahanga, Ngaati Tamainupō and Ngaati Wairere are still acknowledged today.

Wairere married Hinemoa from Ngaati Maahanga, and they had a son named Whenu. As was the custom, Whenu's people gathered the bones of past chiefs into flax baskets and carried them to a cave in Raglan. So that this task would be remembered, Whenu named his son Keteiwi, which means "Basket of Bones." When Keteiwi grew up, he married Hinemata. She was the daughter of Paoa and Tukutuku. Paoa was another Waikato chief of that time and Tukukuku was a woman from the Hauraki region. Keteiwi and Hinemata had many children and two of their sons were Toa Kotara and Ngaere.

Because of the land gift from Maahanga, the traditional pou whenua (tribal boundaries) of Ngaati Tamainupō are extensive and spread across a large part of the Waikato region.

In the early 1700s, Keteiwi was chief of Pukeiaahua, the principal Ngaati Tamainupō Paa located in the area now known as Ngaaruawaahia. His eldest son, Toa Kotara, was betrothed to Hekeiterangi of Ngaati Maniapoto, daughter of a chief called Maniauruahu. When the tribe visited Hekeiterangi's people, she fell madly in love with the younger son, Ngaere, instead.

Hekeiterangi was disowned by her father for going against his wishes and she returned to Pukeiaahua as Ngaere's wife. After Hekeiterangi gave birth to their son, the couple invited her father to the child's naming ceremony to heal the rift between them. Maniauruahu accepted their invitation. As he travelled with his large group along the Waipaa River, they were met with great hospitality from the villages they came across. Whenever Maniauruahu asked who their chief was, the answer was always 'Ngaere'. By the time Maniauruahu reached Pukeiaahua, he had a new-found respect for Ngaere and gave his approval for their marriage. At the ceremony, Keteiwi named the child 'Te mana o te Rangi' (the greatness of the day) because Ngaati Maniapoto had honoured them with their presence.

For the celebration feast, mounds of uncooked delicacies stretched from Te Huinga o Ngaa Wai (the place where the Waipaa and Waikato Rivers meet) to Pukeiaahua. The sight of the plentiful food resembled the nearby hills, so they were given the name, Haakarimata (Haakari = feast; Mata = preserved or uncooked food). After the formalities, Ngaere called out "Waahia ngaa rua! Break open the food pits!" The feasting and celebration began and continued for many days and nights, strengthening the kinship bonds between Ngaati Maniapoto and Waikato. This is the centuries-old story of how Ngaaruawaahia got its name.

Figure 4: Sites of significance around Ngaaruawaahia [Source: Te Huia Consultants Limited]

2.3 Taupiri

Taupiri is the foremost reason for the current position of the Waikato River. Te Mata o Tuutonga is the prominent paa on Taupiri Kuao, which is the smaller knoll of Taupiri Range, where the people of the Waikato are buried.

The area around Komakorau, with its swamps and lagoons, is described as teeming with eels and wild-fowl, which were stable food resources. Te Wherowhero, the first Maori king, lived for a time on the west side of the Waikato River at Taupiri in the early nineteenth century.

Leslie Kelly (1940 & 1949) describes the Taupiri area as "*the home of Mahuta and Paoa, the sons of Hekemaru. The former lived at Komakorau in his village Te Uapata, while the latter occupied a settlement on the bend of the Waikato immediately opposite Taupiri mountain, called Kaitotehe."* Paoa left the district by way of the Mangawhara Stream and travelled to Hauraki, but Mahuta remained.

Mahuta's grandsons, Wharetiipeti and Tapuae, continued to occupy the paa Te Uapata, but ultimately decided they wanted the better gardening land available on the western bank of the Waikato River, opposite Taupiri mountain at the place called Kaitotehe. Te Uapata was a swampy place, but Kaitotehe had soil better suited to kumara cultivation. By using a ruse, i.e. assisting Te Iranui and his people with planting kumara, Wharetipeti and Tapuae were able to over-power Te Iranui and capture his tribes' lands on the west bank of the Waikato River at Kaitotehe, opposite Taupiri mountain. Wharetiipeti and Tapaue were to remain at Kaitotehe.

Ultimately, both brothers were killed by Te Ruinga (Rangihoto's son) and his friend Maoa as a result of their deeds.

Te Putu, the son of Tapaue, lived his life at Taupiri, with his son Tawhia-ki-te-rangi. The time came when Ngaati-Raukawa, began to encroach upon the territory of Ngaati Maahuta. Gradually moving northward, they established themselves at Nukuhau and Tamahere, at Horotiu or that part of the river between Kirikiriroa

(Hamilton) and Ngaaruawaahia. Naturally this move was strongly resented by Waikato, and open hostilities broke out, with the result that Ngaati Raukawa, under their chief Ngatokowaru, paddled downstream and attacked the chief Kakeha at Te Pepepe.

Te Putu was by this time an old man, and it now fell upon his son Tawhia-ki-te-rangi to lead the people. News that Te Pepepe was beseiged was soon communicated to Ngaati Maahuta and messengers hurried off to rally their own warriors to assist in repelling the invaders. In answer to the call a detachment of Ngaati Te Ata, Ngaati Tipa and Ngaati Tahinga came up the river in the war canoe Taraweka and anchored opposite Te Pepepe, where they were joined by other canoes belonging to Tawhia-ki-te-rangi and Ngaati Mahuta.

A landing was now made, and a battle raged in the open in front of the palisades of the Paa. Seeing their enemies attacked by fresh warriors Kakeha and his people rushed forth to assist their friends; and thus assailed, Ngaati Raukawa were defeated, losing many of their men, the survivors being literally driven into the river. Numbers of prisoners were taken, and among those captured was Ngatokowaru. As he was about to be killed, he requested that he should first be allowed to see Te Putu. He was therefore temporarily allowed to live.

The Waikato victors paddled across to Taupiri, taking with them their prisoners and the heads of the slain chiefs, and these they set up on posts in a long row along the bank of the river. It is said that a hundred heads formed the grim line which started below Taupiri and stretched for over a quarter of a mile along the river. This part of the bank was from then on called Te Rauangaanga (a place of hundred heads).

The captive Ngatokowaru was conducted into the presence of Te Putu who was informed of what had transpired, and of the request made by the prisoner. The aged Te Putu, little knowing the sinister reason which actuated the request, came over to greet Ngatokowaru. Knowing full well that his life was forfeit, Ngatokowaru had concealed beneath his cloak a '*tete*'or dagger made from the barb of a stingray, and as Te Putu leaned forward to press noses, he suddenly stabbed him in the throat; and as the blood gushed forth, quickly smeared it over himself. Ngatokowaru was instantly seized by the horrified warriors, but because he was covered with the sacred blood of Te Putu, he was beaten to death and his body buried instead of being eaten. This incident took place at the home of Te Putu, the name of which was Te Mata-o-Tuutonga.

Taupiri Maunga then became a resting place for the people of the Waikato, its chiefs, Maaori Kings and Te Arikinui Te Atairangakaahu. It is a very significant place for its people.

Surrounding Taupiri are many other Paa sites and historical sites as shown on the following map.

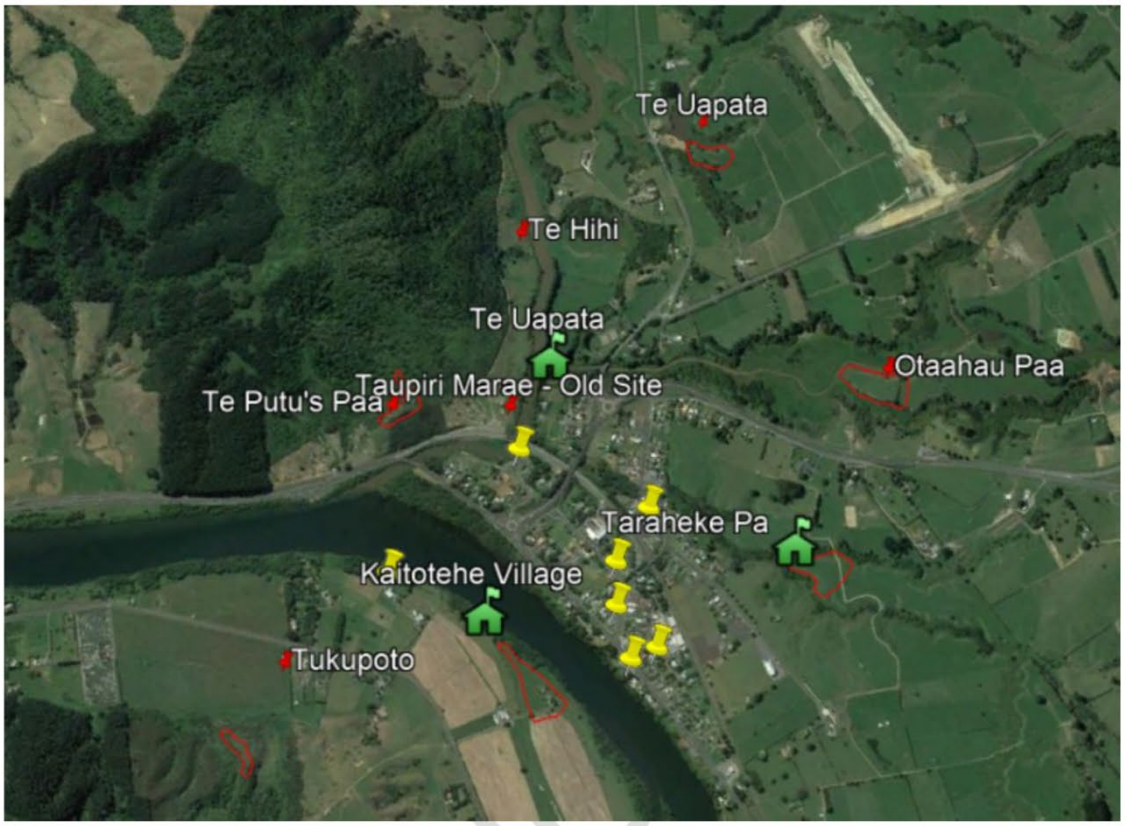


Figure 5: Sites of significance around Taupiri [Source: Te Huia Consultants Limited]

3 Strategic context

3.1 Hamilton-Waikato Metropolitan Spatial Plan and the Northern Metro Area

The Hamilton Waikato Metropolitan Spatial Plan (MSP) is a vision and framework for how Hamilton City and the neighbouring communities within Waipaa and Waikato districts will grow and develop over the next 100 + years. The MSP is delivered through the Future Proof partnership between Waikato-Tainui, Tainui Waka Alliance, taangata whenua, Central Government, HCC, WDC, Waipā District Council, and Waikato Regional Council.

Since 2018, councils and iwi have been working together to identify the best three waters solutions for the Waikato River catchment. The Waikato Metro Wastewater project has emerged from this partnership and will deliver two detailed business cases: one for the southern part of the metro area and one for the northern part. The metro area extends from Taupiri in the north to Te Awamutu and Cambridge in the south.

This Detailed Business Case (DBC) is concerned with the Northern Metro Area, which extends from Hamilton to Taupiri including Hopuhopu, Ngaaruawaahia, Horotiu, Te Kowhai, Hamilton North, and the area east of Hamilton. It traverses the boundary of HCC and WDC. The Northern Metro Area is serviced by the Ngaaruawaahia and Pukete Wastewater Treatment Plants (WWTPs).

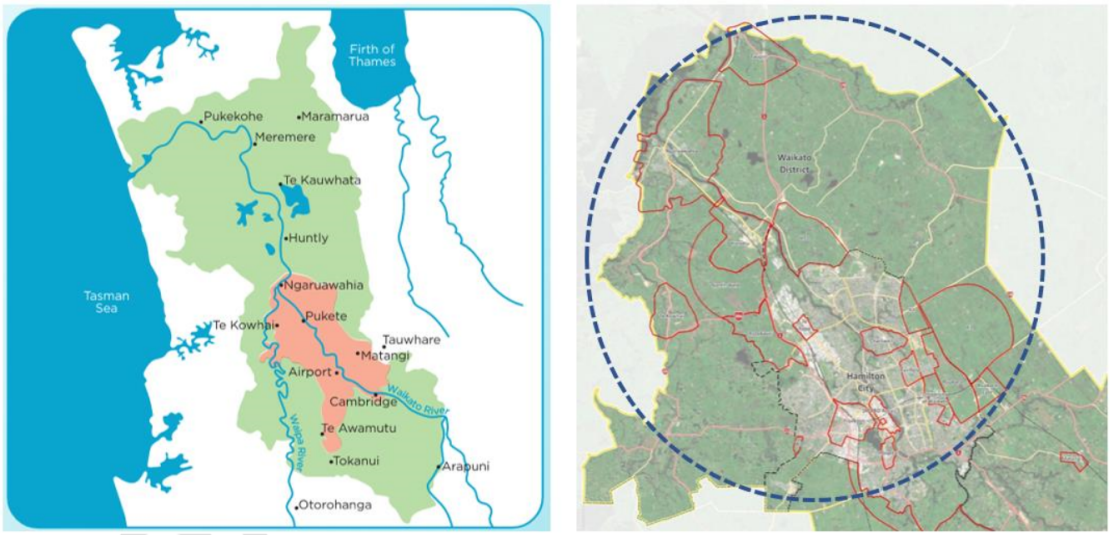


Figure 6: LEFT – Metro Area shown in orange. RIGHT – Northern Metro Area

3.2 Mana whenua and Te Ture Whaimana

Each of the iwi have a responsibility to protect the taonga, mahinga kai, and other values of the rohe for the benefit and use of their tribal members. For the purpose of this report, it is the preference of the Iwi and Hapuu to be referred to as *'mana whenua'*."

Mana Whenua within the Metro Area are descended from the Tainui waka. Waikato-Tainui, Ngaati Wairere, Ngaati Koroki-Kahukura, Ngaati Hauaaa, Ngaati Tamainupoo, Ngaati Maahanga, Turangawaewae Marae (Ngaati Mahuta and Ngaati Te Wehi), Waikeri Marae (Ngaati Reko) and Taupiri Marae (Ngaati Kuiaarangi, Ngaati Mahuta, Ngaati Tai and Ngaati Whaawhaakia) hold mana with regards to decision making associated with this DBC.

In 1858, the Kiingitanga movement originated in the Waikato region under the first Maaori King Pootatau Te Wherowhero to unite iwi and halt the alienation of maaori land. The movement continues to this day with the

headquarters of the Kiingitanga movement located at Tuurangawaewae Marae in Ngaaruawaahia, on the eastern banks of the Waikato River. It is the official residence of the current Maaori King, Tuheitia Pootatau Te Wherowhero VII.

On 12 July 1863, British troops crossed the Mangatawhiri Stream, breaching the aukati (a boundary not to be crossed) declared by the second Maaori King Taawhiao, and invaded Waikato. In 1864 and 1865, military settlements, including Hamilton and Cambridge, were established. In 1865, by Orders in Council under the New Zealand Settlements Act 1863, the Crown unjustly confiscated approximately 1.2 million acres (approximately 500,000ha) of Waikato-Tainui land from Tainui iwi in order to punish them and gain control of the land placed by them under the protection of the Kiingitanga.

New settlers occupied the confiscated lands, wetlands were drained, and farms and towns developed. The development contributed to economic growth of New Zealand but resulted in the pollution and deterioration of the health of the Waikato River and significantly impacted on the fisheries and plant life of the River.

Widespread suffering, distress, and deprivation were caused to the Waikato iwi because of the war waged against them, the loss of life, the destruction of their taonga and property, and the confiscations of their lands, and the effects of the Raupatu have lasted for generations.

From the time of the Raupatu (the land confiscation), Waikato-Tainui were excluded from decision-making regarding the Waikato River.

Waikato-Tainui never willingly or knowingly relinquished their rights and interests in, or authority over, the Waikato River. From the 1860s, Waikato-Tainui continually sought justice for their Raupatu claim and protection for the River. They negotiated directly with the Crown and reached settlement of their Raupatu land claim in 1995 and their river claim in 2008.

The *Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010* gives effect to the terms and conditions of the Crown's settlement of Waikato Tainui's raupatu claim in respect of the Waikato River. The purpose of the Settlement Act includes giving effect to the settlement, recognising the significance of the Waikato River to Waikato-Tainui, and recognising Te Ture Whaimana o te Awa o Waikato – The Vision and Strategy for the Waikato River (Te Ture Whaimana).

Te Ture Whaimana is the primary direction-setting document for the Waikato River and activities within its catchment which affect it. The Settlement Act defines the Waikato River as "*the body of water known as the Waikato River flowing continuously or intermittently from the Huka Falls to the mouth of the Waikato River… all tributaries… the beds and banks*."

It requires restoration and protection of the river – including both biophysical and metaphysical elements. Restoration and protection is a higher obligation than avoidance or management of effects and requires an element of "betterment".[1]

Te Ture Whaimana is not just about the physical restoration and protection of the Awa. It is also about the restoration and protection of the relationship between Waikato-Tainui, river iwi and hapuu, the wider community, and the Awa. Taangata whenua must be directly involved in strategic decision that affect the awa.

Te Ture Whaimana is deemed part of the Waikato Regional Policy Statement, and regional and district plans are required to give effect to it. The vision is for:

[1] Refer *Puke Coal Ltd v Waikato Regional Council*

"A future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come."

3.3 Wastewater servicing in the Northern Metro Area

[This section is intended to be a factual description of the WWTPs as they exist now. Discussion of constraints is included in the Problem Definition section]

There are three municipal WWTPs and several private facilities servicing the Northern Metro Area (refer Figure 7). Some communities and areas are not serviced by municipal facilities but are instead serviced by self-contained septic systems.

This DBC only considers the three municipal plants. Private WWTPs, including Fonterra Te Rapa and Affco Horotiu, are not included because the impact of those loads would be of such significance to the nature of the treatment technology and the scale of the plants required that the ability to achieve the expected outcomes/objectives of this business case would be put at risk.

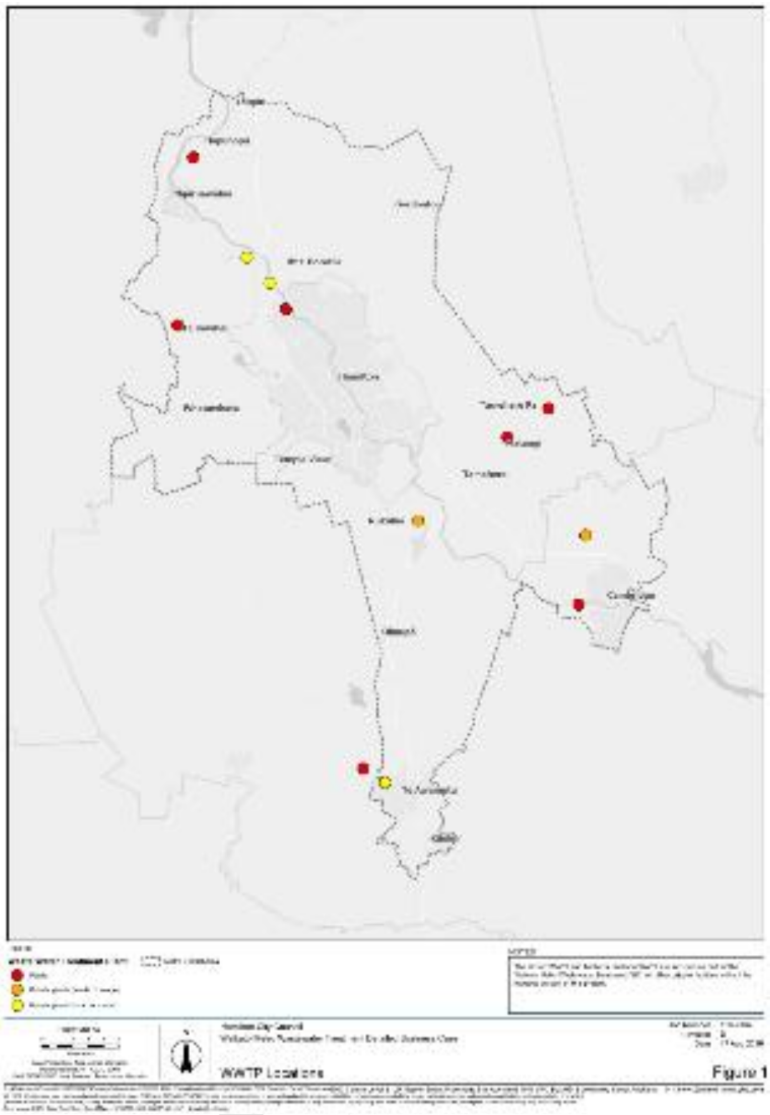


Figure 7 WWTPs servicing the Metro Area [Figure to be replaced]

3.3.1 Pukete WWTP

The Pukete WWTP is the largest plant in the Metro Area. It services a residential population of more than 180,000 people and commercial and industrial activity of 246,000 population equivalents. It has a treatment capacity of 60,000 m^3/day.

The Pukete WWTP was commissioned in 1975/76 to replace the inadequate septic tanks that previously managed wastewater from the city. Through strategic investment (and good long-term thinking), a large site was purchased allowing planted buffer zones and giving space for the WWTP to grow to service a city of 300,000 people. Figure 8 shows the current WWTP and buffer area footprints as designated in the Hamilton City District Plan.

The site has served Hamilton City well and will continue to do so in the future. However, surrounding development does constrain the ability to the site to grow - the ultimate 'build-out' capacity. The population

size that can be served by the site will depend on the treatment processes and performance standards adopted and the space required for those processes.

Figure 8: Pukete WWTP footprint (yellow – Designation A68) and buffer (purple dash – Designation A69)

The Pukete WWTP is a conventional activated sludge plant with primary sedimentation, Modified Ludzack Ettinger (MLE) secondary process, and UV disinfection. The site layout is complex with the hydraulic configuration crossing and doubling back on itself. The space constraints and configuration make major increases in capacity very complex unless changes are made to outfall and process design.

Treated wastewater is discharged to the Waikato River via a diffuser structure and biosolids from the process are sent to a vermiculture facility in South Waikato. The current diffuser structure extends the full width of the Waikato River with a buried pipe and multiple outlets.

Recent upgrades at Pukete aim to meet the short-term needs of the city out to around 2028. A programme of further upgrades is included in HCC's 2021-31 LTP and 2021-51 Infrastructure Strategy based on growth assumptions and status quo treatment standards.

HCC holds consents for discharges from the Pukete WWTP to land (biosolids) and to the Waikato River. Consents for discharges to the Waikato River expire in 2027. Te Ture Whaimana, Plan Change 1 to the Waikato Regional Plan, and the National Policy Statement for Freshwater Management 2020 require a step change in the management of discharges. Table 1 shows current consent condition requirement and the likely best achievable discharge quality with the existing process combinations.

The Pukete WWTP is generally compliant with its resource consent conditions but has recorded past compliance issues. Between 2011 and 2017, repeated non-compliances were reported with suspended solid and nitrogen discharge limits. Changes were made to site operation and to the consent conditions to resolve the issue. Subsequent annual reports have recorded the site as being fully compliant (including for the 2020/21 period) or having only technical or low priority non-compliances (including minor exceedances of biochemical oxygen demand (cBOD) and suspended solids limits).

Significant improvement of the discharge quality will be required to obtain new consents past 2027.

Table 1: Current consent requirements and performance standards achievable by the Pukete WWTP processes

Parameter	Current consent requirement	Best achievable standard	Limiting feature
Total nitrogen (TN)	Over each 26 week period, no more than 50% of the samples shall exceed **450 kg/day** in summer and **1500kg/day** in winter	7 mg/L	Digester centrate recyclers, conventional clarifiers
Ammonium nitrogen (NH_4-N)	NA	0.5 mg/L	MLE configuration, conventional clarifiers
Total phosphorus (TP)	Over each 26 week period, no more than 50% of the samples shall exceed **95 kg/day** in summer and **700kg/day** in winter	0.5 mg/L	
E. Coli	Over each calendar month, no more than 8 exceedances of E.coli over **126 cfu/100mL.** Over each quarter no more than 3 exceedances over **2000 cfu/100mL**	<126 cfu/100 ml	Conventional clarifiers
Suspended solids	Over each calendar month, no more than 8 exceedances over **15 g/m^3** and each quarter no more than 3 exceedances over **100 g/m^3**		
cBOD5	Over each calendar month, no more than 8 exceedances over **10 g/m^3** and each quarter no more than 3 exceedances over **50 g/m^3**		

Figure 9: Pukete Wastewater Treatment Plant

3.3.2 Ngaaruawaahia WWTP

Ngaaruawaahia, Horotiu, Hopuhopu, and Taupiri are serviced by a small pond-based WWTP located near the Waikato River between Ngaaruawaahia and Hopuhopu. It has a treatment capacity of 3,120m^3/day and receives peak flows of 4,500m^3/day.

The WWTP consists of inlet screens, an oxidation pond system, an Actiflo unit, and a UV plant. Actiflo is very efficient in removal of suspended solids and phosphorus. The treated wastewater discharges to the Waikato River via a 79m long diffuser structure.

WDC holds consent for discharges from the Ngaaruawaahia WWTP to the Waikato River which expires in 2029. Te Ture Whaimana, Plan Change 1 to the Waikato Regional Plan, and the National Policy Statement for Freshwater Management 2021 require a step change in the management of discharges. The planned MBR upgrade in around 2027 is expected to achieve the required improvements to the current discharge quality.

The WWTP was upgraded in 2014 and had a good compliance history until 2019/20. The 2020/21 annual compliance report[2] notes the following exceedances:

Nutrient	Consent limit	2020/21 actuals
Ammoniacal-nitrogen	20 g/m^3 (90th percentile)	26.6 g/m^3
Total nitrogen	25 g/m^3 (maximum)	30 g/m^3
Total nitrogen (summer)	20 g/m^3 (maximum)	26 g/m^3

It appears that the performance of the Ngaaruawaahia WWTP has been deteriorating over time, potentially due to build-up of sludge in the main pond and issues in operating the Actiflo system. The pond has been desludged and improvement is expected.

Table 2 shows current consent condition requirements. The conditions include limits on discharge concentrations from Ngaaruawaahia but also a combined limit from Ngaaruawaahia and the Huntley WWTPs.

[2] Waikato Regional Council Site Compliance Report, REG603968 (18 January 2022)

Table 2: Consent requirements and performance standards achievable by the current Ngaaruawaahia WWTP process

Parameter	Current consent requirement
Total nitrogen (TN)	Median shall not exceed **20 g/m^3** (summer) Median for Ngaaruawaahia and Huntly combined shall not exceed **57 kg/day** (summer)
Ammonium nitrogen (NH_4-N)	Median ammoniacal-nitrogen concentration shall not exceed 1**0 g/m^3** and 90th percentile shall not exceed **20 g/m^3**
Total phosphorus (TP)	Median shall not exceed **8 g/m^3** (summer) Median for Ngaaruawaahia and Huntly combined shall not exceed **17.3 kg/day** (summer)
E. Coli	Median E.coli concentration shall not exceed **126 cfu/100mL**
Suspended solids	Median suspended solids concentration shall not exceed **30 g/m^3** and 90th percentile shall not exceed **60 g/m^3**
cBOD5	Median five day shall not exceed **30 g/m^3** and 90th percentile shall not exceed **60 g/m^3**

Perhaps more importantly, condition 10 of the consent states that:

> *Should the measured median concentration or 90th percentile concentration for either five-day carbonaceous biochemical oxygen demand, suspended solids, or ammoniacal-nitrogen exceed 90% of the consented limits, as specified in condition 6 of this consent, for 2 of 3 consecutive years then a "trigger" level will be met. The consent holder shall design, build and commission the appropriate upgrade to the treatment process within two years after the "trigger" level is reached. The upgrade undertaken shall be designed to reduce the median or 90th percentile concentration, as applicable, for the parameter for which the trigger was reached to less than 80% of the consented limit for that parameter.*

Median and 90th percentile concentrations for ammoniacal nitrogen and median and summer median concentrations for total nitrogen were exceed in compliance years 2018/19, 2019/20, and 2020/21. The trigger for treatment upgrades was therefore met on 30 June 2021. Upgrades must be commissioned by 1 July 2023 to remain compliant with this condition.

WDC's 2021-31 LTP commits $53 million to upgrade of the Ngaaruawaahia WWTP in the period 2026-30. The planned upgrade is to a Membrane Bioreactor (MBR) plant. This upgrade would both improve discharge quality and reduce the WWTP footprint (by allowing removal of the oxidation pond).

The Waikato District Plan sets a buffer between wastewater treatment activities and buildings for sensitive land use:[3]

> *Rule GRUZ-S13: Building setbacks – sensitive land use*
>
> *Any building for a sensitive land use must be set back a minimum of… 300m from oxidation ponds that are part of a municipal wastewater treatment facility on another site [and] 30m from a municipal wastewater treatment facility where the treatment process is fully enclosed.*

Buildings within this buffer zone are a Restricted Discretionary Activity. While this does not prevent development, it acts as an impediment and sends a message that development is not encouraged. This has acted as a constraint on the ability of Waikato-Tainui to develop their Hopuhopu site to the north of the plant as well as other adjacent landowners.

[3] Sensitive land use includes education facilities and residential activities.

Figure 10: Approximate 300m buffer from oxidation pond (yellow dash). This buffer zone extends outside the WDC-owned property outlined in grey.

3.3.3 Te Kowhai WWTP

Part of Te Kowhai is serviced by a small WWTP. A system of septic tanks is followed by a re-circulating media (sand) system and discharge to land via irrigation.

The Te Kowhai WWTP scheme includes 21 residential properties – a condition on the resource consent precludes the addition of new properties to the system. No industrial or commercial properties are included. Wastewater is collected in a large septic tank before being passed through a recirculating sand contractor and recirculating tank. The treated wastewater is then discharged to five soakage pits/trenches.

WDC holds a consent for discharge to land from the Te Kowhai WWTP, which expires in 2033. The conditions of that consent include a requirement to plant an area of 3,000m^2 if the WWTP remains operational post-2028.

The Te Kowhai WWTP has historically struggled to meet discharge volume and nitrate limits. WWTP upgrades were completed prior to reconsenting of the discharge in 2018 and now has a high-level of compliance.[4]

[4] Waikato Regional Council Site Compliance Report, REG604962 (26 June 2021)

3.3.4 Summary of Northern Metro area WWTPs

WWTP	Plant	Capacity (m^3/day)	Current average and peak demand (m^3/day)	Consent expiry
Pukete	Activated sludge, Modified Ludzack Ettinger, UV treatment	60,000	Avg. – 10,400 Peak – 240,000	2027
Ngaaruawaahia	Oxidation pond, Actiflo, UV	3,120	Avg. – 1,500 Peak – 4,500	2029
Te Kowhai	Septic tank, re-circulating media, land disposal	<100	Avg. – <100 Peak – <200	2033

3.4 Alignment with strategic outcomes

Strategy/Policy	Priorities / key outcomes	Alignment
National and Regional Policy		
Three Waters Reform Programme	Central Government is currently undertaking a fundamental review of the way in which three-waters services are managed across New Zealand. Taumata Arowai has been set up as a regulatory body which has taken over from the Ministry of Health as the nation's drinking water regulator, as well as providing monitoring functions in relation to wastewater and stormwater. Further to this, a new structure for the delivery of water, wastewater and potentially stormwater is being implemented, which will see this delivery moved from councils to new, larger water entities. This will significantly change the way in which three water services are delivered across New Zealand.	This DBC is consistent with the objectives of the Three Waters Reform both in terms of anticipated improvements and cross-territorial authority collaboration. The **Commercial and Management Cases** highlight the potential for delivery of the preferred option by a new entity. Transfer to the new entity would impact on the financial (including funding arrangements), commercial, and management aspects of this DBC and the recommendations contained within those sections would be reassessed at the appropriate time.
Te Ture Whaimana – Vision and Strategy for the Waikato River	Te Ture Whaimana is the primary direction-setting document for the Waikato River and activities which affect it. It sits ahead of any subordinate legislation and all planning documents under the Resource Management Act 1991, including any national policy statement. The health and wellbeing of the River is of paramount concern. Te Ture Whaimana requires restoration and protection of the River: both biophysical and metaphysical elements. In a consenting context, this includes an element of betterment in proportion to the activity being undertaken. Te Ture Whaimana is not just about the physical restoration and protection of the Awa. It takes a holistic approach to the restoration and protection of the relationship between Waikato-Tainui, other river iwi, the broader regional community, and the Awa. These relationships are central to restoring and protecting the mauri of the Awa. In the past, resource consenting processes have been used as a primary tool to assist with restoration of these relationships. But a more effective means is through early and meaningful engagement and direct involvement of taangata whenua in strategic decision making. The ultimate measure of the success of Te Ture Whaimana will be that the Waikato River will be safe for people to swim in and take food from over its entire length (including tributaries).	Giving effect to Te Ture Whaimana is central to this DBC (to the extent possible where there is an ongoing discharge of wastewater to the Waikato River). The minimum discharge standards adopted by this DBC will result in a significant reduction in nutrient loading to the Waikato River, even taking into account population growth. This is consistent with betterment as it is applied to existing activities. Although focus is often given to the water quality aspects of Te Ture Whaimana, the relationship of people with the river has equal importance. The assessment criteria adopted in this DBC seek to recognise and provide for those relationships. It is not enough to simply put Te Ture Whaimana as the starting point, meaningful engagement with taangata whenua is need to guide how the DBC should give effect to both the water quality and relationship aspects of Te Ture Whaimana.

Strategy/Policy	Priorities / key outcomes	Alignment
		To this end, Taangata whenua are included as project partners – both in a governance and technical capacity - and have been involved in decision making and recommendations through the options development and assessment phases of the DBC.
National Policy Statement for Freshwater Management 2020	The NPSFM provides local authorities with direction on how they should manage freshwater under the Resource Management Act 1991. It seeks to manage freshwater in a way that gives effect to Te Mana o te Wai, improve degraded waterbodies and maintain or improve other waterbodies, avoid further loss or degradation or wetlands and stream, improve outcomes for aquatic ecosystems and indigenous species, and improve reporting. Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai and seeks to restore and preserve the balance between the water, the wider environment, and the community. There is a hierarchy of obligations in Te Mana o te Wai that prioritises: (a) first, the health and well-being of water bodies and freshwater ecosystems (b) second, the health needs of people (such as drinking water) (c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.	The project delivery structure seeks to implement the six principles relating to the roles of tangata whenua and other New Zealanders in the management of freshwater: Mana whakaharere, kaitiakitanga, manaakitanga, governance, stewardship, and care and respect. Te Tiriti o Waitangi partnership is given effect in the form of equal representation between local authorities and mana whenua at all levels of the project Mana whenua are included as project partners and have been involved in decision making and recommendations through the options development and assessment phases of the DBC. Wastewater services are critical to supporting the health of people, land, and water – especially in cities where on-site discharge is not feasible. This DBC sets discharge standards that will decrease the mass of load of nutrients discharged to water and improve the well-being of the Waikato River while continuing to provide for the health and wellbeing of people.
Housing intensification	The National Policy Statement on Urban Development 2020 (NPSUD) requires that local authorities provide infrastructure and appropriately zoned land to meet expected demand for housing and business land. The NPSUD is intended to remove barriers to development to allow growth up and out in locations with good access to existing services, public transport networks, and infrastructure. Similarly, the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021 requires HCC, WDC, and Waipaa DC rezone land to provide for medium density housing.	Changes in density have two impacts: • New/future developments may have more residents, high wastewater volumes, and subsequently greater infrastructure requirements than previously planned for • Infill development may result in higher wastewater volumes generated by existing suburbs putting pressure on existing infrastructure

Strategy/Policy	Priorities / key outcomes	Alignment
	HCC notified Plan Change 12 – Enabling Housing Supply in August 2022. Plan Change 12 will give effect to the NPSUD and the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021.	Management of wastewater in the Northern Metro area must support a compact urban form. Key Performance Indicators developed for the project include a requirement to be flexible and able to respond to infill development, higher intensity of development, and out-of-sequence or unanticipated development.
Waikato Regional Policy Statement and Regional Plan	The Waikato Regional Policy Statement: Te Tauākī Kaupapahere Te-Rohe O Waikato (RPS identifies key resource management issues in the Waikato Region and outlines how integrated management of the region's natural and physical resources will be achieved. The RPS promotes a collaborative and holistic approach to resource management that looks beyond organisational and administrative boundaries. The proposed Waikato Regional Plan Change 1 (Plan Change 1) was targeted as the first step towards giving effect to Te Ture Whaimana and the NPS for Freshwater Management 2014 within the Waikato and Waipā River catchments. Plan Change 1 was notified on the 22 October 2016 with decisions released on 18 March 2020. It remains under appeal. The purpose of Plan Change 1 is to reduce point source and non-point sources of contaminants – nitrogen, phosphorus, sediment, and bacteria - entering waterbodies (including groundwater) within the Waikato and Waipā River catchments. It provides location specific short term and 80 year targets for reducing contaminants. Plan Change 1 also provides a mechanism for council to apply the best practicable option to avoid or mitigate adverse nutrient effects to freshwater. Where all adverse effects cannot be avoided or mitigated, the policy enables the offset of effects to point source discharges to occur at a different location. The nutrient reduction will support the restoration and protection of the Waikato River so that it is safe for people to swim in and take food from its entire length.	This DBC takes a boundaryless approach to wastewater management and acknowledges and provides for the relationship of Maaori and their culture and traditions with their ancestral land, water, sites, waahi tapu and other taonga. Both the Pukete and Ngaaruawaahia WWTPs are reaching the end of their discharge consent terms. Reconsenting of the discharges will be considered under the framework sought by Plan Change 1. A key outcome of this DBC must therefore be a preferred option that aligns with the nutrient reductions sought by Plan Change 1. The minimum discharge standards adopted by this DBC will result in a significant reduction in nutrient loading to the Waikato River, even taking into account population growth.
Regional Strategy and Long Term Planning		
Hamilton to Auckland (H2A) Corridor Plan	The H2A corridor is nationally significant, and work is underway to develop an integrated spatial plan and establish an ongoing growth management partnership for the corridor. The spatial planning exercise is a key pillar of the Government's Urban Growth Agenda.	Provision of three waters infrastructure is a key enabler for sustainable development and growth in the H2A corridor and region. Three waters services are: • fundamental to community wellbeing and the quality of the environment

Strategy/Policy	Priorities / key outcomes	Alignment
		• key to unlocking economic potential in the H2A corridor, including investment already made in the Waikato Expressway • essential to achieving the growth and development objectives and aspirations of the H2A Corridor Plan and the Future Proof Strategy • Key to demonstrating how urban land use and development is giving effect to Te Ture Whaimana which requires that development within the Waikato River catchment improves the quality of the environment.
Metro Spatial Plan	The Hamilton Waikato Metropolitan Spatial Plan is a vision and framework for how Hamilton City and the neighbouring communities within Waipā and Waikato districts will grow and develop over the next 100+ years, creating one of the most liveable places in New Zealand. The MSP is delivered through the Future Proof partnership between Waikato-Tainui, Tainui Waka Alliance, taangata whenua, Central Government, HCC, WDC, Waipā District Council, and Waikato Regional Council It sets out how and where our communities should grow which will allows advance planning and delivery of future infrastructure requirements.	The population growth assumptions used to develop the options in this DBC are based on the Metro Spatial Plan.
Future Proof Strategy 2021	The Future Proof Strategy is a 30-year growth management and implementation plan specific to the Hamilton, Waipaa and Waikato sub-region (Future Proof sub-region). The Strategy provides a framework to manage growth in a collaborative way for the benefit of the sub-region both from a community and a physical perspective. This sub-regional approach is needed in order to manage growth in a coordinated manner and to address complex planning issues, especially cross-boundary matters. A key principle of the Future Proof Strategy is affordable and sustainable infrastructure. This Strategy recognises that three waters services represent major infrastructure investment and present significant opportunity to maximise and deliver the greatest value for investment. An updated draft Strategy was released in October 2021. The updated Strategy incorporates the Hamilton to Auckland (H2A) Corridor Plan and the Hamilton-Waikato Metropolitan Spatial Plan as well as key national documents and initiatives such as the National Policy Statement on Urban Development	The KPIs and critical success factors outlined in this DBC are consistent with the Strategy's growth management directives, including: • Give effect to Te Ture Whaimana • Positive environmental outcomes • Investment that is cognisant of iwi economic and environmental imperatives • Staging and timing of development that is aligned with infrastructure investment • Promote increased density in new development and redevelopment

Strategy/Policy	Priorities / key outcomes	Alignment
	(NPSUD), the Government's Urban Growth Agenda, and enhancing the health and wellbeing of the Waikato River in accordance with Te Ture Whaimana.	
Future Proof Sub-Regional Three Waters Strategy 2012	The Future Proof partners developed a Sub-Regional 3 Waters Strategy in 2012 to set out how water, wastewater and stormwater will be managed over a 50-year period. Building on the direction of Future Proof, the 3 Waters Strategy sets a long-term strategic vision for 3 Waters in the sub-region. The strategy sets out justification for the strategic issues identified, which are still relevant today. The vision of the 3 Waters Strategy is: *The delivery of integrated, sustainable and well managed 3 Waters services for the sub-region which ensures the cultural, social and economic needs of the community are met and the quality of the Waikato River is improved*.	This DBC responds to several of the strategic issues identified in the Strategy including meeting future anticipated and planned for growth demands, integration across councils, involvement of iwi and hapuu in three water management, and ensuring protection and enhancement of the natural environment.

4 The need for investment

The Waikato Sub-Regional Three Waters Strategic Case defines the case for change which was refined to wastewater infrastructure through the Southern Metro DBC. This section reviews the problems, benefits, objectives, and KPIs developed through those earlier processes and reconfirms their applicability to the Northern Metro Area.

4.1 Investment Logic Map

The Southern Metro DBC sets the Investment Logic Map for wastewater servicing in the Metro Area.

The programme problems, benefits, and Best for River objectives from the Three Waters Strategic Case have been adopted. The Southern Metro DBC Strategic Case presents the evidence that these problems and benefits are relevant to wastewater servicing in the Metro Area. Section 0 provides detail specific to the Northern Metro Area.

The Best for River Objectives were translated into Investment Objectives specific to wastewater conveyance, treatment, and discharge.

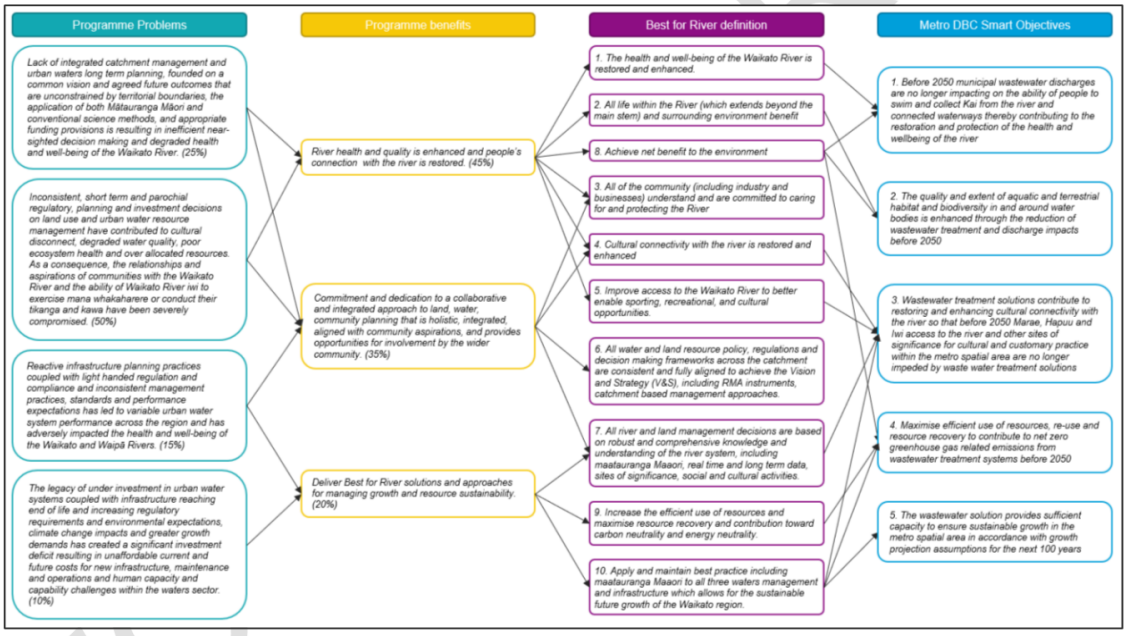


Figure 11: Southern Metro DBC Investment Logic Map (refer Appendix A for full size image)

4.2 Problem definition

Four programme problem statements were identified in the Waikato Sub-regional Three Waters Strategic Case. The problems relate to all three waters (drinking water, wastewater and stormwater) and to the wider management of water resources and infrastructure. These problem statements were adopted in the Southern Metro DBC.

Waikato Sub-regional Three Waters Strategic Case: Programme Problems

Problem Statement One: Lack of integrated catchment management and urban waters long term planning, founded on a common vision and agreed future outcomes that are unconstrained by territorial boundaries, the application of both Mātauranga Māori and conventional science methods, and appropriate funding provisions is resulting in inefficient near-sighted decision making and degraded health and well-being of the Waikato River. (25%)

Problem Statement Two: Inconsistent, short term and parochial regulatory, planning and investment decisions on land use and urban water resource management have contributed to cultural disconnect, degraded water quality, poor ecosystem health and over allocated resources. As a consequence, the relationships and aspirations of communities with the Waikato River and the ability of Waikato River iwi to exercise mana whakaharere or conduct their tikanga and kawa have been severely compromised. (50%)

Problem Statement Three: Reactive infrastructure planning practices coupled with light handed regulation and compliance and inconsistent management practices, standards and performance expectations has led to variable urban water system performance across the region and has adversely impacted the health and well-being of the Waikato and Waipā Rivers. (15%)

Problem Statement Four: The legacy of under investment in urban water systems coupled with infrastructure reaching end of life and increasing regulatory requirements and environmental expectations, climate change impacts and greater growth demands has created a significant investment deficit resulting in unaffordable current and future costs for new infrastructure, maintenance and operations and human capacity and capability challenges within the waters sector. (10%)

The Southern Metro DBC Strategic Case presents the evidence that the problems identified in the Three Waters Strategic Case are relevant to wastewater servicing in the Metro Area. This section does not seek to replicate information presented in the Southern Metro DBC and focusses on detail specific to the Northern Metro Area.

4.2.1 Degraded health and well-being of the Waikato River

Refer problem 1 & 3

The state of the Waikato and Waipaa Rivers is discussed more fully in the Southern Metro DBC. For the purpose of this DBC, we acknowledge that our rivers are showing the signs of being affected by contaminants, with an increase in algal blooms and decrease in swimmability.

Plan Change 1 to the Waikato Regional Plan gives a concise summary of the state of the Waikato River:

> *"The Waikato and Waipā Awa are degraded. Some parts of the Awa are more degraded than others, particularly a number of the lakes and tributaries, and the lower reaches of the Waikato River. The degradation has occurred over a long period of time. The Awa have been degraded due to human activity; from the discharges of contaminants directly and diffusely into the rivers, including by urban*

stormwater and wastewater discharges as well as agricultural and horticultural land use activities. Some degradation is the result of wildlife (including pest fish)".[5]

There are 19 major point source discharges to the Waikato and Waipaa Rivers. These sources contributed about 7% of the mass flow of nitrogen and 18% of the mass flow of phosphorus carried to the sea by the Waikato and Waipaa Rivers during 2003–12.[6] The remaining nutrient load is from non-point source discharges (including farm activities and naturally occurring processes) and smaller point source discharges.

That being said, the Pukete WWTP remains a significant contributor of nutrients to the Waikato River. Figure 12 shows nitrogen and phosphorus loads from point source wastewater discharges to the two rivers for the period 2003-12. While the data used in these figures is old and does not capture the improvements made to discharge quality over the past decade, it highlights the scale of the Pukete and Ngaaruawaahia WWTP discharges in comparison to other wastewater discharges in the region.

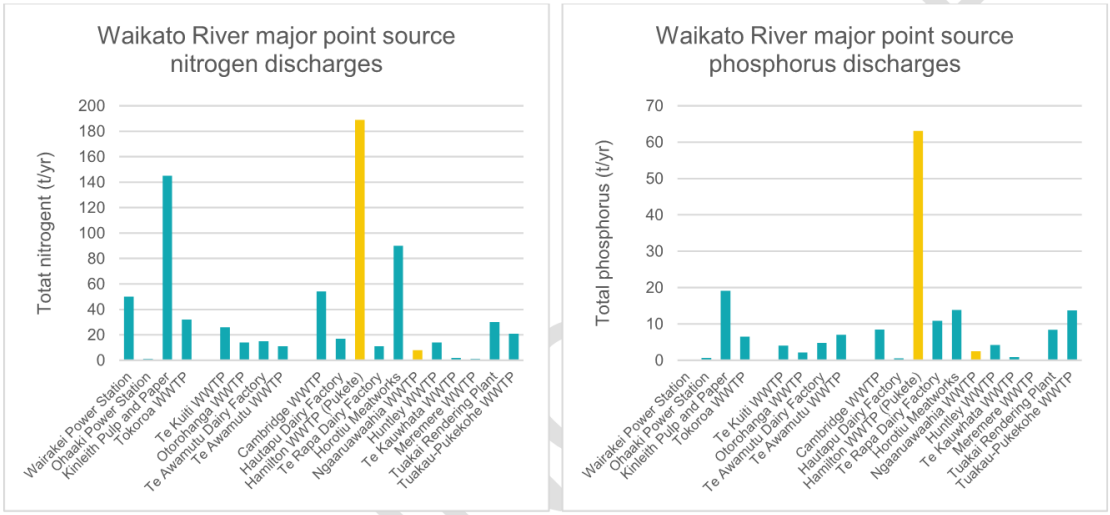


Figure 12: Nitrogen and phosphorus from point source wastewater discharges to the Waikato and Waipaa Rivers[7]

[Can also add this graph if it's useful]

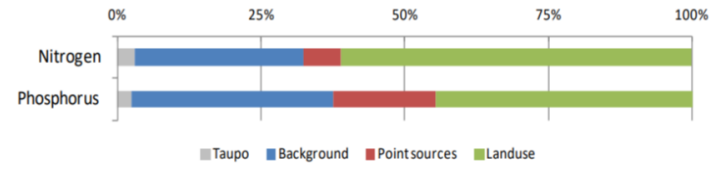


Figure 6 - Sources of nutrients, Waikato/Waipā rivers 2003-2012[33]

[5] *Proposed Waikato Regional Plan Change 1: Waikato and Waipā River Catchments – Te Panonitanga 1 i te Mahere Ā-Rohe a Waikato e Marohitia Nei: Ngā Riu o Ngā Awa o Waikato me Waipā. The Hearing Panel's Recommendation Report – Te Pūrongo Tūtohunga a Te Rōpū Whakawā*

[6] *Waikato Regional Council Technical Report 2014/56*: *Sources of nitrogen and phosphorus in the Waikato and Waipa Rivers, 2003–12.*

[7] Adapted from *Waikato Regional Council Technical Report 2014/56*: *Sources of nitrogen and phosphorus in the Waikato and Waipa Rivers, 2003–12.*

These WWTP discharges contribute to degraded water quality which, combined with the presence of diffuser structures and lack of any cultural or spiritual purification of the wastewater prior to discharge, results in on-going impacts to the health and well-being of the Waikato River.

We have an obligation, both legal (through Te Ture Whaimana and the NPS for Freshwater) and moral, to work towards restoration and protection of the awa.

4.2.2 Lack of integrated, cross-boundary management

Refer problem 1, 2, 3 & 4

Historically, each of the three local authorities in the Metro Area have planned and funded wastewater infrastructure separately. In the Northern Metro Area HCC, WDC, and Waipā DC are individually responsible for three waters infrastructure and services in their respective communities.

Despite attempts at integrated planning across the Metro Area through partnerships such as Future Proof, each Council has continued to focus three waters investment on the needs of their individual communities in isolation from neighbouring councils. In the Northern Metro Area this is evidenced by:

- The lack of any major cross boundary wastewater management investment to date, despite it appearing to be the most practical approach in some situations. As an example, the township of Horotiu is currently serviced through the Ngaaruawaahia WWTP despite being located closer to the Pukete WWTP
- Major wastewater discharges to the river at Hamilton and Ngaaruawaahia are managed separately, despite the river's hydrological catchment crossing multiple council boundaries and the relatively short distance between these discharge points
- Differing approaches to overall asset management and long-term planning (including renewals, replacement, design, funding) across the Metro Area
- Differing requirements and expectations on treatment performance/standards, operation, maintenance, iwi/mana whenua and stakeholder engagement, monitoring and reporting across the WWTPs resulting in different consent standards and requirements, varying levels of compliance with resource consents, and different levels of engagement.

Along with land use modification, drainage and land use activities, decisions relating to infrastructure and land development have contributed to a current state where:

- the water quality of the Waikato River is significantly degraded and does not meet current expectations or technical targets
- in general, three waters infrastructure is inefficient and ageing, no longer fit-for-purpose, with a significant legacy of underinvestment
- existing wastewater networks and treatment facilities do not have capacity for future development and intensification
- there is uncertainty around the abilities of individual councils to fund infrastructure, maintenance, and operations for future growth and the ability of ratepayers to afford appropriate three waters infrastructure in the future.

A particular example of past decision making that has hindered integrated, cross-boundary wastewater management is the number of WWTPs operating in the Northern Metro Area. In the 1960s and 70s, government subsidies were put in place to provide wastewater reticulation to communities. This led to improvements in public health and environmental outcomes but also resulted in a proliferation of small, community-based WWTPs. Waikato DC inherited a number of these plants following the 1989 local government reforms.

Most of these WWTPs were based on oxidation pond treatment processes which have been upgraded over the years but have now reached an upper limit in the level of treatment they can provide. We are now seeing a step change to newer treatment processes (like MBRs) to facilitate growth and improve the level of

treatment provided. The “simple” solution is to replace the oxidation pond treatment plans with MBR plants on the existing sites. But this ignores the opportunity to think more holistically about wastewater servicing.

4.2.3 Exclusion of mana whenua from decision making

Refer problem 1 & 2

Maaori express a relationship with water as kaitiaki. Maaori do not distinguish their rights and interests in freshwater from the three waters; they are viewed as a connection to the water environs and its systems.

There are many that consider the water of the Waikato River to be akin to the blood flowing through their veins and the health and wellbeing (mauri or life force) of the river being inextricably linked to that of taangata whenua who have lived along its banks. It is believed that this relationship with the river brings with it the responsibility to ensure the wellbeing of the river.

Historically, mana whenua have been excluded from strategic infrastructure planning. This has resulted in prioritisation of engineering design standards based on conventional science to the detriment of maatauranga Maaori science built up over hundreds of years. This western world view dominated the approach to wastewater management in New Zealand is inconsistent with the guiding principles of Te Mana o te Awa and Mana Whakahaere and falls short of the co-governance vision of the *Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010*.

Consequently, municipal wastewater servicing across the Metro Area was designed and implemented to meet a standard and level of service acceptable from a western perspective, this has resulted in:

- A prioritisation of discharge to water
- The current treatment plant locations, which were situated as close to the river as possible for discharge purposes
- Current standards of discharge.

4.2.4 Degradation of relationship with the Awa

Refer problem 2

Disposal of human sewage directly to water is offensive to mana whenua, destroying spiritual values and the relationship with the Awa. Waikato iwi, and many other Maaori, have a strong cultural belief that wastewater should be cleaned through contact with land before returning to water bodies and in doing so preserve the mauri of their tupuna.[8]

Impacts on the Awa are further exacerbated by the presence of discharge structures that pierce the bed or banks of the river.

Wastewater disposal, along with the broader discharge of waste to the river, has caused degradation of both the physical and metaphysical condition of the river. Impacts on the ability to swim in and take food from the river have a direct impact on the relationship of Waikato Iwi with the river. The location of wastewater treatment plants and discharge infrastructure on the banks of the river or between the river and Maaori-owned land have further severed the physical relationship of other lands with the river.

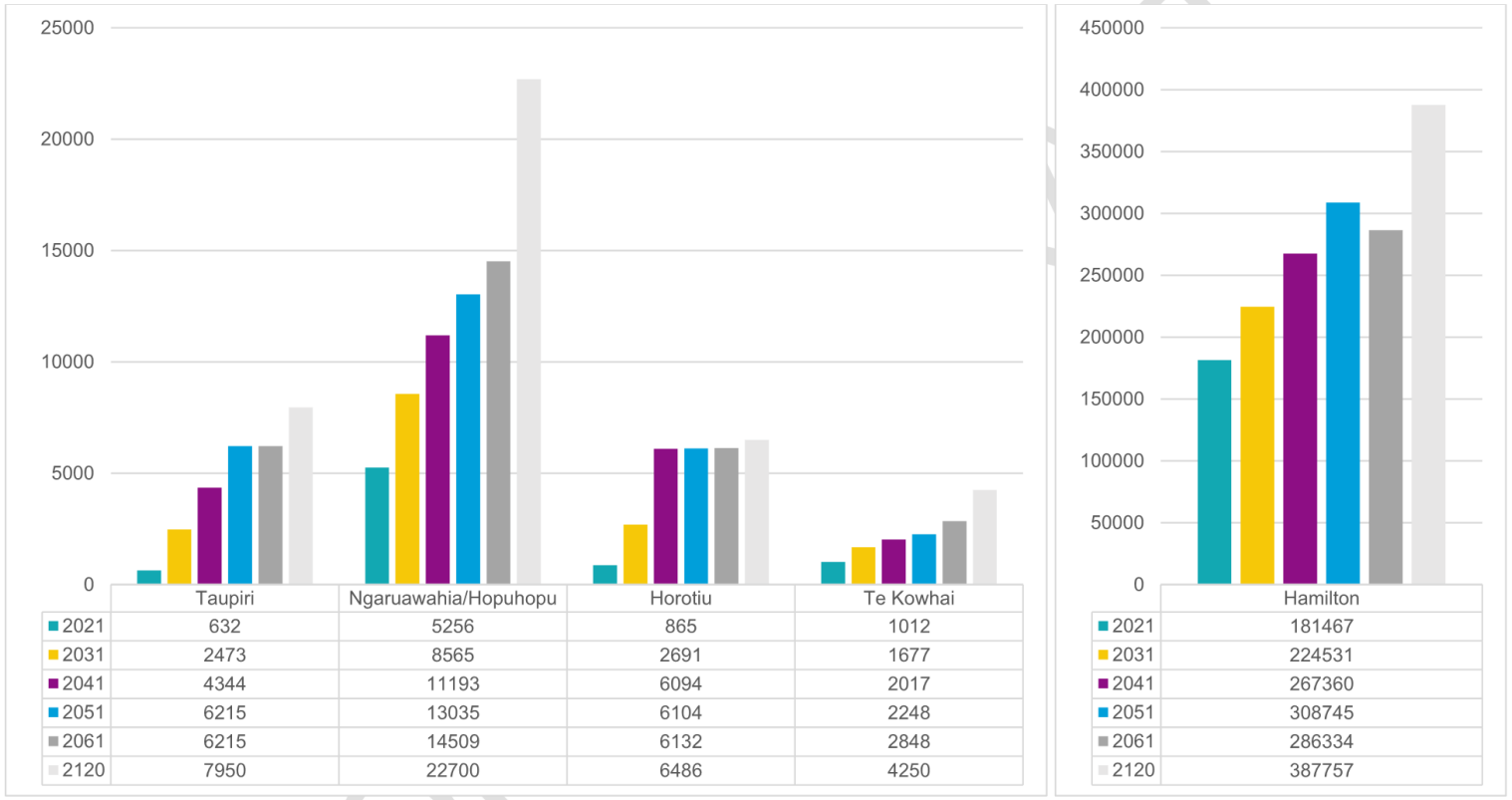
4.2.5 Population growth

Refer problem 1 & 4

The Northern Metro Area is growing. New residential areas, infill development, and new mixed use and industrial developments will add to the wastewater generated in the area.

[8] Water River Independent Scoping Study, NIWA, 2010

The 2011-2021 HCC LTP forecasted that Hamilton City would reach a population of 150,000 by 2021. Hamilton City reached this level by 2016. This growth puts pressure on the city's infrastructure, including the Pukete WWTP.



	Taupiri	Ngaruawahia/Hopuhopu	Horotiu	Te Kowhai
2021	632	5256	865	1012
2031	2473	8565	2691	1677
2041	4344	11193	6094	2017
2051	6215	13035	6104	2248
2061	6215	14509	6132	2848
2120	7950	22700	6486	4250

	Hamilton
2021	181467
2031	224531
2041	267360
2051	308745
2061	286334
2120	387757

Figure 13: Expected growth in the Northern Metro Area shown as population equivalents.[9]

[9] The PE graphs show a reduction in the Hamilton population post-2051 following diversion of the Hamilton South catchment to the new Southern WWTP. The timing of that diversion is yet to be determined and may occur earlier.

Wastewater treatment plant and network design is based on Population Equivalents: a parameter used to give an estimate of wastewater generation across a range of residential and non-residential activities. Between 2021 and 2061, the Northern Metro Area is expected to grow from approximately 190,000 to 316,000 population equivalents.[10] Neither the WWTPs nor the pipe networks connecting our communities to the WWTPs have capacity to manage this growth without significant investment.

When considering population growth, it is not just the increase in wastewater flows that is relevant, we also need to be concerned with where those flows are originating. The Northern Metro Area includes areas either zoned for development or with significant development potential located on the periphery of existing urban settlements. Many of these areas, including Te Kowhai, currently have limited wastewater services and in some cases no servicing is planned, despite a lack of wastewater services constraining development. This situation results in either the land being zoned for development without sufficient long term servicing solutions, or it prevents land that could unlock significant economic potential from being zoned and developed.

4.2.6 Increasing regulatory and community expectations

Refer problem 3 & 4

Changes to national and regional legislation and regulation are requiring councils to provide for more housing development and intensification – with the corresponding increase in infrastructure requirements. At the same time, the importance of the health and wellbeing of the environment is being elevated. In practice, councils must prepare to receive higher volumes of wastewater and treat that wastewater to a higher standard before discharge.

In addition, community expectations are changing. Most people are identifying as being “pro-ecological” regulation (Figure 14).

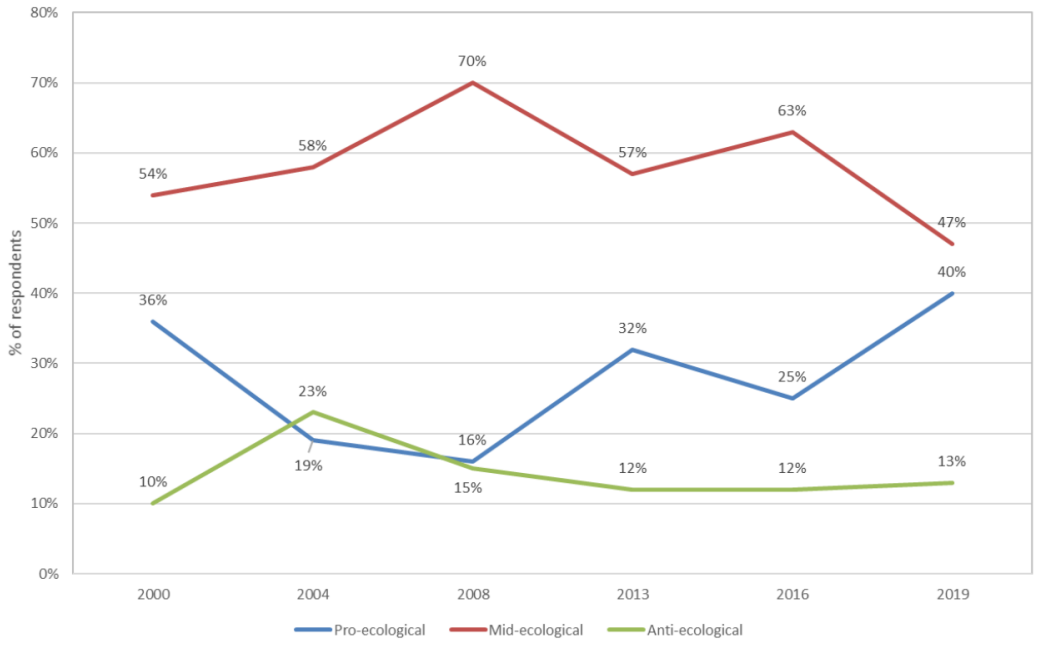


Figure 14: People’s environmental attitudes to regulation

[10] Refer **Economic Case** for detail on population growth assumptions

The resource consents for discharges to the Waikato River from the Pukete and Ngaaruawaahia WWTPs expire in the next 10 years. These WWTPs do not reliably comply with their existing consent conditions, let alone the higher discharge standards that will be required to give effect to Te Ture Whaimana and obtain new discharge consents beyond 2027.

4.2.7 Existing infrastructure unable to meet future needs

Refer problem 4

We know that the population base serviced by the Pukete and Ngaaruawaahia WWTPs is growing and that the requirement treatment standard will increase. The current WWTPs cannot:

1. service anticipated population growth
2. meet discharge standards required to give effect to Te Ture Whaimana and obtain new discharge consents.

Pukete: At the Pukete WWTP, the existing process combinations used on the site and the site configuration present multiple barriers to achieving Best for River Outcomes. The current upgrade at Pukete (Pukete 3) is aimed at extending the capacity of the plant to 2028 based on existing discharge consent conditions. While there is space for some additional growth capacity within the plant, the footprint of Pukete WWTP is constrained by available land and buffers to surrounding land use. This is the ultimate 'build-out' capacity for the site.

The current treatment and discharge approach does not take a holistic approach to urban water management and fails to take advantage of the valuable resources (water, nutrients, energy) produced through the process.

Ngaaruawaahia: The oxidation ponds at Ngaaruawaahia put a restriction on development of surrounding land. This restriction in important to avoid or minimise the risk of reverse sensitivity but impacts on the ability of neighbouring land owners (including Waikato-Tainui) to develop their land.

Te Kowhai: The existing WWTP located at Te Kowhai is adequate for the current very small serviced area. It will not, however, be sufficient if and when further, more dense residential development occurs in these areas. Further, operation and maintenance of this small WWTP is not cost effective and has high per capita costs.

4.2.8 Lack of appropriate funding sources

Refer problem 1 & 4

Competing priorities for territorial authority funding and community pressure to minimise rates increases have constrained investment in wastewater infrastructure. Significant investment is required to provide for growth and meet regulatory requirements.

There is a known misalignment between capital investment required to support development and available funding. The Hamilton City Council Infrastructure Strategy (2021-2051) shows a large portion of required investment over the next 10 years is unfunded due to budget constraints (refer Figure 15).

Limited funding support from Central Government has made it challenging to implement nationally set policy and priorities. As an example, land use planning directions (such as the NPSUD) require councils to enable urban land-use intensification without any consideration of the scale of investment needed in wastewater networks (conveyance and treatment) to service the land use change.

Constrained funding during long term plan processes results in TLAs prioritising investment. That prioritisation is often driven by political decision-making leading to underinvestment in capital and operational

wastewater costs, as evidenced by a legacy of under-investment in wastewater services across the Metro Area.

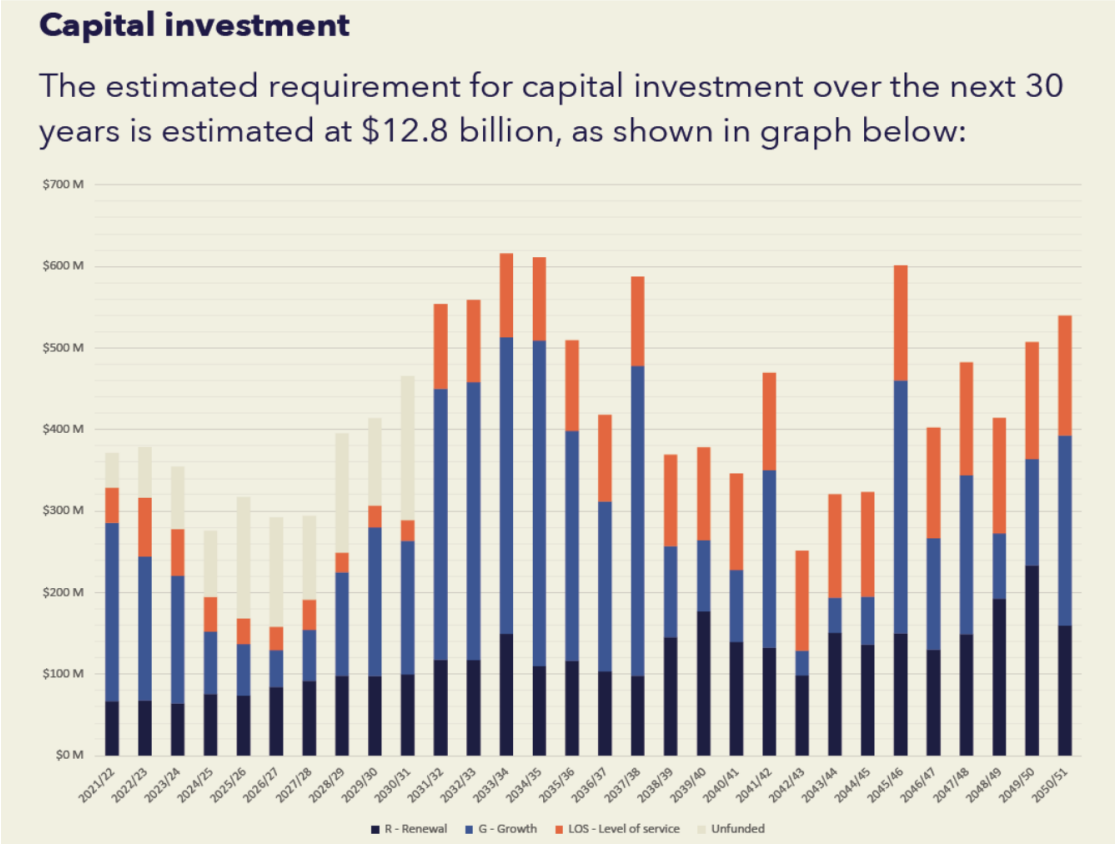


Figure 15: Estimated capital investment – Hamilton City Council Infrastructure Strategy (2021-2051)

4.3 Benefits

Three programme benefit statements were identified in the Waikato Sub-regional Three Waters Strategic Case. The benefits again relate to all three waters and to the wider management of water resources and infrastructure. These benefit statements were adopted in the Southern Metro DBC. The Southern Metro DBC Strategic Case presents the evidence that the benefits identified in the Three Waters Strategic Case are relevant to wastewater servicing in the Metro Area.

Waikato Sub-regional Three Waters Strategic Case: Programme Benefits

Benefit Statement One: River health and quality is restored and protected and people's connection with the river is restored. (45%)

Benefit Statement Two: Commitment and dedication to a collaborative and integrated approach to land, water, community planning that is holistic, integrated, aligned with community aspirations, and provides opportunities for involvement by the wider community. (35%)

Benefit Statement Three: Deliver Best for River solutions and approaches for managing growth and resource sustainability. (20%)

4.3.1 Benefit alignment with Te Ture Whaimana

The identified benefits aim to give effect to the Te Ture Whaimana by directly (give effect to) or indirectly (support) contributing to the objectives as shown in Figure 16 below.

	Benefit 1	Benefit 2	Benefit 3
Objective A: The restoration and protection of the health and wellbeing of the Waikato River	●	●	●
Objective B: The restoration and protection of the relationship of Waikato-Tainui with the Waikato River, including their economic, social, cultural, and spiritual relationships	●		●
Objective C: The restoration and protection of the relationship of Waikato River iwi according to their tikanga and kawa, with the Waikato River, including their economic, social, cultural and spiritual relationships	●		●
Objective D: The restoration and protection of the relationship of the Waikato region's communities with the Waikato River including their economic, social, cultural and spiritual relationships.	●		●
Objective E: The integrated, holistic and coordinated approach to management of the natural, physical, cultural and historic resources of the Waikato River		●	●
Objective F: The adoption of a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River, and in particular those effects that threaten serious or irreversible damage to the Waikato River		●	●
Objective G: The recognition and avoidance of adverse cumulative effects, and potential cumulative effects, of activities undertaken both on the Waikato River and within its catchments on the health and wellbeing of the Waikato River	●		●
Objective H: The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities	●	●	●
Objective I: The protection and enhancement of significant sites, fisheries, flora and fauna	●		●
Objective J: The recognition that the strategic importance of the Waikato River to New Zealand's social, cultural, environmental and economic wellbeing is subject to the restoration and protection of the health and wellbeing of the Waikato River		●	●
Objective K: The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length	●	●	●
Objective L: The promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities	●		●
Objective M: The application to the above of both Mātauranga Māori and latest available scientific methods.			●

● Gives effect to ● Supports

Figure 16: Benefits alignment with Te Ture Whaimana

4.3.2 Opportunities

Opportunities were identified through the Waikato Sub-Regional Three Waters Strategic Case. These related to the benefits which could be realised through integrating river restoration and infrastructure and resourcing opportunities. These opportunities can be realised as part of this project and are outlined below.

River and land restoration opportunities

There is a special relationship between Waikato River iwi and the river, reflected in Te Ture Whaimana. Many of Waikato's communities also have strong connections to and relationships with rivers in the region. An opportunity exists to strengthen these relationships by contributing to the restoration of the health and wellbeing of the Waikato River (through reducing contaminant loading) and increasing the number of customary, recreation and education interactions.

Wider catchment land use management changes and investment in restoration will also be required alongside an investment in three waters servicing practices and the adoption of a more integrated approach between three waters services, land use planning and development practices. This Project will inform and be informed by the spatial planning, blue-green corridor and environmental markets work streams being delivered through the Future Proof.[11] Through combining these workstreams, there is an opportunity to better integrate land and water management, which will assist with identifying and prioritising restoration and enhance investment decision-making. This will deliver better outcomes for the river, accelerate progress towards restoring "the health and wellbeing of the awa" and support growth and economic prosperity within the sub-region.

Specifically, the following opportunities to invest in river restoration are available:

- Rehabilitation of existing plant sites that are no longer needed (if centralised solutions are preferred). This includes opportunities for land development at Hopuhopu, allowing Waikato-Tainui to build their relationship with that whenua and the corresponding relationship with the awa.
- Offsetting techniques such as vegetation zones and exclusion zones
- Restoration of existing or historic wetlands

As noted below, the consolidation of wastewater treatment facilities across the metro area may deliver efficiencies that reduce the overall expenditure on the wastewater network, which may increase the availability of funding for other restoration projects.

Infrastructure and resourcing opportunities

The state of wastewater infrastructure and Waikato River water quality varies greatly in the Waikato sub-region. Local authorities, iwi, communities and industry face significant challenges in meeting current and future wastewater service needs efficiently, while promoting Best for River outcomes. However, significant opportunities also come with these challenges, including economies of scale, greater network resilience and the opportunity for project partners to set strong environmental examples.

Stepping back and considering a holistic approach to wastewater servicing provides an opportunity to consider new technologies – for treatment of the wastewater stream, for re-use of treated wastewater, for processing and use of solids and other nutrients extracted during treatment, and for capture and use of energy through the treatment process. Adoption of best practice treatment would allow development of a Centre of Excellence for wastewater management: a place to train new wastewater operators (including rangatahi) and to trial new technologies in the future.

[11] Waikato Business News, 03 April 2019. Pioneering plan sets out blueprint for Corridor growth. Source: http://wbn.co.nz/2019/04/03/pioneering-plan-sets-out-blueprint-for-corridor-growth/

In 2015, the operational cost saving for adopting a holistic approach to three waters infrastructure management was estimated at around 10 per cent or $91 million net present value (NPV) over a 28-year period (when compared to business as usual activities[12]). Cost efficiencies could be achieved through reconfiguration of existing sites, lower operating costs, savings in capital expenditure and innovative procurement strategies. Specific savings would depend on actual size of communities, scope of services, infrastructure spend, distances, technologies and state of existing infrastructure. The cost efficiencies realised through this approach could be utilised to expedite progress towards Best for River outcomes.

Further opportunities exist to improve overall network resilience. As outlined, the condition of three waters infrastructure in the study area varies across assets and the three councils. If greater collaboration and resource sharing is achieved, funding and resources could be shared and targeted at areas of the network that are most at risk of failure. Approaches that provide backup wastewater servicing solutions could be explored or implemented. This in turn will minimise the likelihood of negative environmental and community health and safety impacts.

A wider network approach to wastewater infrastructure will also provide greater consistency:

- Consistency in wastewater servicing and treatment
- Consistency across discharge consents – creating further efficiencies for monitoring and enforcement
- Consistency across relationships – fewer operators means fewer parties for mana whenua partners and other stakeholders to interact with

4.4 Best for River

Giving effect to Te Ture Whaimana o te Awa o Waikato is central to delivering “Best for River” outcomes. A Best for River definition and evaluative method were developed as part of the Three Waters Sub-Regional Strategic Case to ensure progress is made towards achieving Te Ture Whaimana o te Awa o Waikato and other current, and proposed, central and local Government regulatory targets. This definition is intended to be used as the basis for all three waters projects and assessments completed in the sub-regional area.

Before looking at the Best for River definition, it is important to define what is meant by “river”. In the context of the treaty settlements that gave rise to Te Ture Whaimana, the Waikato River is defined as:

(a) the body of water known as the Waikato River flowing continuously or intermittently from the Huka Falls (Te Waiheke o Huka) to the mouth of the Waikato River (Te Puaha o Waikato) shown as located within the areas marked A & C on SO plan 409144; and

(b) the body of water known as the Waipaa River from its source to its junction with the Puniu River to the extent to which

  (i) the Waipaa River is within the area marked C on SO plan 409144:

  (ii) activities in the catchment of the Waipaa River are included in a joint management agreement

(c) all tributaries, streams, and watercourses flowing into the part of the Waikato or Waipaa Rivers, to the extent to which they are within the areas marked [A, B & C] on SO plan 409144; and

(d) lakes and wetlands within the areas marked [A, B & C] on SO plan 409144; and

(e) the beds and banks of the water bodies described above[13]

[12] REFERENCE

[13] Adapted from *Ngati Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010* and *Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010*

To mana whenua and Waikato-Tainui, the following statement encompasses a full expression of the relationship and connection to the Waikato River:

> *"The Waikato River is our tupuna (ancestor) which has mana (spiritual authority and power) and in turn represents the mana and mauri (life force) of Waikato-Tainui. The Waikato River is a single indivisible being that flows from Te Taheke Hukahuka to Te Puuaha o Waikato (the mouth) and includes its waters, banks and beds (and all minerals under them) and its streams, waterways, tributaries, lakes, aquatic fisheries, vegetation, flood plains, wetlands, islands, springs, water column, airspace and substratum as well as its metaphysical being…"*

The "River" therefore includes the main stem, tributaries, lakes, wetlands, and interconnected areas. Activities that affect the river are not limited to those occurring within the river or on its bed and banks. Activities further afield may result in physical effects (though discharges) or may impact on the relationship of mana whenua and the wider community with the river.

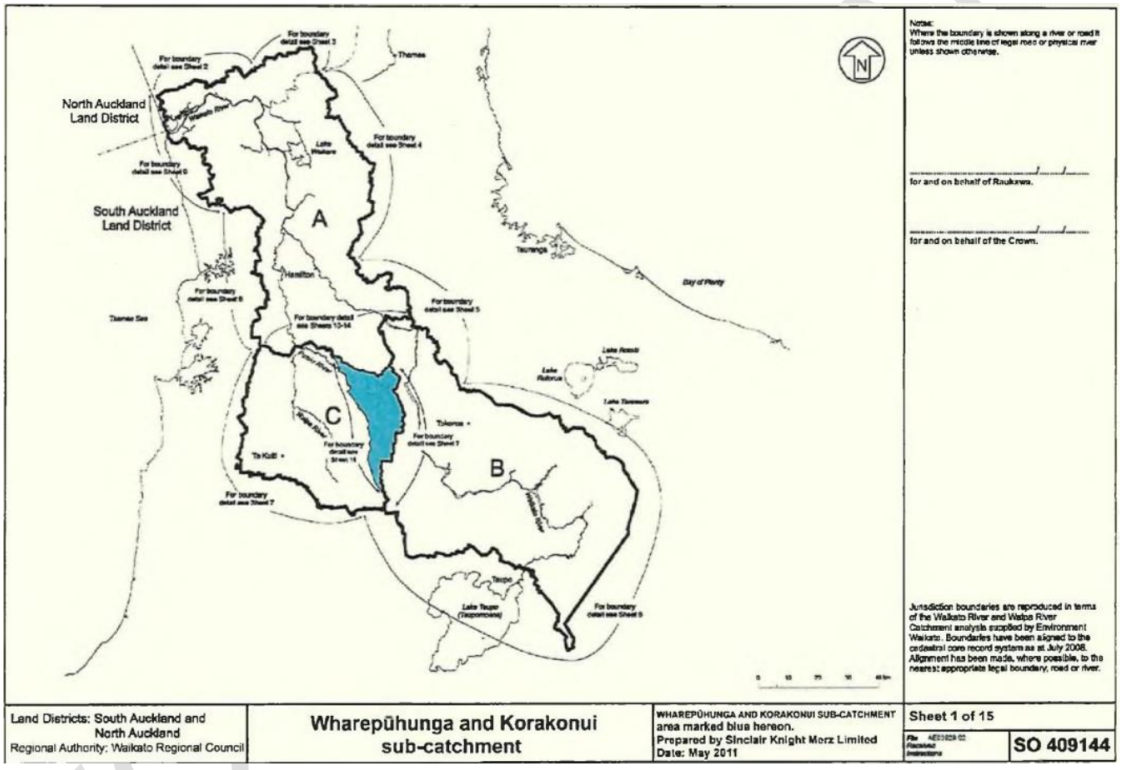


Figure 17: Plan SO 409144 outlines the extent of the Waikato and Waipaa Rivers as defined under settlement legislation

The Best for River definition includes 10 objectives:

Best for River Outcomes

1. *The health and well-being of the Waikato River is restored and protected*[14]
2. *All life within the River (which extends beyond the main stem) and surrounding environment benefit*
3. *All of the community (including industry and businesses) understand and are committed to caring for and protecting the River*
4. *Cultural connectivity and whakapapa relationships*[15] *with the River is restored and enhanced*
5. *Access to the River to enable customary, sporting, recreational, and cultural opportunities is improved*
6. *All water and land resource policy, regulations and decision making frameworks across the catchment are consistent and fully aligned to achieve the Vision and Strategy, including RMA instruments, catchment based management approaches*
7. *All water and land management decisions are based on robust and comprehensive knowledge and understanding of the river system, including real time and long term data, sites of significance, social and cultural activities*
8. *Achieve net benefit to the environment*
9. *Increase the efficient use of resources and maximise resource recovery and contribution toward carbon neutrality and energy neutrality*
10. *Apply and maintain best practice to all three waters management and infrastructure which allows for the sustainable future growth of the Waikato region.*

4.5 Investment objectives

The Southern Metro DBC identifies five Investment Objectives aligned with the Best for River Statements. The objectives respond to the Best for River outcomes sought, reflect wastewater specific issues in the metro area, and are SMART (Specific, Measurable, Attainable, Relevant and Timebound). The objectives were refined through the development of the Southern Metro DBC in consultation with project partners and the Project Governance Group.

The five Investment Objectives remain relevant to the Northern Metro DBC and, to provide consistency between the two processes, have been adopted directly.

Waikato Metro Wastewater DBC: Investment Objectives

Investment Objective One: Before 2050 municipal wastewater discharges are no longer impacting on the ability of people to swim and collect Kai from the river and connected waterways thereby contributing to the restoration and protection of the health and wellbeing of the river

Investment Objective Two: The quality and extent of aquatic and terrestrial habitat and biodiversity in and around water bodies is enhanced through the reduction of wastewater treatment and discharge impacts before 2050

Investment Objective Three: Wastewater treatment solutions contribute to restoring and enhancing cultural connectivity with the river so that before 2050 Marae, Hapuu and Iwi access to the river and other sites of significance for cultural and customary practice within the metro spatial area are no longer impeded by wastewater treatment solutions

[14] In this DBC we have taken "restored and enhanced" to be equivalent to the Te Ture Whaimana "restored and protected."

[15] In this DBC we have taken "cultural connectivity" to encompass whakapapa, relationship, and metaphysical connectivity as well as physical connection.

Investment Objective Four: Maximise efficient use of resources and resource recovery to contribute to net zero greenhouse gas related emissions from wastewater treatment systems before 2050

Investment Objective Five: The wastewater solution provides sufficient capacity to ensure sustainable growth in the metro spatial area in accordance with growth projection assumptions for the next 100 years

4.6 Key Performance Indicators and measures

The following KPIs have been adapted from the Southern Metro DBC and are identified as the best measures to reflect the project objectives. These KPIs use the most up to date sources and real time data to ensure baselines and targets are accurate and quantifiable. Some minor changes from the Southern Metro DBC to reflect the slightly different opportunities associated with Pukete and Ngaaruawaahia.

Changes to the KPIs from the Southern Metro DBC are shown red underline/strikethrough. Where the data source is highlighted in grey, further work is required to develop the KPI measure.

KPI	Data Source
Objective 1: Before 2050 municipal wastewater discharges are no longer impacting on the ability of people to swim and collect Kai from the river and connected waterways thereby contributing to the restoration and protection of the health and wellbeing of the river.	
KPI 1.1: Public health risks caused by the concentration of E.coli and pathogens within the WWTP discharges	Concentration of E. coli in treated wastewater discharges (compliance monitoring data). Mass load (kg/day) of total nitrogen and total phosphorus in treated wastewater discharges (compliance monitoring data). Concentrations of contaminants in the Waikato River are already monitored on a monthly basis by Waikato Regional Council.
KPI 1.2 ~~Concentration of~~ Total nitrogen load ~~contaminants~~ impacting the river and connected waterways from WWTPs	
KPI 1.3: ~~Concentration of~~ Total phosphorous load ~~contaminants~~ impacting the river and connected waterways from WWTPs	
KPI 1.4: Proportion of plants which are compliant against discharge quality consent conditions	WWTP Compliance monitoring data sourced from local/regional councils.
Reason for changes: It is the mass load of nutrients that is more important in this context.	
Objective 2: The quality and extent of aquatic and terrestrial habitat and biodiversity in and around water bodies is enhanced through the reduction of wastewater treatment and discharge impacts before 2050	
KPI 2.1: Amount of algal biomass in the Waikato River as measured by chlorophyll a concentration attributable to treated wastewater discharges	Concentrations of chlorophyll a are monitored in the Waikato River by Waikato Regional Council.
KPI 2.2: Health and abundance of mahinga kai species	Surveys of mahinga kai in terms of species health, variety, and number. Sites for this will need to be determined based on sites which may be affected most by the current wastewater network.
KPI 2.3: Number and variety of terrestrial species at specific locations within the metro area	Surveys of terrestrial species with regards to their health, variety, and number to be developed at sites which are identified for rehabilitation.
KPI 2.4: Area coverage of native riparian and wetland vegetation surrounding water bodies and within the catchment area	Native vegetation coverage (hectares) across the metro area can be determined using GIS 2018 data sources for land cover. Coverage of wetland vegetation can also be determined using this data. More specific data could be captured in relation to each WWTP and restoration planting etc. associated with those sites.

KPI	Data Source
Reason for changes: Riparian and wetland vegetation are different and specific measurement of both is considered important. *Further work required: Selection of sites for monitoring of mahinga kai should be informed by the Cultural Values Assessment to ensure maatauranga principles are considered,*	
Objective 3: Wastewater treatment solutions contribute to restoring and enhancing cultural connectivity with the river so that before 2050 Marae, Hapuu and Iwi access to the river and other sites of significance for cultural and customary practice within the metro spatial area are no longer impeded by waste water treatment solutions	
KPI 3.1: Maatauranga Maaori Cultural Health Index / Cultural impact assessment	TBD through engagement with iwi and hapuu.
KPI 3.2: ~~Number and quality of access points to the river for cultural and recreational activities and quality of the interaction with the river~~ Ability to physically and culturally connect to the river including: number and quality of access points, quality of cultural and recreational access and opportunities, and ability to use land (including Maaori-owned land) for commercial and residential purposes	Waikato Fishing and Game website. Hamilton City River Plan. Property titles/district plan requirements (buffer zones). Other sources to be determined. Means of assessing quality of access points to be determined through engagement with iwi and hapuu and key recreational groups.
Reason for changes: The "number and quality of access points" is not strongly influenced by WWTP discharges. However, the WWTPs and discharges do impact on physical and cultural connections to the river and the ability to use the river and surrounding land for cultural and recreational purposes. *Further work required: Development of a Maatauranga Maaori Cultural Health Index and completion of Cultural impact assessment*	
Objective 4: Maximise efficient use of resources and resource recovery to contribute to net zero greenhouse gas related emissions from wastewater treatment systems before 2050	
KPI 4.1: ~~Water reuse, water allocations and accounting~~ Volume of wastewater reuse as a percentage of discharge volume	Currently no plant in the metro area is capable of re-using water. Data sources for capturing this will need to be established as technology is advanced for water re-use.
KPI 4.2: Decreasing greenhouse gas ~~carbon~~ footprint (capital and operational) / energy requirements of plant and plant systems (i.e., pumps) as a proportion of wastewater treated	Average energy consumption per plant (including pumping stations) sourced from councils. Greenhouse gas accounting systems will need to be developed in the future.
KPI 4.3: Proportion of resources ~~biosolids~~ that are able to be recovered for beneficial reuse ~~safely reused for beneficial purposes~~	Pukete biosolids are currently vermicomposted and used as a soil conditioner. Data sources for capturing beneficial reuse will need to be established as technology is advanced.
Reason for changes: KPI 4.1 is targeting water re-use and should be more specific. KPI 4.2 should refer to all greenhouse gases (not just carbon) and should specifically include emissions from capital projects and operational activities. Linking to the volume of wastewater treated avoids the KPI being impacted by changes in wastewater volume.	
Objective 5: The wastewater solution provides sufficient capacity to ensure sustainable growth in the metro spatial area in accordance with growth projection assumptions for the next 100 years	
KPI 5.1: Flexibility and adaptability of solution to be staged / developed over time to meet the needs of the community	Measures can be taken by assessing the staging attributes of the option and ability to adapt the solution to changing populations and land use.
KPI 5.2: Proportion of Industrial areas which are serviced by municipal plants sustainably	Baseline the industrial areas in the metro area which are currently serviced by municipal plants (and those serviced by private facilities).

KPI	Data Source
KPI: 5.3 Proportion of residents in the metro area serviced by municipal treatment plants sustainably	Baseline the number of households in the metro area which are serviced by municipal plants.
Reason for change: No changes proposed	

Baselines and Targets

Baseline measures have been collated using the most recent available data. Water quality targets will need to be developed in line with Plan Change 1 commitments. Where the data source is highlighted in grey, further work is required to develop the measures

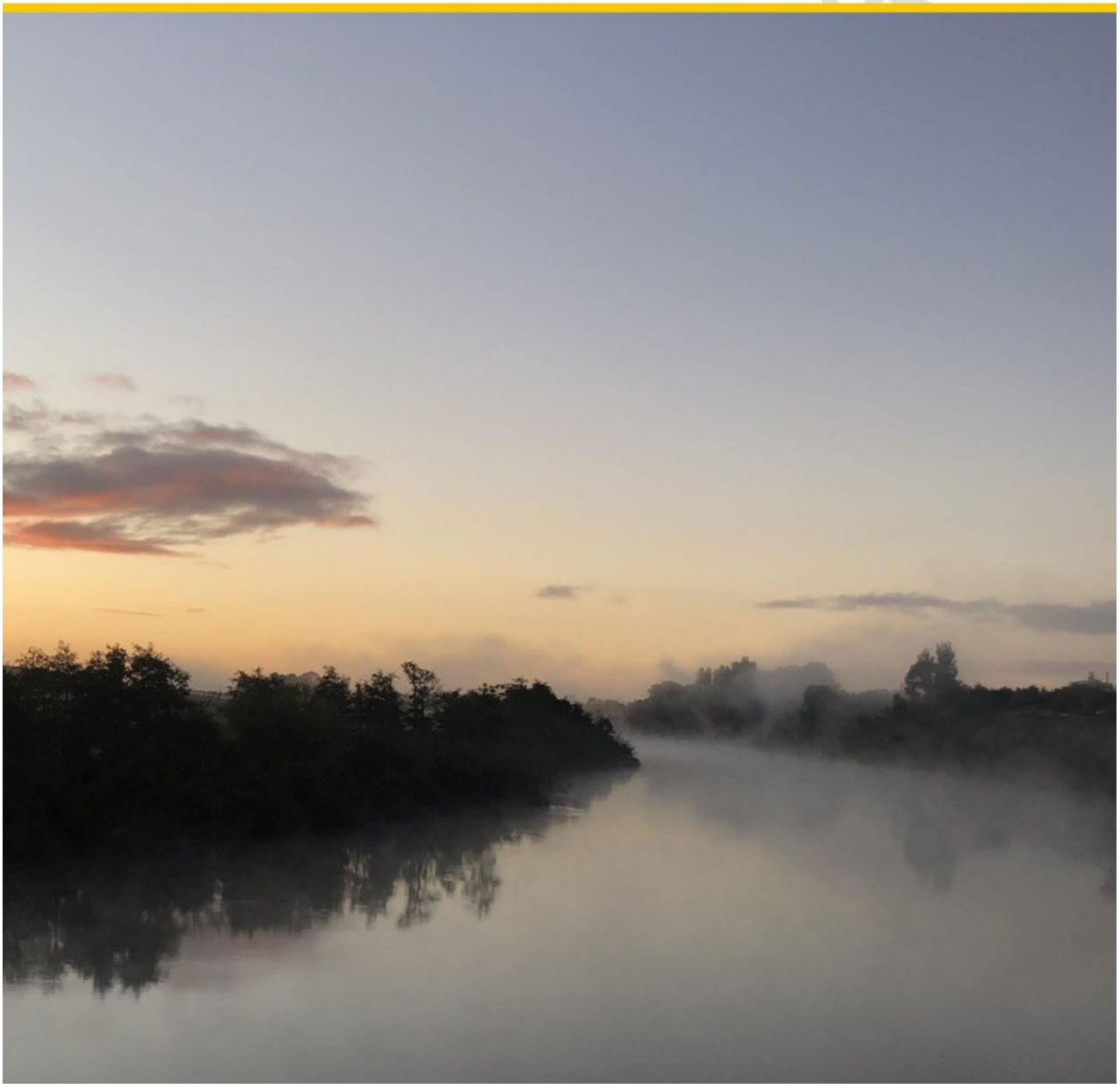
4.7 Constraints, dependencies, and assumptions

The following constraints will place certain limitations on the types of solutions identified for wastewater treatment in the metro area.

Table 3: Key constraints

Constraint	Description
Funding limitations	Currently each council (i.e. Waikato District Council and Hamilton City Council) has planned LTP funding available for wastewater treatment infrastructure and upgrades. Based on high level cost estimates undertaken in previous investigations it is expected that a preferred solution may require additional funding sources or a reallocation of funds. Funding limitations and constraints will be further investigated within the financial case.
Population growth	As identified in Problem 4, the current wastewater treatment network has a limited capacity. Growth and development in the metro area will mean upgrades and expansions at existing plants will be necessary regardless of the outcomes of this project. Whilst the DBC will seek to develop an option to meet these expectations, options will still need to be flexible to ensure the network is resilient enough to respond to changes.
Land use	Current and future land uses across the metro area will shape where potential new infrastructure should be located. More detailed constraints mapping exercises will be undertaken to determine ideal locations for new infrastructure.
Existing utilities	Existing utilities, such as the power grid network, road network and existing reticulation network will be key constraints when determining a potential location for new infrastructure. More detailed constraints mapping exercises will be undertaken to determine ideal locations for new infrastructure.
Geographical constraints	Geographical constraints include soil types and topographical constraints. Energy savings can be achieved if the reticulation network can utilise gravity where possible. More detailed constraints mapping exercises will be undertaken to determine ideal locations for new infrastructure.
Technology constraints	Currently Pukekohe WWTP represents the best available treatment technology (for liquid streams) in New Zealand which is expected to achieve an effluent total nitrogen of 3mg/L. New solid stream and energy efficient technologies will be further investigated as part of this project. This may go beyond what is currently seen in New Zealand but has been demonstrated in other countries.

Economic Case



5 Economic case introduction

The Economic Case builds on the Strategic Case and involves investigating options available to address the problems identified in the Strategic Case.

The Economic Case adopts the long list assessment and short list of options developed in the Southern Metro DBC. The Project Objectives and KPIs developed in the Strategic Case are used along with critical success factors, maatauranga Maaori considerations, and cost estimates to assess the short list options with the aim of identifying the option that delivers best value for the river considering wider social and environmental benefits and effects.

This report provides an overview of the preferred option, the approach to the development and assessment of options and the refinement and details of the preferred option

6 Options development and assessment methodology

The options evaluation process is set out in Figure 18 and each step explored further in the following sections. The process has been characterised by collaborative decision points where key stakeholders provided input to the development of the DBC.

The options development and assessment process has been a collaborative effort between the project team and project partners (including HCC, WDC, Waipaa DC, and iwi and hapuu representatives). A series of technical workshop and hui were held with relevant parties to seek input to the options description and then options assessment.

A record of these meetings is provided in the *Multi-Criteria Assessment Workshop Record* in **Appendix C**. The outputs of these meetings were an assessment process, a short list, and a preferred option and are described below.

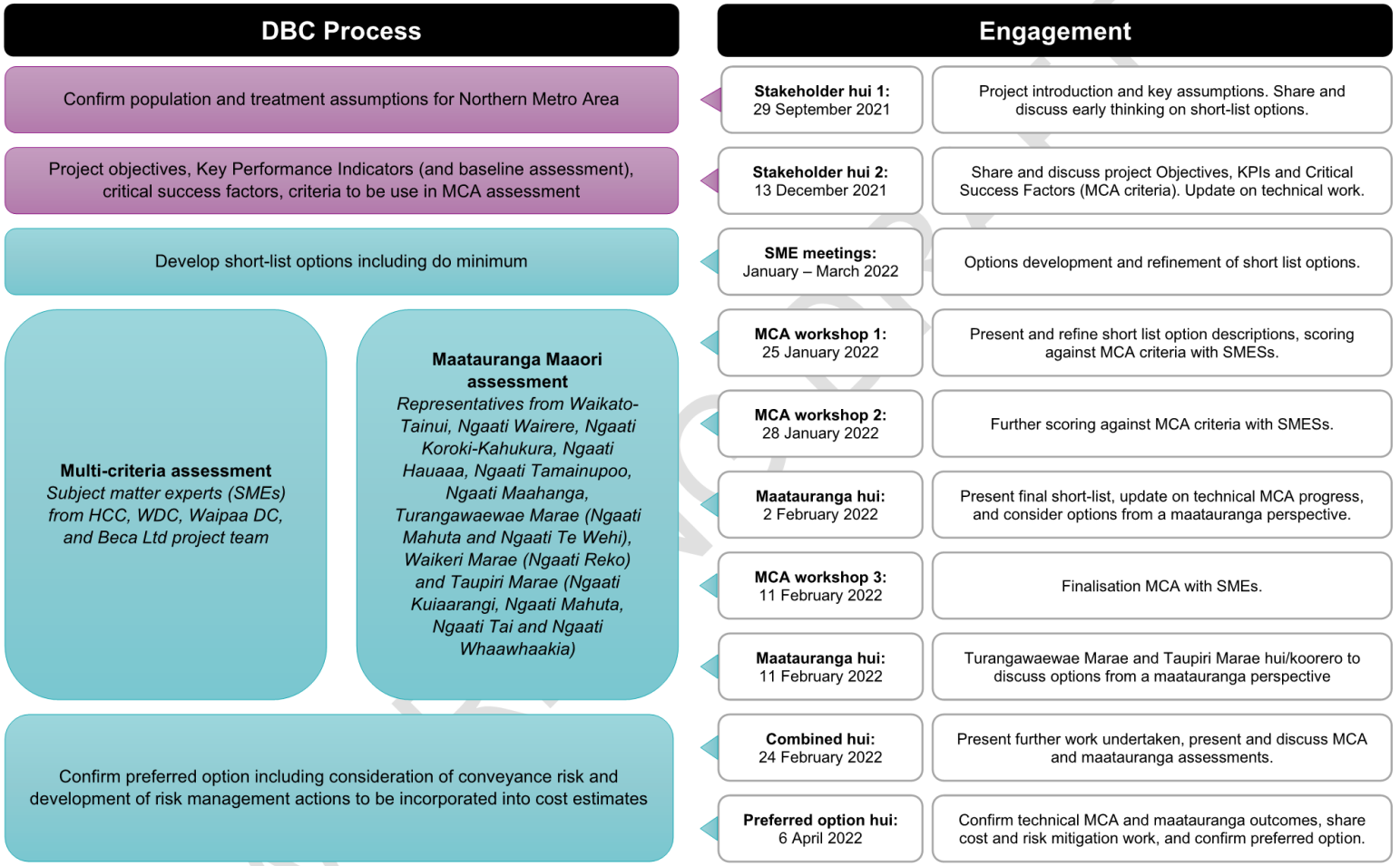


Figure 18: Options evaluation process

7 Key assumptions

7.1 Population growth

Hamilton City is the largest population centre in the sub-region with a 2021 population of around 181,500 people[16]. It is the fourth most populous and one of the fastest growing cities in New Zealand. Projections indicate that this growth is set to continue for the foreseeable future. The Waikato district has a 2021 population of around 84,300 people[17]. The district is projected to continue to experience strong growth, particularly in the main urban areas.

Both residential and non-residential population and growth assumptions are fundamental inputs to the DBC. They are used to determine indicative scale, timing, and cost of conveyance systems and wastewater treatment plants included in the short-list options.

The growth assumptions made in the Southern DBC in relation to the full Hamilton Waikato Waipaa Metro Area (the "Metro Area") have been used as the basis for the assumptions for the Northern Metro DBC. Those assumptions are detailed in a memorandum titled: *Growth Assumptions for Waikato Metro Wastewater DBC* (10 December 2020)[18].

While those assumptions remain broadly relevant for the Northern Metro DBC, some adjustments have been made to reflect recent refinement of Metro Spatial Plan population projections by Futureproof.

The growth assumptions include:

- Existing residential and non-residential
- Infill development, including that outlined in the Metro Spatial Plan
- Planned new residential greenfield development (including Taupiri, Ngaaruawaahia, Hopuhopu, Te Kowhai, and Hamilton)
- Planned additional commercial industrial development (including Taupiri, Ngaaruawaahia, Hopuhopu, Te Kowhai, Horotiu, and Hamilton)
- Additional wet industry at Horotiu, Te Rapa North, and Ruakura and new trade waste in Hamilton

The total growth assumptions (combining residential and non-residential growth) as shown in Table 4 and Figure 19. The full population assumptions adopted for the Northern Metro DBC are set out in Section 2.1 of the *Short-list Technical Report* in **Appendix B**.

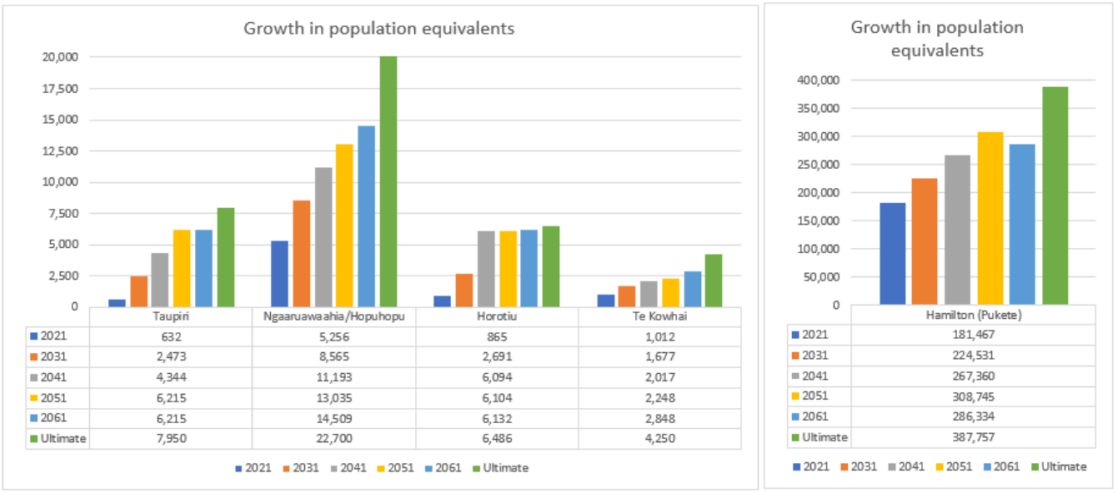
Table 4: Growth assumption in Population Equivalents. Assumes the proposed southern WWTP brought on-line between 2051 and 2061.

Area	2021	2031	2041	2051	2061	Ultimate
Taupiri	632	2,473	4,344	6,215	6,215	7,950
Ngaaruawaahia / Hopuhopu	5,256	8,565	11,193	13,035	14,509	22,700
Horotiu	865	2,691	6,094	6,104	6,132	6,486
Te Kowhai	1,012	1,677	2,017	2,248	2,848	4,250
Hamilton (Pukete)	181,467	224,531	267,360	308,745	286,334	387,757
Hamilton (new southern plant)	-	-	-	-	59,626	103,633

[16] NIDEA, 2021. *Population (Low, Medium and High) 2018 projection outputs.*

[17] NIDEA, 2021. *Population (Low, Medium and High) 2018 projection outputs.*

[18] Adopted at 28 October 2020 governance meeting



	Taupiri	Ngaaruawaahia/Hopuhopu	Horotiu	Te Kowhai
2021	632	5,256	865	1,012
2031	2,473	8,565	2,691	1,677
2041	4,344	11,193	6,094	2,017
2051	6,215	13,035	6,104	2,248
2061	6,215	14,509	6,132	2,848
Ultimate	7,950	22,700	6,486	4,250

	Hamilton (Pukete)
2021	181,467
2031	224,531
2041	267,360
2051	308,745
2061	286,334
Ultimate	387,757

Figure 19: Growth assumption in Population Equivalents. Assumes the proposed southern WWTP brought on-line between 2051 and 2061. Note the different y-axis scales between the two charts.

Recent changes to the National Policy Statement for Urban Development, the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021, and Hamilton City's proposed Plan Change 12 provide for higher levels of intensification than may have been allowed previously. While the Metro Spatial Plan projections do not account for potential increased demand arising from these changes the use of population assumptions for the Northern Metro DBC based on the 2021 high forecasts with an extra allowance for additional infill (as per the Southern Metro DBC assumptions) should largely account for this potential population growth. In addition, the assumptions provide generous additional wet industrial flow allowances that double the total industry allowance compared to current state. Intensification is more likely to affect local network pipes and pump stations at peak wet weather flows than the larger transfer pump stations or the treatment plants being considered and costed in the DBC.

Regardless, sensitivity testing has been undertaken in the **Management Case** to understand the potential impact of and possible responses to different combinations of growth including answering the following:

- Is there a significant tipping point for Pukete WWTP post-MBR conversion (ie what are the triggers for additional upgrades and expansion)?
- What happens if development occurs faster or in different locations to those assumed? Does this impact on proposed staging? This includes Southern Links and HT1 areas being developed earlier than anticipated and/or additional infill and intensification within existing suburbs and the CBD
- What is the impact of diverting the Hamilton south catchment to the new Southern WWTP and, conversely, is there a trigger where it would be more effective to divert flows to the Southern WWTP rather than undertake the next phase of upgrades at Pukete?

The population assumptions and sensitivity tests provide sufficient headroom to account for additional intensification and growth well beyond current high population growth projections.

7.2 Quality of discharge

Assumptions have been made on the quality of discharge for the WWTPs. The proposed loading (based on population assumptions) and treated wastewater quality targets are used to size and cost the treatment processes included in the short-list options.

This DBC largely adopts the treatment assumptions made for the Southern DBC. Those assumptions are detailed in memorandum titled: *Wastewater Treatment Assumptions for Waikato Metro Wastewater DBC* (14

August 2020)[19]. The full discharge quality assumptions are documented in Section 2.2 of the *Short-list Technical Report* in **Appendix B** and summarised here.

7.2.1 Liquid stream discharge standards

In order to give effect to Te Ture Whaimana and other national and regional planning instruments, the DBC adopts a minimum discharge standard (to be met by 2031) of:

- Total nitrogen: <4mg/L (annual mean)
- Total phosphorus: <0.5mg/L (annual mean)
- E. coli: <14 cfu/100ml (annual 95th percentile)

These discharge standards are derived from the Pukekohe Wastewater Treatment Plant project, which has a very high level of treatment (at the limit of operating technology currently). Compared to the Southern Metro DBC, the total phosphorus concentration is slightly stricter (0.5 mg/L compared to 1 mg/L), recognising the relatively low baseline phosphorus mass load discharges for the Pukete and Ngaaruawaahia WWTPs. The total nitrogen and E. coli limits are the same as the Southern Metro DBC.

This DBC also proposes to support the reuse of treated wastewater. This is assumed to require treatment to equivalent of the Australian (Queensland, Victoria state) Class A/A+ standard. Treatment of wastewater to a potable reuse standard has been excluded. Potable water reuse has public health implications, and we understand such direct reuse would require legislative change within New Zealand's Drinking Water Regulatory Framework.

7.2.2 Solid stream management

A graduated scale of solids management has been adopted based on population equivalents (PE). This would include:

- Ngaaruawaahia: No energy recovery, dewatering to 19% dry solids to allow 'last resort' temporary or permanent landfill disposal
- Pukete: Anaerobic digestion with energy recovery (eg co-generation engine producing heat and electrical energy), side stream digestate treatment, more advanced form of solids destruction required when 150,000 PE is exceeded.

7.2.3 Discharges to air

Proposed provisions for atmospheric emissions are reasonably general. The costs of such initiatives are not able to be differentiated at the Class 5 estimating level and will not drive the options assessment. However, it is assumed that best practice will be implemented, including:

- Noise: Levels to be safe for operators and to comply with district plan noise limits at the site boundary
- Odour: No objectionable odour beyond the site boundary
- Greenhouse gas emissions: Process units and equipment to be specified and configured to minimise the release of fugitive greenhouse gas emissions with a particular focus on minimising nitrous oxide emissions associated with nitrogen removal processes.[20]
- Life cycle emissions: Emissions will be considered to optimise life cycle emissions and, ultimately, seek zero carbon aspirations. This will be a key driver for initiatives including on-site emissions minimisation

[19] Adopted at the 28 October 2020 governance meeting

[20] Nitrous oxide (N_2O) appears to be the key operational greenhouse gas emission source from WWTPs that remove a large amount of nitrogen. These WWTPs in turn tend to be the highest emission source for the entities that own and operate them. The science around estimating N_2O release from any given plant is very imprecise and actual measurements are required to better define emissions.

(Scope 1), energy neutral processes (Scope 2), and minimisation of emissions associated with off-site residuals management (Scope 3).

7.3 Form of discharge

For the purpose of short-list options development and assessment, this DBC assumes a continuation of the current discharges to the river from the Ngaaruawaahia and Pukete WWTPs.

A high-level assessment of potential discharge options is provided in Section 4.6 of *Short-list Technical Report* in **Appendix B** and includes discharge to water, discharge to land, and a variety of re-use options as described below. Consistent with the approach taken for the Southern Metro DBC, more detailed work will be undertaken to develop and evaluate potential discharge options at the resource consent stage.

7.3.1 Discharge to water

A discharge of treated wastewater to water could take several forms:

- Continued use of the diffuser structures (noting that neither of the existing diffuser structures are adequately sized to meet the anticipated flow)
- Indirect discharge via rock passage
- Discharge via constructed or restored wetland

This DBC assumes that the form and operation of any discharge structure would be co-designed with iwi partners with the aim of reducing or removing structures in the bed or banks of the river and improving the cultural and spiritual purification of the discharge.

7.3.2 Discharge to land

Land discharge options remain as possible solutions for all or part of the treated wastewater discharge but were not assessed as part of this DBC due to the significant complications associated with discharges to land that require further investigation before options surrounding a discharge to land can be adequately considered.

These include:

- **Land capacity**: Discharges to land require large areas of well-drained soils. The minimum land area required for discharge of treated wastewater is shown below. An additional allowance would be required for buffers to neighbouring land uses and areas that cannot be irrigated (such as tracks and drains). The land requirement increases as soils and topography become less ideal. Even with large areas of land, it would be very difficult to avoid the need for some discharge to the river during the wet months and following heavy rainfall at other times of year. Such contingency discharges to the river would be necessary to avoid ponding and to maintain the soil structure and long-term sustainability of the discharge to land.

Land area required	2041	2061
Pukete	4,370 ha	4,630 ha
Ngaaruawaahia	330 ha	410 ha

- **Land location**: Finding large areas of suitable land is challenging. While land does not need to be contiguous to be suitable for wastewater discharge, the irrigation land would ideally be within a defined area to minimise pipework.
- **Land management**: Irrigation of treated wastewater to land can occur as an activity ancillary to an agricultural activity (eg irrigation of a dairy farm or orchard) or land can be converted such that the wastewater discharge is the primary activity (eg cut and carry operation). There are a range of

management regimes that could be implemented and there is risk of conflict between landowner objectives and the WWTP operator's objectives.

- **Groundwater and soil quality**: Discharge of wastewater to land can impact groundwater quality and soil health – both as a result of high loading leaching directly to groundwater and as a result of long-term accumulation of nitrogen and phosphorus in soils and subsequent leaching.
- **Impacts on waterbodies**: Discharges to land can result in impacts on waterbodies, both as a result of nutrients moving through groundwater systems to surface water and as a result of overland flow in the event that soils become saturated.
- **Displacement of other land uses**: Discharges to land may displace other land uses. Ongoing efforts to reduce nutrient leaching to groundwater across the region mean that nitrogen and phosphorus application rate limitations may not allow stock and wastewater discharges to occur on the same land.
- **Acceptability** of irrigation of human waste onto dairy farm or horticultural farms: Quality and perception concerns.

Further investigations are underway to allow a subsequent decision to be made about the appropriateness of land disposal as a full or partial option. These factors will be decided as part of the next phase of implementation via the Consenting Strategy as outlined in the **Management Case**.

7.3.3 Re-use

There are a variety of re-use options for treated wastewater. Each option would have different treatment requirements:

- Potable water
- Industrial use
- Agricultural use (similar to discharge to land above)
- Other irrigation use (sports fields, golf courses, parks and reserves)

For the purposes of this DBC we have not evaluated the end use but have considered technologies that would render the treated wastewater suitable for reuse subject to standards for reuse having been set (refer treatment standards section for discussion on potable reuse standards).

8 Long-list development and assessment

8.1 Long-list options development

Long-list options development was undertaken for the full Metro Area as part of the Southern Metro DBC and is set out in Section 3.2 of the Southern Metro DBC.

For completeness, Table 5 presents a high-level description of the long list options confirmed by the Governance Group on 17 September 2020. While there are eight options, there are only two distinct options in relation to the Northern Metro Area:

- Northern communities (including Te Kowhai and Ngaaruawaahia) serviced by Pukete WWTP (Options 2 and 3)
- Northern communities (including Te Kowhai) serviced by Pukete WWTP, Ngaaruawaahia WWTP upgraded (Options 1 and 4)

The Southern Metro DBC also included a long list of discharge options including land discharge, discharge to water directly (pipe/diffuser) or indirectly (wetland/rock passage), and reuse.

Table 5: Long list options for full Metro area as per Southern Metro DBC

Option	Description
Option 1A (Do Minimum)	Existing plants upgraded. Two new facilities (near the Airport and Ohaupo). No provision for Fonterra Hautapu.
Option 1B	As per Option 1A with Fonterra Hautapu serviced by Cambridge WWTP.
Option 2A	Northern communities serviced by Pukete WWTP. Southern communities serviced by new southern centralised facility with Te Awamutu and Tauwhare Pa WWTPs continue as upgraded standalone plants. No provision for Fonterra Hautapu.
Option 2B	As per Option 2A with Fonterra Hautapu serviced by new southern facility.
Option 3A	Northern communities serviced by Pukete WWTP. Southern communities serviced by new southern centralised facility at the Cambridge site with Te Awamutu and Tauwhare Pa WWTPs continue as upgraded standalone plants. No provision for Fonterra Hautapu.
Option 3B	As per Option 3A with Fonterra Hautapu serviced by new southern facility.
Option 4A	Northern communities serviced by Pukete (Hamilton and Te Kowhai) and Ngaaruawaahia. Southern communities serviced by two new facilities (near the airport and at the Cambridge site) with Te Awamutu and Tauwhare Pa WWTPs continue as upgraded standalone plants. No provision for Fonterra Hautapu.
Option 4B	As per Option 4A with Fonterra Hautapu serviced by new Cambridge facility.

8.2 Long-list options assessment

Long-list options assessment was undertaken for the full Metro Area as part of the Southern Metro DBC and is set out in Section 3.3 of the Southern Metro DBC. For completeness, a high-level summary of the long-list options assessment process is provided below.

The long-list was subject to an MCA workshop attended by representatives and subject matter experts from Waikato DC, Waipā DC, HCC, Iwi and Waikato Regional Council. Subsequent to the assessments, Fonterra

made a decision to progress with a new standalone WWTP at Hautapu; options including provision for Fonterra Hautapu in the municipal plants have been struck-through.

Table 6: Full Metro Area long list options ranking (unweighted)

Rank	Option	Option description
1	Option 2A	Pukete WWTP, New Southern WWTP, Te Awamutu WWTP + Fonterra standalone
2	Option 3A	Pukete WWTP, Southern WWTP at Cambridge, Te Awamutu WWTP + Fonterra standalone
~~3~~	~~Option 2B~~	~~Pukete WWTP, New Southern WWTP including Fonterra, Te Awamutu WWTP~~
4	Option 1A	Upgrade all existing plants, new plants at Airport and Ohaupo + Fonterra Standalone
4	Option 4A	Upgrade Ngaaruawaahia, Pukete, Cambridge, Te Awamutu; new plant at Airport + Fonterra standalone
~~6~~	~~Option 3B~~	~~Pukete Plant, Southern WWTP at Cambridge including Fonterra, Te Awamutu WWTP~~
~~7~~	~~Option 1B~~	~~Upgrade all existing plants, new plants at Airport and Ohaupo. Includes servicing Fonterra at upgraded Cambridge WWTP~~
~~8~~	~~Option 4B~~	~~Upgrade Ngaaruawaahia, Pukete, Cambridge, Te Awamutu; new plant at Airport. Includes servicing Fonterra at upgraded Cambridge WWTP~~
9	Do Nothing	Operate all facilities as they are currently constructed with no additional capacity or treatment improvements.

Options 2A scored highest based on raw scores and remained the highest scoring option under all weighting scenarios tested in the Southern DBC.

For comparative purposes, it was agreed that further development of an option that contained aspects of the current servicing arrangements be carried through to the short-listing stage. Option 4A was considered more appropriate than Option 1A for this purpose.

Based on the long-list assessment, three options were taken forward to the short-list assessment:

- Do nothing (for comparative purposes)
- Option 2A: Northern communities serviced by Pukete, southern communities serviced by a new WWTP and the Te Awamutu WWTP
- Option 4A: Northern communities serviced by Pukete and Ngaaruawaahia, southern communities serviced by a new WWTP, the Cambridge WWTP and the Te Awamutu WWTP

The short-list was confirmed by the Governance Group on 17 September 2020.

The Southern Metro DBC ultimately recommended a refinement of Option 4A as the preferred option for the Southern Metro Area but that the two short-listed options for the Northern Metro Area (ie conveying all flows to an upgraded Pukete WWTP or upgrading both Ngaaruawaahia and Pukete WWTPs) should be evaluated and a preferred option identified as part of the Northern Metro DBC.

9 Short-list options development

Building on the work undertaken for the Southern Metro DBC, two broad short-list options were identified for the Northern Metro area: conveying all wastewater to a centralised WWTP at Pukete (Option A) and retaining both the Ngaaruawaahia and Pukete WWTPs (Option B). Option B has been broken into two conveyancing sub-options Option B1 with Te Kowhai, Horotiu and Taupiri conveyed to Ngaaruawaahia and Option B2 with Te Kowhai and Horotiu conveyed to Pukete and Taupiri conveyed to Ngaaruawaahia. A do minimum Option C was also developed to provide a baseline against which the benefits of the other options can be compared.

The short-list options were developed though engagement with the project partners including HCC and WDC technical staff and iwi with refinements make following technical workshops and hui. Inputs included:

- Preferences for siting of pump stations and pipeline routes
- Inclusion of adequate system resilience provisions, including back-up generators for pump stations and emergency storage
- Use of twin mains where possible to reduce septicity of sewage and provide resilience
- Consideration of conveyance projects already committed in Ngaaruawaahia
- Facilitation of resource recovery including energy, phosphorus, and treated wastewater re-use at Pukete WWTP
- Pukete WWTP layout to incorporate site constraints and operational requirements

The *Multi-Criteria Assessment Workshop Record* in **Appendix C** includes detail of options development discussions.

The options are described in detail in Section 3.1 of the *Short-list Technical Report* in **Appendix B** and summarised here.

Table 7: Northern Metro DBC Short-list development

Option	Description	
Option A	Option A assumes all wastewater is conveyed to an upgraded Pukete WWTP (ie Option 2A from the Southern Metro DBC).	Options A, B1, and B2 include upgrades to a membrane bioreactor plant at Pukete (all options) and Ngaaruawaahia (options B1 and B2). Reuse and recovery of energy at Pukete and water and biosolids at both plants. These options also include a change to existing conveyance routes to cross the Waikato River at Horotiu instead of Ngaaruawaahia.
Option B1	Option B1 assumes both the Pukete and Ngaaruawaahia WWTPs are retained and upgraded based on their current catchments (ie Option 4A from the Southern Metro DBC)	
Option B2	Option B2 assumes both the Pukete and Ngaaruawaahia WWTPs are retained and upgraded but diverts Horotiu and Te Kowhai to Pukete.	
Do minimum	In developing business cases, it is best practice to include either a do nothing or a do minimum. In theory, every option should be compared with the option of doing nothing at all, that is, the do-nothing option; however, for many activities it is not practical to do nothing at all. In this instance, we know that the existing WWTPs cannot be re-consented under their existing discharge standards and a do minimum has been adopted. The do minimum represents the minimum level of expenditure required to maintain a minimum level of service; that is, to obtain new consents (albeit with potential for significant challenge and significant offset mitigation) and to meet anticipated growth. T The Pukete and Ngaaruawaahia WWTPs are retained and upgraded (albeit with a lower treatment standard than options A, B1 & B2). Ngaaruawaahia is upgraded to an MBR (which is already accounted for in the Waikato DC Long Term Plan) while Pukete remains a conventional activated sludge process (with optimisation).	

9.1 Pukete WWTP upgrades

There are two options for upgrading the Pukete WWTP: A Membrane Bioreactor (MBR) plant and a conventional activated sludge process plant (with optimisation). The configuration for both options is shown on Figure 20.

Membrane Bioreactor (MBR) plant (Options A, B1 & B2):

- Fits broadly within the existing site footprint as shown on Figure 21
- Treatment standard improved to:
  - Total nitrogen: 4 g/m^3
  - Total phosphorus: 0.5 g/m^3
  - E.coli: 14 CFU/100mL
- A new discharge point will be required. The form of this discharge would be developed through a co-design process and is unlikely to take the form of a direct-to-river discharge through a diffuser
- Options for reuse and recovery of energy, water, biosolids, and nutrients (eg struvite).

Conventional activated sludge process plant (Option C):

- Does not fit within the existing site footprint and would begin to encroach into buffer areas as shown on Figure 22
- Treatment standard improved to:
  - Total nitrogen: 7-8 g/m^3
  - Total phosphorus: 0.5 g/m^3
  - E.coli: 126 CFU/100mL
- A new discharge point will be required
- Limited opportunities for reuse and recovery of energy, water, biosolids, and nutrients.

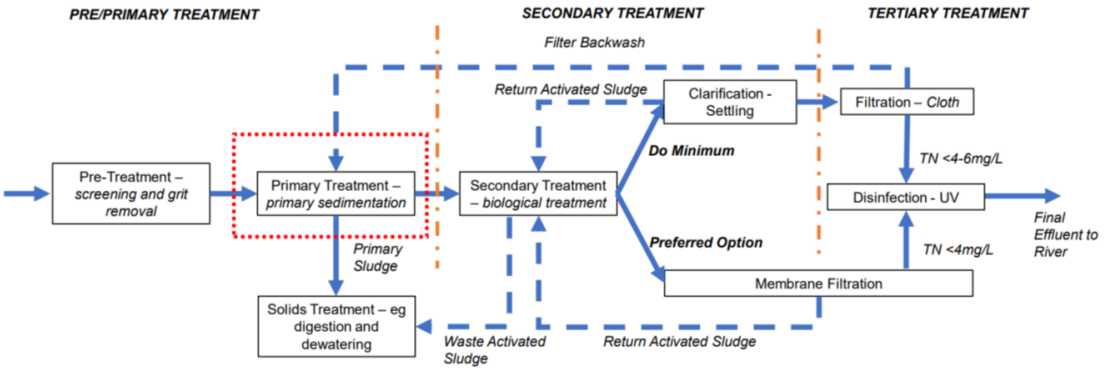


Figure 20: Pukete WWTP process overview

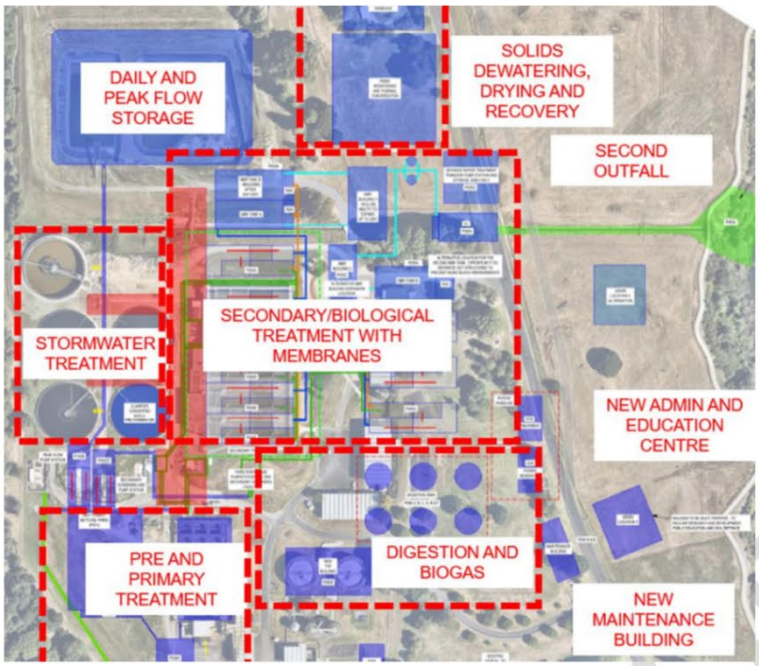


Figure 21: High-level concept layout for Pukete MBR plant

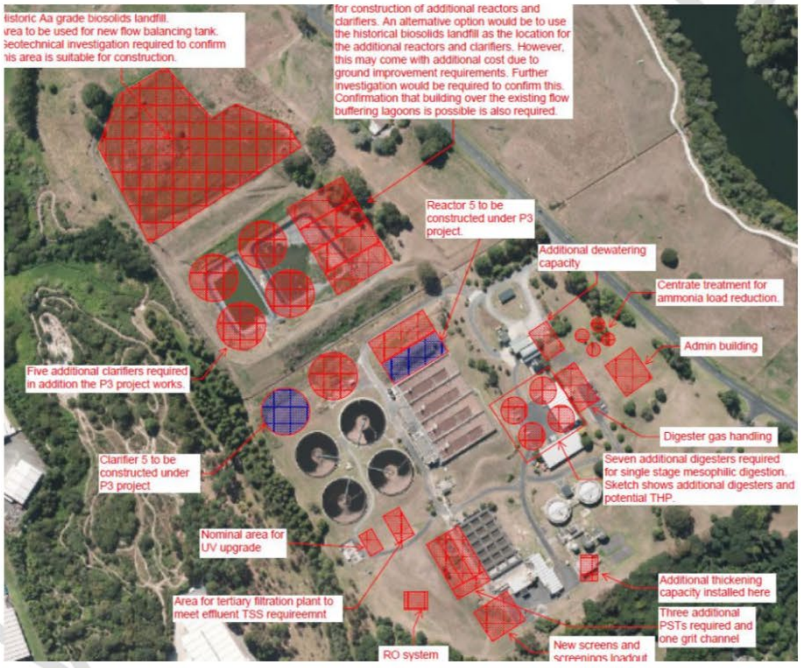


Figure 22: High-level concept layout for Pukete conventional upgrade

9.2 Ngaaruawaahia WWTP upgrade

Options B1 and B2 include an MBR upgrade at Ngaaruawaahia. This upgrade has been allowed for in the current Waikato District LTP, is reasonably likely to proceed, and therefore should form part of the do minimum option.

Membrane Bioreactor (MBR) plant (Options B1, B2 & C):

- Fits within the existing site footprint and a large area of the existing oxidation pond could be disestablished as shown on Figure 23
- Treatment standard improved to:
  - Total nitrogen: 4 g/m^3
  - Total phosphorus: 0.2 g/m^3
  - E.coli: 14 CFU/100mL
- Options for reuse of water and biosolids
- Limited opportunities for reuse and recovery of energy or nutrients (eg struvite).

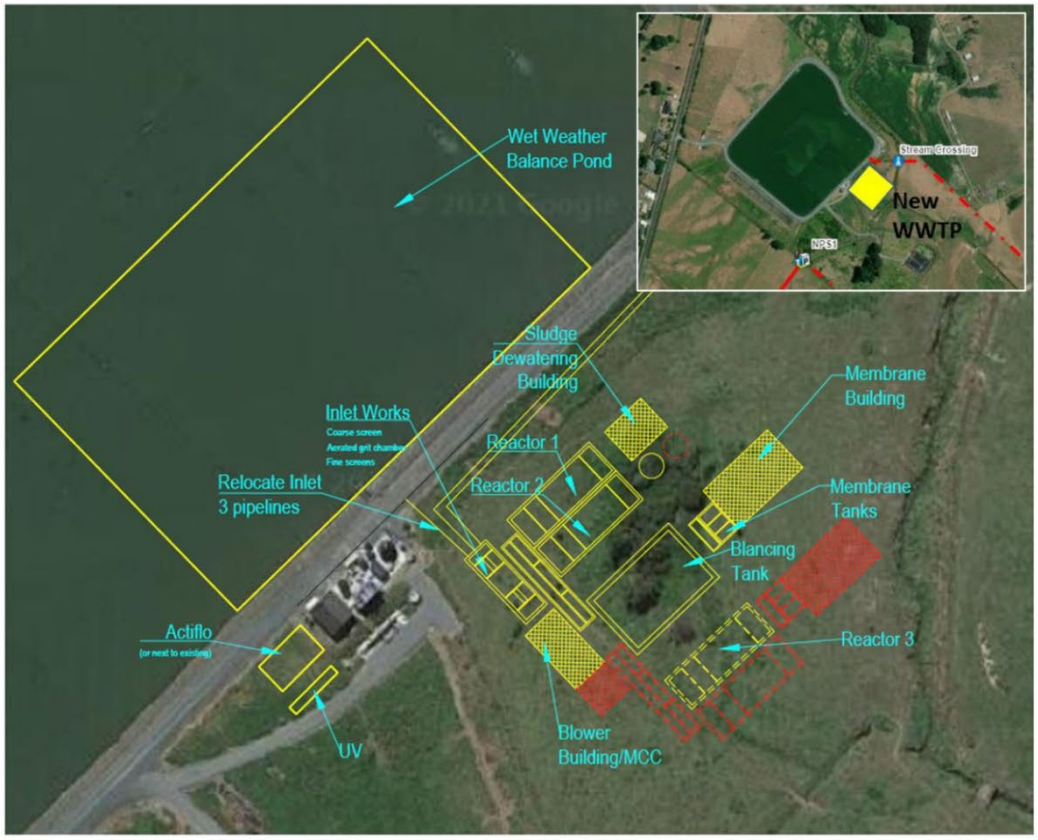
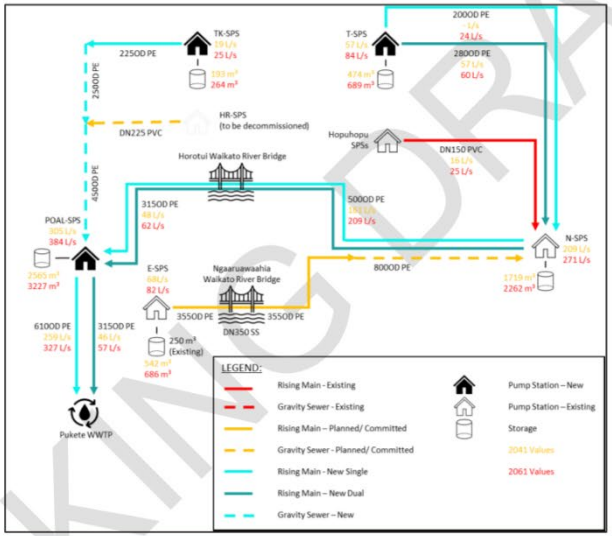
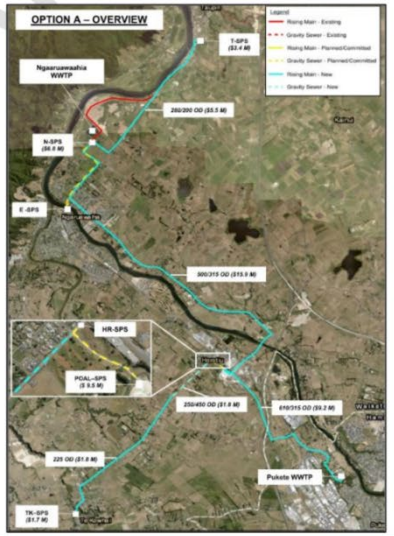


Figure 23: Concept layout for Ngaaruawaahia MBR plant

Option A			
Treatment: • Pukete (MBR)	Treatment standard: • Total N: 4g/m^3 • Total P: < 0.5 g/m^3	Discharge: • Two discharge points near Pukete	Delivery: • Single operator

Conveyance: All WDC conveyed to Pukete, 3 new and 4 upgraded pump stations, 48km of new pipe



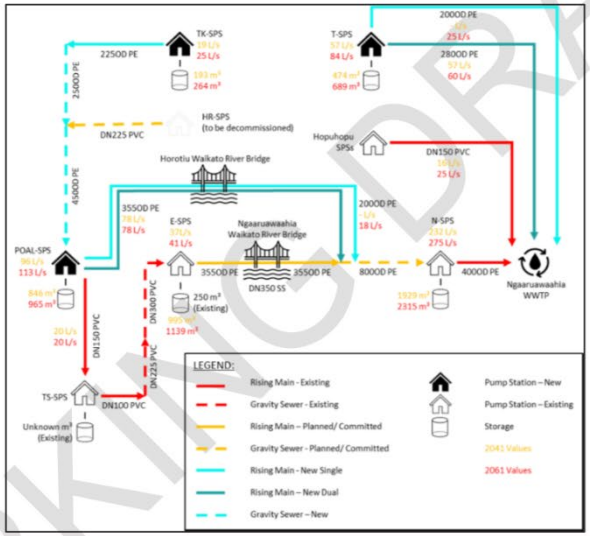


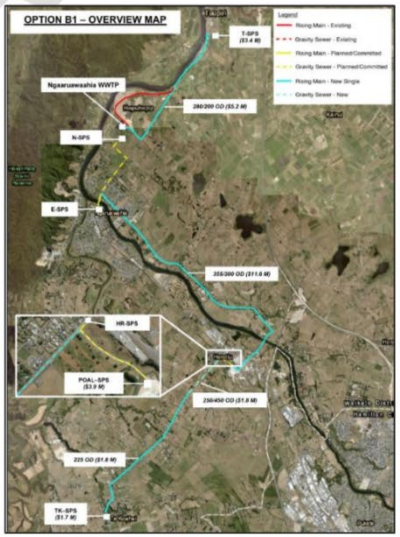
Reuse and recovery:	Footprint:	Staging:
• Maximise resource or energy recovery opportunities (including digester and mini-hydro on outfall) • Biosolids able to be reused subject to market with advanced treatment options	• Reduction in total footprint with option to provide remediation of Ngaaruawaahia site • New pump stations at several sites.	• Dual pipelines could be used for some of the routes eg Horotiu to Pukete WWTP • Existing Taupiri pump stations and rising mains can be used until reach capacity

Option B1

Treatment:	Treatment standard:	Discharge:	Delivery:
• Pukete (MBR) • Ngaaruawaahia (MBR)	• Total N: 4g/m³ • Total P: < 0.5 g/m³ (Pukete) < 0.2 g/m³ (Nga)	• Two discharge points near Pukete • One at Ngaaruawaahia	• Single operator or multiple operations

Conveyance: Te Kowhai, Horotiu and Taupiri conveyed to Ngaaruawaahia, 3 new and 2 upgraded pump stations, 33km of new pipe

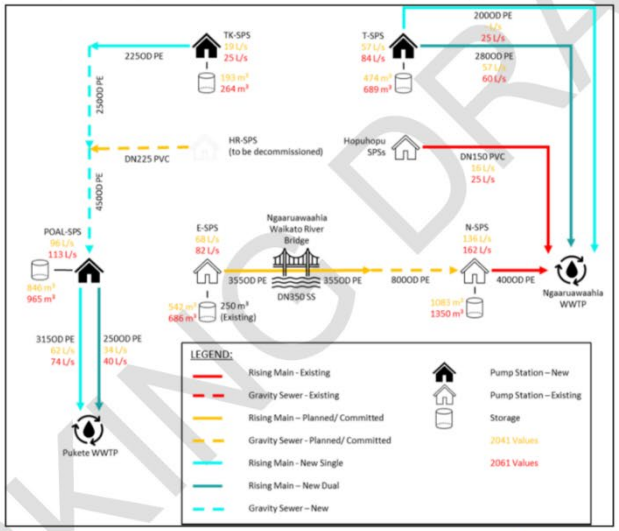


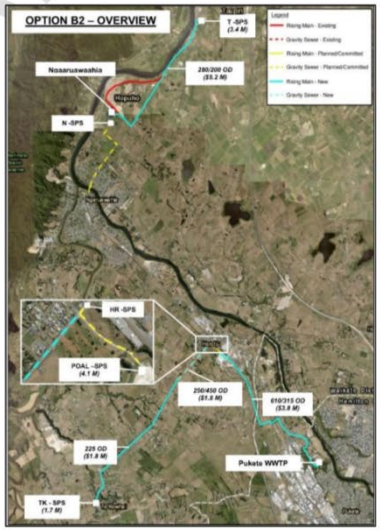


Reuse and recovery:	Footprint:	Staging:
• Water reuse but no/minimal resource or energy recovery at Ngaaruawaahia. Achieve ~90% of Option A recovery • Biosolids able to be reused subject to market with advanced treatment options at Pukete only	• Maintain existing footprint at Pukete. Reduction in footprint at Ngaaruawaahia resulting from smaller plant and removal of most of the oxidation pond.	• Install 2 reactors at Ngaaruawaahia to start with and then 3rd when flows projected to increase beyond capacity. • Existing Taupiri pump stations and rising mains can be used until reach capacity.

Option B2			
Treatment: • Pukete (MBR) • Ngaaruawaahia (MBR)	Treatment standard: • Total N: 4g/m³ • Total P: < 0.5 g/m³ (Pukete) < 0.2 g/m³ (Nga)	Discharge: • Two discharge points near Pukete • One at Ngaaruawaahia	Delivery: • Single operator or multiple operations

Conveyance: Te Kowhai and Horotiu conveyed to Pukete, Taupiri conveyed to Ngaaruawaahia, 3 new and 2 upgraded pump stations, 26km of new pipe





Reuse and recovery:	Footprint:	Staging:
• Water reuse but no/minimal resource or energy recovery at Ngaaruawaahia. Achieve ~90% of Option A recovery • Biosolids able to be reused subject to market with advanced treatment options at Pukete only	• Maintain existing footprint at Pukete. Reduction in footprint at Ngaaruawaahia resulting from smaller plant and removal of most of the oxidation pond.	• Install 2 reactors at Ngaaruawaahia. • Existing Taupiri pump stations and rising mains can be used until reach capacity.

10 Short-list options assessment

10.1 Maatauranga Maaori assessment

[The *Northern Metro Detailed Business Case: Mana Whenua Statement and Engagement Report* will be expected to accompany formal documentation for decision, not as an appendix, or attachment, but as an independent Volume to be held in the high regard. We need to find the best way to navigate this but, in any event, a short summary here is useful]

Maatauranga Maaori considerations, provided by and in consultation with mana whenua, have equal importance to the MCA assessment and cost considerations in this business case. The *Northern Metro Detailed Business Case: Mana Whenua Statement and Engagement Report* that accompanies this DBC sets out those considerations in detail and should be read in conjunction with this economic case which summarises its findings.

10.1.1 Maatauranga considerations

Matters of significance in considering the preferred option include:

- Te Awa o Waikato: the preferred option should demonstrate several improvements, or forms of betterment, for the Waikato River. This includes environmental, cultural, physical and spiritual benefits
- Water quality: Mana whenua are supportive of setting minimum discharge standards that will improve water quality for the Waikato River
- Wastewater discharge: The proposed improvement in discharge standards and MBR treatment will improve water quality. Spiritual and cultural purification and ultimately the removal of mortuary waste would help ease the *mamae* (pain) but until such time that this happens, an expression or cultural and spiritual form of purification could be applied to the emerging preferred option
- Discharge structures: There should be minimal structures in the bed and banks of the Waikato River
- Taupiri Maunga: Option A provides numerous positive outcomes for Taupiri Maunga and its confluence with the Mangawhara and Waikato Rivers
- Tribal assets: Option A enables the aspirations of the Iwi to utilise treaty settlement-based assets at Hopuhopu for their intended purpose and provide for the development and growth of the Iwi
- Conveyance: Option A and B1 require additional infrastructure to pump wastewater from Taupiri, Ngaaruawaahia and Te Kowhai to the Pukete WWTP. Mana Whenua have noted that any new conveyance systems should avoid Maaori owned land (if any), sites of significance and marae owned assets

10.1.2 Assessment against Te Ture Whaimana

As outlined throughout this DBC, the overarching objective of the DBC is to achieve Best for River outcomes and give effect to Te Ture Whaimana. The *Northern Metro Detailed Business Case: Mana Whenua Statement and Engagement Report* provides an assessment of the options against the objectives of Te Ture Whaimana.

Table 8: Consideration of the options against the objectives of Te Ture Whaimana

TE TURE WHAIMANA OBJECTIVES	OPTION 'A'	OPTION 'B1'	OPTION 'B2'
(a) The restoration and protection of the health and well being of the Waikato River.	Based on feedback from Mana Whenua, this option achieves this objective.	Commentary below does not support this option.	Better regarded as phase 1 to achieving Option 'A'.
(b) The restoration and protection of the relationship of Waikato-Tainui with the Waikato River, including their economic, social, cultural, and spiritual relationships.	Better reduces the impact on Taupiri & River. Removes limitations on iwi assets.	Two WWTP, close proximity to Taupiri, 3 discharge points, no reuse or recovery.	Two WWTP, close proximity to Taupiri, 3 discharge points, no reuse or recovery.
(c) The restoration and protection of the relationship of Waikato River iwi according to their tikanga and kawa, with the Waikato River, including their economic, social, cultural, and spiritual relationships.	*Not applicable as this objective refers to River Iwi as described under the Settlement Act.*	*Not applicable as this objective refers to River Iwi as described under the Settlement Act.*	*Not applicable as this objective refers to River Iwi as described under the Settlement Act.*
(d) The restoration and protection of the relationship of the Waikato region's communities with the Waikato River including their economic, social, cultural and spiritual relationships.	Conveyance requirements may impact on private property owners.	Conveyance requirements may impact on private property owners.	Less infrastructure required.
(e) The integrated, holistic and coordinated approach to management of the natural, physical, cultural and historic resources of the Waikato River.	Better holistic outcomes if recommendations in this report are provided for.	Two WWTP, close proximity to Taupiri, 3 discharge points, no reuse or recovery.	Two WWTP, close proximity to Taupiri, 3 discharge points, no reuse or recovery.
(f) The adoption of a precautionary approach towards decision that may result in significant adverse effects on the Waikato River, and in particular those effects that threaten serious or irreversible damage to the Waikato River.	Risk weighted heavily on one WWTP if systems fail.	Continued operation of Ngaaruawaahia WWTP shares risk and load on Pukete WWTP.	Continued operation of Ngaaruawaahia WWTP shares risk and load on Pukete WWTP
(g) The recognition and avoidance of adverse cumulative effects, and potential cumulative effects, of activities undertaken both on the Waikato River and within its catchments on the health and wellbeing of the Waikato River.	Removes cumulative effects by focussing on one site at Pukete.	Cumulative effects continue and are spread over larger portion of the River.	Cumulative effects continue and are spread over larger portion of the River.

(h) The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities.	Water quality improvements are provided for all options.	Water quality improvements are provided for all options.	Water quality improvements are provided for all options.
(i) The protection and enhancement of significant sites, fisheries, flora and fauna.	Provides for restoration of Ngaaruawaahia WWTP site, less impact on Taupiri and River.	Water quality improvements only notable benefit for flora and fauna.	Water quality improvements only notable benefit for flora and fauna.
(j) The recognition that the strategic importance of the Waikato River to New Zealand's social, cultural, environmental and economic wellbeing is subject to the restoration and protection of the health and wellbeing of the Waikato River.	All options are subject to 'best for river' approach. This option provides for better restoration and protection.	All options are subject to 'best for river' approach.	All options are subject to 'best for river' approach.
(k) The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length.	All options improve water quality. 'A' better achieves this objective at Taupiri and Ngaaruawaahia.	All options improve water quality.	All options improve water quality.
(l) The promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities.	Restores cultural access at Taupiri.	Provides no real change to this objective.	Provides no real change to this objective.
(m) The application to the above of both maatauranga Maaori and latest scientific methods.	Provides for better weighting of maatauranga Maaori.	Doesn't provide full outcomes based on maatauranga Maaori.	Doesn't provide full outcomes based on maatauranga Maaori

10.1.3 Emerging preferred option from maatauranga assessment

The *Northern Metro Detailed Business Case: Mana Whenua Statement and Engagement Report* concludes that Option A is emerging preferred option but notes that Option B2 also has benefits in sharing the risk, or load, to the Waikato River. The report suggests that Option B2 could be a reasonable step towards achieving Option A by continuing to operate the Ngaaruawaahia WWTP until such time as it can be decommissioned. The report makes it clear that Option B2 should be progressed only as a stage towards achieving the benefits of Option A.

10.2 Multi-criteria assessment

10.2.1 Framework

The short-list options were assessed using a Multi-Criteria Assessment (MCA) framework. An MCA process goes beyond assessing monetised or quantifiable benefits and allows for a subjective assessment of a range of environmental and social benefits. The MCA uses a scoring system to assess each option against the criteria.

MCA criteria were developed based on those used for the Southern Metro DBC. In general, the Southern Metro DBC criteria were adopted with amendments where necessary to clarify key components of the evaluation or simplify the assessment process where the factors were unlikely to result in differentiation between options. The MCA criteria are informed by the investment objectives and relate to environmental, ecological, cultural, sustainability and growth outcomes. The critical success factors included in the MCA relate to construction and operation impacts and the risk that the option will not give effect to Te Ture Whaimana or Te Mana o Te Awa.

The assessment criteria are:

Investment Objective / Critical success factor	Relevant KPI	Measure/considerations
Before 2050 municipal wastewater discharges are no longer impacting on the ability of people to swim and collect Kai from the river and connected waterways thereby contributing to the restoration and protection of the health and wellbeing of the river	KPI 1.1: Public health risks caused by the concentration of E.coli and pathogens within the WWTP discharges	**Water Quality (E.coli)** To what extent and over what timeframe does the option reduce the E.coli and pathogen levels of the discharge compared to existing baseline?
	KPI 1.2 Total nitrogen load impacting the river and connected waterways from WWTPs	**Water Quality (TN, TP)** To what extent and over what timeframe does the option reduce the mass load of nitrogen and phosphorus compared to existing baseline?
	KPI 1.3: Total phosphorous load impacting the river and connected waterways from WWTPs	
	KPI 1.4: Proportion of plants which are compliant against discharge quality consent conditions	
The quality and extent of aquatic and terrestrial habitat and biodiversity in and around water bodies is enhanced through the reduction of wastewater treatment	KPI 2.1: Amount of algal biomass in the Waikato River as measured by chlorophyll a concentration attributable to treated wastewater discharges	**Algal biomass** To what extent and over what timeframe does the option reduce the contribution towards the river's chlorophyll a concentration compared to existing baseline?
	KPI 2.2: Health and abundance of mahinga kai species	**River / Aquatic Ecosystems** To what extent and over what timeframe

and discharge impacts before 2050		does the option impact or improve river ecosystems and hydrology?
	KPI 2.3: Number and variety of terrestrial species at specific locations within the metro area	**Terrestrial Ecosystems** To what extent and over what timeframe does the option provide the ability to improve vegetation coverage around river bed and terrestrial ecosystems?
	KPI 2.4: Area coverage of native riparian and wetland vegetation surrounding water bodies and within the catchment area	
Wastewater treatment solutions contribute to restoring and enhancing cultural connectivity with the river so that before 2050 Marae, Hapuu and Iwi access to the river and other sites of significance for cultural and customary practice within the metro spatial area are no longer impeded by wastewater treatment solutions	KPI 3.1: Maatauranga Maaori Cultural Health Index / Cultural impact assessment	**Discharge point** What potential is there for land discharge vs water discharge? How many discharge points / locations are required? What are the direct cultural impacts of the discharge points? (including as a result of location and design)
	KPI 3.2: Ability to physically and culturally connect to the river including number and quality of access points, quality of cultural and recreational access and opportunities, and ability to use land (including Maaori-owned land) for commercial and residential purposes	**Cultural relationship** To what extent does the opportunity enhance and restore cultural relationship & experience with the river?
		Access to River and land To what extent and timeframe does the option increase the opportunity to improve physical access to the river and/or other waterways, lakes and wetlands for cultural and recreational activities and the ability to use land near the river for commercial and recreational purposes?
Maximise efficient use of resources and resource recovery to contribute to net zero greenhouse gas related emissions from wastewater treatment systems before 2050	KPI 4.1: Volume of wastewater reuse as a percentage of discharge volume	**Water Reuse** To what extent and over what timeframe does the option allow for water reuse?
	KPI 4.2: Decreasing greenhouse gas footprint (capital and operational) / energy requirements of plant and plant systems (i.e., pumps) as a proportion of wastewater treated	**Energy / Carbon Reduction** To what extent and timeframe does the option consider energy neutral and low carbon technologies (not including the potential for offsetting). To what extent do options reduce relative operational carbon associated with treatment and conveyance systems?
	KPI 4.3: Proportion of resources that are able to be recovered for beneficial reuse	**Resource recovery** To what extent and over what timeframe does the option allow for recovery of resources for beneficial reuse?
The wastewater solution provides sufficient capacity to ensure sustainable growth in the metro spatial area in accordance with growth projection assumptions for the next 100 years	KPI 5.1: Flexibility and adaptability of solution to be staged / developed over time to meet the needs of the community	**Flexibility** To what extent does the option provide flexibility to adapt to growth and land use changes?
	KPI 5.2: Proportion of Industrial areas which are serviced by municipal plants sustainably	**Sustainable Growth** To what extent does this option provide additional growth opportunities which align with the sustainable and planned future growth of the Waikato Metro area?
	KPI: 5.3 Proportion of residents in the metro area serviced by	

	municipal treatment plants sustainably	
Constructability - treatment	**Construction impacts** What are the relative constructability benefits, issues and risks (available space, access, existing utilities, watercourse, rail crossings, reinstatement requirements, Geotechnical impacts, utility impacts, road and traffic impacts, impacts on neighbours, remediation)	
Constructability - conveyance		
Maintenance and operations - treatment	**Operational implications** What is the relative ease or difficulty of operation and maintenance (includes risk, resilience, access, odour treatment, resource availability, monitoring, ongoing consenting etc.).	
Maintenance and operations - conveyance		
Te Ture Whaimana	**Te Ture Whaimana** To what extent does the option give effect to Te Ture Whaimana, what is the level of uncertainty or level of risk that the option fails to give effect to Te Ture Whaimana?	
Te Mana o Te Awa	**Te Mana o Te Awa** To what extent does the option give effect to Te Mana o Te Awa (achieve the objectives of Te Mana o te Wai), what is the level of uncertainty or level of risk that the option fails to give effect to Te Mana o Te Awa?	

The criteria are scored using a seven-point system with scores ranging from -3 to +3. Scoring varies for each criterion but is generally based on the scoring definition outlined in the table below. More specific detail on how each criterion is scored is outlined in the *Multi-Criteria Assessment Workshop Record* in **Appendix C**.

Table 9: Scoring definitions

3	Significant positive impact compared with do minimum
2	Moderate positive impact compared with do minimum
1	Minor positive impact compared with do minimum
0	Very limited to no positive or negative impact (neutral)
-1	Minor negative impact compared with do minimum
-2	Moderate negative impact compared with do minimum
-3	Significant negative impact compared with do minimum

10.2.2 Multi-criteria assessment process

Over January and February 2022, the short-list options were subject to detailed assessments against the MCA criteria. The technical MCA was held over three online workshops:

- 25 January 2022 at 1:00pm
- 28 January 2022 at 11:00am
- 11 February 2022 at 10:00am

The workshops were attended by representatives and subject matter experts from HCC, WDC, Waikato DC and the project team.

MCA scoring was undertaken using an online “Miro” board. The criteria were pre-scored by the project team. For each criterion, the project team outlined key relevant information and provided reasoning for the proposed scoring. All participants then had the opportunity to exercise their professional judgement to indicate on the Miro board how that criterion should be scored. Differences in scoring were discussed and where possible consensus reached. Disagreements were recorded.

10.2.3 Multi-criteria assessment outcomes

The outcomes of the technical MCA, including workshop notes and the MCA scoring spreadsheet, are presented in the *Multi-Criteria Assessment Workshop Record* in **Appendix C**. The MCA scores are shown in Table 10.

In summary:

- **Option A** scores well
- **Option B1** scores lower than Option B2 and does not provide any benefits over Option B2. Therefore, Option B1 was not progressed further
- **Option B2** scores well
- **Option C** scores very poorly and was not progressed further (expect to demonstrate incremental costs)

Options A and B2 score similarly and are further discussed below.

Table 10: Technical MCA scoring summary

Measure/considerations	Option A	Option B1	Option B2	Option C
Water Quality (E.coli)	2	2	2	-2
Water Quality (TN, TP)	2	2	2	-2
Algal biomass	2	2	2	-1
River / Aquatic Ecosystems	1	1	1	-1
Terrestrial Ecosystems	1	0	0	-2
Discharge point	2	-1	0	-1
Cultural relationship	1	-1	0	-2
Access to River and land	2	-1	-1	-2
Water Reuse	1	2	2	-1
Energy / Carbon Reduction	2	2	2	-2
Resource recovery	2	1	1	-2
Flexibility	0	1	2	-1
Sustainable Growth	2	1	2	-2
Construction impacts (treatment)	0	-1	-1	-2
Construction impacts (conveyance)	-2	0	1	0
Operational implications (treatment)	2	0	0	-2
Operational implications (conveyance)	-2	0	1	0
Te Ture Whaimana	1	0	1	-3
Te Mana o Te Awa	Not scored			
TOTAL	**19**	**10**	**17**	**-28**

A note on Te Mana o Te Awa: The parties involved in the technical MCA discussions were unable to effectively differentiate between the Te Ture Whaimana and Te Mana o Te Awa criteria. It was felt that:

- In the context of the NPS for Freshwater Management, Te Ture Whaimana outweighs Te Mana o Te Awa. Until such time as the Regional Policy Statement and Waikato Regional Plan are updated to give effect to the NPSFM in a manner consistent with Te Ture Whaimana, then Te Ture Whaimana remains more specific and sits above the NPSFM in the hierarchy

- In any event, one cannot give effect to Te Mana o Te Awa without give effect to Te Ture Whaimana – that is to say Te Ture Whaimana encompasses Te Mana o Te Awa.

10.2.4 Sensitivity testing

Options A and B2 score similarly; a weighting exercise is useful to demonstrate how the relative score change if different factors are considered more or less important.

The raw MCA scores are summarised in Table 11. The criteria where there is a difference in scoring between Option A and B2 are highlighted. This weighting exercise focuses on area of differentiation between A and B2.

With equal weighting, Option A (1.00) scores better than Option B2 (0.89).[21]

Table 11: MCA raw scores

	Raw scores			
MCA criteria	**A**	**B1**	**B2**	**C**
Water Quality (E.coli/pathogens)	2	2	2	-2
Water Quality (TN, TP)	2	2	2	-2
Algal biomass	2	2	2	-1
River / Aquatic Ecosystems	1	1	1	-1
Terrestrial Ecosystems	1	0	0	-2
Discharge point	2	-1	0	-1
Cultural relationship	1	-1	0	-2
Access to River and land	2	-1	-1	-2
Water Reuse	1	2	2	-1
Energy / Carbon Reduction	2	2	2	-2
Resource recovery	2	1	1	-2
Flexibility (conveyance)	0	1	2	-1
Sustainable Growth (treatment)	2	1	2	-2
Construction impacts - treatment	0	-1	-1	-2
Construction impacts - conveyance	-2	0	1	0
Operational implications - treatment	2	0	0	-2
Operational implications - conveyance	-2	0	1	0
Te Ture Whaimana	1	0	1	-3
Te Mana o Te Awa	0	0	0	0
Raw score average	**1.00**	**0.53**	**0.89**	**-1.47**
Rank	**1**	**3**	**2**	**4**

We tested three weighting scenarios:

- Conveyance flexibility is twice as important as other factors (ie flexibility – conveyance, construction impacts – conveyance, and operational implications – conveyance)

[21] Based on a possible range of -3 to +3

- Treatment flexibility is twice as important as other factors (ie sustainable growth – treatment, construction impacts – treatment, and operational implications – treatment)
- Factors related to the cultural wellbeing investment object are twice as important as other factors (ie discharge point, cultural relationship, and access to river and land)

For each weighting scenario, the three identified criteria are given a weighting of 0.09 and the remaining 16 criteria are given a weighting of 0.045 (to give a total of 1.0).

The outcome is shown in Table 12. Where conveyance flexibility is given more importance, Option B2 scores highest, in all other scenarios Option A scores higher.

Table 12: Weighting scenarios

	Weighted average score			
Scenario	**A**	**B1**	**B2**	**C**
Equal weighting	1.00	0.53	0.89	-1.47
Conveyance flexibility twice as important	0.68	0.50	0.95	-1.32
Treatment flexibility twice as important	1.05	0.45	0.82	-1.55
Cultural factors twice as important	1.09	0.32	0.73	-1.50

10.2.5 Further comparison of Options A and B2

Where two options score similarly well, it is important to consider the relative benefits and disbenefits of the options.

Option A	Option B2

Option A (with a single WWTP) scores better against criteria influenced by the number and size of treatment plants:
• Lower WWTP operational requirements (lower staffing, less overall monitoring and compliance requirements)
• Greater flexibility in day-to-day treatment (more levers to pull to meet treatment standards at Pukete than at Ngaaruawaahia)
• Greater ability for treatment to respond to growth (more capacity to absorb growth without a need for short-term treatment plant upgrades)
• More opportunity for water reuse, energy recovery, and resource recovery (which are generally more feasible at Pukete and would benefit from greater flows through Pukete)
• Greater risk associated with conveyance network failure – can be mitigated to some extent by building-in resilience
• More opportunity for development and/or restoration at Ngaaruawaahia (removal of WWTP, pond, and associated buffer)
• Removal of Ngaaruawaahia WWTP may improve relationship between college at Hopuhopu and the awa
• A single discharge location at Pukete:
  ○ Fewer discharge structures
	Option B2 (with shorter conveyance routes) scores better against criteria influenced by the conveyance network:
	• Lower operational risk associated with failure of the conveyance network
	• Conveyance network is less complex to design, build, and operate (shorter mains, more gravity/less rising main)
	• Lower impact in the event of significant growth at Taupiri
	• Some opportunity for development and/or restoration at Ngaaruawaahia (removal of oxidation pond and reduction of the associated buffer)
	• More immediate opportunity for water reuse (nursery)
	• Discharges at Pukete and Ngaaruawaahia:
	  ○ Slightly lower load to the river between the two sites (including past Turangawaewae)
	• Less risk of “locking in”. Option A removes the Ngaaruawaahia WWTP, which is a “one way” decision. If Option B2 were implemented, it would still be possible to move to Option A in the future.

○ Removal of discharge close to Taupiri Maunga and other sensitive sites	

Option A and B2 both:

- Score well on discharge quality and related factors – they have the same effective level of treatment and therefore the same level of expected effect on algal biomass and river ecosystems
- Provide opportunities for energy and carbon reduction
- Can be designed to meet future treatment capacity requirements
- Are expected to give effect to Te Ture Whaimana (to the extent that it is possible for a wastewater discharge to the Waikato River to give effect to Te Ture Whaimana)

10.2.6 Emerging preferred option from multi-criteria assessment

The technical MCA identifies Option A as the emerging preferred option, subject to management of conveyance risks. The Project Team is satisfied that resilience and risk management actions can be put in place such that the potential risks of option A are appropriately managed, and the benefits of Option A therefore outweigh any slight increase in risk over Option B2. These risks and risk mitigation actions are discussed in Section 28.

While Option A scores higher, it is not a clear preference. The Project Team has not identified any significant issues that would arise if Option B2 became the preferred option.

10.3 Cost estimates

High level "order of magnitude" cost estimates for each of the short-list options are provided in Section 5 of the *Short-list Technical Report* in **Appendix B**. Comparative P50 cost estimates for Options A, B1 and B2 are provided below. The cost estimates use rates from projects in New Zealand and include allowances for cost escalation seen recently due covid and construction market constraints.

A conceptual design of the preferred option will need to be prepared to confirm the estimated capital and operating costs. An estimating tolerance has been included to account for general unknowns in the design and for any discrepancies in the design information prepared to date. These estimates are Class 5 estimates as per the AACE Cost estimate Classification System and have an expected range of -30% / +50%.

Refer to the *Short-list Technical Report* for assumptions and exclusions.

10.3.1 Capital cost

The P50 capital cost estimates for Options A, B1 and B2 are set out in Table 13. All costs are in $2022.

Estimated P50 capital costs for Pukete WWTP upgrades out to 2061 is $771M with a P95 estimate of $1.3B. The estimated P50 capital costs for the Ngaaruawaahia WWTP range from $66M for Option B2 to $77M for Option B1 reflecting the difference in wastewater flows treated at Ngaaruawaahia under the options.

An assessment of the breakdown between renewals, levels of service, and growth-related capital expenditure for Pukete WWTP has been undertaken. Many of the upgrades provide a mixture of the different categories. Renewals makes up approximately 15% of the upgrade cost to 2061, improving levels of service 30% of cost, and growth approximately 55% of cost.

Table 13: P50 capital cost estimates for the period 2021-2061 ($2022) [From the short-list tech report]

	Conveyance	WWTP		Total
Option A				
Taupiri / Ngaaruawaahia / Hopuhopu	$103M	Pukete	$767M	$870M
Horotiu / Te Kowhai				

Hamilton				
Option B1				
Taupiri / Ngaaruawaahia / Hopuhopu	$55M	Ngaaruawaahia	$77M	$899M
Horotiu / Te Kowhai				
Hamilton	-	Pukete	$767M	
Option B2				
Taupiri / Ngaaruawaahia / Hopuhopu	$16M	Ngaaruawaahia	$66M	$874M
Horotiu / Te Kowhai	$25M	Pukete	$767M	
Hamilton				
Option C				
Taupiri / Ngaaruawaahia / Hopuhopu	$55M	Ngaaruawaahia	$77M	$923M
Horotiu / Te Kowhai				
Hamilton	-	Pukete	$792M	

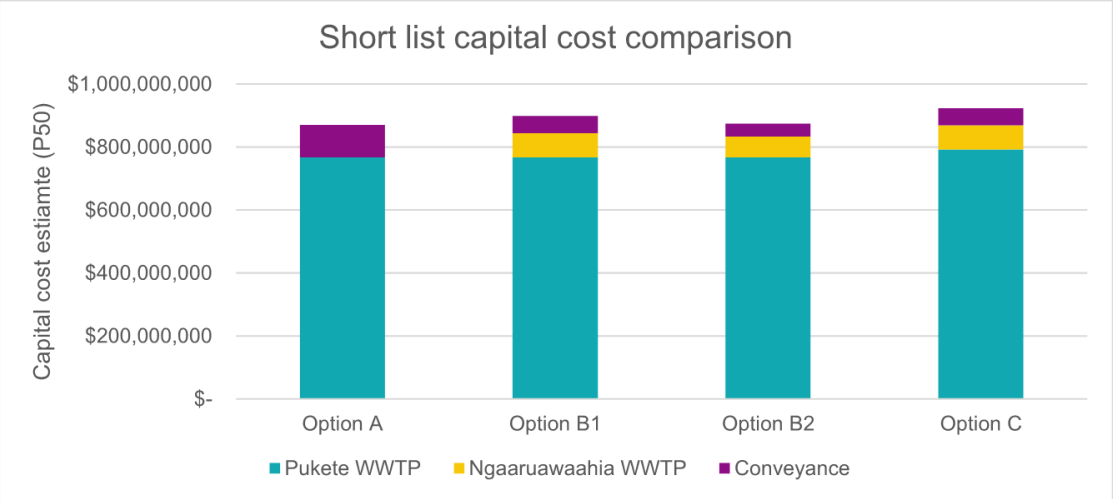


Figure 24: Short list capital cost comparison

10.3.2 Operational cost

Comparative operational costs[22] for each option for 2031, 2041, 2051 and the 2061 flows are set out in Table 14. Over time the total operational costs increase as flows and plant loading increase. Pukete WWTP has significantly lower costs per ML than the new Ngaaruawaahia WWTP due to energy recovery potential and reduced biosolids volumes for disposal.

These operating costs assume that the proposed new Southern WWTP comes online between 2051 and 2061. The subsequent reduction in flows at Pukete results in the reduction in operating costs seen below. The timing for the Southern WWTP is yet to be determined but is considered further in the **Management Case**.

[22] These costs are based on a number of assumptions regarding current operating costs for Pukete WWTP and should be re-visited if 2021 operating costs can be confirmed.

Table 14: P50 operating cost estimates for the period 2021-2061 ($2022) [From Northern short list op costing draft V2]

	2021	2041	2051	2061
Option A				
Pukete WWTP	$19.0M	$22.3M	$25.2M	$23.9M
Ngaaruawaahia WWTP	-	-	-	-
Conveyance	$0.41M	$0.49M	$0.55M	$0.67M
TOTAL	**$19.4M**	**$22.8M**	**$25.8M**	**$24.6M**
Option B1				
Pukete WWTP	$17.9M	$20.7M	$23.4M	$21.9M
Ngaaruawaahia WWTP	$2.0M	$2.9M	$3.4M	$3.7M
Conveyance	$0.17M	$0.22M	$0.23M	$0.28M
TOTAL	**$20.0M**	**$23.9M**	**$27.0M**	**$25.9M**
Option B2				
Pukete WWTP	$18.2M	$21.2M	$23.9M	$22.5M
Ngaaruawaahia WWTP	$1.4M	$1.9M	$2.4M	$2.6M
Conveyance	$0.15M	$0.20M	$0.21M	$0.25M
TOTAL	**$19.8M**	**$23.4M**	**$26.5M**	**$25.3M**

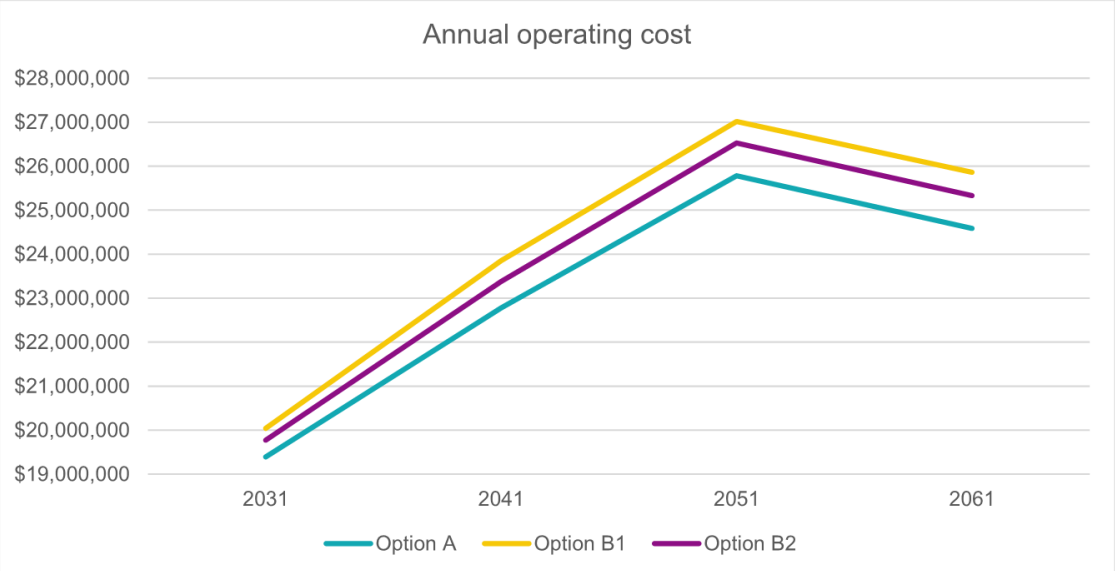


Figure 25: Annual operating cost comparison

10.3.3 Summary of short-list cost estimates

The major capital cost is the MBR upgrade at the Pukete WWTP. This upgrade makes up 85-90% of the total capital of Options A, B1, and B2. The remaining 10-15% is a function of the cost of upgrades at the Ngaaruawaahia WWTP vs the cost of conveying wastewater to Pukete.

Overall, the difference in capital cost of Options A and B2 is negligible within the level of accuracy of the cost estimate.

A capital cost estimate was also prepared for Option C, the do minimum. The cost estimate demonstrates that Option C is not a true do minimum as it has a higher cost than all other options considered. The “knot” in the existing Pukete process flow creates inefficiencies and presents a significant challenge as the WWTP is progressively expanded to create additional capacity increasing flows. Capacity increases based on the existing plant then become increasing costly with those costs ultimately exceeding the cost to convert to an MBR plant.

The operational costs are similarly dominated by the Pukete WWTP. Options B1 and B2 have slightly higher operating costs relating to treatment (because of the need to operate and maintain two WWTPs) while Option A has higher operating cost relating to conveyance (because of the much longer conveyance network). However, these differences largely balance out and the difference in operational cost is again close to negligible within the level of accuracy of the cost estimate.

10.4 Other considerations

10.4.1 Carbon and sustainability impacts

The *Short-list Technical Report* provides a comparative estimate of capital and operational carbon emissions for the options. The calculation method and assumptions are set out in that report.

The capital carbon emissions associated with upgrading Pukete WWTP were not quantified as essentially the same infrastructure is required by 2061 for all options. Options A and B2 will require a reactor retrofit to occur slightly earlier than for option B1.

At the current level of accuracy, including the population proportionate emissions of the Pukete upgrade, it is expected all three options would have similar capital carbon emissions. The range between all three options is likely a maximum of 2,000-3,000 tCO_2-e (being the balance between the additional Ngaaruawaahia WWTP materials for Options B1 and B2 vs the additional conveyance materials required for Option A).

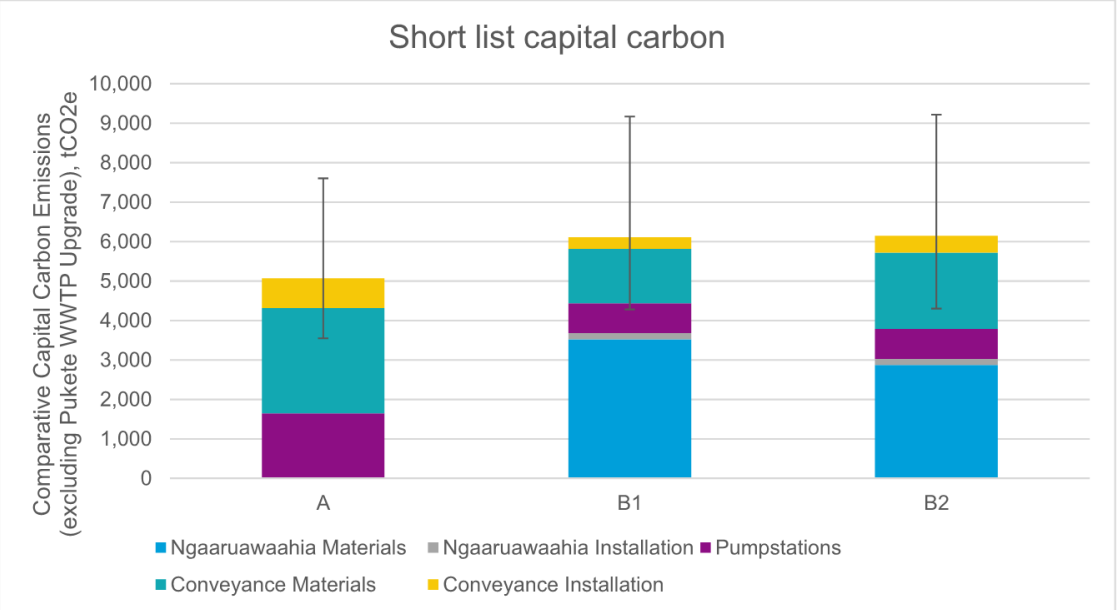


Figure 26: Short list capital carbon comparison

The operational carbon costs are estimated on a population equivalent basis. On a comparative basis, the operational emissions estimate for Option A is the lowest. This is driven by primary sedimentation and

digestion processes in place at the Pukete WWTP, which allow for energy recovery via biogas and result in lower biosolids volumes.

Over 30 years, Option A is approximately 4,000 tonnes and 2,300 tonnes lower than Option B1 and Option B2 respectively.

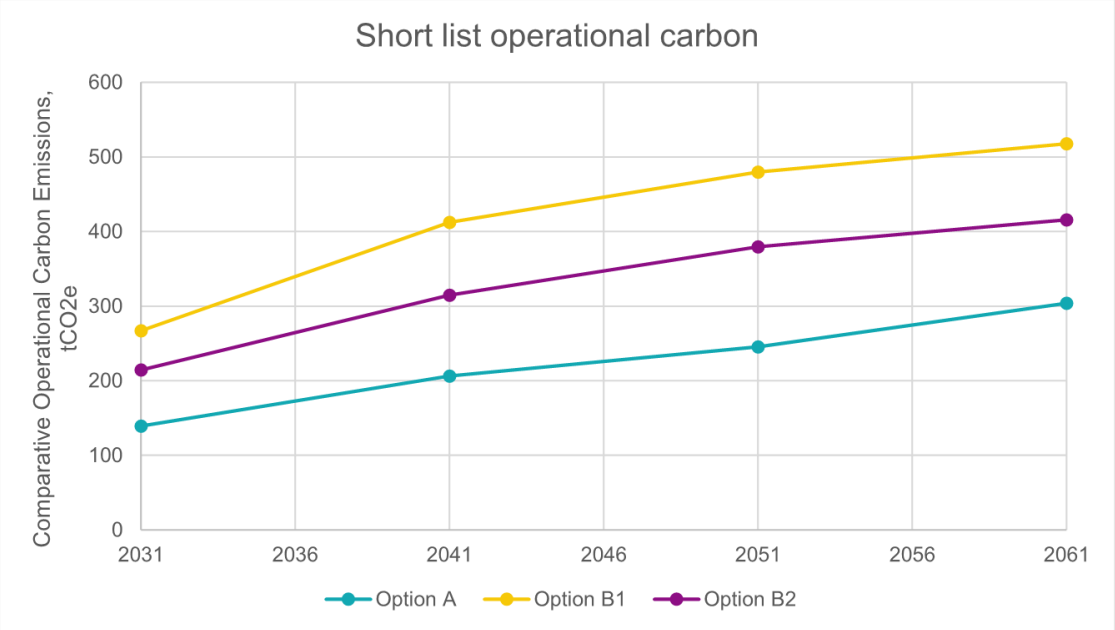


Figure 27: Short list operational carbon comparison

Further recommendations for reducing carbon emissions are covered in the **Management Case**.

10.4.2 Conveyance risk

Though both the maatauranga evaluation and the technical MCA process, a number of participants highlighted the conveyance risks associated with the longer conveyance required for Option A:

- Greater residence time resulting in a higher risk of septicity and odour
- Greater impact in the event of equipment breakdown/malfunction or pipe failure (third party damage or earthquake events)

There are mitigation activities that can be undertaken to reduce the conveyance risks:

- Use of twin mains to reduce septicity risk and increase resilience
- Provision of backup generators/pumps
- Isolation valves
- Calamity storage
- Material selection

These mitigations have been factored into the short-listed options development and costings.

10.5 Selection of the preferred option

Option A is recommended as the preferred option to take forward for refinement as part of the DBC. The recommendation is primarily made on the following rationale:

- Option A and Option B2 score similarly through the MCA process. In particular, they both

  - Score well on discharge quality and related factors – they have the same effective level of treatment and therefore the same discharge quality and level of expected effect on algal biomass and river ecosystems
  - Provide opportunities for energy and carbon reduction
  - Can be designed to meet future treatment capacity requirements based on population growth assumptions
  - Are expected to give effect to Te Ture Whaimana (to the extent that it is possible for a wastewater discharge to the Waikato River to give effect to Te Ture Whaimana)
- Option A scores better than Option B2 against criteria influenced by the number and size of treatment plants (and therefore number of discharge points):
  - Lower WWTP operational requirements (lower staffing, less overall monitoring and compliance requirements)
  - Greater flexibility in day-to-day treatment (more levers to pull to meet treatment standards at Pukete than at Ngaaruawaahia)
  - Greater ability for treatment to respond to growth (more capacity to absorb growth without a need for short-term treatment plant upgrades)
  - More opportunity energy recovery, and resource recovery (which are generally more feasible at Pukete and would benefit from greater flows through Pukete)
  - Greater risk associated with conveyance network failure – can be mitigated to some extent by building-in resilience
  - Opportunity for development and/or restoration at Ngaaruawaahia WWTP site (removal of WWTP, pond, and associated buffer)
  - Opportunity for development of Waikato-Tainui land at Hopuhopu resulting from reduction/removal of the buffer around the Ngaaruawaahia WWTP
  - Removal of Ngaaruawaahia WWTP may improve relationship between Waikato Tainui at their Hopuhopu properties (including the Endowed College) and the awa
- While Option B2 scores higher against criteria influenced by the conveyance network the identified risks and complexities associated with the longer conveyance routes can be adequately mitigated and managed thought design.
- Option A is preferred from a Maatauranga Maaori perspective (noting that Option B2 could be a reasonable step towards achieving Option A by continuing to operate the Ngaaruawaahia WWTP until such time as it can be decommissioned)
- There is little difference between the costs associated with Options A and B2 either in the short term or looking out to 2061

Option A meets the project investment objectives and the Best for River outcomes as outlined in Table 15.

Table 15: Assessment of the preferred option against project objectives and best for river outcomes

Objectives/outcomes	Assessment of Option A
Project investment objectives	
Before 2050 municipal wastewater discharges are no longer impacting on the ability of people to swim and collect Kai from the river and connected waterways thereby contributing to the restoration and protection of the health and wellbeing of the river	The adopted treatment standards represent current best available technology and a significant improvement over the current situation. Option A will contribute to the restoration and protection of the river.
The quality and extent of aquatic and terrestrial habitat and biodiversity in and around water bodies is enhanced through the reduction of wastewater treatment and discharge impacts before 2050	Under Option A, upgrades to the Pukete WWTP to meet the higher treatment standards would take place by 2032, reducing the impact of wastewater discharge well before 2050.

Wastewater treatment solutions contribute to restoring and enhancing cultural connectivity with the river so that before 2050 Marae, Hapuu and Iwi access to the river and other sites of significance for cultural and customary practice within the metro spatial area are no longer impeded by wastewater treatment solutions	The preferred option reduces the impact on Taupiri and reduces limitations on the use of iwi assets near the Ngaaruawaahia WWTP.
Maximise efficient use of resources and resource recovery to contribute to net zero greenhouse gas related emissions from wastewater treatment systems before 2050	The preferred option provides opportunities to maximise resource use and recovery. New biosolids handling processes will be staged over the initial phase of works with renewal and expansion of energy recovery processes including in the longer term plans.
The wastewater solution provides sufficient capacity to ensure sustainable growth in the metro spatial area in accordance with growth projection assumptions for the next 100 years	Infrastructure provided to cater for growth in high growth scenario plus additional infill and wet industry
Best for River outcomes	
1. The health and well-being of the Waikato River is restored and enhanced	The improvements in discharge quality will improve the well-being of the river from a technical water quality perspective. Based on feedback from Mana Whenua, the preferred option will support restoration and enhancement of the health and well-being of the Awa.
2. All life within the River (which extends beyond the main stem) and surrounding environment benefit	The improvements in discharge quality will improve the well-being of the river from a technical water quality perspective.
3. All of the community (including industry and businesses) understand and are committed to caring for and protecting the River	The new administration buildings is proposed to house an education centre that would support community education on what happens to our wastewater as well as caring for and protecting the River.
4. Cultural connectivity with the River is restored and enhanced	Based on feedback from Mana Whenua, the preferred option better reduces the impact on Taupiri (compared with other options investigated) and removes limitations on iwi assets supporting this outcome.
5. Access to the River to enable customary, sporting, recreational, and cultural opportunities is improved	None of the options investigated have limited direct impact on access to the river. However, removal of the Ngaaruawaahia discharge point under the preferred option will improve opportunities in that area.
6. All water and land resource policy, regulations and decision making frameworks across the catchment are consistent and fully aligned to achieve the Vision and Strategy, including RMA instruments, catchment based management approaches	The options selection process used in the DBC is consistent with and full aligned to the Vision and Strategy.
7. All water and land management decisions are based on robust and comprehensive knowledge and understanding of the river system, including real time and long term	The detailed modelling and assessment of environmental effects that will be required as part of design and consenting of the preferred option will be based on up-to-date knowledge and

	data, sites of significance, social and cultural activities	understanding of the river system, including real time and long term data. Mana whenua have been involved throughout the development of this DBC and will remain involved through the design and consenting phases to provide input on sites of significance and cultural activities and impacts.
8.	Achieve net benefit to the environment	The preferred option will result in a significant improvement in discharge quality resulting in a net benefit to the environment.
9.	Increase the efficient use of resources and maximise resource recovery and contribution toward carbon neutrality and energy neutrality	The preferred option provides opportunities to increase the efficient use of resources and support carbon/energy neutrality. The **Management Case** includes a number of recommendations for reducing carbon. New biosolids handling processes will be staged over the initial phase of works with renewal and expansion of energy recovery processes including in the longer term plans.
10.	Apply and maintain best practice to all three waters management and infrastructure which allows for the sustainable future growth of the Waikato region.	The proposed MBR plant and treatment standards reflect the best available technology current present in New Zealand. As the design progresses, regular checks should be made to determine evolving best practice and tehchnology.

11 Preferred option

11.1.1 Preferred option description

The preferred option is Option A: A single centralised WWTP at Pukete with decommissioning of the Ngaaruawaahia WWTP. The preferred option is described in detail in the *Preferred Option Technical Report* (refer **Appendix D**) and summarised below.

Table 16: Summary of preferred option

Conveyance	Single centralised WWTP (located at Pukete) to service Hamilton (South Hamilton diverted to the new Southern WWTP from 2061), Ngaaruawaahia, Taupiri, Horotiu, Hopuhopu, and Te Kowhai. Includes two new pump stations and upgrades to two existing pump stations.
Treatment standard	Total N: 4g/m3 Total P: < 0.5 g/m3
Liquid stream treatment	Two stage screening and primary sedimentation followed by Membrane Bioreactor (MBR) and Ultra-Violet (UV) Disinfection
Reuse and recovery	Maximise reuse and energy recovery opportunities
Footprint	Reduction in total footprint with option to provide remediation of Ngaaruawaahia site. New pump stations at Taupiri and Te Kowhai and upgrades at Ngaaruawaahia WWTP pump station and Horotiu pump station (Ports of Auckland)
Discharge point	Two (near Pukete) – new discharge point for main discharge with existing retained for future treated peak flow discharge.
Biosolids	Able to be reused subject to market. Advanced treatment options – thickening, thermal hydrolysis (THP), digestion and thermal drying (TD).
Staging	Dual pipelines could be used for all of the routes except Te Kowhai to Horotiu. Existing Taupiri pump stations and rising mains can be used until reach capacity.
Delivery	Single operator.

11.1.2 Pukete WWTP upgrade

Significant upgrades are required at the Pukete WWTP including conversion to an MBR plant. This provides an opportunity to untangle the existing site layout and provide a simple process pathway.

A site layout has been developed based on identified operational constraints, maintenance preferences, flexibility to expand, ease for future renewals and minimising future pumping energy consumption. The proposed layout is shown on Figure 28.

There are a series of upgrades required to the Pukete WWTP to deliver the preferred option. These range from upgrade and replacement of existing processes to the addition of the new membrane tanks and associated plant for the MBR conversion. Table 17 outlines the changes required.

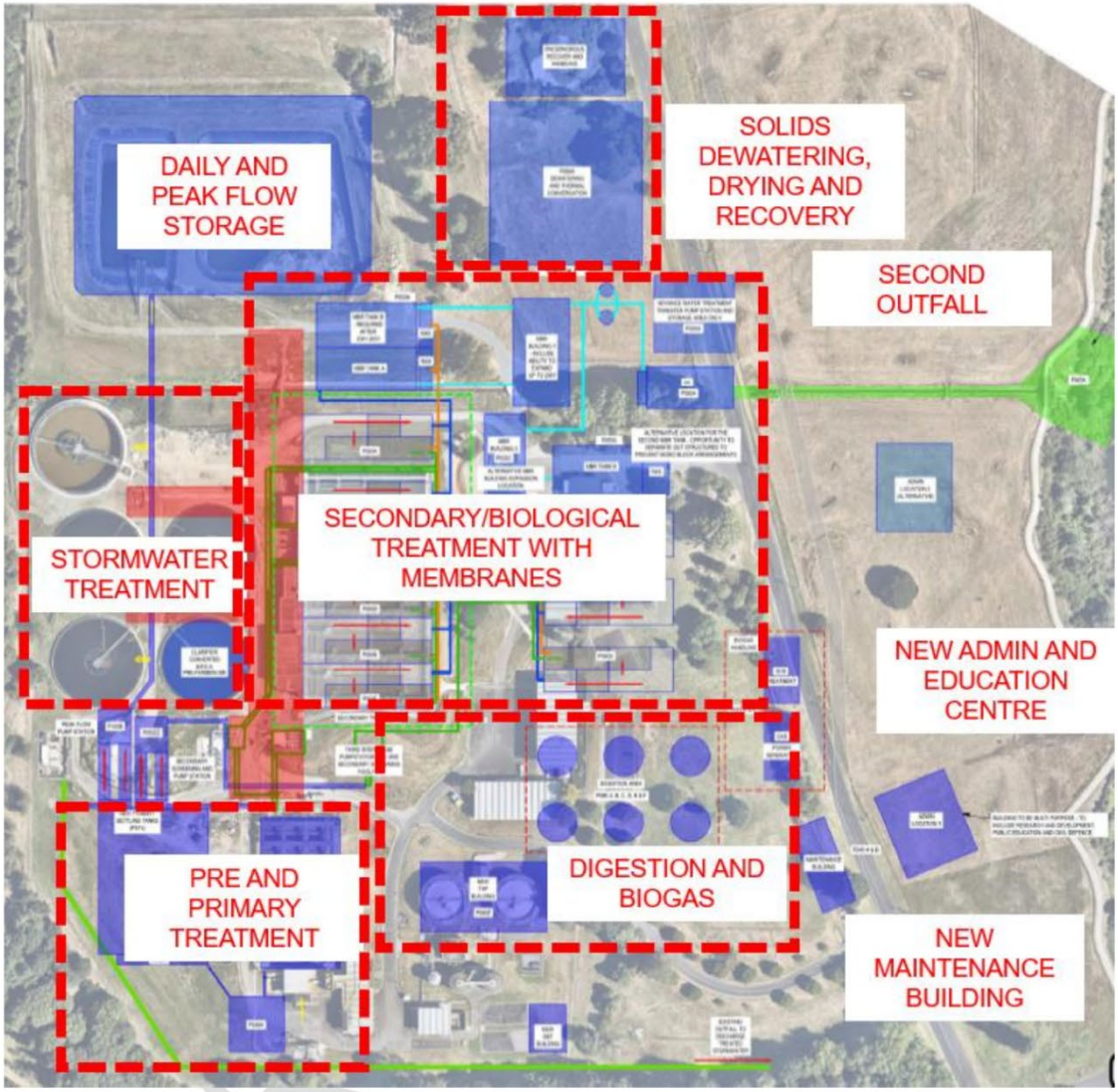


Figure 28: Preferred option Pukete WWTP site layout

Table 17: Summary of works required at the Pukete WWTP to deliver the preferred option

Component	Current status	Upgrade required
Inlet screening Facility	The existing facility is a seismic risk, has been degraded by corrosion from gases, and is hydraulically under capacity.	Replacement of the screen facility is underway (at preliminary design phase as of July 2022).
Administration and maintenance buildings	These buildings have been identified as seismic risks and sit on land better utilised for future expansion and reconfiguration of WWTP processes.	New administration and maintenance buildings proposed on the east side of Pukete Rd. Proposed to incorporate a new public information and education facility within the administration facility.
Primary sedimentation tanks	Currently 3 primary sedimentation tanks in operation. Single aerated grit chamber which is at capacity.	A 4th primary sedimentation tank is needed now. Further sedimentation tanks will be required as flows increase. Duplication of aerated grit chanber to cater for higher flows and the increasing number of primary sedimentation tanks.
Solids stream phase 1	The existing mesophilic digesters are at capacity (limited redundancy), seismically limited, and have difficult to manage floating roof technology. Biogas system does not allow for any energy recovery.	Assuming a continuation of anaerobic sludge digestion on the site, the digesters will be replaced when dictated by asset condition and capacity basis. Biogas system to be upgraded to allow for energy recovery.
Outfall	Existing diffuser structure extends the full width of the Waikato River with a buried pipe and multiple outlets. Does not have capacity for future flows.	The existing diffuser will be retained for peak flow discharge with a new outfall for normal flows. The form and function of the new outfall has yet to be determined and would be co-designed with mana whenua to include an element of spiritual treatment (ie treatment beyond simply removing nutrients and pathogens).
Membrane bioreactors	NA replaces current clarifiers and filtration.	New membrane tanks and associated plant facilities will be constructed in a largely greenfield setting on an area of 'made ground' over an un-named tributary that crosses the site from the remnant gully to the west. This would include secondary screening and interstage pumping facilities. The clarifiers could be repurposed for wet weather flow management, pre-fermentation of sludge, or an alternate use.
UV Disinfection	The current UV system is 20 years old. It is still supported by the manufacturer (with parts) but is due for replacement.	To be replaced by a new, more efficient UV irradiation system.
Solids stream phase 2	Biosolids are processed offsite at a vermicomposting facility (no alternative other than landfill due to current treatment). No flexibility to adapt to regulatory changes eg emerging contaminants.	Three options have been included which will allow for alternative disposal pathways: • Digestion only (status quo) with digesters eventually replaced as noted above • Advanced digestion with thermal hydrolysis to maximise biogas yield • Thermal conversion (eg mono-incineration) or pyrolysis/gasification
Phosphorus removal	NA	Two options have been included: • Chemical phosphorus precipitation using aluminium sulphate • Enhanced Biological Phosphorus Removal (EBPR) process (4-stage Bardenpho or equivalent)

11.1.3 Ngaaruawaahia interim and decommissioning

[Details to be added]

11.1.4 Conveyance

Wastewater will be conveyed to Pukete WWTP from Taupiri, Hopuhopu, Ngaaruawaahia, Te Kowhai, and Horotiu as shown schematically on Figure 29. The conveyance works required to implement the preferred option include:

- New pump stations at Taupiri (T-SPS) and Te Kowhai (TK-SPS)
- Upgraded pump stations at Ngaaruawaahia (N-SPS) and Horotiu/Ports of Auckland (POAL-SPS)
- New rising mains:
  - Taupiri to Ngaaruawaahia: 5.8km long 280 OD PE rising main with a supplementary 200 OD PE rising main required post-2041. Includes 2 gully crossings, 2 rail crossings, and 1 bridge crossing.
  - Ngaaruawaahia to Horotiu: 13.6km long, 315 OD and 500 OD PE twin main. Includes 3 gully/stream crossings, 1 rail crossing, and 2 bridge crossings.
  - Te Kowhai to Horotiu: 5.7km long 255 OD PE rising main and 8km long 250 OD PE gravity sewer. Includes 2 gully crossings.
  - Horotiu to Pukete: 13.6km long, 610 OD and 315 OD PE twin main. Includes 1 underpass and 1 rail crossing.
- New emergency storage:
  - Taupiri pump station: 474m^3 with an additional 689m^3 post-2041
  - Ngaaruawaahia pump station: 1,719m^3 with an additional 543m^3 post-2041
  - Te Kowhai pump station: 265m^3
  - Horotiu/POAL: 2,565m^3 with an additional 662m^3 post-2041

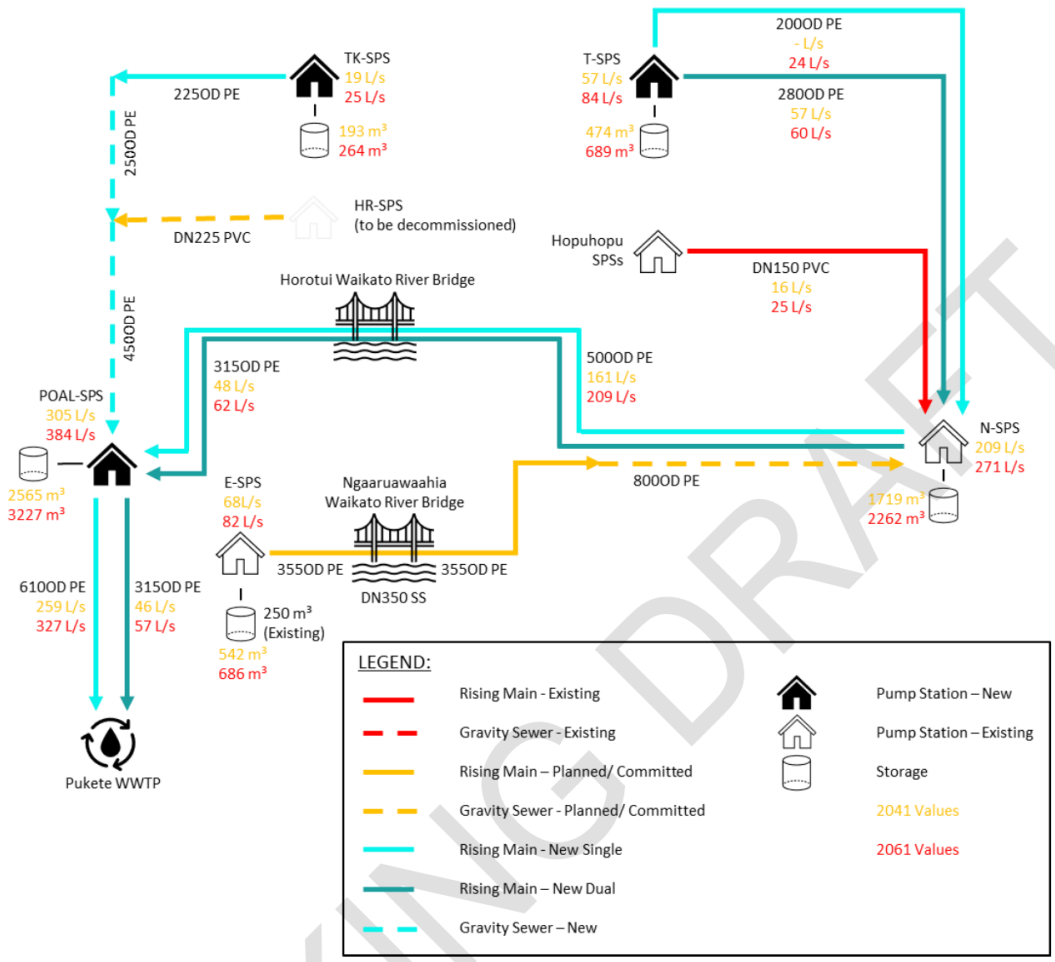


Figure 29: Preferred option conveyance schematic

11.2 Staging

Staging of delivery of the preferred option is driven, in the short term, by the expiry of the existing Pukete and Ngaaruawaahia WWTP discharge consents in 2027 and 2029 respectively.

A significant package of works like the Pukete MBR conversion cannot reasonably commence prior to confirmation of consent and associated consent conditions. It is not unusual for changes to be made to proposed processes and operations during processing of large consents, which can impact on design. Therefore, the staging assumes detailed design and procurement processes for packages of work tied to the MBR conversion are not progressed until after consents are granted.

To allow continued operation of the WWTP, renewal consent applications must be lodged six months prior to expiry of the current consents. The Pukete WWTP represents the highest point source of nitrogen and phosphorus load to the Waikato River (refer Section 4.2.1). Consent for such a major discharge is expected to be publicly notified and the staging has allowed for a 2 to 3-year process from lodgement to grant. No contingency is included for appeals.

Staging 2022-2040

The *Preferred Option Technical Report* sets out two options for short-term staging: a “go-fast” option and a longer option.

The **"go-fast" option** assumes a combined consent application for the Pukete discharge (long-term) and Ngaaruawaahia discharge (short-term 5 to 7-year transition period). The consent would be lodged in 2025, which requires concept design, technical assessments, consultation, and preparation of a consent application to commence as soon as practicable following acceptance of this DBC. The MBR conversion would be commissioned in 2031 as shown in FIGURE.

The **longer transition option** has consent being lodged in 2027, six months prior to expiry of the Ngaaruawaahia WWTP discharge consent. The MBR conversion would be commissioned in 2035, four years later than the "go-fast" option. The "go-fast" option seeks to improve in discharge quality and give effect to Te Ture Whaimana as soon as practicable and is therefore preferred.

This DBC allows for the bulk of conveyancing works to be completed in one phase around 2029-2031. An alternative option could see new conveyancing from Te Kowhai and Horotiu completed early with the Taupiri and Ngaaruawaahia completed later (as dictated by capacity requirements). Diverting Te Kowhai and Horotiu to Pukete early has the advantage of reducing load at Ngaaruawaahia which would reduce the discharge load from Ngaaruawaahia during the interim period.

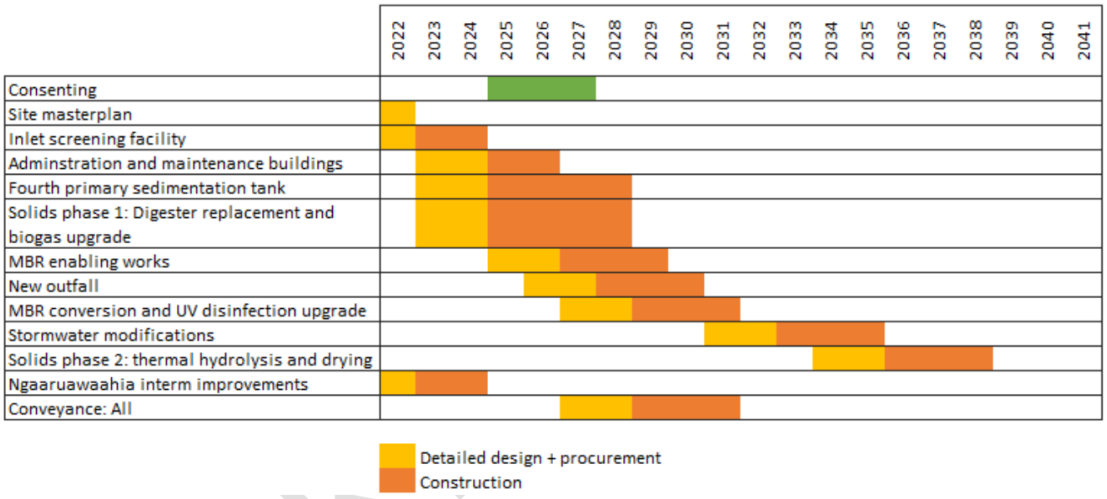


Figure 30: Proposed staging of preferred option

Staging post-2041

While this DBC focussed on the initial conversion works required to deliver the preferred option, the *Preferred Option Technical Report* identifies key aspects of the continual upgrade works required to respond to growth.

- 2041-2050
  - Addition of a pre-fermenter
  - Addition of a fifth primary sedimentation tank
  - Addition of centrate treatment
- 2051-2060
  - Expand Gravity Belt Thickeners (GBT) area
  - Addition of a sixth primary sedimentation tank
- Post-2061
  - Additional membrane bioreactors
  - Additional digesters
  - Expansion/relocation of dewatering process
  - Renewal and expansion of energy recovery

11.3 Cost estimates

An updated cost estimate was prepared for the preferred option. The *Preferred Option Technical Report* details the assumptions used to build the cost estimate. A conceptual design of the preferred option will need to be prepared to confirm the estimated capital and operating costs. An estimating tolerance has been included to account for general unknowns in the design and for any discrepancies in the design information prepared to date. These estimates are Class 5 estimates as per the AACE Cost estimate Classification System and have an expected range of -30% / +50%.

Table 18 summarises the P50 (Most Likely) and P95 capital costs for the preferred option.

The capital cost estimates do not include capital costs for any required interim upgrades to the Ngaaruawaahia WWTP prior to diversion of flows to Pukete. Capital costs associated with options to include biological phosphorus removal (extra reactors required) and incineration of biosolids are included in the P95 costs but not P50.

Table 19 summarises the expected annual operational costs at 2031, 2041, 2051, and 2061.

The operational costs assume thermal hydrolysis and thermal drying are implemented by 2041 and that Hamilton South is diverted to the new Southern WWTP by 2061.

Table 18: Preferred option capital cost estimate

	Conveyancing	Treatment	Total
P50 most likely cost	$103M	$772M	$875M
P95 cost	$126M	$1,133M	$1,259M

Table 19: Preferred option operational cost estimate

Year	2031	2041	2051	2061
Pukete WWTP	$17.7M	$20.3M	$23.0M	$21.8M
Conveyance	$0.41M	$0.49M	$0.55M	$0.67M
Total	**$18.1M**	**$20.8M**	**$23.6M**	**$22.5M**

Table 20: Capital cost estimate for each 10-year period

	2022 - 2031	2032 - 2041	2042- 2051	2052-2061
Pukete WWTP	$430M	$250M	$32M	$50M
Conveyance: Te Kowhai to Horotiu	$9.7M			
Conveyance: Taupiri to Ngaaruawaahia	$10M			$6.4M
Conveyance: Ngaaruawaahia to Horotiu	$36M			$5.0M
Conveyance: Horotiu to Pukete	$30M			$5.6M
Total	**$515.7M**	**$250M**	**$32M**	**$67M**

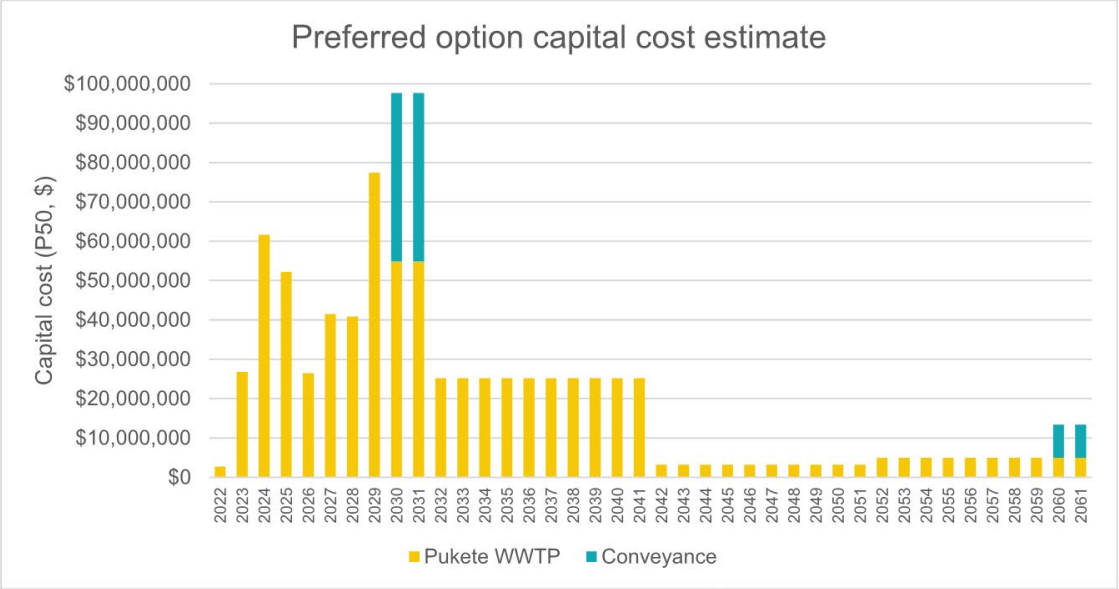
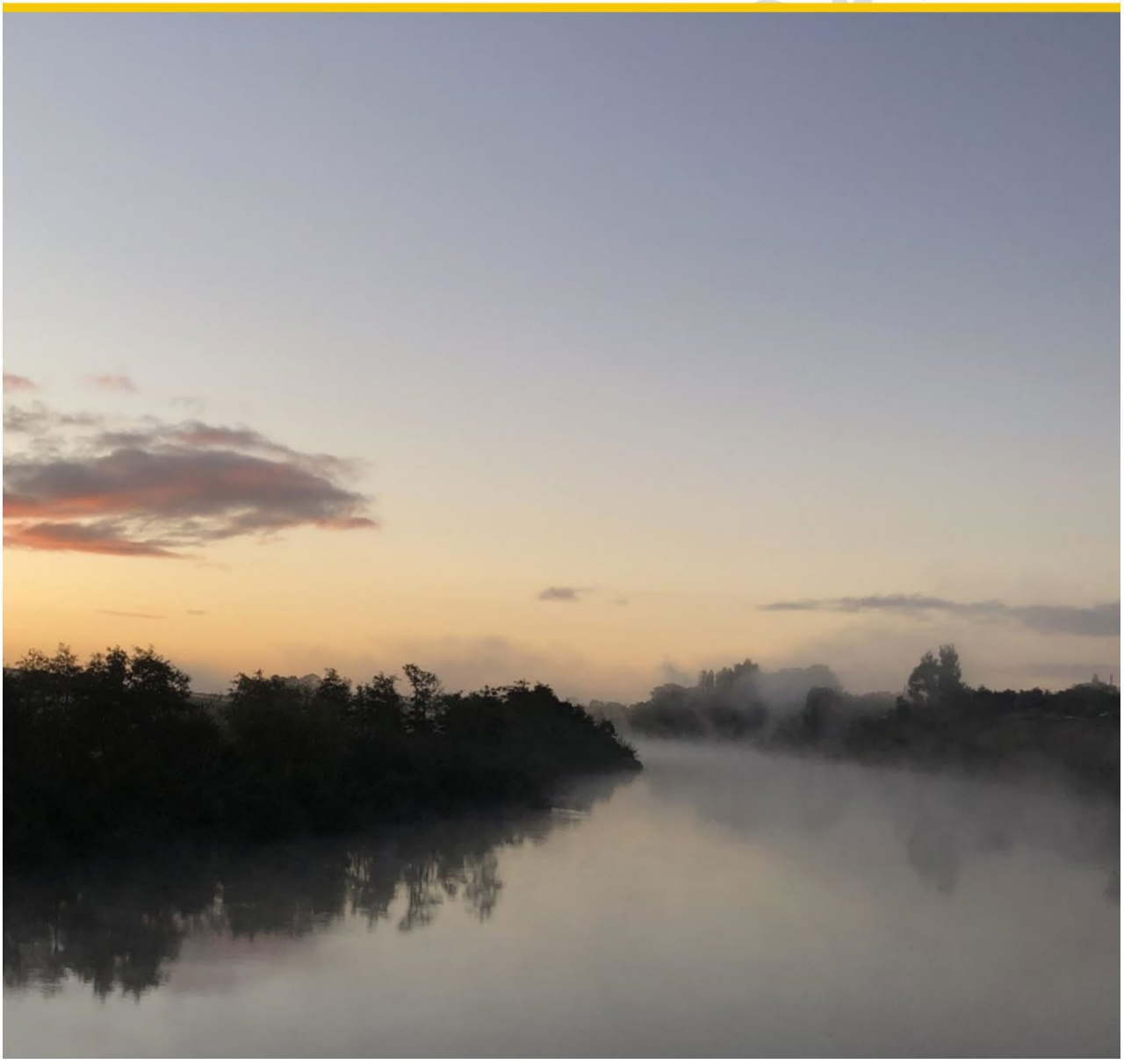


Figure 31: Preferred option annual capital investment estimate (excluding renewals)

Financial Case



12 Financial case introduction

The financial case sets out the allocation of costs, funding requirements, preferred funding and financing solutions and affordability impacts.

This section was developed by PWC as a summary of the financial case. The full version of the financial case is attached as **Appendix E**.

There are financial risks and challenges in delivering a complex, long-term programme of works. These risks include:

- **Long-term programme**: The accuracy of cost estimates is likely to reduce the further out they are being forecast. The timing of elements of capital expenditure could change based on population growth, further reducing levels of certainty.
- **Level of design work to support costings**: Detailed design work has not yet been undertaken and this constrains the accuracy of cost estimates. Costs will be refined as the design work is progressed.
- **Three Waters Reform programme**: The Three Waters Reform programme may change the way wastewater projects and services are delivered and could affect funding and other assumptions.

13 Cost allocation

The Project will service communities across boundaries and costs will be allocated between councils. Allocation will be undertaken on a 'beneficiary pays' basis. This means costs will be split between councils depending on the proportion of people served and the time period over which they are served. Beneficiaries of the projects are the ones who will ultimately pay for them.

Cost allocation methodologies have been developed for each component of the Project. An overview of those methodologies is provided in Table 21.

In developing the DBC, the Councils have previously agreed for Southern DBC that WWTP capital costs be allocated between the Councils based on the proportion of population equivalents serviced by the WWTP. This approach has also been adopted for the Northern Metro DBC. Conveyance capital and operating costs will be allocated to the council whose beneficiaries require such conveyance. For the Northern Metro DBC all conveyance capital and operating costs will all be allocated to WDC.

Table 21: Cost allocation methodology

Component	Methodology
Local reticulation – capital costs	Costs for upgrades or new local reticulation (where applicable) are proposed to be met by the relevant council (or developer) on the basis that only beneficiaries within the territory would benefit from the works. The relevant council is expected to recover these funds as additional properties are connected.
WWTP - capital costs (upgrades and new plants)	WWTP capital cost allocation follows a 'beneficiary pays' basis, while also considering the asset's useful life. For example, the mechanical and electrical capital costs in a given year are allocated based on the population equivalent demand for the next 20 years.
WWTP - operating costs	Operating costs are allocated on a 'beneficiary pays' basis - the operating costs in a given year are allocated based on the council's proportion of total population equivalent demand in that year. As was the case for the Southern DBC, the calculation of the respective proportions will need to be updated regularly to reflect changes in the level of population equivalent demand in each district. The expectation is that the proportions will be estimated every three years (i.e. to align with Long Term Plan (LTP) cycles), and then confirmed at the start of each financial year as part of the annual planning process.
Conveyance - capital costs	Costs for upgrades or new conveyance are proposed to be met by the council relying on the conveyance for connection. This is because the beneficiaries of the conveyance would be located within that district (e.g. the capital cost of new pipes to connect Taupiri would be expected to be funded by WDC).
Conveyance - operating costs	As per conveyance capital costs, conveyance operating costs are proposed to be met by the council where the conveyance begins from.
Land and consenting costs (Pukete WWTP)	Given the land and consenting costs will benefit all stages of the Project, land acquisition, planning, and consenting costs for the WWTP are proposed to be shared pro-rata[23] according to the council's population equivalent proportion in the final year of capital spend, 2062.
Depreciation	Depreciation expenses are allocated on the same basis as the relevant capital or conveyance capital costs for assets that are depreciating.

[23] These flows represent the final state of the preferred option.

The analysis considers future costs only, no allowance for costs incurred to date is included. The analysis also does not consider the historical investment by HCC in the Pukete WWTP as a means for reallocating future capital costs between councils given that this is a sunk cost.

Based on the methodologies in Table 21 above, Table 22 shows a breakdown providing an indication of each Council's share. Note that the allocations for the Pukete WWTP use the growth assumptions agreed for this DBC project and will need to be reviewed as part of project implementation.

Table 22: Council cost allocation

Cost allocation for each project component ($000s)							
Capital costs	**Council**	**2022-31**	**2032-41**	**2042-51**	**2052-61**	**2062-71**	**Total**
Pukete WWTP	HCC	351,521	203,188	25,713	39,648	-	620,070
	WDC	25,594	16,905	2,225	3,603	-	48,327
	Total	377,115	220,093	27,939	43,250	-	668,397
Conveyance	WDC	85,470	-	-	16,930	-	102,400
Consenting	HCC	7,703	-	-	-	-	7,703
	WDC	697	-	-	-	-	697
Total		470,985	220,093	27,939	60,180	-	779,197
Operating costs[24]	**Council**	**2022-31**	**2032-41**	**2042-51**	**2052-61**	**2062-71**	**Total**
Pukete WWTP	HCC	95,793	167,768	191,319	212,500	200,171	867,552
	WDC	1,017	11,892	14,968	16,766	18,259	62,901
	Total	96,810	179,660	206,287	229,266	218,430	930,453
Conveyance	WDC	410	4,180	4,960	5,620	6,700	21,870
Ngaaruawaahia WWTP	WDC	6,174	-	-	-	-	6,174
Total		103,394	183,840	211,247	234,886	225,130	958,497

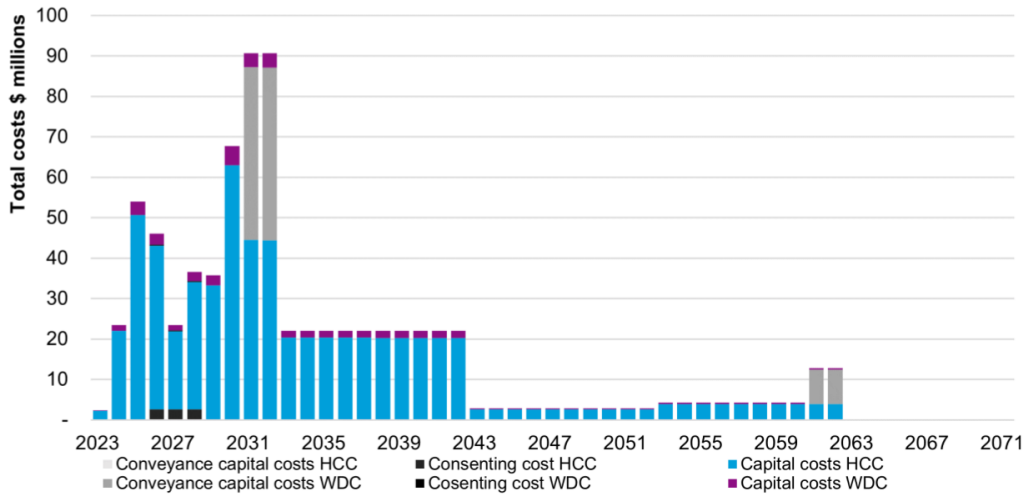


Figure 32: Capital cost council allocation

[24] Operating costs continue will continue beyond 2071.

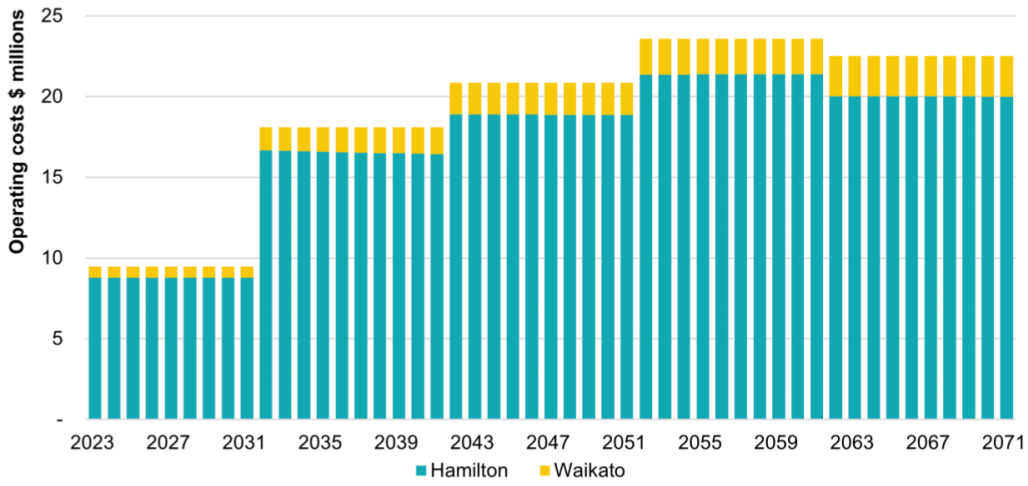


Figure 33: Operating cost council allocation

The cost allocation for the Pukete WWTP in 2022-71 reflects:

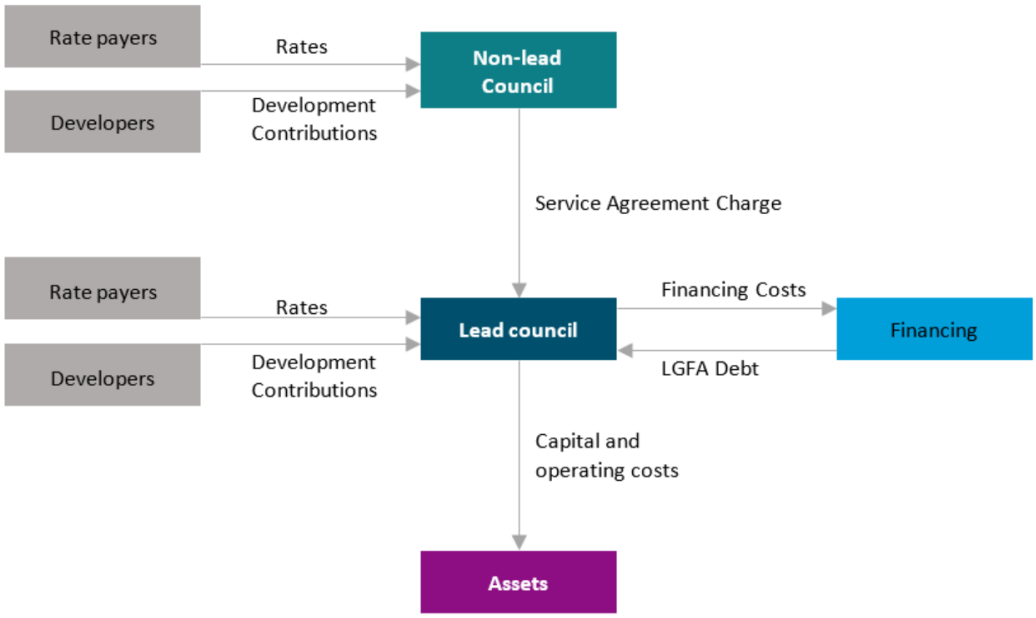
- The allocation of consenting costs allocated based on the council's population equivalent proportion in the final year of capital spend, 2062; and
- The build costs which are predominantly allocated to HCC based on the population equivalents served.

14 Financing

Similar to the approach adopted for the Southern DBC, the individual Programme projects will be delivered by a single council (the "lead council"). In the case of the Pukete WWTP, the lead council will deliver the project on behalf of the partners. The lead council will utilise its existing resources, policies and procedures for project delivery. Under the lead council model, the financing approach is broadly as follows:

- Financing of the full project cost is proposed to be undertaken by the lead council and where costs have been allocated to other councils (the non-lead council), costs (including financing costs) are proposed to be recouped through a service agreement.
- The non-lead council is expected to meet the service payment through applying its preferred funding tools to the communities that benefit from the Project within its respective territorial boundaries.

An overview of the proposed structure is provided below.



An evaluation of funding and financing options available to councils was undertaken and assessed during the development of the Southern DBC and the outcomes of that have been adopted for the Northern Metro DBC. Based on this, the preferred approach is for each Council to leverage its existing funding tools (i.e., general rates, targeted rates, development contributions etc) as per existing policies. These are outlined in Table 23 below.

Table 23: Preferred options – Current council funding and financing approaches

Council	Current funding approach	Current financing approach
HCC	General rates and development contributions (including trade waste or bulk supply arrangements)	Generally debt funded through the LGFA
WDC	Wastewater targeted rate and development contributions (including trade waste or bulk supply arrangements)	Generally debt funded through the LGFA

Responsibility for collecting rates and development contributions will remain with respective councils who will also determine which funding tools are utilised for each project.

15 Affordability

A high-level affordability assessment was undertaken based on an assessment of:

- The burden on ratepayers to fund the additional general and/or targeted rates;
- The cost to developers of development contributions; and
- The debt headroom under the current relevant Local Government Funding Agency (LGFA) covenants for each Council.

This assessment indicates the work is affordable for each Council. However, this should continue to be tested against the financial risks and complexities. An estimated rating impact as well as a high-level rates affordability assessment are outlined below.

An overview of the estimated annual impact (i.e. the incremental increase in rates per ratepayer) of the Programme on ratepayers is provided in Table 24 below.

Table 24: Estimated average annual rating impact

Year	2032	2042	2052	2062	2072
Hamilton City Council – General rate	$464	$512	$493	$469	$416
Waikato District Council – Wastewater targeted rate	$366	$367	$354	$377	$324

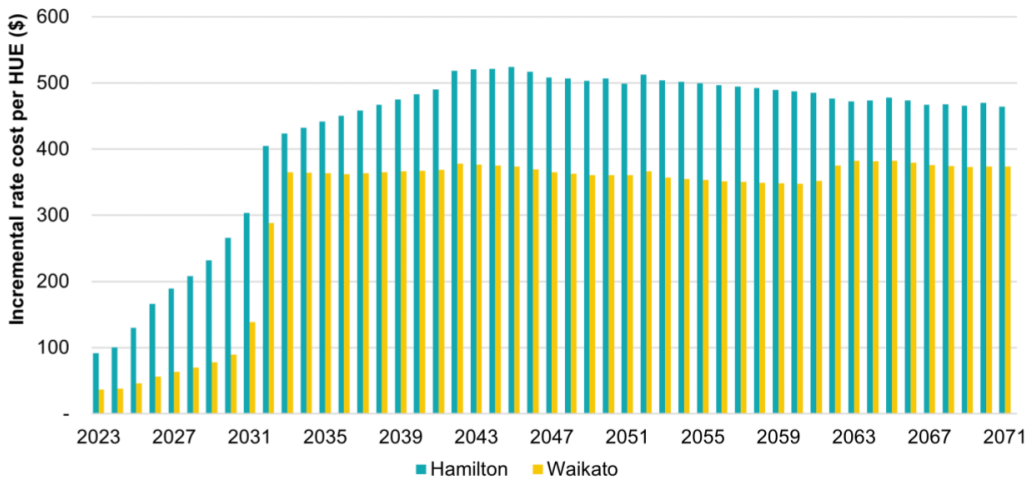


Figure 34: Estimated annual rates impact per HUE

An overview of the affordability of these rates increases is provided in Table 25 below. The assessment is based upon the five per-cent affordability threshold that was identified in the 2007 Local Government Rates Inquiry. Ratepayer affordability has been assessed based on adding the average rating impact for a ratepayer to the average household rates bill as outlined in the Ratepayer's Report[25].

The analysis shown in Table 25 starts with the median household total (gross) income in Waikato for 2021 ($79,322)[26], assumes wage inflation of 2%, in line with the Labour Cost Index between 1996 and 2022.

[25] Average annual rates are from https://www.ratepayersreport.nz/.

[26] StatsNZ.

Average annual rates per household in 2021 of $2,540 and $2,608 for HCC and WDC respectively were increased by the planned rate increase as stated in each of the Councils' most recent LTP.

It should be noted that there are likely other costs that would need to be considered in more detail prior to implementing an increase in rates, such as additional water related costs, mortgage servicing costs and other cost of living increases.

Under current policies, HCC uses a general rate while WDC uses a wastewater targeted rate.

Table 25: High-level rates affordability assessment

Council	Waikato median household gross income (2031)	Affordability threshold (5%)	Average rates per household	Additional project rating impact (2031)	Total rating burden	Affordability check
HCC – general rate	$96,693	$4,835	$4,254	$304	$4,558	✓
WDC – wastewater targeted rate			$3,679	$139	$3,818	✓

Table 25 demonstrates that the rating impacts all sit under the affordability threshold set out in the 2007 Local Government Rates Inquiry based on the average additional project rating impact for both HCC and WDC ratepayers.

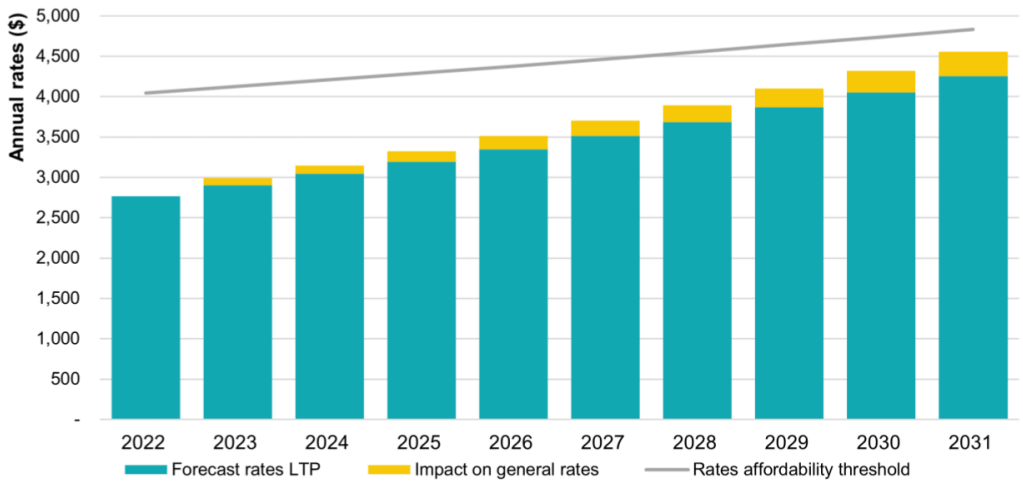


Figure 35: HCC ratepayer affordability

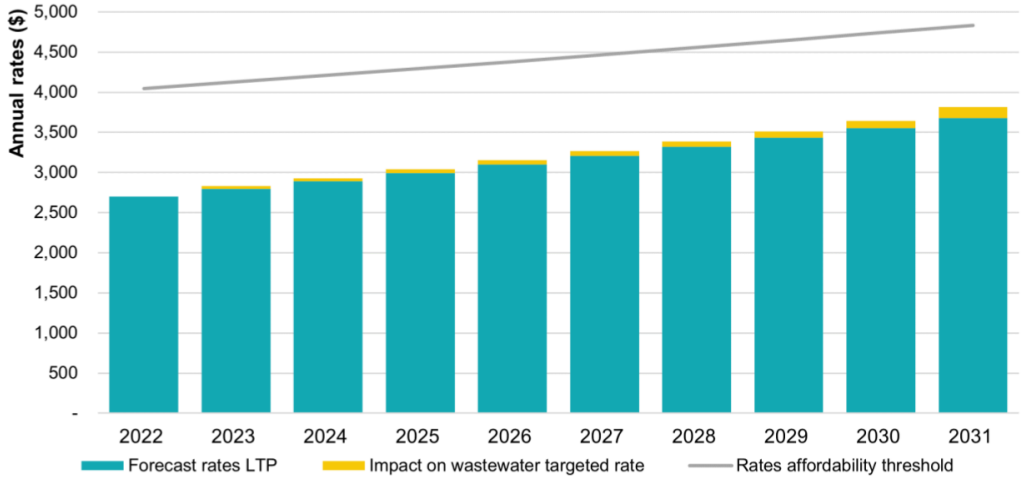


Figure 36: WDC ratepayer affordability

15.1 Development contributions

Affordability of development contributions imposed on future development because of the Project was assessed through the following approach:

- The portion of the Project that is attributable to growth was estimated by Beca based on a high-level best judgement for each individual upgrade on the split between each factor. This split has been reviewed by HCC's asset management team and certain adjustments have been made. The analysis results in a split of 12% renewals, 55% Levels of Service and 33% Growth for Pukete WWTP and 63% Levels of Service and 37% Growth for Conveyance.
- The pro-rata allocation of capital costs to the amount that is attributable to growth was calculated. It is assumed these growth-related capital costs, and the associated debt financing costs, can be recovered from development contributions. Councils consider that a development should make a contribution based on the anticipated demand that it will impose on infrastructure and the cost of providing that infrastructure to avoid ratepayers subsidising these.
- The DC charge was solved for on the basis that the overall DC revenues offset the growth-related costs by the end of each of the Councils' maximum cost recovery period – 30 years for HCC and 25 years for WDC[27]. DC revenue is calculated as the DC charge multiplied by increase in HUE demand in a year, with the DC charge being escalated annually at a rate of 2%, in line with the New Zealand Treasury's inflation guidance[28].
- A new DC charge is calculated every 10 years to reflect how councils will reassess and update their DC models periodically and to demonstrate the impact of the Project on DCs over time, noting some capital expenditure sits outside the 25–30-year timeframes of the Councils' maximum cost recovery period.

A more detailed assessment of the proportion of total capital costs that are attributable to growth, service improvement and renewal expenditure will need to be completed once cost estimates are refined.

[27] In line with HCC and WDC development contribution policies.

[28] https://www.treasury.govt.nz/information-and-services/state-sector-leadership/guidance/financial-reporting-policies-and-guidance/discount-rates

The estimated development contribution per HUE of demand for each Council is provided in Table 26 below. Population is converted to HUEs based on 2.7 people per household in the region, as per Census data and HCC's DC policy[29].

Table 26: Estimated development contributions (per HUE of demand)

Council	2022	2032	2042
Hamilton City Council	$4,436	$1,849	$373
Waikato District Council	$6,841	$1,245	$1,839

The development contributions set out above compare reasonably to existing levels charged by the Councils as they fall within the range of existing wastewater related development contribution charges currently outlined in HCC and WDCs respective development contribution policies, this is shown in Table 27 below.

Table 27: Current wastewater related development contribution charges under existing council policies

Council	Policy Reference	Average	Min	Max
Hamilton City Council	Development Contributions Policy 2022/23	$10,061	$7,337	$17,940
Waikato District Council	Development Contributions Policy 28 June 2021 to June 2024	$14,593	$6,807	$36,841

Note that under the current development contribution policies, each council has varying wastewater related charges across their catchment areas and for simplicity the average across the catchment areas is shown here and for HCC the charges presented here are on the basis of standard residential dwellings.

15.2 Net present value

A Net Present Value (NPV) for the overall Project has been determined to understand the current value of all the future cash flows of the Project. This measure can be used to test the sensitivity of the Project to changes in the underlying assumptions (e.g. the discount rate or changes to costs).

The estimated NPV for the Project is -$912,823,346, which is based on the Projects capital and ongoing costs and a five percent real, pre-tax discount rate (as per the New Zealand Treasury guidance)[30].

While renewal capital costs and operating costs would continue beyond the end of the financial forecasting period, a terminal value is not included in the NPV calculation.

Sensitivity analysis was carried out to understand the potential impact on the NPV as a result of several key risks eventuating. The risks include changes to discount rate, operating costs, and capital costs.

The NPV sensitivity analysis indicates that the impact of these risks eventuating is relatively minor in the context of the overall NPV for the Project. In relative terms, capital costs have the greatest impact on NPV as compared to operating costs and discount rate, however this impact with respect to the overall Project costs remains minor. Accordingly, there is still expected to be a material impact on affordability if there are significant cost overruns.

[29] https://www.stats.govt.nz/information-releases/family-and-household-projections-2018base-2043/

[30] https://www.treasury.govt.nz/information-and-services/state-sector-leadership/guidance/financial-reporting-policies-and-guidance/discount-rates

15.3 Affordability for councils – debt to revenue

The estimated financial impact on the debt-to-revenue ratio for each Council over the most current 10-year LTP period was assessed. Debt forecasts were not available beyond this period.

The councils are forecast to remain within the debt to revenue caps after allowing for the impact of the Project over the next 10 years, although WDC do get close to breaching their debt limit around 2029.

A sensitivity analysis on the debt to revenue ratios was completed by applying changes to capital costs (+10% and +20%). The analysis identified that HCC and WDC are not significantly impacted in the next 10 years due to the comparatively small capital expenditure.

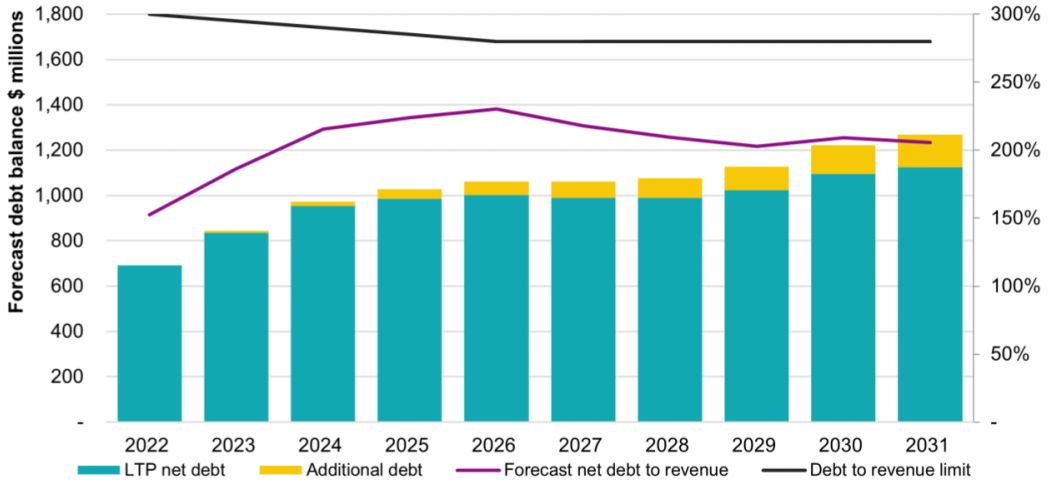


Figure 37: Forecast HCC debt-to-revenue

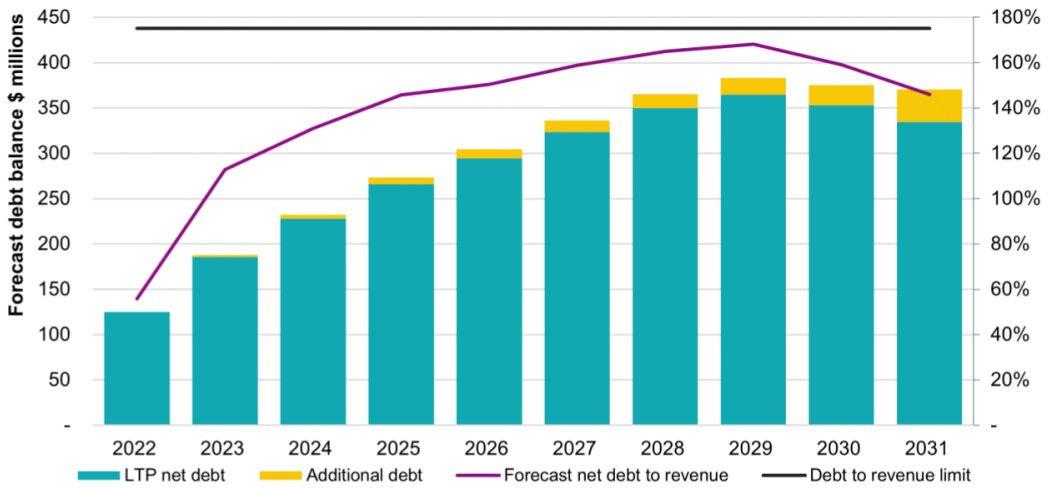
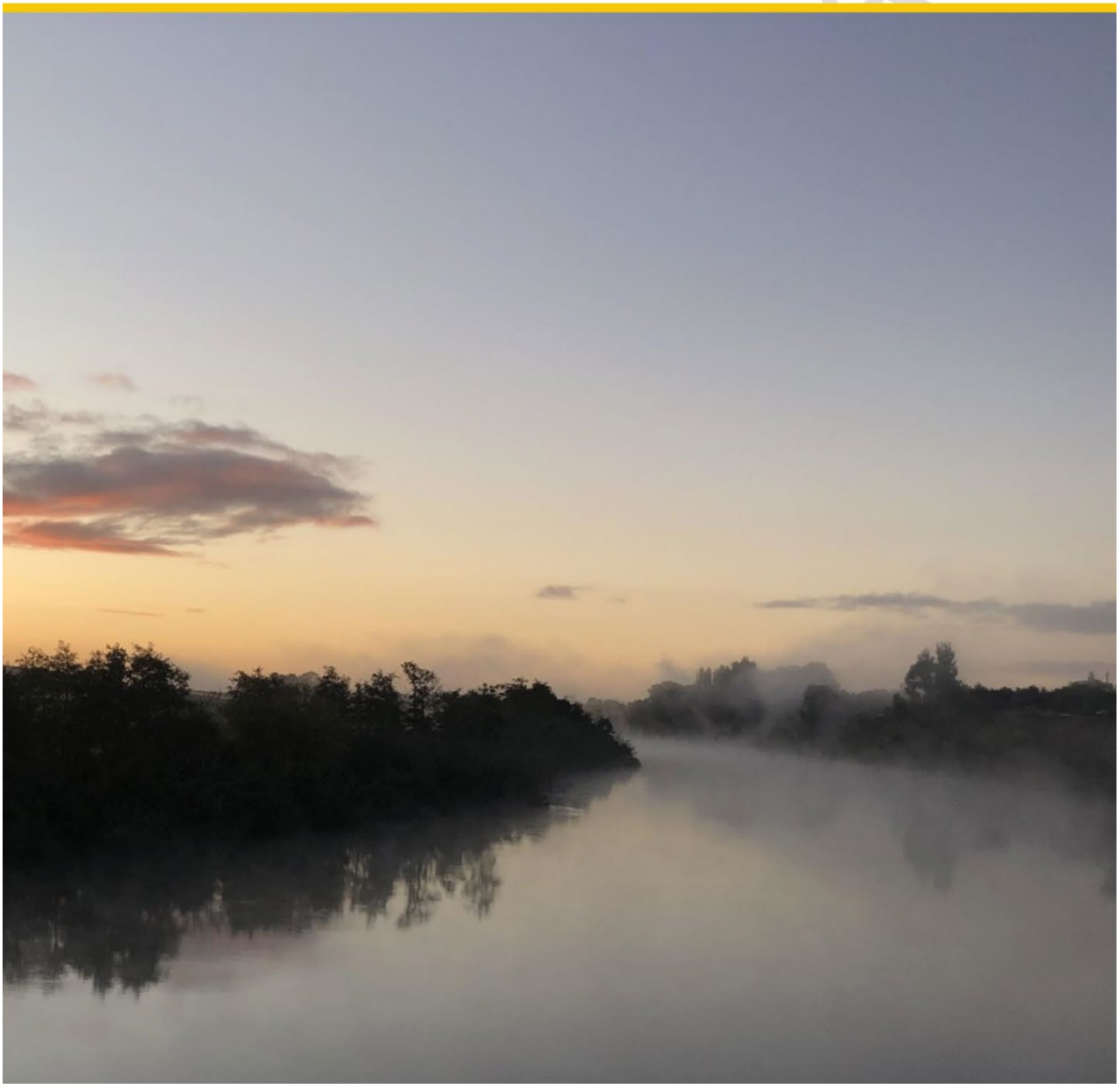


Figure 38: Forecast WDC debt-to-revenue

Commercial Case



16 Commercial case introduction

The commercial case sets out the proposed approach to packaging and contracting components of the preferred option for the Northern Metro DBC for design and construction, outlines the procurement plan, sets out potential for risk sharing, and recommended contractual arrangements. The purpose is to demonstrate that the preferred option can be implemented with a viable procurement process and well-structured deal between the public sector and its service providers.

At the time of drafting this DBC, transition processes for the Government's Three Waters Reform Programme are underway with the Water Services Entities Bill having received its first reading and being referred to select committee. Many aspects of the future state under the proposed "Entity B" remain unknown, including those operational arrangements that influence this commercial case.

Some aspects of this DBC will commence prior to the proposed transition to Entity B in 2024.

The DBC has therefore been prepared based on current council arrangements while maintaining flexibility to transition to a new structure as required. The arrangements outlined in the DBC should be revisited if and when the transition is complete.

This DBC also relies on a number of assumptions that may be revised during preparation of the Pukete WWTP site masterplan. Once the masterplan is complete, the aspects of this commercial case relevant to the Pukete WWTP should be reviewed and confirmed or amended as required.

17 Procurement rules

17.1 NZ Government procurement rules

Local Government Agencies are encouraged to follow the Government Procurement Rules.

The Government Procurement Rules support sustainable and inclusive procurement through the promotion of good practice for procurement planning, approaching the supplier community, and contracting.

The Procurement Strategy should align with The Principles of Government Procurement and seek to meet as many of the Charter expectations as possible. Relevant rules include those relating to open advertising, improving New Zealand business involvement, contributing to social outcomes, and providing sufficient time for tendering.

17.2 HCC Procurement Policy

HCC's Procurement Policy[31] will apply where services are contracted by HCC. The guidelines for appointing suppliers are outlined below:

- **Procurement of less than $50,000**: may be procured through an Approved Supplier or Direct Appointment process, although competitive quotes may also be acquired
- **Procurement of $50,000 to $250,000**: should be engaged through a Request for Tender/Quote process (Public or Private), except when engaging an Authorised Supplier or by Direct Appointment. Any Direct Appointment should comply with one of the criteria listed in 4.3.5 and a Procurement Plan must be approved by the appropriate delegated authority.
- **Procurement of over $250,000:** must go through a Public Request for Tender/Quote process unless engaging an Authorised Supplier or either the decision to undertake a Direct Appointment or not to go through a Public RFx process has been approved by the relevant Council Committee or full Council

The Northern Metro WWTP stage one capital costs will be in excess of $100,000, hence a public request for tender will be required under HCC's Procurement Policy.

17.3 WDC Procurement Policy

Waikato DC's Procurement Policy[32] will apply where services are contracted by WDC. The guidelines for appointing suppliers are outlined below:

- **Procurement of less than $50,000**: Requires single quote in writing where an existing supplier exists, or two quotes in writing where there is no existing supplier arrangement for the goods and services. Services can be engaged via electronic purchase order or appropriate minor physical works contract.
- **Procurement of $50,000 to $250,000**: Requires a light procurement plan, three written quotes, or public or invited request for tender process. Services engaged via contract.
- **Procurement of over $250,000 or any high-risk level procurement regardless of dollar value**: Requires a full procurement plan, single or multi-stage request for tender process, open procurement process. Services engaged via contract.

The Northern Metro WWTP stage one capital costs will be in excess of $250,000, hence a public or invited request for tender will be required under Waikato DC's Procurement Policy and Manual.

[31] Hamilton City Council Procurement Policy / Hamilton City Council Procurement Policy and Procedures Manual (December 2021)

[32] Waikato District Council Procurement Policy (April 2021)

18 Procurement strategy

18.1 Procurement strategy methodology

The preferred option can be broken up into a number of projects and work packages. Each project within the wider preferred option will be delivered by a single council on behalf of the other Sub-regional Partners. It is expected that the Lead Council (ie HCC or WDC) will generally be identified by the spatial location of the project. The Lead Council will use its existing resources, policies, and procedures to deliver each project. The Lead Council structure is discussed in the **Management Case**.

This section documents the identification, evaluation, and selection of options for packaging and contracting of the works required to deliver the preferred option.

The Southern Metro DBC has been used as a starting point for consideration of contracting models. The Southern Metro DBC assessed a variety of contract models but generally concluded that only Construction and Design & Build contracts were appropriate. The full range of contract models are considered at a high level in this DBC, but preferred contract options have been selected based on a qualitative assessment rather than a full MCA process.

The preferred option is comprised of four discrete projects:

- Ngaaruawaahia WWTP interim works
- Ngaaruawaahia WWTP decommissioning
- Pukete WWTP upgrades
- Conveyancing

Procurement and packaging of each project is considered below.

18.2 Procurement plan

The Southern Metro DBC sets out a proposed procurement plan for the projects included within that DBC. Procurement for the Northern Metro DBC should follow a consistent process. At a minimum, the proposed approach must comply with Government Principles of Procurement, the Government Procurement Rules (including consideration of Broader Procurement Outcomes) and the Lead Council's procurement policies

Procurement is generally expected to be undertaken through a competitive tender process to ensure market tension and drive value for money outcomes.

A detailed procurement plan will be prepared for each project by the relevant Lead Council before going to market. Subject to any lessons learnt through procurement of projects under the Southern Metro DBC, the same principles for approach to the market, evaluation of offers, and identification of the preferred supplier should be adopted.

A two-stage procurement process for each project:

- Expression of Interest (EOI)
  - publicly advertised through GETS
  - evaluated by a Pass/Fail score on non-price attributes
- Request for Tender (RFT)
  - made available to the successful EOI respondents
  - evaluated using a Weighted Attribute Method[33] including extensive interaction with the respondents where attributes and assignment of weighting will be set by the relevant procurement team

[33] The Weighted Attribute Method is a supplier selection method in which the preferred supplier meets the required outcomes set out in the RFT and provides the best value for money. A balanced decision is taken that weighs up the whole-of-life costs and/or non-financial

- non-price attributes are expected to include environmental impacts, embedded carbon, waste reduction, material demand reduction, social responsibility, and social procurement factors
- evaluation will be undertaken by a cross-function team with collective significant experience evaluating contracts of scale and complexity.

An independent Probity Auditor will be appointed to shadow the tender process to ensure a transparent procurement process, ensure all parties are treated equitably and ensure potential third-party risks are managed proactively.

The proposed timeline for the procurement is shown on Figure 39 with procurement expected in the second half of each of the "detailed design and procurement" phases.

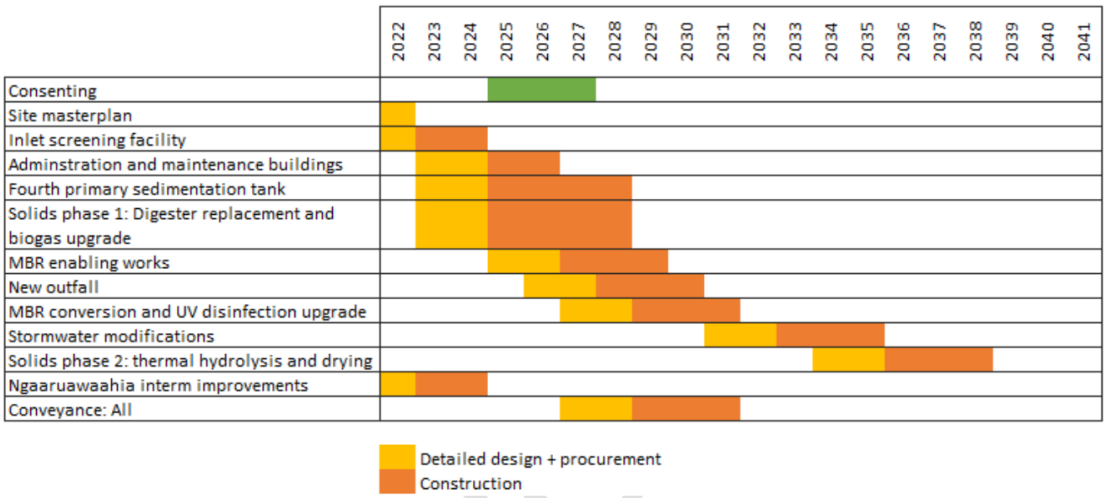


Figure 39: Proposed procurement timeline

18.3 Contracting options

Contracting options have been developed based on the Southern Metro DBC, NZ procurement guidelines, and comparable projects. Contracting options are considered in **Appendix F**.

attributes in addition to the up-front price. Under this method, the financial and non-financial attributes are defined and weighted to reflect their relative importance to achieving the stated outcome.

[To be moved to appendix (but here to allow review)]

Table 28: Contract options description

Contract model	Description	Pros	Cons
Construction only (traditional)	Traditional, or conventional client-led design, requires that the design is fully developed before the construction contract is awarded. The client engages consultants to prepare a design against a brief and budget, and to prepare the tender documents. Contractors are then invited to submit bids to do the construction work, based on the tender documents. Financing is managed by the procuring entity.	• Highest level of cost certainty (detailed design completed prior to procurement). • Relatively simple procurement process. • Provides rigour of owner's engineers' design, rather than under a tender process where contractors are looking to minimise cost. • Suitable where council has already undertaken extensive design work.	• No scope for contractor market to provide innovation in design. • Limited consideration of whole-of-life factors (no involvement of O&M contractor in design or construction). Less important for less complex packages. • Slower overall delivery (staged with detailed design completed prior to procurement). • Council assumes full design risk.

Design and build (D&B/D&C)	The main contractor takes on the responsibility for both the design and construction. The client develops functional and technical performance requirements that are used in the tender process. Financing is managed by the procuring entity.	• Good appetite for D&B contractors for a small WWTP where technology standard (ie low design risk).
		• Potential innovation through integration of construction and design.
		• Greater time and cost certainty.
		• No fixed design scope has greater price tension than construction only as tenderers seek to gain a cost advantage over their competitors.
		• Potential to commence construction shortly after contract award, in advance of detailed design being finalised.
		• Constructability and construction staging able to be considered in design.
			• Should only be considered when there is a definable benefit over construction only.
			• Less contractor appetite for medium to large WWTP where design is more complex (risk / reward not worthwhile).
			• Compared to construction only
			  ○ Preparation of procurement documents more involved
			  ○ Substantial investment from market to bid (each contractor has to undertake a level of design for pricing)
			  ○ Tender process takes longer, and evaluation of different designs can be significant (including additional technical assessment of each proposal to confirm compliance).
			• Limited consideration of whole-of-life factors (no involvement of O&M contractor in design or construction). However, not uncommon for contractors to provide short operating period of 1-2 years. Longer defects liability periods can also incentivise whole-of-life.
			• Fixed price requires a relatively fixed scope and any changes from the original performance scope tend to be expensive.
			• Risk of compromised quality as contractors minimise design cost.

Contract model	Description	Pros	Cons
			• Risk of higher risk pricing, given greater risk is transferred to the private sector. • Risk of duplication of costs, as council may require another design consultant to independently review design, given designer's primary duty is to the contractor. • More challenging for council to exert control over the design unless detailed specifications provided to contractors prior to tender.
Managing contractor	Single managing contractor engages with the procuring entity and undertakes the procurement process in its behalf. The managing contractor enters into a contractual relationship for each of the proposed packages. The intent is that these packages are procured on an open book basis.	• Council only interacts with one party, simplifying the process. • Council retains overall control of the project including design aspects. • Transfers interface risk to the manging contractor once subcontractor packages are awarded. • Enhanced construction management expertise assists with project integration, coordination, and budgeted time and cost. • Less council resource dedicated to contract administration. • Design can be varied with relative ease after awarding contracts.	• Only applicable where multiple projects/work packages to be procured separately, eg complex plant procurement. • Higher management fees. • Additional complexity associated with terms of liability, insurance, etc. • Less certainty of final construction costs than for traditional procurement. • Greater degree of design risk retained by council.
Alliance	The alliance delivery model is a relationship-style arrangement, that brings together the client and one or more parties to work together to deliver the project, sharing project risks and rewards. Collaborative procurement methods are usually used for highly-complex or large infrastructure projects that would be difficult to effectively scope, price and deliver under a more traditional delivery model.	• Faster procurement due to the considerable scope flexibility, particularly beneficial for large, complex projects that are challenging to scope, price, and deliver. • Risk sharing desirable to contractors, especially where there are high risk elements involved. • Potential cost benefits, where contractors would otherwise build in considerable risk pricing for high-risk elements. • Maximum flexibility across all aspects of delivery. • Alignment of interests may reduce contractual disputes. • Can increase the level of knowledge sharing / transfer.	• Does not provide time or cost certainty. • Requires significant resourcing to manage governance, contract/cost administration, management, procurement, and alliance set up arrangements. • Limited market of contractors with sufficient experience operating in an Alliance environment. • Risks that are typically passed to the private sector are already well understood and accepted, with traditional contracting methods already providing for risk sharing for high-risk elements. Accordingly, value for money benefits of alliance may be reduced. • Cost risk remains with the client. • "No blame" philosophy means legal claims are generally limited to matters of wilful default or insolvency, with other contract and negligence issues excluded.

Contract model	Description	Pros	Cons
		• Incentivises a 'best for project' and integrated approach.	• High consequence of staff turnover, poor culture, etc as relationship/collaboration critical to success.
Design, built, operate, and maintain (DBOM)	The main contractor takes on the responsibility for the design, construction, operation, and maintenance of the project. Financing is managed by the procuring entity.	• Combined delivery and operations incentivise whole-of-life approach. • Typically fixed price and / or fixed date. • Single package / full scope gives contractor ability to innovate in design. • Single contractor to monitor. • Greater opportunity for innovation as design, construction and operations all working together. Provides for early operator involvement.	• Requires a certain size/scale to be attractive to the market. • Difficult to change scope during delivery. • Complex procurement. • Risk of higher risk pricing, given greater risk is transferred to the private sector. • Risks associated with not having an operator led consortia, if value of capital works is disproportionally high compared to the operation works.
Design, built, finance, operate, and maintain (DBFOM)	Concession style arrangement similar to the public-private partnership model where responsibility for design, construction, operation, maintenance, and financing is managed by the "contractor" (in this case typically a private sector consortium).	• Combined delivery and operations incentivise whole-of-life approach. • Typically fixed price and / or fixed date. • Single package / full scope gives contractor ability to innovate in design. • Single contractor to monitor. • Greater opportunity for innovation as design, construction and operations all working together. Provides for early operator involvement. • Inclusion of private finance brings contract administration and due diligence expertise. • Inclusion of private finance increases the degree of risk transfer	• Highest procurement costs and complexity. • Scale of project needs to be significant before the upfront effort is worthwhile. • Contract negotiation can take an extended period and can result in a failed procurement processes (with cost and delay implications) • Significant ongoing contract administration requirements. • Cost escalation mechanisms can be complex and unfair. • Requires highly skilled people to manage procurement and the contract. • Limited market appetite unless significant size and scale. • Financing provided by private sector is more expensive than Local Government Funding Agency. • Difficult to change scope or stage during delivery. • Uncertain whether 'true' risk transfer actually occurs, which reduces value for money (ie contractor pricing risk premium, but not actually the risk).
Private provision	The private sector is engaged to deliver all aspects of the work. The procuring entity then uses the facility under a service agreement.	• Highest degree of risk transfer	• Requires sufficient scale to be feasible. • Extended procurement processes that can fail with high costs incurred and subsequent delays. • Financing provided by private sector is more expensive than Local Government Funding Agency. • Low control of asset for councils. • Difficult to change scope or stage during delivery.

Contract model	Description	Pros	Cons
			• Potentially legislatively challenging for a WWTP.

[The following packaging and contracting sections will be finalised following detailed feedback from lead councils]

18.4 Ngaaruawaahia WWTP interim works

The current Ngaaruawaahia WWTP consents expire in 2029. Even under the "go-fast" staging proposed in the **Economic Case**, wastewater flows will not be diverted to the Pukete WWTP until 2031. Some level of medium-term upgrades to achieve a reduction in discharge load are anticipated to be required to obtain a new consent (and to manage anticipated growth) for the period 2029 until (at least) 2032.

Further, on-going exceedances of consent conditions for ammoniacal nitrogen and total nitrogen have triggered a consent condition requirement for short-term upgrades to the WWTP by July 2023.[34]

These short to medium term upgrade works are not directly linked to any other project and there are no identified efficiencies in combining this project with the other projects. The small scale of the works does not justify segregating early works/enabling works, civils, and treatment systems. Therefore, a single package for each stage is recommended: interim upgrades (short-term) and medium-term re-consenting/capacity upgrades (if required).

It is expected that these works would take place under existing contract arrangements (ie through Watercare Waikato) using funding already committed in the WDC LTP for the Ngaaruawaahia WWTP.

Table 29 summarises the recommended packaging and contracting model for the Ngaaruawaahia WWTP interim works.

Table 29: Ngaaruawaahia WWTP interim works packaging and contracting recommendations

Size and complexity	The WWTP receives average flows of 4,500m^3/day increasing to 6,000m^3/day in 2031. The interim upgrades may encompass some design work that small contractors may not have the necessary skill or resource to undertake.
Integration risk	This is a brownfields site and upgrades will have to be undertaken while the plant is operational resulting in some integration risk.
Timing	There is a short-term upgrade requirement (by July 2023) to comply with existing consent conditions. Additional improvements may be required to obtain a new discharge consent to cover the period between expiry of the current consent in 2029 and diversion of flows to the Pukete WWTP in 2031. These are works that could be completed in advance of reconsenting to demonstrate a willingness to put investment into improving discharge quality in that interim period.
Packaging recommendation	Two stage-based packages: interim upgrades (short-term) and medium-term re-consenting upgrades.
Contracting recommendation	Existing contract/procurement arrangements (and using funding already committed in the WDC LTP for the Ngaaruawaahia WWTP).

[34] There may be an opportunity to achieve efficiency through scoping these short-term upgrades to also achieve the level of load reduction anticipated to be required through the interim consent.

18.5 Pukete WWTP upgrades

Packaging

The preferred option includes an on-going stream of works at the Pukete WWTP in response to growth. For the purpose of this commercial case, we are most interested in the works occurring over the next 10 years broadly associated with the conversion to an MBR plant. Broadly speaking, these works include:

- Works required to respond to existing renewals and growth: HCC is already progressing changes to the inlet including a new screening facility, a fourth primary sedimentation tank will be required before 2029, and the existing digesters require replacement by 2029 as part of Phase 1 of the solids stream upgrade
- The works required to achieve the proposed treatment standards: This includes the MBR conversion, replacement/upgrade of UV disinfection
- A second outfall: The existing outfall does not have sufficient capacity to meet expected growth and does not meet mana whenua design preferences. We anticipate that a co-designed second outfall will be required as a condition of a replacement discharge consent
- New buildings: The existing administration and maintenance buildings have been identified as seismic risks and sit on land better utilised for future expansion and reconfiguration of WWTP processes.

Looking to the medium term, upgrades are required to the solids handling processes (including addition of thermal hydrolysis and drying) and existing on-site stormwater (noting that some changes to stormwater will be incorporated into other packages of work as required). A fifth primary sediment tank will also be required post-2041 (under the baseline growth assumptions_.

Five packaging options have been considered ranging from fully disaggregated to a single package (excluding the inlet works that are currently being progressed). Figure 40 summarises the key pros and cons of each of the packaging options. Key considerations are:

- **Inlet works**: these works are currently being progressed and should remain a standalone package.
- **New administration and maintenance buildings**: these works require a different skill set to other packages (including architectural design) and would ideally be completed early to allow the space they currently occupy to be utilised for other processes. This DBC recommends they are completed as a standalone package.
- **4th primary sedimentation tank (PST)**: this cannot be deferred until after new discharge consent is obtained and therefore cannot be packaged with the major MBR conversion works (unless the MBR conversion works are procured in advance of consenting and design which is considered too high a risk). This could be combined with the solids phase 1 works, but for the purpose of this DBC it is recommended that the 4th PST is progressed as a standalone package.
- **Solids phase 1**: the proposed staging has these works occurring in tandem with the 4th PST. If they are to be completed at the same time, it may be appropriate to package these together. However, these works have not been flagged as urgent and for the purpose of this DBC, it is recommended they are considered a standalone package to allow these works to be deferred, if appropriate.
- **New outfall**: the new outfall is culturally significant and requires co-design (or significant engagement at a minimum) with mana whenua. Including the outfall as part of a wider package of works puts more focus on commercials and reduces the ability to work collaboratively with mana whenua. For these reasons, the DBC recommends that the outfall is progressed as a standalone package.
- **MBR conversion and UV**: The MBR conversion and UV are the primary works required to improve treatment standards. It makes sense for these works to be packaged.
- **Stormwater:** These works are not necessarily required until after the MBR conversion is completed and there are limited drivers to package these with other works. These works could be packaged with the MBR conversion works if the timing lines up.

- **Solids phase 2**: These works are not necessarily required until well after the MBR conversion is completed and there are limited drivers to package these with other works. These works could be packaged with the MBR conversion works if the timing lines up.

Disaggregated	Single package	Buildings, early works packaged, post-consent works packaged	Buildings, post-consent works packaged, other packages standalone	Buildings and MBR conversion packaged, other works standalone
Inlet works: New screening facility	Inlet works: New screening facility	Inlet works: New screening facility	Inlet works: New screening facility	Inlet works: New screening facility
New administration and education centre	New administration and education centre	New administration and education centre	New administration and education centre	New administration and education centre
New maintenance building	New maintenance building	New maintenance building	New maintenance building	New maintenance building
4th primary sedimentation tank	4th primary sedimentation tank	4th primary sedimentation tank	4th primary sedimentation tank	4th primary sedimentation tank
Solids: Digester replacement and sludge dewatering facility	Solids: Digester replacement and sludge dewatering facility	Solids: Digester replacement and sludge dewatering facility	Solids: Digester replacement and sludge dewatering facility	Solids: Digester replacement and sludge dewatering facility
New outfall	New outfall	New outfall	New outfall	New outfall
Conversion to MBR and addition of 6th reactor	Conversion to MBR and addition of 6th reactor	Conversion to MBR and addition of 6th reactor	Conversion to MBR and addition of 6th reactor	Conversion to MBR and addition of 6th reactor
Replacement of UV disinfection	Replacement of UV disinfection	Replacement of UV disinfection	Replacement of UV disinfection	Replacement of UV disinfection
Stormwater	Stormwater	Stormwater	Stormwater	Stormwater
Solids: Thermal hydrolysis and drying	Solids: Thermal hydrolysis and drying	Solids: Thermal hydrolysis and drying	Solids: Thermal hydrolysis and drying	Solids: Thermal hydrolysis and drying
× Higher transactional cost associated with many contracts × Less chance to establish a longer term collaborative working relationship between owner, designers and constructors	× Doesn't match staging well – later works would be procured well before design is completed (4th PST required prior to consenting and design of MBR transition) × Does not recognised the different skill sets required for process vs buildings vs outfall × Very high risk of individual portion delays and therefore cost is contractual obligations already set' ✓ Single package, single procurement process, contract and contractor to manage – potentially simpler	✓ Allows 4th PST and solids phase 1 to be completed early (in advance of process re-consenting) ✓ Separating out buildings allows for architectural design and for these packages to be progressed in advance of process re-consenting × Stormwater and solids phase 2 not required until later and may be better as separate contract × Does not recognise the different skill sets required for process vs outfall	✓ Allows 4th PST and buildings to be completed early and solids phase 1 to be completed early or deferred ✓ Provides for the different skill sets required for process vs buildings vs outfall ✓ Allows for the new outfall as standalone – less commercially focussed, greater mana whenua involvement × Stormwater and solids phase 2 not required until later and may be better as separate contract × More packages, multiple procurement processes and contracts to manage – potentially more complex	✓ Allows 4th PST and buildings to be completed early and solids phase 1 to be completed early or deferred ✓ Provides for the different skill sets required for process vs buildings vs outfall ✓ Allows for the new outfall as a standalone package – less commercially focussed contractor, more amenable to working with mana whenua ✓ Allows stormwater and solids phase 2 to be completed later as standalone packages ✓ More packages, multiple procurement processes and contracts to manage – potentially more complex

Figure 40: Pukete WWTP upgrade packaging options: white boxes represent standalone works, colours show grouping.

Contract model

Recommendations made by the Southern Metro DBC in relation to the Southern WWTP and Cambridge WWTP have been considered; however, the Pukete WWTP works present different challenges to these projects: notably completing an MBR upgrade within a brownfields site while continuing to operate the existing WWTP processes. In this instance, there is an existing operations team in place and therefore contract models that include operations are not considered practical.

Table 30: Consideration of contract models for Pukete WWTP upgrades

Contract model	Comment	Consider further
Construction only	• Lower tender costs than other options • Provides rigour of owner's engineer undertaking design work	Yes
D&B	• Well suited to simple, defined packages where design risk can be easily accepted by the private sector • Tends to be less efficient for works like WWTPs where design is a significant component of overall costs (in the order of 25% compared to 5% on a large civils job) • Some advantage in avoiding over-design (for example conservativeness in structural design of concrete tanks) • Market may not be willing to accept design risk for all packages – this project includes significant interface elements both with existing infrastructure and future stages • Can result in paying for design twice. A reasonable level of design is required prior to lodgement of a consent application, the consent could then be expected to take at least 12-24 months from lodgement to grant). There is an inherent inefficiency in contracting a designer to work through that process, then seek a D&B contract that could have a different designer.	Yes
Managing contractor	• Only applies to a disaggregated approach, which is not recommended (although the recommended option is formed of a number of packages) • Doesn't match staging well – later works would be procured well before design is completed (4th PST required prior to consenting and design of MBR transition) • Does not necessarily recognised the different skill sets required for process vs buildings vs outfall • Very high risk of individual portion delays and therefore cost if contractual obligations already set	No
Alliance	• Significant governance and management resourcing required • Unlikely to deliver additional cost or timing certainty • Market may not be willing to accept design risk – this project includes significant interface elements both with existing infrastructure and future stages	No
DBOM	• Incentivises whole of life approach by combining delivery with operations • Less appropriate for existing WWTP with existing operations and maintenance staff and procedures	No

DBFOM	• Incentivises whole of life approach by combining delivery with operations • Less appropriate for existing WWTP with existing operations and maintenance staff and procedures	No
Private provisions	• Less appropriate for existing WWTP with existing operations and maintenance staff and procedures	No

In relation to the recommended packages, the following recommendations are made:

- **Inlet works**: the design for these works is currently being progressed and it is expected that a Construction only contract model will be adopted.
- **New administration and maintenance buildings**: Buildings are commonly procured under Design & Build contracts where design risk is well understood and can be readily accepted by contractors. Either Design & Build or Construction only would be appropriate.
- **New outfall**: The new outfall is culturally significant and requires co-design (or significant engagement at a minimum) with mana whenua. Design and build contracts put a greater focus on commercials and reduces the ability to work collaboratively with mana whenua. For these reasons, a Construction only contract model is recommended.
- **MBR conversion and UV**: A major consideration here is that a reasonable level of design is required prior to lodgement of a consent application, the consent could then be expected to take at least 12-24 months from lodgement to grant (assuming public notification and hearings). There is an inherent inefficiency in contracting a designer to work through that process, then seeking a D&B contract that could have a different designer. Therefore, a Construction only contract model is recommended.
- **Other process packages (4th sedimentation tank, solids upgrades phase 1 and 2, stormwater):** The Pukete WWTP is a complex site and the design of the various process packages will require a good understanding of the site and its operations. There is a potential advantage to engaging a single design consultant for all major design packages, regardless of whether the same contractor is used. This suggest a traditional Construction only contract model would be more appropriate for construction packages. There is also an opportunity to identify a contractor partner through the early packages who could be engaged to continue with the subsequent packages.

Summary

Table 31 summarises the recommended packaging and contracting model for the Pukete WWTP upgrades.

Table 31: Pukete WWTP upgrade packaging and contracting recommendations

Size and complexity	The Pukete WWTP is large (starting flows of 47,000 m^3/day, growing to 74,000 m^3/day by 2061 with 2121 flows expected at 103,000 m^3/day) and the upgrades works are highly complex.
Integration risk	There are significant integration risks with existing WWTP processes, and the upgrade works will need to carefully staged and managed in co-ordination with on-going operations and maintenance.
Timing	There is time to plan and deliver the works in a staged manner. While some works can commence as soon as funding is available, the major upgrade works (ie MBR conversion) cannot commence until reconsenting of the discharge to the river is complete.
Packaging recommendation	The following packages are recommended: • Inlet works • New administration and maintenance buildings • 4th primary sedimentation tank

	• Solids phase 1 • New outfall • MBR conversion and UV • Stormwater • Solids phase 2 These packages have been developed based on expected timing; however, should timing align (for instance between the 4th primary sedimentation tank and Solids phase 1 package) and a contractor is available with skills and experience for both packages, aggregation of relevant packages could be considered. Similarly, there is an opportunity to identify a contractor partner through the early packages who could be engaged to continue with the subsequent packages.
Contracting recommendation	The Pukete WWTP is a complex site and the design of the various process packages will require a good understanding of the site and its operations. There is a potential advantage to engaging a single design consultant for all major design packages, regardless of whether the same contractor is used. This suggest a traditional Construction only contract model would be more appropriate for construction packages. There is also an opportunity to identify a contractor partner through the early packages who could be engaged to continue with the subsequent packages. A traditional “construction only” contract model is recommended for all packages except the new buildings where a Design and Built contract could be considered.

18.6 Conveyancing

Packaging

The preferred option includes several stages of conveyance works to align with growth. For the purpose of this commercial case, we are most interested in the first phase of conveyance works which include:

- New pump stations at Taupiri and Te Kowhai
- Upgraded pump stations at Ngaaruawaahia and Horotiu/Ports of Auckland (POAL)
- New rising mains:
  - Taupiri to Ngaaruawaahia
  - Ngaaruawaahia to Horotiu (twin main)
  - Te Kowhai to Horotiu
  - Horotiu to Pukete (twin main)
- New emergency storage at the Taupiri, Ngaaruawaahia, Te Kowhai, and Horotiu/POAL pump stations

The next major tranche of conveyance works is not required until around post-2041. The post-2041 packages are not considered here.

Four packaging options have been considered

- Fully disaggregated, each package progressed individually
- Split into new pump stations, upgraded pump stations, and pipes
- Split into pump stations and pipes
- A staged approach to reflect the option discussed in the **Economic Case** where Te Kowhai and Horotiu are diverted to Pukete early to remove some load from the Ngaaruawaahia WWTP.

Disaggregated	Pump stations and pipes	Pump stations and pipes	Staged (Te Kowhai & Horotiu early)
New pump station & emergency storage: Taupiri	New pump station & emergency storage: Taupiri	New pump station & emergency storage: Taupiri	New pump station & emergency storage: Taupiri
New pump station & emergency storage: Te Kowhai	New pump station & emergency storage: Te Kowhai	New pump station & emergency storage: Te Kowhai	New pump station & emergency storage: Te Kowhai
Upgraded pump station & emergency storage: Ngaaruawaahia	Upgraded pump station & emergency storage: Ngaaruawaahia	Upgraded pump station & emergency storage: Ngaaruawaahia	Upgraded pump station & emergency storage: Ngaaruawaahia
Upgraded pump station & emergency storage: Horotiu/POAL	Upgraded pump station & emergency storage: Horotiu/POAL	Upgraded pump station & emergency storage: Horotiu/POAL	Upgraded pump station & emergency storage: Horotiu/POAL
New rising main: Taupiri to Ngaaruawaahia	New rising main: Taupiri to Ngaaruawaahia	New rising main: Taupiri to Ngaaruawaahia	New rising main: Taupiri to Ngaaruawaahia
New rising main: Ngaaruawaahia to Horotiu	New rising main: Ngaaruawaahia to Horotiu	New rising main: Ngaaruawaahia to Horotiu	New rising main: Ngaaruawaahia to Horotiu
New rising main: Te Kowhai to Horotiu	New rising main: Te Kowhai to Horotiu	New rising main: Te Kowhai to Horotiu	New rising main: Te Kowhai to Horotiu
New rising main: Horotiu to Pukete	New rising main: Horotiu to Pukete	New rising main: Horotiu to Pukete	New rising main: Horotiu to Pukete

Figure 41: Conveyancing packaging options

This this stage, it is recommended to progress two packages: pump stations and pipes to reflect the difference skill sets required.

Contract model

The Southern Metro DBC concluded that only a Construction only contract model would be appropriate for conveyance packages. That conclusion has been adopted here except to note there is an opportunity for pump stations or pump station elements to be contracted under a D&B contact.

Table 32: Consideration of contract models for conveyance packages

Contract model	Comment	Consider further
Construction only	• Lower tender costs than other options	Yes

	• Provides rigour of owner's engineer undertaking design work	
D&B	• Transfer of design risk typically not appropriate for extensive buried infrastructure with a long design life • Appropriate for pump stations (where these can be packaged) or pump station elements (such as electrical) where design risk can be more appropriately transferred to the contractor	Potentially
Managing contractor	These options are unlikely to deliver any advantage for a project that has: • Limited design risk (reasonably straightforward design) • Low procurement complexity • No ongoing operation requirements	No
Alliance		No
DBOM		No
DBFOM		No
Private provisions		No

Summary

Table 33 summarises the recommended packaging and contracting model for the conveyance packages.

Table 33: Conveyance packaging and contracting recommendations

Integration risk	Much of the conveyance pipework can be completed offline with minimal integration risk. There will be some risk associated with upgrades to existing pump stations and around pipe tie-ins; however, this is not an unusual risk.
Timing	There is time to plan and deliver the works in a staged manner. While some works can commence as soon as funding is available, there would be a risk associated with constructing the major new works required to connect Ngaaruawaahia to Pukete WWTP in advance of approval of the discharge consent.
Packaging recommendation	Two packages: pump stations and pipes
Contracting recommendation	Traditional / construction only for pipes with an opportunity to further explore D&B for pump stations. An option here would be to engage two contractors in a "panel" arrangement and issue individual conveyance packages as design is completed.

18.7 Ngaaruawaahia WWTP decommissioning

Packaging

The decommissioning works are not expected to be technically complex but will require experience in remediation of contaminated soils. The decommissioning is not linked to any other project and there are no identified efficiencies in combining this project with the other projects.

Two packaging options have been considered:

- Decommissioning and redevelopment as separate packages
- Decommissioning and redevelopment as a single package

At this stage, limited consideration has been given to future use of the Ngaaruawaahia WWTP site post-decommissioning. Beyond the conveyance infrastructure that will remain on the site, the site redevelopment could range from returning to pasture, to indigenous terrestrial or wetland planting, or to something more complex.

The preferred packaging will depend on the complexity and timing of the redevelopment and should be confirmed during design development. If the site is going to be used only for pump station and emergency storage with straightforward planting-type remediate, then a single package would be appropriate; if the redevelopment is more complex or will occur later then two packages would be required.

Contract model

The decommissioning and remediation works are not expected to be technically complex nor give rise to any matters that would suggest use of a more complex contract model. A *design and construct* contract model would be appropriate for decommissioning (where there is limited design input) but would limit the ability of the Project Partners and mana whenua to influence design outcomes associated with the remediation.

If decommissioning and remediation are progressed as a single package, a traditional *construction only* contract model is recommended.

Table 34: Consideration of contract models for Ngaaruawaahia WWTP decommissioning

Contract model	Comment	Consider further
Construction only	• Straightforward procurement option, allows multiple stages to be tendered over time • Council has more control over design and greater ability to drive co-design with iwi • Appropriate for brownfields sites	Yes
D&B	• Decommissioning will have limited design and design risk likely to be well understood and able to be assumed by contractor • Less ability for Council to influence design and less scope for co-design therefore this approach may be less advantageous for remediation	Decommissioning only
Managing contractor	These options are unlikely to deliver any advantage for a small-scale project that has: • Limited design risk (reasonably straightforward design) • Low procurement complexity • No ongoing operation requirements	No
Alliance		No
DBOM		No
DBFOM		No
Private provisions		No

Summary

Table 35 summarises the recommended packaging and contracting model for the Ngaaruawaahia WWTP decommissioning.

Table 35: Ngaaruawaahia WWTP decommissioning packaging and contracting recommendations

Size and complexity	Small and limited complexity beyond management of contaminated soils.
Integration risk	Once wastewater is diverted to Pukete WWTP there is limited integration risk beyond working around any conveyance infrastructure that remains on the site.
Timing	Diversion of flows to the Pukete WWTP is expected 2031. Decommissioning should commence in coordination with diversion of flows and construction of any new conveyance infrastructure (pump station, emergency storage) that will remain on the site.
Packaging recommendation	Single package pending scope of site redevelopment.
Contracting recommendation	Traditional / construction only.

19 Risk sharing

Key risks are identified in the **Management Case**. Proposed sharing of risks between the public sector and potential suppliers is consistent with the Southern Metro DBC and outlined in Table 36.

Table 36: Risk allocation

Project/package	Risk category	Lead council	Supplier	Shared
Ngaaruawaahia WWTP interim works	Design	✓		
	Construction		✓	
	Interface & transition			✓
	Operation	✓		
	Technology & obsolescence	✓		
	Financing	✓		
	Legislation & regulation	✓		
Ngaaruawaahia WWTP decommissioning	Design	✓		✓ (D&B aspects)
	Construction		✓	
	Interface & transition			✓
	Operation	✓		
	Technology & obsolescence	✓		
	Financing	✓		
	Legislation & regulation	✓		
Pukete WWTP upgrades	Design	✓		✓ (D&B aspects)
	Construction		✓	
	Interface & transition			✓
	Operation	✓		
	Technology & obsolescence	✓		
	Financing	✓		
	Legislation & regulation	✓		
Conveyancing	Design	✓		✓ (D&B aspects)
	Construction		✓	
	Interface & transition			✓
	Operation	✓		
	Technology & obsolescence	✓		
	Financing	✓		
	Legislation & regulation	✓		

20 Contracting

20.1 Type of contract

Construction only contracts are proposed to be contracted using the New Zealand Standard form NZS 3910:2013.

Design and build contracts are proposed to be contracted using the New Zealand standard form NZS 3916:2013.

These are both widely understood by councils in New Zealand and are well proven for projects such as these. Given the nature of wastewater assets and the importance of process commissioning at completion, these standard form contracts often undergo revisions to allow for these specific requirements. Alternative international contracts (e.g., New Engineering Contracts (NEC) or International Federation of Consulting Engineers (FIDIC)) can sometimes be better placed for wastewater construction. However, these are less widely used and understood in New Zealand.

Specific contractual arrangements including remedies, intellectual property rights, dispute arrangements, and end of the contract options will be assessed by each lead council.

20.2 Payment mechanisms

Contracts are expected to use a milestone payment methodology where payments are made on successful completion of milestones specified in the contract.

Payment mechanisms will be confirmed in the procurement plan developed by each lead council.

20.3 Contract management

The responsibility for managing delivery under the contract as well as supplier relationship management will pass to the project manager at each Lead Council on the signing of the contract. If specified in the procurement plan, this person will develop a contract and relationship management plan in consultation with the successful supplier.

20.4 Accountancy treatment

The Lead Council will own the wastewater assets as an asset on their balance sheet.

New assets and corresponding financial liabilities will be recognised on the balance sheet when milestone payments (or other such payment mechanism as specified in the contract) are made and debt is drawn down to finance those payments. Off-balance sheet treatments are not typically required under construction only or D&B contracting structures.

As outlined in the **Financial Case** the Lead Council is expected to own and finance the delivery of the respective projects. The Lead Council will enter into a commercial agreement for servicing of cross-boundary communities. Service agreements between councils that commit to funding obligations over time are likely to be treated as financial liabilities.

21 Property plan

No permanent property requirements have been identified at this stage.

It is anticipated that temporary access arrangements and permanent easements may be required within road corridor for construction and operation of conveyancing (including new pump stations). Formal discussions should comment during pre-implementation when conveyancing design and construction requirements are better understood.

Management Case

22 Management case introduction

The management case sets out the programme and project governance and management arrangements, roles and responsibilities, and change, benefits, and risk management for the preferred option for the Northern Metro DBC.

The purpose of the management case is to demonstrate that the preferred option is achievable, detail the arrangement necessary to ensure successful delivery of the preferred option, and outline identified risks and management actions.

At the time of drafting this DBC, transition processes for the Government's Three Waters Reform Programme are underway with the Water Services Entities Bill having received its first reading and being referred to select committee. Many aspects of the future state under the proposed "Entity B" remain unknown, including those operational arrangements that influence this management case.

Some aspects of this DBC will commence prior to the proposed transition to Entity B in 2024.

The DBC has therefore been prepared based on current council arrangements while maintaining flexibility to transition to a new structure as required. The arrangements outlined in the DBC should be revisited if and when the transition is complete.

23 Project governance and management

This DBC is a collaboration between HCC, Waipā District Council, Waikato District Council, Waikato-Tainui, and hapuu representatives. The membership of the Governance and Control Groups provide for equal representation for local government and Iwi/Mana whenua.

23.1 Overarching Memorandum of Understanding

[To be updated pending status of the MOU]

The packages of work identified in this DBC will be undertaken at different times, in different council jurisdictions, and may be led by different parties. Strong collaboration between the respective councils, iwi and mana whenua will be key to successful delivery of the strategic outcomes.

A Memorandum of Understanding (MoU) has been drafted and [will be entered into shortly after the finalisation of the DBC] to capture these requirements.

The MoU outlines the parties' continued commitment to cooperation, collaboration and delivery of the strategic outcomes. It is expected that the proposed Entity B could become a party to the MOU in future.

The MOU is described in more detail in the Southern Metro DBC.

23.2 Programme and project management arrangements

The Programme Governance Structure will follow existing arrangements with representation from each of the Sub-Regional Partners (Waikato-Tainui, mana whenua, HCC, WDC and Waipā DC). The proposed governance structure is presented in Figure 42 and is consistent with that outlined in the Southern Metro DBC.

A Programme Partnership Group (PPG) [will be/has been] established. This senior level governance group between the Sub-Regional Partners provides direct oversight of the Programme to ensure the strategic objectives of the Southern and Northern Metro DBCs and MoU are being met and opportunities for collaboration and integration are identified.

An independent Programme Director will sit across the whole Programme and report to the PPG. The Programme Director is the key intermediary between the individual projects and the PPG.

The roles and responsibilities of the PPG and Programme Director are set out in the Southern Metro DBC.

At a project level, it is expected that each package of work will be delivered by a single council (Lead Council) on behalf of the Sub-Regional Partners. The councils have existing, well-defined governance and approvals structures and the Lead Council will use existing resources, policies, and procedures to deliver the packages. The Lead Council is responsible for core project delivery functions including design, consenting, procurement, construction management, and ongoing asset management and compliance.

The Lead Council for each Project is generally based on the territorial authority where most beneficiaries are located.

It is expected that the Ngaaruawaahia WWTP interim and decommissioning works and the conveyancing packages will be managed within existing council resource arrangements.

The Pukete WWTP upgrades themselves represent a significant long-term programme of works. HCC will establish a Project Implementation Plan including a project organisation and management structures to manage the delivery of this package. Where capacity or capability does not exist or is not available in-house, some roles (including specialist advisors) may be filled by external contractors.

Alternative project delivery structures (including joint procurement and a new entity) were considered in the Southern Metro DBC but ultimately discounted due to the anticipated cost, timeframes, and difficultly of transitioning to Entity B associated with these other structures.

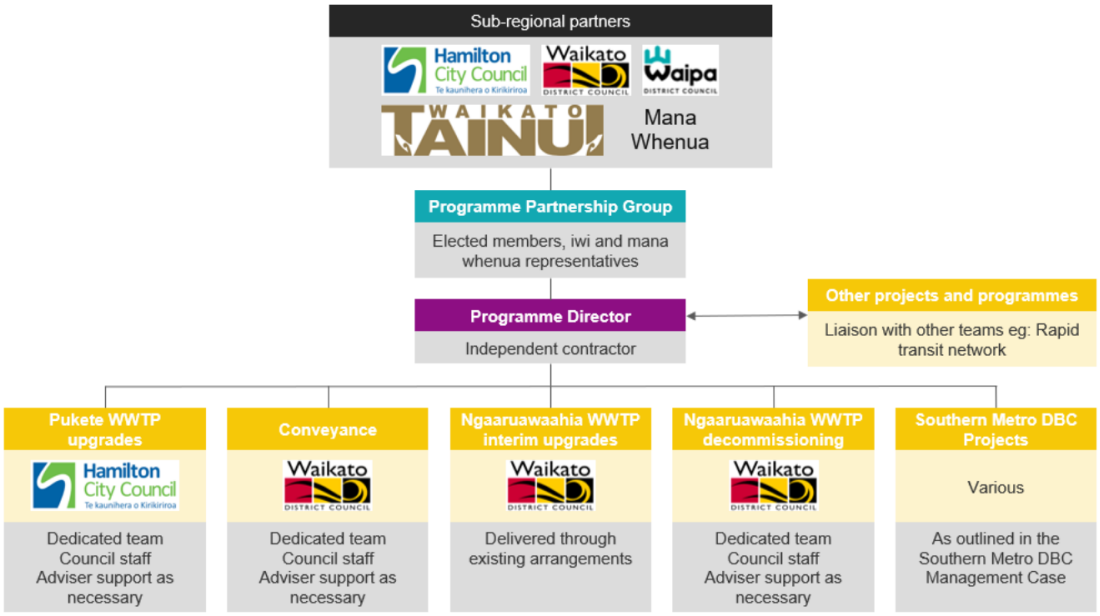


Figure 42: Governance structure

23.3 Co-management and co-design opportunities

Co-management extends beyond governance structures and project management. There are two significant co-design opportunities available in the preferred option programme of works:

- Pukete WWTP outfall design
- Ngaaruawaahia WWTP site redevelopment

It is expected that mana whenua will be involved in these projects.

Mana whenua involvement in design of the form and function of the Pukete WWTP outfall is considered a critical component of the consentability of the outfall. Direct discharge of treated wastewater to the Waikato River is inconsistent with mana whenua values and the preference is typically to include some form of land treatment such as wetlands. Design of the discharge point to the river will need to find a balance between avoiding piercing of the bed or banks (if possible) while achieving required mixing. The appropriate balance should be developed through engagement and co-design with mana whenua.

23.4 Personnel and resourcing

The Pukete WWTP upgrade programme will require dedicated resourcing of appropriate subject matter experts. This is expected to include council staff with expertise in consenting and planning, procurement, and construction management. Where backfill requirements exist, these will be managed in line with the relevant human resources policies at the Lead Council. The brownfield nature of the upgrades means sufficient expertise will be required to manage the interfaces with the existing operations.

It is expected that the Pukete WWTP will require at least three additional Full Time Equivalent (FTE) operations staff and additional maintenance resource following the MBR transition to reflect the higher operational and maintenance requirements of the MBR plant. This will be incorporated into operational budgets and plans.

Given their relatively small scale, the Ngaaruawaahia WWTP works and conveyancing packages are expected to be largely managed through existing Lead Council resources i.e. there will be no backfill requirements.

23.5 Reporting

The reporting should provide timely sharing of information and ensure risks are escalated as soon as they are identified. The objective of the monthly reporting is to make sure the Lead Council, Programme Director, and PPG have relevant, accurate and complete information to accurately fulfil governance obligations.

Governance reporting

High level reporting will be prepared for the quarterly PPG meetings. The reporting will be received from each of the lead councils for their projects and compiled by the Programme Director. The reporting will provide updates on:

- Key project updates
- Progress against schedule and budget
- Project integration
- Design/consent/construction progress monitoring
- Benefits management.

Construction monitoring

During construction, monthly cost and progress reporting will be prepared for each of the projects by the relevant Project Manager. The monthly reports will include:

- Progress against key milestones and any change to the project schedule
- Progress against budget
- Key risks and mitigations
- Utilisation of contingency
- Variation history.

Project closure and post implementation review

On completion, a project closure report will be prepared by the Project Manager. A post-implementation review will also be undertaken by the respective Lead Council to assess the success of the project, including the business case, planning and delivery phases. This will be undertaken within the first six months after asset acceptance to confirm the assets are operating as intended and delivering the services proposed in the DBC.

Operational reporting

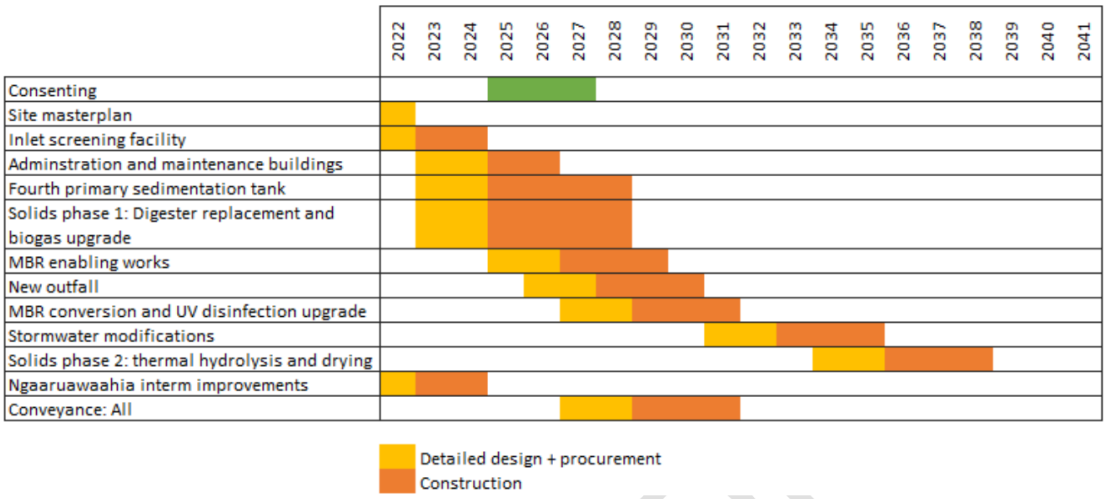
The Local Government Act 2002 requires that all councils provide annual reporting on the performance of their wastewater systems. The reporting covers key performance metrics including compliance with resource consents, number of wastewater overflows, and any public health incidents.

Resource consents also include monitoring and reporting requirements with reports to be provided to the Waikato Regional Council and, often, iwi.

This reporting will be provided by the Lead Council for each project.

24 Programme plan

[Insert staging diagram from preferred option/economic case]



25 Sensitivity testing

Sensitivity testing has been undertaken on the key assumptions underpinning the preferred option (including population growth). The sensitivity testing seeks to inform the following questions:

- Is there a significant tipping point for Pukete WWTP post-MBR conversion (ie what are the triggers for additional upgrades and expansion)?
- What happens if development occurs faster or in different locations to those assumed? Does this impact on proposed staging? This includes Southern Links and HT1 areas being developed earlier than anticipated and/or additional infill and intensification within existing suburbs and the CBD
- What is the impact of diverting the Hamilton south catchment to the new Southern WWTP and, conversely, is there a trigger where it would be more effective to divert flows to the Southern WWTP rather than undertake the next phase of upgrades at Pukete?

These are considered below.

Key triggers for future upgrades

Following the MBC conversion, the next major capacity-driven upgrades at Pukete WWTP are:

- Addition of a fifth and sixth primary sedimentation tank, currently programmed for the ten year period post-2031 and 2051 when ADF reaches approximately 59MLD and 78MLD respectively
- Addition of a seventh bioreactor, currently programmed for the period 2061 when ADF exceeds 78MLD[35]

Following initial conveyance upgrades, the next major capacity-driven conveyance works are:

- Taupiri to Ngaaruawaahia Stage 2: Programmed when flows reach 84 L/s (ie 2061 in the base case)[36]
- Ngaaruawaahia to Horotiu Stage 2: Programmed when flows reach 271 L/s (ie 2061 in the base case)
- Horotiu to Pukete Stage 2: Programmed when flows reach 271 L/s (ie 2061 in the base case)
- Additional emergency storage:
  - Taupiri pump station: additional 689m^3 programmed when flow reach 57 L/s (ie 2041 in the base case)
  - Ngaaruawaahia pump station: additional 543m^3 programmed when flow reach 209 L/s (ie 2041 in the base case)
  - Horotiu/POAL: additional 662m^3 programmed when flow reach 305 L/s (ie 2041 in the base case)

These are flows are the trigger points that should be considered during sensitivity testing.

What happens if growth assumptions are incorrect?

Table 37: Qualitative assessment of changes to base assumptions (all at 2061)

Factor	Base assumption	Test	Conveyance impact	Treatment impact
Wet industry growth in Horotiu & Te Rapa	Wet industry growth at Horotiu and Te Rapa North of approximately 3,800 PE	Growth double that anticipated (total 8,000 PE)	Capacity limit on pumped main to Pukete reached sooner requiring pump or pipe upgrade	Depends on composition but could be a positive impact by adding additional readily biodegradable carbon

[35] Based on assumptions from the Site Buildout Report and sssuming the broad make-up of wastewater remains consistent (ie relative load is the same)

[36] The "trigger" flows specified are those reached in the base case in 2041/2061 when additional works are programmed. The do not necessarily represent full capacity of the relevant system and should be used for comparative purposes only.

Factor	Base assumption	Test	Conveyance impact	Treatment impact
New north-east Hamilton suburb (eg Te Kowhai east)	Not specifically provided for	Additional 10,000 PE outside current MSP areas	Significant impact on Northern Interceptor	Small impact: additional growth represents <3% of total PE
HT1 occurs earlier	Assumed as post-2061	Additional 20,000 PE growth between 2040-2060	Significant impact on Northern Interceptor	Moderate impact: additional growth represents >5% of total PE
Hamilton infill	Infill consistent with MSP (16,000) by 2051	Double MSP by 2051 (additional 16,000 across CBD and Eastern & Western Interceptor catchments)	Significant impact on local conveyance network	Small impact: additional growth <5% of total PE
Southern Links occurs earlier	Not included (assumed to align with Southern WWTP)	XX PE (SL1) growth between 2030-2040 but assumed this displaces growth elsewhere	Additional demand on Western Interceptor (SL1) Southern WWTP conveyance required early for SL2	NA assumes no net change in PE
Taupiri industrial	Light industry only at 30PE/ha (4,500 PE total)	More intensive industry at 45PE/ha (additional 2,250 PE)	Small increase to average flows, similar peak flows so minimal impact	Very small impact: additional growth <1% of total PE
Ngaaruawaahia residential growth	Total population of 11,676	50% more residential growth (additional 3,210)	Small increase to average flows and peak flows so minimal impact	Very small impact: additional growth <1% of total PE
Water consumption	XXX	Decreases to 150l/p/d	Small decrease in average flows but limited impact on peak flows	While flow would decrease, load is likely to stay similar
Wastewater composition	Pukete actual data used	Higher BOD and TN	NA	Additional aeration/reactor volume required earlier
Southern WWTP early	Southern catchment of 60,000PE diverted in 2050-2060 period	Southern catchment of 60,000PE diverted in 2030-2040 or 2040-2050 period	NA	Notable reduction in Pukete WWTP flows

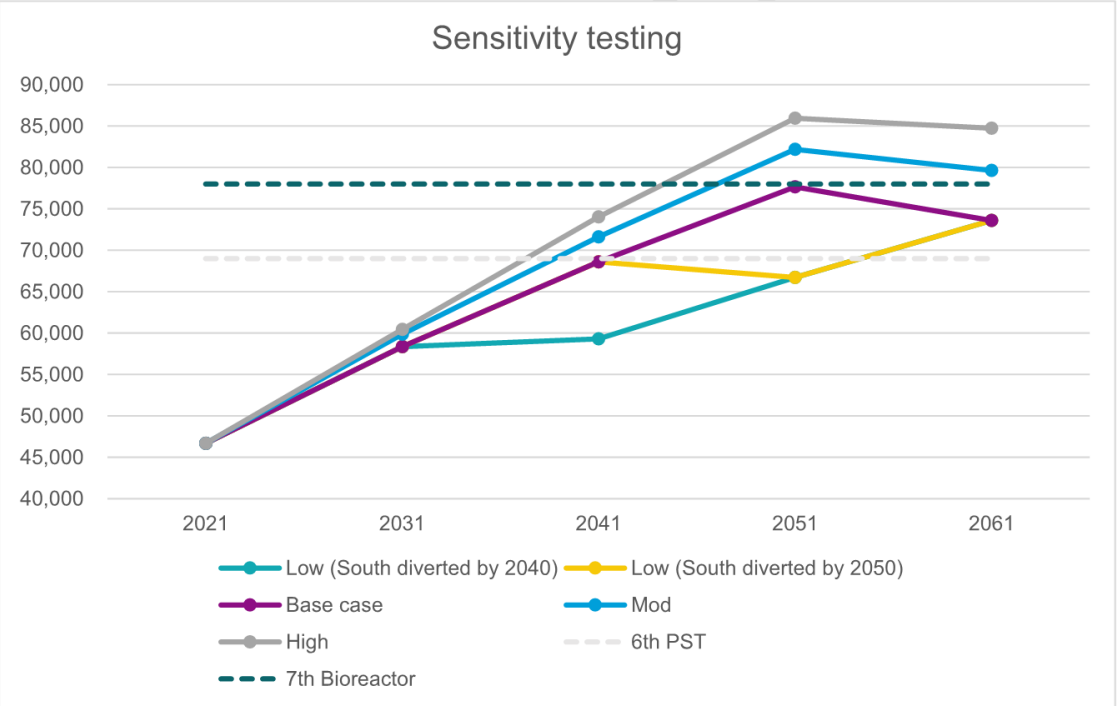
The individual factors have been combined into high, medium, and low scenarios.

Factor	High	Medium	Low
Wet industry growth in Horotiu & Te Rapa	X	X	
New northern Hamilton suburb	X	X	
HT1 occurs earlier	X		

Hamilton infill	X	X	
Southern Links occurs earlier			
Taupiri industrial	X		
Ngaaruawaahia residential growth	X		
Southern WWTP early (between 2030 and 2040 or 2040 and 2050)			X
PE change by 2061	+55,000	30,000	-60,000

These scenarios can be converted to average daily flows (in m^3/d) to see the change in when the triggers may be reached.

	2021 (Actuals)	2031	2041	2051	2061
Low (South diverted by 2040)	46,683	58,377	59,289	66,714	73,597
Low (South diverted by 2050)	46,683	58,377	68,591	66,714	73,597
Base case	46,683	58,377	68,591	77,659	73,597
Mod	46,683	59,887	71,611	82,189	79,637
High	46,683	60,433	74,037	85,948	84,729



Under a high-growth scenario, the 6th primary sedimentation tank could be required in the middle of the 2031-2041 period and the 7th bioreactor may be required early in the 2041-2051 period. Diverting flows to the Southern WWTP could delay the need for these works.

During preparation of the Site Masterplan, daily flow triggers should be set to trigger investigation and design of future works (including the 6th primary sedimentation tank and 7th bioreactor) well before the actual needed for these additional processes occurs to allow time for design and construction.

26 Change management

26.1 Organisational change

The preferred option is not expected to result in significant change to culture or systems of the councils. Programme and project delivery will utilise existing policies and procedures in place at each Lead Council.

26.2 Operational change

This DBC will result in two major operational changes:

- **Pukete WWTP**: The new MBR plant will be more demanding than the existing conventional plant from an operations and maintenance perspective. Operations will require at least three additional Full Time Equivalent employees and additional maintenance resource. Training of existing and new staff will be undertaken as part of project implementation to reflect changes to the treatment process and technology. The design team, contractor, and any process equipment suppliers are expected to be involved in this training.
- **Ngaaruawaahia WWTP**: Once decommissioned, operational staff will no longer be required at the Ngaaruawaahia WWTP. It is assumed they can be redeployed elsewhere within the Waikato DC wastewater service.

Existing asset management, risk management, and project delivery policies and procedures will be updated as required to reflect changes to the conveyance and treatment network. No material changes are anticipated.

27 Benefits management

This Benefits Management Plan has been prepared to outline the framework for delivery of benefits and ongoing assessment against the Project KPIs. These KPIs are largely the same as those included in the Southern Metro DBC and the monitoring and measurement should be done in an integrated process.

Benefits management will be led by the Lead Council at a project/work package level. The Lead Council will report to the Programme Director monthly.

The PPG will have oversight to ensure that the KPIs agreed as part of the DBCs are being met across the Programme. The PPG and Project Director can make recommendations to Lead Councils if opportunities are identified to enhance the delivery of strategic outcomes or raise objections if the strategic outcomes and 'Best for River' principles are not being met.

Any changes to the governance structure following completion of construction (for all works under the programme) must consider the appropriate body to oversee ongoing benefits management and reporting.

27.1 Project KPIs

KPIs are set out in the Strategic Case. The project KPIs were adapted from the Southern Metro DBC and are identified as the best measures to reflect the project objectives. These KPIs use the most up to date sources and real time data to ensure baselines and targets are accurate and quantifiable.

The Benefits Management Plan in Table 38 identifies baseline measures (collated using the most recent available data), sets timebound targets, identifies the action required to monitor progress against the KPI, and identifies the party responsible for undertaking the action.

Further work is required to develop a number of the baseline measures and targets (indicated by grey highlight). Future actions for the PPG to progress include:

- Setting of targets for algae biomass (KPI 2.1)
- Assessment of mahinga kai sites, terrestrial ecology, and riparian and wetland vegetaiton currently affected by wastewater treatment and conveyance processes and discharges and setting of targets for improvements (KPI 2.2, 2.3 and 2.4)
- Completion of a Maatauranga Maaori Cultural Health Index / Cultural impact assessment including baselining and setting of targets for improvements (KPI 3.1)
- Identifying a process for assessing physical and cultural connection to the river and ability to use land including baselining and setting of targets for improvements (KPI 3.2)
- Setting of targets for reuse of treated wastewater and other and putting in place processes to identify and support industries that could reuse treated wastewater (KPI 4.1)
- Setting of targets for carbon footprint and energy reductions at the Pukete WWTP and for the conveyance network (KPI 4.2)
- Setting of targets for beneficial reuse of resources and putting in place processes to identify and support industries that could support beneficial reuse (KPI 4.3)

Table 38: Baseline and target measures for KPIs

KPI	Baseline	Target			Action	Responsibility for the identified action
		Years 1-10[37]	Years 11-30	Years 30+		
KPI 1.1: Public health risks caused by the concentration of E.coli within the WWTP discharges	All WWTPs have UV disinfection, consent limits for E coli vary	Meet resource consent conditions (typically E. coli median < 126 cfu/100mL)	Meet adopted treated wastewater standard median <14 cfu/100ml	Meet adopted treated wastewater standard median <14 cfu/100ml	Monitor and report annual E.Coli discharge	WWTP operators
KPI 1.2 Total nitrogen load impacting the river and connected waterways from WWTPs	Median[38]: • Pukete: <450 kg/day (summer) • Ngaaruawaahia: 30 g/m^3 (non-compliant)	Meet current resource consent conditions: • Pukete: <450 kg/day (summer) • Ngaaruawaahia: <20 g/m^3 (summer)	Reduction from baseline and meet or exceed adopted treated wastewater standard	Reduction from baseline and meet or exceed adopted treated wastewater standard	Monitor and report total nitrogen load from WWTP discharge	WWTP operators
KPI 1.3: Total phosphorous load impacting the river and connected waterways from WWTPs	Median[39]: • Pukete: <95 kg/day (summer) • Ngaaruawaahia: <8 g/m^3 (summer)	Meet current resource consent conditions: • Pukete: <95 kg/day (summer) • Ngaaruawaahia: <8 g/m^3 (summer)	Reduction from baseline and meet or exceed adopted treated wastewater standard	Reduction from baseline and meet or exceed adopted treated wastewater standard	Monitor and report annual total phosphorus load from WWTP discharge	WWTP operators
KPI 1.4: Proportion of plants which are compliant against discharge quality consent conditions	Pukete: Fully compliant (2020/21) Ngaaruawaahia: Moderate non-compliance (2022/21)	Fully compliant	Fully compliant	Fully compliant	Monitor consent compliance (refer annual site audit reports)	WWTP operators and Waikato Regional Council
KPI 2.1: Amount of algal biomass in the Waikato River as measured by chlorophyll a concentration attributable to treated wastewater discharges	6.0 mg/m^3 [40]	Reduced from baseline	Reduced from baseline	Reduced from baseline	Set targets	Project manager
KPI 2.2: Health and abundance of mahinga kai species	Sites affected by current discharges to	Improvement over baseline	Improvement over baseline	Improvement over baseline	Complete baseline assessment –	Project manager

[37] This period is intended to reflect the period prior to completion of the Pukete WWTP conversion

[38] From 2020/21 Waikato Regional Council Site Compliance Report, REG602619 (19 October 2021) & REG603968 (18 January 2022).

[39] From 2020/21 Waikato Regional Council Site Compliance Report, REG602619 (19 October 2021) & REG603968 (18 January 2022).

[40] Baseline chlorophyll-a concentration at Huntly/Tainui Bridge WRC monitoring site (i.e. site downstream of entire Metro Area) as determined by current state assessment included within Plan Change 1 to the Waikato Regional Plan (Table 3.11.1c) – Chlorophyll, Total Nitrogen and Total Phosphorus Attribute States (Volume-2-Proposed-Waikato-Regional-Plan-Change-1-Decisions-version.pdf (waikatoregion.govt.nz)). This is the current state of the river water quality as a whole not solely attributable to treated wastewater discharges.

KPI	Baseline	Target			Action	Responsibility for the identified action
		Years 1-10[37]	Years 11-30	Years 30+		
	be identified and assessed as part of resource consent applications.				recommend this is progressed with urgency to align with go-fast programme	
KPI 2.3: Number and variety of terrestrial species at specific locations within the metro area	To be set by ecological investigations undertaken as part of resource consent applications	Improvement over baseline	Improvement over baseline	Improvement over baseline	Complete baseline assessment – recommend this is progressed with urgency to align with go-fast programme	Project manager
KPI 2.4: Area coverage of native riparian and wetland vegetation surrounding water bodies and within the catchment area	Current state assessment from GIS (GIS work to be commissioned)	Improvement over baseline	Improvement over baseline	Improvement over baseline	Complete baseline assessment – recommend this is progressed with urgency to align with go-fast programme	Project manager
KPI 3.1: Maatauranga Maaori Cultural Health Index / Cultural impact assessment	To be determined by mana whenua as part of resource consent process	Improvement over baseline	Improvement over baseline This could include management of mortuary waster	Improvement over baseline	Complete baseline assessment – recommend this is progressed with urgency to align with go-fast programme	Project manager
KPI 3.2: Ability to physically and culturally connect to the river including: number and quality of access points, quality of cultural and recreational access and opportunities, and ability to use land (including Maaori-owned land) for commercial and residential purposes	To be determined by mana whenua as part of resource consent process	Improvement over baseline	Improvement over baseline	Improvement over baseline	Complete baseline assessment – recommend this is progressed with urgency to align with go-fast programme	Project manager
KPI 4.1: Volume of wastewater reuse as a percentage of discharge volume	0% (no plants capable of water reuse)	0% (no plants capable of water reuse)	Increase in reuse of treated wastewater – target TBC	Further increase in reuse of treated wastewater – target TBC	Monitor and report annual total percentage of wastewater re-used	WWTP operators
					Identify potential industries that could support reuse of treated wastewater and work proactively to support reuse	Councils / PPG
KPI 4.2: Decreasing greenhouse gas footprint (capital and operational) / energy requirements of plant and plant systems (i.e., pumps) as a proportion of wastewater treated	Greenhouse gas accounting baselines of current plants to be established by councils as part of complying with climate change reporting legislation	Use of energy efficient equipment, controls and processes to existing and new WWTPs	Reduced operational carbon footprint per PE – target TBC Increased energy recovery – target TBC	Reduced operational carbon footprint per PE – target TBC Further increase energy recovery– target TBC	Calculate operational carbon footprint per PE annually/5 yearly Calculate total energy recovery annually	Asset management team (Pukete and conveyancing)

KPI	Baseline	Target			Action	Responsibility for the identified action
		Years 1-10[37]	Years 11-30	Years 30+		
	Limited Energy recovery at Pukete WWTP	Energy recovery improved at Pukete WWTP – target TBC				
KPI 4.3: Proportion of resources that are able to be recovered for beneficial reuse	Pukete WWTP biosolids go to worm composting	Pukete WWTP biosolids go to worm composting	Increase quantity of resource captured for beneficial reuse– target TBC	Further increase quantity of resource captured for beneficial reuse– target TBC	Monitor and report total quantify of resource captured for beneficial re-use per PE	WWTP operators
					Identify potential industries that could support beneficial reuse and work proactively to support reuse	Councils / PPG
KPI 5.1: Flexibility and adaptability of solution to be staged / developed over time to meet the needs of the community	Communities not currently serviced have no alternatives Limited capacity to accommodate future growth in serviced communities	All communities identified in DBC serviced (ie connect Te Kowhai)	Flexibility to continue progressive upgrades at Pukete WWTP OR divert Hamilton South catchment to Southern WWTP. HCC has flexibility to choose which parts of Hamilton South are diverted to Southern WWTP based on conveyance capacity and growth.	Both Pukete WWTP and Southern WWTP operational. HCC has flexibility to choose which parts of Hamilton South are diverted to Southern WWTP.	Monitor residential growth, land zoning, and new growth cells to allow early identification of potential changes to conveyance staging (including local networks) Progress Southern WWTP design, consenting, construction.	Councils / PPG
KPI 5.2: Proportion of Industrial areas which are serviced by municipal plants sustainably	<100%	100% industrial growth cells in Northern Metro Area serviced	100% industrial growth cells in Northern Metro Area serviced	100% industrial growth cells in Northern Metro Area serviced	Monitor industrial growth cells and land zoning to allow early identification of potential changes to treatment or conveyance staging (including local networks)	Councils / PPG
KPI: 5.3 Proportion of residents in the metro area serviced by municipal treatment plants sustainably	<100% (eg Te Kowahi)	100% residential growth in Northern Metro Area serviced	100% residential growth in Northern Metro Area serviced	100% residential growth in Northern Metro Area serviced	Monitor residential growth, land zoning, and new growth cells to allow early identification of potential changes to treatment or conveyance staging (including local networks)	Councils / PPG

28 Risk and opportunity management

Risk recording and reporting is an integral part of the Project governance framework. It will enhance the quality of the dialogue amongst stakeholders and support the Lead Council, the Programme Director and PPG in meeting their responsibilities.

Risk recording and reporting is an integral part of the Project governance framework. It will enhance the quality of the dialogue amongst stakeholders and support the Lead Council, the Programme Director and PPG in meeting their responsibilities.

The Project Manager for each project will be responsible for managing project risk and will maintain the project risk register. Project risks will be reported to the Programme Director monthly. The Programme Director will compile significant project risks and risks that are relevant to the wider programme.

HCC's risk management system has been used to capture risks identified during development of this DBC.

Risks will be allocated in accordance with the selected procurement model and will be transferred in accordance with relevant standard conditions of contract and the Lead Council's risk management policy after identifying the most appropriate person/entity to manage each risk.

Risks associated with Safety in Design will be developed using a formal process to inform design outcomes.

The Southern Metro DBC includes a number of over-arching risks that apply equally to this DBC. Those risks including funding, cost escalation, resource availability, governance arrangements, and changes to the legislative environment.

There are additional risks specific to the Northern Metro DBC:

- Breakdown of relationship with iwi partners impacting particularly on re-consenting of Pukete discharge, design and consenting of the new Pukete outfall, and decommissioning and remediation of the Ngaaruawaahia WWTP
- Population growth exceeds assumption requiring future Pukete upgrades earlier than anticipated (if Southern WWTP is not available or flows cannot be diverted) or, in the shorter term, wastewater flows to Ngaaruawaahia WWTP exceed treatment capacity prior to flows being diverted to Pukete WWTP
- Challenges associated maintaining compliant operation during the Pukete MBR conversion and other upgrade and renewals at the Pukete WWTP
- Conveyancing: Through both the maatauranga evaluation and the technical MCA process, a number of participants highlighted the conveyance risks associated with the longer conveyance required for the preferred option including:
  - Greater residence time resulting in a higher risk of septicity and odour
  - Greater impact in the event of equipment breakdown/malfunction or pipe failure (third party damage or earthquake events)

  There are mitigation activities that can be undertaken to reduce the conveyance risks:
  - Use of twin mains to reduce septicity risk and increase resilience
  - Provision of backup generators/pumps
  - Isolation valves
  - Calamity storage
  - Material selection

  These mitigations were factored into the short-listed options development and costings

The Southern Metro DBC and Northern Metro DBC Risk Registers are included as **Appendix G**.

28.1 Alignment with other projects and programmes

Some or all of the required conveyance network construction is likely to occur along the alignment of the [proposed rapid transit network]. There needs to be some effort put into aligning delivery of these projects (ie construct new wastewater mains when the rapid transit network is being constructed): both for cost effectiveness and to minimise disruption to local communities. Communities have historically been very vocal when they observe the same area of road or road verge being disturbed multiple times in a short time span for different projects.

28.2 Sustainability and carbon reduction

The *Preferred Option Technical Report* in **Appendix D** identifies options for reducing capital and operational carbon that should be considered during detailed design.

Table 39: Opportunities for carbon reduction

Conveyance	Pukete WWTP
• Design new pump stations to accommodate stage 2 upgrade and stage 2 pump fitout with minimal changes. Build larger wet well in stage 1[41] but operate using less of volume for efficiency to minimise future rework and construction effort. • Fewer concrete manholes – use GRP or remove need for manholes through design. GRP has less embodied carbon than reinforced concrete. • Undertaken a more detailed assessment of peak flows and impact of upstream pump stations to reduce storage requirements at pump stations • Optimise storage to reduce pipe sizes and pressure class (ie wall thickness).	• Reduce material use where possible (particularly concrete and steel reinforcement). Impact is largely associated with materials (as opposed to transport and construction activity) • Investigate feasibility of using lower carbon concrete (ie fly ash to replace cement or Golden Bay Cement instead of Holcim) • Reuse existing assets at Ngaaruawaahia WWTP and Pukete WWTP • Optimise energy recovery • Select energy efficient equipment (eg aeration) • Advanced process monitoring and control

Options to improve energy efficiency include:

- Specifying machinery with high electro-mechanical efficiency such as turbo blowers (Te Maunga WWTP)
- Specifying low power alternatives such as screw presses instead of centrifuges (New Plymouth and Te Maunga WWTPs)
- Using instrument driven, precise aeration control (Luggage Point – Brisbane)
- Design diffused rather than surface aeration (Pukete WWTP)
- Specifying high efficiency panel diffusers with efficiency c0.7%/m of bubble rise cf 0.5 – 0.6 for conventional or tube diffusers
- Importation of raw, high calorific value substrate to augment digester feed and biogas production. This is very common in British Columbia (e.g Anasis Is WWTP) and is being considered for several sites in NZ e.g Palmerston North
- Side stream 'shortcut' nitrogen removal processes on the digester returns stream, e.g. Anammox
- Membrane Aerated Bio-Reactor (MABR) could be considered in the first anoxic stages of the future 4 stage Bardenpho reactors

[41] As opposed to ultimately building two wet wells at a given pump station

29 Consent strategy

The Southern Metro DBC includes a detailed consent strategy identifying relevant planning legislation and regulation. The same requirements will apply to the projects under this DBC.

29.1 Consent requirements

The Ngaaruawaahia and Pukete WWTPs discharge consents expire in 2029 and 2027 respectively. Regardless of the staging of the preferred option, new consents are required. Consent applications must be lodged at least six months before expiry of the current consents to allow continued operation of the WWTPs while new consents are being sought.

For the purpose of this DBC, it is assumed that future discharges will be to the Waikato River. A high-level assessment of potential discharge options is provided in Section 4.6 of the *Short-list Technical Report* in **Appendix B** and includes discharge to water, discharge to land, and a variety of re-use options as described in Sections 7.2 and 7.3. These options should be revisited as part of a detailed assessment of alternative discharge methods during the consent development process.

The discharge to water consent for Pukete WWTP is the first to expire. A new consent application must be lodged prior to March 2027 to allow discharges to continue while the consent application is considered; however, it is recommended that an earlier date is targeted (eg early 2026) to reduce impact of unanticipated delays.

A holistic approach is recommended for the main Pukete WWTP reconsenting (where possible). This would see the majority of the existing Pukete WWTP consents for discharge to air, land, and water renewed as a single package with a single schedule of conditions.

It is recommended that the consents sought allow for continuation of the current discharge regime at the Pukete WWTP for a fixed period of time (5-10 years) to allow design, construction, and commissioning of the MBR conversion and new outfall before the new treatment standards apply. This is consistent with how the Waikato Regional Council has treated the recent Fonterra Hautapu discharge consents (existing treatment standards apply until a new WWTP is operational).

The Ngaaruawaahia WWTP discharge consent expires in 2029. However, because the interim operation of the Ngaaruawaahia WWTP will be intrinsically tied to upgrades at the Pukete WWTP, it is recommended that reconsenting of the Ngaaruawaahia WWTP discharge (for the interim period) is sought concurrently with the Pukete WWTP consents.

The existing Ngaaruawaahia WWTP discharge consent is linked to the Huntly WWTP discharge consent through common mass load conditions. Further consideration is required on the separation of these consents to allow the proposed consent strategy whereby Ngaaruawaahia would be linked to Pukete rather than Ngaaruawaahia. This could be facilitated through a shorter consent term (10 years) with conditions requiring that the wastewater is diverted to Pukete WWTP as soon as the required conveyance infrastructure is in place.

The current consent for the Te Kowhai WWTP expires in 2033). Based on the recommended staging, this wastewater would be diverted to Pukete WWTP prior to consent expiry an no reconsenting would be required.

29.2 Specific consents required

Pukete WWTP re-consenting

Based on current available information it is expected that consent requirements associated with the primary Pukete re-consenting package (including interim use of the Ngaaruawaahia WWTP) could include:

- **Discharge of treated wastewater** from Pukete WWTP (long-term) and Ngaaruawaahia WWTP (short-medium term (this is assumed as discharge to water but would equally apply for a full or partial discharge to land)
- **Discharges to air** associated with Pukete WWTP (long-term) and Ngaaruawaahia WWTP (short-medium term
- **Discharge of stormwater** from the Pukete WWTP to an unnamed tributary of the Waikato River (while the existing consent doesn't expire until 2039, it is recommended that this is incorporated into the main package). If realignment of the tributary is needed, additional consent may be required for diversion of surface water.
- **Structure(s) in/on/over the riverbed** for use and maintenance of the Pukete WWTP diffuser (long-term) and Ngaaruawaahia WWTP diffuser (short-medium term) as well as the new Pukete outfall depending in the form (along with associated construction consents that could include earthworks and vegetation clearance with a high-risk erosion area and damming/diversion of surface water)
- **Outline plan** for works to be constructed within the Pukete WWTP designation (including the height, shape, and bulk of new structures and buildings)
- **Land use consent under the NES for contaminated land** for earthworks within the Pukete WWTP site (which is classified as a HAIL site)
- **Land use consent and/or designation for discharge to land** if a discharge to land option is progressed

The Pukete WWTP also holds a resource consent for retaining **biosolids** on land at the WWTP site. This consent expired in 2039. If changes to biosolids handling are required as part of the MBR transition, replacement of this consent should be included in the main package outlined above. Alternatively, renewal of this consent could be delayed until the solids phase 2 work package when future biosolids processes are better understood.

Ngaaruawaahia decommissioning and remediation

Decommissioning of the Ngaaruawaahia WWTP is unlikely to give rise to any notable consent requirements beyond:

- **Outline plan** for works within the Ngaaruawaahia WWTP designation (where these are within the scope of the designation)
- **Land use consent under the NES for contaminated land** for earthworks within the Ngaaruawaahia WWTP site (which is classified as a HAIL site) for instance to remediate the oxidation pond

The Ngaaruawaahia WWTP site is expected to be retained at least in part for wastewater infrastructure (including a pump station and emergency storage); however, the full footprint of the designation may no longer be necessary. In that event, a **partial uplift of the Ngaaruawaahia WWTP designation** would reduce the footprint to the area required for on-going operations.

At this stage, limited consideration has been given to future use of the Ngaaruawaahia WWTP site post-decommissioning. Beyond the conveyance infrastructure that will remain on the site, the site redevelopment could range from returning to pasture, to indigenous terrestrial or wetland planting, or to something more complex.

Conveyancing

Wastewater conveyance infrastructure is typically permitted by district plans where it is constructed within road corridor. Once conveyance routes and pump station locations are confirmed, a consent strategy should be prepared to identify any consent requirements.

29.3 Specific legislative considerations

The legislative and regulatory documents that require consideration as part of any new consent application is constantly changing but at the time this DBC was prepared include:

- **Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010** and **Te Ture Whaimana o Te Awa o Waikato:** As recognised throughout this DBC, Te Ture Whaimana is the primary direction setting document for activities occurring within the Waikato River catchment and was given significant weighting during options development and selection of the preferred option. In a consenting framework, when seeking to reconsent an existing point source discharge, the applicant must demonstrate either a reduction in discharge load (proportionate with the size of the discharge) or provide for betterment through offsetting.
  The Waikato River Authority has recently announced a review of Te Ture Whaimana, expected to be complete in 2025. This review is likely to coincide with the consenting required to implement the preferred option.
- **Other settlement legislation and joint management agreements (JMAs)**: Consideration must also be given to legislation and JMAs when undertaking activities such as those relating to discharges to the Waikato River. These will require further consideration during the consenting process in particular with regard to consultation and engagement as part of the resource consent applications.
- **Resource Management Act 1991:** The RMA sets out consenting processes and the matters that must be considered by a consenting authority. These include preservation of the natural character of rivers and their margins, protection of significant indigenous vegetation and habitats, relationship of Maaori and their culture and traditions with their ancestral lands and water, and the effects of climate change (including effects of discharge into air of greenhouse gases on climate change).
  The Government is progressing a replacement to the RMA with the new Natural and Built Environments (NBA) Bill and the Spatial Planning Bill to be introduced to Parliament in late 2022 and the Climate Adaptation Bill expected to be introduced in 2023. Enactment of this new legislation is expected coincide with consenting of the WWTP discharges.
- **National direction under the RMA**: National direction under the RMA includes National Policy Statements (NPS) and National Environmental Standards (NES). At this stage it is understood that all existing national direction will be adopted under the new NBA. Those of particular relevance include:
  - *National Policy Statement for Freshwater Management (2020):* Sets out objectives and policies to protect and restore freshwater bodies and give effect to the fundamental concept of Te Mana o te Wai. Discussions with mana whenua during preparation of this DBC confirm that providing for Te Mana o te Wai is a lower standard than giving effect to Te Ture Whaimana.
  - *National Policy Statement on Urban Development (2020):* While this NPS does not directly impact consenting of discharges, it imposes requirements on the councils in the Metro Spatial Area to provide adequate infrastructure to support development, which is one of the drivers for this DBC.
  - *National Environmental Standards for Freshwater (2020)*
  - *National Environmental Standard for Sources of Drinking Water 2007*
  - *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011*
  - *National Environmental Standards for Air Quality 2004*
  - *Proposed National Policy Statement for Highly Productive Land:* This proposed National Policy Statement seeks to maintain the availability of productive land for primary production which could affect the viability of wastewater discharges to land.
  - *Proposed National Policy Statement for Indigenous Biodiversity:* This proposed National Policy Statement would sets out objectives and policies to identify, protect, manage and restore indigenous biodiversity under the RMA.

- **Waikato Regional Policy Statement, Waikato Regional Plan, and Proposed Waikato Regional Plan Change 1**: The documents set the specific objective, policies, methods, and rules for activities being undertaken in the Waikato Region. Te Tire Whaimana is included within the Regional Policy Statement and the Waikato Regional Plan cannot be inconsistent with Te Ture Whaimana. Plan Change 1 seeks to give partial effect to the National Policy Statement for Freshwater Management and Te Ture Whaimana.
- **Tai Timu Tai Pari Taiao (Waikato-Tainui Environmental Plan) and other Iwi Management Plans**: Iwi management plans are an “other matter” that must be considered under RMA s104

30 Next steps

The immediate next steps are

- Progress with the proposed project plans. The initial activities are outlined below:
  - Pukete WWTP:
    - Continue existing programme of works (including inlet screen replacement)
    - Complete Site Masterplan
    - Progress pre-MBR transition works (ie those works not impact by the discharge consent renewal including the fourth primary sedimentation tank and new buildings)
    - Complete consent applications
  - Ngaaruawaahia WWTP:
    - Progress works to bring WWTP back into compliance with current resource consent
    - Commence discussions regarding future use of site
    - Conveyancing
    - Complete design and consenting
- Continue to develop Risk Register including responsibilities and management plans for high risk items
- Develop a Waikato Metro Wastewater Benefits Management Plan combining both Southern and Northern Metro DBC requirements.

Appendix A – Northern Metro DBC Investment Logic Map

Appendix B – Short-list Options Assessment

Appendix C - Multi-Criteria Assessment Workshop Record

Appendix D - Preferred Option Technical Report

Appendix E – Full Financial Case – PriceWaterhouseCoopers

Appendix F - Contracting options

Appendix G – Project Risk Registers

Appendix H – Chief Executive Officer Letters

Item 8

Council Report

Committee: Strategic Growth Committee **Date:** 07 September 2022

Author: Karen Saunders **Authoriser:** Blair Bowcott

Position: Growth Programmes Manager **Position:** General Manager Growth

Report Name: Memoranda of Understanding in relation to WA, R2 and SL1

Report Status	*Open*

Purpose - *Take*

1. To seek approval from the Strategic Growth Committee for the Chief Executive and General Manager Growth authority to finalise and sign the Memorandum of Understanding (MOU) with relevant landowners in relation to the process for investigating bringing the Wallace Road (WA) growth area into the Hamilton City Council boundaries.

2. To seek approval from the Strategic Growth Committee for the Chief Executive and General Manager Growth authority to draft and enter into an MOU, which reflects the same principles set out in the WA MOU, with landowners in relation to the process for investigating bringing the Ruakura 2 (R2) and Southern Links 1 (SL1) growth areas into the Hamilton City Council boundaries.

Staff Recommendation - *Tuutohu-aa-kaimahi*

3. That the Strategic Growth Committee:

   a) receives the report;

   b) delegates authority for the Chief Executive and General Manager Growth after discussion with the Chair and Deputy Chair to finalise and sign the Memorandum of Understanding (**Attachment 4** of the staff report) in relation to the process for investigating bringing the WA area into the Hamilton City Council boundaries from Waikato District Council;

   c) delegates authority for the Chief Executive and General Manager Growth to draft and sign Memorandum of Understanding agreements, which reflect the same principles set out in the WA Memorandum of Understanding, in relation to the process for investigating bringing the R2 and SL1 growth areas into the Hamilton City Council Boundaries from Waikato District Council and Waipa District Council;

   d) notes that the Memorandum of Understanding in relation to WA (and for R2 and SL1) is high level and that a more detailed and binding development agreement will need to be entered into following completion of the scoping studies for the areas;

   e) notes that the Memorandum of Understanding in relation to WA (and for R2 and SL1) is aligned with the 'Emerging Strategic Areas Process', which seeks to ensure that new growth areas meet the HUGS out-of-boundary principles, deliver quality communities and limit the financial burden on future ratepayers and Council; and

   f) notes that the findings of the scoping studies for WA, R2 and SL1 will be reported back to Council by May 2023.

Executive Summary - *Whakaraapopototanga matua*

4. In response to the resolution of the 26 July 2022 Strategic Growth Committee a MOU in relation to WA has been drafted (**Attachment 4**).

5. The purpose of the MOU is to agree how Council and the relevant land owners will work together and what steps are required to investigate and progress bringing the area inside the city boundaries and to enable the area for housing. The MOU clearly sets out the principles and expectations, so all parties understand what is ahead in the process.

6. The steps outlined in the MOU are aligned with the 'Emerging Strategic Areas Process' (**Attachment 3**) and seeks to ensure that any new developments meet the HUGS out-of-boundary principles, are aligned with Future Proof Principles and limit the financial impact on Council and the community of bringing a new area into the city boundaries.

7. Scoping studies are currently being undertaken for WA, R2 and SL1. They will inform the Future Development Strategy and provide further information about the areas, which will help inform decisions in relation to progressing to the next steps for each of these areas. The studies are due for completion in early 2023.

8. Costs to complete three MOUs are detailed in the financial section and can be covered within the existing Growth 2022/23 operational budget and with existing resources.

9. As requested by the Strategic Growth Committee meeting on 26 July 2022, costs to undertake the scoping studies for these out-of-boundary areas have been provided and are set out in the financial section of this report. The costs can be covered within the existing Growth 2022/23 operational budget and with existing resources.

10. Staff will report back to Elected Members by May 2023 with the outcomes of the scoping studies, which will identify potential resourcing or funding requirements and next steps (this timing is to enable any identified budgetary needs to be incorporated into the 2023/24 Annual Plan). It should be noted that there is no funding in the 2021-31 Long Term Plan to undertake more detailed assessments, commercial negotiations, boundary changes or to fund any advancement of these areas. It is anticipated that developers will fund technical studies required to support the progression of development of their land. It must be emphasised that these areas are unrecognised within Council's LTP budgets. They are unfunded.

11. Risks are outlined in the risk section below. Elected Members should be aware of financial implications and environmental limits, such as water allocation, associated with zoning land for development. The process outlined in the MOU for WA (**Attachment 4**) seeks to ensure that the right steps and investigations are undertaken to support long-term decision making, to ensure quality community outcomes and limit the financial burden on future ratepayers and Council.

12. Staff recommend that the Strategic Growth Committee delegates authority to the Chief Executive and General Manager Growth after discussion with the Chair and Deputy Chair, to finalise and sign the MOU in relation to WA as set out at **Attachment 4**. It should be noted that the draft MOU set out at **Attachment 4** represents staff's recommended drafting. The land owners within WA who are the intended signatories of the MOU do not agree with all of the drafting, and an explanation of the differences is set out at below. Staff will continue discussions with the landowners on the draft MOU and if there are any updates these will be circulated prior to the Committee meeting.

13. In addition to the draft WA MOU, staff have also considered entering into MOUs with the landowners of R2 and SL1 as Strategic Land Agreements for these areas already are in place or in progress.

14. Staff recommend that the Strategic Growth Committee delegates authority to the Chief Executive and General Manager Growth to enter into similar MOU agreements with the landowners of R2 and SL1 which reflect the same principles set out in the WA MOU (refer map in **Attachment 1**).

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

Background - *Koorero whaimaarama*

16. At the Strategic Growth Committee meeting on 26 July 2022, the committee resolved for staff to:

> *'report to the 7 September 2022 meeting of the Strategic Growth Committee with an MoU with the relevant developers on the pathway forward, including the workplan and milestones, for incorporating growth area WA into the City, and enabling housing development to commence'*.

17. WA is an area of 28ha located on the western side of the city, adjacent to the Hamilton City boundaries and currently within the Waikato District Council territorial authority. It is adjacent to Templeview and the SL1 area (refer to the map in **Attachment 1**).

18. The area has been identified as a future part of Hamilton City since the Strategic Land Agreement (SLA) between Waikato District Council and Hamilton City Council in relation to R2, WA and HT1 was established in 2005. The 2005 SLA was amended in 2020. The agreement allows Chief Executives to agree when to commence the boundary change process.

19. A Strategic Land Agreement between Waipa District Council and Hamilton City Council in relation to the SL1 and SL2 growth areas has been negotiated and is seeking approval in a separate report to this Committee meeting.

20. There are currently 10 landowners in the WA area. Two of the landowners, via their representatives, have signalled their intentions to Council to urbanise their land holdings (which, when combined, is 41% of the total WA area). The position of the majority of other landowners is unknown but to date they have shown no active interest in pursuing the proposed transfer of the WA area. Refer to the landowner map in **Attachment 2.**

21. The landowners' planning representative submitted on the draft Future Proof Strategy in November 2021 on behalf of the two landowners requesting for the area to be an 'Urban Enablement Area'. Prior to that and in preparation for their Future Proof Submission, the landowners representative presented a proposal to Elected Members on 19 October 2021. No decision was made by Elected Members at that meeting.

22. The Future Proof Strategy was adopted in June 2022 by the Future Proof Implementation Committee (FPIC) and recognises WA (and R2, HT1 and Ruakura East) as an 'Urban Enablement Area (subject to strategic land agreement 2020)'. The Future Proof Strategy does not recognise other areas. However, as a requirement to prepare the Future Development Strategy, FPIC has resolved to specifically investigate the SL1 area and other areas around the periphery of Hamilton, as agreed by parties.

23. At the Strategic Growth Committee meeting on 26 July 2022, Elected Members resolved to adopt the outcomes for the Hamilton Urban Growth Strategy (HUGS). The draft Strategy outlines that any out-of-boundary areas, such as WA, must meet the out-of-boundary principles in order to be progressed for urbanisation. At a subsequent HUGS Reference Group meeting, some further amendments were made to the HUGS out-of-boundary principles, which will be finalised as part of the HUGS adoption process, and are included below (points iii and points ix).

24. The development of principles to guide decision-making on out-of-sequence and out-of-boundary growth was identified as an early deliverable of the HUGS due to increasing interest

from landowners around the city boundaries. The out-of-boundary developers and landowners will need to demonstrate how they intend to meet the principles, which are:

Any out-of-boundary development must enhance the overall wellbeing of Hamiltonians and create quality communities by:

Delivering:

i. Neighbourhoods where key services are close by and easily accessible

ii. compact and accessible developments

iii. alignment with key public transport corridors providing good access to the central city

iv. affordable housing choices

v. sustainable and integrated infrastructure solutions

vi. a significant portion of land value uplift for the benefit of the wider community

vii. places to work, or quality connections to places of work

viii. places for recreation

ix. best practice urban design

Enhancing Hamilton's economy

Protecting and recognising cultural heritage

Responding to climate change

Growing green areas and biodiversity

Meeting the costs of all infrastructure

Not compromising planned investment.

25. Ensuring these HUGS out-of-boundary principles are adhered to is critical to protecting the interests of the City. With significant level of interest in development opportunities in areas surrounding the current City boundary it is important for Council to have these principles in place to provide a consistent basis for engagement with developers and landowners.

26. It must also be stressed that while these areas represent development opportunities, they come with very substantial costs. Council currently has no funding allocated to the development of these areas. They represent 'out of sequence' development. As such, Council's approach is to enable the out of sequence developments to be progressed, provided its progression and ultimate urbanisation is 'cost neutral' to the City and its ratepayers. This requirement is reflected in the principle that developers 'meet the costs of all infrastructure'.

27. To ensure Council is consistent in its approach, an 'Emerging Strategic Areas Process' is now in place (**Attachment 3**)**.** The process outlines the steps required to bring new areas of land into the Hamilton City Council boundaries. This process was presented to Elected Members at an information session on 28 June 2022 and was presented to the Strategic Growth Committee on 26 July 2022.

28. As outlined in the 'Next Steps Report for WA, R2 and SL1' report to the 26 July 2022 Strategic Growth Committee, staff are undertaking scoping studies for R2, WA and SL1 to contribute to the Future Proof Future Development Strategy. The studies will help Council understand constraints and opportunities, identify areas for further investigation and will help Council understand what work and resources are required. The studies will also help inform Council decision-making regarding when and in which priority these areas might be brought into the city based on the HUGS out-of-boundary principles.

29. The scoping studies will also look at the broader, surrounding areas to ensure quality connections and integration. For example, looking at the connection between WA-Templeview-SL1/SL2 as highlighted in **Attachment 1**.

30. The scoping studies are expected to be completed by May 2023 (this timing is to enable any identified budgetary needs to be incorporated into the 2023/24 Annual Plan).

Discussion - *Matapaki*

WA MOU

31. The draft MOU in relation to WA is in **Attachment 4**. It reflects the HUGS out of boundary principles referred to above, and the 'Emerging Strategic Areas Process'.

32. The purpose of the MOU is to agree how the parties will work together and what steps are required to investigate and progress bringing the area inside the city boundaries and to enable the area for housing.

33. The MOU is between Council and the owners of the properties at 461 Whatawhata Road and 27 Wallace Road (refer **Attachment 2**). The MOU relates to the entire WA area, and therefore affects all other landowners within the area should they wish to actively participate in the transfer and development of the WA area. Those other landowners may also enter into a similar MOU with Hamilton City Council if they wish to become actively involved. If the transfer proceeds, all landowners, regardless of whether they signed up to an MOU, would be entitled to participate and have their say on whether the transfer should occur.

34. Other parties of interest include iwi, Waka Kotahi NZTA and Waikato District Council.

35. The MOU is intended to be high level with a more detailed and binding development agreement to be entered into following completion of the scoping study for the area.

36. It should be noted that the drafting of the MOU as set out at **Attachment 4** is not yet agreed by the landowners. They have rejected some of the drafting, which is summarized as follows:

    i. **Background paragraph D:** they do not acknowledge the infrastructure constraints as 'known' when in fact they are known to HCC. They do not accept that these constraints need to be addressed to support the transfer.

    ii. **Paragraph 4:** they want to limit resource allocation assessments and infrastructure capacity and network assessments to three waters only, avoiding transport. They also want to strike out the requirements for the assessments to align with Council's three waters and transport master plans and strike out Council's requirement for sustainable long term infrastructure solutions instead of interim solutions.

    iii. **Paragraph 6:** they want to strike out Council's cost recovery requirements which ensure the transfer does not place additional costs on existing ratepayers for the urbanisation processes, plan changes, resource consenting etc. They also want to strike out the requirement for the developer to pay for the financial benefits of being able to connect to Councils existing infrastructure.

    iv. **Paragraph 9:** they want to strike out Councils requirement to work openly with other land owners, and agencies such as Waka Kotahi and Waikato District Council.

37. Staff and Council's external lawyer have reviewed the changes sought by the landowners to the MOU and do not support them. The recommended MOU set out at **Attachment 4** reflects the Council approach to out of sequence development and the principle of protecting the ratepayer from the unbudgeted and unanticipated costs of developing land not currently within the City boundary. The edits requested by the land owners seek to avoid those costs and pass them back to the ratepayer.

38. The resolution sought in relation to the WA MOU is for the Chief Executive and General Manager Growth to reject the edits sought by the landowners and finalise and enter into the MOU on the terms set out at **Attachment 4.**

39. Staff will continue discussions with the landowners on the draft MOU and if there are any updates these will be circulated prior to the Committee meeting.

MOU for R2 and SL1

40. As staff are undertaking scoping studies for R2 and SL1, and given that strategic land agreements are in place (or in progress) for these areas, staff recommend that the Committee delegates authority to the Chief Executive and General Manager Growth to enter into MOU agreements with the landowners of R2 and SL1 (refer map in **Attachment 1**), subject to them being consistent with Council's previously adopted positions on these areas.

41. The MOU agreements will reflect the same purpose and principles set out in the WA MOU which includes the high-level milestones for investigating bringing the land into the Hamilton City Council boundaries, in accordance with the 'Emerging Strategic Areas process' (**Attachment 3**).

42. The scoping studies will identify a range of matters. Given the sizes and location of R2 and SL1, the scoping studies will look at the broader relationship of the two areas with neighbouring areas. For example, SL1-SL2-Templeview and WA and R2-R1/Tramway Block areas and surrounds.

43. As a result of the scoping studies, if Elected Members approve and resource the land use and infrastructure investigations to progress, then further details such as high-level structure plans and initial potential staging (similar to Peacocke Stage 1) can be identified.

Next Steps

44. The next steps are to:

    i. Agree and sign the MOU's for WA, R2 and SL1

    ii. Complete the scoping studies

    iii. Report the findings of the scoping studies back to Council by May 2023 (this timing is to enable any identified budgetary needs to be incorporated into the 2023/24 Annual Plan)

45. The steps relating to the scoping studies are in accordance with the resolutions (c) and (d) of the 26 July 2022 Strategic Growth Committee 'Next Steps for WA, R2 and SL1' report which were:

    c) 'notes that staff will commence scoping studies for R2, WA and SL1 and that this work will be carried out with existing resources and budgets and completed in early 2023; and

    d) notes that the outcomes of the scoping studies will be reported to the 2022-25 Council along with any next steps and associated resourcing and funding requirements, in accordance with the Emerging Strategic Areas Process;'

Financial considerations – *Whaiwhakaaro Puutea*

Costs for MOU

46. In addition to external legal costs, the total internal costs for staff time for all three MOUs is approximately $45,000 (approximately 180 hours across several senior staff members). This work can be covered by existing resources however it is new work that is diverting staff from existing work programmes.

47. These costs are in addition to the costs required to undertake the scoping studies for these areas, which are detailed below.

Costs for Scoping Studies

48. At the Strategic Growth Committee meeting on 26 July 2022, the Committee requested that staff report back with detail on costings for the scoping studies in relation to R2, WA and SL1.

49. The costs to undertake the three scoping studies will be funded from existing operational Growth budgets from the 2022/23 financial year using existing resources and are outlined in the following table:

Type	Details	Estimated Cost (total for all three areas)
Staff Time (internal costs)	Approx. 13 weeks of internal staff time per scoping study mostly from City Planning with input from City Development, GIS, Analytics and Comms	$315,000
Legal Review (external cost)	Legal advice, if required	$3,000
Comms and Engagement (external cost)	Design of final scoping studies	$3,000
Total		**$321,000**

Future Costs beyond scoping study

50. It should be noted that there is no funding in the 2021-31 Long Term Plan to undertake more detailed assessments, commercial negotiations, boundary changes or to fund any advancement of these areas. It is anticipated that developers will fund technical studies required to support the progression of development of their land. This is outlined in the MOU (**Attachment 4**).

51. Any advancement of new areas of land, particularly zoning, can result in significant long-term financial commitments for future councils. Therefore, it is important that infrastructure funding and financing, and commercial negotiations for value capture are considered early in the process for transferring land into the city. This is also outlined in the MOU (**Attachment 4**).

52. In addition to financial commitments for future councils, any advancement of new areas of land, particularly zoning, can result in pressure on the availability of resources such as water. The MOU seeks to ensure that water allocation and environmental resource matters are considered and investigated as part of key decisions and in line with the out-of-boundary principles.

53. Staff will report back to the new 2022-25 Council with the progress of both the MOU agreements and outcomes of the scoping studies and any associated funding and resourcing requirements for the next steps.

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

54. Staff confirm that the staff recommendation complies with the Council's legal and policy requirements.

55. Staff have considered the key considerations under the Climate Change Policy and have determined that an adaptation assessment and emissions assessment is not required for the matter(s) in this report.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

56. 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').

57. 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.

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

Social

59. The 'Emerging Strategic Areas Process' and associated out-of-boundary principles, which are included in the MOU, contribute to social wellbeing outcomes by ensuring that good community outcomes are planned from the start.

Economic

60. Progressing the MOUs for WA, R2 and SL1 contributes to economic wellbeing outcomes by ensuring that there is a long-term pipeline of growth for homes and jobs. The out-of-boundary principles guide good economic outcomes by ensuring a significant portion of land value uplift is captured for the benefit of the wider community.

61. Constraining land supply has been found to drive up property value which contributed to poor economic and social outcomes. Maintaining sufficient supply of land for houses and jobs is critical.

Environmental

62. Following the 'Emerging Strategic Areas process' outlined in the MOUs for WA, R2 and SL1 can contribute towards environmental wellbeing outcomes by ensuring these new growth areas respond and align to climate change policies, actions and targets as well as ensuring the HUGS out-of-boundary principles are at the forefront of any decisions going forward.

63. As the city grows, it's important that a sub-regional approach is taken to protect and invest in blue-green corridors and protect and restore the Waikato River. Early scoping study work, as outlined as a key step in the MOU, can identify these areas and relevant work required to achieve these outcomes. The western side of the city has special land features such as peat, which need to be assessed and considered prior to enabling homes to be built.

64. The scoping studies will look at, at a high-level, the environmental implications of urbanising these areas, which includes considering what environmental benefits and costs might occur if these areas are urbanised and whether or not urbanisation would contribute to an overall good long-term urban form outcome for the city.

Cultural

65. Effective partnership with Iwi is integral to the success of the 'Emerging Strategic Areas process' and any other land that is brought into the City.

66. We respect the special status of Tangata Whenua and are committed to the principles of Te Tiriti O Waitangi and further Maaori aspirations through building and maintaining mana-enhancing partnerships.

Risks - *Tuuraru*

67. There is a risk that Council may not have sufficient resource capacity to undertake the steps outlined in the MOU and associated 'Emerging Strategic Areas process', which may result in delays and missed opportunities. This can be mitigated through ensuring the resources are approved, in place and funded and by assessing the existing work programme prior to

commencing the next steps in the process. Staff will seek decisions and request additional funding if required from Council at key decision points in the process.

68. There is a risk that once the land is inside the Hamilton city boundaries, landowners or developers may choose to land bank resulting in a delay in the homes being constructed in the area. This can be mitigated by ensuring that the appropriate development agreements are in place and potentially through other alternative infrastructure funding and financing tools that incentivise development. The high-level milestones and steps outlined in the MOU are in accordance with the 'Emerging Strategic Areas Process', which includes commercial negotiations.

69. There is a risk that once land is inside the city boundaries, the developers or landowners lodge a private plan change to progress development of the area, which may impact on existing staff resources and the committed growth programme. This can be mitigated by ensuring the appropriate investigations as outlined in the 'Emerging Strategic Areas process', which are included in the MOU, are undertaken to support decision making regarding boundary changes.

70. There is an opportunity to capture value from the proposed area and to use that value to reinvest in the amenity and infrastructure needed to support the delivery of a new community. The MOU and associated 'Emerging Strategic Areas process' helps to ensure that this opportunity is realised. The process outlined in the MOU seeks to ensure that the right steps and investigations are undertaken to support long-term decision making ensure quality community outcomes and limit the financial burden on future ratepayers and Council. There is a risk that if the Council does not enter into the MOU as set out as **Attachment 4**, this value capture may be lost and the financial burden associated with infrastructure may unfairly rest with existing ratepayers.

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

Significance

71. 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

72. Staff have engaged with some landowners and developers for the R2, WA and SL1 areas to understand their intentions and staff have been working alongside our Future Proof Partners including neighbouring Councils and iwi to keep them informed of progress.

73. As the investigations progress and if Council chooses to resource and fund future steps, then wider and more detailed engagement will occur with key stakeholders, iwi, landowners and agencies.

74. At this early stage, given the low level of significance determined, the engagement level is low and no wider community engagement is required.

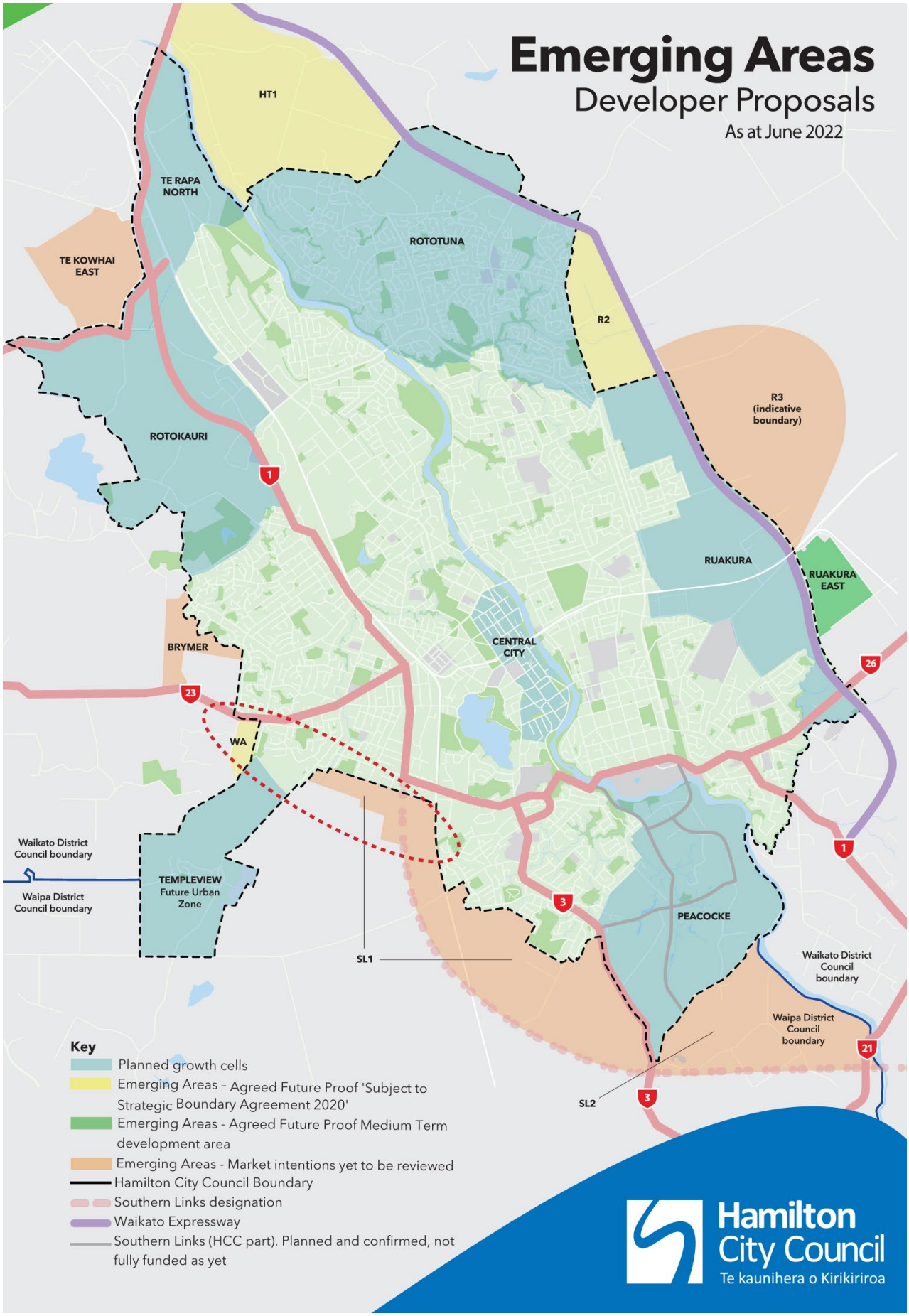
Attachments - *Ngaa taapirihanga*

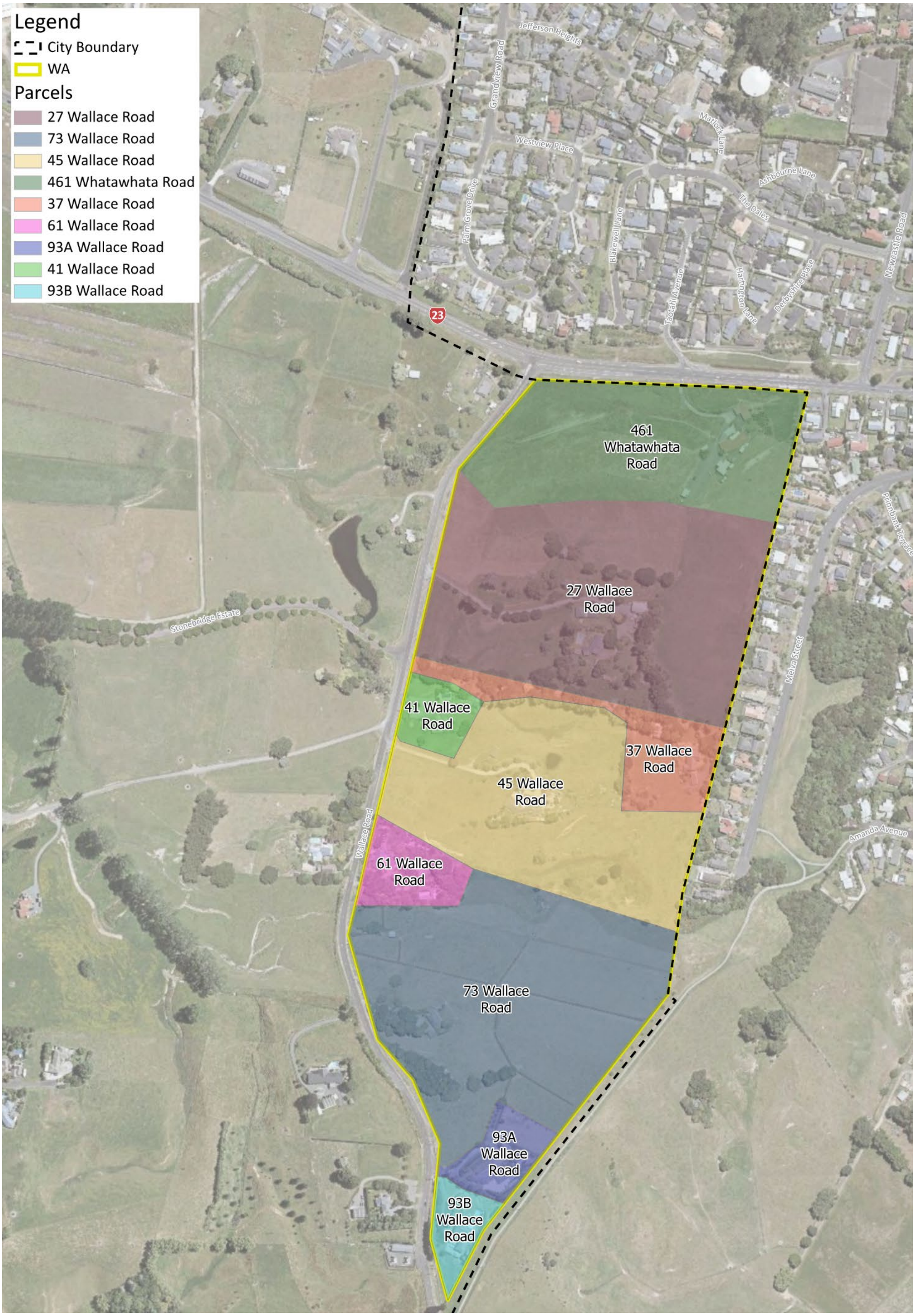
Attachment 1 - Emerging Strategic Areas Map

Attachment 2 - WA Landowner Map

Attachment 3 - Emerging Strategic Areas Process

Attachment 4 - Draft MOU in relation to WA


Emerging Areas
Developer Proposals
As at June 2022
HT1
TE RAPA NORTH
TE KOWHAI EAST
ROTOTUNA
R2
R3 (indicative boundary)
ROTOKAURI
RUAKURA
RUAKURA EAST
BRYMER
CENTRAL CITY
WA
Waikato District Council boundary
Waipa District Council boundary
TEMPLEVIEW Future Urban Zone
SL1
PEACOCKE
Waikato District Council boundary
Waipa District Council boundary
SL2
Key
Planned growth cells
Emerging Areas – Agreed Future Proof 'Subject to Strategic Boundary Agreement 2020'
Emerging Areas - Agreed Future Proof Medium Term development area
Emerging Areas - Market intentions yet to be reviewed
Hamilton City Council Boundary
Southern Links designation
Waikato Expressway
Southern Links (HCC part). Planned and confirmed, not fully funded as yet
Hamilton City Council
Te kaunihera o Kirikiriroa


Legend
City Boundary
WA
Parcels
27 Wallace Road
73 Wallace Road
45 Wallace Road
461 Whatawhata Road
37 Wallace Road
61 Wallace Road
93A Wallace Road
41 Wallace Road
93B Wallace Road
23
461 Whatawhata Road
27 Wallace Road
41 Wallace Road
37 Wallace Road
45 Wallace Road
61 Wallace Road
73 Wallace Road
93A Wallace Road
93B Wallace Road
Jefferson Heights
Westview Place
Ashbourne Lane
The Dales
Stonebridge Estate
Wallace Road
Melva Street
Amanda Avenue

Emerging Strategic Areas Process

Steps to bring land into the city

Outside the city boundaries

Process ends here

Inside the city boundaries

Strategic Recognition
1-6 years

- Future Proof
- Future Development Strategy
- Strategic Land Agreements
- High level land use investigations

Land $$ ↑

Scoping Study
Up to 1 year

- Understand constraints and opportunities
- Identify areas for further investigation
- Identify resources and high level funding required

Land Use & Infrastructure Assessments
1 - 5 years

- Land use assessments and early structure planning work
- Assessments and investigations for transport, three waters and community infrastructure
- MOU/terms sheet with developer(s)
- Indicative wellbeing business case

Commercial Negotiations
6 – 12 Months

- Private Developer Agreements (who does what, who pays for what and when)
- Biggest opportunity for Value Capture

Boundary Change
1-2 years

- LGC Application
- Holding pattern zoning e.g., future residential (within 2 years of boundary change)

Land $$ ↑↑

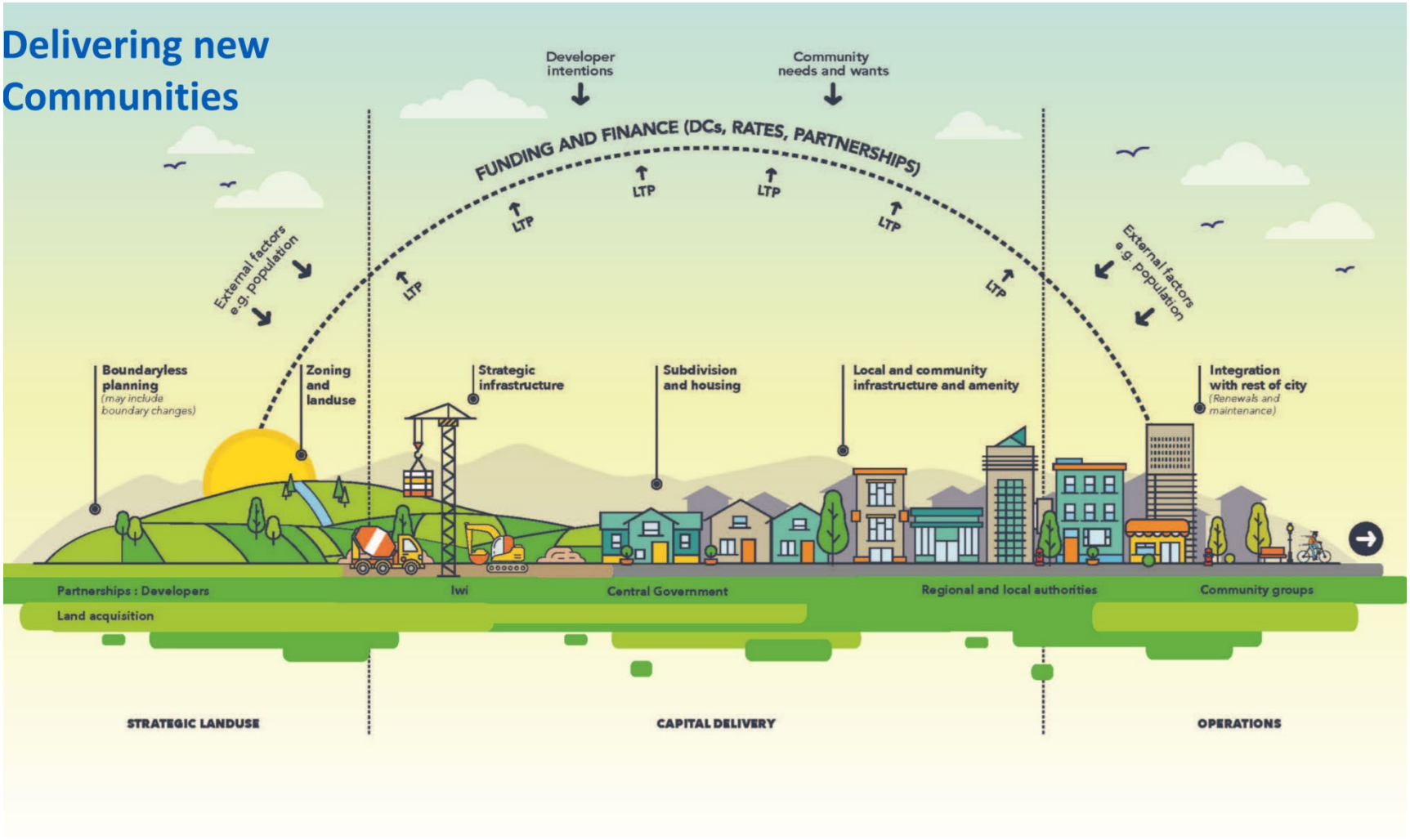
Enabling for development
5-10+ years

- Detailed business ca
- Structure Planning
- Infrastructure Planni
- Designations
- Infrastructure Fundi & Financing
- Infrastructure Consenting, Design, Construction

Land $$ ↑↑↑

*Some elements can be done concurrently, but as a general rule the process should be *land use led*

Hamilton City Council
Te kaunihera o Kirikiriro


Delivering new Communities
Developer intentions
Community needs and wants
FUNDING AND FINANCE (DCs, RATES, PARTNERSHIPS)
LTP
LTP
LTP
LTP
LTP
External factors e.g. population
External factors e.g. population
Boundaryless planning
(may include boundary changes)
Zoning and landuse
Strategic infrastructure
Subdivision and housing
Local and community infrastructure and amenity
Integration with rest of city
(Renewals and maintenance)
Partnerships : Developers
Land acquisition
Iwi
Central Government
Regional and local authorities
Community groups
STRATEGIC LANDUSE
CAPITAL DELIVERY
OPERATIONS

MEMORANDUM OF UNDERSTANDING

BETWEEN

HAMILTON CITY COUNCIL (**HCC**)

AND

X (**Owner**)

(**Parties**)

BACKGROUND

A. The Owner owns land in Waikato District which is contained within the area of land adjacent to the HCC territorial boundary known as area WA (**WA**) as shown on the map which is set out at **Attachment 1** to this Memorandum of Understanding (**MOU**).

B. Since March 2005 WA has been identified by HCC and Waikato District Council (**WDC**) as an area of land that is intended to become part of the HCC territory subject to terms to be agreed between HCC and WDC (**transfer**).

C. The Owner seeks that the transfer be given effect to so that it can enable urbanisation of its landholding within WA.

D. There are known constraints to providing infrastructure services (water, wastewater, stormwater and transport) to support urbanisation of this area. HCC has not secured resource allocation or management authorisations (e.g. water, wastewater and stormwater); designed for or funded any infrastructure investment needed to service the WA area. These matters need to be addressed to support the transfer.

E. HCC and the Owner have agreed to enter into this MOU to set out the basis upon which they will engage in order to investigate the transfer.

F. The purpose of this MOU is to set out a workplan and key milestones for progressing the incorporation of growth area WA into Hamilton City, to enable housing development to commence.

AGREED PRINCIPLES

1. The parties will work collaboratively and in good faith to investigate and progress the transfer of WA in accordance with the agreed principles set out in this MOU.

2. The parties will investigate the transfer in a manner consistent with, and directed towards achieving, the Hamilton Urban Growth Strategy (**HUGS**) Principles for Out of Boundary Development set out at **Attachment 2** to this MOU. Those principles are:

    a. Create quality communities;
    b. Enhancing Hamilton's economy;
    c. Protecting and recognising cultural heritage;
    d. Responding to climate change;
    e. Growing green areas and biodiversity;
    f. Meeting the costs of all infrastructure without ratepayer funding;
    g. Not compromising planned investment.

3. The timing, terms and conditions of the transfer are matters for HCC and WDC to determine, and HCC's position will be determined in a manner consistent with its obligations as a Future Proof partner, including acting in accordance with the "Future Proof Strategy 2022".

4. The Owner will undertake and fund all necessary resource allocation (water, wastewater stormwater) assessments and infrastructure capacity and network assessments in accordance with Council's requirements to demonstrate how the development of WA can be integrated and accommodated by the HCC infrastructure networks. All assessments will be aligned with the Council's three waters master plans and transport strategy and, include the provision for District Plan permitted, but not yet established, development within each assessment. The recommendations from the assessments will be in accordance with Council's requirements and provide sustainable long-term solutions and not be based on interim servicing solutions (e.g. onsite wastewater storage).

5. Where those assessments require access to HCC information and data or require modelling assessments, HCC will make that information and data available and facilitate modelling assessment under its control. The Owner will meet the cost of access to and use of relevant data and/or modelling software.

6. Before any transfer of WA takes place the Owner and Council must enter into a binding development agreement which sets out an agreed draft structure plan for the area, including details of all land uses, densities, typologies, open space networks, and road and three waters networks. The parties acknowledge that the final form of a structure plan for the area will be determined following transfer of the WA land and is subject to the relevant regulatory process. The development agreement will include requirements for the Owner (or future developer) to fund, at no cost to Council:
    a. all planning processes necessary to support urbanisation of the area (including those relating to district plan change processes; Waka Kotahi approval to access their network; securing water allocation, wastewater discharge allocation and stormwater management consents);
    b. all infrastructure within the development area;
    c. all infrastructure upgrades outside of the WA area necessary to service the development area;
    d. to vest required open space (the finalisation of which will be subject to future subdivision processes and public amenities, including roads);

e. an appropriate financial contribution to reflect the benefit obtained through connecting to Councils existing networks and treatment plants.

7. In advancing the transfer of WA the parties will work together in accordance with the following sequencing (and as outlined at a high level in **Attachment 3)**:

    a. First, completion of a scoping study which will address strategic land use issues as required under Future Proof 2022 and the HUGS Principles for Out of Boundary Development and identify the site development, resource use and infrastructure planning investigations needed to support urbanisation of the area. Noting that the land use component of the scoping study will be done in an integrated, boundaryless way taking the areas surrounding the WA area into account;
    b. Secondly, completion of a land use and work recommended in the scoping study including the resource use assessments (e.g. water allocation), infrastructure assessments, identifying the long-term servicing solutions, and overall structure planning exercise for the WA area;
    c. Thirdly, completion of a development agreement between Council and the Owner as required under clause 6 of this MOU;
    d. Fourthly, completion of all negotiations between Council and Waikato District Council as to the terms and conditions of the transfer; and
    e. Fifthly, commencement and completion of the boundary adjustment process as required under the Local Government Act 2002 and the Local Government Commission;
    f. Finally, after completion of the transfer, implementing the necessary plan change to enable the urbanisation of the WA area.

8. The progression of the sequencing noted in clause 7 above will be subject to relevant Council approvals, delegations and resolutions.

9. The parties will work openly with other willing land owners within WA and other relevant agencies such as Waka Kotahi NZTA and Waikato District Council to progress the transfer and HCC will engage with those other land owners on the same basis as set out in this MOU.

10. Nothing in this MOU contractually binds the parties to any outcome in respect of the transfer of WA and this MOU may be brought to an end unilaterally by written notice by either party.

DATED AUGUST 2022

SIGNED BY AND ON BEHALF OF

_____

HCC

_____

Owner

Attachment 5:

Supplementary attachment cover note

In relation to the 'Memoranda of Understanding for WA, R2 and SL1 report' to the 7 September 2022 Strategic Growth Committee

Date: Friday 2 September 2022

Prepared by: Karen Saunders, Growth Programmes Manager

Cover note:

1. At the time of writing the report to the Committee, staff had not yet reached agreement with the landowners on the MOU in relation to WA. This is highlighted in paragraph 12 of the report.

2. Staff continued to negotiate and have since reached agreement with the landowners on the WA MOU. The landowners have confirmed their agreement.

3. Paragraphs 36-39 of the committee report highlights the key matters within the MOU that had not yet been agreed by the landowners. Those points are no longer matters of disagreement and have been addressed in the agreed draft MOU attached to this cover note.

4. The agreed draft version of the MOU is attached to this cover note as **Attachment 5** to the report. Staff recommend **Attachment 5** for approval in the resolution 3(b) as follows:

> *delegates authority for the Chief Executive and General Manager Growth after discussion with the Chair and Deputy Chair to finalise and sign the Memorandum of Understanding (**Attachment 5** of the staff report) in relation to the process for investigating bringing the WA area into the Hamilton City Council boundaries from Waikato District Council*;

MEMORANDUM OF UNDERSTANDING

BETWEEN

HAMILTON CITY COUNCIL (**HCC**)

AND

X (**Owner**)

(**Parties**)

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C. The Owner seeks that the transfer be given effect to so that it can enable urbanisation of its landholding within WA.

D. There are known constraints to providing infrastructure services (water, wastewater, stormwater and transport) to support urbanisation of this area. HCC has not secured resource allocation or management authorisations (e.g. water, wastewater and stormwater); designed for or funded any infrastructure investment needed to service the WA area. These matters need to be addressed to support the transfer.

E. HCC and the Owner have agreed to enter into this MOU to set out the basis upon which they will engage in order to investigate the transfer.

F. The purpose of this MOU is to set out a workplan and key milestones for progressing the incorporation of growth area WA into Hamilton City, to enable housing development to commence.

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    a. Create quality communities;
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    c. Protecting and recognising cultural heritage;
    d. Responding to climate change;
    e. Growing green areas and biodiversity;
    f. Meeting the costs of all infrastructure without ratepayer funding;
    g. Not compromising planned investment.

3. The timing, terms and conditions of the transfer are matters for HCC and WDC to determine, and HCC's position will be determined in a manner consistent with its obligations as a Future Proof partner, including acting in accordance with the "Future Proof Strategy 2022".

4. The Owner will undertake and fund all necessary resource allocation (water, wastewater stormwater) assessments and infrastructure capacity and network assessments in accordance with Council's requirements to demonstrate how the development of WA can be integrated and accommodated by the HCC infrastructure networks. All assessments will be aligned with the Council's three waters master plans and transport strategy and, include the provision for District Plan permitted, but not yet established, development within each assessment. The recommendations from the assessments will provide sustainable long-term solutions and not be based on interim servicing solutions (e.g. onsite wastewater storage).

5. Where those assessments require access to HCC information and data or require modelling assessments, HCC will make that information and data available and facilitate modelling assessment under its control. The Owner will meet the cost of access to and use of relevant data and/or modelling software.

6. Before any transfer of WA takes place, the Owner and Council must enter into a binding development agreement which sets out an agreed draft structure plan for the WA area, including details of all land uses, densities, typologies, open space networks, and road and three waters networks. The parties acknowledge that the final form of a structure plan for the area will be determined following transfer of the WA land and is subject to the relevant regulatory process.

7. The development agreement will also include requirements for the Owner (or future developer) to fund, at no cost to Council:
    a. the relevant planning processes necessary to support urbanisation of the proposed development area (including those relating to district plan change processes; Waka Kotahi approval to access their network; securing water allocation, wastewater discharge allocation and stormwater management consents);
    b. all infrastructure within the development area;
    c. all infrastructure upgrades outside of the WA area necessary to service the development area;

d. the vesting (subject to future subdivision processes once the transfer is effected) of an agreed minimum area of land within WA to Council for public open space requirements;
e. an appropriate monetary contribution to address any benefit obtained through connecting to Councils existing networks and treatment plants. The Parties acknowledge that any such payment is not a "financial contribution" pursuant to the RMA.

8. In advancing the transfer of WA the parties will work together in accordance with the following sequencing:

    a. First, completion of a scoping study which will address strategic land use issues as required under Future Proof 2022 and the HUGS Principles for Out of Boundary Development and identify the site development, resource use and infrastructure planning investigations needed to support urbanisation of the area. Noting that the land use component of the scoping study will be done in an integrated, boundaryless way taking the areas surrounding the WA area into account;
    b. Secondly, completion of a land use and work recommended in the scoping study including the resource use assessments (e.g. water allocation), infrastructure assessments, identifying the long-term servicing solutions, and overall structure planning exercise for the WA area;
    c. Thirdly, completion of a development agreement between Council and the Owner as required under clauses 6 and 7 of this MOU;
    d. Fourthly, completion of all negotiations between Council and Waikato District Council as to the terms and conditions of the transfer; and
    e. Fifthly, commencement and completion of the boundary adjustment process as required under the Local Government Act 2002 and the Local Government Commission;
    f. Finally, after completion of the transfer, implementing the necessary plan change to enable the urbanisation of the WA area.

9. The progression of the sequencing noted in clause 8 above will be subject to relevant Council approvals, delegations and resolutions.

10. The parties will work openly with other willing land owners within WA and other relevant agencies such as Waka Kotahi NZTA and Waikato District Council to progress the transfer and HCC will engage with those other land owners on the same basis as set out in this MOU.

11. Nothing in this MOU contractually binds the parties to any outcome in respect of the transfer of WA and this MOU may be brought to an end unilaterally by written notice by either party.

DATED AUGUST 2022

SIGNED BY AND ON BEHALF OF

_____

HCC

_____

Owner

Item 9

Council Report

Committee: Strategic Growth Committee **Date:** 07 September 2022

Author: Phil Haizelden **Authoriser:** Blair Bowcott

Position: Transport Strategy Principal **Position:** General Manager Growth

Report Name: Metro Spatial Plan (MSP) Transport Programme Business Case

Report Status	*Open*

Purpose - *Take*

1. To seek approval from of the Strategic Growth Committee of the Metro Spatial Plan (MSP) Transport Programme Business Case (PBC).
2. To seek the Strategic Growth Committee's approval for the General Manager Growth to finalise any outstanding matters related to the Programme Business Case.
3. To inform the Strategic Growth Committee of the next steps and the post PBC work programme.

Staff Recommendation - *Tuutohu-aa-kaimahi*

4. That the Strategic Growth Committee:
    a) receives the report;
    b) approves the Metro Spatial Plan Transport Programme Business Case as the strategic direction for transport and land use integration in the Metro Spatial Plan area, noting the recommended programme was supported in principal at the 19 May 2022 Strategic Growth Committee;
    c) delegates authority to the General Manager Growth to finalise any outstanding matters, including review feedback related to the Programme Business Case documents;
    d) notes that the Metro Spatial Plan Transport Programme Business Case was considered for approval by the Future Proof Implementation Committee on 2 September 2022; and
    e) notes that further detailed work will be required to plan for implementation of the recommended programme outlined in the Metro Spatial Plan Transport Programme Business Case and will be reported to the new Council.

Executive Summary - *Whakaraapopototanga matua*

5. This report is an update on the progress and finalisation of the Hamilton-Waikato Metro Spatial Plan Transport Programme Business Case (PBC). It also includes a discussion on the post-PBC work programme developed by the Future Proof partners, including an update on the latest cost estimates.
6. The Strategic Growth Committee has previously supported in principal the recommended programme at 19 May 2022 Strategic Growth Committee and the Future Proof Implementation Committee (FPIC) made a similar undertaking.

7. Since late June 2022, staff from across the Future Proof partners have been working to finalise the PBC, with a specific focus on the management and commercial cases and to develop a post-PBC work programme to keep momentum going on delivering the recommended programme. This phase has also included developing a post-PBC work programme including tasks such as scoping out the next stages of investigation, financial matters and how we work together as Future Proof partners to implement the recommendations of the PBC phase.

8. FPIC meet on 2 September 2022 and included a series of recommendations "*that FPIC adopts the final Hamilton Waikato Metro Spatial Plan Transport Programme Business Case and recommends to each partner to adopt the Hamilton Waikato Metro Spatial Plan Transport Programme Business Case."*

9. Staff consider the matters in this report have a high significance and that the recommendations comply with the Council's legal requirements.

Background - *Koorero whaimaarama*

10. The Hamilton-Waikato Metro Spatial Plan (HW-MSP) is a long-term strategic vision based on a Terms of Reference developed by the Future Proof partnership and endorsed by FPIC in 2019.

11. One of the Transformational moves adopted by the Future Proof partners calls for *"a radical transport shift to a multi-modal transport network shaped around where and how communities will grow".* This "transport story" developed under the business case process responds to that shift.

12. Committee members will notice similarities in priorities and strategic directions related to our recently adopted Access Hamilton (transport strategy) refresh and other transport and growth-related business cases, showing consistency in strategic thinking and alignment with our partners.

13. This business case will inform land use and infrastructure decisions in the future, including the update to the Future Development Strategy and provide an evidence base for further investigations, funding approvals and decision-making for the city and regions growth and strategic transport network planning.

14. The vision of the Future Proof Transport Working Group developing the PBC on behalf of all the Future Proof partners is:

> ***"****Transit outcomes that promote, create and protect transport networks, which ensure equitable access, embraces kaitiakitanga, reflects our climate change challenges and promotes the urban form envisaged in the Hamilton"*
> *- Waikato Metropolitan Spatial Plan*

15. In May 2021 we updated the project's goals and objectives from the HW-MSP work undertaken in 2019/20 prior to this PBC phase. Key objectives developed by the partners are shown below:

    i. To reduce deaths and serious injuries resulting from the transport systems;
    ii. To deliver alternative mode options that are preferable to private car for the majority of trips;
    iii. To support the MSP's compact and quality compact urban form with supportive and capable transport systems that make best use of existing infrastructure and reduces environmental impacts and protects taonga;
    iv. To reduce carbon emissions to achieve net zero transport by 2050;
    v. To provide equitable transport and mobility choices for all;
    vi. To provide reliable and efficient key freight tasks.

16. The business case process also focuses a great deal on benefits the PBC outcomes could bring to the city and region. The benefits sought are:

    i. A safer and healthier transport system;
    ii. Increased choice for access to diverse housing typologies, employment, shopping, education and leisure;
    iii. The transport system is the enabler of the vibrant compact urban form, increased housing supply and an improved quality of life sought for the Hamilton-Waikato Metropolitan Area;
    iv. Reduced impact from transport on climate change from carbon emissions;
    v. Access to transport and mobility is equitable for all people;
    vi. Improved freight transport efficiency.

17. Benefits based around increased choice and housing, as well as those related to urban form and quality of life, were weighted the highest.

18. For project programme information and details of what a PBC of this nature is designed to produce, please refer to the Metro Spatial Plan (MSP) Transport Programme Business Case report from the 31 March 2022 Strategic Growth Committee (see Item 4).

Discussion - *Matapaki*

Previous Approvals and Future Proof Implementation Committee

19. Council supported in principal the HW-MSP Transport Programme Business Case recommended programme at the 19 May Strategic Growth Committee. The Committee also resolved that it:

    " notes that future transport modes and solutions are likely to be impacted by technological advancements over the period covered by the business case."

20. The Future Proof Implementation Committee (FPIC), at its 16 June 2022 meeting, resolved that it:

    " *supports and endorses in principle the proposed Recommended Programme of the Hamilton Waikato Metro Spatial Plan Transport Programme Business Case as the basis for future investment and planning decisions subject to further detail on implementation and funding/financing options"*

21. On 2 September 2022, FPIC meet to discuss the finalisation of the PBC and to discuss the next steps of the process. At time of writing, the following recommendations are proposed to be presented at that meeting:

    i. The Metro Spatial Plan Transport Programme Business Case is endorsed as the strategic direction for transport and land use integration in the Metro Spatial Plan area.
    ii. That FPIC adopts the final Hamilton Waikato Metro Spatial Plan Transport Programme Business Case and recommends to each partner for adoption the final Hamilton Waikato Metro Spatial Plan Transport Programme Business Case.
    iii. It is noted that the level of detail is appropriate for a Programme Business Case, but that further detailed work will be required to plan implementation.
    iv. Future Proof requests that the Implementation Advisor works with partner staff to prepare an integration programme that includes consideration of governance structures, reporting frameworks and alignment with Long Term Plan work programmes.

22. These recommendations are the core of the current work programme being developed by staff. These are described in more detail below.

Current Status and Next Steps

23. The intention of this reporting is to provide an update on the conclusion of work on the PBC and the next steps for the project. The PBC has given the Future Proof partnership the strategic direction it sought from the work and has developed an evidence base and a 30-year programme the partners need to consider for funding and implementation.

24. A Programme Business Case is a strategic document. It sets out high level strategic direction, key interventions, an early indication of likely implementation costs, considerations for delivery (management and procurement) and a monitoring framework to track progress against desired outcomes. This business case has been independently peer reviewed by a respected business case practitioner and by Waka Kotahi's Investment Quality Assurance team. Both reviews confirm that the business case is at a level of detail appropriate for Programme Business Case and note specific matters that subsequent investigations will need to address. Note, the Waka Kotahi review is still being finalised.

25. The recommended programme remains unchanged from that supported and endorsed in principle May and June 2022.

26. The link to all documents produced as part of the Transport Programme Business Case process is Hamilton-Waikato Metro Spatial Plan – Future Proof. The document includes an Executive Summary, a useful introduction to the wider documentation. This link will be available after the FPIC meeting on 2 September, noting this meeting is late on a Friday and documents may take a day or so to be uploaded. Elected members will be familiar with the recommendations of the PBC through previous reporting and presentations. Documents that have not been viewed by elected members are the Management and Financial cases although core elements of these are discussed in this paper and were discussed in the General Manager's report at the 26 July 2022 Strategic Growth Committee.

Finalising the Programme Business Case & Next Steps

27. At time of writing, the PBC documentation, including the final management and financial documents, are programmed to be completed by the end of August 2022, allowing for a one-month review period with the Waka Kotahi IQA team that should be concluded by the end of September 2022.

28. In short, all technical work on the PBC has been completed and we are going through final review stages on a series of technical documents. Since the recommendations were presented to Council in May 2022, work has been largely confined to refining the management and financial cases and the evidence behind the recommendations has not been changed.

29. There have been no revisions to any matters related to previous recommendations endorsed by Council or FPIC. All financial updates and work (not yet detailed) related to future cost shares and funding agreements across the Future Proof partners will be bought to future meetings of this Committee. HCC funding to continue the momentum of the project and to address the tasks outlined from para 31 below are provided for within the 2021/31 LTP.

Post-PBC Work Programme

30. The PBC takes us to a certain point in the process; it confirms the strategic approach and develops a recommended programme. Now, we are in a transitional phase where the PBC recommendations are endorsed, and we need to prepare for the next stages of the business case process, as well as a series of other supporting tasks.

31. Staff from the Future Proof partners form the Transport Working Group (TWG). HCC members of this group are Phil Haizelden and Keith Hornby. This group led the technical development of the PBC and will continue in this role going forward. The TWG are currently developing a work programme to take us up to the next Long-Term Plan, where hopefully funding can be approved to continue the process of investigations and implementation. The focus is to maintain momentum and to maximise what can be achieved, noting funding constraints to take us up to 2024.

32. Key tasks currently underway or shortly to be commenced are:

    i. Aligning PBC recommended programme with partner Long-Term Plans and developing a Regional Land Transport Plan "chapter" to promote implementation of MSP transport recommendations. Further explanation is contained below;

    ii. Scoping of next stages of business case for the 3 corridor route protection projects identified (RT1 north, south and east) or based on funding, what can be achieved in next 18 months;

    iii. Scope other business cases recommended as priorities (primarily a freight post WEX study, a rural access programme and a network optimisation business case) to identify additional quick wins and "easy" to implement physical works to improve network efficiency (this work is related to the Climate Emergency Response Fund (CERF) process currently underway and being led by our Operations team);

    iv. Development of reporting/monitoring dashboard for governance purposes;

    v. Development of procurement approach for future design related business cases;

    vi. Develop updated multi-party funding agreement for partners to support the Future Proof Transport Working Group (TWG) work programme and beyond;

    vii. Exploration of any new or alternative funding sources;

    viii. Work with the Future Proof Implementation Advisor and partner staff to draft for consideration an implementation plan that includes consideration of governance structures, reporting frameworks and alignment with Long Term Plan work programmes.

    ix. Detailed exploration of co-location opportunities for Transport Working Group (to replace off-site office space used for PBC);

    x. Detailed resourcing conversation around partner commitments to undertake work programme beyond existing TWG membership.

33. The implementation work programme will be reported to the new Council.

34. Post-PBC, all work will continue to inform the programme that will remain a live document and adapt to changes required around sequencing and staging of projects, cost updates around capex, opex and property costs and other organisational elements. This will all form part of regular updates to Council.

Metro Spatial Plan-Long Term Plan 2024 Alignment

35. One of the core tasks of the post-PBC Transport Working Group work programme is to continue the work started in the PBC Management Case on programme costs and individual partner funding considerations.

36. An ongoing task for the Transport Working Group is focused on undertaking a series of meetings across the Future Proof partners and undertaking a deep dive into partner TLAs' current Long-Term Plans. The purpose is to understand existing project commitments and aspirations that align with the MSP recommended programme in both timing and purpose, projects that align in purpose but not in timing, projects that are misaligned from the MSP entirely and may need to be reconsidered, and other opportunities and constraints.

37. It is important we understand the projects that are fundamentally essential to the success of the MSP recommended programme and that this thinking is aligned across the Future Proof partners. Many of these projects or programmes already exist e.g. those contained within the HCC Bike and Micromobility Business case. It is also important to understand gaps in delivery, particularly when focusing on our first three years and the staged delivery of our walking and cycling, bus service and bus priority, and other supportive infrastructure programmes.

38. We will also need to challenge ourselves as partners on whether projects contained in our 30-year programmes are not only still applicable in today's policy context but also support the MSP recommended programme from an infrastructure and spatial/land use perspective.

39. The overall purpose is to develop a "MSP LTP Programme" of projects absolutely required from a functional and timing perspective to ensure the successful delivery of the recommended programme. This programme will then be used by respective TWG partners to inform their own 2024 LTP planning cycle, due to commence in Q1/Q2 2023. This work will need to align and support our directions and outcomes sought from our Climate Change and transport (Access Hamilton) strategies recently adopted.

40. It is the intention of staff to keep Council informed of this process (as well as the other tasks described above) on a regular basis moving forward.

Co-location and Governance

41. Matters around co-location and future governance are contained in the management case section of the Programme Business Case and are the topic of on-going conversations. During the development of the PBC a working space was made available at the Aurecon offices in Hamilton for TWG meetings and working sessions. Whilst COVID significantly disrupted this, when we were able to meet in person, the ability to work and brainstorm together was invaluable and a model for future collaboration. This collaborative model, albeit on a small scale is planned to be continued in this post-PBC phase.

42. Subsequently, as a priority action, the TWG does need to identify some 'meeting space' to use on a regular basis at one of the Hamilton-based partners in the short-term.

43. From a governance perspective, thought is being given to how the recommendations can be delivered within the multi-agency Future Proof structure and deliver the benefits and manage the risks of the programme.

44. Fundamentally, however, the proposals require that projects deliver a climate change response and reduced vehicle kilometres travelled through micromobility (including walking and cycling), high frequency public transport corridors, an improved freight task, future rapid transit infrastructure and services, and supporting demand management and optimisation programme within the metro spatial plan area.

45. The primary 'owner' of the programmes outcomes will likely continue to need to be the Future Proof Partnership members, as a consortium, including those responsible for partnership influencing, delivering, managing, and funding the transport system and land use change.

46. It is fundamental to note that Te Ture Whaimana o te Awa o Waikato – requiring that the protection of the health and wellbeing of the Waikato and Waipā Rivers is restored and protected for current and future generations – is also fundamental to this future governance structure.

47. Tasks are shortly to commence that will drill deeper into understanding what changes, if any, to governance procedures should be considered that will improve the ability of the partners to deliver the recommendations they have endorsed. This will navigate some of the same matters examined during the recent Waikato Regional Council led "Waikato Public Transport Business Improvement Review," noting HCC did undertake a submission of the outcomes of the Business Improvement review and this will guide our position on this subject.

Timing & Priorities

48. Our priorities around further investigations and sequencing of the recommended programme implementation remain consistent with previous reporting.

49. In summary, integral to the success of the programme are:

    i. significant investment in walk and cycle programme, particularly in the early stages of the programme;
    ii. significant demand management actions;
    iii. optimisation of the existing network;
    iv. route protection for and implementation of rapid transit corridors;
    v. implementation of early bus priority measures and a first decade target for the delivery of rapid transit services and infrastructure;
    vi. ongoing network development for further rapid transit (2nd decade), bus services and walking, cycling and micro-mobility.

50. The diagram below is a more refined update on the staging and sequencing guidance shown in previous briefings and papers (including that shown in May 2022 and aligned to the latest cost range).

Figure 1

Recommended Programme | Accelerated Staging and Performance

		YEARS 1 - 3	YEARS 3 - 10	YEARS 10 - 15	YEARS 15 – 20	YEARS 20 – 50+
Infrastructure and operations	PT Operations Span, frequency, vehicle type	Bus service 19 hour (12 hours peak) Peak: 15 min Off-peak: 20 min	Bus service+ priority 19 hour (12 hours peak) Peak: 10 min Off-peak: 15 min	BRT (RT1) 24 hour (19 hours peak) Peak: 5 min Off-peak: 15 min	BRT (RT1, RT2) 24 hour (19 hours peak) Peak: 5 min Off-peak: 15 min	BRT (RT1, 2, 3, 4) 24 hour (19 hours peak) Peak: 3 - 5 min Off-peak: 10 min
	Infrastructure Bus Priority BRT					
PT Performance	Patronage (AM peak/direction/hour) • Airport to Hamilton • Te Awa to Hamilton • Hamilton to Ruakura	-	930 650 1400	1450 1000 2150	1650 1150 2500	2250 1550 3350
	PT Travel Time (savings compared with general traffic) • Airport to Hamilton • Hamilton to Ruakura	23 min 19 min	22 min (-1 min) 10 min (-9 min)	22 min (-3 min) 10 min (-13 min)	22 min (-6 min) 10 min (-17 min)	22 min (-10 min) 10 min (-22 min)
	PT Reliability	Low	Medium	High	High	High
Micro-mobility	Micro-mobility network	Early implementation	10% of cycle network • Biking and micro-mobility 10 year programme • Develop city centre traffic circulation plan and low traffic neighbourhoods • Facilitate safe and easy active mode access to stations	40% of cycle network • Extend cross city connections to more peripheral centres and growth cells – Rotorua, Dinsdale, Rotokauri, Peacocke and R2. • Begin to fill out network with build-out of cross city connections, community links and local links. • Improve Te Awa River Ride cycle path to Ngāruawāhia and Cambridge.	70% of cycle network • Active mode network in town centres and growth cells • Continue build-out of cross city connections, community links and local links	100% of cycle network • Complete build-out of cross city connections, community links and local links
Cost	Cost – CAPEX (per year) Existing LTP maintained (per year)	146 million 110 million	138 million 110 million	162 million 8 million	62 million 8 million	5 million 5 million
	Cost – OPEX (per year)	24 million	27 million	35 million	38 million	66 million

Financial Considerations - *Whaiwhakaaro Puutea*

51. The programme cost estimates (CAPEX and OPEX) have been updated since the May 2022 Strategic Growth paper and a subsequent paper that went to FPIC on 16 June 2022.

52. At that early stage in the process, the total programme costs forecasted a range of between $3.0 - $6.5 billion over a 20-30 year period based upon either an accelerated or standard programme delivery.

53. The PBC will be finalised with recommended programme costs for the 30-year investment period (2024 – 2054) of a range of between $4.0 - $6.5 billion.

54. This accounts for $2.8bn CAPEX (assuming a 50th percentile infrastructure cost estimate) and $1.2bn for OPEX' for a recommended programme cost of $4.0 billion. This expenditure is on top of the already planned maintenance and renewal tasks and committed public transport and walking and cycling activities from Future Proof partner LTPs. The upper end of the cost range allows for those projected costs (over a 30 year period) to be included noting the long time period and need for those projections to form part of future funding decisions.

55. A number of the activities identified in the business case are already included in partner Long Term Plans and/or Infrastructure Strategies (potentially as much as 50% of the predicted programme expenditure). Some are already committed projects planned to be undertaken in the next 12-18 months. The exact details continue to be refined and are not yet developed to a sufficient degree of accuracy to report to this Committee.

56. These estimates align with similar work undertaken recently in Tauranga under the Smart Growth programme – which identified a programme cost of $8bn. All these costs are reflective of the level of confidence you would expect from a Programme Business Case and will be the subject of continued further refinement as more detailed investigations occur.

57. The business case presently assumes that funding will be sourced solely from Local Authorities and Waka Kotahi via the National Land Transport Fund. Given the nature of activities proposed there remain other potential government and private sector funding sources that still need to be explored further as the specific projects evolve.

58. Clearly, Hamilton City Council will have a significant portion of the programme to fund commensurate to most of the programme interventions being undertaken within our city. Work is still at very early stages on how these costs align to each partner and to what extent each partner funds forthcoming work. Initial estimates have been developed but are not developed in enough detail to accurately report at this Committee but will form part of our regular reporting to going forward.

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

59. Staff confirm that this matter complies with Council's legal and policy requirements.

60. Staff have considered the key considerations under the Climate Change Policy and have determined that an adaptation assessment and emissions assessment is not required for the matter(s) in this report. The recommended programme from the PBC is based on an emission and VKT reduction related scenario.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

61. The purpose of Local Government changed on 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').

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

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

Social

64. The metropolitan area has widely varying levels of socio-economic deprivation. Those who are identified as deprived experience greater hardships and have insufficient access to resources such as education, housing and healthcare. This goes to the heart of liveability and quality of life and helps identify areas that stand to benefit most from investment into better affordable housing and access driven by improved transport choice.

65. The Hamilton-Waikato Metro Spatial Plan Transport Programme Business Case and the emerging work programme will contribute towards social wellbeing outcomes by ensuring metro and major growth areas are better connected and accessible and transport equity issues are identified and countered.

66. The objectives and KPIs identified by the Future Proof partners are shown below:

    i. To reduce deaths and serious injuries resulting from the transport systems;
    ii. To deliver alternative mode options that are preferable to private car for the majority of trips;
    iii. To support the MSP's compact and quality compact urban form with supportive and capable transport systems that make best use of existing infrastructure and reduces environmental impacts and protects taonga;
    iv. To reduce carbon emissions to achieve net zero transport by 2050;
    v. To provide equitable transport and mobility choices for all;
    vi. To provide reliable and efficient key freight tasks.

Economic

67. Poor access creates barriers to opportunities and imposes additional transport costs on households. Additionally, a dispersed urban form can do likewise as well as creating additional emissions and other environmental benefits. The integrated land use transport approach based around key corridors will help to alleviate some of these barriers.

68. Freight and productivity are also amongst the project objectives. The programme has to be developed with the freight task in mind and a particular focus has been on utilising the transfer of road to rail freight and to give some direction on where reallocation of road space can assist with freight distribution, potentially around the provision of bus/freight lanes or other interventions. The programme will also seek to address the national requirement to address Light Commercial Vehicle emissions as directed in the Emission Reductions Pathway strategy.

Environmental

69. Hamilton has one of the highest single occupancy vehicle rates in New Zealand. This public transport / land use focused study can assist in our mode shift aspirations over time but also with a strong year 1-3 emphasis on implementing our Bike & Micromobility Business Case network as well as acerating the implementation of bus priority measures. As a Council we are also responding to the recent and related central government led SERF proposals aimed at addressing emissions and VKT's through implementation of walk and cycle related projects.

70. The Waikato's transportation emissions per capita are higher than the New Zealand average. The Metro Area is likely to be contributing higher transport emissions than the rest of the region due to the level of growth we are experiencing. Most emissions from transportation sources are from on-road transport, contributing approximately 97% of the total (2015/16 data).

71. Consistent with the Government's priorities, the emerging programme of work seeks environmental gains for transport though enhanced public transport and cycling / walking initiatives, which will reduce emissions.

72. Additional benefits include opportunities for enhanced stormwater treatment devices and significant additional tree planting along main corridors and in local streets, particularly as part of the area-wide treatments.

73. Monitoring along key routes will likely include key environmental indicators, such as air quality, urban runoff, and noise.

Cultural

74. The project team includes participation by Future Proof partners Waikato Tainui, Tainui Group Holdings and Ngā Karu Atua o te Waka, who have made significant contributions to the emerging programme.

75. Of particular focus to these partners has been to make sure within the programme development that we are not forgetting the needs of the rural population in terms of access and mobility; also that the network-based solution we develop as part of the PBC reflects a future workstream (potentially an additional business case) that examines the role of future bus networks, demand responsive transport, community and school transport, and how this could be potentially utilised to address issues of lack of access to transport and the mobility deficiencies this creates.

76. The PBC also recognises Te Ture Whaimana o te Awa o Waikato as the transformational policy required for the health and protection of the Waikato and Waipā Rivers for future generations. By its nature this business case does not provide specific detail on how implementation of specific actions (such as rapid transit corridors) will give effect to Te Ture Whaimana, however it is a guiding principle for implementation that all subsequent business cases and actions taken to implement this business case must demonstrate how they will give effect to Te Ture Whaimana.

Risks - *Tuuraru*

77. This is a complex project with numerous partners engaged with Future Proof including Hamilton City Council. We have listed some project related risks below.

    i. Failure of the PBC recommended programme to align with Hamilton Urban Growth Strategy refresh

    ii. Potential lack of funding across the partners to keep momentum on implementing the PBC recommendations prior to next Annual Plan and LTP funding rounds

    iii. Staff resourcing issues across the partnership

    iv. Failure to agree future co-location and governance frameworks

    v. Inability or unwillingness by any partner to not identify future funding to implement respective share of recommended programme

    vi. Inability of partners to agree future multi-party funding agreement

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

78. 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 high level of significance.

79. No engagement is planned at a Programme Business Case level outside of the engagement with Future Proof partners on developing the emerging programme. Future engagement will occur once detailed design processes are commenced.

Attachments - *Ngaa taapirihanga*

There are no attachments for this report.

Council Report

Committee: Strategic Growth Committee **Date:** 07 September 2022

Author: Hannah Windle **Authoriser:** Blair Bowcott

Position: Special Projects Manager **Position:** General Manager Growth

Report Name: Strategic Land Agreement between Waipa District Council and Hamilton District Council

Report Status	*Open*

Purpose - *Take*

1. To seek approval from the Strategic Growth Committee of the Strategic Land Agreement between Waipa District Council and Hamilton District Council.

2. To seek a recommendation from the Strategic Growth Committee that the Council approves the Chief Executive to finalise the Strategic Land Agreement and for the Mayor and Chief Executive sign the Strategic Land Agreement.

Staff Recommendation - *Tuutohu-aa-kaimahi* *(Recommendation to the Council)*

3. That the Strategic Growth Committee:

   a) receives the report; and

   b) recommends that the Council:

      i. approves the Strategic Land Agreement between Hamilton City Council and Waipa District Council (**Attachment 1** of the staff report);

      ii. delegates authority to the Chief Executive to finalise the Strategic Land Agreement, subject to any feedback from this meeting and from Waipa District Council; and

      iii. approves **t**he Mayor and Chief Executive to sign the Strategic Land Agreement on behalf of Hamilton City Council.

Executive Summary - *Whakaraapopototanga matua*

4. The Waipa District Council (WDC) and Hamilton City Council (HCC) Governance Group was formed to ensure that the combined focus of both councils was about improving the wellbeing of our interconnected communities. A range of matters have been discussed including the principles and practical application of boundaryless planning and thinking, and the growth around the periphery of Hamilton.

5. Through these governance discussions, and other cross-boundary strategic planning processes, there has been ongoing consideration of the potential for land to south of Hamilton being transferred from Waipa District Council to Hamilton City Council.

6. The WDC/HCC Governance Group has developed a draft Strategic Land Agreement (Agreement), which was developed throughout the 2019-2022 triennium.

7. The Agreement is similar to the Waikato District Council/HCC Agreement in terms of the clauses and structure, with only minor differences.

8. The proposed new Agreement (**Attachment 1**) provides a degree of certainty and a collaborative approach for both councils around the future expansion of Hamilton and the transfer of land to the city from WDC, noting five-yearly reviews to ensure the content and scope is fit for purpose and a 10-year term (noting that this term is likely to be extended at each review).

9. The councils will continue to work collaboratively on all matters concerning the potential transfer of land from within the WDC territorial boundary to within the HCC territorial boundary, in line with Emerging Strategic Areas process that has been developed and approved by the Strategic Growth Committee on 26 July 2022.

10. The councils agree to consider the principles of boundaryless planning, infrastructure provision and funding when considering strategic land use planning, and any potential transfer of land.

11. Staff consider the decision has low significance and that the recommendations comply with the Council's legal requirements.

Discussion - *Matapaki*

12. There has been a long history of considering the potential for the land to the south of Hamilton to be transferred from WDC to HCC.

13. This has been discussed and documented in:

    i. the Future Proof Sub-Regional Growth Strategy 2017 and 2022 (including the Southern Sector Study);

    ii. the Hamilton-Waikato Metro Spatial Plan (HWMSP);

    iii. HCC/WDC Relationship Governance Meetings.

14. There have also been increasing enquires from various landowners about development of land in and beyond the Southern Links designation to the south of the city. The interest from multiple landowners is sending a clear market signal and has added weight to the need for an agreement between the councils to provide a level of certainty as to long-term intentions.

15. Hamilton and Waipa councils have agreed that the Strategic Land Agreement will identify a process for the future transfer of land into Hamilton for urban development, and consider:

    i. Timing (which is now agreed as when HCC makes a formal written request after working through the Emerging Areas Process)
    ii. the City expanding the Hamilton boundary on an "as needed" basis with strong alignment to Future Proof and other strategic planning processes;
    iii. a process for the inclusion of additional land if required;
    iv. appropriate 'value-capture' provisions.

16. This report gives effect to the resolutions made by the Strategic Growth Committee at its 19 May 2022 meeting, to:

    i. approve in principle the signing of a Strategic Land Agreement with Waipa District Council that encompasses the entirety of the SL1 area contiguous with the south- west of the current city boundary, noting:

        A. that our delegates to the Joint HCC/Waipa DC Committee are authorised to progress this matter;

        B. that staff report to the 26 July Strategic Growth Committee meeting on the outcome of discussions on that matter held at the meeting of the two Councils on 10 June 2022, and any other discussions with Waipa DC on this matter; and

C. that final wording of the Agreement will be presented to either Council or the Strategic Growth Committee for approval prior to the end of the term of the current Council; and

17. This report also gives effect to the resolutions made by the Strategic Growth Committee at its 26 July 2022 meeting:

    i. delegates the CE to propose to the Local Government Commission that area to the south of the city, including the full SL1 area defined by Future Proof, be incorporated into Hamilton, should Waipā District Council not agree to all of SL1 not be included in the Strategic Land Agreement;

    ii. requests staff report to the 7 September 2022 Strategic Growth Committee meeting on the pathway forward for resolving the issue in f) above and in the Chair's Report;

18. There have been ongoing discussions between HCC and WDC as to the extent of land to be identified in the Strategic Land Agreement for future transfer, taking into consideration land that has access predominantly from HCC, areas already partially or fully developed for non-rural purposes, and land that is separated from the wider Waipa District by the designation for Southern Links.

19. The extent of land to be included in the Strategic Land Agreement has now been negotiated and agreed between the two councils, as has the final wording of the Agreement, and is included as **Attachment 1**. This includes all of the land within the Southern Links designation boundary adjacent to the City, and the land to the west of the Southern Links designation boundary known as the "Harrison" and "Rogerson" land (noting it is the part of the Rogerson land currently occupied by the horse training facility).

Emerging Strategic Areas and Boundary Change Process

20. An 'Emerging Strategic Areas Process' has been created, which outlines the steps required to bring new areas of land into the HCC boundary. A diagram showing high level steps is in **Attachment 2**. The process was presented to Elected Members at an information session on 28 June 2022.

21. The Emerging Strategic Areas Process begins with strategic recognition of land outside the city and ends once the land has been brought into the city boundaries.

22. The first of these steps is the development of a Strategic Land Agreement between the Councils, which is being agreed today.

23. It is important to note that there are other steps required before the areas identified in the Strategic Land Agreement can be developed, and the Emerging Strategic Areas Process outlines clearly what these are, including:

    i. strategic recognition;
    ii. scoping study;
    iii. land use and infrastructure assessments;
    iv. commercial negotiations; and
    v. the Local Government Commission boundary change process.

24. This process was noted by the Strategic Growth Committee on 26 July 2022.

Financial Considerations - *Whaiwhakaaro Puutea*

25. Financial considerations will be undertaken and reported to the relevant Committee if and when parcels of land are considered for transfer from WDC to HCC.

26. The Agreement outlines the funding factors and financial principles to be followed (in Attachment 2 to the SLA). The primary financial principle to be observed in any land transfer is the fact that the commercial arrangement must be "financially sustainable" for both councils.

27. In summary, this means that the net revenue (rates less direct costs to provide services to the land area e.g. debt servicing, road maintenance) collected by WDC from an area of land to be transferred, deemed the "overhead contribution", will be paid by HCC for a minimum period of 10 years. HCC will correspondingly rate this area of land under the HCC rating policy and assume any direct costs to provide services to the land.

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

28. Staff confirm that the staff recommendation complies with the Council's legal and policy requirements.

29. The Agreement has been drafted with input from the City Solicitor and reviewed by legal advisors to both Councils.

30. Staff have considered the key considerations under the Climate Change Policy and have determined that an adaptation assessment and emissions assessment is not required for the matter(s) in this report.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

31. 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').

32. The Strategic Land Agreement has been evaluated in terms of the 4 wellbeings during the process of developing this report.

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

Social

34. The Strategic Land Agreement delivers social wellbeing outcomes by ensuring that good community outcomes are planned from the start.

Economic

35. The Strategic Land Agreement contributes to economic wellbeing outcomes by ensuring that there is a long-term pipeline of growth for homes and jobs.

36. Constraining land supply has been found to drive up property value which has led to poor economic and social outcomes. Maintaining sufficient supply of land for houses and jobs is critical.

Environmental

37. The Strategic Land Agreement can contribute towards environmental wellbeing outcomes by ensuring new growth areas respond and align to climate change policies, actions and targets as well as ensuring the out-of-boundary principles are at the forefront of any decisions going forward.

38. As the city grows, it's important that a sub-regional approach is taken to protect and invest in blue-green corridors and protect and restore the Waikato River.

Cultural

39. Effective partnership with Iwi is integral to the success of planning for any land that is brought into the city.

40. We respect the special status of Tangata Whenua and are committed to the principles of Te Tiriti O Waitangi and further Maaori aspirations through building and maintaining mana-enhancing partnerships.

Risks - *Tuuraru*

41. There is a risk that Council may not have sufficient resource capacity to undertake the steps outlined in the Emerging Strategic Areas process, should Council wish to action the Strategic Land Agreement in the near future, which may result in delays or the need to reprioritise work programmes. This can be mitigated through ensuring the resources are in place and funded, and assessing the existing work programme prior to commencing the processes.

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

Significance

42. 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

43. Regular engagement with our neighbouring Councils and Future Proof Partners has occurred in the development of the Strategic Land Agreement.

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

Attachments - *Ngaa taapirihanga*

Attachment 1 - Strategic Land Agreement between Waipa District Council and Hamilton District Council

Attachment 2 - Emerging Areas - Process - Attachment for Strategic Growth 7 September 2022

STRATEGIC BOUNDARY AGREEMENT

Between

HAMILTON CITY COUNCIL

And

WAIPA DISTRICT COUNCIL

AGREEMENT dated

PARTIES

HAMILTON CITY COUNCIL

WAIPA DISTRICT COUNCIL(Councils)

BACKGROUND

A. Hamilton City Council (HCC) and Waipa District Council (WDC) are both parties to the Future Proof Sub-Regional Growth Strategy that sets out a development pattern for the sub-region and is embedded in statutory planning documents including the Waikato Regional Policy Statement, and WDC and HCC District Plans.

B. The Southern Links Designation route provides the strategic transport corridor from the south, around the Airport, through WDC land into HCC land and specifically the Peacocke area.

C. As part of the Future Proof Strategy - Southern Sector Study, it was identified that the Southern Links Designation route should ultimately form an urban boundary for the southwestern extent of the Hamilton urban area.

D. The Future Proof Strategy has been updated and adopted in June 2022, and included an action to progress negotiations between Hamilton City Council and Waipa District Council in relation to a strategic land agreement regarding the Waipā district land which is on the Hamilton City-side of the Southern Links designation.

E. In 2018 Central Government progressed, as part of the Urban Growth Agenda, the development of the Hamilton to Auckland Corridor Plan, and from this came the development of the Hamilton-Waikato Metro Spatial Plan that took a 'boundaryless' approach to planning for the Metro Hamilton area beyond existing territorial boundaries.

F. Through the development of the Hamilton-Waikato Metro Spatial Plan, the Southern Links Designation area was also flagged for potential future growth consideration.

G. HCC is currently undertaking a review of its Hamilton Urban Growth Strategy (HUGS) to update and identify the future form of the city, including the sequence and timing of growth areas, both within and on the periphery of the city.

H. HCC and WDC wish to establish a clear framework for amending their respective territorial boundaries whereby land within the areas identified as "Priority 1 Area" and "Priority 2 Area" in Attachment 1 (Southern Links Land Area) that is within the territorial boundary of WDC is transferred into the territorial boundary of HCC (Transfer). This is to be implemented in a manner that gives effect to the Future Proof Strategy, the Hamilton-Waikato Metro Spatial Plan and HUGS.

I. HCC and WDC also wish to establish a process for a Transfer for additional areas of land should that further land be identified as suitable for future urban development and supported by the Future Proof Partnership. WDC does not currently consider there to be any such suitable land available for Transfer, but nevertheless supports formalising a process for its consideration through this agreement.

J. Both parties acknowledge that to give effect to any changes to their respective territorial boundaries, the approval of the Local Government Commission and the Minister of Local Government is required, as well as a separate public process, in accordance with the Local Government Act 2002 (LGA).

AGREEMENT

Strategic Planning

1. The Councils will continue to work collaboratively on all matters concerning potential Transfers within the Southern Links Land Area.

2. All such engagement will be informed by other collaborative processes relating to strategic land use including but not limited to Future Proof, the Hamilton to Auckland Corridor Plan, the Hamilton - Waikato Metro Spatial Plan, HUGS, Waipa Growth Strategy 2050, and individual District Plans including changes/amendments.

3. The Councils agree that due to the dynamic nature of strategic land use planning, land within the Southern Links Land Area may be subject to Transfer at a time to be determined by mutual agreement between the Councils, informed by the terms of this agreement and subject to the requirements of the LGA.

4. The Councils will apply the principles of 'boundaryless planning' as identified by the Future Proof Partnership when considering strategic land use planning, infrastructure provision and funding, and any potential Transfer within the Southern Links Land Area .

5. Subject to and without limiting WDC's plan making and regulatory functions under the Resource Management Act 1991 (RMA), the land uses within the Southern Links Land Area will continue to be strategically managed and retained for rural use, in accordance with the existing WDC District Plan, Future Proof and other plans to protect the land resource for its ultimate potential urbanisation.

6. In their strategic planning the Councils will recognise Hamilton Airport as regionally significant economic and social infrastructure. Both Councils will use their best endeavours to ensure any development occurring within the outer control noise boundary as identified in the operative WDC District Plan should be non-residential activities.

7. All strategic land use decision making undertaken by the Councils, including plan changes and district plan reviews, will take into consideration the terms of this agreement.

Transfer within the Southern Links Land Area

8. The Councils agree that the first priority of any Transfer within the Southern Links Land Area will be land located to the west of State Highway No.3 within the Southern Links Land Area , including Waipā District land requiring access from within the City boundaries. This area is identified on Attachment 1 as Priority 1 Area.

9. The process for the Transfer of land within Priority 1 will commence with HCC making a formal written request to WDC. Agreement to the Transfer will only occur if WDC resolves to give effect to the Transfer on terms and conditions acceptable to both Councils. Once so resolved, each Council will take all necessary steps to give effect to the Transfer in the most efficient and timely manner possible in accordance with the LGA, including:
   a) jointly developing a reorganisation plan in accordance with paragraph 22A of Schedule 3 to the LGA; and
   b) subject to the outcome of public consultation on that plan in accordance with Schedule 3, jointly submitting to the Local Government Commission an adopted reorganisation plan in accordance with Schedule 3 to the LGA; and/or
   c) such other agreed necessary steps to give legal effect to the Transfer.

10. The terms and conditions attached to the Transfer within Priority 1 Area, will be determined by mutual agreement of the Councils having regard to the matters set out in Attachment 2.

11. The remaining land within the Southern Links Land Area, located to the east of State Highway No.3 bounded by the City boundary, the Southern Links Boundary and the Waikato River (or any part thereof), identified on Attachment 1 as Priority 2 Area, will be subject to a Transfer under the same process applied to Priority 1 Area. The process for the Transfer of Priority 2 cannot commence ahead of Priority 1 Area commencing. The Transfer of land is not a guarantee that the area will be developed as urban. Any development proposals will need to take into account relevant/agreed growth strategy principles.

12. The process of any Transfer of an area (or part thereof) will be preceded by open and transparent dialogue between the Councils wherein the prospect of a Transfer request will be clearly identified.

13. Any decision by HCC to make a Transfer request will take into account HUGS and Future Proof, the impacts of growth on HCC, strategic infrastructure decisions affecting HCC, the financial considerations set out in Attachment 2, and the outcomes of the strategic land use planning processes set out above.

14. Prior to any Transfer request being given effect to by a reorganisation plan or similar mechanism, the Councils will agree on financial adjustments, to be made between HCC and WDC to account for local government funding issues arising as a result of the Transfer of rateable land from WDC to HCC. The local government funding adjustment shall be addressed taking into account the principles and factors set out at Attachment 2 and any required legal processes or requirements including requirements under the LGA.

Further transfer areas

15. The Councils acknowledge that strategic land development is informed by a collaborative/partnership approach between the Councils. This approach is underpinned by the aspirations and principles of planning land development in a way that is not constrained to local government boundaries, also known as 'boundaryless planning'.

16. In the event either Council identifies the prospect of further Transfers not expressly identified in this agreement, the Councils will commence open and transparent dialogue in good faith regarding the further transfer areas. These discussions will be undertaken in the forum of the HCC/WDC Governance Committee, or its equivalent replacement forum, and progressed through the Future Proof partnership if appropriate.

17. Following the commencement of dialogue either of the Councils may, by written notice to the Chief Executive of the other Council, commence negotiations regarding further Transfers not expressly identified in this agreement (further area notice), provided the further area notice is consistent with the strategic land use planning processes identified above, and that the land affected by any Transfer takes into account Waahi Toitu and Waahi Toiora as identified in the Hamilton-Waikato Metro Spatial Plan/Future Proof Strategy.

18. Upon receipt of a further area notice each Council will commit sufficient resources and personnel to directly engage in discussions regarding the location and area of land subject to a potential Transfer and will work collaboratively and in good faith to resolve whether the land identified in the further area is consistent with the outcomes contemplated by this agreement.

19. If the location and area of land are agreed between the Councils (further area), the further area will be mapped and presented as an additional future attachment to this agreement. Once a further area is recognised under this agreement via this mechanism, it may be subject, either immediately or at any later date, to the Transfer mechanism as prescribed in this agreement.

Regulatory Function

20. Nothing in this agreement shall fetter the regulatory function of either Council to assess and determine applications for resource consent (either land use or subdivision) in accordance with the rules, policies and objectives as contained in the applicable District Plan. The Councils may, at their discretion, consider this agreement under section 104(1)(c) of the RMA as 'any other matter the consent authority considers relevant and reasonably necessary to determine the application'.

Dispute Resolution

21. The Councils will work in a transparent and open basis in respect of boundary related issues and will each apply sufficient resources and personnel to ensure effective engagement between Councils.

22. If agreement cannot be reached on any issues the Councils will attempt to resolve matters by engaging in direct dialogue between the respective Chief Executives and Mayors.

Review

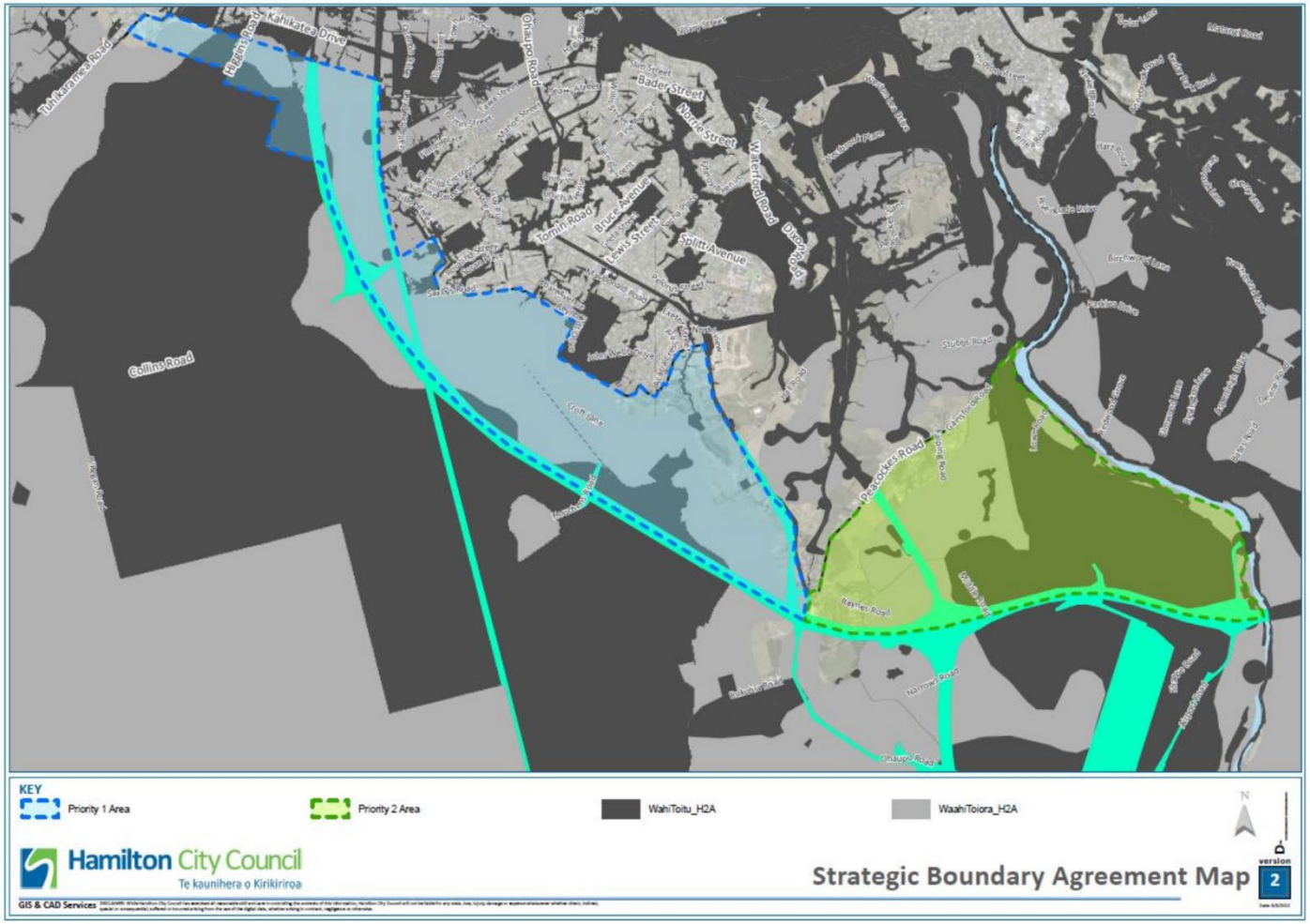
23. This agreement shall be binding on HCC and WDC and may only be varied or revoked by the mutual agreement of both Councils. The parties will review the agreement within five years of the date of signing of the agreement, and thereafter at the same intervals, to ensure it remains fit for purpose and determine whether any amendments are necessary.

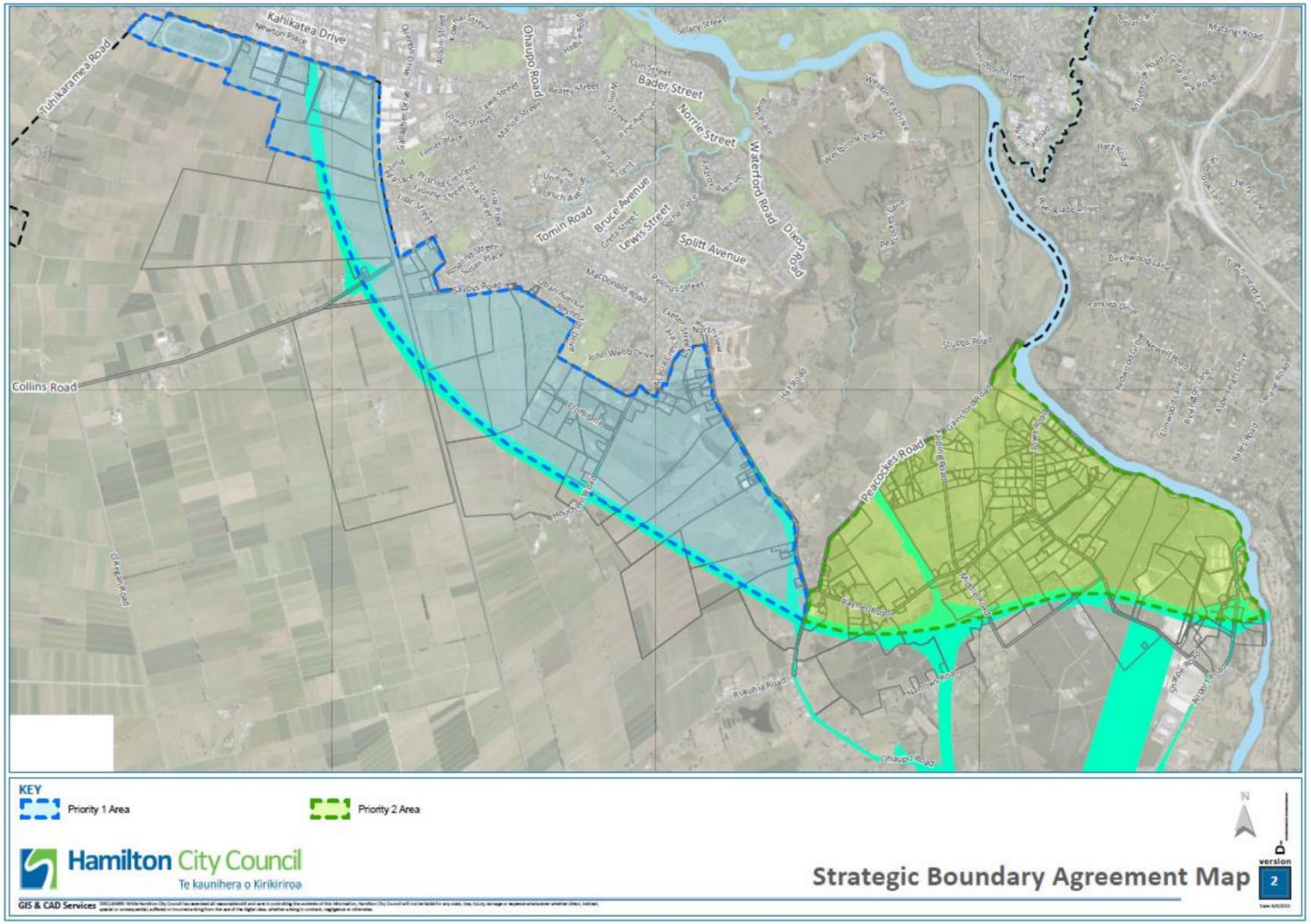
24. Subject to clause 33, and unless an extension is agreed, this agreement will terminate on 30 September 2032.

Dated this day of 2022

_____

ATTACHMENT 1: MAPS – The Southern Links Land Area is identified as "Priority 1 Area" And "Priority 2 Area".




Kahikatea Drive
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Tomin Road
Bruce Avenue
Lewis Street
Splitt Avenue
Collins Road
Peacocke Road
Ohaupo Road
KEY
Priority 1 Area
Priority 2 Area
Hamilton City Council
Te kaunihera o Kirikiriroa
GIS & CAD Services
Strategic Boundary Agreement Map
version
2

ATTACHMENT 2: LOCAL GOVERNMENT FUNDING FACTORS AND PRINCIPLES

Financial Principles

25. The primary financial principle to be observed in any Transfer is the fact the arrangement must be "financially sustainable" for both councils.

26. For WDC, financial sustainability means a transition period where the income contribution to Council's cost structure received from those properties within an area to be transferred (**transfer land**) and which is included in any WDC LTP (rating revenue less operating cash flows) must continue for a period of time to enable the WDC business to adjust. It is noted WDC has rating income budgeted in each year of its LTP which includes the areas of land described in Attachment 1.

27. The transition period is particularly important given the high growth environment WDC is operating in and the pressure this growth provides on costs. It is recognised that the period for which net income is paid to WDC will be dependent on the quantum of the net income to WDC.

28. The financial principles to implement for the areas of land described in Attachment 1 requires payment from HCC to WDC over a transition period whereby:
    - Consideration, being an amount of the overhead contribution attributed to the transfer land, for a minimum of ten (10) years (this term determined based on time needed to replace the net income) following the transfer of the land.
    - The 'overhead contribution' is the rating and other receipts attributed to the transfer land less operating costs and debt repayment. This assumes any debt and development contribution reserves (if any) at the time of land transfer will be transferred to HCC.

29. A number of options exist in terms of paying consideration. These include options of a lump sum, regular payments over a period of time or a mixture of both. For administrative simplicity a lump sum payment, made at the time of transfer (discounted to reflect a present value of net cash flows as referenced above) may be the most suitable option.

30. Over time, increases in rates revenue attributable to the transfer land places pressure on the financial contribution from Hamilton City Council to WDC. Early transfer of the areas of land described in Attachment 1 is an effective tool to potentially mitigate the impact of value uplift and is a legitimate consideration for HCC in any timing decision.

31. Where possible the parties may consider arrangements for shared infrastructure services and may factor these arrangements into the financial considerations.

Emerging Strategic Areas Process

Steps to bring land into the city

Outside the city boundaries

Process ends here

Inside the city boundaries

Strategic Recognition
1-6 years

- Future Proof
- Future Development Strategy
- Strategic Land Agreements
- High level land use investigations

Land $$ ↑

Scoping Study
Up to 1 year

- Understand constraints and opportunities
- Identify areas for further investigation
- Identify resources and high level funding required

Land Use & Infrastructure Assessments
1 - 5 years

- Land use assessments and early structure planning work
- Assessments and investigations for transport, three waters and community infrastructure
- MOU/terms sheet with developer(s)
- Indicative wellbeing business case

Commercial Negotiations
6 – 12 Months

- Private Developer Agreements (who does what, who pays for what and when)
- Biggest opportunity for Value Capture

Boundary Change
1-2 years

- LGC Application
- Holding pattern zoning e.g., future residential (within 2 years of boundary change)

Land $$ ↑↑

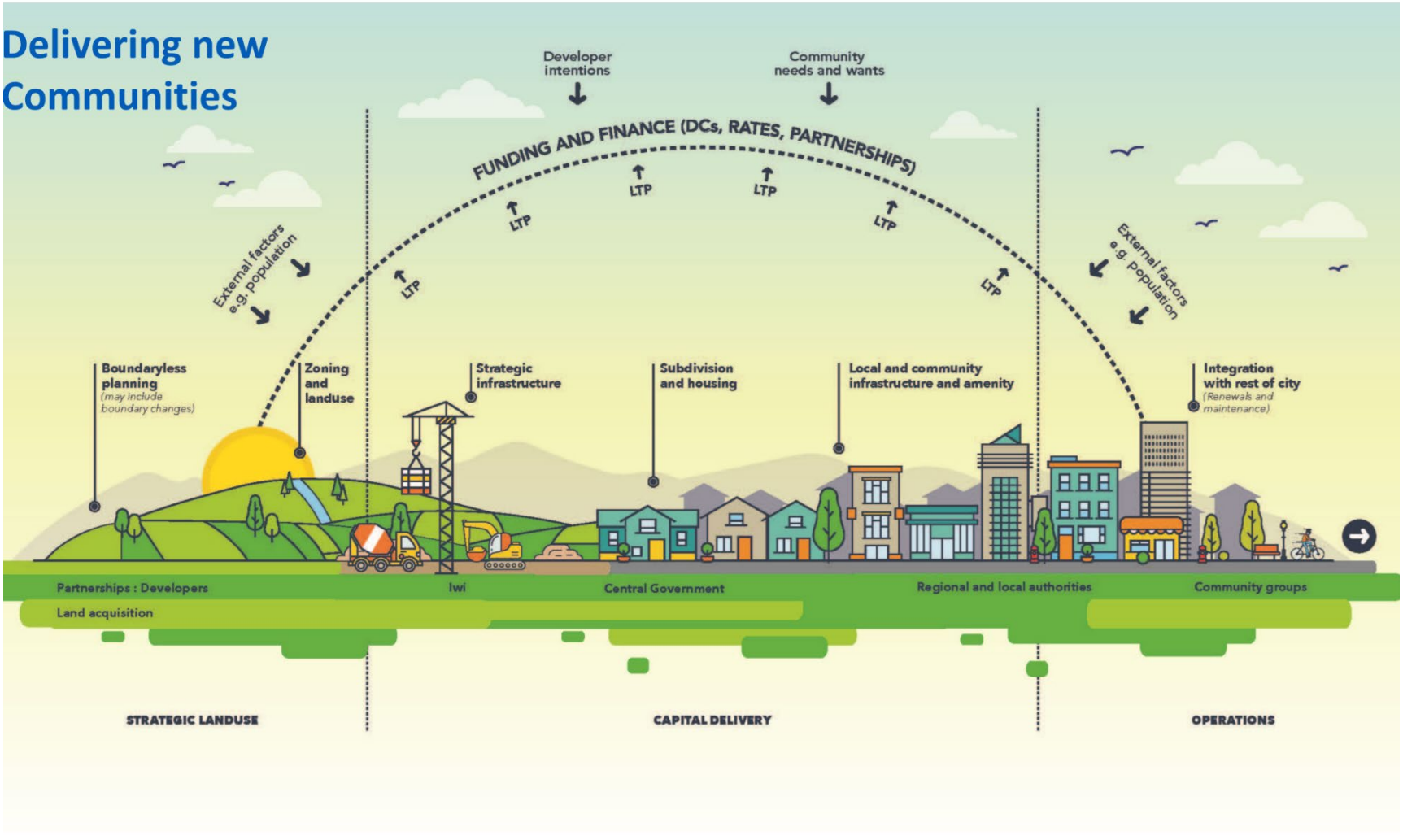
Enabling for development
5-10+ years

- Detailed business ca
- Structure Planning
- Infrastructure Planni
- Designations
- Infrastructure Fundi & Financing
- Infrastructure Consenting, Design, Construction

Land $$ ↑↑↑

*Some elements can be done concurrently, but as a general rule the process should be *land use led*

Hamilton City Council
Te kaunihera o Kirikiriro


Delivering new Communities
Developer intentions
Community needs and wants
FUNDING AND FINANCE (DCs, RATES, PARTNERSHIPS)
LTP
LTP
LTP
LTP
LTP
External factors e.g. population
External factors e.g. population
Boundaryless planning
(may include boundary changes)
Zoning and landuse
Strategic infrastructure
Subdivision and housing
Local and community infrastructure and amenity
Integration with rest of city
(Renewals and maintenance)
Partnerships : Developers
Land acquisition
Iwi
Central Government
Regional and local authorities
Community groups
STRATEGIC LANDUSE
CAPITAL DELIVERY
OPERATIONS

Item 11

Council Report

Committee: Strategic Growth Committee **Date:** 07 September 2022

Author: Hannah Windle **Authoriser:** Blair Bowcott

Position: Special Projects Manager **Position:** General Manager Growth

Report Name: General Manager's Report

Report Status	*Open*

Purpose - *Take*

1. To inform the Strategic Growth Committee of topical issues, areas of concern and items which need to be brought to Members' attention, but which do not necessitate a separate report.

Staff Recommendation - *Tuutohu-aa-kaimahi*

2. That the Strategic Growth Committee receives the report.

Executive Summary - *Whakaraapopototanga matua*

3. This report provides updates to Strategic Growth Committee Members on activities, actions or projects for which this Committee and the relevant General Managers have responsibility, and for which significant progress has been made, including but not limited to:

Topic/Forum	**Last Meeting**	**Next Meeting**
Waikato Mayoral Forum	29 August 2022	TBC
Future Proof Implementation Committee	2 September 2022	TBC
Waikato Plan	15 August 2022	TBC
Upper North Island Strategic Alliance (UNISA)	1 July 2022 (cancelled)	25 November 2022
Cross-boundary discussions: - Waikato District Council - Waipa District Council - Waikato Regional Council	 19 August 2022 24 August (not required) 24 August	 TBC TBC TBC
Zone 2	22 July 2022	4 November 2022
Metro Sector	26 August	TBC

4. This report also contains updates on:

   i. Growth Programmes
   ii. HUGS
   iii. FDS work programme
   iv. Waikato Wellbeing Project

v. Waikato Community Lands Trust
vi. Central City Infrastructure Acceleration Fund bid (IAF)
vii. Infrastructure Funding and Financing ('HIF' to 'IFF')
viii. Strategic Development Forum
ix. Costs for scoping studies and boundary change
x. District Plan Change Programme
xi. Intercity Rapid Rail Business Case
xii. Southern Links
xiii. Development Contributions interest rate refund, and
xiv. Everton Judicial Review.

5. It also contains a response to the 18 August 2022 report *Assessment of the Housing System: with insights from the Hamilton-Waikato Area*, from the Government's Housing Technical Working Group.

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

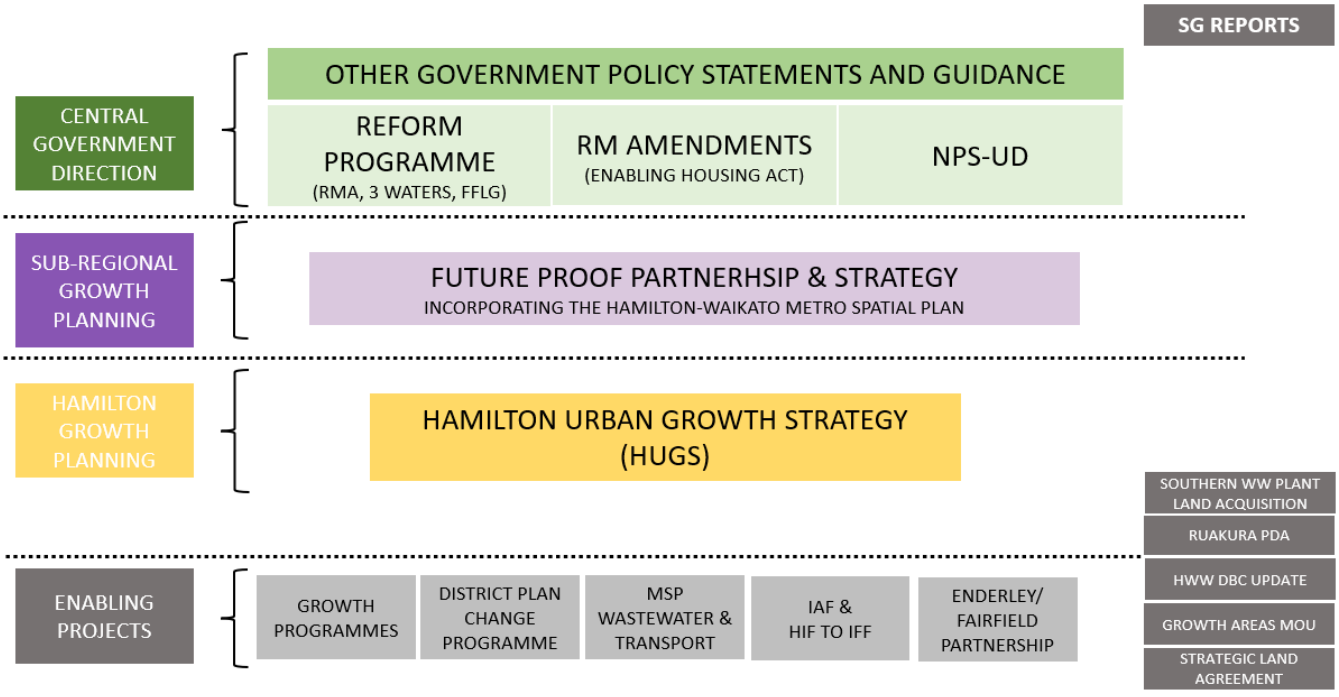
Discussion - *Matapaki*

Interrelated workstreams

7. Today's agenda covers a number of enabling growth projects that are currently underway both within Council and in collaboration with others.

8. The institutional architecture is outlined in the diagram below, showing the wider system in which growth planning occurs and where each report fits.

9. This starts with new and emerging Central Government direction delivered through Government Policy Statements, legislative change and reform programmes, flowing down to regional and sub-regional planning initiatives, Hamilton-specific growth planning, and a number of enabling projects.



Strategic Regional Collaboration

Waikato Mayoral Forum

10. The last Waikato Mayoral Forum was held on 29 August 2022.

11. A verbal update will be provided on the day as the meeting was still to occur at the time of writing this report.

Future Proof

12. The Future Proof Strategy (the Strategy) has been reviewed to give effect to the Hamilton to Auckland Corridor Plan (H2A), the Hamilton-Waikato Metropolitan Spatial Plan (HW-MSP) and the National Policy Statement on Urban Development (NPS-UD).

13. The final Future Proof Strategy was adopted by the Strategic Growth Committee in June 2022.

14. The last FPIC meeting was held on 2 September 2022, and a verbal update can be given.

Waikato Plan

15. The last Waikato Plan Leadership Committee meeting was held on 15 August 2022.

16. Key topics of discussion included:

    i. the value that the recent Waikato Plan symposium provided through bringing together a wide range of community and regional leaders;

    ii. the future of the Waikato Plan and the need for a transition group to be formed to work on how the Plan will progress in the new triennium (noting the Chair and the Programme Manager have resigned and these roles will be recruited for);

    iii. the departing Chair is preparing a report for the incoming councils to be taken to the first Mayoral Forum.

UNISA

17. The 1 July 2022 meeting was cancelled due to high workloads and limited availability.

18. The remaining date for the 2022 Mayors/Chairs UNISA meeting is confirmed as 25 November 2022.

Cross-boundary Council discussions

Waikato District Council

19. The last Governance meeting between Hamilton City Council/Waikato District Council for 2022 was held on 19 August 2022.

20. Key points of discussion included:

    i. the upcoming election, and recognition of those not standing;

    ii. updates on each council's growth work programmes;

    iii. an update on Te Awa Lakes.

Waipā District Council

21. The last Governance meeting between Hamilton City Council/Waipa District Council for 2022 was held on 10 June 2022 and was reported on at the last Strategic Growth Committee.

22. Since this meeting, discussions have been ongoing to finalise the Strategic Land Agreement (SLA) between the two councils.

23. The final draft SLA is the subject of a separate report to this meeting.

24. The final meeting for the triennium scheduled for 24 August 2022 was not required, noting that the SLA is ready for adoption.

25. Hamilton City Council is represented at these Governance Groups by Mayor Southgate, Deputy Mayor Taylor, Councillors Macpherson and Hamilton, the Chief Executive and General Manager Growth. Additionally Councillors Thompson and Van Oosten attended the most recent Waikato District Council Governance meeting.

Waikato Regional Council

26. The last Governance meeting between Hamilton City Council/Waipa District Council for 2022 was held on 15 July 2022 and was reported on at the last Strategic Growth Committee. An end of triennium catch up was held on 26 August 2022 with no set agenda items.

Zone 2 and Metro Sector

27. The last Zone 2 meeting was held on 27 May 2022 and was reported to the last Strategic Growth meeting.

28. The next Zone 2 meeting is scheduled for 4 November 2022.

29. The last Metro Sector Meeting was held on 25 August and a verbal update will be provided at meeting.

30. Topics on the agenda included:

    i. National Party priorities presented by Christopher Luxon
    ii. LGNZ update and discussion
    iii. Transport update by Hon Michael Wood
    iv. Inclusionary zoning in Queenstown
    v. Discussion on the Future for Local Government
    vi. Review of the building consent system and liability issues.

Growth Programmes

31. Growth Programme updates were provided to the 26 July 2022 Strategic Growth Committee for Peacocke, Rotokauri-Northwest, Ruakura and Central City. Following are key progress highlights across each of the areas since July.

32. **Central City:** The Public Realm Design Guidelines were presented to Elected Members at a briefing on 10 August 2022. The guidelines are set to be approved by Council following recommendation by the Central City River Plan Advisory Group. The guidelines are key to supporting transformation of the central city over the coming years.

33. **Ruakura:** Council Staff continue to work closely with Tainui Group Holdings to input into the Tramway Block Private Plan Change application, and both parties have reached alignment on a number of items. TGH will look to submit the application in late September/early October 2022. Provided the plan change meets requirements, this will be processed through CE Delegation. The RMA requires Council to publicly notify within four months. Council and TGH are negotiating in good faith a Private Developer Agreement (PDA) to set out in detail the roles and responsibilities of both parties in the timing and delivery of key infrastructure for the Tramway Block, should the plan change be successful.

34. Following the opening of the Hamilton bypass section of the Waikato Expressway (WEX), and with only minor works remaining on the Key Transport Connections and Ruakura Road Urban Upgrade projects, traffic is flowing from the WEX into Hamilton through the Ruakura Superhub area, creating a safer environment for road users, pedestrians and people on bikes. These roading connections provide a glimpse into Stage 1 of the Inland Port, showcasing the scale of development being led by TGH, which is set to bring extensive economic, social and environmental benefits to Hamilton, Waikato and New Zealand, for many generations to come. The Ruakura Inland Port remains on track to open during the last quarter of this year.

35. **Peacocke:** The Peacocke team have been celebrating the success of CB Civil claiming the award for projects valued between $20 - 100 million category for the Peacocke Strategic Wastewater Project at the National Civil Contractors New Zealand Awards (CCNZ), this is on the back of picking up the Supreme Award for the project at the Waikato CCNZ Awards in July.

36. A report was taken to the Council meeting on 18 August 2022 for the contract award for Whatukooruru Drive in Peacocke.

37. **Rotokauri-Northwest:** A Private Developer Agreement (PDA) has been signed for detailed design and consent of the Greenway Corridor. In July 2022, the MADE Group were granted resource consent via the Covid Recovery Fast Track consent process to develop a 314 lot subdivision in Rotokauri Stage 2, with earthworks planned to commence in October 2022.

38. Work at the Zoo Waiwhakareke shared entry is progressing well with 5000 of the 20,000 plants planted to date, and the Waiwhakareke entry Waharoa is currently being carved. The overall project is on track to be completed by the end of this calendar year.

HUGS

39. The outcomes of the revised draft Hamilton Urban Growth Strategy were approved at the 26 July 2022 Strategic Growth Committee Meeting.

40. The HUGS Reference Group provided guidance to staff on the draft designed HUGS document at its 15 August 2022 meeting. This guidance will help to ensure the strategy's outcome will be more clearly articulated in the draft HUGS document being prepared for consultation.

41. The draft HUGS will be finalised and approved for consultation under delegation to the General Manager Growth and Chair and Deputy Chair of the Strategic Growth Committee in early September 2022. Consultation will begin following the October 2022 elections and conclude in November 2022.

Future Development Strategy (FDS) work programme

42. The Future Proof Strategy was adopted by the Strategic Growth Committee on 26 July 2022. A further update to the Strategy will be undertaken prior to 2024 to meet the NPS-UD requirement to develop a Future Development Strategy (FDS). This will involve additional work regarding infrastructure and will be informed by the programme business case work underway to identify transformational three waters and transport infrastructure and service requirements.

43. This FDS work programme, led by Hamilton City Council, will be broadly structured as follows:

July 2022 – March 2023	• Scoping studies of areas for investigation and other associated work identified • Update population and employment projections • Undertake reassessment of Housing and Business Capacity (HBA)
April 2023 – June 2023	• HCC input on the development of the revised draft of Future Proof Strategy
July 2023 – December 2023	• Likely period of public consultation on draft Strategy followed by hearings and deliberations

44. The detail of this work plan in now under development in collaboration with Future Proof Partners.

Waikato Wellbeing Project

45. The Waikato Wellbeing Project is a regional initiative to achieve a more environmentally sustainable, prosperous and inclusive Waikato region by 2030.

46. Key attributes:

i. Community led – global alignment

ii. Bottom-up building connections

iii. Supporting communities to achieve their own aspirations

iv. Leveraging the community's resources for collective impact

v. Best practice/innovative approach to change.

47. The project utilises the globally recognised Sustainable Development Goals Framework.

48. A current key focus is the Waikato Rangatahi Opportunity – which aims to increase the number of young people (with a focus on Maori and Pasifika) who are actively engaged in meaningful employment, education or training from 87.4% (2019) to no less than 95% by 2030.

49. Another focus is developing the Waikato Wellbeing Knowledge: Centre of Excellence – an easily accessed digital 'one stop shop' for wellbeing data in the Waikato Region, with an overall dashboard of key indicators that people can then drill into for more detail.

50. The project is continuing to progress this concept with a wide range of partners across the Waikato and beyond.

51. The University of Waikato, Waikato Tainui, the Waikato Wellbeing Project and Te Pūkenga are presenting a series of three webinars as part of the 4th Aotearoa New Zealand Sustainable Development Goals Summit Series for 2022 - 2023.

52. The theme for the 4th SDG Summit is: Māori, Indigenous and flax root community perspectives.

53. The purpose of these webinars is to explore dimensions of the Sustainable Development Goals framework by sharing best practice examples from the Waikato, Bay of Plenty and across Aotearoa, contributing to a growing collective understanding of how sustainable development looks in Aotearoa and in a Te Tiriti partnership context.

54. Further information on the webinars, and additional news on the progress of the Wellbeing Project can be accessed at https://www.waikatowellbeingproject.co.nz/blog/

Waikato Community Lands Trust

55. The Waikato Community Lands Trust (WCLT), Bridge Trust, and Perry Group are having ongoing discussions to explore affordable housing opportunities and identify potential delivery and partnership models.

56. Council staff meet regularly with WCLT Trustees to discuss the progress and operationalisation of the Trust and actively seek out opportunities across the Hamilton metro and wider sub-region; noting the request from Council on 30 June 2022 for the Waikato Community Lands Trust to report to Council by 31 March 2023 on progress regarding a specific proposal or proposals for the use of the $2 Million grant by Council to the Trust

57. Council staff and WCLT Trustees are also in regular conversation regarding the Fairfield-Enderley Urban Development Partnership and the opportunities emerging from the integrated master planning approach and the wider affordable housing workstream of the partnership.

58. Council staff are coordinating the individual parties of the Appointments Panel to convene and begin the recruitment process for the current Trust Board vacancies. Noting that a review of the current makeup of the Trust and skills represented will be undertaken before the selection process begins. It is anticipated that this will occur prior to October 2022.

Infrastructure Acceleration Fund (IAF)

59. On 2 May 2022, Kaainga Ora advised Council that its $151M Central City IAF funding bid was successful, subject to funding and housing agreements to be negotiated, and the successful deployment of the 'HIF to IFF' in Peacocke. The total infrastructure package is $201M with balance of $50M to come from a proposed IFF in Peacockes.

60. Staff, in consultation with Elected Members, are in detailed negotiations with Kaainga Ora, who are performing their due diligence of Council's proposal.

61. Staff provided a verbal update to the Elected Members at a Public Excluded meeting on 18 August 2022 seeking direction on several specific negotiation points.

62. Upcoming Elected Member engagements include:

    i. An update to the Council at a 31 August Briefing;

    ii. Council Report with recommendations and delegations sought, to 14 September Council Meeting to allow for continuation and/or finalisation of IAF agreements; and

    iii. As required, a report to the Council in December 2022 seeking final approval if delegations do not allow for execution at a staff level.

63. Staff have identified and requested to Kaainga Ora throughout the negotiations that several factors – which, in the opinion of staff, are critical to success – are included in the core Funding and Housing Agreements. The factors include:

    i. efficient navigation of Central and Local Government governance processes;

    ii. funding $9.4M for design and consenting while the IFF is established;

    iii. establishing a collaborative working group to deliver the IFF, consisting of government agencies and HCC staff, to ensure that process is completed in a timely way and does not compromise the programme delivery;

    iv. a funding agreement structured in such a way that the delivery team can manage the risks of delay across projects. We have suggested that a way to successfully achieve this may be to establish a Programme Steering Group that includes representatives from HCC and Kaainga Ora;

    v. as discussed at previous meetings and in our Proposal, a housing agreement that recognises the nature of Central City development, and the incentives specific developers have to make fixed development commitments.

64. Staff will bring a report to Council on 14 September 2022. If negotiations have been successful, that report will seek approval of the Funding and Housing Agreements. There is uncertainty as to whether those agreements will be fully completed in time for the Council Meeting given the short timeframes and Kaainga Ora's due diligence and approval process. As such, delegations to the CE are likely to be requested to finalise and execute the agreements ahead of Kaainga Ora's 4 November 2022 deadline, with minister announcements scheduled for shortly after.

65. Staff will continue to report progress to the Council as the negotiations progress.

Peacocke IFF

66. On 30 March 2022, the Housing and Finance Ministers gave in-principle support to Hamilton City Council to further investigate using the Infrastructure Funding and Financing (IFF) Act 2020 in Peacocke, which could provide around $100M in balance sheet headroom.

67. Previously, this proposal has been referred to as the "HIF to IFF" because it was originally envisioned to convert infrastructure funded through the Housing Infrastructure Fund (HIF) to an IFF loan. It is now proposed that the IFF recycle a mix of HIF and Council-funded infrastructure in order to maximise the benefit to the city, and as such we will refer to the proposal simply as the 'Peacocke IFF'.

68. The engagement with Government agencies is underway and progressing well; however, there is a significant amount of information requested of Council by Crown Infrastructure Partners (CIP) including a commercial agreement to be developed. Once this information phase is complete, CIP will take the proposal to their Board for approval to proceed. The Council will have the opportunity to approve or otherwise before the levy development and later deployment phases occur.

69. Approval by CIP of the Peacocke IFF will be a condition in the IAF Funding Agreement and – as such – presents a risk to the IAF Proposal if the progress of the Peacocke IFF is not fast enough or to the satisfaction of Kaainga Ora.

70. The balance of the funding headroom created, by successfully deploying the Peacocke IFF, will need to be directed to infrastructure investment to support new housing, with the most prudent recipient being the Rotokauri Stage 1 growth area.

Strategic Development Forum

71. A Strategic Development Forum has been established to support productive and sustainable commercial and industrial growth in Hamilton. Developers have been experiencing multiple challenges, including rising land costs, that have created barriers to unlocking and developing industrial and commercial land.

72. These barriers subsequently impact on our ability to attract new businesses into Hamilton and the sub-region. There is opportunity to work collaboratively with some key, experienced developers to bridge the strategic gap between developers and Elected Members. The forum will provide a mechanism for developers to provide a collective voice of feedback to Council to help inform policy direction and remove some of the barriers to development.

73. A 12-month action plan was agreed in April 2022. HCC progress on these actions includes:

    i. Re-established developers forum events, rebranded has Growing our City, the first one held in April 2022 and the next one due for October 2022;
    ii. Shared a list of key strategies, plans and policies that are being reviewed and encouraged developer engagement;
    iii. Establishment of a position to support major developments, date for recruitment to be determined;
    iv. Whole of Council engagement on large scale projects – a process for this is underway and staff are currently identifying projects that it can be tested on

v. Internal workshops (initial focus on central city developments) on understanding where policies conflict, where those conflicts may impact development progress or outcomes and where there might be room to flex or not. These workshops will result in a number of actions and improvements to developer and Council staff experiences.

74. Other actions identified but not yet under way include looking at service levels for Commercial Developers with projects over a certain size and scale and investigating a Tier 1 consultancy and legal panel.

75. The next meeting is scheduled for 6 September 2022. At the time of writing this report the developers were yet to confirm whether they will attend to outline the size and scale of their projects in the pipeline for the next 12-24 months. A verbal update can be provided at the Committee meeting.

76. The membership of the forum will be reviewed following elections.

District Plan Programme

77. On 29 June 2022, Council approved the notification of Plan Change 9; the submission period is now open until 2 September 2022.

78. On 18 August 2022, Council approved the notification of Plan Change 12, Hamilton City Council's response to the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act (2021). This plan change was subsequently notified on 19 August, with submissions closing on 30 September 2022.

79. On 18 August 2022, Council also approved a recommendation from the District Plan Committee to advance the development of Plan Change 14, which will address flood hazards across the city.

80. Public engagement is ongoing and throughout August and September 2022 on Plan Change 12, with a webinar and community events planned.

81. Plan Changes 9 and 12 are both scheduled to commence hearings in the first quarter of the 2023 calendar year.

82. Plan Change 5 (Peacocke) will commence hearings on 26 Sept 2022; these are set down to run for two weeks.

Intercity Rapid Rail Business Case

83. The Ministry of Transport in the period 2018-21 completed an *interim* Indicative Business Case (IBC) for Intercity Rapid Rail to obtain a high-level understanding of potential options and costs and to identify the value of doing further work. The decision was made to complete a *full* IBC and this work is ongoing

84. The IBC is about taking a long-term view on the potential value of faster rail and how it could influence urban development in the Hamilton to Auckland corridor. It assumes that Te Huia (or other public transport options) will continue to run as a service for stops along the route outside the Hamilton and Auckland urban areas. It will consider when a service should commence based on reaching defined population points.

85. Consideration is being given to rail alignment options associated with service speeds and potential limited stops in the urban areas of Hamilton (that will be aligned with the MSP Transport Programme Business case work) and Auckland South.

86. The Chair of Strategic Growth proposes to support a request made by Tainui Group Holdings to the Minister of Transport to undertake some feasibility work as part of the business case on the future possibility of reinstating Hamilton's underground rail station considering technical advancements in the rail network (such as electrification) or rolling stock that could be made over time (refer draft letter in **Attachment 1**).

87. The draft Indicative Business Case is behind programme and the Ministry is not yet able to share any substantive findings. We are advised that the deliverable time is more likely to be December 2022.

Southern Links

88. The Committee previously resolved to set up a Southern Links Working Group to work with staff and external parties on matters relating to the promotion of the Southern Links transport network and related growth and economic development issues. This followed an update on the Southern Links project at the Strategic Growth Committee meeting on 7 September 2021.

89. The Committee were also advised that Waka Kotahi were undertaking a Form and Function review of Southern Links.

90. Waka Kotahi have set up a project team to progress the review and have also established a staff steering group with representatives of Waka Kotahi, Hamilton City Council, Waipa District Council and Tangata Whenua. The Review outcomes will be reported through FutureProof and the HCC set up Working Group will be a significant engagement party.

91. The Steering Group met with the Southern Links Working Group on 17 June 2022. The Working Group decided not to invite external parties to this meeting until there was further clarity on Waka Kotahi's work programme. The purpose of this meeting was to allow members to provide the Steering Group with their insights and their expectations of what the form and function review should consider.

92. Some of the insights included:

    i. the Southern Links designation was part of a city shaping transport system (in the shape of a rugby ball) that sought to define a balance of growth to the north and south of the Hamilton centre

    ii. growth to the south (in Peacocke and SL1) would be close to the central city and support its viability along with revitalising the Melville/Glenview areas of the city

    iii. an understanding that the location and timing of land use (SL1 in particular) was an important input to the form and function review

    iv. not to underestimate the growth that is likely to occur in the sub-region and the impact of major developments such as the Ruakura Super Hub- a need to engage with Tainui Group Holdings was noted

    v. consideration was required for freight routes particularly those serving the western Employment belt and Taranaki with a focus on ensuring freight was separated as much as possible on routes that supported residential development- it was noted that the MSP had considered freight routes but more visibility of this work was requested

    vi. the criticality of protecting and maintaining the protection of routes. In this context mention was made in regard to future rail connections (both freight and passenger) to the Airport precinct

    vii. a need to consider staging with the eastern connection (Expressway to Narrows Bridge) and Kahikatea Drive being likely candidates

    vii. the need to include external parties including SL1 landowner representatives, the Airport, major developers in the southwest, Kahikatea Drive business representatives, Chamber of Commerce, Road Transport Association

93. The Committee were advised that there would be emerging themes to consider arising from the study and that these will be considered by the Working Group in early September 2022. The project team has not made the progress it intended to be able to fully articulate any emerging themes, but a Working Group meeting prior to the end of this Triennium is still proposed to discuss where progress sits.

Development Contributions interest rate refund

94. On 10 August 2020, Council was served with judicial review proceedings in respect of its Development Contributions regime – the case being AGPAC Limited & others vs HCC – which was heard in the High Court on 20-22 April 2021.

95. Judge Ian Gault announced in his decision on 27 August 2021 that the case for judicial review was dismissed, finding in favour of Council in all of the 17 claims that the applicants took forward to trial. The Judge provided no relief to the applicants in relation to their claims.

96. However, Council acknowledged as part of its pleaded case an administrative error in interest rates for three historical years (2016, 2017, 2018) input into the development contributions model, which in turn calculates development contribution charges. The only DC Policies affected by these erroneous interest rates were the 2018/19 and 2019/20 Policies. Growth Funding and Analytics Unit staff, in collaboration with the Finance Unit, have undertaken detailed work to calculate the extent of the interest rate error, and how much and to whom refunds should apply.

97. Based on advice from PWC and the Finance Unit – and as reported previously to the Council – staff updated the interest rates input into the development contributions model and updated the schedule of charges within the calculation tool effective 24 January 2022, such that the DC Policy and any DC assessment since that point in time no longer carried the error. Staff provided an update on the interest rate refunds to the Strategic Growth Committee on 2 December 2021, where it was resolved that that the refunds would be executed under staff delegations.

98. There are a total 888 individual refunds, across 626 debtor accounts, totalling a current estimate of $362,846.47. This is in line with estimates previously provided to Elected Members. Based on advice from the Finance Unit, use of money interest will also be provided on all refunds, calculated using published 90-day bank rates applicable at 30 June for each of the years that the refunds apply. The total use of money interest payable is currently estimated at $3,029.

99. The first tranche of refunds, being the top 20 debtors by total refund owing in addition to any judicial review applicants not captured in this top 20 list, has now been completed. The total refund value of this tranche was $155,235.47.

100. The second tranche of refunds comprises the 601 remaining debtors totalling an estimated refund value of $207,611. Staff have started processing this tranche of refunds and at the date of writing this report had refunded $51,547.96.

101. Staff will provide further updates in due course as the refund process progresses.

102. The third and final piece of work is finalising the individuals who were under-charged due to the error. The treatment of these under-payments will be noted in a future report to Strategic Growth Committee.

103. The refund process and methodology have been reviewed by Council's barrister.

Everton Judicial Review update

104. Everton Heights Ltd (Everton) filed a judicial review on 2 October 2020 of a decision of the Council relating to how development contributions should be assessed on the latter stages of Everton's Rotokauri development. The case was heard in the High Court on 26 October 2021.

105. A decision is pending, but at the time of writing there have been no further updates from the Court as to when a decision can be expected. Staff understand that this unusually long time between hearing and decision is largely due to Covid and a backlog in the courts. Staff will inform the Council when a decision or any other update is received.

Assessment of the Housing System: with insights from the Hamilton-Waikato Area

106. On 18 August 2022, the Government's housing technical working group released a report (**Attachment 2**) which uses data from the Waikato housing market to better understand the drivers of house prices and rents in New Zealand. The working group is made up of members from the Ministry of Housing and Urban Development, Treasury and the Reserve Bank of New Zealand.

107. The working group assessed the New Zealand housing market to develop a common understanding. They used Hamilton and the Future Proof sub-region to test the performance of their analytical and theoretical framework. The report does not put forward specific policy advice or recommend actions.

108. House prices in Waikato have increased by 372% and rents by 114% between March 2002 and June 2021. Over the same period, incomes increased 98% and section prices increased 405% (658% in Hamilton). The disproportionate increase in house prices compared to rents supports the view that there is restricted land supply Waikato.

109. The relative affordability of Hamilton and Waikato housing compared to Auckland was found to increase demand from movers, first home buyers and investors. The relative attractiveness of the Waikato contributed to population and price growth. The land supply metrics indicated that land supply had not been responsive to this increased demand.

110. The working group found that regulations and other constraints to intensification and expansion, particularly in urban centres, have restricted land supply and impacted house prices and rents. Within this context of restrictions, the key driver of house prices has been the reduced cost of debt (lower interest rates globally) which has increased buyers' ability to pay more. The authors believe that following an initial lift, prices would have dropped below initial levels if land supply was not restricted. Instead, it resulted in ongoing increases to land prices.

111. The report outlines the complexities including global interest rates, tax settings and investment incentives, demand caused by high immigration through the 2010s, construction costs, and the barriers to opening more land supply such as infrastructure funding and financing, and environmental constraints. It also suggested that the tax system could have been used to pull down land values without affecting the incentives to build more houses.

112. The report is the first formal recognition that there are complex drivers to house prices. This is a positive shift away from a narrative that was narrowly focused on rhetoric that local government actions are the core drivers of house price growth.

113. The report touches on the competing policy priorities of central government and regional councils. It could go further to address the combined impact of policies, for example, the upcoming National Policy Statement on Highly Productive Land, the Emissions Reduction Plan, the National Policy Statement on Freshwater, and the National Land Transport Strategy. Together, they have a cooling effect on councils' ability to unlock urban land supply, if it had the funding wherewithal, particularly at the periphery of cities. For example, where these policies lead councils is to controlling development onto highly productive farmland or reducing the funding for new roads due to climate change and VKT targets, roads being a key enabler to unlocking new areas for urban development.

114. To some extent, the report overlooks the root causes of constrained land supply and inflexibility – a key lever local government has at its disposal to contribute to a solution. For example, there is little to no mention of land ownership constraints, for example fragmented ownership, the profit maximising behaviour of landowners, and competing central and regional government policies which deter urban expansion.

115. The 'restrictions to land supply' are not integrated within the report; as such it does not address the often decades-long development process of transitioning rural land to urban. Nor does it fully articulate the reasons why local councils can be slow to open up more land, namely that the cost of enabling infrastructure is often too great for the developer alone or council to carry. Examples of this include Peacocke and Rotokauri in Hamilton, and the Sleepyhead Estate in Ohinewai.

116. A key hurdle to overcome in terms of realising land development potential is to avoid land banking and 'trading' of zoned or likely future urban zoned land by investors who are *not* in the business of developing the land. Significant value uplift occurs by actors by simply holding strategic land parcels, in some cases seeking strategic recognition for urbanisation or intensification along the way from local authorities, but without any intention of developing nor making any investment towards urbanising the land (e.g. infrastructure, pipes and roads).

117. This leads to price inflation through speculation of the underlying land without tangible land improvement occurring. This drives up the cost of future development in order for the ultimate developer to maintain their profit margins while delivering the necessary services to build houses. When the margins don't exist due to excessive price inflation which has already occurred, coupled with high infrastructure costs, the land remains undeveloped until sufficient time has passed when development becomes viable.

118. The paper concludes that "there is no simple and complete solution to solving the housing crisis". We agree, but note that there are levers available to central government now to support local government in addressing the supply-side aspect of the equation in terms of land supply. The Council could consider taking a stronger advocacy role in this space to help respond to the issues identified.

Financial Considerations - *Whaiwhakaaro Puutea*

119. There are no financial implications in relation to the information provided in this report.

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

120. Staff confirm that this matter complies with Council's legal and policy requirements.

121. Staff have considered the key considerations under the Climate Change Policy and have determined that an adaptation assessment and emissions assessment is not required for the matter(s) in this report.

Wellbeing Considerations - *Whaiwhakaaro-aa-oranga tonutanga*

122. 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').

123. The subject matter of this report has been evaluated in terms of the 4 wellbeings during the process of developing this report. The recommendations set out in this report are consistent with that purpose.

124. There are no specific social, economic, environmental or cultural considerations associated with the matters covered in this report.

125. However, the Strategic Growth Committee supports the wider organisation in delivering key objectives that enhance the 4 wellbeings by being responsible for:

    i. guiding sustainable physical development and growth of Hamilton to meet current and future needs, including oversight of strategic land-use planning, boundary alignment, and existing and alternative planning, funding and financing models for growth-related projects; and

    ii. driving collaboration with neighbouring Councils, Iwi, private sector and central government to meet Hamilton's growth ambitions.

Risks - *Tuuraru*

126. There are no known risks associated with this matter.

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

127. Having considered the Significance and Engagement Policy, staff have assessed that the report has a low significance, and no engagement is required.

Attachments - *Ngaa taapirihanga*

Attachment 1 - Draft Letter to Minister of Transport re TGH/Hamilton to Auckland Inter-regional Rail Business Case

Attachment 2 - Assessment of the Housing System: with insights from the Hamilton-Waikato Area

Dear Minister

Tainui Group Holdings (TGH) has advised us that the Ministry of Transport are unable to justify resourcing an investigation into resurrecting the existing underground station in central Hamilton as part of the Hamilton to Auckland Inter-regional Rail Business Case without an identified need.

This response follows a conversation that TGH had with you on 4 May 2022 where it was reported to us that you had invited them to put a proposal through to see about progressing this study as an integral part of the business case work underway. TGH are currently undertaking their long-term master planning with other partners for the land above the existing underground passenger railway platforms that have not been in use for some time and would like to make allowances so as not to preclude any future opportunity, if an underground station was considered a viable option in the future considering likely technology changes.

Hamilton City Council has expressed its support of looking at the feasibility of this as part of the current business case work being undertaken by the Ministry. HCC is also about to submit to the Parliamentary Inquiry into Inter-regional passenger rail taking a very supportive position, and we see a future central city rail station for Hamilton as highly desirable. Understanding if a future underground station is viable is important for city planning purposes.

The Ministry have indicated that they would reconsider their position if required. TGH have indicated in their letter to you that they would be willing to support any initiative to look at the feasibility. HCC would consider contributing if the Ministry were to take the lead requested. We believe it fits well with the business case work currently being undertaken.

Could you please consider a partnership approach to this study, and the benefits of having the outcome of the study integrated with the Indicative Business Case under development.

Regards

Dave Macpherson
Chair Strategic Growth Committee
Hamilton City Council

TE TAI ŌHANGA
THE TREASURY

Te Tūāpapa Kura Kāinga
Ministry of Housing and Urban Development

Reserve Bank
of New Zealand
Te Pūtea Matua

Assessment of the Housing System: with insights from the Hamilton-Waikato Area

Housing Technical Working Group

18 August 2022

Contents

Contributing members of the Housing Technical Working Group: Dominick Stephens (Treasury, Chair), Nick McNabb (MHUD), Chris McDonald (RBNZ), Alan Bentley (MHUD), Matthew Brunton (RBNZ), Enzo Cassino (RBNZ), Andrew Coleman (RBNZ), Ashley Farquharson (RBNZ), Alex Gunn (MHUD), Jonno Ingerson (MHUD), Frances Krsinich (MHUD, Statistics NZ), Hannah Ouellet (Treasury), Chris Parker (Treasury), Tyler Smith (RBNZ).

Executive Summary

To better understand the drivers of house prices and rents and how this has impacted households Te Tūāpapa Kura Kainga (Ministry of Housing and Urban Development), Te Pūtea Matua (Reserve Bank of New Zealand) and Te Tai Ōhanga (The Treasury), through the Housing Technical Working Group, looked at the housing and urban development system in Hamilton-Waikato to build a more comprehensive picture of supply and demand and how these have interacted over time.

It is commonly asserted that a lack of dwelling supply relative to population has been a key driver of rising house prices in recent decades. But physical supply and demand should affect rents as well as prices, and over the past twenty years house prices have risen far more than rents. Our key conclusion is that a combination of a global decline in interest rates, the tax system, and restrictions on the supply land for urban use have led to a large change in the ratio of prices to rents, and are the main cause of higher house prices in Hamilton-Waikato, as well as other parts of Aotearoa New Zealand, over the past 20 years.

To understand the drivers of rents and house prices it is important to separate the supply of land from the supply of dwellings. We find that regulations and other constraints to urban intensification (building up) and expansion (building out), particularly in the main urban areas, have restricted land supply with implications for house prices and rents.

In the context of restrictions to land supply, the key driver of house prices over the last twenty years has been the global decline in interest rates that significantly reduced the cost of debt servicing and increased home buyers' ability to pay. The resulting increase in demand inevitably caused an initial lift in prices. If land supply had been more responsive, then over time that initial price rise would have incentivised a larger housing supply response, causing prices to retreat and rents to fall below their initial levels relative to income. This did not fully happen, because land supply has been restricted.

Due to restrictions to land supply, much of the global decline in interest rates was instead capitalised into, or captured by, higher land prices. As land prices rose alongside house prices, there was less change in the incentive to build new houses, and less of a supply response. Consequently, the initial price rise caused by lower interest rates persisted, and the longer-run retreat in prices and decline in rents did not materialise.

Evidence supporting our conclusions includes the fact that prices rose much further than rents, that the price of land rose much further than the cost of constructing new dwellings, and direct indications of restricted land supply.

Restrictions to land supply also influence how the tax system and other factors affect house prices relative to rents. The more restricted the supply of land, the more that changes to the tax system will be captured as changes in the value of land, rather than affecting incentives to build more homes and reduce rents. Hence the tax system has played a role in the passthrough from lower interest rates to higher land prices. Similarly, when land supply is restricted, changes to construction costs or building standards are more likely to affect land values than housing supply or rents.

We still regard the supply of dwellings as extremely important for housing costs and the wider housing system. The supply of dwellings relative to demand is a less prominent driver of house prices, but an important determinant of rents. Until recently rents in Hamilton Waikato had moved

broadly in line with, and at times slower than, incomes over a long period. Trends at a national level were similar. But since 2015, rents have increased sharply across the Hamilton Waikato region as population has grown faster than the supply of dwellings. The worsening availability and affordability of rentals has increased financial stress and homelessness.

The increase in rents since 2015 is likely to have had a larger negative impact for the wellbeing of society's most vulnerable members than the large increase in house prices. This further emphasises the importance of our conclusion that, had land supply been more flexible, the large decline in interest rates would have resulted in rents and house prices being lower.

While we regard falling interest rates in the context of unresponsive land supply as the main driver of rising house prices over the past twenty years, it does not explain house prices in all places and all times. Costs of construction, land development and infrastructure have also increased over time, including to support other objectives like improved water quality or climate adaptation. Also in many regional centres house prices have spent periods of time below the cost of constructing new dwellings. Under these conditions increasing demand will cause prices to rise until new homes are priced competitively compared to existing ones.

One further and crucial caveat is that our analysis explains outcomes in the housing market where land and housing is valued as an asset as well as a home. For Māori, all land holds significant cultural and non market value . Land held under Te Ture Whenua Māori, which makes up of 5% of land in Aotearoa New Zealand, can be subject to significant additional constraints through fragmented ownership and access to finance. For this reason, the housing market drivers outlined in this paper will not necessarily explain outcomes for land owned by Māori. Aspects of the Māori Housing system will be a focus of future work.

Reforms to increase land supply (including the National Policy Statement on Urban Development and The Resource Management (Enabling Housing Supply and Other Matters) Act) may moderate land and house prices further, but this is dependent on other factors such as local government support, the provision of infrastructure and decisions by major landowners including mana whenua. This will play out over a longer timeframe.

While there are significant potential gains from improving the responsiveness of land supply to changes in demand, many constraints could be difficult to fully address, and others exist for good reasons. Further reforms to improve the responsiveness of land supply, including through the Resource Management Act reforms, need to be supported by an improved understanding of the interactions between housing and other national, regional or local objectives, all of which support thriving communities. Priorities around climate change, emissions reductions, food production, maintenance of heritage/character, and the limits around funding and financing of infrastructure and urban development all have the potential to limit land supply or make development more expensive.

Better assessment and monitoring metrics will help us manage these interactions and identify where and how land supply can be more responsive while also consistent with other objectives, such as the Government Policy Statement on Housing and Urban Development. Developing better indicators of land supply responsiveness is a key next focus of the Housing Technical Working Group.

There is no simple and complete solution to solving the housing crisis. The Housing Technical Working Group, with support from other stakeholders, will work together to get a better understanding of the relative impacts of policies on housing outcomes and the other priorities for New Zealanders.

At a Glance - Some Key Facts

Due to restrictions on the supply of land, the global decline in interest rates over the past twenty years was capitalised into land values, explaining most of the rise in house prices.

If land supply had been more flexible, falling interest rates would have sparked more of a housing supply response, meaning rents and prices would have risen by less.

For the Waikato Region, between March 2002 and June 2021:

- House prices increased by 372% and rents by 114%.
- Incomes increased by 98% over the same period, while national construction costs increased by 142%.
- Section prices have increased by 405% (and 658% in Hamilton City).
- Deposit affordability has declined sharply, with the required deposit increasing significantly relative to income.
- Mortgage affordability – the cost to service a mortgage – had improved due to the decline in long term interest rates, although the very recent increase in mortgage rates has largely reversed this.
- Rental affordability improved from around 2007 through to 2014, but since then an increase in people per dwelling has put pressure on the supply and demand for housing causing the recent decline in rental affordability.
- The relative affordability of Hamilton Waikato housing compared to Auckland increased demand from movers, first home buyers and investors, contributing to population and price growth.
- A number of metrics indicate that land supply has not been responsive to increased demand, consistent with the strong growth in section prices and the increase in the house price to rent ratio.

Background

The high price of housing, including rents, is one of the most important issues facing New Zealanders today.[1] In 2020, New Zealand had the highest housing cost to disposable income ratio in the OECD.[2] However, access to affordable housing is not a new issue, it is a persistent long-term challenge that has far reaching consequences on social, cultural and economic outcomes. Reductions in affordability can exacerbate inequality, homelessness, and child poverty, generate financial stability risks, and redistribute wealth. Insufficient responses to Māori housing issues have had an intergenerational impact on Māori communities. It is therefore important that the Government's response to the housing crisis is effective with government agencies having the best possible understanding of the housing market and the housing and urban development system within which it sits.

The housing market is complex and influenced by many factors. In 2021 many changes were made to New Zealand's housing system. During 2020 and 2021, there was a rapid increase in house prices. This was different to expectations that the market would cool due to the impacts of COVID-19. Given that this rapid increase occurred during a period of low population growth and strong construction activity, it challenged traditional understandings of the housing market. In 2021, the Government put additional investment into housing and infrastructure, Māori housing, and made changes to tax and zoning policies. In March 2021, the Reserve Bank reinstated Loan-to-Value Ratio restrictions at pre-COVID levels, and further tightened restrictions later in the year. The Minister of Finance also gave a direction to the Reserve Bank to have regard to the effect of financial policy on house price sustainability. In addition to the Government's and the Reserve Bank's actions in 2021, many existing housing policies, programmes and long-term reforms remain underway.

Given that there is a lot going on in the housing market, the Reserve Bank, Treasury and the Ministry of Housing and Urban Development wanted to ensure we had a common and evidence-based understanding of the housing market. We undertook this assessment to develop a deeper understanding of the demand and supply drivers of housing, and how these drivers interact to affect house prices and rents. We are also interested in the impact of recent and ongoing policies on the housing market. Insights will be used to help inform our approach to supporting the Government's housing objectives that were set out in the Government Policy Statement on Housing and Urban Development (GPS-HUD),[3] released in September 2021.

The three agencies looked at the Hamilton-Waikato area to ground our assessment of New Zealand's housing market. We took a place-based approach to capture insights that were likely to be relevant across New Zealand. To support our conclusions about the national housing market, we also used national level data. The Hamilton-Waikato area – principally the Future Proof area of Hamilton City, Waipa District and Waikato District – was selected because it is a major urban area with fewer natural constraints or market disruptions than other major centres.

1 Ipsos (2021), "The Ipsos New Zealand Issues Monitor: An Ipsos Survey - October 2021".
2 OECD (2020), "How's Life? 2020: Measuring Well-being". OECD Publishing, Paris.
3 hud.govt.nz/urban-development/government-policy-statement-gps/

As leads for the housing and urban development, economic, financial and monetary systems, the three agencies led this assessment to test how our analytical and theoretical frameworks performed in the Hamilton-Waikato area and nationally. This report is an observational analysis of how the housing market functions and does not put forward specific policy advice or points of action.

An important caveat to our analysis is that it focuses on the outcomes in the housing market, where land and housing is valued as an asset as well as a home. Our analysis will not reflect outcomes for Māori where land has significant cultural value as well as market value, and where additional constraints and responsibilities can limit how land is used. Future work of the Housing Technical Working Group will look at how aspects of the Māori housing system interact with the housing market, with an initial focus on supporting reforms to financing on whenua Māori.

Terminology used in the report

Land supply is a term that will be used throughout the report. While the overall supply of land in a country is ultimately is fixed, the extent to which is can be used for urban uses, including housing is not. In this report, the supply of land refers to:

- new urban land, typically on the outer limits of cities;
- redevelopment opportunities on existing urban sites; and
- intensification opportunities on existing housing sites.

It is also important to note that urban land may be used for housing, commercial, industrial, infrastructure or community purposes. While the predominant focus of this report is the supply of land for housing, land is also needed for other urban uses to enable communities to thrive.

The supply of land for urban use is not just about land use regulation, land also needs to be serviced by infrastructure. In cities, the quality of transport networks can be a key determinant of land value and the volume of redevelopment and intensification opportunities, and therefore land supply.

Restricted land supply means that there are rules, regulations or constraints that reduce the supply of developable land (serviced by infrastructure). **Abundant land supply** means that there are no restrictions or constraints to land supply.

Key findings

1. **Rising prices and rents have had a significant impact on wellbeing, home ownership rates, wealth inequality, homelessness and child poverty. These outcomes disproportionately affect low-income earners, Māori and Pacifica people and young people.**

Low-income earners, Māori and Pacific peoples and young people are more likely to rent the homes they live in, and Māori and Pacific peoples are overrepresented on the Public Housing Register. On average across New Zealand, rents have risen in proportion to incomes over recent decades. However, in some parts of the country, including the Hamilton/Waikato area, a shortfall in housing supply drove rents up faster than incomes between 2014 and 2019. This could have a long-lasting effect on wellbeing for some of New Zealand's most vulnerable people. Some New Zealanders will rent for life and compared to other groups will likely have higher lifetime housing costs relative to their income.

The biggest change in housing affordability has been experienced by aspiring first home buyers struggling to raise a house deposit. Rising house prices over the past twenty years have caused a dramatic rise in the deposit required to get a mortgage compared to average incomes. Consequently, many people have been forced to delay their entry into homeownership and others have been locked out of the housing market altogether, exposing them to high rental costs.

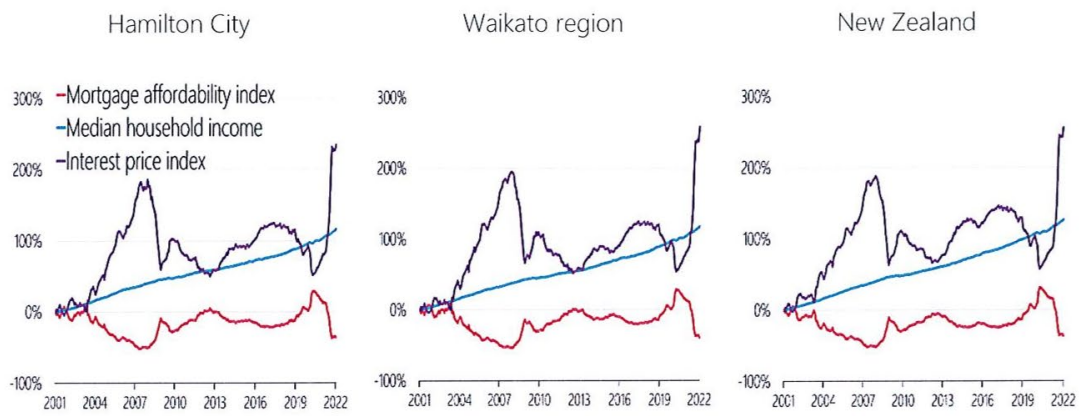
In contrast to aspiring first home buyers and other renters, people with sufficient capital to muster a deposit have benefitted from mortgage rates trending lower over time. Despite rising house prices, mortgage affordability has generally been maintained in the sense that mortgage payments on a given house have increased at a similar pace to incomes over the past twenty years. This is the key reason that some New Zealanders have been willing and able to pay such high prices for houses, but it has come at the cost of increasing the barrier for others to home ownership. Furthermore, over the past twenty years existing homeowners have benefitted from a rise in the value of their main asset. This has amounted to a redistribution of wealth from non-owners to owners.

Analysis of the Hamilton-Waikato Area

House prices in the Hamilton and Waikato area have increased much faster than incomes over the past 20 years. However, mortgage rates have approximately halved. The net effect is that mortgage costs relative to income have decreased since 2000. Figure 1 shows that mortgage affordability has improved over the past 20 years, but has recently dipped due to a lift in mortgage rates. This means recent buyers may find it more difficult to service a mortgage compared to when they purchased the home.

Figure 1 Mortgage affordability

Change in mortgage interest prices and incomes since March 2001

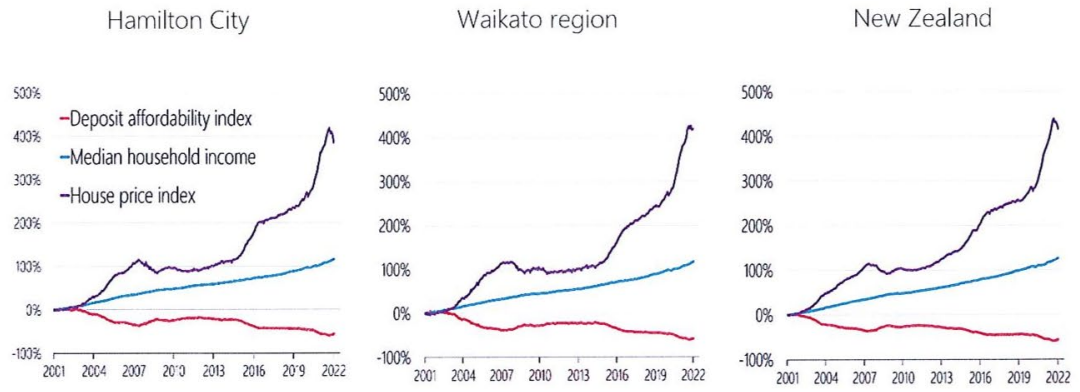


Note: Higher affordability index means becoming more affordable. Source: Te Tūāpapa Kura Kāinga Ministry of Housing and Urban Development estimates, Stats NZ, Tenancy Bonds, and CoreLogic.

Deposit affordability measures the ratio of house prices to incomes. It can be thought of as the cost of raising the deposit necessary to get a mortgage on a typical New Zealand house, relative to incomes. Figure 2 shows that deposit affordability has fallen to historic lows in Hamilton, Waikato and across New Zealand, as house prices have increased. Hamilton has a younger population and a lower homeownership rate than the rest of the country, so deposit affordability is particularly relevant.

Figure 2 Deposit affordability

Change in property prices and incomes since March 2001

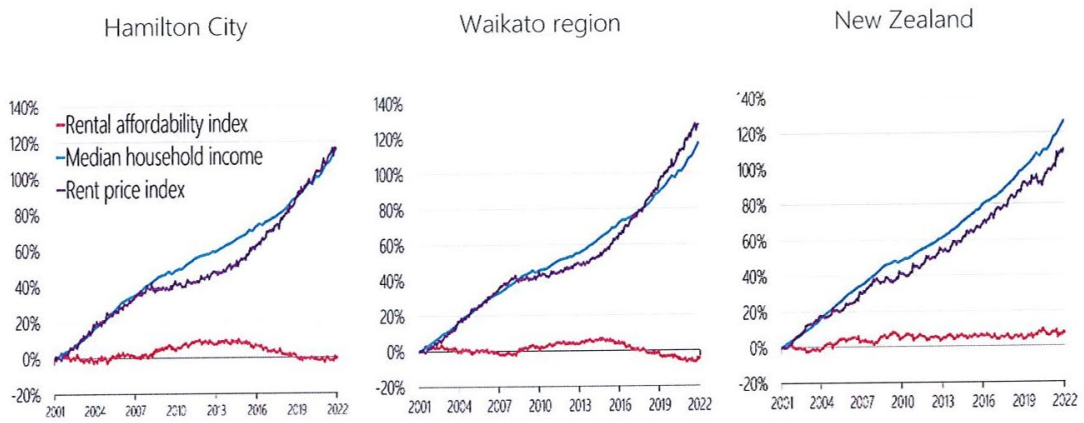


Note: Higher affordability index means becoming more affordable. Source: Te Tūāpapa Kura Kāinga Ministry of Housing and Urban Development estimates, Stats NZ, Tenancy Bonds, and CoreLogic.

National rental affordability has remained relatively stable over the past 20 years. However, median rents have increased slightly more than median incomes in Waikato over the past 6 years, leading to a drop in rental affordability. This is shown in Figure 3 below. The increase in rents is likely a result of population growth outpacing new dwelling supply in Waikato from 2014 to 2019 (see Figure 6). Over this time, there was also an increase in people per dwelling from 2.4 to 2.6 in the Waikato region, and from 2.8 to 3.0 in Hamilton City, indicating that a shortage of housing has emerged.

Figure 3 Rental affordability

Change in rent and income since March 2001



Note: Higher affordability index means becoming more affordable. Source: Te Tūāpapa Kura Kāinga Ministry of Housing and Urban Development estimates, Stats NZ, Tenancy Bonds, and CoreLogic.

The recent decline in rental affordability has had significant impacts on wellbeing. Worsening affordability has contributed to increased household crowding and individuals and whanau seeking emergency and public housing. In December 2021 there were 2,036 households on the Public Housing Register across Hamilton, Wāipa and Waikato districts, compared to 693 in December 2018. Compared to the rest of New Zealand, Hamilton has significantly more people (per capita) on the public housing register, and more families living in motels (see Figure A1).

For mana whenua in the Waikato region, this worsening affordability occurs in the context of historic loss of land through confiscation and war – or raupatu. For this reason, Māori own less land, fewer own their homes and have less intergenerational wealth. Because Māori make up a larger proportion of renters and aspirant first home buyers they have been disproportionately affected by recent declines in affordability.[4]

[4] Thom R R M, and Grimes A, "Land loss and the intergenerational transmission of wellbeing. The experience of iwi in Aotearoa New Zealand", Social Science & Medicine 296 (2022).

2. **A common view amongst economists and policymakers has been that rising house prices are a consequence of a lack of dwelling supply. The conclusion reached by the Housing Technical Working Group is that while the housing shortage has contributed to New Zealand's housing crisis by affecting rents and overcrowding, it has not been the major driver of house prices over the past 20 years.**

New Zealand policymakers and economists have often linked the rise of house prices to either shortages of dwellings or increases in construction costs. This reflects traditional economic theory, which holds that house prices should reflect the cost of constructing a dwelling plus the cost of vacant land, and that the price vacant land at the edge of city should reflect its next-best use, often farming. Any large increase in house prices should, over time, provoke an increase in housing supply until prices are driven back to the cost of construction plus land. Under this traditional model, large persistent increases in house prices are explained by either increases in the cost of constructing dwellings, or by a failure of the construction sector to mount an adequate supply response to any increase in demand.

However, the facts of the Waikato and New Zealand house price booms are not consistent with this explanation.

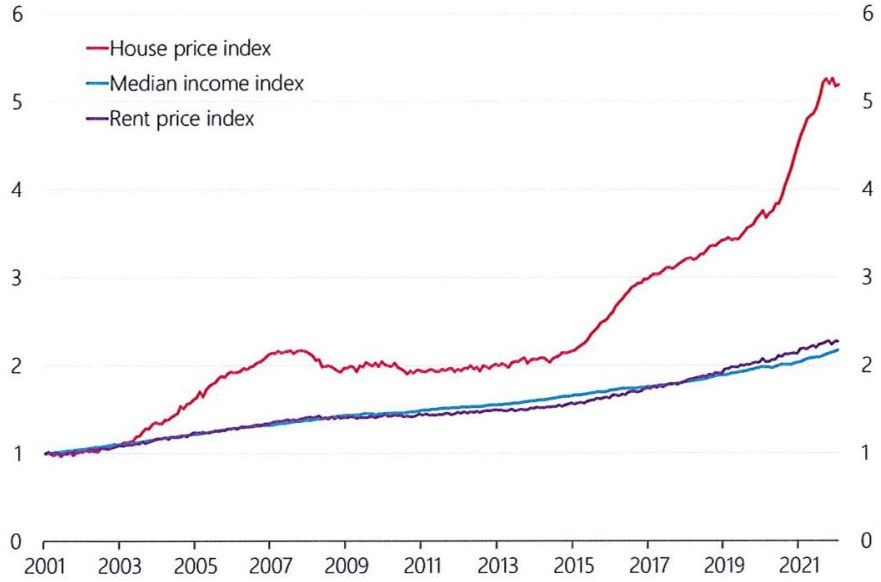
Analysis of the Hamilton-Waikato area

Shortages of dwelling supply should affect both house prices and rents, as the two forms of tenure are substitutes. But in fact, over the past twenty years (between March 2002 and June 2021), house prices have risen 372% while the increase in rents has been much smaller at 114%, and has been similar to income growth (Figure 4).

Over the same period, the national cost of building dwellings increased 142% based on the CPI purchase of new housing class (see Figure A2). Therefore, rising construction costs can at best explain only a proportion of the total increase. The remainder is associated with an increase in the price of sections.

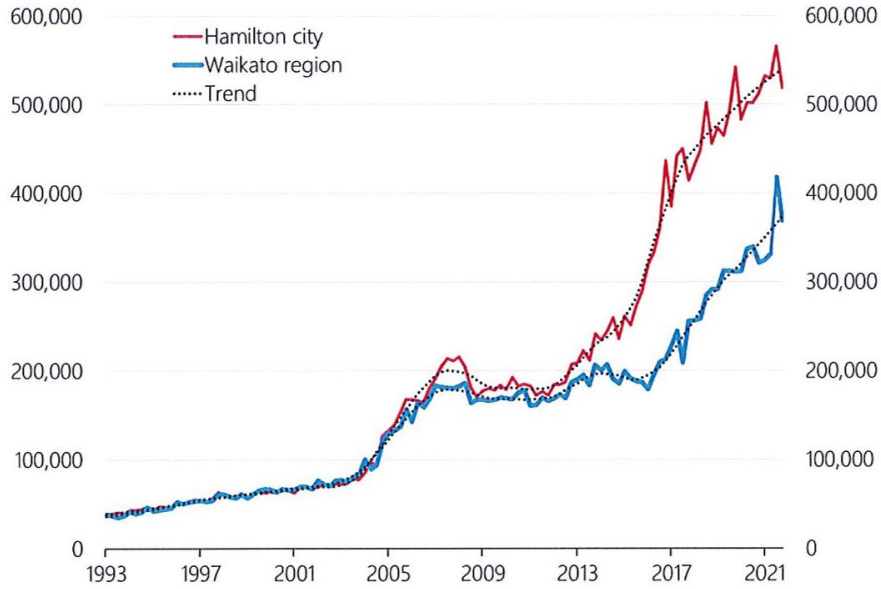
In the Hamilton-Waikato area the sharp increase in section prices aligns with recent movements in house prices (Figure 5). Where land supply is restricted, land is priced at its highest and best use as housing, therefore we expect section prices and house prices to track closely together.

Figure 4 Growth in house prices rents and income across the Waikato Region



Source: Stats NZ, REINZ, HUD estimates.

Figure 5 Median Sales Price for Residential Vacant Land
(rated up to Hamilton Median Section size of 0.068 Hectares)

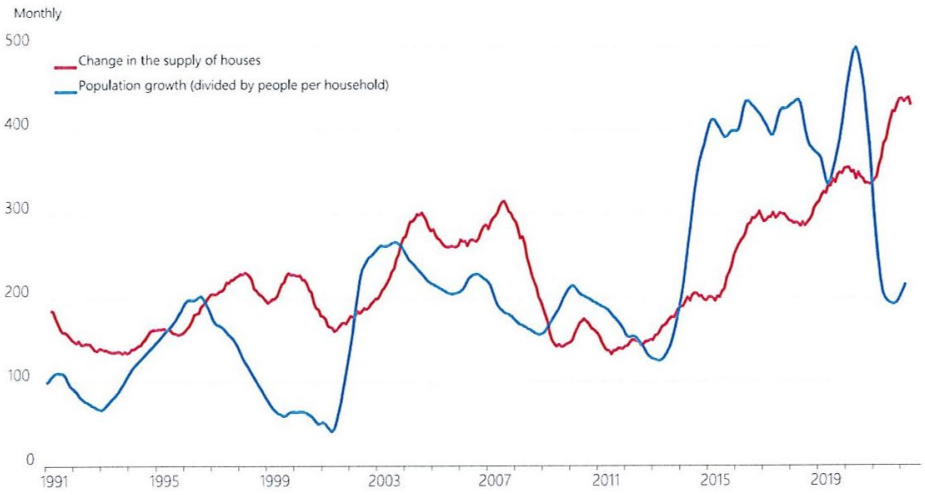


Source: HUD calculations based on CoreLogic data.

There has been no consistent link between supply shortages and house prices in Hamilton-Waikato over recent decades. Dwelling supply outpaced population growth from 2004 to 2007, a period of very rapid house price inflation. House prices also increased quickly when Hamilton-

Waikato experienced a large undersupply of housing relative to population growth from 2014 to 2019, a period when net immigration to New Zealand was elevated and as people from Auckland moved to the Waikato region (see Figure 8). However, population growth in Hamilton-Waikato fell sharply soon after the onset of Covid-19 and residential construction activity accelerated further, yet over 2020 and 2021 house prices rose even more rapidly than over the previous five years.

Figure 6 Population growth versus housing supply in the Waikato region



Note: 'Change in the supply of houses' is a 12-month rolling average of residential building consents. 'Population growth' is working-aged population growth from the Household Labour Force Survey (HLFS). This is divided by people per dwelling which is the ratio of the working-aged population over the number of electricity connections. Source: Stats NZ, Electricity Authority, RBNZ estimates.

3. In our assessment, the main driver of house prices in New Zealand over the past 20 years has been a global decline in interest rates, in the context of restricted land supply.

House prices rising much faster than rents over the past twenty years has resulted in a dramatic increase in the price/rent ratio, or equivalently, a dramatic decline in rental yields (annual rent divided by the property's value). This is a clue that financial factors have played a role in determining house prices in New Zealand.

In any housing market, rental yields should bear some relationship to the returns on offer in other markets. For example, if rental yields were much higher than interest rates, private landlords would seek to borrow cheaply to buy high-yielding investment properties, and some tenants would seek to become owner occupiers. This would increase demand for houses and the resulting price rise would drive price/rent ratios up, and rental yields down. This would continue until rental yields fell into equilibrium with interest rates, considering factors like risk aversion and taxes.

Our User Cost analysis shows that both at the national level and for the Hamilton/Waikato area, the decline in rental yield over the past twenty years is consistent with the large decline in mortgage rates that occurred over the same period (see below).

However, it is less clear why this necessary decline in rental yields was brought about by a large persistent rise in prices, rather than by a decline in rents. As the next section explains, this is due to

the nature of land supply in New Zealand. Traditional models featuring abundant land supply predict that a fall in interest rates will eventually bring about increased supply and a decline in rents. But when land supply is highly restricted, theory predicts that interest rate changes will affect house prices rather than rents. Hence our overall conclusion is that a decline in interest rates in the context of restricted land supply is the key cause of the large increase in New Zealand house prices over the past twenty years.

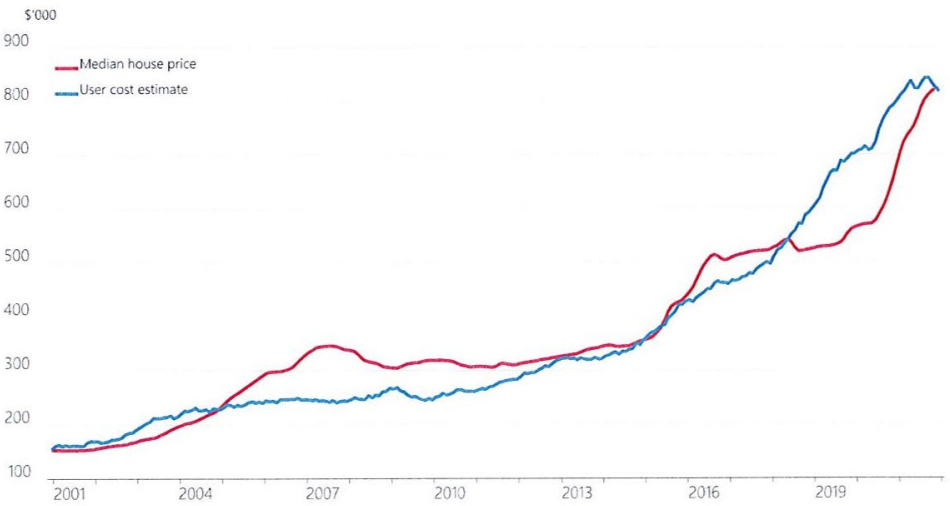
Analysis of the Hamilton-Waikato area

As noted above across the Waikato Region house prices have risen 372% between March 2002 and June 2021. By comparison rents and incomes are up 114% and 98% respectively, with CPI inflation of 49%. This suggests financial factors, in particular interest rates, have had the greatest impact on prices over the past 20 years.

To see how financial and other factors flow through to buyers' decisions the Group estimated the user cost value of housing in Hamilton. This is the value of a house for owner-occupiers or private investors given: rental income (or savings from not paying rent); cost of maintaining a property (including local council rates); opportunity cost of other investments; mortgage interest rates; inflation; and taxes including capital gains and the denial of interest deductibility.

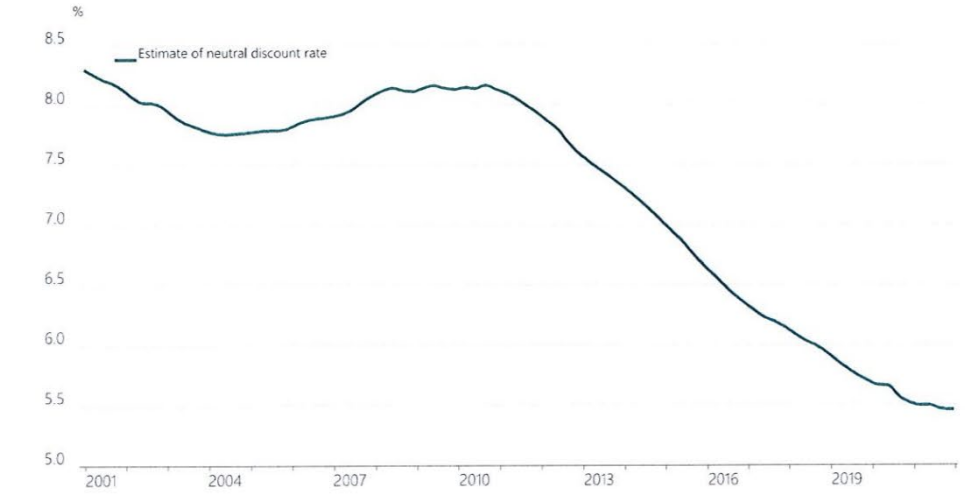
Figure 7A shows that changes in estimates of the user cost value of housing (in this case equivalent to a discounted cash flow of housing) provide a good explanation for the trend in house prices over the past 20 years. Since the Global Financial Crisis, house prices and user cost values of housing have increased steadily as long-term interest rates declined. This is also shown in Figure 7B by the estimated neutral discount rate.

Figure 7A User cost estimates of Hamilton house prices



Source: CoreLogic, RBNZ estimates.

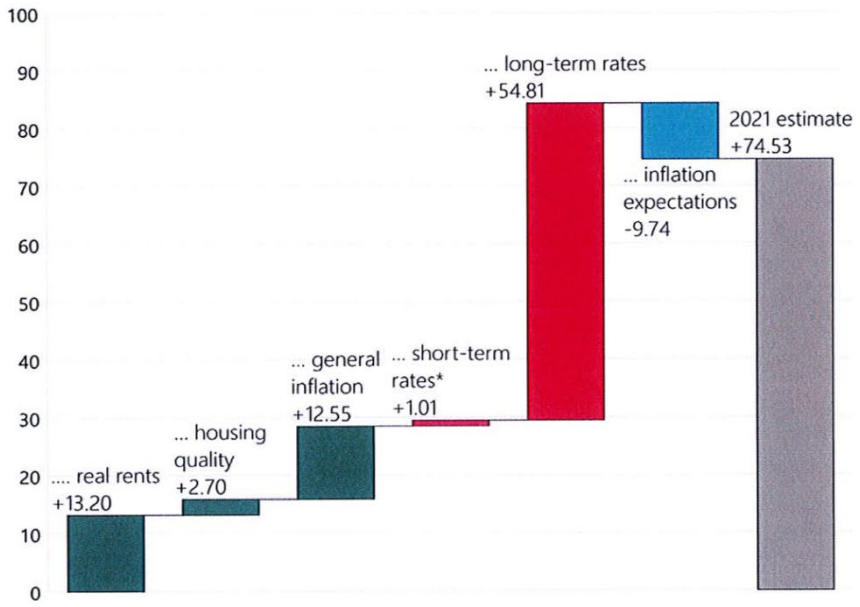
Figure 7B User cost estimates of Hamilton house prices



Source: RBNZ estimates.

Decomposing drivers of user cost estimates could be a useful tool to determine the main drivers of house prices. Figure 8 shows the decline in long-term interest rates has had the greatest effect on house prices since 2016, followed by rising real rents and rising rents due to general inflation.

Figure 8 Drivers of house prices in Hamilton since 2016 using user cost modelling (percentage change)



Note: The contribution of short-term rates reflects the change in the difference between long-term and short-term interest rates. The contribution from the change in housing quality is inferred from the difference in rent growth between rental bond data and Stats NZ Rental Price Index. Source: Stats NZ, CoreLogic, RBNZ estimates.

4. A housing market experiencing restricted effective land supply behaves differently to traditional models. Restricted land supply can explain the New Zealand experience.

For the purposes of illustration, this section describes how housing markets will work in two extreme cases: completely abundant land supply, and completely restricted land supply. In reality, New Zealand land markets lie somewhere on a spectrum between these two extremes, as discussed in section 5.

Completely Abundant Land Supply

When land supply is completely abundant, house prices will reflect the cost of building new dwellings – construction costs plus land prices. The price of land at a city's edge will reflect its next best use such as farming, plus the cost of providing suitable infrastructure. Inner city urban land will reflect what people are willing to pay to live closer to jobs and amenities, compared to living at the city's edge.

If land supply is abundant, then if house prices rise above the cost of construction plus land, new construction will be incentivised, housing supply will increase, and house prices will moderate. Consequently, changes in construction costs would be reflected in changes to house prices.

Under abundant land supply, a decline in interest rates might cause house prices to rise initially, but this would provoke an increase in the supply of dwellings, reducing both rents and house prices. In the long run, rents would adjust to ensure rental yields reflected the financial backdrop. Similarly, taxes on housing would eventually affect rents, not house prices.

Completely Restricted Land Supply

When land supply is completely restricted, the price of land is free to diverge from its next-best use, such as its value as a farm on the edge of a city. Rents, however, will be anchored by tenants' willingness and ability to pay, given factors including household incomes and supply-demand balance. House prices will reflect the net present value of this rental income to a potential investor (or the value of switching away from rent to an owner-occupier). As land is artificially scarce, it would be priced at its highest and best use as housing, less the cost of constructing the building.

Therefore, when land supply is completely restricted any change in construction costs will simply increase or decrease land values, without affecting incentives to supply new dwellings or rents.

Similarly, any change in interest rates will be captured as a change in land values. A drop in interest rates would cause house prices to rise, but since land values would also rise there would be no change in incentives to build, and therefore no change in rents.

Finally, when land supply is completely restricted, tax changes would affect land values, but would not affect housing supply or rent.

Table 1 Long-run impacts on house prices, depending on characteristics of land market

	Completely Abundant Land Supply	Completely Restrictive Land Supply
Construction cost increase	House prices and rents increase. Land prices unchanged.	Land prices decrease. House prices and rents unchanged.
Introduction of capital gains tax or a tax on house owners	Rents increase due to supply reduction. Land prices and house prices unchanged.	Land prices decrease, house prices decrease, no change in supply, rents unchanged.
Permanent interest rate decline	Rental yields fall via a reduction in rents due to increased supply, house prices unchanged, land prices unchanged.	Rental yields fall via an increase in house prices and land prices. No change in supply, rents unchanged.
Large increase in population	No long-run change in rents or prices due to supply response.	Some increase in rents and prices as no change in supply.

5. New Zealand's land supply lies between abundant and restricted, and some cities have more abundant land supply than others.

The rapid rise in prices compared to rents seen in the Hamilton-Waikato housing market over the past twenty years, and of the New Zealand market at large, is inconsistent with completely abundant land supply. The behaviour of these housing markets is indicative of some degree of restriction or constraint on the supply of land. But neither is the availability of land completely restricted. For example, rising house prices do appear to generate a dwelling supply response.

While neither completely abundant or restricted land supply exists in practice, our analysis suggests that land supply in the Hamilton-Waikato area lies closer to the more restricted extreme than is commonly understood. The same is likely to be true for much of New Zealand.

Analysis of the Hamilton-Waikato Area

The Group has looked at four key indicators of urban land market performance. While no indicator provides a precise measure of the cost of land supply restrictions, the three indicators with recent evidence for Hamilton-Waikato suggest that land supply has been restricted. These indicators are useful for monitoring how responsive land supply is to demand, and for understanding the impact of local and central government interventions.

Rural-Urban Land Price Differential

When land supply is abundant, rural and urban land prices at the city's fringe should be similar in value (net of development costs). Taking account of costs of development, Hamilton-Waikato had a rural-urban price differential of $227 per m2, based on 2017 prices (see Figure A3). This indicates that within the city there is a shortage of opportunities to redevelop brownfield land, and at the fringe there is a shortage of urban land supply. Since 2017 this price differential has most likely increased.

Upzoning Premiums

When land supply is abundant, land prices at any given location should remain similar in value after restrictions are removed. A study in Auckland found that large scale upzoning increased the price of underdeveloped properties relative to properties that were already intensively developed and properties that were not upzoned [5] This indicates that developers were (and likely still are) prevented from redeveloping sites to match demand for housing in some locations. This analysis has not been conducted in the Waikato area, but we would expect similar results.

House Price to Construction Cost Ratio

When land supply is abundant, house prices should broadly equate to the cost of constructing a new dwelling plus land and infrastructure. Based on research from the United States, where in many housing markets land supply is abundant, the cost of construction makes up around two thirds of the cost. This means the price of a home should be no more than 1.5 times the cost of construction. In Hamilton-Waikato, house prices generally outstrip construction costs. In 2016 the house price to cost ratio was estimated at 2.23 and has risen over time (see Figure A4)

Extensive vs Intensive Land Values

When land supply is abundant, there should be no systemic difference between the value of land under dwellings and vacant land. In Hamilton-Waikato the value of land under a dwelling was 2.8 to 5.4 times higher than the price of land that is not developed due to, for example, land use constraints and other physical and economic constraints. Land use regulations may have represented up to 28% of a dwelling's price in 2015, a premium of up to $128,634 for the average dwelling.[6] These regulations are often a function of the broader urban planning system.

Different Constraints to Land Supply

Completely abundant land supply does not exist in practice as there are frictions and constraints that cannot be removed, may be expensive to remove, or may be net beneficial to society. To some degree the indicators reviewed above will reflect these frictions, other constraints or the effects of meeting other objectives. However, there are many things we can do to make effective land supply more abundant. We have identified three general categories of constraints to residential development:

[5] Ryan Greenaway-McGrevy, Gail Pacheco, Kade Sorensen, "The effect of upzoning on house prices and redevelopment premiums in Auckland, New Zealand", Urban Studies (August 2020)

[6] This is an upper limit estimate noting that difference could also be due to other frictions such as land fragmentation

Geographic and natural constraints: Highly productive soils, deep peat soils, rivers and high-risk flood zones from wetlands. Around 65% of land in the Waikato is used for farming or forestry, 27% is indigenous vegetation, and 1% is urban.[7] Compared to other major centres, the Waikato has fewer natural constraints. Sites of significance to Māori can also be a constraint on development and unable to be mitigated.

Less or non-controllable constraints: Extensive fragmentation of land ownership limits development options and past investment in infrastructure such as the Main and Eastern Trunk Lines and the Waikato Expressway create physical barriers and path dependence for future development.

More controllable constraints: including choices around regulation and investment. For example Waikato's Regional Policy Statement and the NPS-UD are relatively permissive to urban expansion and intensification. The new medium-density rules are expected to add 3,000 to 12,000 dwellings in Hamilton.[8] However, much of the proposed future land supply does not have infrastructure committed. For this reason, it is not yet planned and cannot be developed.

Our conclusions are in line with recent work by Te Waihanga – the New Zealand Infrastructure Commission – that looked at the role that urban planning policies and infrastructure have played in slowing the responsiveness of housing supply and contributing to higher prices. A key difference in approach is that our analysis has identified the important role played by declining interest rates in the last 20 years, while Te Waihanga looked over a much longer time-period including past periods of low interest rates. Our view is that the combination of restrictions to land supply and the decline in interest rates have caused the price/rent ratio to increase over the past twenty years.

6. The tax system has also contributed to high house prices, given restrictions to land supply.

A neutral tax system is one that treats different economic activities equally. New Zealand's tax system is not neutral. There are a range of tax distortions that affect house prices, land prices, rents and construction costs in New Zealand, and these have affected the Hamilton/Waikato area as much as other regions. The most important distortions are:

- Imputed rent (the rent owner occupiers effectively pay themselves) is not taxed, whereas other forms of income earned on investments are taxed.
- Capital gains are not often taxed, whereas other forms of income are.
- GST is charged as a lump sum when a house is built, and is charged on maintenance costs and rates, but is not charged on the flow of housing services consumed (rents or imputed rents).

The first distortion increases the incentive to purchase housing relative to other forms of consumption, creating an incentive for people to live in bigger or better houses than otherwise.

Both the first and the second distortions also increase the investment value of housing relative to other investments. Devoting resources to owner occupied housing yields untaxed shelter in perpetuity as well as untaxed capital gain, whereas saving money in the bank or investing in one's

[7] Waikato Regional Council, Land and Soil Monitoring Report, https://swos.waikatoregion.govt.nz/environment/land-and-soil/land-and-soil-monitoring/land-report-card/

[8] PWC and Sense Partners Cost Benefit Analysis of proposed Medium Density Residential Standards, https://environment.govt.nz/assets/publications/Cost-benefit-analysis-of-proposed-MDRS-Jan-22.pdf

education will yield a taxed stream of future income. Similarly, investing in rental housing yields tax-free capital gain for those who hold the property for long enough. Our analysis shows that these tax distortions have caused a higher price to rent ratio in New Zealand than under a more neutral tax system. In theory, whether prices or rents are affected depends on land supply. In a world of abundant land supply, these tax incentives for housing would lead to greater housing supply and therefore lower rents. Conversely, under completely restricted land supply, tax incentives would be capitalised into the value of urban land and would have little effect on housing supply. In practice, we assess New Zealand as being closer to restricted land supply than abundant, and therefore we conclude that these income tax distortions are likely to have driven house prices higher rather than increasing supply and reducing rents.

The corollary is that future changes to the income tax incentives around housing investment are more likely to affect urban land prices and house prices, rather than affecting housing supply or rents.

Charging GST at the time of construction increases the cost of building new houses. As noted in section 4, how construction costs affect house prices depends on land supply, with a fairly limited role for construction costs under conditions of restricted land supply. However, the overall role of GST extends well beyond this direct impact on construction costs, and includes a complex array of interactions stemming from the fact that GST is not charged on rents but is charged on other goods, and that GST is charged on only some land transactions. Assessing the overall impact of New Zealand's GST on house prices is a possible area for future research.

Tax Distortion in Hamilton House Prices

The Group compared the impact of tax distortions on different house buyers. This was done with the user cost value of housing approach shown in Figure 7, comparing the estimated house value for each buyer type (e.g. the price they would be willing to pay) given current tax settings and more 'neutral' tax settings.

There are a number of assumptions made in such an exercise. Importantly, we assume that the impact of tax was on house prices rather than rents. This reflects a world of completely restricted land supply, so should be viewed as an upper bound on the impact of tax distortions on house prices.[9]

The tax system is complex in practice and tax settings need to take into account other factors like the ability to operationalise tax policies. Therefore, it may not be feasible to impose truly 'neutral' tax settings. The purpose of this exercise is simply to understand the extent to which tax distortions may be a factor in house prices, where land supply is restricted.

[9] Another key assumption is that landlords will retain property over 10 years and, therefore, are not taxed on capital gains. This exercise also focuses on the tax impacts on purchasing a completed property. As such, tax impacts on the development and construction stages of supplying housing are not considered. We also assume that the alternative investment is a term-deposit.

The distortions we focus on are: (i) the lack of tax on real capital gains, (ii) the lack of tax on 'imputed' rent for owner-occupiers, (iii) the impact of tax on nominal interest for alternative investments (rather than real interest), and (iv) the impact of not being able to deduct real mortgage interest.

We assess these distortions over four time periods to provide a range of estimates given different interest and inflation rates. These show that tax distortions are relatively small in 2002 when interest rates were much higher. By 2021, the impact of tax distortions had grown significantly. This is largely due to the interaction between tax settings, interest rates and inflation. In a low interest rate environment, tax distortions are significantly amplified.

Table 2 Impacts of tax distortions on house values for each buyer type

Estimates with current tax settings (Estimates with 'neutral' tax settings)				
Date	**Q2 2002**	**Q2 2011**	**Q2 2016**	**Q2 2021**
Inflation rate	**π = 1.8%**	**π = 2.5%**	**π = 2.1%**	**π = 2.0%**
Interest rate*	**i= 5.6%**	**i= 5.4%**	**i= 4.1%**	**i= 3.5%**
Landlord	$169,031	$289,709	$438,582	$680,901
Equity financed	**($114,495)**	**($185,365)**	**($261,808)**	**($379,377)**
Landlord	$164,869	$276,188	$435,601	$431,979
60% debt**	**($112,175)**	**($179,021)**	**($261,950)**	**($400,966)**
Owner-occupier	$189,161	$278,309	$367,980	$516,949
Equity financed	**($89,753)**	**($141,369)**	**($185,213)**	**($255,797)**
Owner-occupier	$170,501	$270,154	$431,129	$741,250
80% debt	**($135,703)**	**($217,032)**	**($330,242)**	**($531,450)**

* The inflation rate is the expected inflation over the longest available period, based on Aon Hewitt and Reserve Bank surveys on inflation expectations. The interest rate is the expected return on term deposits over the long-term, which is derived using the Reserve Bank mean estimate for the neutral OCR.

** For leveraged landlords we remove nominal interest deductions for Q2 2021 to reflect the announced tax changes around interest deductibility. This is assuming that the investor will purchase an existing property, as new builds are exempt for 20 years.

7. Regional housing markets are connected, and key housing issues are national in scale rather than local.

The cost of housing can have a significant impact on regional migration. The strong growth and high level of house prices in Auckland and other main centres has increased internal migration to regional centres. In many regional centres, experiencing growth for the first time in decades, supply has not responded, leading to sharp increases in prices, rents and housing stress for existing residents.

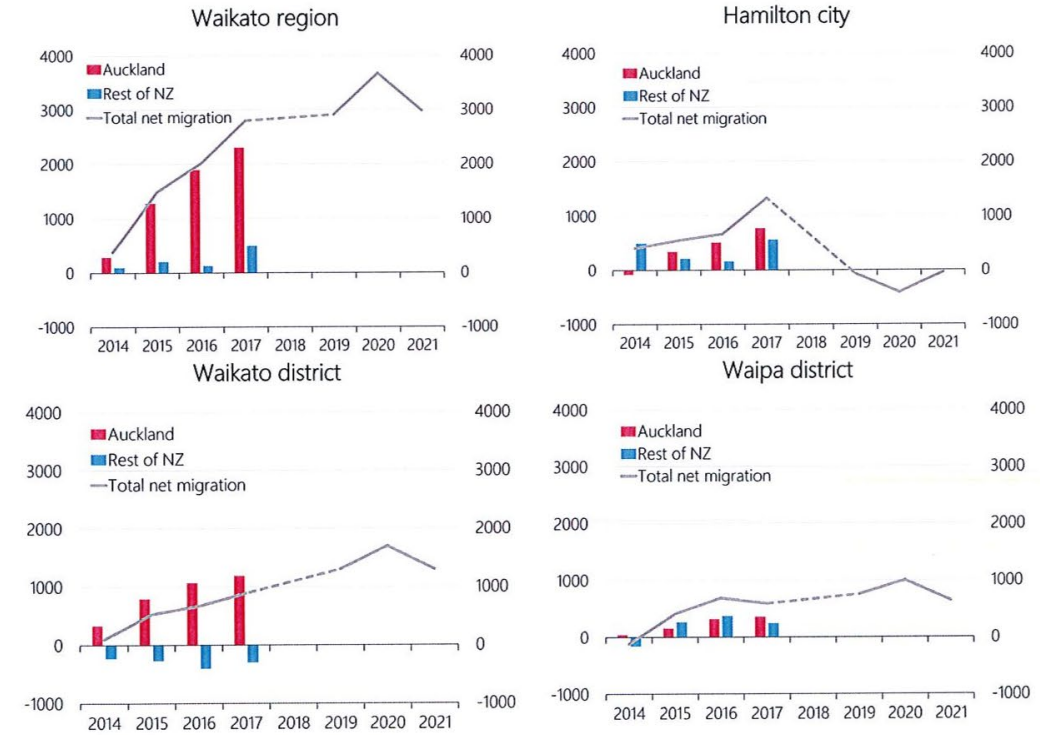
When there is a material shift in the overall benefits from living in one city compared to another, people are incentivised to relocate to the city that makes them better off. Benefits of a city include high wages and access to amenities; costs of a city include congestion (i.e., traffic) and high house prices or rents. Therefore, actions to improve land supply and housing affordability in one place may be offset by migration from places with higher housing costs.

Analysis of the Hamilton-Waikato Area

Demand for housing in the Hamilton-Waikato area has been heavily influenced by the Auckland housing market, illustrating that New Zealand's regional housing markets are connected and that key housing issues are national in scale rather than local.

Figure 8 shows that Auckland has been the main source of net internal migration into the Waikato Region, while the rest of New Zealand did not contribute much.

Figure 8 Internal migration to Hamilton and Waikato



Source: Stats NZ.

The increase in house prices and rents across the Waikato region lagged the rise in Auckland house prices by a couple of years. The population flow between Auckland and the Waikato Region contributed to this, but it is not sufficient to explain the rise in house prices in the Waikato. It simply outlines that housing markets are connected.

Owner Occupiers

The house price gap between Hamilton and Auckland is strongly correlated with the percentage of homeowners selling up in Auckland and moving to Hamilton. The price gap widened rapidly from 2010 to 2015 (Figure A5). During this period, the proportion of house movers from Auckland also increased, from 8% in 2010 to 19% in 2015 (Figure A6). The price gap closed slightly between 2015 and 2019, and during this time the percentage of Auckland movers also dropped.

First Home Buyers and Investors

The increased price difference with Auckland appears to have also influenced first home buyers and investors to move to or invest in Hamilton City and the Waikato District (Figure A7). The upward trend in first home buyers in Hamilton City and the Waikato District is consistent with migration from Auckland.

Renters

We have not found a relationship between the rent price gap and renters moving from Auckland to the Waikato or vice versa. One possible explanation is that the cost to benefit ratio between the two cities remained similar for renters. This means that the difference between rents, amenities and wages may have remained similar between cities so there was no incentive for movement in either direction, unlike first home buyers and movers.

8. The recent and ongoing increases in mortgage interest rates are likely to dampen house prices.

Our key conclusion is that, in the context of restricted land supply, interest rates are a key driver of house prices. It follows that the recent sharp rise in mortgage rates is the main cause of the recent decline in house prices, and are likely to dampen house prices further.

Because rents are more clearly related to the local balance of supply and demand for dwellings than house prices, we expect a moderation in rent price inflation at a national level. Since 2020, population growth has been very low and construction activity has accelerated. This combination is diminishing the housing shortage that built up last decade, and in time this partial alleviation of the housing shortage is expected to reduce the rate of rent inflation.

The change in supply/demand balance is also expected to have some dampening effect on house prices. In our framework, house prices are influenced by their rental value. If rent growth falls, the value to both private investors and owner occupiers is lower than otherwise. However, in our assessment the impact of the changing balance of supply and demand for dwellings will be much smaller than the impact of rising interest rates, so far as house prices are concerned.

Recent policy changes such the removal of tax deductibility will also reduce the financial benefits of property ownership over the medium term.

In the long-run, reforms to increase land supply (i.e., Resource Management Act reforms, NPS-UD, and Medium Density Residential Standards) will likely moderate land and house prices. This is supported by the Cost-Benefit Analysis for the Medium Density Residential Standards.[10] However, house price moderation from long-term reforms is highly dependent on factors which are not covered in detail in this analysis, such as local council support and the provision of infrastructure for growth.

Even with reforms to improve land supply, future changes in interest rates will still likely impact house prices, albeit to a less extent as land supply improves. This means financial factors will continue to influence purchase affordability and wealth distribution in the long run.

9. Based on how the housing market currently functions, we have identified key areas of opportunity that would support the Government's housing objectives.

Land supply needs to be more responsive to demand. This is the focus of policies and reforms including the Resource Management Act reforms, NPS-UD, the Urban Growth Agenda and for development on iwi land through MAIHI Ka Ora – the National Māori Housing Strategy. To succeed, these interventions depend on local council support and ensuring that infrastructure can be funded and financed.

To enable more responsive land supply policymakers and planners should make explicit the interactions between housing and other priority areas including food production, climate adaptation, emissions reductions, and maintaining heritage/character, and ensure decisions are well evidenced. In many instances, other objectives could limit land available for development, or increase the cost of developing it. Assessing the efficacy of land-use restrictions and balancing these against the need for more affordable housing is vital. Developing better assessment and monitoring metrics will help us to manage these interactions and to identify synergistic opportunities when making decisions.

Deposit affordability for first home buyers will remain a challenge in the medium term, and there may be different ways to overcome the deposit barrier for borrowers who can otherwise service a mortgage.

Policymakers may wish to revisit the question of taxation as it relates to housing. Historically, there has been a concern that removing tax distortions that favour housing could reduce new housing supply or lead to higher rents. However, as many New Zealand land markets are currently at the more restricted end of the spectrum, it is more likely that tax changes would affect house prices rather than rents or supply. However, it will be important to understand how the impact of tax interventions will change over time if land supply is made more abundant.

As regional housing markets are connected, solutions should be national in scale.

If land supply becomes significantly more abundant, price-setting dynamics will change. Therefore, how Government and Reserve Bank interventions impact the housing market will also change. It is important to continue researching how restricted New Zealand land markets are currently, and how that is changing over time.

[10] PWC and Sense Partners. Cost-Benefit Analysis of proposed Medium Density Residential Standards. https://environment.govt.nz/assets/publications/Cost-benefit-analysis-of-proposed-MDRS-Jan-22.pdf

10. There is no simple and complete solution to solving the housing crisis. This year the three agencies plan to get a better understanding of the relative impacts of policies on housing outcomes and the interactions with other priorities.

The three agencies are interested in how housing drivers interact with each other and with recent policy changes. A key challenge will be making sense of the relative impact of future policies and how key choices are being made to help improve wellbeing outcomes for New Zealanders. We plan on investigating topics including the drivers of rents; indicators of land supply responsiveness; and access to finance in the development market including on iwi land.

Restricted land supply is a key issue in the housing market, so we plan on developing land performance metrics to better understand and help improve the supply of developable land in key urban areas. However, our problem is not simply one of making land supply more abundant, but doing so in the context of Māori aspirations and our Treaty obligations, geographic limits, climate change considerations, status-quo bias, existing and planned infrastructure, and significant constraints to the funding and financing of growth as well as other barriers.

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Assessment of the Housing System: with insights from the Hamilton-Waikato Area

Additional Charts

Decline in Rental Affordability, and a Lack of Available Rentals has had Significant Impacts on Wellbeing

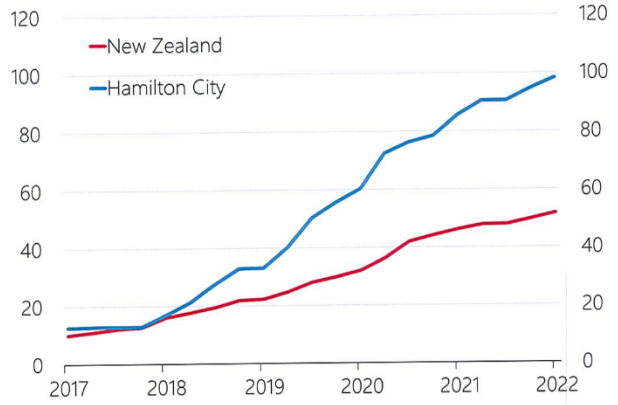


Figure 1 – Housing register applicants: Hamilton City and New Zealand (per 10,000 population)

Source: MSD. Note: The Housing Register contains applicants not currently in public housing who have been assessed as eligible and who are ready to be matched to a suitable property.

Construction Costs Have Increased But Not As Much As Prices

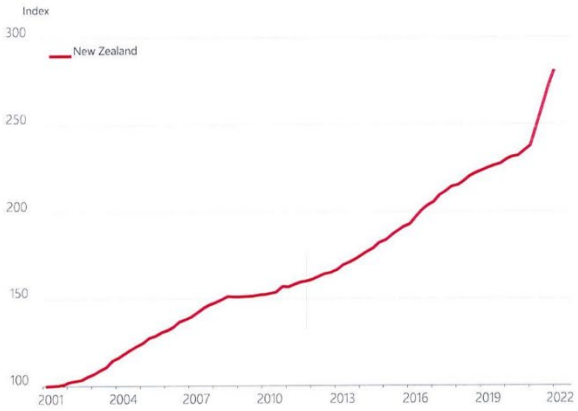
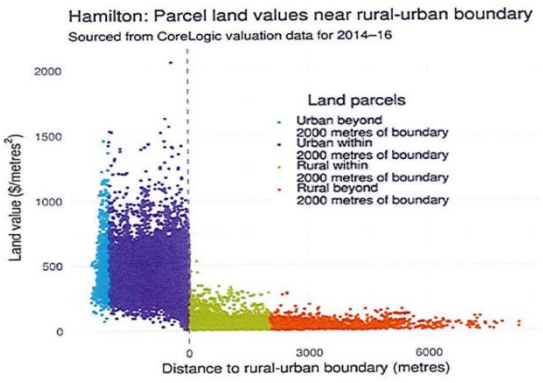


Figure 2 – CPI purchase of new housing for New Zealand

Source: Stats NZ.

Urban Land Markets in Hamilton/Waikato are not Well Functioning

Figure 3 – Hamilton: Parcel land values near rural-urban boundary



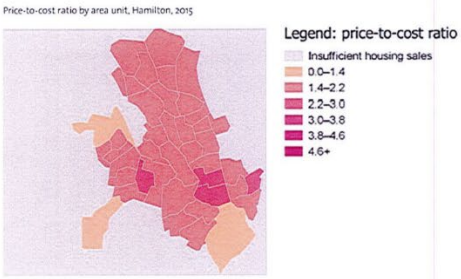
Source: CoreLogic.

If there are large differences in the value of similar sites with different zoning, this may indicate that land use regulations, infrastructure funding, planning policies, or some combination result in insufficient development capacity for urban uses.

Urban Land Markets in Hamilton/Waikato are not Well Functioning

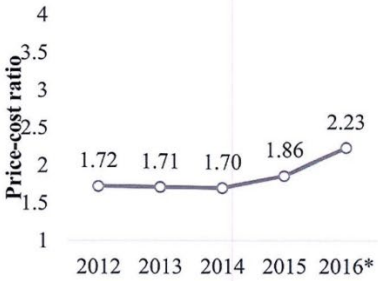
If the ratio of house prices to construction costs is high and rising, this indicates land markets may not be well functioning due to constraints on urban expansion and/or barriers to developing or intensifying existing urban land.

Figure 4A – Hamilton: Price-to-cost ratio by area unit



Source: Lees (2019).

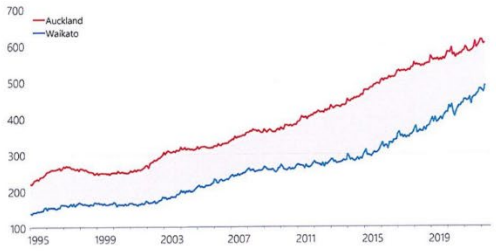
Figure 4B – Hamilton: Price-to-cost ratio



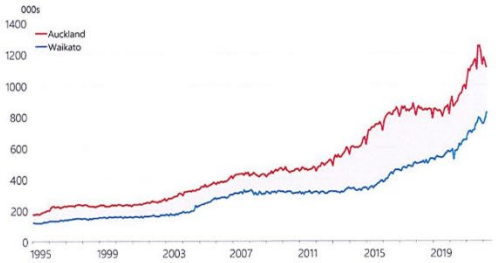
House Price Gap Between Auckland and Waikato has Widened Significantly for the Past 10 Years, While the Difference in Rental Price has Been Fairly Consistent

Figure 5 – Auckland and Waikato: Geometric weekly rent and Median sale price

Geometric weekly rent difference

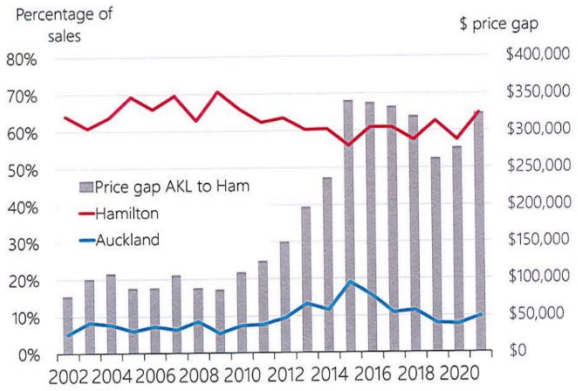


Median sale price difference



Source: HUD calculations from CoreLogic and Tenancy Bonds data.

The House Price Gap Between Hamilton and Auckland is Strongly Correlated with the Percentage of Hamilton Movers Coming from Auckland

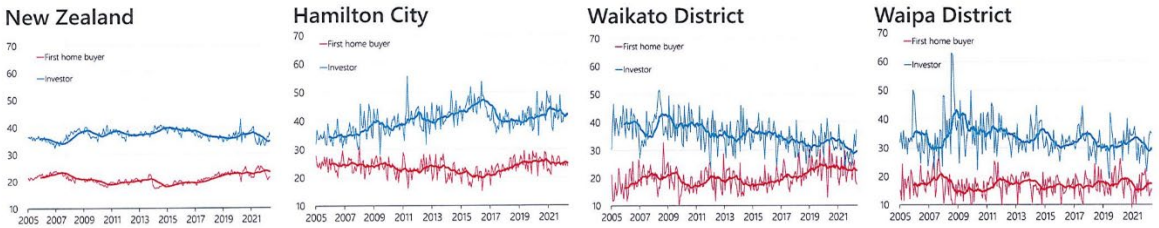


Source: HUD calculations.

Figure 6 – House price gap between Hamilton and Auckland, compared with percentage of Hamilton movers coming from Auckland

While Buyers Were Moving to Hamilton City, the Investor Share Also Increased

Figure 7 – Property investor activity: Hamilton, Waikato, Waipa, and New Zealand (proportion of transfers)



Source: HUD calculations from CoreLogic data.

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. Confirmation of the Strategic Growth Committee Public Excluded Minutes 26 July 2022 C2. Ruakura Private Developer Agreements C3. Southern Wastewater Treatment Plant Land Acquisition	) 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 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 commercial activities without disadvantage to enable Council to carry out negotiations	Section 7 (2) (h) Section 7 (2) (i)
Item C3.	to enable Council to carry out negotiations to prevent the disclosure or use of official information for improper gain or improper advantage	Section 7 (2) (i) Section 7 (2) (j)