

Agenda for a meeting of the Strategy & Finance Committee to be held in the Council Chambers, District Office, 15 Galileo Street, Ngaruawahia on **WEDNESDAY, 14 SEPTEMBER 2022** commencing at **9.30am**.

1. APOLOGIES AND LEAVE OF ABSENCE

2. CONFIRMATION OF STATUS OF AGENDA

3. DISCLOSURES OF INTEREST

The register of interests is no longer included on agendas, however members still have a duty to disclose any interests under this item.

4. CONFIRMATION OF MINUTES

Meeting held on Wednesday, 3 August 2022. 7

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6. REPORTS

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GJ Ion
CHIEF EXECUTIVE

TERMS OF REFERENCE AND DELEGATION

Reports to:	The Council
Chairperson:	Cr Janet Gibb
Deputy Chairperson:	Cr Aksel Bech
Membership:	The Mayor, all Councillors and Mrs Maxine Moana-Tuwhangai (Maangai Maaori)
Meeting frequency:	Six-weekly
Quorum:	Majority of members (including vacancies)

Purpose:

The Strategy & Finance Committee is responsible for:

1. Monitoring of Council's strategy, and performance (both financial and non-financial) against the Long Term Plan and Annual Plan.
2. Setting the broad vision and direction of the District, determine specific outcomes that need to be met to deliver on that vision, and develop and monitor strategies to achieve those goals.
3. Determining financial matters within its delegations and Terms of Reference and making recommendations to Council on financial matters outside its authority.
4. Guiding and monitoring Council's interests in Council Controlled Organisations (CCOs), Council Organisations (COs) and subsidiaries.

In addition to the common delegations on page 10, the Strategy & Finance Committee is delegated the following Terms of Reference and powers:

Terms of Reference - Strategy:

1. Develop and agree strategy and plans for the purposes of consultation.
2. Recommend to Council strategy and plans for adoption, including community plans (e.g Blueprints).
3. Monitor and review adopted strategies and plans.
4. To monitor and provide advice on the development and implementation of growth and development strategies, land use, and spatial plans in line with national policy requirements.
5. To enhance the District's economic position by promoting it as a business-friendly and business-enabled location and providing direction on strategic initiatives, plans, projects and potential major developments relating to economic and business development.
6. To monitor and provide direction on engagement with the District's communities in relation to the Council's strategies and plans.

7. To monitor and make decisions on environmental management and sustainability within the District.
8. To receive and consider presentations and reports from stakeholders, government departments, organisations and interest groups on development and wellbeing issues and opportunities within the District.

Terms of Reference – Finance:

9. To monitor Council's financial strategy, and performance against that strategy.
10. To provide clear direction to Council's CCOs and COs on Council's expectations, including feedback on draft statements of intent.
11. To receive six-monthly reports of Council's CCOs and COs, including on board performance.
12. To undertake any reviews of CCOs and agree CCO-proposed changes to their governance arrangements, except where reserved for full Council's approval.
13. To monitor Council's investments and Local Government Funding requirements in accordance with Council policy and applicable legislation.

The Committee is delegated the following powers to act:

- Approval of:
 - a. appointments to, and removals from, CCO and CO boards; and
 - b. a mandate on Council's position in respect of remuneration proposals for CCO and CO board members to be presented at Annual General Meetings.
- Approval of letters of expectation for each CCO and CO.
- Approval of statements of intent for each CCO and CO.
- Approval of proposed major transactions of CCOs and COs.
- Approval or otherwise of any proposal to establish, wind-up or dispose of any holding in, a CCO or CO.
- Monitor work on Future Proof, Waikato Plan, Growth & Economic Development Strategy and cross-boundary issues.
- Approval of any process for making decisions where additional opex or capex funding, or deferred capex, is required.
- Review and make recommendations to Council in relation to Fees & Charges (after consultation with relevant community boards or committees).
- Review and recommend to Council the adoption of the Annual Report.
- Review and recommend to Council the approval of Development Agreements.
- Approval of transactions in relation to investments in accordance with Council policy.
- Approval of contractual and other arrangements for supply and services, and revenue generating contracts, which exceed the Chief Executive's delegations, but exclude contracts or arrangements

that are reserved for the Council or another committee's approval.

- Approval of rating issues where these exceed the delegated authority of officers, or are an appeal against officer decisions. For clarity, this excludes decisions that are required, by law, to be made by the Council.
- Approval to write-off outstanding accounts that exceed officer delegations.
- Approval of funding applications for the Heritage Assistance Fund and Conservation Fund as recommended to the committee by officers or relevant assessment bodies.

To	Strategy & Finance Committee
Report title	Confirmation of Minutes
Date:	Monday, 22 August 2022
Report Author:	Elizabeth Saunders, Democracy Advisor
Authorised by:	Gaylene Kanawa, Democracy Manager

1. Purpose of the report

Te Take moo te puurongo

To confirm the minutes for the meeting of the Strategy & Finance Committee (S&F) held on Wednesday, 3 August 2022.

2. Staff recommendations

Tuutohu-aa-kaimahi

THAT the minutes for the meeting of the Strategy & Finance Committee held on Wednesday, 3 August 2022 be confirmed as a true and correct record.

3. Attachments

Ngaa taapirihanga

Attachment 1 – S&F Minutes – Wednesday, 3 August 2022.

Minutes for a meeting of the Strategy & Finance Committee of the Waikato District Council held in the Council Chambers, District Office, 15 Galileo Street, Ngaruawahia on **WEDNESDAY, 3 AUGUST 2022** commencing at **9.30am.**

Present:

Cr JM Gibb (Chairperson)
Cr JA Church
Cr CA Eyre
Cr SL Henderson
Cr SD Lynch
Cr RC McGuire
Mrs Moana-Tuwhangai
Cr EM Patterson
Cr J Sedgwick
Cr NMD Smith
Cr L Thomson
Cr CT Woolerton

Attending:

Mr T Whittaker (Chief Operating Officer)
Ms A Diaz (Chief Financial Officer)
Ms S O’Gorman (General Manager Customer Service)
Mr C Morgan (General Manager Community Growth)
Mr R Ramduny (Strategic Projects Manager)
Mr J Fuller (Senior Environmental Planner)
Mr J Brown (Senior Communications & Engagement Advisor)
Ms T Singh-Sandhu (Strategic Planner)
Ms S Bourke (Community Safety Manager)
Ms D Tracey (Strategic Planning Team Leader)
Mr R Turner (Customer Experience Manager)
Mr C Bailey (Finance Manager)
Ms O Bennett (Team Administrator)
Ms L Hood (Corporate Planner)
Ms G Shaw (Democracy Advisor)
Mrs G Kanawa (Democracy Team Leader)
Ms E Saunders (Democracy Advisor)

Ms N Greenwell (Hamilton & Waikato Tourism)
Mr Michael Hooker (Key Research)

APOLOGIES AND LEAVE OF ABSENCE

Resolved: (Crs Sedgwick/Patterson)

THAT the Strategy and Finance Committee accepts the apologies for non-attendance from His Worship the Mayor and Cr McNally.

CARRIED

S&F2208/01

CONFIRMATION OF STATUS OF AGENDA ITEMS

Resolved: (Crs Thomson/Eyre)

THAT the agenda for a meeting of the Strategy & Finance Committee held on Wednesday, 3 August 2022 be confirmed:

- a. all items therein being considered in open meeting, with the exception of those items detailed at agenda item 8 which shall be considered with the public excluded; and Brin 6.7 forward to 6.1
- b. all reports be received.

CARRIED

S&F2208/02

DISCLOSURES OF INTEREST

There were no disclosures of interest.

CONFIRMATION OF MINUTES

Resolved: (Crs Eyre/Church)

THAT the minutes for a meeting of the Strategy & Finance Committee held on Wednesday, 22 June 2022 be confirmed as a true and correct record.

CARRIED

S&F2208/03

REPORTS

Action Register
Agenda Item 5

The report was received [*S&F2208/02 refers*] and no discussion was held.

- Confirmed that Crs would be provided an opportunity to give feedback around Blueprint projects in their areas.

Treasury Risk Management Policy – Compliance Report at 30 June 2022

Agenda Item 6.1

The report was received [S&F2208/02 refers] and the following discussion was held:

- All areas of treasury risk management were within policy limits except for: (# 6): Actual borrowing costs for the financial year to 30 June 2022 were \$266K higher than budget due to higher than planned borrowing costs (interest) during the year. This was partially offset in June 2022 by savings from the Council credit rating published by Fitch ratings.
- Staff confirmed that the annual plan assumes a higher delivery rate than what we have achieved in the past. There is an opportunity to review this throughout the year. Councillors suggested staff continue to forecast where Council wants to be, as well as where it is going to be.
- Councillors suggested Council has received money (rates) while it is not delivering and continues to fail on delivery. Staff confirmed that we had underdelivered and the carry forwards were high. Confirmed there would be an opportunity to review this in the next annual plan. Finance rates are set over a ten (10) year period; therefore, Council could consider a premature rate reset for the next annual plan.

ACTION: Staff to consider option of a rate reset for the next annual plan.

- Staff noted that we don't rate our ratepayers for the capital expenditure that is budgeted in the annual plan.

Indicative Financial Performance Summary for the year ended 30 June 2022

Agenda Item 6.2

The report was received [S&F2208/02 refers] and the following discussion was held:

- Purpose of the report was to inform the Strategy and Finance Committee on the indicative full year financial performance against the 2021/22 year in the LTP 2021-31 and those budgets carried forward from the 2020/21 budget year.
- The final results for the year would be available after the infrastructure asset revaluation entries had been processed and at the completion of the Annual Report audit, scheduled for September 2022.
- The overall indicative financial performance and the major reserve balances were as expected, apart from the vestment of State Highway 1 to Council that was planned for the 2020/21 budget year which had been delayed.

- Councillors queried staff pay – noted there were 408 staff and Council was paying \$35 million in personnel costs. Therefore, the average staff salary was \$87,000 per year? Staff confirmed this also included ACC, Kiwi Saver and levies.
- Councillors held a discussion regarding the presentation of financial data – e.g. actual versus budget figures in the performance summary.

Draft Taio in the Waikato Strategy

Agenda Item 6.3

The report was received [S&F2208/02 refers] and the following discussion was held:

- The Senior Environmental Planner delivered a verbal presentation.
- A part of the project, staff undertook a stocktake of the Conservation Strategy and the Esplanade Strategy and nature activity in the Waikato District. Waikato District Council staff also engaged with various stakeholders to discuss the Conservation Strategy and Taiao in the Waikato.
- Following this, staff prepared a draft strategy based on input received from the Conservation Strategy Steering Group and Stakeholders. Waikato District Council staff discussed the draft strategy at various stages at workshops with Councillors, with the final draft strategy being circulated following the last workshop on 18 July 2022.
- Councillors queried if the farming community had been in agreement with the strategy? Staff confirmed several stakeholders had been/would be consulted.
- Councillors expressed concern that a three-week consultation period would not be sufficient time for the farming community as it would be a busy time of year for farmers.
- Staff confirmed that the consultation timeframe could be extended, however, this would consequently push the strategy's adoption out to a post-election timeframe.
- Councillors agreed to a six-week consultation period. Noted that it was critical to receive the right feedback and it should be done properly regardless of timing.

Resolved: (Eyre/Thomson)

THAT the Strategy and Finance Committee recommends to Council to approve the public release of the draft Taiao in the Waikato Strategy for a six-week public consultation.

CARRIED

S&F2208/04

Adoption of the Future Proof Strategy

Agenda Item 6.4

The report was received [*S&F2208/02 refers*] and the following discussion was held:

- The Future Proof Strategy ('the Strategy') is a 30-year growth management and implementation plan for the Hamilton, Waipa and Waikato sub-region.
- The updated strategy was adopted by the Future Proof Implementation Committee (FPIC) on 16 June 2022.
- The updated Strategy retained the core elements of the 2009 and 2017 Strategy but also incorporated the Hamilton to Auckland (H2A) Corridor Plan and the Hamilton-Waikato Metropolitan Spatial Plan. This reflects the importance of the H2A corridor which stretches through the north-Waikato and into Auckland, the connections east towards Morrinsville and south to Te Awamutu.
- The updated strategy continues to support a compact urban form and includes provisions to meet the NPS-UD requirement to be responsive to out-of-sequence or unanticipated developments.
- Once partner Councils adopt the Future Proof Strategy, work will be done to revise population and employment projections.
- Councillors noted this was an excellent piece of work and thanked staff for their efforts.

Resolved: (Crs Bech/Smith)

THAT the Strategy and Finance Committee recommends to Council that the Future Proof Strategy 2022 be adopted.

CARRIED

S&F2206/05

Adoption of the Local Area Blueprints for Port Waikato and Gordonton

Agenda Item 6.5

The report was received [*S&F2208/02 refers*] and the following discussion was held:

- The purpose of the Port Waikato & Gordonton Local Area Blueprint was to support the needs and aspirations of each community by identifying and prioritising initiatives that are informed by the local residents and groups.
- Public consultation via a questionnaire, workshop and drop-in sessions were undertaken between December 2021 to June 2022 and were used to inform the initiatives developed for the Port Waikato & Gordonton Local Area Blueprint.

- The initiatives developed seek to address the needs and aspirations voiced by community members, and to overall support their wellbeing.
- Without the Port Waikato & Gordonton Local Area Blueprint, the Waikato District Council faced a risk of potentially not understanding the needs and aspirations of these two communities and therefore potentially delivering unnecessary services and infrastructure.
- The Port Waikato & Gordonton Local Area Blueprints allows the community to inform Waikato District Council on what is required to positively contribute to the community (be it council or community-led).
- Councillors thanked all those who had been involved in the project, acknowledging that staff had been particularly responsive.
- Noted that community aspiration is now a driving force in our community planning. Believed that the Blueprints would deliver on these aspirations.

Resolved: (Crs Eyre/Woolerton)

THAT the Strategy & Finance Committee recommends to Council that the Port Waikato & Gordonton Local Area Blueprints be adopted

CARRIED

S&F2208/06

Resident Perception Survey – Quarter 4 Results

Agenda Item 6.6

The report was received [S&F2208/02 refers] and the following discussion was held:

- The Resident Perception is undertaken by external contractor, Key Research, on a quarterly basis.
- Key Research delivered a verbal presentation, providing the Strategy and Finance Committee with a high-level update on the insights gained from the data collected from the Quarterly Resident Perception Survey for April – June 2022.
- Over the previous three months, Council had seen significant improvement regarding the overall reputation of Council. Most significant improvements were seen in Awaroa Ki Tuakau, Eureka and Raglan. It was believed this had been the result of lifting Covid-19 measures.
- Significant decrease in satisfaction around the safety of roads. River Road in Ngaruawahia was specifically noted as an issue. Council was working to resolve the issue.
- A significant decrease in satisfaction was seen in Whangamarino, Hukanui – Waerenga, Eureka and Raglan. Several cemeteries had undergone beautification improvements which included planting and fencing. It is thought that these improvements may have impacted perceptions whilst the work was being carried out.

- Reputation profile was driven out of four questions asked in the survey – vision and leadership of the Council, faith and trust in the Council.
- Staff noted a new Communications and Engagement Advisor would be joining Council in the next month. The role would enable Council to ensure our residents understand the value we are delivering to communities.
- Noted Council needed to work on its communications with Huntly. Numbers that we survey were almost below materiality. Sometime question the validity of numbers.
- 50 percent of respondents were sceptical of Council and did not trust Council. Therefore, there is a need to consider what we are communicating to our communities.
- Wards that score poorly are close to a residential/urban population. Is there in-depth analysis of understanding what is going on?

ACTION: Staff to work with Councillors as a source of local knowledge to identify areas of improvement in each ward.

- Council needs to promote and communicate the positive outcomes it has achieved more regularly.
- Noted we need to communicate and liaise with customers in a way that meets their needs. E.g., providing hard copy surveys to older residents.
- Councillors would be interested in seeing a copy of the survey.

ACTION: Staff to provide Councillors with a copy of the resident perception survey and accompanying information (e.g., maps, letters) that are sent to residents.

Hamilton & Waikato Tourism Year End Report to Waikato District Council

Agenda Item 6.7

The report was received [S&F2208/02 refers] and the following discussion was held:

- Nicola Greenwell from Hamilton and Waikato Tourism delivered a presentation outlining key highlights the organisation had experienced over the previous financial year.
- From July 2021 to June 2022, the Waikato region had only experienced a month and half at the green Covid-19 Traffic Light setting. This impacted activities, events and campaigns forcing the team to adapt and diversify.
- Electronic card transactions were up on the 2019 figures. Noted this was something to be proud of.
- With the return of lockdowns and alert level challenges, Hamilton and Waikato Tourism reactivated the 'Mighty Local' campaign to promote essential services, hospitality providers and contactless/home delivery channels. The core purpose of

'Mighty Local' was to raise awareness, promote and drive residents to 'buy and shop local' within their local communities.

- Auckland lockdown had significant impact on the northern part of our region, but those areas have since experienced some bounce back.
- With tourism returning, it was estimated that Auckland Airport would be up to 72 percent capacity by December 2022.
- Estimated we would see New Zealanders who had travelled locally wanting to travel internationally now that borders were reopening. Consequently, there may be some reduction in domestic visitation while this happens.

EXCLUSION OF THE PUBLIC

Agenda Item 7

The report was received [*S&F2208/02 refers*] and no discussion was held.

Resolved: (Crs Henderson/Patterson)

THAT the public be excluded from the following parts of the proceedings of this meeting. 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 are as follows:

General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
Item PEX 1 - Confirmation of Minutes	Good reason to withhold exists under Section 6 or Section 7 Local Government Official Information and Meetings Act 1987	Section 48(1)(a)
Item PEX 2.1- 2021/2022 Unpaid Dog Registration Fees Write Off		

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 No.	Section	Interest
Item PEX 1 Confirmation of Minutes		Refer to the previous Public Excluded reason in the agenda for this meeting.

<p>Item PEX 2.1- 2021/2022 Unpaid Dog Registration Fees Write Off</p>	<p>7(2)(g)</p>	<p>To protect legally privileged information.</p>
	<p>7</p>	

CARRIED

S&F2208/07

Resolutions XXXX - XXXX are contained in the public excluded section of these minutes.

There being no further business the Chairperson declared the meeting closed at 12.11pm

Minutes approved and confirmed this day of 2022.

Cr J Gibb
CHAIRPERSON

PEX Mins – Sedgwick/McGuire

To	Strategy & Finance Committee
Report title	Actions Register – September 2022
Date:	14 September 2022
Report Author:	Karen Bredesen, PA to the General Manager Service Delivery
Authorised by:	Clive Morgan, General Manager, Community Growth

1. Purpose of the report **Te Take moo te puurongo**

Update on actions arising from the previous meeting and works underway.

2. Staff recommendations **Tuutohu-aa-kaimahi**

That the Action Register report from the General Manager Community Growth be received.

3. Attachments **Ngaa taapirihanga**

Attachment 1: Strategy & Finance Committee's Actions Register – September 2022

Strategy and Finance Committee's Action Register – September 2022

Meeting Date	Item and Action	Person / Team Responsible	Status Update
3 August	<u>Treasury Risk Management Policy – Compliance Report at 30 June 2022</u> Staff to consider option of a rate reset for the next annual plan.	Jean de Abreu, Financial Accountant	Interest rates, swaps and borrows will be reviewed as usual for Annual Plan 2023/2024, with the assistance of Treasury advisors, PricewaterhouseCoopers.
3 August	<u>Resident Perception Survey – Quarter 4 Results</u> Staff to provide Councillors with a copy of the resident perception survey and accompanying information (eg maps, letters) that are sent to residents.	Reece Turner, Customer Experience Manager	All information requested was sent to Councillors via e-mail on 31 August 2022.

To	Strategy and Finance Committee
Report title	Approved Counterparty Review September 2022
Date:	14 September 2022
Report Author:	Colin Bailey – Finance Manager
Authorised by:	Alison Diaz - Chief Financial Officer

1. Purpose of the report

Te Take moo te puurongo

The purpose of this report is to inform the Strategy & Finance Committee of the current counterparties credit rating compliance.

2. Executive summary

Whakaraapopototanga matua

Treasury related transactions can only be entered into with organisations specifically allowed for under Council's Treasury Risk Management Policy.

Counterparties and limits are approved on the basis of long-term and short-term credit ratings of A- and above and A2 or above respectively. Limits are spread across a number of Counterparties to manage credit exposure.

Counterparty limits are reported quarterly, while credit ratings are reviewed on an ongoing basis with any material credit downgrades dealt with immediately. The Standard & Poors ratings are reported to the Committee every six months and any changes noted.

The current credit ratings (published 28 February 2022) are shown in the following table.

	Long Term		Short Term		Within Policy?
	S&P	Policy	S&P	Policy	
ANZ Bank	AA-	A-	A-1+	A2	✓
ASB Bank	AA-	A-	A-1+	A2	✓
Bank of New Zealand	AA-	A-	A-1+	A2	✓
HSBC	AA-	A-	A-1+	A2	✓
Westpac	AA-	A-	A-1+	A2	✓

3. Staff recommendations Tuutohu-aa-kaimahi

That the Strategy and Finance Committee receives the report.

4. Attachments Ngaa taapirihanga

There are no attachments to this report.

To	Strategy and Finance Committee
Report title	General rate position for the year ended 30 June 2022
Date:	14 September 2022
Report Author:	Colin Bailey – Finance Manager
Authorised by:	Alison Diaz - Chief Financial Officer

1. Purpose of the report

Te Take moo te puurongo

To inform the general rate position for the financial year ending 30 June 2022.

AND

seek support for surplus funds to be set aside into the General Accounting Reserve Fund (GARF) to contribute towards the Annual Plan 2022/2023 deficit, and possible costs associated with a claim against Council relating to water ingress (leaky building) and other structural defects.

2. Executive summary

Whakaraapopototanga matua

Council has considered a number of budget adjustment requests during the year to address changes that occurred since the Annual Plan was adopted. These budget adjustments include carry forwards from the prior financial year (moving remaining budget for projects not completed as at 30 June 2021 into 2021/2022), along with amendments required as a result of tender processes and other ad-hoc funding requests that have arisen during the year. The comparison between this revised budget and actual expenditure and income determines whether the final general rate position is a surplus or a deficit.

The difference between the revised budget and actual general rate funding used during the 2021/2022 year has resulted in a surplus (after carry forward projects have been considered) of \$899,355. This surplus is carried forward to the 2022/2023 financial year in the GARF to contribute to the following:

- The Annual Plan 2022/2023 was adopted with a general rate deficit of \$1.4 million, of which \$0.2 million is to be funded from GARF.
- The costs of a claim against Council in the High Court filed by Lord Cowell Holdings Limited. The claim relates to alleged defects in the construction of a large replica manor house and other associated outbuildings. The claim is essentially a leaky building claim involving defects as a result of water ingress however there are other aspects of the claim that relate to structural defects. The claim is as yet unquantified. Council has filed third party claims against seven other entities and individuals involved in the construction of the buildings. It has not been determined that Council is at fault, however from a financial prudence perspective it is recommended that funds be set aside.

The general rate surplus is calculated as follows and is shown in the far-right column of the table below. Three prior year's results have also been provided.

The general rate surplus for the 2021/2022 year (\$899,355) is calculated by deducting the general rate spent in 2021/2022 and any general rate required to be carried forward to the 2022/2023 year from the general rate available (A), being the general rate struck for the 2021/2022 year and any general rate surplus carried forward from 2020/2021 to the 2021/2022 year.

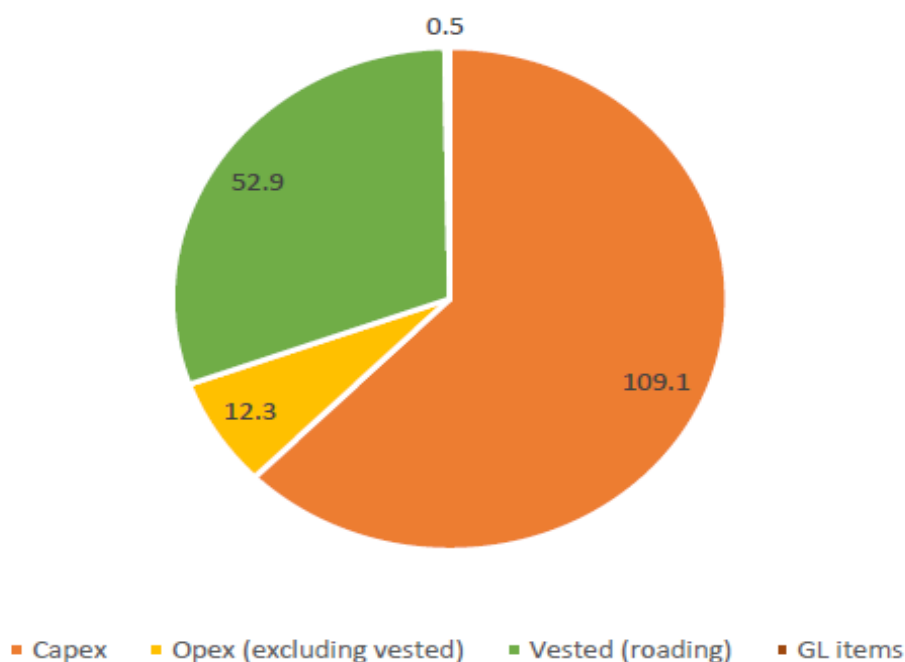
General Rate Breakdown	2018/2019 Total \$	2019/2020 Total \$	2020/2021 Total \$	2021/2022 Total \$
General rate income for the year	57,952,509	62,220,207	65,814,766	74,349,049
Carried forward General Rate from the prior year	2,598,827	1,205,502	3,131,024	1,857,752
Total Available (A)	60,551,336	63,425,709	68,945,790	76,206,801
Total General Rate spent (B)	(57,134,754)	(59,312,575)	(66,652,936)	(68,385,514)
Surplus General Rate (A-B)	3,416,582	4,113,134	2,293,254	7,821,287
General Rate to be carried forward to the next year	(1,205,502)	(3,131,024)	(2,257,752)	(6,921,932)
Total General Rate surplus/(deficit)	2,211,080	982,110	35,502	899,355
Surplus committed to the 2022/23 Annual Plan				(200,000)
Amount to transfer to GARF				(699,355)

Carry forward budgets arise when budgets are not fully expended by the end of the financial year, but those budget amounts are required in the following year to complete the projects or activities to which they relate.

The carry forward process for capital and one-off operational projects is transparent, in that only budget legitimately associated with the same project is carried forward. Any remaining budget savings contribute to the general rate surplus.

Total capital and specific operational carry forwards (\$175 million, including \$53 million expected vested assets) are summarised by type below.

Total Carry forward by type (\$m)



Total carry forwards have increased compared to the prior year. Capital works projects are the main contributor due to delays in completing projects in 2021/2022. The expected value of vested assets includes the delayed vesting of State Highway 1.

3. Staff recommendations Tuutohu-aa-kaimahi

THAT the Strategy & Finance Committee recommends to Council:

- a. the 2021/2022 general rate surplus of \$899,355 be transferred to the General Accounting Reserve Fund; and
- b. notes that \$200,000 is required to support the 2022/23 Annual Plan.

4. Attachments Ngaa taapirihanga

There are no attachments to this report.

To	Strategy & Finance Committee
Report title	Conservation Funding Update
Date:	14 September 2022
Report Author:	James Fuller, Senior Environmental Planner
Authorised by:	Clive Morgan, General Manager, Community Growth

1. Purpose of the report

Te Take moo te puurongo

The purpose of this report is to inform the Committee on recent Conservation Funding that has been approved and some examples of the work being carried out.

2. Executive summary

Whakaraapopototanga matua

The report provides a summary of the funding released to landowners for the purpose of conservation to the end of August 2022. Included in the report are some examples of the successful work carried out. This is illustrated in writing and pictures.

From 6 August 2021 to 26 May 2022, WDC paid out \$16,594.61. Additional commitments from then on include \$26,000.00 to Pukemokemoke Trust, 15 Morepork Lane, Ngaruawahia and several smaller amounts to individual landowners. Net funding balance remaining is \$57,278.14. The Conservation Fund will cease once the remaining funds have been allocated.

3. Staff recommendations

Tuutohu-aa-kaimahi

That the Strategy and Finance Committee receives the Conservation Funding update.

4. Background

Koorero whaimaarama

The Conservation Fund was established in 2004 as part of the Council's commitment to conservation activities and helping landowners with conservation covenants. The Conservation Fund received annual funding of between \$20,000 and \$30,000.

To access the fund, landowners must make an application, with a general minimum requirement of having a significant natural area (SNA) or being within proximity to one or have a Waikato District Council conservation covenant on their property. Once an application is made, a site visit is generally required to assess the site, depending on the requested amount and or knowledge of the area. Council staff then evaluate the application based on the amount requested and the outcome of a site visit.

Waikato District Council does not approve funding applications that ask to help pay for works that result from legal requirements such as meeting penalty/mitigation costs/subdivision or Freshwater fencing and planting requirements.

Depending on the amount of funding, up to \$1,500 can be turned around quickly based on the application and site visit. Funding requests over \$1,500 must go through the Strategy and Finance Committee for approval. The Conservation Fund assistance is usually for rehabilitating SNAs identified in the Proposed District Plan. If the assistance is \$5,000 or greater, a conservation covenant registered on the property title is generally required. This is negotiated with the Council as part of the application process.

There are several opportunities to support conservation efforts from various groups or organisations other than Waikato District Council; these include the Department of Conservation, Waikato Regional Council and Queen Elizabeth Trust II, Go Eco, and the Waikato River Authority. If the area is substantive and includes high-quality native vegetation, Waikato District will coordinate our efforts with other groups.

The Council has a remaining carry-over budget of \$57,278.14 to continue its 2022-2023 Conservation Funding. The funding will go towards landowners who apply and are successful and help in supporting conservation work on their land. As discussed, this can include funding for fencing (generally non-waterways and waterbodies), plants, assistance in planting, weeds, and pest control.

At the 18 October 2021 Strategy and Finance Committee, a series of Funding Review recommendations were adopted, primarily focusing on re-aligning discretionary funds. A new Community Aspirations and Blueprints budget that can include funding for conservation groups will be available subject to an application process. Once the remaining balance in the Conservation Fund is exhausted, private landowners will no longer be able to apply under individual applications as set out in the Conservation Strategy 2004. The Draft Taiao (Nature) in the Waikato Strategy is currently out for consultation, which will address the existing funding requirement in the 2004 Conservation Strategy.

5. Discussion

Matapaki

The Conservation Fund has provided a variety of funding across the district over the last few years. Amounts allocated have been as low as \$995.00 for plants and tree protectors at Soggy Bottom Farm, right through to \$15,000.00 (\$5,000 per year over three years) for plants at Pukemokemoke Reserve. The average amount that WDC has dispensed is \$1,499.00 for the protection and restoration of SNA areas. The funding can include new plants, the cost of planting, weed and pest control, and fencing. Funds above \$1,499.00 and below \$5,000.00 are referred to the Strategy and Finance Committee for approval.

The number of grants approved over the last financial year (2021 – 2022) was 15. The funding generally targets multiple activities, e.g., pest control and new plantings are complementary activities. We estimate most of the funds were for new plants on 11 properties (supporting several nurseries), pest control on eight properties, weed control on four properties and fencing on three properties. The landowners contribute most of the funding, with WDC supplementing their overall work. Locations of the work on rural properties have included the following:

Tuakau, Pokeno, Onewhero, Mangatawhiri, Maramarua, Miranda, Ngaruawahia, Ruapuke, Raglan, Te Kowhai, Rotokauri, Whatawhata, Tamahere.

6. Attachments

Ngaa taapirihanga

Attachment 1 – Presentation - examples of conservation improvement where Conservation Funding has been undertaken:

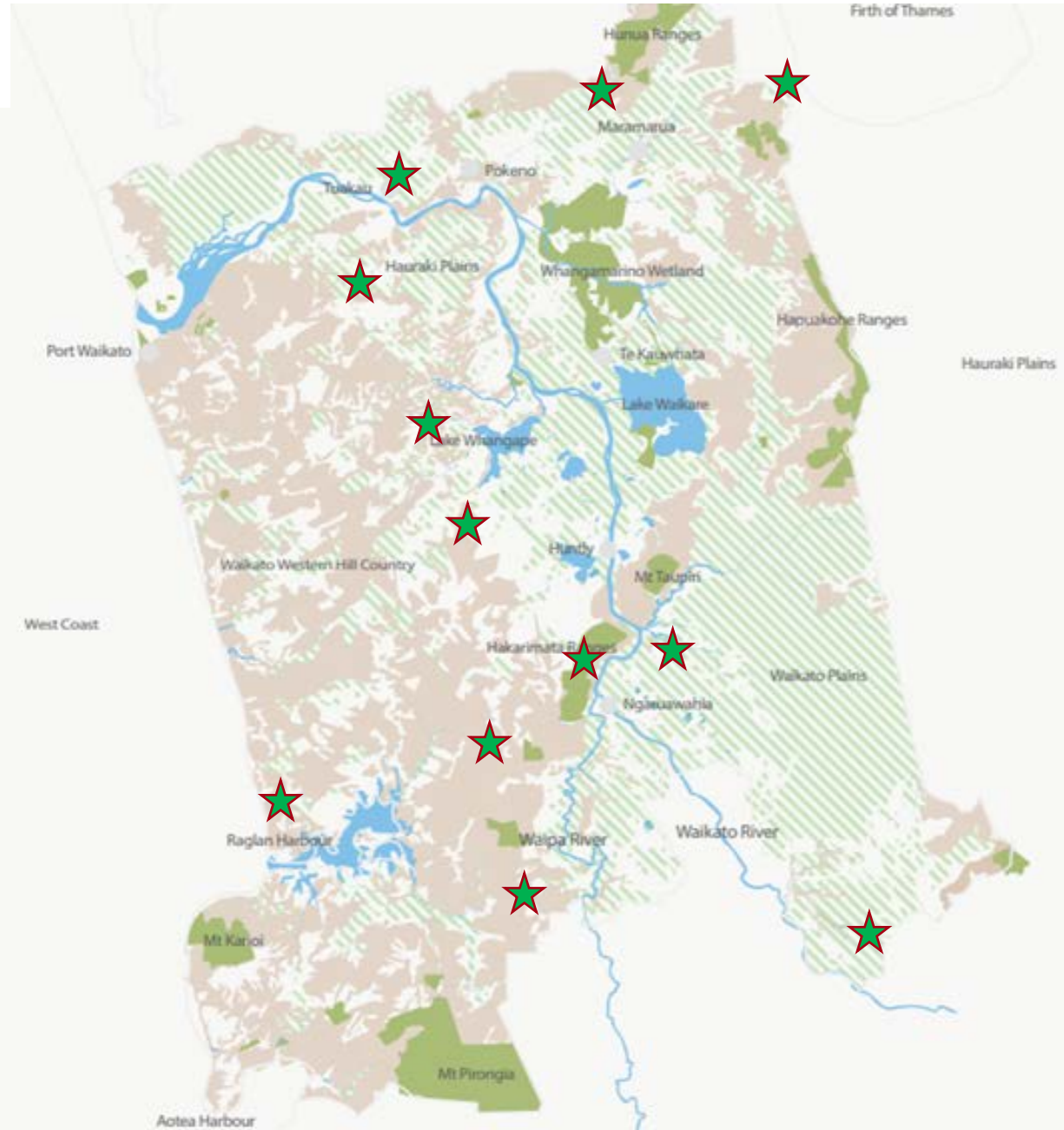
- Jacksons Farm, Raglan Coast - QEII success story
 - Soggy Bottom, Ngaruawahia
 - Pukemokemoke Reserve
 - Whatawhata & Tamahere
 - Morepork Lane, Hakarimata's
 - Miranda & Maramarua
-

Waikato District Council

Conservation Fund Photos of some of
the sites funded

Some funding locations in the district

27



Open Space

LEAVING A
LEGACY FOR
THE FUTURE



Pg 20
Introducing
Partners in
Protection

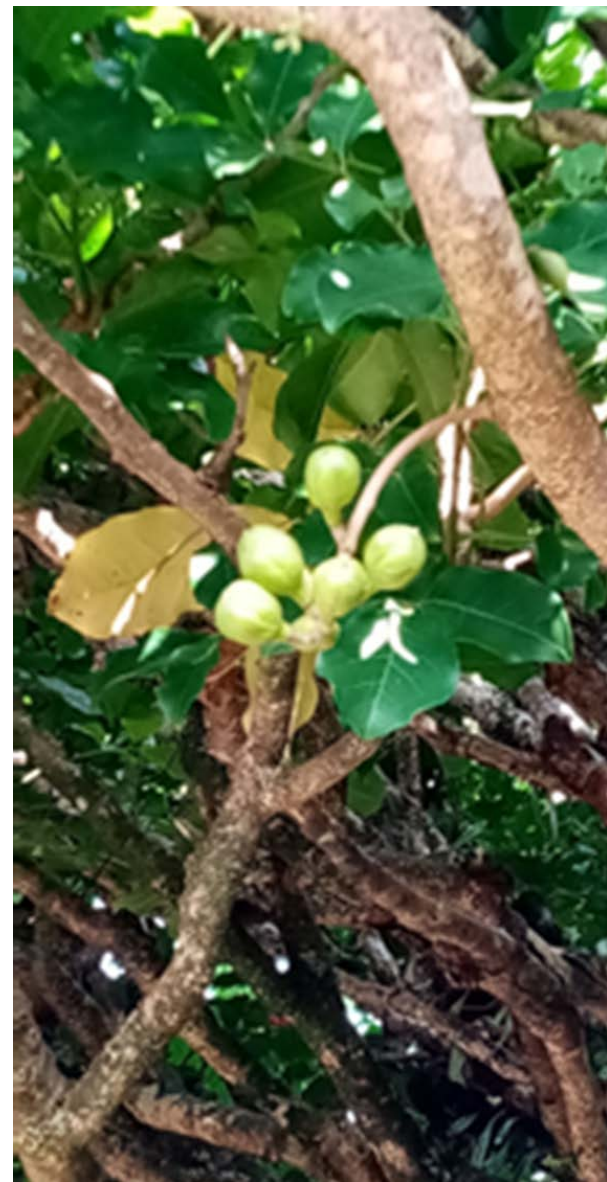
Pg 16
Collaborative
restoration
champions

Pg 22
New rags for
New Plymouth and
North Taranaki



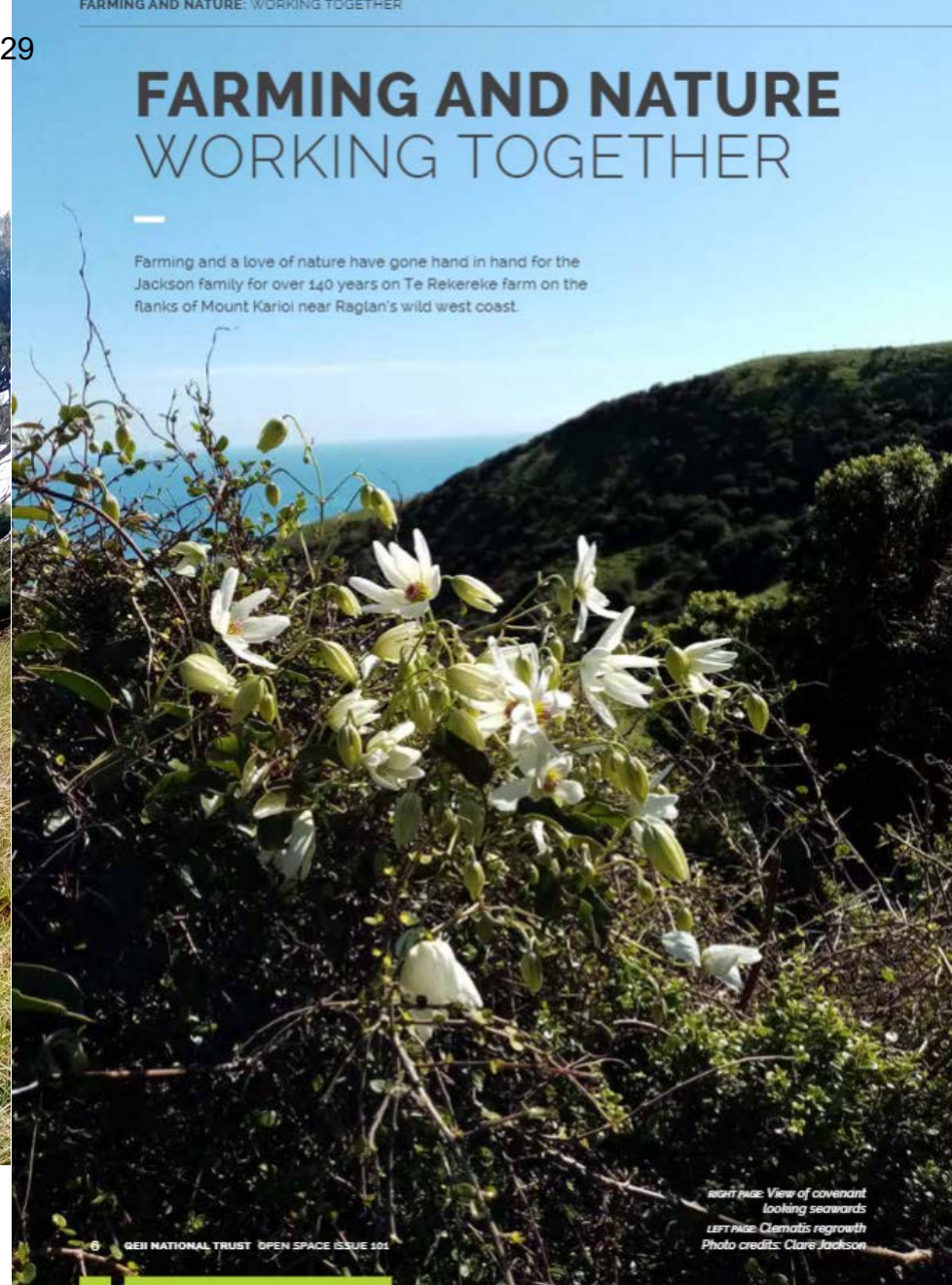
"Sustainability is a key focus of our farm succession plan and I'll continue to make farming work with nature."

Jacksons Farm – Raglan Coast

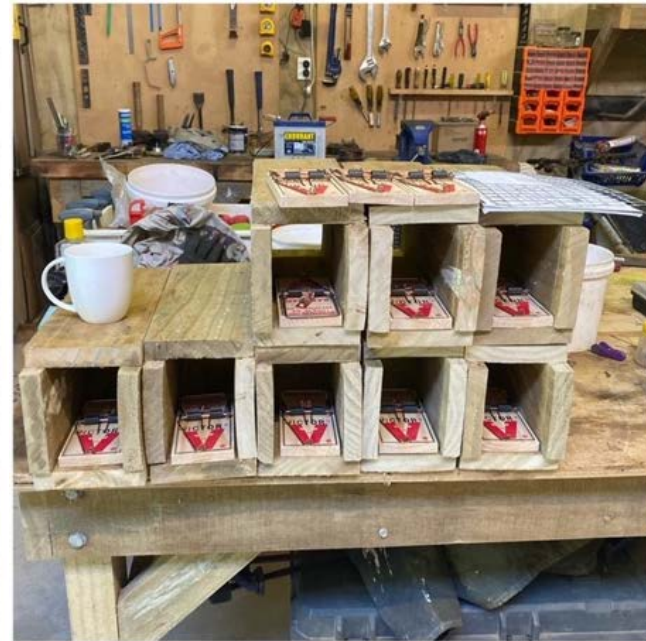


FARMING AND NATURE WORKING TOGETHER

Farming and a love of nature have gone hand in hand for the Jackson family for over 140 years on Te Rekereke farm on the flanks of Mount Kariol near Raglan's wild west coast.

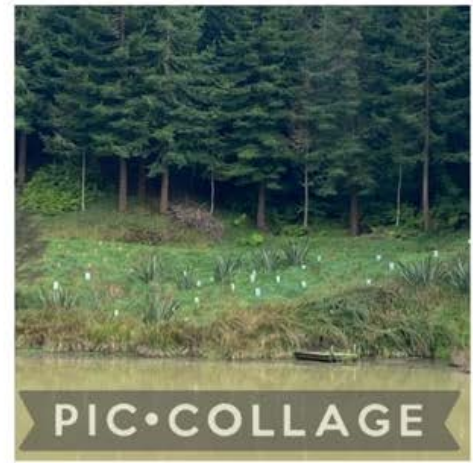


Soggy Bottom - Ngaruawahia³⁰



PIC•COLLAGE





Pukemokemoke Reserve

32





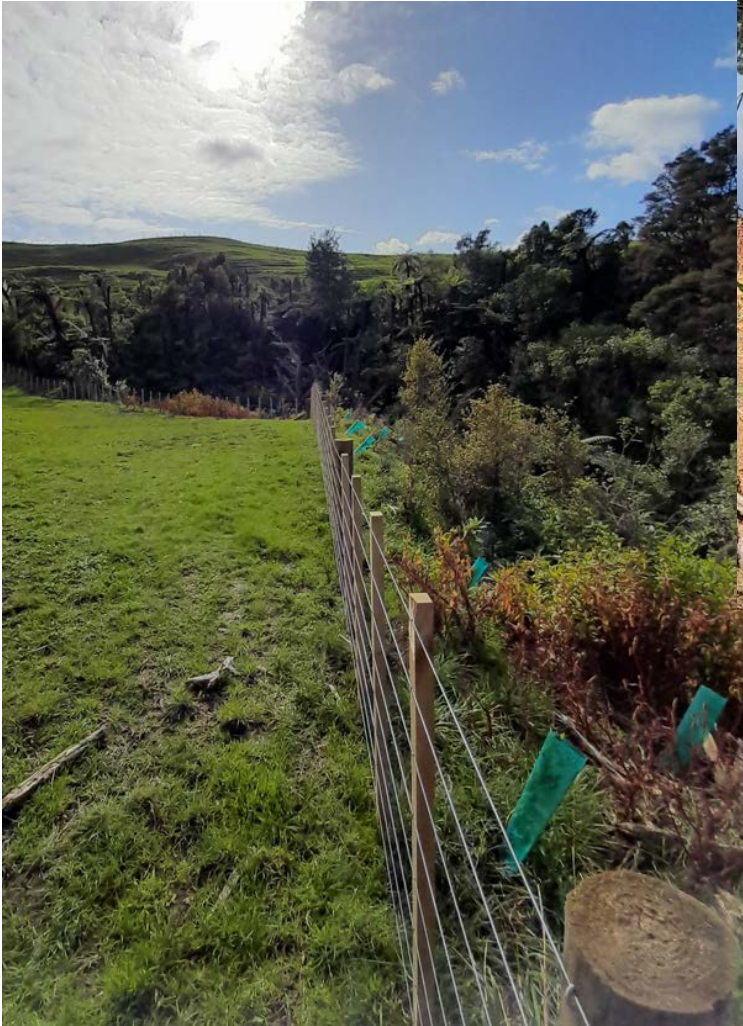
Whatawhata & Tamahere



Morepork Lane – Hakarimata's



Miranda & Maramarua



To	Strategy & Finance Committee
Report title	Hauraki Gulf Forum Update
Date:	14 September 2022
Report Author:	James Fuller, Senior Environmental Planner
Authorised by:	Clive Morgan, General Manager, Community Growth

1. Purpose of the report

Te Take moo te puurongo

The purpose of this report is to update the Strategy and Finance Committee on the Hauraki Gulf Forum and its work completed to date and to be undertaken in the future.

2. Executive summary

Whakaraapopototanga matua

This report summarises the activities undertaken by the Hauraki Gulf Forum (HGF) over the last year. The mission of the HGF is to integrate and coordinate the management of the Gulf's environmental, cultural, economic, and recreational resources. The HGF's main goals include the following:

- At least 30% marine protection
- Restoration of 1000km of shellfish beds and reefs
- Riparian planting of the Hauraki Gulf catchment
- Ending marine dumping near the Marine Park.

3. Staff recommendations

Tuutohu-aa-kaimahi

That the Strategy and Finance Committee receives the Hauraki Gulf Forum update.

4. Background

Koorero whaimaarama

The Hauraki Gulf (Tikapa Moana) is a valuable resource for the Auckland and Waikato regions. The Hauraki Gulf provides economic, social, and cultural benefits and has intrinsic value. Hauraki is Māori for “*north wind*”. The coastal marine area of the Hauraki Gulf is the adjacent Pacific Ocean, with three large channels entering it. The Colville Channel lies between the Coromandel Peninsula and Great Barrier; the Cradock Channel lies between the two islands (between Great Barrier Island to the east and Little Barrier Island to the west).

The Jellicoe Channel lies between Little Barrier and the North Auckland Peninsula. Several peninsulas protrude into the Hauraki Gulf north of Auckland, notably the Whangaparaoa Peninsula¹ (Wikipedia 2020). The Hauraki Gulf is approximately 4,000km² in area, most of which is within the HGMP. The project area is defined as the HGMP and sits within the Hauraki Gulf. The Hauraki Gulf Marine Park (HGMP) was recognised in the legislation developed in the late 1990s and gazetted in 2000 under the HGMP Act. The HGMP tries to capture the land and sea interface and view the area holistically (Mountains to Sea).

Numerous beaches dot the shores of the HGMP, many of them well known for swimming and surfing. Fourteen out of 52 beaches in the Auckland Region at least occasionally show unsafe pollution levels (mostly because of untreated sewage) for bathing (Wikipedia 2020), and rubbish pollution is also a significant factor. Various environmental groups and local government agencies are also working to clean the beaches and restore their vitality.

Survey Results

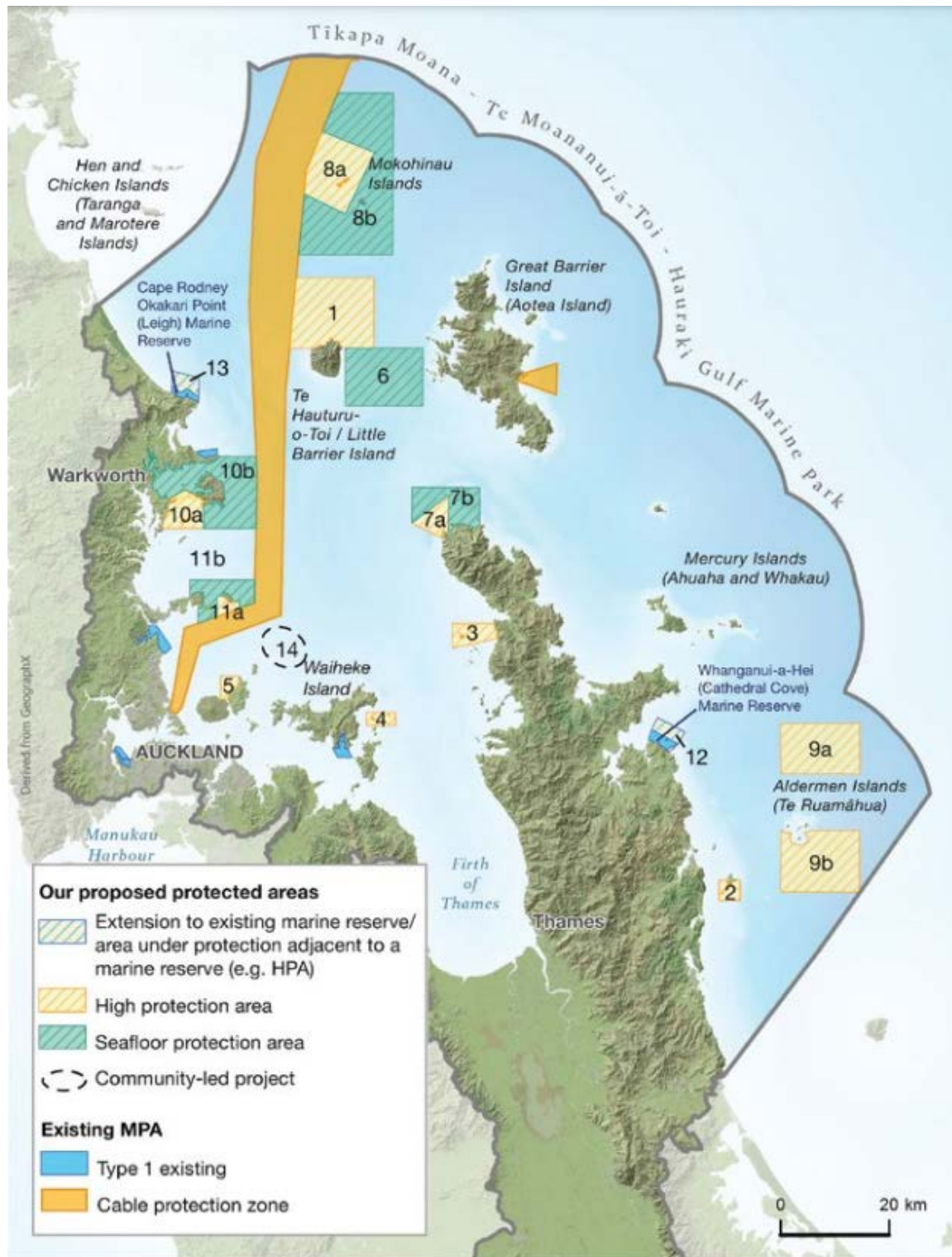
The HGF surveys the Gulf communities regularly. The most recent survey² in 2021 notes overwhelming support to protect and restore the Hauraki Gulf. 81% of people love the Hauraki Gulf, 77% want to put 30% of the Gulf into marine protected areas (including recreational fishers), and 84% strongly support the restoration of waterways and shellfish beds. The three strategic issues include integrated management, marine ecosystems, and water quality. The third issue focuses on the key area where Waikato District has the most influence by helping reduce contaminants and highlighting water quality concerns.

Towards 30% marine protection

The Gulf has six existing marine reserves covering 0.3 percent of the Hauraki Gulf Marine Park. If the 18 protected areas are established, this will increase the area under protection from 6.6 percent (including the cable protection zone) to 17.6 percent and bring us closer to creating a network of marine protection in the Gulf. This increase in protection will be a first step towards the aspiration expressed by some stakeholders and mana whenua to protect 30 percent of the Gulf's marine environment. Gaps will remain, however, so the potential for marine protection in other areas will need to be assessed in the future if a full network of marine protection is to be achieved.

¹ https://en.wikipedia.org/wiki/Hauraki_Gulf_Marine_Park

² <https://gulfjournal.org.nz/wp-content/uploads/2021/11/Hauraki-Gulf-poll-final.pdf>



Map 1: Locations of the protected area proposals that we will engage and consult on³³

³³ <https://www.mpi.govt.nz/dmsdocument/45550-Revitalising-the-Gulf-Government-action-on-the-Sea-Change-Plan>

Hosting the July 2022 meeting

Waikato District Council (WDC) hosted the HGF meeting on 4 July 2022 at Woodlands Events Centre. This was a great way for the WDC to showcase a great event centre to the forum and wider public. Through the HGF, we supported a local business in the Waikato District. The event was a great success and was well regarded by those members that attended, with the venue providing plenty of space and a nice lunch. Local Kaumatua of Ngati Wairere, Eric Pene, did a karakia for both the kai and to open the meeting, which the iwi members of the HGF received well.

Future work

The HGF will focus on reviewing and releasing an updated Hauraki Gulf State of the Environment Report (last published in 2020), which will look at all the key indicators for a healthy Hauraki Gulf. In the previous report, several key species are at risk, including commercial fish species (snapper and crayfish), shellfish (scallops), shore, and seabirds. Hence the call to exclude Commercial Fishing from the Gulf (HGSOE 2020) or some of its more archaic practices of bottom trawling and dredging.

Environmental conservation, whether it is planting, pest control, education, or advocacy (for the new policy or protection of habitats, land, water, and species), will continue to be a priority around the land within and adjacent to the Hauraki Gulf. There is always a struggle to find adequate resources, and the enthusiasm for grassroots initiatives can soon dissipate in the face of rejections for assistance or restorative approaches.

The HGF supports these groups and iwi, hapū and lobbies the government on their behalf around conservation, fisheries, and marine protection. Given how little has happened in this space, the HGF is always exploring alternatives to protect and restore the Hauraki Gulf environment.

5. Discussion Matapaki

Based on the HGSOE 2020 report released in February., several species that have depleted in population, including crayfish (functionally extinct) and snapper stocks, are exhausted, and trevally all show indications of overfishing. Trawling from commercial fishers is causing substantial reductions in species numbers. Correspondingly it can reduce many rare birds and damage seafloor habitats. The Sea Change plan developed by the HGF, iwi and communities suggested that commercial fishing should be excluded from the Gulf (HGSOE 2020) or some of its more archaic practices of bottom trawling and dredging.

Multiple volunteer and funding groups are involved in everything from plastic and rubbish removal to land and marine conservation. Most are non-profit organisations dedicated to restoring the abundance, biodiversity, and health of NZs marine environments. For example, LegaSea was established by the NZ Sport Fishing Council and seeks to elevate public awareness and change policy to improve fisheries management⁴.

⁴ <https://legasea.co.nz/>

The Hauraki Gulf has seen historical examples of kai moana loss. An example is the Firth of Thames, where significant mussel shellfish were lost from the 1950-1970s, with heavy poaching leading to the collapse of the local population (Paul, 2012). The Firth of Thames has also been subject to high sedimentation and enrichment of nitrogen, up to 90 per cent of it coming from dairy cow discharge in the Waihou and Piako Rivers. There is also sediment contamination across all the HGMP from agriculture to urban use, with a measurable impact on seabed health (Wikipedia 2020).



Figure 1 – Shallow Rocky reef restoration (Kina removal)

Waikato District Council's Contribution

Waikato District Council contribute to the Hauraki Gulf through its land and environmental management of the district. However, the predominant coastal area is the west coast and is not covered by the Hauraki Gulf Marine Park. The land-use practices adjacent to waterways and rivers that feed into the Firth of Thames will have an influence. WDC support the Waikato Regional Council (WRC) in its management of riparian areas and the coastal environment. The WRC contribute to riparian planting, and WDC contributes to native bush and forest restoration. WDC supports several community groups and landowners with weeding and plantings throughout the district.

WDC also promote non-point source pollution entering our waterways associated with farming and cropping practices. Regulate small-scale earthworks to reduce sedimentation. However, most focus is on our two major rivers, the Waikato and Waipa Rivers.

Councillor McGuire has been a long-term member of the Hauraki Gulf Forum representing the Waikato District. In his last term with the Hauraki Gulf Forum, culminating with the AgriSea Seaweed meeting in Paeroa, he was acknowledged for contributing to the HGF. This term has seen the HGF appoint two co-chairs representing the councils and Tangata whenua, pivoting to a more advocacy role for protecting and restoring the Hauraki Gulf and its surrounding environments.

6. Attachments

Ngaa taapirihanga

Attachment 1 – Hauraki Gulf Forum Annual Report 2021-2022⁵

⁵ <https://gulfjournal.org.nz/the-hauraki-gulf-forum/>

ANNUAL REPORT

Te Pūrongo ā Tau

2021-22



Hauraki Gulf Forum

Tikapa Moana

Te Moananui-ā-Toi

He waka kōtuia
kāhore e tukutukua
ngā mimira.

*A canoe that is
interlaced will not
become separated
at the bow. In unity
there is strength.*



Under the Hauraki Gulf Marine Park Act 2000, the Hauraki Gulf Forum is required to present an annual report on the exercise of its powers, the carrying out of its functions, and progress towards achieving its purposes to the House of Representatives, through the Minister of Conservation, on or before 31 August each year.

KO Ō TĀTOU MOEMOEĀ Our Vision

Tikapa Moana / Te Moananui-ā-Toi, the Hauraki Gulf is “celebrated and treasured”, is “thriving with fish and shellfish, kaimoana”, has a “rich diversity of life”, supports a “sense of place, connection and identity” and a “vibrant economy”.

KO Ā TĀTOU WHĀINGA MAHI Our Mission

To promote and facilitate integrated and co-ordinated management of the Gulf’s environmental, cultural, economic and recreational resources.

KO Ā TĀTOU RAUTAKI Our Strategic Issues

Centralised around three priorities:

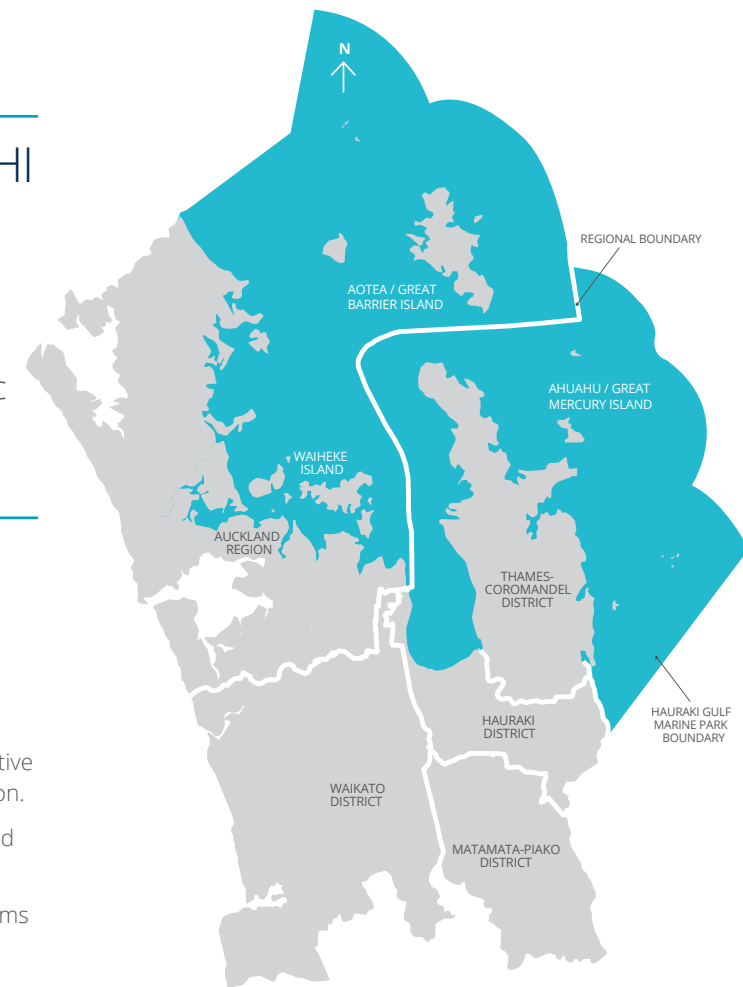
1. Improving integrated management through collaborative planning, informed decision-making and credible action.
2. Restoring water quality values through addressing land use activities that degrade those values.
3. Recognising those critical marine values and ecosystems through advocating for protection, restoration and enhancement.

KO Ā TĀTOU WHĀINGA NUI Our Big Goals

- At least 30% marine protection
- Restoration of 1000sqkm of shellfish-beds and reefs
- Riparian planting of the catchment
- Ending marine dumping near the Marine Park



**Hauraki Gulf
Marine Park**
Ko te Pātaka kai
o Tikapa Moana
Te Moananui-ā-Toi





HE KŌRERO NĀ NGĀ HEAMANA

Message from the Co-Chairs

The past year has been the most rewarding and challenging of our time as Co-Chairs of the Forum.

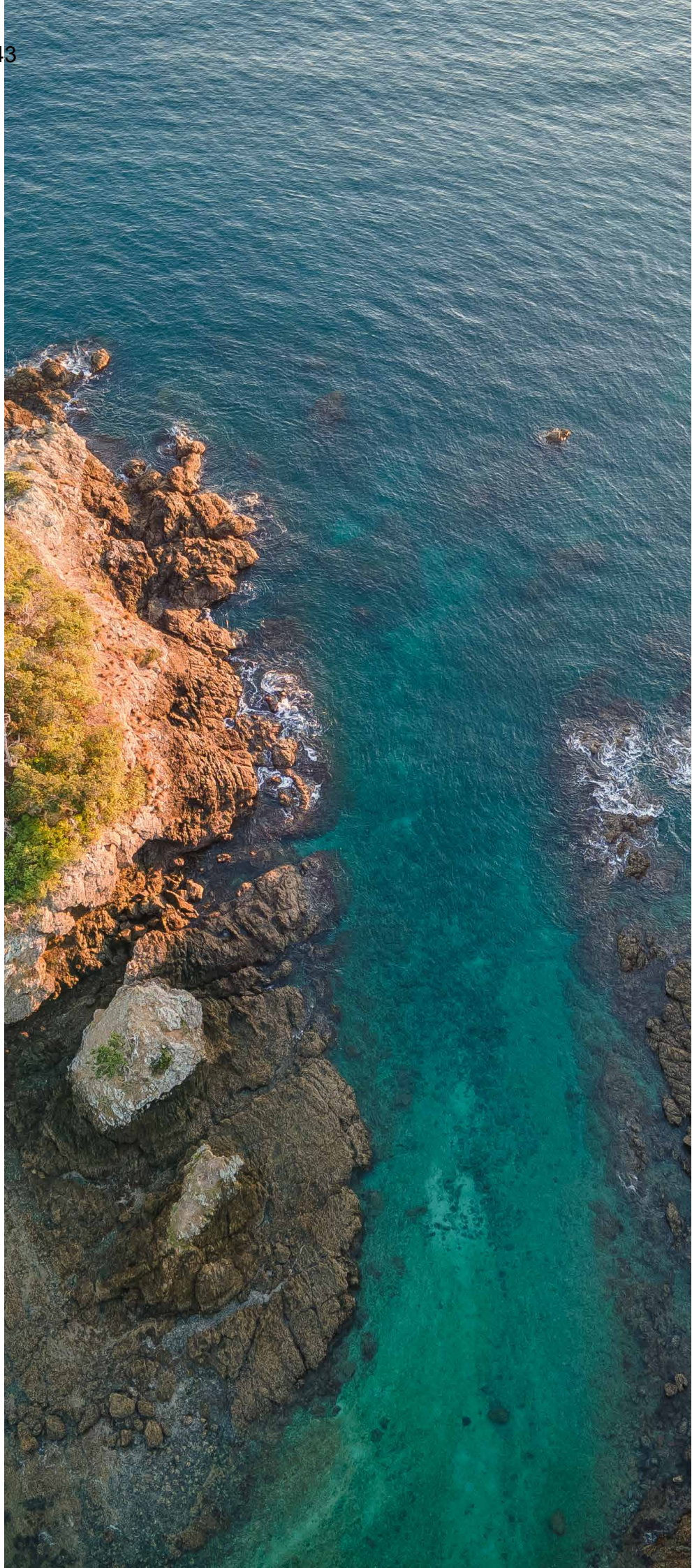
We have witnessed some wonderful highs:

- The introduction new mussel-beds in Ōkahu Bay, led by Ngāti Whātua Ōrākei, and off Kawau, led by Ngāti Manuhiri – both in partnership with Revive Our Gulf. The deployment off Kawau is the single largest mussel-bed restoration deployment in our country's history and globally!
- Continued growth in riparian and restorative planting, led by mana whenua, community groups and organisations, local and central government, farmers, landholders and many others right from the northern reaches of the Marine Park all the way to the southern fringes of the catchment.
- The unveiling of Revitalising the Gulf, central government's response to Sea Change Tai Timu Tai Pari, heralding the most significant proposed use of conservation and fisheries powers in the Gulf in the 22-years since the Marine Park was created.

- Changes to the daily bag limit to bring in all finfish and close the loophole which was allowing plundering of certain species like pink maomao.
- Rāhui tapu laid down by mana whenua around the Hauraki Gulf, including leadership and support from past and present Forum members Liane Ngamane (Ngāti Tamaterā) Joe Davis (Ngāti Hei) Dean Ogilvie (Ngāti Paoa), Mook Hohneck and Nicola MacDonald (Ngāti Manuhiri), which has seen the area of the Gulf covered by rāhui surge from less than 1% to well over 50%.
- The adoption by the Forum of an Advocacy Position on updating and strengthening the Marine Park Act, to enable a Treaty Partnership model, which has been presented to Ministers for consideration.
- A public survey of 1,000 respondents confirmed a massive shift of public support in favour of marine protection and restoration, with upwards of 70 and 80 percent in favour of all the Hauraki Gulf Forum's big goals.

At the same time, challenges also came thick and fast:

- We saw the unwelcome arrival of two strains of a new invasive seaweed – first at Aotea Great Barrier and now also at Great Mercury.
- The Hauraki Gulf endured its longest marine heatwave in history.
- New data on scallops / tipa showed that the fishery had all but collapsed. This came as no surprise to mana whenua and communities that had already began to act, and finally resulted in a decision by the Minister of Oceans and Fisheries to close upwards of 90 percent of the Gulf to scallop dredging and harvesting on sustainability grounds.
- The longest COVID lockdown to date resulted in three of our four quarterly meetings having to go online, restoration efforts being rescheduled, and events deferred.
- Our adoption of an Advocacy Position resulted in a public campaign against the Forum and some of our members.

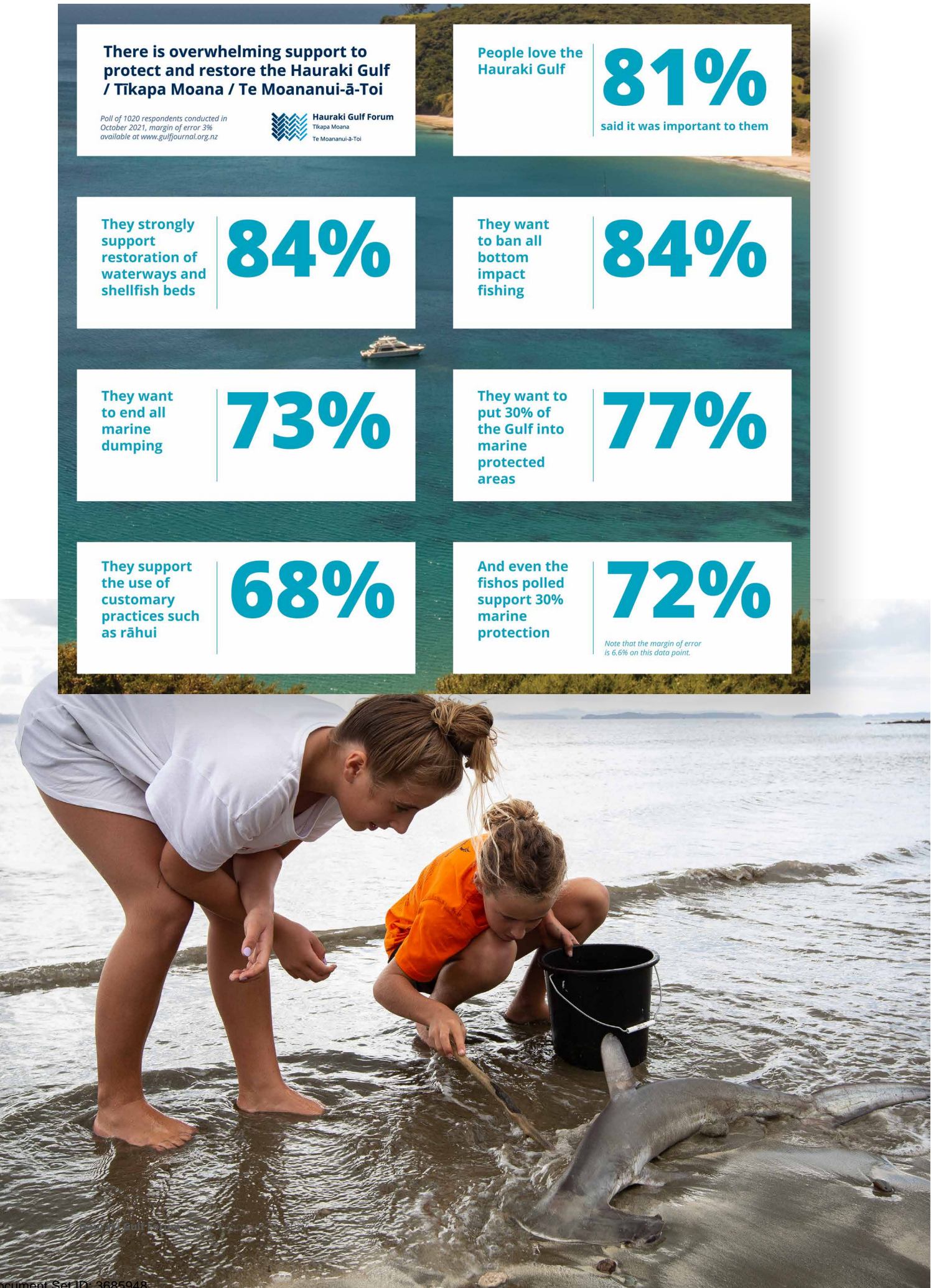


With the gradual lifting of COVID restrictions we have been steadily able to re-engage in person, both as a Forum and, as Co-Chairs, with our Ministers and with MPs across Parliament thanks to support from Awhi Group and Foundation North. We are also underway once again with our most significant function under the Marine Park Act – with the production of the next State of the Gulf report, due for public release in mid-2023.

The following pages detail in more depth the Forum's achievements over the past 12 months and the road ahead. We hope that you find this useful and wish to acknowledge the cover images donated by Revive Our Gulf, the design work by Shaun Lee and the beautiful photography by Project Kahurangi. We also want to acknowledge the valued contribution made by Qiane Matata-Sipu who produced our wonderful podcast series Hauraki Gulf Kōrero. Finally, we want to recognise the incredible contribution made over many years by former member Liane Ngamane who passed away earlier this year. Moe, moe mai rā e Rangatira.

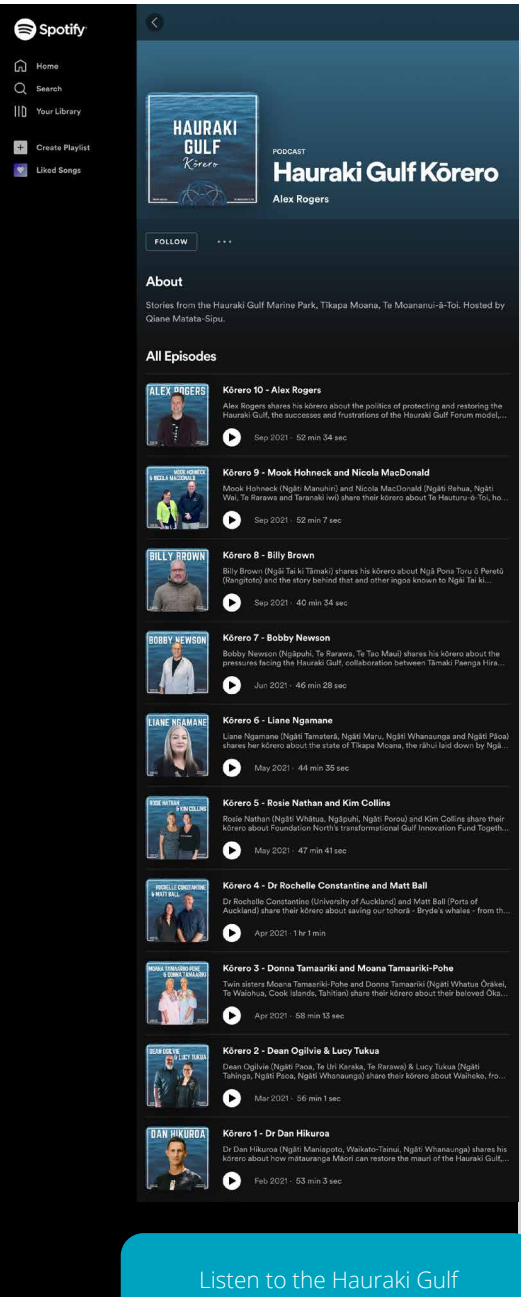
Nicola MacDonald
Co-Chair – Tangata Whenua

Pippa Coom
Co-Chair



Growing Public Awareness

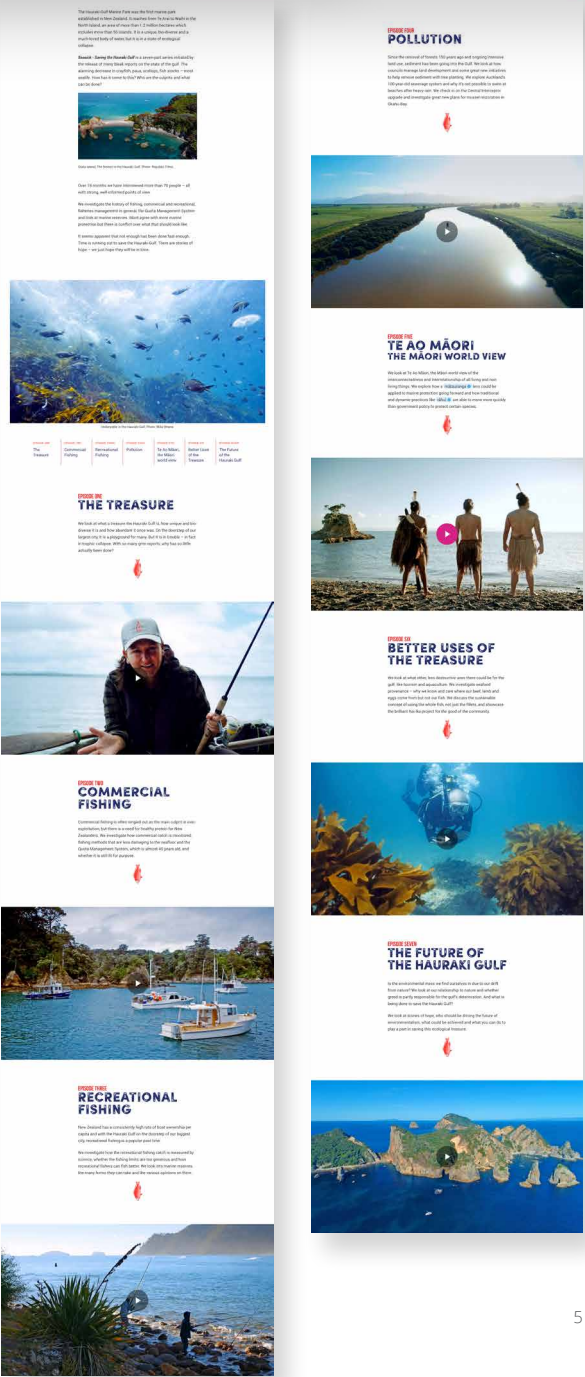
Over the past year we have seen the use of new media connect new audiences to the challenges and opportunities facing the Hauraki Gulf. Both the *Seasick* mini-series and the *Hauraki Gulf Korero* podcast season have been very well received. We also released an independant public poll about the Hauraki Gulf showing overwhelming support to protect and restore it.









Listen to the Hauraki Gulf Korero podcast, on Spotify, Apple Podcasts and all major podcast platforms.

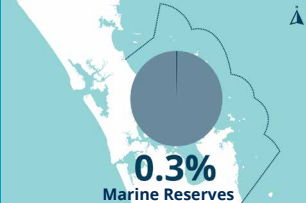
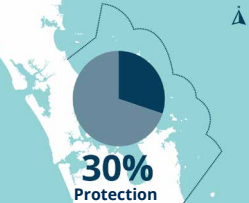







Watch the seven-part mini-series *Seasick - Saving the Hauraki Gulf* here: <https://interactives.stuff.co.nz/2022/seasick-saving-hauraki-gulf/>



MAHERE MAHI
Work Plan 2020–2022

STRATEGIC ISSUE	CURRENT STATE	KEY ACTIONS	FUTURE STATE
Integrated Management		<ul style="list-style-type: none">• Leverage our collective strength• Partner, collaborate and coordinate• Support iwi/hāpu and community-led efforts• Advocate to upgrade HGMPA	<div>Long-term</div> 
Water Quality		<ul style="list-style-type: none">• Reduce flows of pollutants• Highlight and help resolve water quality concerns• Request and publish the latest data and information	<div>Long-term</div> 
Marine Ecosystems		<ul style="list-style-type: none">• Advocate for more marine protection and enhanced biodiversity• Support biosecurity efforts• Understand climate change risks/mitigation	<div>Long-term</div> 

GOAL	CURRENT STATE	KEY ACTIONS	FUTURE STATE
At least 30% protection		<ul style="list-style-type: none">• Call on all sides to take less from the Marine Park• Call for an end to fishing practices which destroy benthic habitat• Support the use of indigenous tools and reform of the Marine Reserves Act	<div>Medium-term</div> 
1000 sqkm of restored shellfish-beds and reefs		<ul style="list-style-type: none">• Call for a supportive regulatory framework• Advocate for trials throughout the Marine Park• Support the work of the Shellfish Coordination Restoration Group	<div>Long-term</div> 
No marine dumping in the Marine Park or near its border		<ul style="list-style-type: none">• Call for an end to the use of dump sites near the Marine Park• Advocate to minimise marine dredging and promote alternatives	<div>Short-term</div> 
Riparian planting of the Hauraki Gulf Marine Park catchment		<ul style="list-style-type: none">• Request and publish information on existing initiatives• Support planting efforts and facilitate collaboration• Advocate for a catchment-wide approach	<div>Long-term</div> 

Progress against Work Plan as at June 2022

On track


3x 100 tonne restored shellfish-beds by end 2022


100km of new riparian planting in the catchment by end 2022



Advocate for upgraded Hauraki Gulf Marine Park Act



Supporting iwi/hapu and community-led efforts

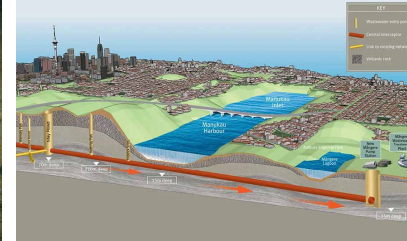

Growing public support for change

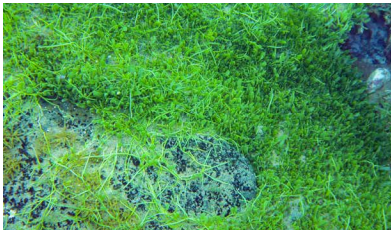

Broad engagement with stakeholders


Some progress


5% of the Hauraki Gulf in Marine Protected Areas by end 2022


Partial closure of dredge fishery due to tipa / scallop population collapse


Investment in and improvements to water quality around the catchment


Coordinated marine and land biosecurity


Work on limiting bottom trawling and danish seining to 'corridors' has begun

No progress yet


Review of marine dumping legislation

TAUĀKĪ KĀWANATANGA

Governance Statement

This Governance Statement replaces all prior versions. It covers how the Forum works, and key roles and responsibilities. The Forum's purposes, membership, functions and powers are set out in detail in Part 2 of the Hauraki Gulf Marine Park Act 2000 (HGMPA) and are not repeated here.

He waka kōtuia kāhore e tukutukua ngā mimira.

A canoe that is interlaced will not become separated at the bow.

In unity there is strength.

In the highly developed craft of building ocean going waka the bow section was laced to the centre hull. The waka provides a metaphor for tangata whenua, in that a people interlaced will not be separated and through that unity we find strength.

How the Forum works

Te whakahonore i o maatau hononga Tiriti hei painga mo Te Moananui-ō-Toi; Tikapa Moana; Hauraki Gulf.

The Forum will operate in partnership under the Treaty of Waitangi in accordance with the Hauraki Gulf Marine Park Act, including the principles of the Treaty of Waitangi under Section 6.

It will integrate and respect both Te Ao Māori and other world views.

The Forum's conduct, and all those that interact with it, will adhere to the intent of the following principles:

- **Aroha:** being considerate – having respect for relationships and being of service.
- **Openness and impartiality:** having an open mind when making decisions and listening to other points of view.
- **Tautoko:** supporting others by respecting and upholding others

mana, dignity, identity and unique perspective.

- **Manaaki:** caring for others by responsibly valuing others and ensuring they feel valued.
- **Stewardship:** using powers and resources prudently.
- **Awhi:** helping others by entering into effective engagements in the spirit of co-operation and good faith.
- **Leadership:** inspiring action toward achieving common goals.
- **Tika:** being responsible – doing the right thing with integrity and accountability.
- **Pono:** being effective – building credibility.
- **Ethics:** maintaining the highest standard of ethical conduct.

The Forum will endeavour to meet quarterly, with meetings split between the Auckland and Waikato regions. It will hold additional workshops and meetings as required.

Our Roles and Responsibilities

• **Co-Chairs**

- One Co-Chair is from and elected by the membership at large.
- One Co-Chair is from and decided by the Tangata Whenua members.
- Co-Chairs lead the Forum and are its spokespeople.
- Co-Chairs work in partnership with each other.
- Co-Chairs exemplify the principles by which we work.
- Co-Chairs chair Forum meetings, set strategic direction, support and work with all Members, and front public engagement.

(A separate Co-Chairing arrangement records the practical aspects of Co-Chairing)

• **Members**

- Members support and work with the Co-Chairs and each other to take effective decisions and progress the agenda of the Forum.
- Members bring their expertise and mana to ensure quality decision making in the interests of the Marine Park.
- Members represent

their Constituent Party, as defined under the HGMPA.

- Members may send alternates to meetings they are unable to attend so long as this is notified in advance and in accordance with any applicable practice.

• **Executive Officer**

- The Executive Officer functions as the Chief Executive of the Forum and is responsible for taking forward resolutions of the Forum, ensuring adherence to the HGMPA, supporting the Co-Chairs and all Members, preparing meeting papers, coordination with external partners, and the Forum's management, contracts, finance and administration.

- The Executive Officer chairs meetings of Technical Officers and works closely with the Governance Advisor.

• **Governance Advisor**

- The Governance Advisor is responsible for collating and publishing meeting agendas, writing minutes and providing advice on process.

• **Technical Officers**

- Members are encouraged to have

Technical Officers to provide them and the Forum with expert support and advice.

- Technical Officers will work with their Members, the Executive Officer and each other to progress the Forum's resolutions, as appropriate.

• **Administering Authority**

















- Auckland Council is the Administering Authority (for responsibilities see s28, HGMPA).

• **Review**

This Governance Statement will be reviewed every 3 years.

KO WAI TĀTOU?

Who we are

 Nicola MacDonald (Co-Chair) Tangata Whenua	 Pippa Coom (Co-Chair) Auckland Council	 Cr Donna Arnold Matamata-Piako District Council
 Charmaine Bailie Tangata Whenua	 Andrew Baucke Department of Conservation	 Cr Phillip Buckthought Hauraki District Council
 Joe Davis Tangata Whenua	 Cr Christine Fletcher Auckland Council	 Mayor Sandra Goudie Thames-Coromandel District Council
 Cath Handley Waiheke Local Board, Auckland Council	 Terrence Hohneck Tangata Whenua	 Jacob Hore Fisheries New Zealand
 Paul Majurey Tangata Whenua	 Martin Mariassouce Te Puni Kōkiri, Ministry of Māori Development	 Cr Rob McGuire Waikato District Council
 Scott Milne Orakei Local Board, Auckland Council	 Dean Ogilvie Tangata Whenua	 Cr Denis Tegg Waikato Regional Council
 Valmaine Toki Aotea / Great Barrier Local Board, Auckland Council	 Cr Wayne Walker Auckland Council	 Cr John Watson Auckland Council

SAVE THE DATE

18 OCTOBER

2022 HAURAKI GULF MARINE PARK CONFERENCE
9:00AM - 4:00PM AT AUCKLAND MUSEUM / TĀMAKI PAENGA HIRA





E TITIRO WHAKAMUA ANA

Looking ahead


2022 / 2023


The year ahead marks the start of a new term of sorts for the Hauraki Gulf Forum. With 12 of our 21 members coming from Local Government, a fresh round of Mayoral appointments will take place following this year's Local Body elections scheduled for October 2022. The Forum will then induct both returning and new members before hitting the ground running in early 2023.

Revitalising the Gulf

Government action on the Sea Change Plan





The next six months will see public consultation on key elements of the government's **Revitalising the Gulf package** and the return of our annual conference on 18 October 2022.

Mercury Bay kekeno count 2022

We want to know more about kekeno / New Zealand fur seals in the Mercury Bay area and we need your help.

If you find a dead kekeno, you can help by sending us

- A photo looking straight down on the animal, including your foot or something else to indicate scale.
- Photos of the sides and head of the animal.
- The location of the animal.
- The date the animal was found.

Send your photos and other information to kekeno@doc.govt.nz as soon as possible, especially if it's a freshly dead animal, as we may want to do a necropsy to find out why it died.

We are also looking for people who regularly use a boat or walk the beaches in this area to help with a live kekeno count. Email kekeno@doc.govt.nz with 'Live kekeno count' in the subject line to discuss how you can help.

Areas of interest



We are working with DOC, local iwi and community on a new research project to support recovering kekeno / NZ fur seals.

We will also be keeping a close eye on the progress of the Resource Management reforms and consequential amendments to the Hauraki Gulf Marine Park Act, and working hard on the next State of the Gulf report, which is due for publication around mid-2023.



KO TE PŪTEA UTU WHAKAHAERE

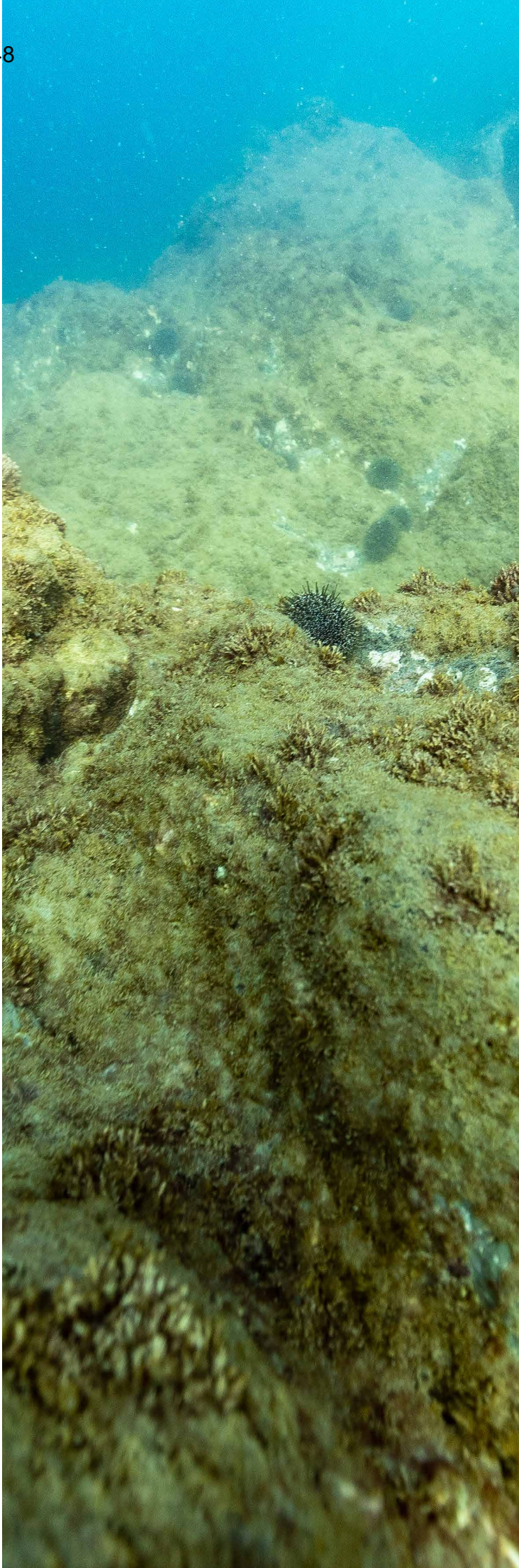
Funding and administrative support

Auckland Council kindly fulfils the role as the Administering Authority of the Hauraki Gulf Forum (see section 28, Hauraki Gulf Marine Park Act 2000). It employs the Executive Officer and provides governance, finance and admin support functions. Forum members are individually supported

by Technical Officers (normally staff from the constituent party and, in the case of tangata whenua members, appointed by the tangata whenua member). The Forum's \$315,000 budget in 2021/2022 was met through a shared funding formula adopted by the Forum, as outlined

in the table below. Additional funding toward the tangata whenua members and their technical officers is met by the Department of Conservation. This amounted to \$28.964 in 2021 / 2022.

2021 / 2022 Budget									
Funding contribution per sector	Authority	Population in the Gulf catchment (2018 Census)	Population (%)	% Contribution per Project, based on population	Land area in the Gulf catchment (2018 region & TLA boundaries)	Land area (%)	% contribution per project based on land area	% population: % land area (60:40 weighting)	Contribution to a budget of \$315,000.00
33.3%	MFish DoC TPK			11.10% 11.10% 11.10%			11.10% 11.10% 11.10%	11.10% 11.10% 11.10%	\$34,965.00 \$34,965.00 \$34,965.00
Subtotal (FNZ, DoC, TPK)				33.30%			33.30%	33.30%	\$104,895.00
33.4%	WRC AC	89,781 1,169,136	7.1% 92.9%	2.38% 31.02%	585,501 218,875	72.79% 27.21%	24.31% 9.09%	11.15% 22.25%	\$35,134.62 \$70,075.38
Subtotal (Regions)		1,258,917	100.0%	33.4%	804,377	100.00%	33.40%	33.40%	\$105,210.00
33.3%	AC WDC HDC TCDC MPDC	1,169,136 1,272 19,836 29,466 33,531	93.3% 0.1% 1.6% 2.4% 2.7%	31.07% 0.03% 0.53% 0.78% 0.89%	218,875 14,648 123,590 219,169 161,360	29.67% 1.99% 16.75% 29.71% 21.88%	9.88% 0.66% 5.58% 9.89% 7.28%	22.59% 0.28% 2.55% 4.43% 3.45%	\$71,163.20 \$897.05 \$8,026.09 \$13,946.40 \$10,862.25
Subtotal (Selected TLAs)		1,253,241	100.00%	33.30%	737,641	100.00%	33.30%	33.30%	\$104,895.00
TOTALS				100.00%			100.00%	100.00%	\$315,000.00



2021 / 2022 Expenditure		
	Forecast (\$)	Actual to end of June (\$)
Communications	\$55,000	\$43,019
Legislative requirements	\$65,000	\$4,848*
Training and travel expenses	\$7,500	\$3,828
HR and administration	\$165,000	\$141,618
Total expenditure	\$292,500	\$193,313

*\$60,000 carried forward for 2023 State of the Gulf report.

2021 / 2022 Revenue		
	Forecast (\$)	Actual to end of June (\$)
Constituent party contributions	\$133,769	\$133,769
Auckland Council contribution	\$108,731	\$108,731
Total revenue	\$242,500	\$242,500

Forecast revenue less expenditure	(\$50,000)	\$49,186
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Accumulated surplus balance as at end of June 2020	\$94,889	\$94,889
Forecast revenue less expenditure 2021 / 2022	(\$50,000)	\$49,186
Accumulated surplus balance as at end of June 2021	\$44,889	\$144,075

All costs are presented exclusive of GST.

HE AHA NGĀ MAHI KUA WHAKATUTUKIHIA E TĒNEI RŌPŪ?

What we have achieved?

Since the commencement of the Hauraki Gulf Marine Park Act, the Forum has shaped understanding and expectations about the way the Gulf should be protected, used and managed.

1990 Hauraki Gulf Maritime Park disestablished as government reduces number of environmental and conservation ‘quangos’.

1991 Minister of Conservation Denis Marshall establishes working party, led by Jim Holdaway, which recommends creation of a Hauraki Gulf Marine Park.

1992 Many iwi of the Gulf meet to consider a marine park and ratify the Motutapu Accord asserting tangata whenua ownership of this taonga.

1997 Auckland Regional Council establishes a Hauraki Gulf Forum of local and central government agencies to co-ordinate management of the Gulf.

1998 The Waitangi Tribunal considers a claim on the proposed Hauraki Gulf Marine Park legislation lodged by the Hauraki Māori Trust Board.

2000 Hauraki Gulf Marine Park Act (HGMPA) comes into force, with purpose to integrate management and sustain the life-supporting capacity of the environment.

2000 The Hauraki Gulf Forum established to promote HGMPA management objectives; with members from 13 local authorities within the Gulf’s catchment, three ministerial representatives and six representatives of the tangata whenua of the Gulf and its islands.

2001 Waitangi Tribunal submits report (Wai 728) on the HGMPA claim, encouraging all parties to focus on “the need for the Hauraki Gulf environment to be protected for future generations.”

2002 Forum publishes first Strategic Issues paper, emphasising the importance of public access.

2002 Forum endorses inclusion of 304 ha of covenanted private land on Waiheke Island within the Hauraki Gulf Marine Park.

2003 Report on depletion of shellfish resources commissioned, leading to establishment of the Community Shellfish Monitoring Programme, which has continued since.

2004 First state of the environment report published, providing mixed report of environmental declines and improvements.

2004 External review of Forum recommends new governance statement, shared budget and dedicated executive support.

2007 Appointment of jointly-funded Forum Executive Officer.

2008 Forum initiates *Weaving the Strands* quarterly newsletter.

2008 Cross-boundary planning approach advocated within review of Strategic Issues paper, particularly by tangata whenua members.

2008 Second state of the environment report finds regulatory approaches and management arrangements may be inadequate to deal with pressures facing the Gulf. Launched with United Nations Environment Programme Executive Director Achim Steiner.

2009 *Governing the Gulf* published, to guide implementation of the

HGMPA in Resource Management Act policies and plans.

2010 *Fishing the Gulf* published, to guide alignment of fisheries management with the HGMPA.

2010 Waitākere City Council reserves bordering the Waitematā Harbour and Forest and Bird covenanted land on Waiheke are vested in marine park.

2010 10th anniversary of HGMPA held on Motutapu Island. First Hauraki Gulf Marine Park seminar held with Auckland War Memorial Museum, becoming an annual event.

2011 Marine park poster series initiated with *New Zealand Herald*, to be repeated in subsequent years.

2011 *Spatial Planning for the Gulf* published, noting potential as process to integrate and improve management, consistent with HGMPA.

2011 Third state of the environment report published, concluding incremental, ongoing decline off a low environmental base, with bold steps needed for change.

2012 REMAK Strategic Issues framework identified in response to state of the environment report.

R	Regenerating areas
E	Enhanced fisheries
M	Mana whenua expression
A	Active land management
K	Knowledge utilisation (ecosystem-based)

2012 Collaborative group initiated to examine ship strike, prompting Ports of Auckland transit protocol a year later, and progressive reductions in ship speed.

2012 Commissioned report indicates economic activities in the Gulf generate over \$2 billion annually and have “environment at the very core of their value proposition”.

2012 Forum briefed on the significance of new legislation to settle the historical treaty claims of Ngāti Whātua Ōrākei and Ngāti Manuhiri and provide financial and cultural redress. Te Hauturu-o-Toi / Little Barrier returns to Ngāti Manuhiri and is then gifted back to the people of New Zealand as a nature reserve.

2012 Meeting at Ōrākei Marae supports marine spatial plan project design with Forum role on steering group.

2013 *Seabirds of the Hauraki Gulf* published, helping, along with other initiatives, to promote the Gulf as a ‘seabird hotspot’.

2013 Sea Change – Tai Timu Tai Pari marine spatial plan process launched.

2013 Auckland War Memorial Museum’s *Moana–My Ocean*, prompted by the Forum’s *State of our Gulf* assessment, becomes its most popular temporary exhibition.

2013 Forum supports Southern Seabird Solutions Trust to promote seabird smart fishing in the Gulf.

2013 Inaugural Holdaway Award for leadership introduced as part of marine park seminar.

2014 Forum briefed on Ngā Mana Whenua o Tāmaki Makaurau Collective Redress Act which provides mana whenua with ownership and governance responsibilities for maunga and motu. Interests in harbours are signalled.

2014 Fourth state of the environment report published, reiterating environmental decline and ongoing challenges for integrated management.

2015 Independent 10-year review challenges Forum to strengthen its influence in promoting Hauraki Gulf Marine Park Act objectives.

2015 Forum notes signing of Treaty settlement with Ngāi Tai ki Tāmaki.

2016 Online *Gulf Journal* initiated to support inspired management and action around the Gulf.

2016 Forum draws attention to marked decline in crayfish within Cape Rodney – Ōkakarī Point Marine Reserve at Leigh.

2016 Foundation North announces \$5 million Gulf Innovation Fund Together (GIFT) to respond to issues identified in State of our Gulf reports.

2016 *Sea Change Tai Timu Tai Pari* plan released.

2017 Marine scientist tells Radio NZ “Hauraki Gulf Bryde’s whale crisis averted”.

2017 Fifth state of the environment report published presenting a well-articulated, clear pathway for addressing some of the issues facing the Gulf.

2018 Reset of Strategic Issues around three priorities:

Forum Operations

Water Quality

Marine Ecosystems

2019 Recommendation of two Big Goals for the Marine Park: (1) at least 20% of the waters protected; (2) 1000sqkm of shellfish-beds restored.

2019 Communications Strategy and Review.

2020 Sixth state of the environment report published telling the 20-year story of the Marine Park, interweaving Mātauranga and science.

2020 Adoption of four **Big Goals**

At least 30% marine protection

Restoration of 1000sqkm of shellfish-beds and reefs

Riparian planting of the catchment

Ending marine dumping near the Marine Park

2020 Adoption of new Governance Statement, including the appointment of Co-Chairs.

2020 Invited to submit a Briefing to Incoming Government for the first time in the Forum’s history.

2020/2021 Forum supports rāhui by Ngāti Tamaterā, Ngāti Hei and Ngāti Pāoa.

2021 Hauraki Gulf Kōrero podcast series released.

2021 60 tonne kūtai deployment at Okahu bay.

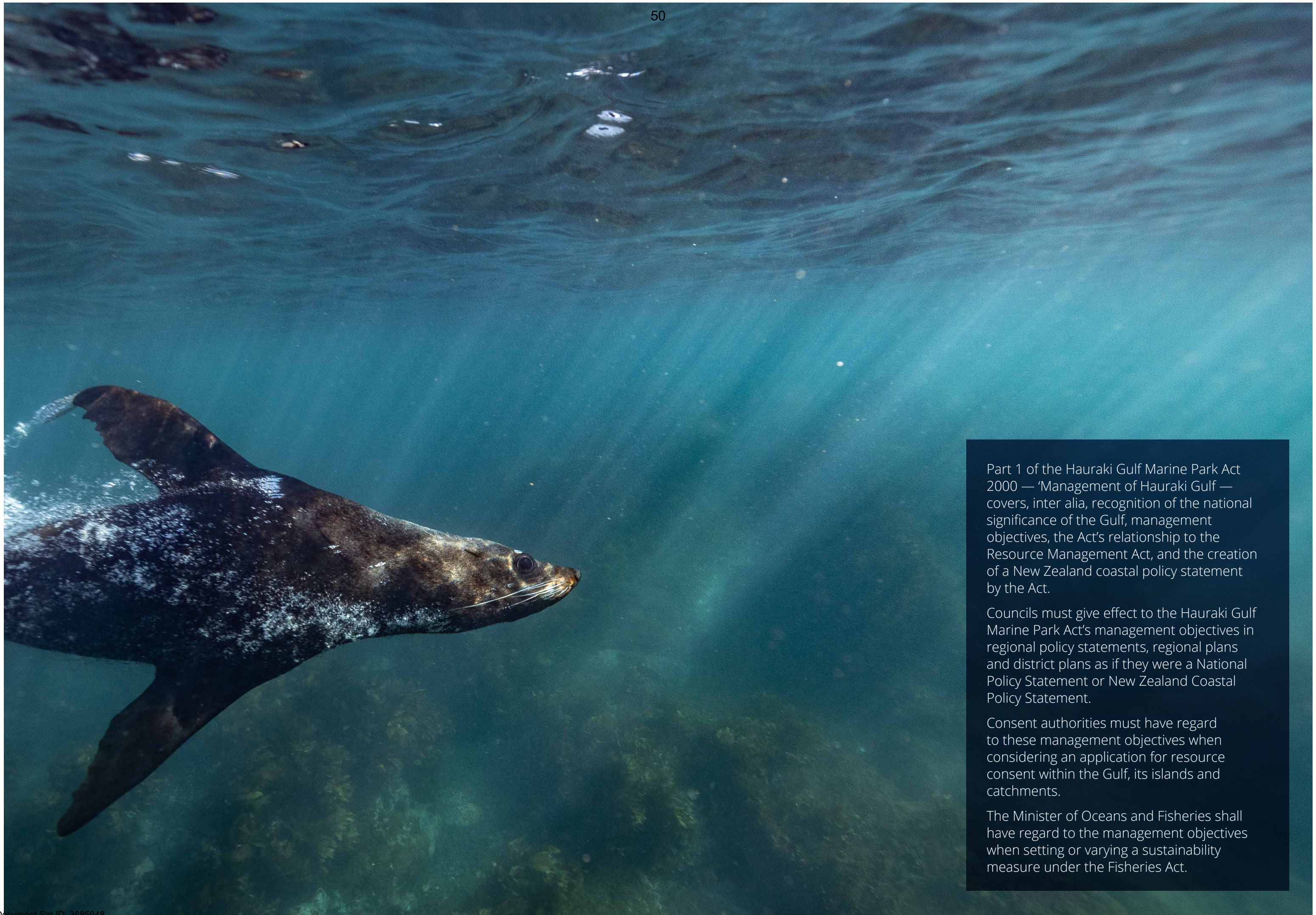
2022 Advocacy Position on updating and strengthening the Hauraki Gulf Marine Park Act presented to Ministers.

2022 cross-Parliament engagement on future of the Hauraki Gulf.

2022 95% of the HGMP closed to scallop dredging / harvest.

2022 150 tonne kūtai deployment near Kawanu.

PAST CHAIRS:	
2000–02	Philip Warren
2002–07	Laly Haddon
2007–18	John Tregidga
2018–20	John Meeuwssen



Part 1 of the Hauraki Gulf Marine Park Act 2000 — 'Management of Hauraki Gulf' — covers, inter alia, recognition of the national significance of the Gulf, management objectives, the Act's relationship to the Resource Management Act, and the creation of a New Zealand coastal policy statement by the Act.

Councils must give effect to the Hauraki Gulf Marine Park Act's management objectives in regional policy statements, regional plans and district plans as if they were a National Policy Statement or New Zealand Coastal Policy Statement.

Consent authorities must have regard to these management objectives when considering an application for resource consent within the Gulf, its islands and catchments.

The Minister of Oceans and Fisheries shall have regard to the management objectives when setting or varying a sustainability measure under the Fisheries Act.



Hauraki Gulf Forum

Tikapa Moana

Te Moananui-ā-Toi

The Hauraki Gulf Forum is a statutory body charged with the promotion and facilitation of integrated management and the protection and enhancement of the Hauraki Gulf / Tikapa Moana. The Forum has representation on behalf of the Ministers of Conservation, Oceans and Fisheries and Māori Development, elected representatives from Auckland Council (including the Aotea Great Barrier and Waiheke local boards), Waikato Regional Council and the Waikato, Hauraki, Thames-Coromandel and Matamata-Piako district councils, plus six representatives of the tangata whenua of the Hauraki Gulf and its islands.

Private Bag 92300

Auckland 1142

www.haurakigulfforum.org.nz

info@haurakigulfforum.org.nz

Photography by Project Kahurangi,

Rachel Mataira and Revive Our Gulf

To	Strategy & Finance Committee
Report title	Climate Action Progress Update 2022
Date:	14 September 2022
Report Author:	Rachael Goddard, Senior Advisor Climate Action
Authorised by:	Clive Morgan, General Manager Community Growth

1. Purpose of the report

Te Take moo te puurongo

To update and inform the Strategy & Finance Committee on the progress and implementation of the Council's Climate Response and Resilience Action Plan (the Climate Action Plan) and provide an overview of the key projects and achievements since the appointment of the Senior Advisor Climate Action.

Reporting on these matters by September 2022 is a Key Performance Indicator in the Chief Executive's 22/23 Business Plan.

In addition, the report provides an overview of global and national climate change status, implications for council and proposed work.

2. Executive summary

Whakaraapopototanga matua

The Senior Advisor Climate Action (SACC) was appointed in October 2021 to deliver on the Climate Action Plan, develop and implement projects, assess council's activities and emissions, and drive action within council and the community. To date the SACC has progressed over 70% of actions in the Climate Action Plan and has undertaken an assessment and gap analysis of the council's delivery, systems and tracking on climate change/progress and identified and implemented areas for action.

Of note are the update of the Climate Response & Resilience Policy and reprioritisation of the Climate Action Plan to align with the development of draft Climate Strategy with Roadmap and targets, establishment of the Climate Steering Group and creation and implementation of the funded Community Climate Response Programme.

In addition, the report covers climate change from a global and local perspective, Government expectations and implications for council, and current and proposed work in the space.

3. Staff recommendations Tuutohu-aa-kaimahi

That the Strategy and Finance Committee:

- a. **receives the report.**

4. Background Koorero whaimaarama

(I) Chronology

In 2015, Mayors and Chairs of New Zealand declared it was critical to have responsive leadership and a holistic approach to climate change, and in 2017 the LGNZ statement and commitment was collectively issued.

In August 2020, the Policy and Regulatory Committee adopted an internally focused Climate Response and Resilience Policy. This was updated again in in early 2022.

In December 2020 the Council's Climate Response and Resilience Action Plan (the Action Plan) was adopted and Key Performance Indicators on climate change established in the Chief Executive's 2021/22 Business Plan.

In October 2021 the new Senior Advisor for Climate Action was appointed.

(II) Global Perspective

The 6th report from the UN Intergovernmental Panel on Climate Change (IPCC), released this year involved over 63,000 researchers, writers and reviewers assessing over 34,000 cited references & science papers. It is the most comprehensive, scientifically robust process culminating in the most concerning report to date.

- + "Climate change is a threat to human wellbeing and planetary health. Any further delay in concerted anticipatory global action on adaption and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all."
- + The 1.5°C threshold will be breached sometime during the next 20 years.
- + Only under the two most aggressive decarbonisation scenarios is it likely that global warming will remain under the 2°C threshold for dangerous human interference in the global climate system.

We have just reached 421ppm of Co₂ in the atmosphere. The last time it was this concentration, was 4.1 million years ago. It was 4 degrees warmer, there were forests in the Artic and the sea level was 5-20m higher.

Climate change is now a given. We have a commitment and mandate to take action on climate change and are building and delivering impactful responses, systems changes, programmes and policies to mitigate and adapt.

(III) New Zealand Perspective

New scientific modelling predicts that parts of New Zealand will have a much higher sea rise than anticipated, which could cause catastrophic 'once-in-a-century' flooding every year. The predicted 30cm sea level rise in 18 years in Wellington alone is a major cause for concern given our sea level increases between 1993-2016 were approximately 7.8cm total within a 23 year timeframe. The new information will have consequences for climate adaptation planning, consents, insurance, and property prices.

The NZ Government has set a target of 50% reduction in Co₂ emissions by 2030 and carbon neutrality by 2050. Most councils have aligned and are planning to deliver on this target. Over 81% of councils report on their operational Co₂e emissions. This may likely be a requirement in future.

The inaugural Emissions Reduction Plan (2022-2025) contains over 300 actions to reduce greenhouse gas emissions across a broad range of areas, such as transport, energy, building, agriculture, forestry, and waste. It has a \$2.9 billion budget.

Local Government as a key stakeholder is cited 109 times in the document. It isn't clear how councils will be supported to deliver on the plan. We anticipate that we will require resourcing to deliver on the Plan.

The Resource Management Act has been repealed and will be replaced with the Climate Change Adaptation Act, Spatial Planning and Natural & Built Environment Acts. In addition, there will be a shift away from coal and gas boilers with planned phase out.

(IV) Legal Considerations

Due to an increase in storm events, flooding and erosion, councils may face increased exposure at an operational level. We may need to consider legal implications with zoning/planning/consents. Impact and costs of infrastructure, managed retreat, potential for litigation and a certain rise in insurance costs.

(V) WDC Current Status- Co₂e Emissions

We track, benchmark and report annually on our Co₂e inventory of operational emissions. In the future it is highly likely that we will need to report formally and seek independent verification (i.e Toitu).

Note the following data is from 2020/2021 financial year as 2022 data is still being collated.

- Our carbon emissions were approx. **1.1 tonnes Co₂e**, a reduction of **23%** from the previous year. This is mainly due to 3 Waters going to Watercare, and to a lesser extent, Covid.
 - Our highest emitting areas are electricity, gas, cattle and travel.
 - Total GHG emissions work out to 3.42 tonnes per person.
-

Area 2020-2021	TCO2e	%
Electricity	344.9	31
Fleet Fuel	330.0	30
Natural Gas	186.4	17
Cattle	170.6	15
LPG	24.3	2
Waste to Landfill	23.2	2
Working From Home	16.0	1
Travel	12.6	1
	1,108.0	100

Figure 1.

(VI) Auditor General Expectations

The Officer of the Auditor General expects that councils will report on their Co₂e emissions. Currently all councils include climate change in the LTP's. As we continue to report on annual Co₂e operational emissions, we will require more efficient systems for the collection and collation to ensure more robust data that will be independently verified.

5. Discussion Matapaki

Good progress is being made and the existing foundation is being built on.

The following key areas for climate action have been achieved.

- Increased visibility and response to climate change- Comms, ELT, staff, community
 - Climate Action webpage and resources created
 - Climate Policy Updated
 - Processes/gap analysis mapped of climate change in plans and operations
 - Climate Response Community Programme (CRP) designed and implemented
 - Funding secured from Trust Waikato, HCC and WRC for CRP
 - 10 Community Advisors trained for CRP
 - Set up EV Charging Infrastructure Regional Group
 - EECA Funding Application for \$158K for Huntly Gas Boiler replacement
 - Climate 101 Workshops delivered (over 140 staff attended two workshops)
 - Established Climate Steering Committee
 - Set up Sub Energy Working group
 - Updated Fleet Policy
 - Input into plans, policies, projects, advice
 - Assessment Criteria EV Charging Proposals created
 - Update of Climate Action Plan to priority works plan
 - Development of draft Climate Strategy with roadmap and targets
 - Annual Sustainability Snapshot
 - Annual Co₂e Inventory
 - Procurement sustainability map
-

- Comms Plan
- Recommendations on climate change in JD's and induction
- Discussion Document Co₂e Emission Reduction Targets WDC
- Scoping EV's for fleet. Hybrids currently 35% of fleet.
- Supporting review of climate resilience strategic risk
- Member Waikato Plan climate stream, Climate Council Network, Waste Steering Group, EV Infrastructure Working Group

Key Work in Progress and Proposed 2022-2023

(a) Projections 2023 Emissions Reduction

We aim to reduce our emissions by at least 15% in 2023. This proposed target will be detailed and explored further with input from the Climate Steering Group and staff via the draft Climate Strategy and roadmap, which is currently under development.

- With the replacement of the Huntly Gas boiler next year, an estimated **14%** of Co₂e will be removed.
- Transition of fleet to hybrid and EV will reduce emissions. Approx. 2.1 tonne Co₂e per car per year reduced from EV's. # unknown at this stage.
- 10 Cattle reduced on Wainui Reserve proposed. 1.8 tonnes Co₂e per head= 18 tonnes Co₂e reduced.
- LED light replacement Huntly Library. # unknown at this stage.
- Overall reduction in 2023 is estimated at **16-18%**. (This may be more depending on what actions are taken and also the projected increase in renewable energy in NZ).

Setting a new Co₂e benchmark for the annual inventory next financial year will allow for the establishment of more robust systems for the collection and collation of data and tracking.

(b) Operational / Staffing Considerations

To embed climate action into our operations, culture and behaviour, we could consider the following:

- All staff to have climate change/climate action included in their job descriptions.
 - All staff and councillors to have Climate Change 101 as an induction.
 - Key staff to have climate change as a KPI.
 - Climate change workshops/education is part of Professional development/upskilling.
-

(C) WDC Climate Strategy & Roadmap

An overarching draft Climate Strategy and Roadmap is being developed with key projects aligning with delivery on targets. The strategy will include internal operational and district emissions and climate action. The Climate Action Plan will be realigned and reprioritised to deliver on the strategy.

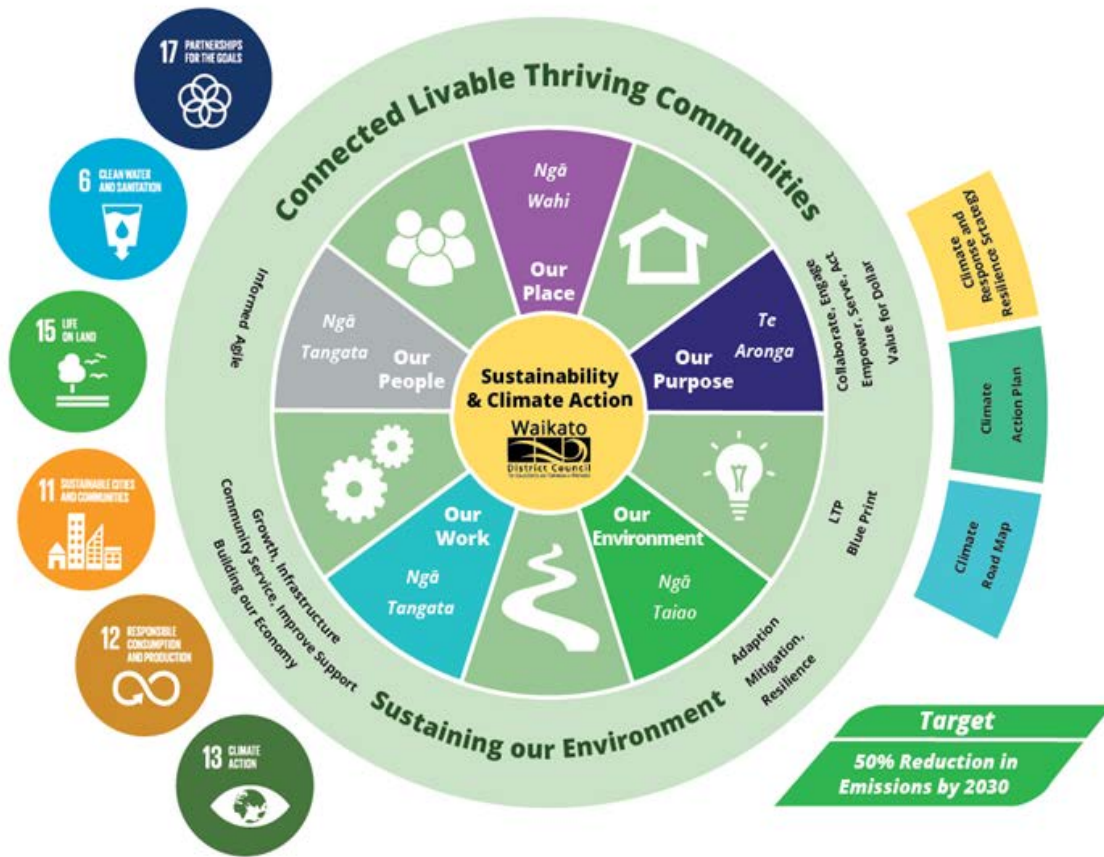


Figure 2; Visual for Roadmap/Climate Strategy

(d) Regional & Internal Collaboration

The SACC is actively involved with the Waikato Plan- Climate Action Arm, NZ Councils Climate Group, Co-Lab (WLASS), the Regional EV Infrastructure Working Group, the community Climate Response Programme, and is also presenting regularly at hui, workshops, conferences and meetings. Internally, the SACC is becoming increasingly engaged in projects, plans, providing advice and working groups across the organisation and also runs the staff Climate Action Group. The last two Climate action workshops had 140 staff attend.

(e) Climate Response & Resilience Action Plan

The plan has been updated and reprioritised. Original and additional actions have been translated into a work plan for the Senior Advisor Climate Action. Over **70%** of actions have been achieved or are underway in the last 10 months since the appointment of the SACC. This plan will be further realigned to delivery of the Climate Strategy later this year.

(f) Climate Strategy and Roadmap

A Roadmap to 2030 proposing a 50-60% reduction in WDC operational emissions has been drafted. The initial draft outline has been shared with ELT, the Climate Action Group, and the Climate Steering Group for input and further development. Consultation will occur with staff in September/October this year, and also input from mana whenua. It is hoped the document will be ready for council approval by end of 2022.



Figure 3: Proposed connection and realignment with Plans, Programmes and Strategy.

(g) Climate Response Programme

10 community climate advisors have been trained to deliver a climate action programme to up to 30 organisations in Waikato. The programme supports not for profits, small business and charities track and report on their GHG emissions, set targets and develop plans for action.

Funded by Trust Waikato, Waikato Regional Council, Hamilton City Council and WDC. Key partners; Go Eco and Para Kore. Pilot runs from July 2022 -June 2023.

(h) EV Charging Infrastructure Working Group

The group (under the Waikato Plan- climate arm and Regional Transport group) has developed a strategy, and guidelines for a consistent approach for contending with EV charging infrastructure requests in the district. Weighting criteria has been developed to assess proposals and an approach and principles will be recommend this month on how we contend with requests.

6. Next steps **Ahu whakamua**

The Climate Action Strategy and Roadmap with targets will be shared with the Climate Steering Committee and staff for input this September/October. It will also require a te ao maori lens and need to consider district emissions as well as operational emissions. It is likely the draft strategy will go to the new council in November for approval.

The Climate Action Plan will then be updated and realigned to deliver on the Climate Strategy.

7. Attachments **Ngaa taapirihanga**

There are no attachments for this report.

To	Strategy & Finance Committee
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Report title	Heritage Strategy
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Date:	14 September 2022
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Report Author:	Nick Johnston – Strategic Initiatives and Partnerships Advisor
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Authorised by:	Clive Morgan – General Manager Community
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1. Purpose of the report

Te Take moo te puurongo

To seek adoption of the revised Heritage Strategy.

2. Executive summary

Whakaraapopotanga matua

The Heritage Review Steering Group (the Steering Group) was established in June 2021 to review Council's role in heritage activity. The Steering Group resolved to refresh the Heritage Strategy in a collaborate co-design process with the Heritage Forum and the participating organisations and individuals.

Public consultation for the draft Heritage Strategy closed on 5 August. As anticipated in the previous report, there was a low level of public engagement, which can partially be attributed to the collaborative co-design process with many heritage stakeholders in the development of the draft Heritage Strategy.

Several minor amendments have been made following feedback on the draft Heritage Strategy, and the proposed Heritage Strategy is ready to be considered for adoption.

3. Staff recommendations Tuutohu-aa-kaimahi

That the Strategy and Finance Committee:

- a. **adopts the Heritage Strategy,**
- b. **resumes the Heritage Project Fund,**
- c. **endorses the Heritage Forum's recommendation for a fixed-term heritage staff member role, funded from the Heritage Project Fund.**

4. Background Koorero whaimaarama

4.1 Heritage Review

A summary of the Heritage Review is provided in the report to the [22 June 2022](#) Strategy and Finance Committee meeting.

Public consultation was undertaken between 8 July – 5 August 2022. A total of 15 responses were received during the consultation period, in addition to the extensive feedback that was received throughout the co-design process to develop the Strategy. Many participants in the co-design process did not resubmit further feedback during the public consultation period.

8 submitters indicated support for the vision and strategic objectives, 7 submitters indicated support in-part and no submitters indicated opposition to the vision or strategic objectives. Submitters indicating support in-part had feedback on additional objectives or specific projects that they would like to see implemented and funded. Majority of feedback was focused on specific projects that should be supported or funded, which is outside the scope of the consultation topic but are all matters that can be considered through the new Long-Term Plan (LTP)

At the 30 August Heritage Forum meeting, the Forum passed a resolution collectively supporting the draft Heritage Strategy.

In addition to discussion on the strategy, the Heritage Forum discussed staff resourcing to support the implementation of the Heritage Strategy and recommends that Council establishes a dedicated full-time heritage staff member. This role is recommended to support collaboration between Council and heritage stakeholders, to act as a conduit for heritage activity across the whole organisation, to support the delivery of strategic objectives in the Heritage Strategy, and to support the inclusion of a dedicated heritage topic in the development of the 2024-34 LTP.

The Heritage Forum recommends that this role is funded in part from the Heritage Project Fund for the first year, with longer-term decision-making on the role to be considered through the development of the LTP.

5. Discussion and analysis

Taataritanga me ngaa tohutohu

5.1 Options

Ngaa koowhiringa

Staff have assessed that there are two reasonable and viable options for the Strategy and Finance Committee to consider. This assessment reflects the level of significance and the options fall within the scope of the Heritage Review Steering Group Terms of Reference. The options are set out below.

Option 1 – Approve the proposed Heritage Strategy and approve the Heritage Forum recommendation for a fixed-term heritage staff member.

If the Committee approves the proposed Heritage Strategy, this version will supersede the previous 2014 Heritage Strategy. A position description for a fixed-term role would be developed.

Option 2 – Approve the proposed Heritage Strategy and do not approve the Heritage Forum recommendation for a fixed-term heritage staff member.

If the Committee approves the proposed Heritage Strategy, this version will supersede the previous 2014 Heritage Strategy. Council staff will consider options for delivery of Heritage Strategy objectives within current budgets and resourcing.

Option 3 – Do not approve the proposed Heritage Strategy

If the Committee did not approve the proposed Heritage Strategy, feedback would be noted and revised for the new Council's consideration after the election. As heritage strategy documents are not a legislative requirement for local government, there are no legal implications if Option 2 is chosen. The Heritage Forum's recommendation for a fixed-term heritage staff member would only be considered following adoption of the Heritage Strategy at a later date.

5.2 Financial considerations

Whaiwhakaaro puutea

As the Heritage Review was undertaken in-house, there are no financial implications to the Heritage Project Fund associated with the development of the Heritage Strategy to-date. Funding to support any of the un-resourced or unfunded strategic objectives of the Heritage Strategy will be decided through subsequent LTP and Annual Plan processes.

The Heritage Project Fund has been paused during the review period for the Heritage Strategy. If Council adopts the proposed Heritage Strategy, it is also recommended that the Heritage Project Fund resumes, operating under the principles for discretionary funding that was adopted as part of the Funding Review.

A subcommittee of the Heritage Forum has a delegated decision-making role for financial commitments from the Heritage Project Fund once the funding paused is lifted by Council – decision-making in this instance involves elected members that are members of the Heritage Forum alongside heritage stakeholder representatives. However, it is appropriate for a resolution of Council to be made in this instance because the recommendation is not to grant funding to a community organisation but to Council itself towards the creation of a fixed-term staff position.

5.3 Legal considerations **Whaiwhakaaro-aa-ture**

There are no legal considerations regarding the development of the Heritage Strategy.

5.4 Strategy and policy considerations **Whaiwhakaaro whakamaaherehere kaupapa here**

The report and recommendations are consistent with the Council's policies, plans and prior decisions. As the Heritage Strategy co-design approach was focused on refreshing Council's strategic objectives, there are objectives within the current 2014 Heritage Strategy that remain in the Strategy through the co-design process.

5.5 Maaori and cultural considerations **Whaiwhakaaro Maaori me oona tikanga**

The Heritage Strategy sets strategic objectives for Council's role in supporting tangata whenua aspirations, including facilitating conversations with Waikato-Tainui for iwi-led and hapuu-led heritage projects that should be investigated through the LTP process. Council staff are in early discussions with Waikato-Tainui staff regarding a coordinated approach to raising awareness about current and proposed heritage projects and initiatives.

5.6 Climate response and resilience considerations **Whaiwhakaaro-aa-taiao**

Several amendments have been made to the draft Heritage Strategy to reflect some of the specific impacts of climate change on heritage activity – primarily the impact on natural heritage and cultural heritage.

5.7 Risks **Tuuraru**

There are no financial, regulatory or compliance risks associated with the development of the Heritage Strategy.

Perception continues to be a risk for any non-binding strategy with a series of aspirational objectives. Most feedback through the public consultation period focused on the necessarily resourcing required to deliver on the new strategic objectives, and the importance of considering these projects and initiatives through the LTP process.

6. Significance and engagement assessment Aromatawai paahekoheko

6.1 Significance Te Hiranga

The decisions and matters of this report are assessed as of low significance, in accordance with the Council's [Significance and Engagement Policy](#).

6.2 Engagement Te Whakatuutakitaki

Engagement through the development process has been highly collaborative, involving a broad array of partners and stakeholders.

7. Next steps Ahu whakamua

If the staff recommendations are approved and the proposed Heritage Strategy is approved, Council will continue to engage with our key heritage stakeholders and the Heritage Forum on the implementation of strategic objectives in the Heritage Strategy. A first step for this will be coordinated work to prepare for the development of the next LTP, and fixed-term role will be prepared to support this work.

8. Confirmation of statutory compliance Te Whakatuuturutanga aa-ture

As required by the Local Government Act 2002, staff confirm the following:

The report fits with Council's role and Committee's Terms of Reference and Delegations.	Confirmed
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The report contains sufficient information about all reasonably practicable options identified and assessed in terms of their advantages and disadvantages (<i>Section 5.1</i>).	Confirmed
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Staff assessment of the level of significance of the issues in the report after consideration of the Council's Significance and Engagement Policy (<i>Section 6.1</i>).	Low
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The report contains adequate consideration of the views and preferences of affected and interested persons taking account of any proposed or previous community engagement and assessed level of significance (<i>Section 6.2</i>).	Confirmed
---	-----------

The report considers impact on Maaori (<i>Section 5.5</i>)	Confirmed
The report and recommendations are consistent with Council's plans and policies (<i>Section 5.4</i>).	Confirmed
The report and recommendations comply with Council's legal duties and responsibilities (<i>Section 5.3</i>).	Confirmed

9. Attachments

Ngaa taapirihanga

Attachment 1 – Proposed Heritage Strategy

To	Strategy and Finance
Report title	Wharekawa Coast 2120 - Community Panel recommendations and next steps
Date:	14 September 2022
Report Author:	Kelly Nicolson, Senior Policy Planner
Authorised by:	Clive Morgan, General Manager Community Growth

1. Purpose of the report

Te Take moo te puurongo

The purpose of this report is

- To provide the Strategy & Finance Committee with an update on progress and significant milestone reports for the Wharekawa Coast 2120 community resilience project;
- To formally present the significant milestone reports, which consist of the Community Panel's Recommendations Report (Attachment 1) and the technical Companion Report (Attachment 2), prepared by staff from Hauraki District Council, the Waikato Regional Council and Traverse Environmental (Consultant); and
- To ask Council to consider and decide the next steps with regards to the Waikato District Council's involvement in the preparation of the Wharekawa Coast 2120 Community Plan.

2. Executive summary

Whakaraapopototanga matua

This report provides a background summary of the Wharekawa Coast 2120 community resilience project and the work carried out by the Community Panel and the Technical Advisory Group (TAG) and includes the Joint Working Party's (JWP) recommendations for the project's next steps.

This report also presents the two milestone reports, including the Wharekawa Coast 2120 Community Panel Recommendation Report and the technical Companion Report, which was prepared by staff from the Hauraki District Council, Waikato Regional Council and Traverse Environmental (Consultant).

The JWP recommends the preparation of the Wharekawa Coast 2120 Community Plan as the next step in the process, which will develop steps to implement the Community Panel's recommendations and the councils' response to those recommendations.

The draft Community Plan will later be presented to the corresponding councils for adoption and eventual integration into relevant strategies, policies or actions within the Long-Term Plan, District or Regional Plan.

3. Staff recommendations **Tuutohu-aa-kaimahi**

THAT the Strategy & Finance Committee:

- a. receives the report titled 'Wharekawa Coast 2120 - Community Panel recommendations and next steps';**
- b. assists the Hauraki District Council, the Waikato Regional Council and Iwi in the preparation of a joint community plan for the Wharekawa Coast; and**
- c. recommends the new Council appoints a Waikato District Council elected member representative to the Wharekawa Coast 2120 Joint Working Party in the new triennium.**

4. Background **Koorero whaimaarama**

The Wharekawa coast runs along the western shoreline of the Firth of Thames for some 22 km between Matingarahi and Miranda. The Waikato District intercepts this coastline for approximately 186m at Pukorokoro-Miranda (see Figure 1). This coastline is particularly vulnerable to natural hazards, including coastal inundation and river flooding, a situation which will worsen with projected sea level rise.



Figure 1: The project area is outlined in red. The Waikato District intercepts the southern portion of the project area at Pukorokoro-Miranda.

In late 2019 the Hauraki District Council (HDC) initiated a community planning project for the communities along the Wharekawa Coast to establish a long-term adaptive framework to address natural hazards and climate change. This project was largely prompted by the significant coastal flooding (January 2018) and river flooding (2017) occurring at the Wharekawa Coast, and the increasing risk of natural hazards for that coastline.

The project was named Wharekawa Coast 2120. The communities of Waharau, Whakatiwai, Kaiaua, and Pūkoro-Miranda were included in the project area. The project focus was on building a resilient and prosperous future for those communities over the next 100 years and provided a coordinated approach to the range of issues affecting the area, including water and wastewater services, flood protection, economic development and land use planning. The first community workshop was held on 30 November 2019.

HDC invited WDC and WRC staff to be on the Technical Advisory Group (TAG) and the Joint Working Party (JWP) of HDC, WRC and Iwi provided governance for the project. The HDC also considered it essential that the project incorporate the values and concerns held by the community, including mana whenua. In view of that a community panel made up of members of each community and iwi was appointed so that any decision-making process incorporated local knowledge and views. HDC initiated and has led the project, however it has been a collaborative effort with support by both the Waikato District and Waikato Regional Councils, Iwi and the community.

The project focused on 3 main areas, including climate change and natural hazards; district plan zoning and infrastructure; and economic opportunities. A number of technical reports were prepared through the course of the project, including assessments for coastal hazards; river flood hazards; social impacts, risk and ecological values. The hazard reports identified the different areas of risk along the coastline.

In order to better manage the project (and the impacts of Covid), five focus groups were established consisting of community panel members and TAG members. The five focus groups dealt with the following topics:

- River Flooding
- Community Risk Thresholds
- Community Plan
- Coastal Hazards
- Civil Defence and emergency management.

Using information from the technical reports, guidance from councils and feedback from local communities, each focus group reported their findings back to the whole Community Panel for feedback and approval. The Community Panel attended a number of meetings with the TAG to work through the process for finalising their recommendations and to provide Council with their final report. The final draft Community Panel Recommendation Report was presented at a public meeting held at the Kaiaua Community Hall on 22 May 2022, and feedback from the community was received.

The TAG recognised that further information was required to accompany the Panel's recommendation report, to give a project overview, provide detailed technical information, and cover the process of setting up the community panel and where it fits in the overall project. This report is called the Companion report to the Community Panel's Recommendation report.

The JWP formally received the Community panel's final recommendations report and the companion report on 26 July 2022. The JWP asked staff to present these reports to the three councils (HDC, Waikato Regional Council (WRC), and Waikato District Council (WDC)).

The JWP recommended that:

- The Wharekawa Coast 2120 Joint Working Party continue for the 2022-2025 Council term to ensure continuity of this project.
- The Technical Advisory Group (TAG) work with the Wharekawa Coast 2120 Joint Working Party to prepare the draft joint community plan.
- The TAG work with the iwi representatives of Ngāti Pāoa and Ngāti Whanaunga to ensure their iwi values and aspirations are included in the project.

It was also recommended that each council appoint elected members to the Wharekawa Coast 2120 JWP if it is to be continued into the next triennium.

5. Discussion and analysis

Taataritanga me ngaa tohutohu

This section summaries the matters identified in the Community Panel Recommendation Report and highlights the next step in the process.

5.1 The Community Panel Recommendations

The Community Panel Recommendation Report highlights the project objectives and key themes; the community values; the approach used; and identifies options to address river flooding and coastal hazards. The options include a river management work programme and adaptive pathways for responding to the risks of coastal hazards over the short, medium and long term, recognising that at some time in the future, some areas of our coastline may become unsuitable to live in as a result of increasing coastal hazard risks and climate change. With this in mind, the adaptive pathways include 'planned resettlement'. The report also includes the Community Panel's preferred adaptive pathways for addressing coastal hazards.

The adaptive pathways were developed using the stepped approach set out in the *Ministry for the Environment's Guidance on Coastal Hazards and Climate Change (2017)*.

The recommendation report includes suggested next steps and include the following:

- The opportunity to engage with the wider Wharekawa Coast community to discuss their recommendations and check that they have captured everything necessary.
- That the Hauraki District Council, Waikato District Council and Waikato Regional Council work together to develop a Community Plan which sets out how the recommendations they have made will be actioned.
- A commitment from the Councils to regular reporting on action progress – they would like to see an update in the Kaiaua Compass every three months.
- A commitment by the Councils to build in a formal review of the Community Plan at a minimum of every 3 years or sooner as required, in order to keep up to date with the best information and ensure ongoing community input.

The Community Panel did not consider signals and triggers as part of the process and ended up recommending that council work on the development of these to ensure that the pathways they recommended are truly adaptive.

5.2 Next Steps

The next step in the process will be the preparation of the Wharekawa Coast 2120 Community Plan, based on the options recommended in the Community Panel Recommendation Report.

This plan will include the Councils' response to the Community Panel's recommendations, including the response to the effects of climate change and natural hazards within the project area and steps to implement the Community Panel's recommendations, including:

- A range of community actions;
- The River Management Work Programme; and
- The development of signals (early warning signs) and triggers (decision points) for the coastal adaptation pathways, ensuring the pathways are truly adaptive.

5.3 Options

Ngaa koowhiringa

Staff have identified the following options for the Council to consider:

1. WDC do not assist HDC, WRC and Iwi in the preparation of a community plan; OR
2. WDC assists with the preparation of a community plan jointly with Ngāti Pāoa, Ngāti Whanaunga, HDC and WRC, and appoint a WDC elected member representative to the Joint Working Party who will oversee this, and staff continue to be represented on the Technical Advisory Group.

These options and their advantages and disadvantages are outlined below.

5.3.1 Option 1 – WDC does not assist HDC, WRC and Iwi in the preparation of a community plan for the Wharekawa Coast

Advantages	Disadvantages
<ul style="list-style-type: none"> • No staff time required 	<ul style="list-style-type: none"> • Actions specific to the Pukorokoro-Miranda area (in WDC jurisdiction) may not be implemented and less of the suggested community panel recommendations will be incorporated into the community plan; • There will be a lesser level of input from a WDC perspective on the TAG; • WDC, HDC and WRC would miss the opportunity to collaborate in the preparation of the community plan. • Not participating will affect WDC's reputation in the community. • Council will not be seen to be proactive in addressing the significant issues facing the Pukorokoro-Miranda community. • Misses the opportunity to promote good community outcomes. • Missed opportunity to connect learnings with Port Waikato and similar adaptive planning projects in our district.

5.3.2 Option 2 – WDC does assist HDC, WRC and Iwi in the preparation of a joint community plan for the Wharekawa Coast and appoints an elected member of Council to the Joint Working Party and WDC staff continue to be represented on the Technical Advisory Group

Advantages	Disadvantages
<ul style="list-style-type: none"> • HDC, WRC and WDC will all be involved and the roles and responsibility of each Council can be discussed and agreed upon. This will allow us to build better working relationships with these councils and prevent us working in silos. It will also create cohesion in the plan. • If all three councils are involved, more of the Panel's recommendations can be considered and possibly included into the joint community plan. This will have a direct effect on strengthening the relationship of the Councils with the community. • We will be respecting and honouring the Treaty of Waitangi, with the inclusion of iwi representatives on the JWP. • WDC will be seen to be proactive in addressing the needs of the community; • We could set the example of what co-design and co-governance between iwi and councils look like. If successful, these learnings can be applied to other similar projects within the Waikato District (e.g. Port Waikato and Raglan). • We would be meeting our community outcomes of partnering with iwi and collaborating with other local authorities and central government. 	<ul style="list-style-type: none"> • As more Councils and iwi are involved, coming up with ways to address the recommendation in the community plan will take more time. • There may be differences of opinions on the roles and responsibilities of the respective councils, causing delays or some actions not being considered.

5.3.3 Preferred Option Te Koowhiringa Matua

Staff recommend proceeding with Option 2 where WDC is involved in the preparation of a joint community plan for the Wharekawa Coast and appoints an elected member of Council to the Joint Working Party and WDC staff continue to be represented on the Technical Advisory Group. This option ensures the Waikato District community at Pukorokoro-Miranda are represented in the Community Plan for the Wharekawa Coast, that more of the Community Panel's recommendations can be implemented and provide for a more liveable, thriving and connected Wharekawa Coast community.

This option also provides the opportunity to apply the learnings from this process future adaptive planning processes in other areas of the district such as Port Waikato and Raglan.

5.4 Financial considerations

Whaiwhakaaro puutea

There are no material financial considerations associated with the preferred option. The community planning process can be carried out as BAU.

5.5 Legal considerations

Whaiwhakaaro-aa-ture

Staff confirm that the preferred option complies with the Council's legal and policy requirements.

5.6 Strategy and policy considerations

Whaiwhakaaro whakamaaherehere kaupapa here

The preferred option is consistent with the Council's policies, plans and prior decisions.

5.7 Maaori and cultural considerations

Whaiwhakaaro Maaori me oona tikanga

The preferred option does not raise any significant cultural issues or any significant decisions regarding land or water that impact Maaori and their relationship with whenua, water and other taonga. The Community Panel and JWP for the Wharekawa Coast 2120 project included Iwi representatives from Ngāti Pāoa and Ngāti Whanaunga and Iwi values and aspirations are reflected in final Community Panel Recommendation Report. The Wharekawa Coast 2120 JWP recommended that the TAG continue to work with the iwi representatives of Ngāti Pāoa and Ngāti Whanaunga to ensure their iwi values and aspirations are included in the community plan project.

5.8 Climate response and resilience considerations

Whaiwhakaaro-aa-taiao

The preferred option is consistent with the Council's [Climate Response and Resilience Policy](#) and [Climate Action Plan](#).

The recommendation to assist with the development of a joint community plan for the Wharekawa Coast communities and to develop and identify signals and triggers will increase the resilience of those communities. The community will be better prepared and able to adapt to the effects of climate change through the implementation of the Community Panel's recommendations and the councils' response to those recommendations. The Community Panel's recommendations include adaptive pathways for addressing coastal hazards that will be exacerbated by climate change over time.

5.9 Risks

Tuuraru

Staff have identified the following risks associated with the preferred option. The overall risk level is moderate.

Description of risk	Level of risk	How we could soften the risk	Risk remaining
Delays caused by differences of opinion on the roles and responsibilities of each Council (who is responsible for what). Potential for actions to be unassigned with no council taking responsibility	Moderate	Open discussion with WRC and HDC to resolve. Staff can begin work on some actions, where these can be done within existing budgets e.g. District Plan change scoping, Roading business case.	Low
Ability to get Ngāti Pāoa and Ngāti Whanaunga iwi values and aspirations researched and documented	High	Agree on the process and scope with Ngāti Pāoa and Ngāti Whanaunga. Councils to source funding if necessary and appoint people (as agreed with Ngāti Pāoa and Ngāti Whanaunga) to attend to this work.	Moderate
Possible legislative changes having an impact on adaptive processes and lack of definition, guidance or provision for what managed retreat means in NZ	High	Keep track of legislative changes.	Moderate

6. Significance and engagement assessment Aromatawai paahekoheko

6.1 Significance Te Hiranga

The decision on the preferred option is not consider significant, in accordance with the Council's [Significance and Engagement Policy](#).

6.2 Engagement Te Whakatuutakitaki

Significant engagement has already occurred with the Wharekawa Coast communities since the commencement of the project. Through this engagement and the completion of the Community Panel Recommendation Report, staff consider that the Council has enough of an understanding of community views and preferences on this matter. The level of engagement required, at this point in time, is to inform (i.e. one-way communication disseminating information) the community.

Highest level of engagement	Inform ✓	Consult <input type="checkbox"/>	Involve <input type="checkbox"/>	Collaborate <input type="checkbox"/>	Empower <input type="checkbox"/>
	<p>The inform approach will include publicising the reports via general social media communication and on the WDC website.</p> <p>Community engagement will be undertaken to seek community feedback on the draft Community Plan.</p>				

State below which external stakeholders have been or will be engaged with:

Planned	In Progress	Complete	
✓	<input type="checkbox"/>	<input type="checkbox"/>	Internal
✓	<input type="checkbox"/>	<input type="checkbox"/>	Community Boards/Community Committees
✓	<input type="checkbox"/>	<input type="checkbox"/>	Waikato-Tainui/Local iwi and hapuu
✓	<input type="checkbox"/>	<input type="checkbox"/>	Affected Communities
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Affected Businesses
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other (Please Specify)

7. Next steps Ahu whakamua

Timeframe	Action	Comments
September 2022 – March 2023	<p>Prepare draft joint community plan.</p> <p>As part of this – have roles and responsibilities discussions with JWP</p>	Go through the Panel recommendations and discuss which council is responsible for which action. Decide priority actions.
October/ November 2022	Continuation of the JWP	HDC, WRC, WDC, Ngāti Pāoa And Ngāti Whanaunga to confirm the elected members and iwi representatives who will be part of the JWP

8. Confirmation of statutory compliance Te Whakatuuturutanga aa-ture

As required by the Local Government Act 2002, staff confirm the following:

The report fits with Council's role and Committee's Terms of Reference and Delegations.	Confirmed
The report contains sufficient information about all reasonably practicable options identified and assessed in terms of their advantages and disadvantages (<i>Section 5.3</i>).	Confirmed
Staff assessment of the level of significance of the issues in the report after consideration of the Council's Significance and Engagement Policy (<i>Section 6.1</i>).	Low
The report contains adequate consideration of the views and preferences of affected and interested persons taking account of any proposed or previous community engagement and assessed level of significance (<i>Section 6.2</i>).	Confirmed
The report considers impact on Maaori (<i>Section 5.1</i>)	Confirmed
The report and recommendations are consistent with Council's plans and policies (<i>Section 5.6</i>).	Confirmed
The report and recommendations comply with Council's legal duties and responsibilities (<i>Section 5.5</i>).	Confirmed

9. Attachments Ngaa taapirihanga

Attachment 1 – Recommendation Report of the Wharekawa Coast 2120 Community Panel (July 2022)

Attachment 2 – Companion Report to the Wharekawa Coast 2120 Community Panel Recommendation Report (July 2022)

Our Place, Our People.

Recommendation Report of the
Wharekawa Coast 2120
Community Panel

July 2022



Cover Image – Kayak Fishing off Wharekawa Coast

Report Status

Report Status	Final for review by Panel
Written on behalf of the Community Panel by	Deborah Kissick, Traverse Environmental Ltd
Reviewed by	Simon Bendall, Traverse Environmental Ltd
Approved by	Wharekawa Coast 2120 Community Panel

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The Wharekawa Coast 2120 Community Panel

We are a group of volunteers who love this place, Our Place. We came together to plan for the future of the Wharekawa Coast.

We have met with locals, Council staff, technical experts and others to understand what natural hazards mean for our coastline, and how they might change our communities in the future. We have explored the potential solutions for responding to natural hazards; with everything from immediate fixes to long-term planned solutions that might happen in 50 or 100 years' time. We have thought about how we might preserve and build on what makes this place special.

This has been a collaboration with the Waikato Regional Council, Hauraki District Council and Waikato District Council ("the Councils") but we have been in the driving seat. This has allowed us to work in the way that suited us best and to ensure that our local voices and perspectives are not only heard, but also lead to action.

An original Community Panel was formed in March 2020 before the global Covid-19 pandemic challenged us all and put a halt to our ability to meet in person. After a pause, the Wharekawa Coast 2120 Community Panel reformed with some new faces on the team, in March 2021.

This report is the culmination of our work.

It summarises our recommendations for the future actions we want to see from the Councils. Our recommendations are based on the best information available to us during this project including independent technical advice, guidance from Councils and feedback from our local communities. We know that over time, there is likely to be new and improved information, as well as the development of new innovations and technologies that might change how things can be managed. Our recommendations are intended to support our community to adapt to these changes as we learn more.

While the challenges of gathering under Covid-19 pandemic restrictions has meant that we haven't been able to engage with our community as actively as we would have liked, we have made these recommendations with the whole of the community in our minds and hearts, both those of us here now, and those who will be around in Our Place in the years to come.

We have done our part. It is now up to the Councils to take our recommendations and put them to action.

Your Wharekawa Coast 2120 Community Panel,



Gay Rawiri - Chairperson

Stephen Cooper

Tania Donovan

Toni Kereama

Allan Yee

Lorna Ratahi

John Waata

Kristelle Wi

Rodger Barlow

Hera Clark

Sue Harris

Jonathan Clark

Ria Brejaart

Signed by Gay Rawiri
Community Panel Chairperson

Signed by Ria Brejaart
Community Panel Member

Signed by Rodger Barlow
Community Panel Member

Signed by Jonathan Clark
Community Panel Member

Signed by Hera Clark
Mana Whenua Representative

Signed by Tania Donovan
Community Panel Member

Signed by Stephen Cooper
Community Panel Member

Signed by Toni Kereama
Community Panel Member

Signed by Sue Harris
Community Panel Member

Signed by Kristelle Wi
Community Panel Member

Signed by Lorna Ratahi
Mana Whenua Representative

Signed by Allan Yee
Community Panel Member

Signed by John Waata
Mana Whenua Representative

Glossary

This glossary explains how we have used and understood key technical terms used in this report.

- ≈ **Adaptation Pathways** – a set of actions describing the possible short, medium and long term responses to changing hazard risks.
- ≈ **Community Risk Threshold** – when the risks from hazards can no longer be tolerated by a community i.e. what people don't want to happen/situations the community want to avoid.
- ≈ **Compartment** – sections of the Project Area defined by physical coastal processes and river catchments.
- ≈ **Essential Services** – Power, water, sewage and stormwater disposal and vehicle access.
- ≈ **Multi-criteria Analysis** – the process of using Option Assessment Criteria to evaluate and compare different options/opportunities and identify a preferred option.
- ≈ **Option Assessment Criteria** – defined for use in Multi-criteria Analysis, the key elements or factors, specific to a particular situation, that need to be taken into account when making a decision.
- ≈ **Signal** – an early warning of change and that a Trigger may be approaching. Signals have not been developed by the Community Panel.
- ≈ **Success Criteria** – specific criteria used to determine a short-list of coastal hazard actions from the long list for each specific compartment.
- ≈ **Trigger** – a decision point(s) within an adaptation pathway to determine when to shift to the next action is needed. Must allow sufficient time to take an action prior to a Community Risk Threshold being reached. Triggers have not been developed by the Community Panel and will need to be developed to ensure the adaptation pathways are truly adaptive.



OUR PROJECT



Image Credit: Kristelle Wi

Our vision for Wharekawa Coast 2120

“

For the community, mana whenua, and councils to come together to consider a range of issues and opportunities for the Wharekawa area, and to plan for a resilient and prosperous future for all.

Ko te pae tata, whakamaua kia tīnā, Ko te pae tawhiti, whaia kia tata.

Secure the horizons that are close to hand and pursue the most distant horizons so that they may become close.

”

Image Credit: Hera Clark

Our Objectives

The following project objectives, developed early in Our Project, kept us focussed on the outcomes we wanted to achieve:

- 1 To effectively communicate about the "how, why and what" of the project to the wider community and in the process assist to improve the relationship between the councils and the communities of the Wharekawa Coast.
- 2 To plan for current and future risks from natural hazards, and the impacts of climate change, by focusing on the following hazards: river flooding, coastal inundation, coastal erosion and, sea level rise.
- 3 To prepare a community plan for the Wharekawa area, including the communities of Waharau, Whakatiwai, Wharekawa, Kaiaua and Pūkorokoro Miranda, that addresses a range of issues in a coordinated way, by focusing on the following key drivers:
 - a. the effects of natural hazards and climate change
 - b. future development and land use
 - c. economic opportunities
 - d. community infrastructure (including Wharekawa (Kaiaua) Marae, Kaiaua school, roads, utilities, reserves, businesses, ecologically significant areas, wildlife, and tourist attractions).
- 4 To ensure that the community is informed about the risks from natural hazards in the places where they live and to develop a plan for "the present" as well as 10, 20 and 100 years ahead, which recognises that the future is uncertain and that what we know now may change
- 5 To prioritise the development of productive partnerships and dialogue with Ngāti Paoa, Ngāti Whanaunga, and the councils.

Key themes and goals

To guide future planning for our community, we identified the following Key Themes and Goals:

 <p>To ensure important community and recreational facilities are fit for purpose and available for the community to use.</p> <p>Recreation & Community Facilities</p>	 <p>To recognise Tikapa Moana and its influences on day to day life and cultural practices. To recognise the contribution of farming to the local economy.</p> <p>Coastal & Rural Environment</p>	 <p>To protect and enhance the unique wildlife and natural environment of the Wharekawa Coast and to increase awareness of it to the community.</p> <p>Wildlife & Natural Environment</p>	 <p>To manage future growth in line with community aspirations</p> <p>Future Growth & Infrastructure</p>	 <p>To identify natural hazards and likely impacts. To use adaptive planning to manage the impacts of natural hazards. To avoid increasing the risk of natural hazards</p> <p>Hazards & Impacts</p>
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Our Place, Our People

Our Place is peaceful, the pace is reflective, the air is clear, and the fish are usually biting.

Our Place is a coastline steeped in the history of those that have gone before us. We wish to leave our place in better shape for those that will follow after us.

Our Place is the first place in the Hauraki District that saw the arrival of waka from Hawaiki and our history is tightly bound with the history of the iwi who hold mana whenua here, Ngāti Paoa and Ngāti Whanaunga.

Our Place is often locally referred to as the Seabird Coast and is recognised nationally and internationally for its importance for waders and shorebirds, one of only three in New Zealand. Between Pūkoro/Miranda and Kaiaua, are shell banks, known as a Chenier Plain, that are a globally rare landform of shells. These shell banks and the nearby grass flats are relied on as nesting sites and high tide roosts for thousands of birds. The vast mudflats, exposed at low tide, provide these birds with a rich food source. Tourists, both local and international are drawn to the shores of Our Place and to the Shorebird centre and wildlife reserve at Pūkoro/Miranda. Regarded as one of the finest birdwatching sites in the world, the area boasts over 40 species including some that are rare and endangered such as our endemic Wrybill and international migrants like the Bar-tailed Godwit - long haul champions who every year, fly around 12,000km non-stop from Alaska to spend the summer here. At hightide, tens of thousands of birds can be seen, putting on spectacular aerial displays against the backdrop of the stunning Coromandel ranges.

Our Place wouldn't be the same without our local businesses, EcoQuest, Kaiaua School, our Regional Parks, the Wharekawa Marae and the Pūkoro-Miranda Shorebird Centre. Lots of people visit Our Place for the abundance of nature-based recreation options on our doorstep. These features help give Our Place its unique character and identity.

Our Place has experienced the full force of Mother Nature in the past, our most recent being significant river flood events during March and April of 2017 as a result of the 'Tasman Tempest' and Cyclone Debbie and coastal inundation as a result of the January 2018 storm. These events, as well as some earlier large storm events, endure in the memories of those who lived through them. Our farmland has been inundated, our houses too. Our roads have been damaged and access cut off. But Our People rallied. We help each other, and our community spirit is strong.

Our Coastline

Our Coastline spans more than 20km, from Waharau in the North at the boundary with Tamaki Makaurau (Auckland) to Pūkoro/Miranda in the South.

With such a large study area, and to recognise the differences along the coastline, we agreed it made sense to divide the area up into sections or “Compartments”.

- ≈ 1 (a) Coastal & (b) Inland - Pūkoro/Miranda
- ≈ 2 (a) Coastal & (b) Inland - Kaiaua
- ≈ 3 (a) Coastal & (b) Inland - Whakatiwai
- ≈ 4 (a) Coastal & (b) Inland - Wharekawa
- ≈ 5 (a) Coastal & (b) Inland - Waharau

From our work, and with information from the technical experts and Council team, we understand that coastal erosion, coastal inundation and river flooding are the most significant risks for Our Place.

Image Credit: Kristelle Wi

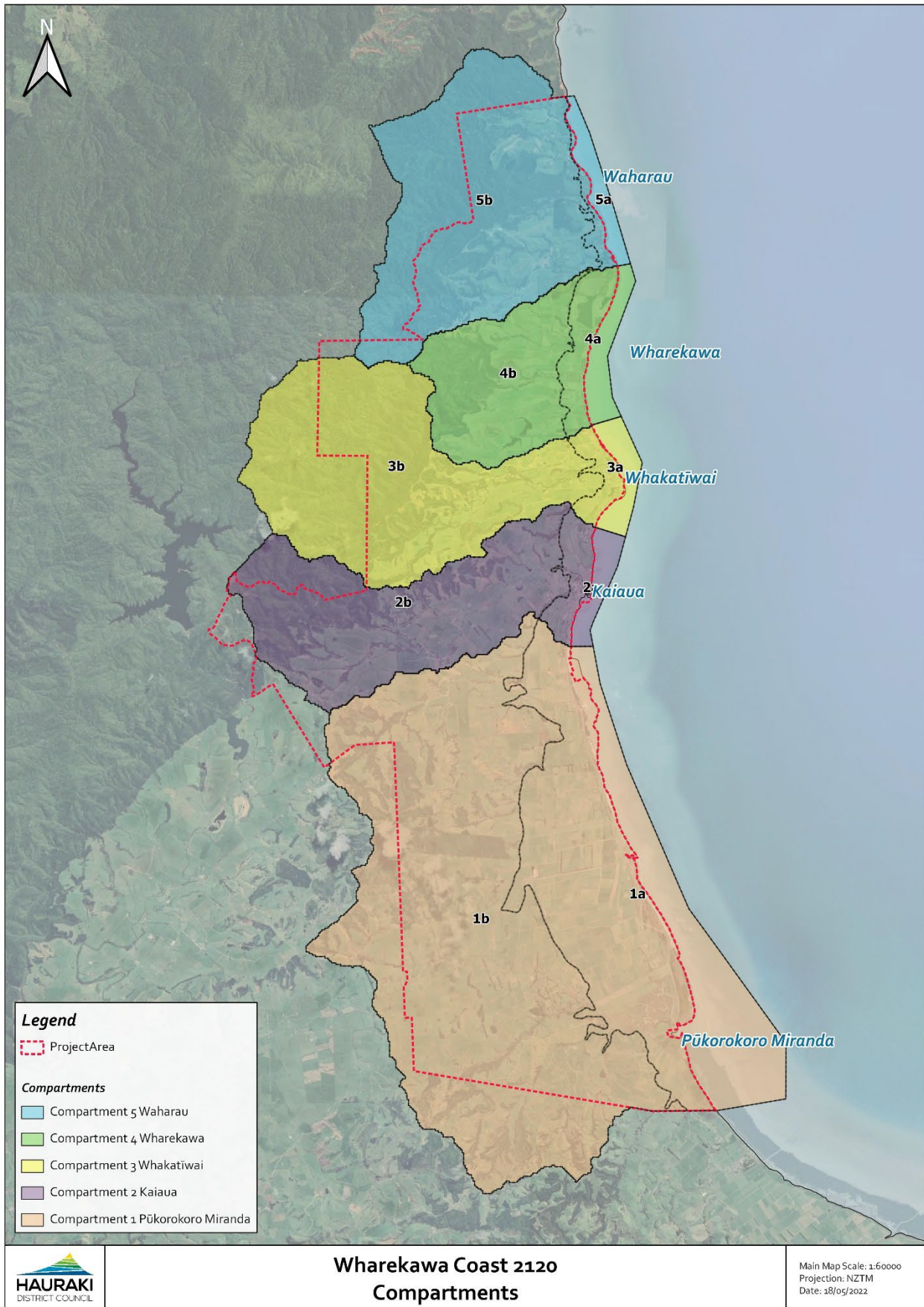


Figure 1 Wharekawa Coast 2120 Project Compartments Map

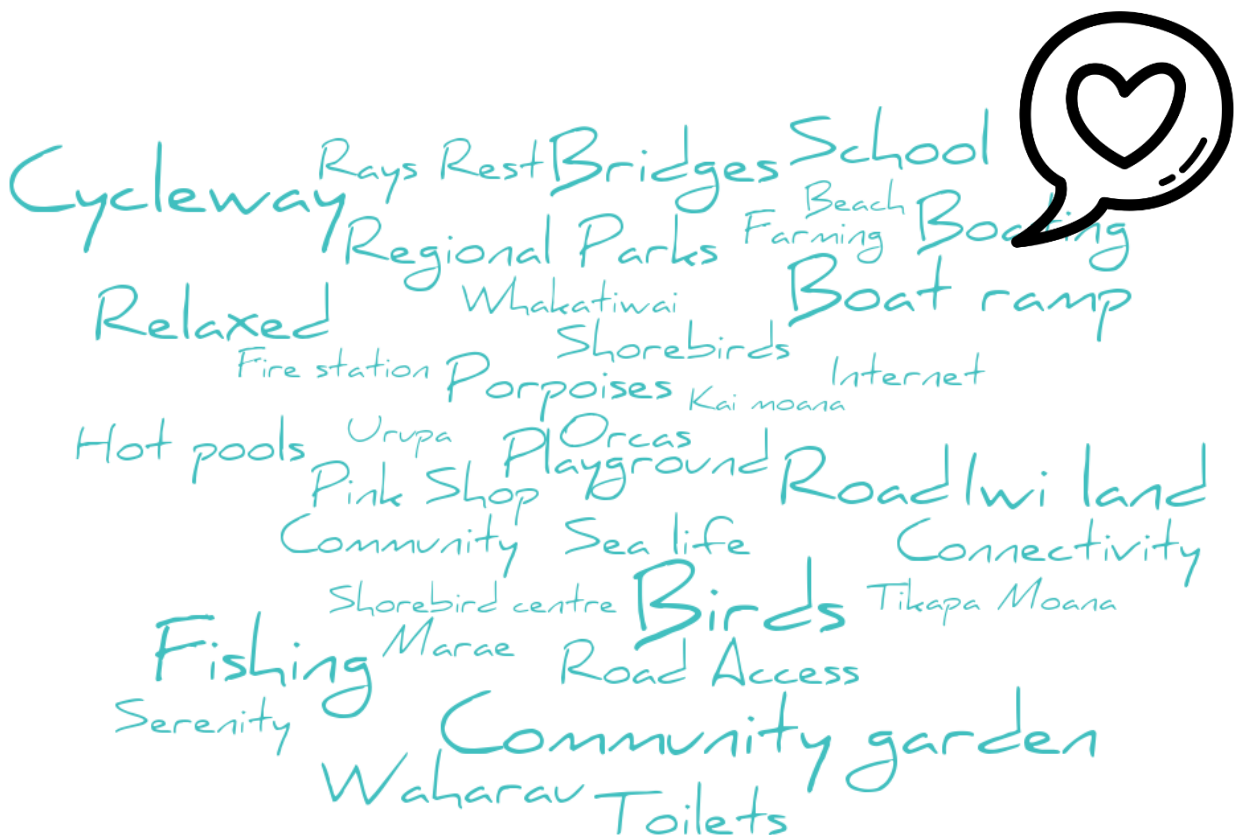
What we value

We have heard from our community about what makes this place special. Feedback from a community meeting in November 2019 has helped us to capture these ideas and feelings. These are shown below under the headings

- ≈ Things we love and value
- ≈ What we want to see or see more of
- ≈ What we don't want to see or see less
- ≈ What we're concerned about

We have used this information to help us ensure that the future ideas, actions and potential solutions we consider keep what is important, front of mind.

Things we love and value





What we want to see or see more of



Roosting sites Business development
 Swings BBQs
 Toilets Coastal protection
 Customer service Natural areas
 Traffic management Jobs Reserve management
 Footpaths Boat access
 Pohutukawa Wild spaces Embracing nature Playgrounds
 Wetland areas
 Stopbanks Predator control
 Habitat restoration
 Kerbing Freedom campers Climate sensitive
 Better floodgates

What we don't want to see or see less



Heavy vehicles
Vehicles on beach
Increased Aquaculture
Quarry Pests
Rubbish
Over commercialisation
Camping on shellbanks
Bright lights
Erosion
Farming overdevelopment
Birdlife disturbance

What we're concerned about



Pipes exposed Silt Information
Groundwater rising Inundation Stormwater
Wetland loss Coastal roads Rubbish Drains
Ray Rest Storm warning
Mangroves River flooding Slips
Cycle ways Low road Boundary issues Quarry
Costs Beach pipes Dog poo
Evacuation plans Havarahi Stream
Speed limit Drain clearing Parking
Saltwater Intrusion Camping
Higher ground access Foreshore land
Traffic increase Future infrastructure
Habitat loss Waharau Bridge

Our Approach

While Our Project has a significant natural hazards adaptation component, it is also an opportunity for us to identify other actions to preserve and improve Our Place. We have developed recommendations for the Council's to consider and action based on our experiences living here.

There is also a Companion Report that the Council team (made up of independent facilitators and local Council officers from Hauraki District, Waikato District and Waikato Regional Councils) have written to accompany our report. The Companion Report contains the technical information which has helped inform our recommendations. The two reports are intended to be read together to provide a full picture of Our Project.

The process we followed

The Council team introduced us to the 10-step decision process developed by the Ministry for the Environment to guide coastal hazard adaptation processes. Guided by the Council team, we worked through the first six steps of the 10-step decision process for Our Project to develop the coastal hazard adaptation pathways. We used this process to also identify river flooding hazards and other issues of relevance to our community that require Council attention and action.

We are now passing the baton to the Councils to develop a plan to implement our recommendations. We understand the Councils will develop a Community Plan for the Wharekawa Coast that is directly informed by the recommendations presented in our report (Steps 7 & 8). They will also undertake the necessary monitoring and review processes in the years to come (Steps 9 & 10).



Figure 2 Ministry for the Environment 10-step decision making process

Background Information

The Council team provided us with background information to help us understand the current situation in Our Place. These reports and their contributions to Our Project are illustrated in the diagram below.

There were two further reports that the Council team had wanted to provide to us.

- ≈ The first is a report on the cultural values of the area, and while this report hasn't been completed, we have been fortunate to have insight from mana whenua through members of our Community Panel.
- ≈ The second, a report on land stability, has commenced but not finished. This report seeks to identify land within Our Place that could be suitable for future development.

We ask the Councils to continue to work toward completing these reports so that they can be used to inform future decision making in Our Place. We also encourage the ongoing development of new and updated information by the Councils and Government. This reflects the dynamic nature of our environment and enables us to adapt and respond to changes over time.

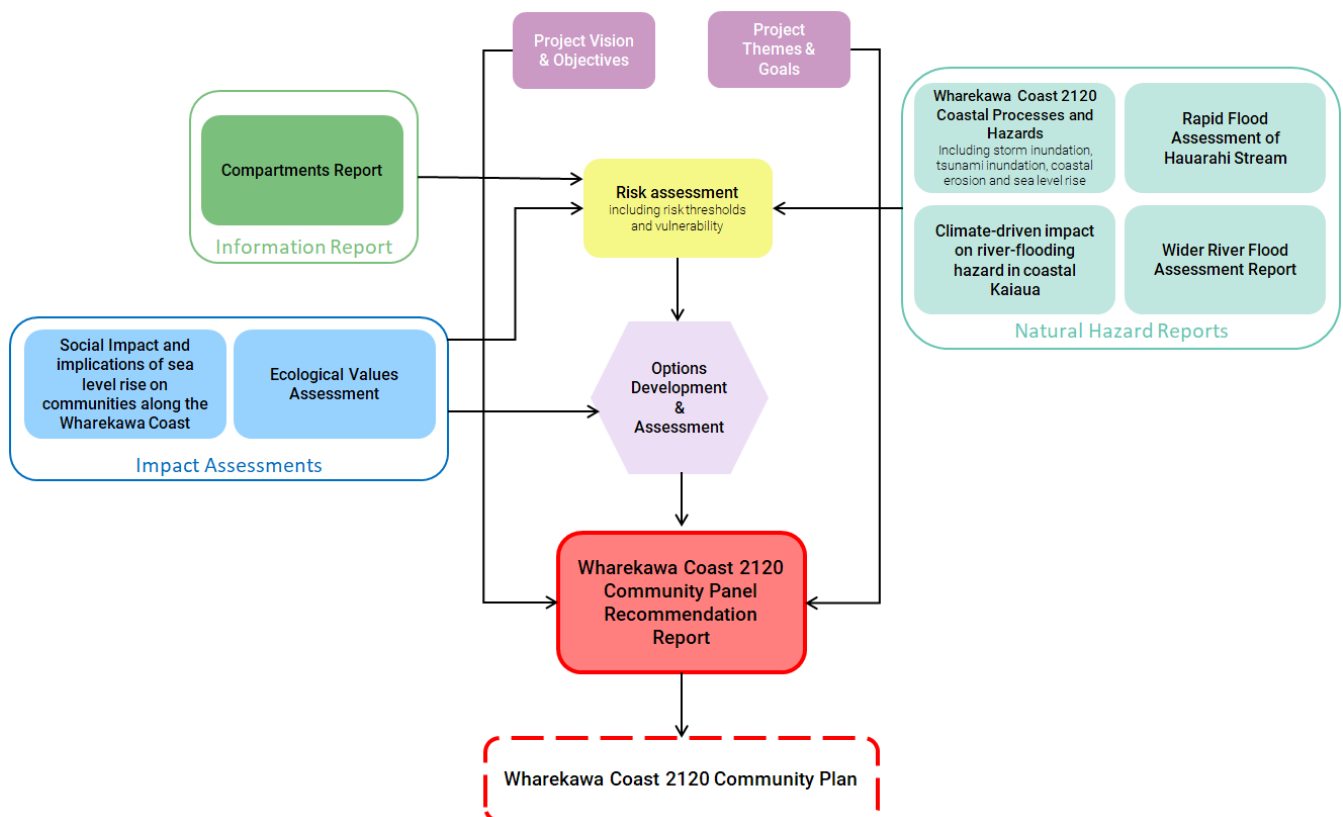


Figure 3 Project Background Information Reports

Assessing Risk

In mid-2021, we worked with members of our community to understand and assess the level of natural hazard risks in each of the identified compartments. We considered risks from coastal erosion, coastal inundation and river flooding.

We looked at the impacts on:

- ≈ Homes and properties, and disruption to residents
- ≈ Rural land
- ≈ Roothing and bridges (road access)
- ≈ Essential Services
- ≈ Recreation and tourism
- ≈ Overall impacts (where multiple or all the above are affected).

We then worked with the Council team to prepare Community Risk Assessment booklets. We used these to explain moderate and major hazard scenarios for each compartment relating to coastal erosion, coastal inundation and river flooding events. We then sought to work out when these events are no longer tolerable to our community. These tolerance levels are referred to as the “the community risk thresholds”. These thresholds guided our decision making around what actions are needed, and when, to ensure these community risk thresholds are not reached.

Through this exercise, the Council team were able to identify the following in relation to our community’s level of tolerance to natural hazards:

- ≈ Generally, we are less tolerant of smaller events which might happen more frequently than we are of larger, less frequent events;
- ≈ Community risk thresholds for Pūkorokoro/Miranda and Kaiaua have already been reached for a moderate severity, coastal inundation event;
- ≈ For a moderate river flooding from the Hauarahi Stream, the community risk threshold has already been reached in Kaiaua.
- ≈ Coastal inundation is more tolerable to those living in Whakatīwai, Wharekawa and Waharau than in Pūkorokoro/Miranda and Kaiaua;

We understand that these thresholds are an attempt to capture a whole of community feeling, won’t always reflect individual’s views and might change over time. But this information was vital for us, as a gauge, as we made recommendations about the future actions to be taken in each compartment to manage future hazard risks.

Focus Groups

To efficiently progress work on Our Project, we decided to create small topic-based focus groups to work on the detail and report back to the Community Panel.

Focus groups were established for following topics:

- ≈ River Flooding
- ≈ Coastal Hazards
- ≈ Community Risk Thresholds
- ≈ Emergency Management
- ≈ Community Plan

The importance of East Coast Road has arisen numerous times in the development of this report. As a result, the Council, Waka Kotahi NZ Transport Agency and Community Panel members have been working to develop a business case for options to improve the resilience of East Coast Road. While this was not a specific focus group, it is a key action that has arisen from our work on the project.

A summary of each Focus Group, their purpose, process and their findings/recommendations are included as an Appendix to this report.

Image Credit: Kristelle Wi

Options identification – River Flooding

While Our Project was designed to look at river flooding hazards into the long term, our experience of living in Our Place gave us lots to discuss with the Council team about actions needed now to manage the current river flooding risks we are experiencing.

We decided that the best way to capture this was through a River Flood Management Programme, which is included as an Appendix to this report. The River Flood Management Programme identifies the maintenance and flood mitigation actions that we consider are needed now.

We also explored several options of how to address longer-term river flooding in Our Place. The options we looked at are listed below.

1. **Pause** - Pause the development of the longer term pathways to focus on the implementation of River Management Work Programme with the prioritisation of streams other than the Hauarahi Stream (as works have already been completed here). This option will also enable time for the gathering of additional data and for updated river flood modelling to occur.
2. **High Level Pathways** - Develop broad 'categories' for adaptation pathways for each river/stream, rather than specific actions, acknowledging that there may be no need for long term pathways given the dominance of coastal hazard issues affecting the project area in the long term.
3. **Detailed Pathways** - Develop detailed adaptation pathways for each river/stream, as we are doing for coastal hazards – again, noting that there may be no need for long term pathways given the dominance of coastal hazard issues affecting the project area in the long term.
4. **Hauarahi Stream Only** - Separating Hauarahi Stream from other rivers/streams, and providing a unique approach given that flooding effects from the Hauarahi Stream affect the most people.
5. **Hybrid Option** - Combination(s) of above options.

The River Flood Focus Group worked through the various options above and our recommendation, as a Community Panel, on the preferred approach is included in the Recommendations section of this report. Further work is required to ascertain the best mechanism to fund these options. The Panel is firmly of the view that considering things such as affordability, cost effectiveness and who pays what are decisions that local, regional and central government need to lead.



Options Identification - Coastal Hazards

To identify the options for addressing coastal hazard risks affecting Our Place, we worked through the process outlined in the diagram below with assistance from the Council team and with support and guidance from technical experts.

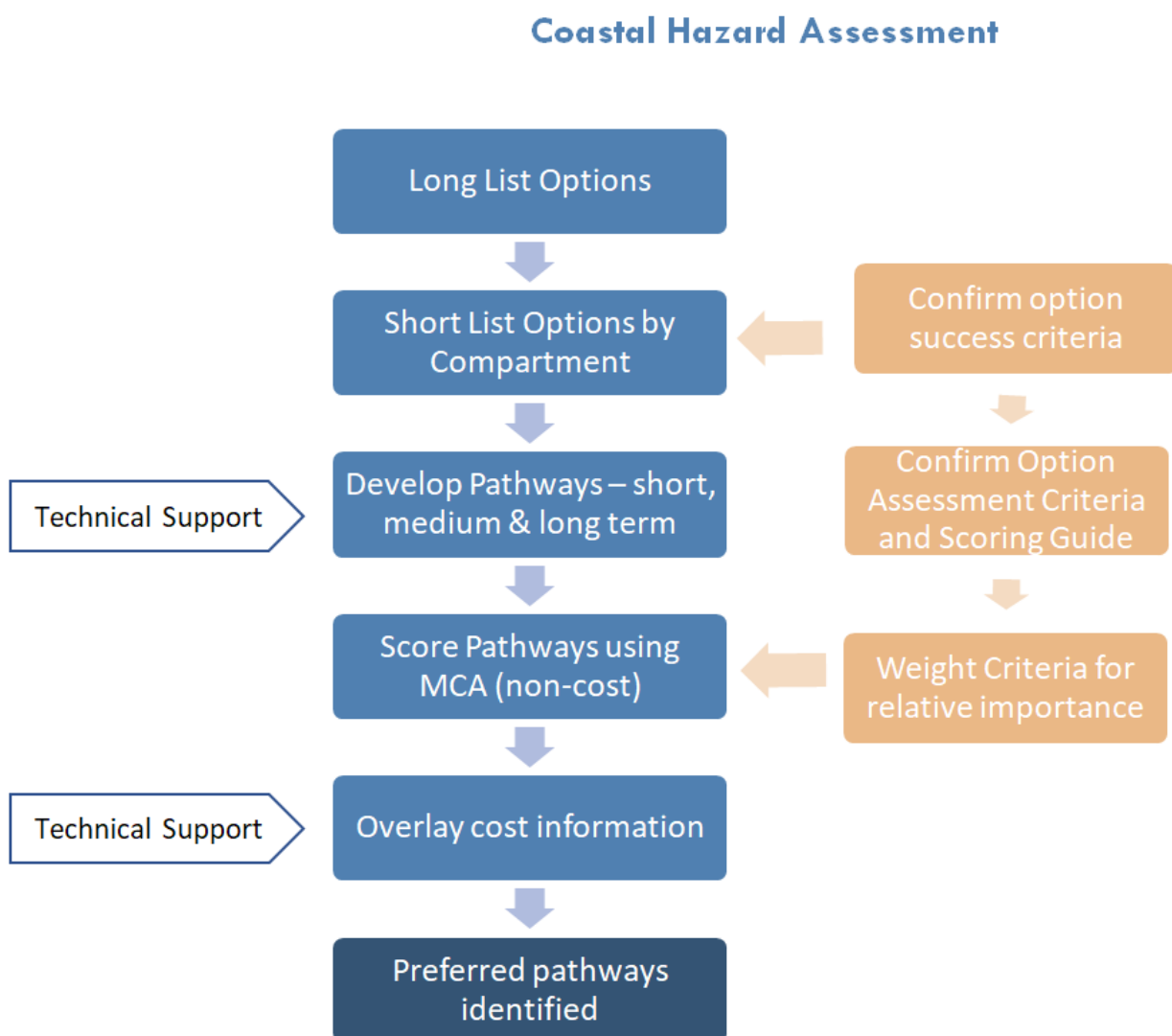


Figure 4 Coastal Hazard Options development process

The long listing and short listing outcomes are included as Appendices to this Recommendation report.

Short listing Options

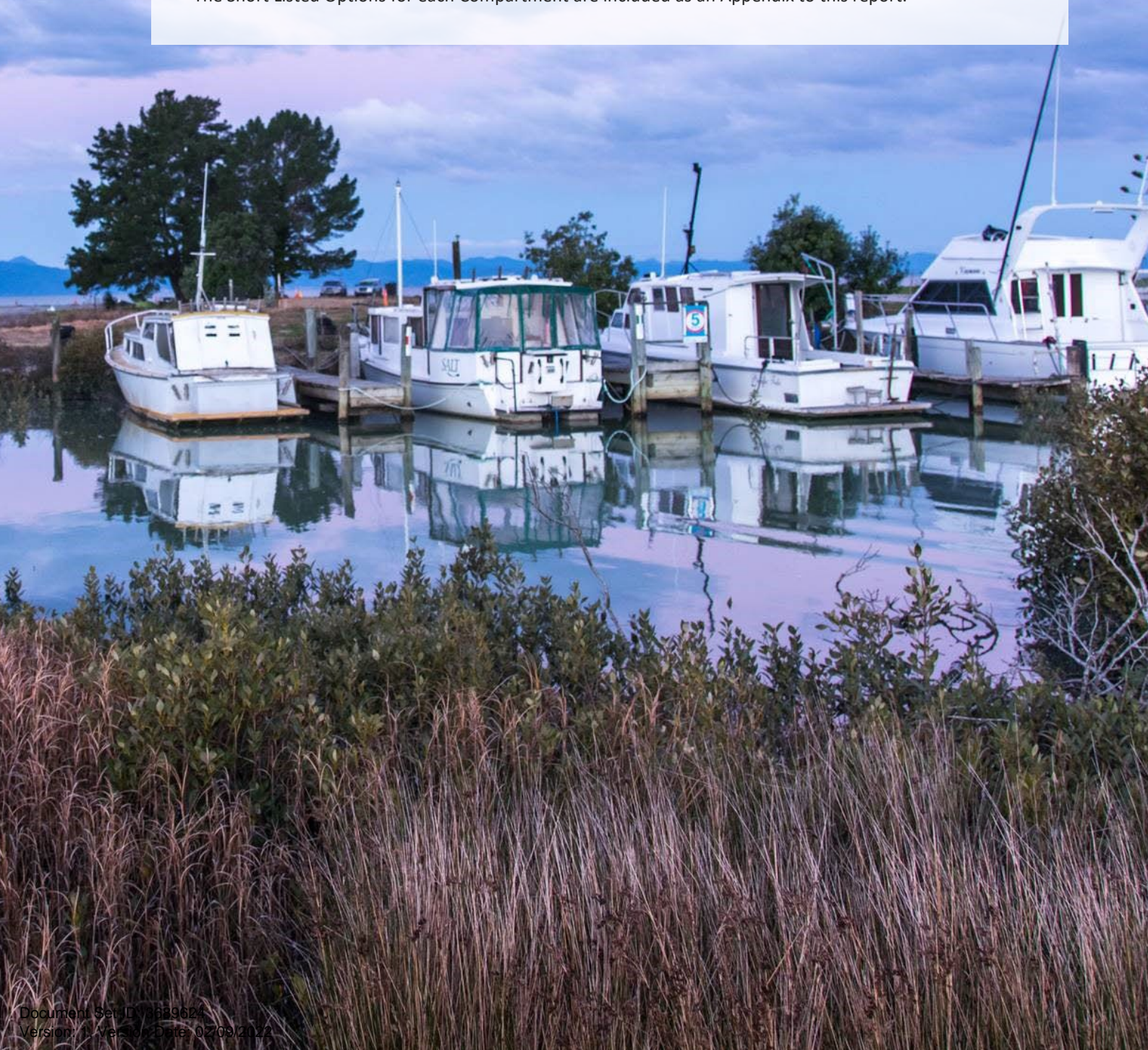
To help us narrow the possible options for managing hazards for each coastal compartment, we developed a set of critical success criteria.

The criteria we developed are:

- 1. Be applicable to this compartment.*
- 2. Be technically possible and proven.*
- 3. Enable community goals to be achieved.*

For an option to be short-listed, it needed to meet all three of the Critical Success Criteria.

The Short Listed Options for each Compartment are included as an Appendix to this report.



Planned Resettlement

As a Community Panel, we recognise that at some time in the future, some areas of our coastline may become unsuitable to live in as a result of increasing coastal hazard risks and climate change. Should this occur, we have defined an approach to respond to this situation, which we call Planned Resettlement.

We define Planned Resettlement as:

a consultative and planned approach by Councils and the Community to enable the movement of people and/or communities, as a last resort, when alternatives for managing coastal hazard risks are no longer viable. It will give members of the community access to options and the ability to make an informed decision about relocating to safer ground. It will also enable the enhancement of previously occupied areas to a more natural state.

We can apply Planned Resettlement at different scales; from individual properties (e.g., moving a building further back on a section) to relocating whole communities and infrastructure. A staged approach that takes account of social, cultural, economic and environmental values of the community and is appropriate to the timing and scale of the hazard risk will be used.

In some cases, specified public assets such as roads and reserves may need to be moved to more suitable locations. We have termed this Planned Relocation. This may happen as part of Planned Resettlement, or as a stand-alone action.

Why is this an option?

The advice the Community Panel has received from independent technical experts suggests that, with sea level rise caused by climate change, some parts of our coastline will be significantly impacted. We need an option to respond when other methods to manage coastal hazard risk are no longer effective. We intend for this option to provide the opportunity for people to be part of a collective, community-wide solution rather than leaving them to fend for themselves. We acknowledge that there is potential for ecological enhancement and recreation opportunities as a result of this option.

Who does this apply to?

This option is not compulsory in any way and requires the community and Councils working closely together to find solutions that meet the needs of individuals and the community. We acknowledge that responding to coastal hazard risks will affect different members of the community at different times and in different ways. Significant cultural values are present along the coastline including a number of urupa sites which will need to be further explored with local iwi, Ngāti Pāoa and Ngāti Whanaunga.

When will this happen?

While the advice and information the Community Panel has received from various reputable sources, indicates that the impacts of climate change may be significant, we don't know for certain when this might happen. We need to remain flexible to respond to changing hazard risks, at the right time, and in the right way.

We have identified this course of action as being appropriate when the community will no longer tolerate the frequency and/or severity of coastal inundation and/or erosion and no suitable alternatives remain. A clear set of triggers need to be developed so this action can be taken in sufficient time and with adequate notice for the community.

Where will this take place?

We have identified this option for the compartments where it is likely that in the future, based on current information and knowledge, alternative techniques for managing coastal hazard risks may no longer be able to provide sufficient protection for the community. This is shown in the adaptation pathways we have developed.

What is the Government doing?

The Community Panel is aware that the government is working on new legislation, as part of the reform of the Resource Management Act, that we understand will provide national direction for communities like ours. At this stage, there is no established approach for achieving a Planned Resettlement/Planned Relocation as we have defined it, for example, how an individual property owner would be supported financially to relocate.

Given this uncertainty, we have developed our own definition for Planned Resettlement and what it means for our community.

Adaptation Pathway Development

Short listed options were developed into a series of adaptation pathways for each Compartment by the technical experts. They developed the adaptation pathways based on what was an appropriate response for each individual compartment to address the coastal hazard issues. The tolerance of the community to current coastal erosion and inundations risks were also taken into account.

We workshopped each of these pathways with the technical experts to make sure we had identified a range of ways of dealing with coastal hazard risks; from low intervention options to hard engineering options. We also wanted to make sure that our local knowledge of the areas were factored in and that important features like sacred urupa sites were acknowledged and only appropriate options proposed.

We identified between three and four adaptation pathways for each compartment. These are included as an Appendix to this Report.

Assessment Criteria

We worked hard to develop the right criteria to use when assessing the adaptation pathways with guidance from the Council team. We tested and refined the criteria to ensure they covered all the aspects we needed in order to select our preferred adaptation pathway in each compartment. These are presented in Table 1.

The criteria are split into two categories; the first three are technical criteria which focus on how effective the adaptation pathway option is at responding to coastal hazards risks; the second three criteria are focussed on the impact of implementing that option on us humans from a social and cultural perspective, the environment and the economy. We sought advice from our mana whenua representatives to provide a cultural perspective but acknowledge that formal engagement with Ngāti Paoa and Ngāti Whanaunga is needed before any actions are implemented.

We developed a weighting for each of the criteria. This allowed us to ensure that where some criteria are more important than others in a specific Compartment, this would be captured in the overall scoring of the Adaptation Pathways.

Table 1 Assessment Criteria for assessing coastal hazard adaptation pathways

Criteria Type	Criteria	Description	Proposed Scoring Guide
Performance of the option in reducing risk	Manages the risks of natural hazard(s)	<ul style="list-style-type: none"> Reduced exposure to natural hazard(s) Meets objectives over long timeframes Responds proportionately to the scale and nature of the hazard risk 	5 – High / Good 4 – 3 – Mid 2 – 1 – Low / Bad
	Ability to adapt to changing risks	<ul style="list-style-type: none"> Readily responds to uncertain climate outcomes Includes measure to enable and support future adjustments 	5 – High / Good 4 – 3 – Mid 2 – 1 – Low / Bad
	Potential for risk transfer	<ul style="list-style-type: none"> Exacerbation of natural hazard risk within or between areas Transfer of risk to others, including future generations 	5 – High / Good 4 – 3 – Mid 2 – 1 – Low / Bad
Effect of implementing the option	Impact on humans (social / cultural)	Effects on humans caused by implementation of an option such as: <ul style="list-style-type: none"> Effects on community safety, loss of amenity value, decline in recreation values or loss of community facilities Effects on health, education, sports/recreation Effects on cultural sites of significance Effect on heritage sites / values Restrictions on access to and the carrying out of customary activities 	5 – Low / Good 4 – 3 – Mid 2 – 1 – High / Bad
	Impact on the natural environment	Environmental effects caused by implementation of an option such as: <ul style="list-style-type: none"> Effects on natural coastal ecosystems Potential impacts on shorebirds and RAMSAR site Effects on the natural character of the coastal environment. 	5 – Low / Good 4 – 3 – Mid 2 – 1 – High / Bad
	Impact on the economy	Economic effects caused by implementation of an option such as: <ul style="list-style-type: none"> Effects on primary industries farming / fishing/ agriculture Effects on tourism Impacts on property values 	5 – Low / Good 4 – 3 – Mid 2 – 1 – High / Bad

Scoring

Our next task was to give a score to each of the adaptation pathways to find the highest scoring and therefore most effect adaptation pathway for each compartment.

Technical Pre-scoring

Due to the technical nature of the first three criteria, we asked the Council team and technical experts to recommend scores for the effectiveness of each adaptation pathway for managing coastal hazard risks. The recommended criteria scores were presented back to the Panel for consideration and refinement before being adopted.

Community Panel Scoring

As a Community Panel, we focussed on evaluating the adaptation pathways against the three criteria which explore the effects of implementing a particular option on our community, our natural environment and the local economy. The Council team recorded the reasons for each score we gave and checked to ensure that we were scoring in a consistent way. This information is available for review.

By combining all of the scores, we were able to identify the best performing adaptation pathway in each compartment. The Council team and technical experts reviewed this outcome to provide us comfort that:

- ≈ The preferred adaptation pathway is technically sensible for the compartment
- ≈ The preferred adaptation pathway for a compartment makes sense when compared with the preferred pathway for all the other compartments
- ≈ The sensitivity of the scoring, so we knew how much our criteria weightings affected the overall score of a Pathway.

Costing

So far, we had identified our preferred adaptation pathways without considering costs. The Panel are firmly of the view that considering things such as affordability, cost effectiveness and who pays what are decisions that our elected representatives need to make and justify to our community. But, we did want to understand whether our decisions on our preferred adaptation pathways should be reconsidered in light of costing information. For example, if our preferred adaptation pathway was the highest cost option, we wanted to know. Technical experts prepared a cost estimate for all of the adaptation pathways including capital and operational costs for the whole adaptation pathway.

We asked the Council team to consider our preferred adaptation pathways in light of this costing information and to advise us if there were any red flags that might require us to reconsider our preferred adaptation pathway. We asked not to receive this costing information ourselves as we considered that this was outside of our scope and mandate. The Council team advised us that generally our preferred adaptations were about the middle of the range of cost estimates and that there wasn't large variation in the costs between the different adaptation pathways in each compartment.

The cost information did not change our recommendations for the preferred pathway in each compartment.



Image Credit: Deborah Kissick

OUR RECOMMENDATIONS



Community Actions

We have identified the actions we want the Councils to take to achieve the goals we set for Our Project. For each Key Theme for the project, we've identified the following actions and priorities (**bolded**).

Community & Recreation Facilities

We know that visitor numbers are increasing and will continue to increase, due to the area being close to Auckland and a scenic coastal area with unique birdlife.

We know that we have a diverse community with many different voices. We know that there are different needs, wants and priorities for people who live, play and visit our area.

What we want	What action is needed?
≈ <i>We want freedom camping along in our coastal areas to be better managed.</i>	<ol style="list-style-type: none"> 1. Hauraki District Council to screen freedom camping from the road with low planting. 2. Hauraki District Council to mark out freedom camping parking spaces within the area north of Kaiaua Village as per the Freedom Camping Bylaw and include signage. 3. Hauraki District Council to prevent freedom camping in restricted areas by planting. <p><i>Note: also refer to Compartment Actions</i></p>
≈ <i>We want the reserves in this area to be better managed.</i>	<ol style="list-style-type: none"> 4. Hauraki District Council and the community to work together to plant reserves and control weeds. Also use planting to direct where people can and cannot park, to plan for and provide appropriate facilities. 5. Hauraki District Council to provide wheelchair friendly access to parks and reserves 6. Hauraki District Council to provide permanent public toilets with wheelchair access. 7. Hauraki District Council to provide parking for fisher persons along our Coast at Kaiaua, Rua One Reserve, Pukekereru Lane and Waharau. <p><i>Note: also refer to Compartment Actions</i></p>

What we want	What action is needed?
<p>≈ <i>We want a better relationship with Council, to feel that the community's concerns are being heard and will be resolved</i></p>	<p>8. More timely response from Hauraki District Council re: individual community requests.</p> <p>9. More frequent meetings between the Hauraki District Council and Waikato Regional Council and the community.</p> <p>10. Hauraki District Council and Waikato Regional Council to consider working with community groups.</p> <p>11. More communication by Councils about projects in advance of works to let people know what's coming up and after works been done to explain what's been done.</p> <p>12. Hauraki District Council and Waikato Regional Council to work with locals to help community action e.g. planting days, river maintenance, weed removal.</p> <p>13. Councils to work to complete a cultural values report of the area to inform future decision making.</p>
<p>≈ <i>We want rubbish from visitors and summer residents to be better managed.</i></p>	<p>14. Hauraki District Council to install a pay-as-you-go rubbish and recycling facility (similar to those by TCDC) to cater for visitors and holidaymakers, OR</p> <p>15. Hauraki District Council to put on extra rubbish collections in summer months.</p>



Image Credit: Kristelle Wi

Coastal and Rural Environment

We know that we have productive farmland, particularly on the flat land around Pūkorokoro/Miranda. We live by the sea and it is part of our daily life.

What we want	What action is needed?
<p>≈ <i>We want aquaculture to be managed so that it doesn't hurt the natural environment and the effects from the number of marine farms are taken into account</i></p>	<ol style="list-style-type: none"> 1. Community to be notified, via the Kaiaua Compass, of Marine Farm applications in Tikapa Moana, especially along the Wharekawa Coast to assist the community to make submissions to ensure that the effects (including cumulative) of aquaculture on coastal processes and marine mammals are managed. 2. Waikato Regional Council to manage the effects (including cumulative) of aquaculture on coastal processes and marine mammals. 3. Waikato Regional Council to consult with the community on any new areas for aquaculture proposed.

Future Growth and Infrastructure

We know that we don't have much development in our area. Kaiaua is our main village and has the only commercial and community facilities. We know there will be demand for more development as time goes by.

What we want	What action is needed?
≈ <i>We want to make sure that new development has the right level of infrastructure in place so it doesn't impact on people already there.</i>	<ol style="list-style-type: none"> 1. Hauraki District Council to review engineering standards to make sure new development is appropriately controlled. 2. Hauraki District Council to report on development contributions collected and applied to improve infrastructure arising from new development in the area.
≈ <i>We want new development that could be affected by river flooding and coastal inundation, to be protected from the impacts of flooding by being restricted and controlled.</i>	<ol style="list-style-type: none"> 3. Council to develop policies and criteria to ensure new buildings and renovations and repairs to existing buildings are undertaken in a way that ensures development along the coast is resilient to natural hazard risks. 4. Any policy or criteria developed should include requirements on new builds in the area to have: <ol style="list-style-type: none"> a. flood proofed wastewater systems b. all building heights above flood level (including garages) c. water pumps to be above flood levels.
<i>Note: Requires plan change and policy to be prepared.</i>	
≈ <i>We want people to know about the hazards applying to this area before they buy and develop property.</i>	<ol style="list-style-type: none"> 5. Waikato Regional Council to put hazard information on the Natural Hazards Portal. 6. Waikato Regional Council to complete the Land Instability Report to ensure that suitable land for future development is identified.
≈ <i>We know that lower areas of land will flood in the future, and we want Council to consider how it will manage this and provide for development in other areas.</i>	<ol style="list-style-type: none"> 7. Ongoing access (roading, power, emergency services) to our region during flooding events. 8. Hauraki District Council, Waikato Regional Council and Government to purchase area of rural land and land bank it for future town development.

What we want	What action is needed?
	<p>9. Hauraki District Council, Waikato Regional Council and Government to look at buying up properties that are going to be under water and then lease back to people.</p> <p>10. Hauraki District Council, Waikato Regional Council and Government to look at buying up properties that are exposed to flooding and look at the opportunity of AirBNB process to:</p> <ul style="list-style-type: none"> a. recoup costs b. provide temporary accommodation c. provide local employment. <p>11. Further work is done by the Councils to identify areas where future development can go.</p>
<p>≈ We want some commercial development, in suitable areas, which can be flood proofed.</p>	<p>12. Hauraki District Council to identify where could be suitable to develop commercial activities and how these could be controlled to manage risk.</p> <p>13. Look at the opportunity to provide localised Food Trucks for seasonal operations on Reserves along the Coast</p> <p><i>Note: could require plan change or resource consent. Also refer to Wharekawa Compartment Actions</i></p>

Wildlife & Natural Environment

We know that we have an internationally recognised wetland (RAMSAR site) at Pūkoro/Miranda. We also have a coastline of rocky and shell beaches, and the backdrop of the native bush of the Hunua Ranges.

What we want	What action is needed?
<p>≈ We want the importance of the Pūkoro/Miranda natural area to be more widely known and valued.</p> <p>≈ We want to raise greater awareness within our local community of the ecological importance of Our Place.</p>	<ol style="list-style-type: none"> 1. Hauraki District Council and Waikato Regional Council to work with the Shorebird Centre, Destination Coromandel and Living Water to support their plans for the future. 2. Greater protection of local ecological integrity in a way that won't further impede on natural coastal and freshwater processes. This requires greater local awareness of the significance of Our Place and the natural environment we live in.

Note: also refer to Pūkoro/Miranda Compartment Actions.



Image Credit: Hera

Hazards and Impacts

We know that there is river and sea flooding in our area, many of us have experienced it first hand and recently. We worry for people new to the area who may not know about this.

What we want	What action is needed?
<p>≈ <i>We want clarity from Councils as to what can local people do to clear rivers and drains themselves.</i></p>	<ol style="list-style-type: none"> 1. Provide clarification to the Community as to which Council is responsible for which activities within this space 2. Waikato Regional Council to provide further information and a contact person to clearly answer what work can be done in rivers. 3. Hauraki District Council to provide further information and a contact person to clearly answer what work can be done in private drains. 4. Community to ask Hauraki District Council and Waikato Regional Council to work with them to arrange working bees
<p>≈ <i>We want improved drain maintenance to help stop surface flooding after rain events.</i></p>	<ol style="list-style-type: none"> 5. Community to identify which drains need clearing as a priority. 6. Hauraki District Council to provide a yearly maintenance plan showing what drains will be cleared and when. 7. Hauraki District Council to liaise with and educate landowners who have private drains on their properties. <p><i>Note: also refer to Compartment Actions and the General River Flood Recommendations</i></p>
<p>≈ <i>We want road access for properties to be retained.</i></p>	<ol style="list-style-type: none"> 8. Hauraki District Council and NZTA to look at continuing road access for East Coast Road and alternative routes.
<p>≈ <i>We are concerned that bridges may fail in flood events. We want to prevent that happening.</i></p>	<ol style="list-style-type: none"> 9. Hauraki District Council to investigate bridges and schedule maintenance and preventative repair before failure. 10. Hauraki District Council to prioritise investigations and necessary maintenance on all of the bridges from Pūkorokoro/Miranda to Waharau.

What we want	What action is needed?
≈ <i>We are concerned that septic tanks may be overflowing into Tikapa.</i>	<p>11. Hauraki District Council/Waikato Regional Council to investigate and report back to the Community.</p> <p>12. Hauraki District Council to develop a plan for the long-term management of wastewater including the consideration of inundation impacts on the current septic tank systems.</p>
≈ <i>We want to be better prepared and more resilient when natural hazard events occur.</i>	<p>13. Councils to develop a resilience handbook which provides practical advice and guidelines for making buildings resilient to natural hazards when renovating or building new.</p> <p>14. Councils to continue to work with the Kaiaua Community Response Plan Committee (Emergency Management) who regularly meet and discuss how they will plan for and respond to a natural disaster (Community Response Planning).</p> <p>15. Ensure the Community Response Plan is reviewed annually by Councils.</p> <p>16. Tsunami information / evacuation signs to be developed and erected to assist the many tourists who frequent the coast.</p> <p>17. Councils to produce and circulate to all households, a public information resource to help us prepare our homes to resist flooding.</p> <p>18. Councils to produce an emergency readiness/response pamphlet to be provided to all households, displayed in prominent public places and available to tourists visiting the area.</p>
≈ <i>We want support from the Council to enable us to adapt our buildings to prepare for increasing hazard risks</i>	<p>19. Councils to consider financial support for alterations/raising existing buildings and/or exemptions from building consent fees for such works.</p>
≈ <i>To ensure that all coastal hazard adaptation options take the views and values of Ngāti Pāoa and Ngāti Whanaunga into account.</i>	<p>20. Councils will engage on all options with Ngāti Pāoa and/or Ngāti Whanaunga.</p>

What we want	What action is needed?
<p>≈ <i>To understand the current state of all existing coastal structures</i></p>	<p>21. Councils to undertake a condition and assessment of every existing coastal structure to assess its effectiveness and ensure that it is not creating issues elsewhere along the coast.</p>
<p>≈ <i>Implementation of the adaptation pathways is prioritised by the Councils</i></p>	<p>22. Councils to work on the development of relevant signals and triggers for each compartment to ensure that the Pathways are truly adaptive.</p>



Compartment issues and actions

As well as the actions identified by key themes, we have also identified issues that are locality-specific along the coastline. For each compartment, we've identified the following actions and priorities (bolded).

Pūkorokoro/Miranda

We know this is a special place for nature. It is also a farming area and is where East Coast Road provides a link to State Highway 25 and State Highway 2 and to larger town centres, such as Thames, Ngātea and Pokeno.

We know that this is a low lying area and sea flooding will impact activities here.

What we want	What action is needed?
≈ We want the reserve at Rays Rest to allow for commercial activities such as a coffee cart.	1. Hauraki District Council to permit seasonal commercial activities at Rays Rest.
≈ We want the importance of the Pūkorokoro/Miranda natural area to be more widely known and valued.	2. Hauraki District Council and Waikato Regional Council to work with the Shorebird Centre, Destination Coromandel and Living Water to support their plans for the future. 3. Council to consider placing restrictions on the location of parking at Rays Rest to provide better protection to the shell crest.
≈ We want improved drain maintenance to help stop surface flooding after rain events.	4. Mangroves adjacent to East Coast Road (near the bird sanctuary), at the mouth of the river, need to be better managed by the Council due to drainage and roading issues they create.

Note: also refer to the Wildlife and Natural Environment Actions.

Kaiaua

We know there will be more people coming to our area, to visit and to live. They will use our facilities in Kaiaua. We have concerns about how to manage increasing numbers of people on and off the water.

What we want	What action is needed?
≈ We want the reserves in this area to be better managed, in particular to stop people parking on the foreshore.	<ol style="list-style-type: none"> 1. Hauraki District Council to stop people parking on the foreshore, consider a dedicated parking area elsewhere, as well as planting and bollards to prevent access. 2. Hauraki District Council and the community to plant to screen freedom campers from the road. 3. Hauraki District Council to provide signs directing people to the toilets. 4. Hauraki District Council to provide wheelchair access Public Toilets 5. Hauraki District Council and the community to develop a plan for the Domain, including weed control, access to swimming spots, protect Puriri tree, allow community days/events to be held. 6. Hauraki District Council and Iwi to start the conversation on the future for Tauwhare Koiora reserve with the community.
<i>Note: also refer to the Community and Recreation Actions</i>	
≈ We want safe boating in our area.	<ol style="list-style-type: none"> 7. Waikato Regional Council to provide a boat safety advocate to help educate people, provide lifejackets, discuss speed, and issue fines. 8. Hauraki District Council to look at providing boat parking. 9. Hauraki District Council to start conversation and discuss possibility of the Kaiaua Boating Club under joint management between Ngāti Pāoa and Council. 10. The Fishing Club channel needs better ongoing management and dredging, with dredging material managed in a culturally appropriate way, in consultation with Ngāti Pāoa.
≈ We want a safer environment for our tamariki travelling to and from school and the village.	<ol style="list-style-type: none"> 11. Hauraki District Council to provide a safer speeds entering and exiting the village.

Whakatīwai

We know that the stopbanks on the Whakatīwai River have eroded in part and this may affect how they function in a flood event.

We know that tamariki walk to school from Whakatīwai and there is not much room between the cars travelling at high speeds and them. This is a safety issue that needs to be addressed.

What we want	What action is needed?
≈ We want the reserves in this area to be better managed.	<ol style="list-style-type: none"> 1. Hauraki District Council to put exercise stations along the waterfront reserve. 2. Hauraki District Council to provide a parking area, plus seating. 3. Hauraki District Council to permit seasonal commercial activities at Reserve adjacent to Rua One Reserve. 4. Hauraki District Council and the community to plant out Whakatīwai old Hall site reserve.
≈ We want a safer environment for our tamariki travelling to and from school and the village.	<ol style="list-style-type: none"> 5. Hauraki District Council to lower the speed limit to 50kmph from Rata Road to end Kaiaua Village for community safety. 6. Hauraki District Council to put a school zone in place outside the school to lower the speed limit further at school start and finish times. 7. Hauraki District Council to put a footpath from Kaiaua School north to Whakatīwai Bridge.
≈ We want the stopbanks at Whakatīwai to be maintained and repaired if necessary, so they function as designed to prevent flooding.	<ol style="list-style-type: none"> 8. Hauraki District Council to survey the stopbanks and prepare remedial works. 9. Hauraki District Council to communicate the proposed works and timeline to the community and let them know when it has been done.
≈ We want to overflows from the stormwater lake (at Rua One Place) to the land on other side of East Coast Road to stop.	<ol style="list-style-type: none"> 10. Hauraki District Council to investigate overflows from this lake and advise findings, including actions to remediate if required. <p><i>Note: Also refer to the River Flood Management Actions</i></p>
≈ We want to ensure a drainage maintenance programme is implemented	<ol style="list-style-type: none"> 11. This area suffers from flooding a result of inadequately managed drain clearance and needs to be prioritised by Councils.

Wharekawa

We think the area by the old quarry ponds (above the flood level) could be suitable for commercial development.

We know that the bridge over the Waihihi Stream no longer lines up with the river and that the riverbank is eroding. We see that sheet metal piling has fallen over and is not working. We know that the rock placed here after the last storm, to help stop erosion is only temporary.

What we want	What action is needed?
≈ We want the reserves in this area to be better managed.	<ol style="list-style-type: none"> 1. Hauraki District Council and community to plant Whakatīwai Reserve (by Regional Park) to direct where parking is allowed and to prevent access for freedom campers. 2. Hauraki District Council and the community to plant at the reserve opposite Pukekereru Lane to prevent cars from parking on the picnic site. 3. Hauraki District Council to provide parking spaces on the foreshore.
≈ We want more commercial activities in the area, to provide for locals and visitors.	<ol style="list-style-type: none"> 4. Hauraki District Council to investigate allowing container type development for commercial and retail activities in the area around the Quarry Lakes.

Note: this action would likely require a plan change or resource consent



Waharau

We know that development is happening around Pukekereru Lane and we want it to be managed so it does not impact the people that already live here.

We know that the Waharau Bridge was impacted in a recent river flooding event and is vulnerable. This bridge is on our only access road for north and south travel.

We know that the rain running off from the hills cannot be contained by roadsides and drains and floods houses.

What we want	What action is needed?
≈ We want the reserves in this area to be better managed	<ol style="list-style-type: none"> 1. Hauraki District Council to protect and block off access to the urupa at the reserve area. 2. Auckland Council to consider the dumping station and if it is viable long term in this location.
≈ We want to make sure that the Waharau bridge is kept open	<ol style="list-style-type: none"> 3. Hauraki District Council and NZTA to investigate Waharau bridge and schedule maintenance and preventative repair before failure.
<i>Note: also refer to the Hazards and Impacts Actions</i>	
≈ We want to be involved with plans to develop a cycleway from Clevedon to Kaiaua	<ol style="list-style-type: none"> 4. Auckland Council to ensure that iwi and the community are consulted early on for proposed route and plans to develop a cycleway. 5. Hauraki District Council to inform the community of the impact of cycleway on the Coast, noting that additional facilities required.
≈ We are concerned that septic tanks may be overflowing in this area into the Waihihi Stream.	<ol style="list-style-type: none"> 6. Waikato Regional Council to investigate if the river is contaminated by septic tank overflow and find the source of this contamination.
≈ We want to make sure that the Waihihi Bridge remains open.	<ol style="list-style-type: none"> 5. Hauraki District Council and NZTA to investigate Waihihi bridge and schedule maintenance and preventative repair before failure.
<i>Note: also refer to the Hazards and Impacts Actions</i>	

River Flooding Management

We have identified general actions we want the Councils to take to ensure our rivers and streams are managed in a way that makes them more resilient to weather events. We have also identified a series of actions specific to individual waterbodies which are summarised in the tables below

General river flood management

What we want	What action is needed?
≈ Rivers and streams need to be managed better to ensure they are more resilient to flood events.	<ol style="list-style-type: none"> 1. Adoption and implementation of the prioritised River Management Work Programme to guide future funding options to inform both Councils Long Term Plans commencing 2022/2023 and which have effect in 2024/2025. 2. Prioritisation of actions relating to streams, other than the Haurahi Stream, in the River Management Work Programme as works on the Haurahi Stream have been completed. 3. Monthly drain inspections along the project area are undertaken by Council to examine drainage systems and determine whether any clearance works are needed. 4. Waikato Regional Council and Hauraki District Council, with Waikato District Council, work together to agree the funding mechanism to action the River Management Work Programme which may include a targeted rate. 5. Recommend the update of the Haurahi Stream flood model when all updated data is gathered, anticipated for September 2022. 6. Councils will work with individual landowners to ensure individual drainage responsibilities are clear.
≈ To ensure that all river management options take the views and values of Ngāti Pāoa and Ngāti Whanaunga into account.	<ol style="list-style-type: none"> 7. Council will engage on all options with Ngāti Pāoa and/or Ngāti Whanaunga. 8. Any dredging materials from streams and rivers are kept within the area to ensure practice is culturally appropriate.

River Management Work Programme

We have identified a comprehensive list of rivers and streams throughout Our Place where management actions are needed now to increase our resilience to the frequent weather events we experience. These actions include a range of maintenance and management actions, as well as landowner education that we consider are needed on an ongoing basis including:

- ≈ Upper catchment stability control through planting, stability control, pest control
- ≈ River management works including regularly clearing blockages in streams and culverts, works to maintain channel stability and capacity
- ≈ Stream mouth clearance/opening
- ≈ Technical advice to landowners on management techniques
- ≈ Assessment of integrity, functionality and stability of existing assets and development of asset improvement plans as required

We have identified streams and rivers for each compartment where these management works are needed in the table below and also have an appendix of the specific River Management Work Programme included with this report.

Compartment 1a Pūkoro/Miranda	Compartment 2A – Kaiaua	Compartment 3A Whakatīwai	Compartment 4A Wharekawa	Compartment 5A Waharau
Miranda/Pūkoro Streams	Hauarahi Stream	Whakatīwai Stream	Puwhenua Stream	Waharau Stream and Tributaries
Small unnamed watercourse at 773 East Coast Road	Matawhero Stream (Wharekawa 9)	Whakatīwai village drains and Whakatīwai pond	Waimoho Stream	Waihihi Stream and tributaries
Te Puaharuri Stream	Small unnamed drain at 831 and 845A East Coast Road	Wharekawa Marae Stream	Farm drain (1363 East Coast Road)	Waiwhenua Stream
Unnamed watercourse at 673 East Coast Road		Culverts and drains from Kaiaua school and Whakatīwai	Te Umukauri Stream (0 East Coast Road and rear of 54 Rata Road)	Waihopuhopu Stream
Unnamed drain at 545 East Coast Road		Moemoepo stream (1283 East Coast Road)	Okarea Drain South of Caravan Park & Boat ramp	Paparari Stream
Fairview Road - Taramarie Drainage District				Auwharewhare Stream and unnamed tributary
Waiwarawara Stream and unnamed watercourse at Coxhead property and 761 Front Miranda Road				Murphys Culvert

Long-term River Flood Management

The Community Panel, in discussion with the Council team, recommend that the development of long-term river flood management options is paused for now.

Pushing pause on this work will allow the focus to be on implementing the actions outlined in the River Management Work Programme as quickly as possible. We consider that these actions will make a significant difference to the day-to-day management and mitigation of river flood risk for our community. This work will help identify further short term options for river flood management which can then inform medium and long term actions.

This pause also allows for additional data to be gathered and current flood models to be updated. We understand from the Council team that this will lead to more robust flood modelling and a greater understanding of future river flood hazard risks.

It is of great importance to us that as soon as the new data and flood modelling information is available, work starts on developing options for managing river flooding in the medium – long term.

We do also acknowledge that the most significant hazard facing the Wharekawa Coast, in the longer term (~30 years) is coastal inundation, based on the information currently available. This will have implications for the integrated and coordinated management of natural hazard issues in the longer term, that need to be worked through.

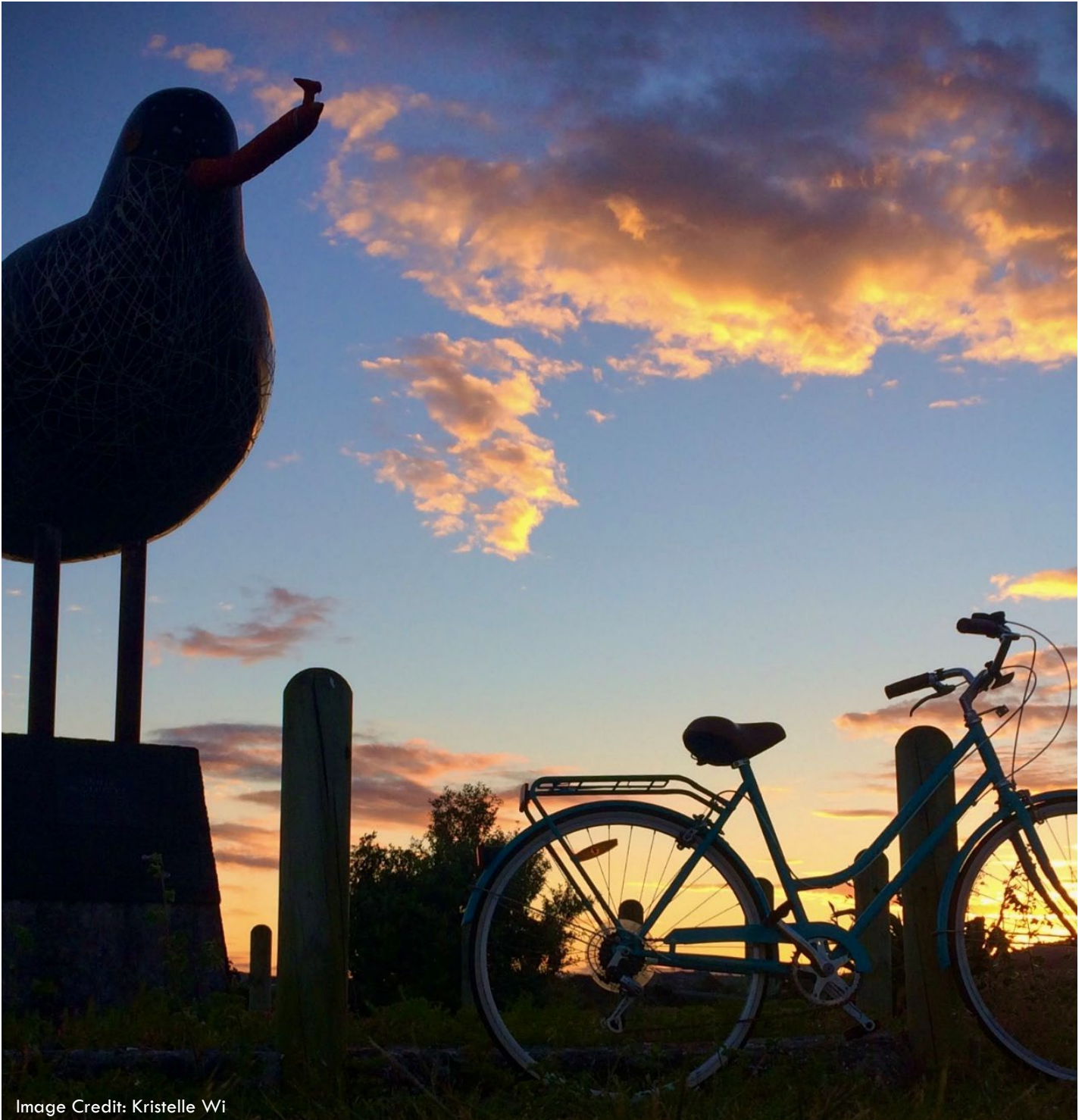


Image Credit: Kristelle Wi

Coastal Hazards

Preferred Adaptive Pathways

The result of our option and pathway development and assessment process (described earlier) is that we have identified a preferred long-term adaptation pathway for each compartment along Our Coast. These are presented on the following page.

We now ask that the Councils consider these recommendations and develop a plan to implement them.

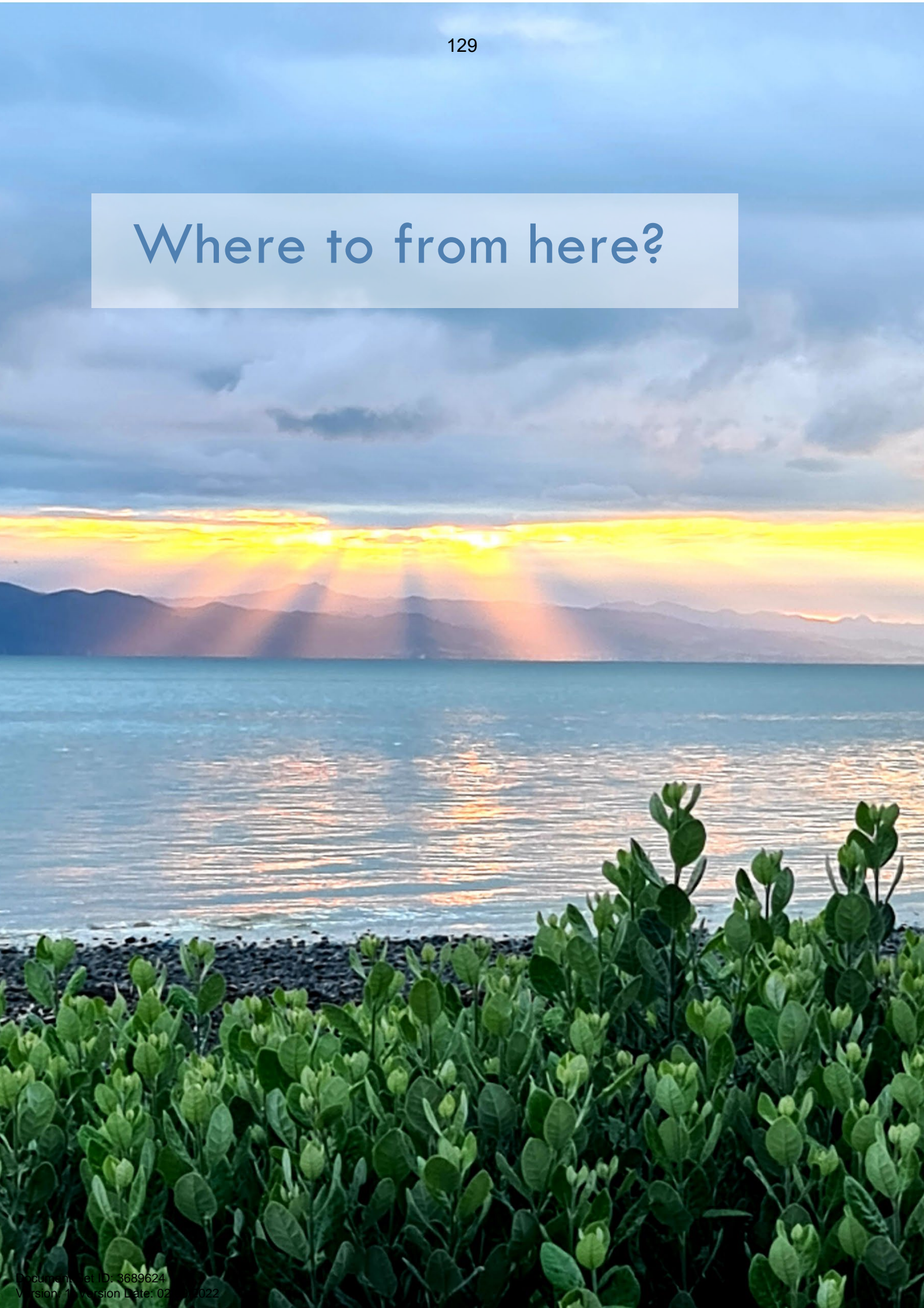
We know that a critical factor in the success of these pathways is the ability for them to adapt to new information and technologies, and environmental changes such as sea level rise as it occurs.

To ensure that everyone knows when it is time to shift between actions, and to confirm the specifics of future actions, we need to have signals (the early warning signs) and triggers (the decision points) developed to sit alongside the adaptation pathways. It is our expectation that well designed signals and triggers will ensure that the community risk thresholds we have identified can be avoided. We ask that the Council prioritise work with our community to develop signals and triggers to achieve this.

Preferred Coastal Hazard Adaptation Pathways

Compartment	Short term	Medium term	Long term
<p>Special note: Significant cultural values present in all compartments–</p> <p>All options require consultation with Ngāti Pāoa and/or Ngāti Whanaunga)</p>			
1A: PŪKOROKORO/ MIRANDA	Flood gates + Enhance shingle crest + Productive land adaptation	Inundation protection (Raising East Coast Road) + Flood gates + Planned resettlement (Buildings and associated infrastructure) + Productive land adaptation	Inundation accommodation (Raising East Coast Road) + Productive land adaptation
2A: KAIAUA	Inundation accommodation (Buildings and associated infrastructure) + Seawall/Revetment (Re-design + build/maintain existing) + Groynes (South of compartment) + Renourishment + Implement drainage system maintenance + Beach push-ups	Seawall/Revetment (Enhance/maintain existing) + Groynes (South of compartment) + Beach scraping	Planned resettlement
3A: WHAKATIWAI	Inundation accommodation (Buildings and associated infrastructure) + Implement drainage system maintenance	Flood gates	Planned resettlement
4A: WHAREKAWA	Flood gates	Flood gates + Inundation accommodation (Raising East Coast Road) + Productive land adaptation	Planned resettlement + Productive land adaptation
5A: WAHARAU	Status quo + Implement drainage system maintenance	Renourishment + Enhance shingle crest + Beach scraping	Planned resettlement (Low lying buildings)

Where to from here?



Next steps

Our People, Our Place provides a summary of the things that we as a Community Panel want to see actioned by the Councils over the short, medium and long term.

There are some key next steps that need to be achieved to enable this to happen. These are:

- ≈ The opportunity to engage with the wider Wharekawa Coast community to discuss our recommendations and check that we have captured everything necessary.
- ≈ That the Hauraki District Council, Waikato District Council and Waikato Regional Council will work together to develop a Community Plan which sets out how the recommendations we have made will be actioned.
- ≈ A commitment from the Councils to regular reporting on action progress – we would like to see an update in the Kaiaua Compass every three months.
- ≈ A commitment by the Councils to build in a formal review of the Community Plan at a minimum of every 3 years or sooner as required, in order to keep up to date with the best information and ensure ongoing community input.

APPENDICES



Focus Group summaries

Focus Group Topic	Group Purpose	Process the group followed
Community Risk Thresholds	This focus group acknowledges the importance of our work with the community on finding out what their risk tolerance to storm events are. We wanted to understand what is the frequency at which the community can no longer tolerate an event happening, like the one in 2018 e.g. every 20 years or every 50 years?	<p>We went out with booklets to describe different hazard scenarios and to test how tolerant people are to these events occurring. This information informed what and when actions to manage hazard risks are required and fed into the Coastal Hazard and River Flooding Focus Group work.</p> <p>It was important to us to hear from our neighbours, rather than just telling them and we published the results of our work in the Kaiaua Compass. We really wanted to have an in-person meeting to talk through our findings, but this wasn't possible due to Covid restrictions.</p>
Emergency Management	This focus group looked at how to improve resilience for existing and new buildings, how to help the community to respond with responding to events and how to deal with wastewater long term – particularly with the inundation of septic tanks.	We used online meetings to develop a series of recommendations and started work on the Resilience Handbook.
Community Actions	The purpose of this focus group was to capture all the general issues raised by the community and come up with a set of actions to address them.	<p>We were fortunate that our Focus Group was able to meet in person and we also met online.</p> <p>We built on the previous work by the Council team and Community Panel to analyse the issues raised and to group them into Key themes and goals.</p> <p>We worked on identifying “What we know” about the issues into issues statements and “What we want” as the actions to address them.</p> <p>We assigned these either to a key theme, or where the issues are relevant to a particular compartment rather than to the whole project area, we grouped these by compartment.</p> <p>We then prioritised the actions of highest priority that we consider need to be addressed first.</p>
River Flooding	The purpose of this focus group was to make recommendations to the Community Panel on what is needed to manage immediate and on-going river management and drainage issues and to identify what longer term actions are needed to adapt to river flooding hazards.	<p>We met in a series of three hybrid (online and in-person) meetings and two fieldtrips to visit rivers and streams along Our Place.</p> <p>From this work, we developed a series of recommendations into a River Management Work Programme which focusses on identifying the things that need to be done now, and on an ongoing basis look after the rivers and streams and their flood risks to Our Place. We also discussed the need for updates to improve the Haurahi Stream flood model, and what the funding options were for the River Management Work Programme.</p>

Coastal Hazards

The purpose of this focus group was to develop preferred adaptation pathways to respond to coastal erosions and coastal inundation hazards, for each compartment to recommend to the Community Panel.

1. We worked from the long list of potential coastal hazard mitigation options and considered each option against the success criteria. This resulted in the creation of a short list of suitable options that achieve our objectives while being a technically feasible option for managing hazard in the relevant compartment (Technical experts helped us with the technical criteria). Using this short list, the Council team then pulled together a set of potential adaptation pathways for each compartment for us to consider.
2. We then worked to develop a final set of assessment criteria (including criteria to consider technical, social and cultural, and environmental matters) and apply weightings for their importance (1=Important, 2=Very Important, 3=Critical). Initially, we completed this for the whole project area, before we identified that it was more appropriate to apply criteria weightings on a by-compartment basis, given the relative importance of different criteria to different compartments.
3. We were keen to provide our own way of defining the option when some areas of Our Coastline become unsuitable to live in as a result of increasing coastal hazard risks and climate change. We heard from others with experience in this space and worked to develop new terminology around what this means for Our Project. We arrived at a term called “Planned Resettlement” and worked to develop a description of what this term means to us and how this action should be handled acknowledging there is no guidance in this space from the Government. We also acknowledged that in some cases, public assets such as roads and reserves may need to be moved to more suitable locations. We have termed this “Planned Relocation”.
4. We then worked to determine which adaptation pathway for each Compartment is preferred and will be recommended to the Council. We used a process called multi-criteria analysis to evaluate the pathways as a whole, against the assessment criteria we identified. We used this approach because is a good way to work out which is the best option using a range of different factors, including: Will it work? Will it make things worse for future generations? We did not consider the costs of the options.

We confirmed that the first three criteria which look at how effective a pathway is at managing the risk of natural hazard(s) would be best evaluated by technical experts, given the technical nature of these criteria. We agreed that the remaining criteria, which explore how the options could affect us, our environment and the economy were best assessed by us as the Community Panel using our local knowledge of the area.
5. We worked through our preferred Pathways for each compartment with the entire Community Panel to confirm our selection.

River Management Work Programme – River Flooding

Pūkoro/Miranda			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Miranda/Pūkoro streams	High	<p>Existing Assets: 1x bridge, 3x stopbanks, 1x rail trail</p> <p>Council to communicate and provide technical advice to landowners, Living Waters Project, Department of Conservation and Waikato District Council on options to improve land drainage and overall flooding.</p> <ol style="list-style-type: none"> Upper catchment stability control (e.g planting, stability control, pest control) River management work - removal of blockages (mangroves), maintaining channel capacity, ensuring stability of channel (erosion control as required) To ensure performance under flood conditions, an assessment of the structural integrity and stability of the assets on this stream is needed. Manage flood way in ensuring conveyance, maintaining the structural integrity and performance of the stopbanks (private owner). Ensure the bridge is not undermined with erosion around the structure. Bridge is upgraded if necessary and blockages are removed to ensure it performs as designed. Stream mouth opening (blockage due to chenier ridges). Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce 	<p>≈ The Pūkoro/Miranda Bridge along East Coast Road sits within the Waikato District Council boundary and as a result, any communication regarding the bridge should be addressed with Waikato District Council.</p> <p>≈ The Miranda and Pūkoro Streams stopbanks lie within the Living Waters project (a collaboration between the Department of Conservation and Fonterra). The Hauraki District Council have a land drainage proposal with the Department of Conservation to use the stopbanks south of the bridge for the Hauraki Rail Trail, which requires Hauraki District Council to maintain these coastal stopbanks.</p> <p>≈ Flooding is dominate in the upper part of the catchment, particularly around Findlay Road.</p> <p>≈ This area was the most flooded and impacted for the project area during the 2018 coastal inundation event.</p> <p>≈ The flooding issue in this area, is the inability of water to successfully drain.</p> <p>≈ Mangroves are overgrown and built up with silt which has restricted the channel capacity both underneath the bridge and downstream of the bridge. Removal of left hand banks of silt and mangroves will allow for increased channel capacity during flood events. By reducing the mangroves on the right stopbank but keeping some there, it will help reduce sea swell</p>

Pūkoro/Miranda			
Stream/ watercourse	Priority	River Management Work Programme	Comments
		<p>maintenance costs (e.g. investigate alignment and capacity of floodgates to ensure they are operating correctly).</p>	<p>action and flooding for the properties to the south of the stream. The river at the point of the bridge should be 30m wide, however it currently is 9m.</p> <p>≈ Work includes spray of the mangroves first to investigate what is required to be removed, then removal of mangroves right out to the firth is required.</p> <p>≈ The structural integrity of the bridge needs to be investigated and fixed.</p> <p>≈ By improving drainage capacity in this area, through removing the mangroves and silt, will ensure the stream has suitable capacity to drain, and will reduce a large percentage of flooding issues in the Pūkoro/Miranda area.</p> <p>≈ Waikato Regional Council has already developed a detailed plan suggesting the above.</p> <p>≈ Any works to be considered upstream of the bridge, a collaborative approach is required with the Living Waters Project and DOC.</p>
Small unnamed watercourse at 773 East Coast Road	Low	<p>Existing Assets: 2x floodgates</p> <p>Council to communicate and provide technical advice to landowner. Landowners are responsible for maintaining and managing works on assets on their property due to the stream only running through their property.</p> <ol style="list-style-type: none"> To ensure performance under flood conditions, structural integrity and stability of the assets on this drain. Ensuring the assets are not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. Stream mouth opening Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce 	<p>≈ Assets are a combination of both private landowner responsibility and council responsibility.</p> <p>≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work. Council to provide technical advice to the landowner and landowner responsibility to complete works as they would only benefit from the works on their property.</p>

Pūkoro/Miranda			
Stream/ watercourse	Priority	River Management Work Programme	Comments
		maintenance costs (e.g investigate alignment and capacity of floodgates to ensure they are operating correctly).	
Te Puaeharuri stream	Low	<p>Existing Assets: 1x bridge along ECR</p> <p>Council to communicate and provide technical advice to landowner. Landowners are responsible for maintaining and managing works on assets on their property due to the stream only running through their property.</p> <ul style="list-style-type: none"> a. Upper catchment stability control (e.g planting, stability control, pest control) b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the bridge is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. d. Stream mouth opening (blockage due to chenier ridges) e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs 	<p>≈ Assets are a combination of both private landowner responsibility and council responsibility.</p> <p>≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work. Council to provide technical advice to landowner and landowner responsibility to complete works as they would only benefit from the works on their property.</p>
Unnamed watercourse at 673 East Coast Road	Low	<p>Existing Assets: 2x floodgates</p> <p>Council to communicate and provide technical advice to landowner. Landowners are responsible for maintaining and managing works on assets on their property due to the stream only running through their property.</p> <ul style="list-style-type: none"> a. To ensure performance under flood conditions, structural integrity and stability of the assets on this drain. Ensuring the assets are not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. 	<p>≈ Assets are a combination of both private landowner responsibility and council responsibility.</p> <p>≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work. Council to provide technical advice to landowner and landowner responsibility to complete works as they would only benefit from the works on their property.</p>

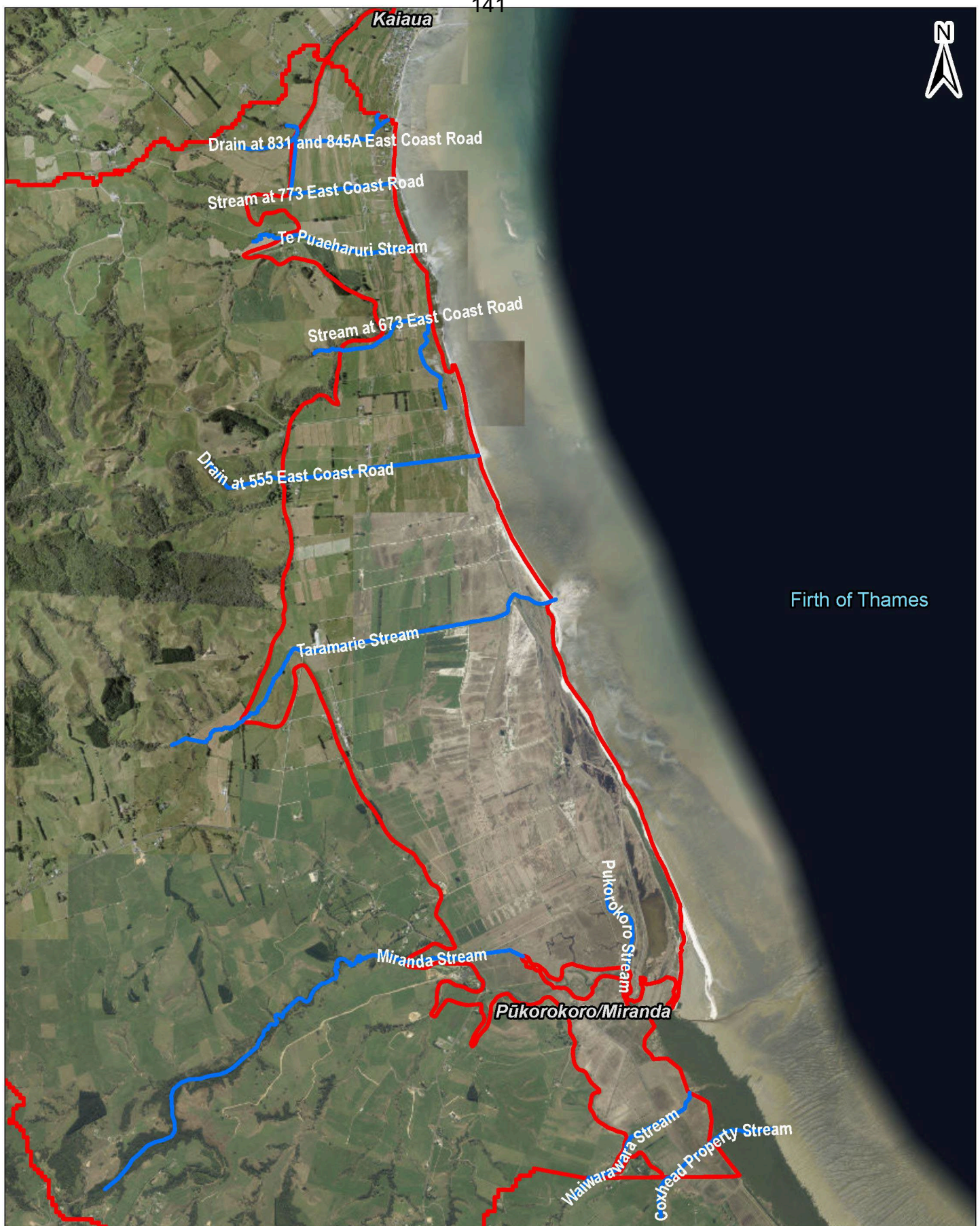
Pūkoro/Miranda			
Stream/ watercourse	Priority	River Management Work Programme	Comments
		<ul style="list-style-type: none"> b. Stream mouth opening c. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs (e.g. investigate alignment and capacity of floodgates to ensure they are operating correctly). 	
Unnamed drain at 545 East Coast Road	Low	<p>Existing Assets: 1x floodgates</p> <p>Council to communicate and provide technical advice to landowners and the Taramarie Land Drainage District on options to improve land drainage.</p> <ul style="list-style-type: none"> a. Upper catchment stability control (e.g. planting, stability control, pest control) b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) c. To ensure performance under flood conditions, structural integrity and stability of the assets on this drain. Ensuring the assets are not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. d. Stream mouth opening e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs (e.g. investigate alignment and capacity of floodgates to ensure they are operating correctly). 	<p>≈ This stream is part of the Taramarie Land Drainage District, which already has a current process for land drainage in place. Therefore, these are recommendations to the drainage group.</p>
Fairview Road - Taramarie Drainage District	Low	<p>Existing Assets: 17x floodgates, 1x bridge, 2 stopbanks and a number of drains</p> <p>Council to communicate and provide technical advice to landowners and the Taramarie Land Drainage District on options to improve land drainage.</p>	<p>≈ This stream is part of the Taramarie Land Drainage District, which already has a current process for land drainage in place. Therefore, these are recommendations to the drainage group.</p>

Pūkoro/Miranda			
Stream/ watercourse	Priority	River Management Work Programme	Comments
		<ul style="list-style-type: none"> a. Upper catchment stability control (e.g. planting, stability control, pest control) b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Manage flood way in ensuring conveyance, maintaining the structural integrity and performance of the stopbanks. Ensuring the bridge is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. d. Stream mouth opening (blockage due to chenier ridges) e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs (e.g. investigate alignment and capacity of floodgates to ensure they are operating correctly). 	
Waiwarawara stream and unnamed watercourse at Coxhead property and 761 Front Miranda Road	Low	<p>Existing Assets: 1x culvert underneath ECR and 1x bridge</p> <p>Council to communicate and provide technical advice to landowner. Landowners responsibility to maintain and manage works on any privately owned assets on their property due to the drains only running through their property.</p> <ul style="list-style-type: none"> a. Upper catchment stability control (e.g. planting, stability control, pest control) b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) c. To ensure performance under flood conditions, structural integrity and stability of the assets on this drain. Ensuring the assets are not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. Hauraki District Council to manage 	<p>≈ Hauraki District Council maintain the stopbanks along the front of the property due to the rail trail, therefore have responsibility to maintain the stopbank.</p> <p>≈ Assets are a combination of both private landowner responsibility and council responsibility.</p> <p>≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work. Council to provide adequate technical advice to landowner and landowner responsibility to complete works as they would only benefit from the works on their property.</p>

River Management Work Programme

Pūkoro/Miranda

Stream/ watercourse	Priority	River Management Work Programme	Comments
		<p>flood way in ensuring conveyance, maintaining the structural integrity and performance of the stopbanks.</p> <p>d. Stream mouth opening</p> <p>e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs</p>	



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Streams, Rivers & Drains



Compartment

Wharekawa Coast 2120 – River Management Work Programme Streams

Compartment: One

0 500 1,000 1,500 2,000 m

Scale at A4
= 1:43,000

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Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

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Kaiaua			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Hauarahi stream	High	<p>Existing Assets: 1x bridge along East Coast Road, several open drains and culverts, associated stormwater points and boat club</p> <ol style="list-style-type: none"> Upper catchment stability control (e.g planting, stability control, pest control). Councils to provide technical advance and communicate to landowners. River management work - removal of blockages, maintaining channel capacity, stream spraying of overgrown vegetation, ensuring stability of channel (erosion control as required). To ensure performance under flood conditions, structural integrity and stability of the asset along the Hauarahi stream and in the township. Ensuring the bridge and associated stormwater infrastructure is not undermined with erosion around structure and blockages are removed to ensure it performs as designed. Stream mouth opening. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs. Maintenance of the culvert at the corner of East Coast Road and the Boating Club particularly as a result of the March 2022 flooding event Maintenance of the culvert on Kaiaua Road opposite the tennis courts is needed to manage flooding across the tennis courts and the house at the back. Inspect the floodgate which drains water running from Lipscombe Road near the Community Hall along Kowhai Ave to the farm at the end of Kowhai Ave. Water backs up into the houses at the end of Kowhai Ave. 	<p>≈ Any works that occur on land north of the Kaiaua village are required to have local iwi engagement during both the discussion and implementation phases as this land is iwi owned.</p> <p>≈ Specific locations where works are needed:</p> <ul style="list-style-type: none"> Domain area: <ul style="list-style-type: none"> Stream clearing and spraying upstream of Domain Remedial clearing works upstream of Domain particularly around sharp bends Ensuring channel capacity around Domain Investigate old swale to north of Kaiaua village as an option to reduce floodwaters and travel through the culvert by the Pink Shop) Upstream - Wharekawa 5a/4a blocks: <ul style="list-style-type: none"> Some willow removal works may be required in the future to ensure stream blockage is reduced Spraying of stream banks to kill off any wild willow and vegetation to keep stream open. <p>≈ Cleared material from the Hauarahi Stream need to be spread out in way that assists with the management of coastal erosion.</p> <p>≈ Investigate proposed caravan park and its impact on and from localised flooding (work is already underway on this, led by Hauraki District Council).</p> <p>≈ Recommend that focus is given to the other streams in the Project Area over the Hauarahi Stream as it has already had works completed on it.</p>

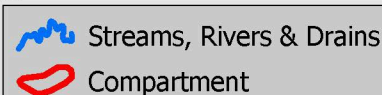
River Management Work Programme

Kaiaua			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Matawhero Stream (Wharekawa 9)	Low	<p>Existing Assets: 1x culverts</p> <ul style="list-style-type: none"> a. To ensure performance under flood conditions, structural integrity and stability of these culverts and drains. Ensuring the culvert is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. Drains are sprayed and cleaned regularly. b. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs (e.g. blockages by shellfish in culvert such as installing grates or one-way valves, reduce culvert length on beachside of road to allow discharge across the tidal sequence, investigate increase in drainage capacity). 	<ul style="list-style-type: none"> ≈ Hauraki District Council discharge into this stream from stormwater points. This is located in a rural zone, and Hauraki District Council have obligation to maintain it. ≈ 75% of culverts currently blocked with seashells, rocks and sand resulting in backup of water around Pink Shop and houses. ≈ Investigate one-way valve system and shortening of the existing culvert pipes into the sea which will increase water discharge volumes. ≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.
Small unnamed drain at 831 and 845A East Coast Road	Low	<p>Existing Assets: 1x stormwater pipe, 2 outlets and 2x floodgates</p> <p>Council to communicate and provide technical advice to landowners. Landowners responsibility to maintain and manage works on any privately owned assets on their property due to the stream only running through their property.</p> <ul style="list-style-type: none"> a. To ensure performance under flood conditions, structural integrity and stability of the assets on this drain. Ensuring the assets are not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. b. Stream mouth opening c. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs (e.g. investigate alignment and capacity of floodgates to ensure they are operating correctly). 	<ul style="list-style-type: none"> ≈ This drain and associated drainage assets are part of the Kaiaua township stormwater system network. ≈ Assets are a combination of both private landowner responsibility and council responsibility. ≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work. Council to provide technical advice to landowner and landowner responsibility to complete works as they would only benefit from the works on their property. ≈ Investigate one-way valve system and shortening of the existing culvert pipes into the sea which will increase water discharge volumes.



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Wharekawa Coast 2120 – River Management Work Programme Streams

Compartment: Two

0 100 200 300 400 500 m

Scale at A4
 = 1:12,000

Created by: HCE
 Date: 18/07/2022
 Version: 1
 Job No.: REQ187879
 File:
 REQ187879_Wharekawa



Whakatiwai			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Whakatiwai stream	High	Existing Assets: 1x bridge, 3x Hauraki District Council stopbanks	≈ There are a high number of properties that are at risk of flooding if stopbank failure occurred.
		a. Upper catchment stability control (e.g. planting, stability control, pest control).	≈ Cultural significance due to the urupa in front of beachfront properties to the south of the stream mouth.
		b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required).	≈ An area of high significance and valued by the community, so is to be protected from rising seas.
		c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Manage flood way in ensuring conveyance, maintaining the structural integrity and performance of the stopbanks. Ensuring the bridge is not undermined with erosion around structure and blockages are removed to ensure it performs as designed.	≈ Option suggested by community is to reopen the historic riverbed and redirect the stream via this channel (to the south in front of the properties). This will have little to no impact to the urupa as the urupa is located on the banks of the old stream. Reopening the old stream bed may also generate a second defence for coastal inundation as flood waters would enter the stream and be discharged back out to sea for the smaller more frequent events.
		d. Stream mouth opening (blockage due to chenier ridges).	
		e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs (e.g. gravel management)	≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.
Whakatiwai Village drains and Whakatiwai pond	High	Existing Assets: Multiple open drains, private and council pipes, stormwater points of catchpits, manholes and an outlet.	≈ 23 properties surround the pond.
		a. To ensure performance under flood conditions, structural integrity and stability of all assets in the Whakatiwai village. Ensuring the infrastructure is not undermined with erosion around structure and blockages are removed to ensure it performs as designed. Ensuring open drains are sprayed and cleared.	≈ One Hauraki District Council culvert runs through 4 Rua One road (no building on this property) out to the coast.
		b. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs (e.g investigate Whakatiwai pond inlet and outlet and drains capacity to ensure it is suitable to accommodate the required inflow and outflow).	≈ Overflow flow path to the north of the pond, via an old water course runs through properties which join both open drains and pipes. ≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.

Whakatiwai			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Wharekawa Marae stream	Low	<p>Existing Assets: 1x culvert</p> <ul style="list-style-type: none"> a. Upper catchment stability control (e.g. planting, stability control, pest control) b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the culvert is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. d. Stream mouth opening e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs 	<p>≈ Stream of significance due to the Wharekawa Marae bordering the stream. However, very little flooding occurs here, just a small amount of farmland surrounding the stream.</p> <p>≈ Floodwaters travel to the south via a meandering channel on coastal side of road. Vegetation spraying and clearing of stream and stream mouth opening is required.</p> <p>≈ Significant urupa from this stream down to Whakatiwai Stream.</p> <p>≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.</p>
Culverts and drains from Kaiaua school and Whakatiwai	Low	<p>Existing Assets: 4x culverts</p> <ul style="list-style-type: none"> a. To ensure performance under flood conditions, structural integrity and stability of these culverts and drains including ensuring the culvert is not undermined with erosion around the structure, blockages are removed to ensure culverts perform as designed, drains are sprayed and cleaned regularly and investigate the shortening of culverts into the sea to increase discharge volumes b. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs (e.g blockages by shellfish in culvert, such as installing grates or one way valves, reduce culvert length on beachside of road to allow discharge across the tidal sequence, investigate increase in drainage capacity). 	<p>≈ All culverts are blocked from shells, gravel and sand and only allowing a very small percentage of water from the drains to discharge in the ocean.</p> <p>≈ Investigate the shortening of the culvert pipes into the sea which will increase water discharge volumes.</p> <p>≈ The Community Panel would like clarification around the council's current maintenance guidelines for these streams and drains.</p>

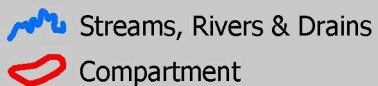
River Management Work Programme

Whakatiwai			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Moemoepo stream (1283 East Coast Road)	Medium	Existing Assets: 1x Culvert	≈ Assets are a combination of both private landowner responsibility and council responsibility.
		Council to communicate and provide technical advice to landowner. Landowners responsibility to maintain and manage works on any privately owned assets on their property due to the stream only running through their property.	≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work. Council to provide technical advice to landowner and landowner responsibility to complete works as they would only benefit from the works on their property.
		a. Upper catchment stability control (e.g. planting, stability control, pest control) - to communicate with the landowner	≈ Stream spraying and dredging is required on both sides of the road as the vegetation is overgrown and stream is not visible. Stream mouth opening is required. Culvert may also need clearing. This combination results in the properties and the road beginning to flood and it can take up to 2 weeks to drain. This occurs on the roadside of 1277 East Coast Road as there is an old water channel through this property.
		b. River management work - removal of blockages, maintaining channel capacity , ensuring stability of channel (erosion control as required) - to communicate to landowner	≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.
		c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the culvert is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed.	
		d. Stream mouth opening	
		e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs	



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Wharekawa Coast 2120 – River Management Work Programme Streams

Compartment: Three

0 100 200 300 400 m

Scale at A4
 = 1:9,000

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 File:
 REQ187879_Wharekawa



Wharekawa			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Puwhenua stream	Low	<p>Existing Assets: 1x bridge along EAST COAST ROAD</p> <ul style="list-style-type: none"> a. Upper catchment stability control (e.g planting, stability control, pest control) b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream including the following: <ul style="list-style-type: none"> i. Ensuring the bridge is not undermined with erosion around the structure. ii. Blockages are removed to ensure bridge performs as designed. d. Stream mouth opening e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs. 	<p>≈ This stream floods approximately 3x a year as nearby land is very low due to the quarry. The floodwaters pond and results in the road becoming flooded. Floodwater don't impact traffic and will usually drain over a 24hr period.</p> <p>≈ The farmland on the coastal side of the road is all located in the stream's floodplain.</p> <p>≈ Culvert clearing and general stream management like vegetation spraying and clearing is required.</p> <p>≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.</p>
Waimoho Stream	Low	<p>Existing Assets: 2x culvert along East Coast Road</p> <p>Council to communicate and provide technical advice to landowner. Landowners responsibility to maintain and manage works on any privately owned assets on their property due to the stream only running through their property.</p> <ul style="list-style-type: none"> a. Upper catchment stability control (e.g. planting, stability control, pest control) - to communicate to landowner b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) - to communicate to landowner c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the culverts are managed and blockages are removed to ensure it performs as designed. d. Stream mouth opening e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs 	<p>≈ Assets are a combination of both private landowner responsibility and council responsibility.</p> <p>≈ This is the rohe boundary between Ngāti Pāoa and Ngāti Whanaunga.</p> <p>≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work as this stream drains their property. Council to provide technical advice to landowner and landowner responsibility to complete works as they would only benefit from the works on their property.</p> <p>≈ Two very large, blocked culverts underneath East Coast Road and the stream mouth is blocked. Because of this the road floods to the south and the paddocks to the north (not as bad as road).</p> <p>≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.</p>

River Management Work Programme

Wharekawa			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Farm drain (1363 East Coast Road)	Low	Existing Assets: 1x Culvert	≈ Assets are a combination of both private landowner responsibility and council responsibility.
		Council to communicate and provide technical advice to landowner. Landowner's responsibility to maintain and manage works on any privately owned assets on their property due to the stream only running through their property.	≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work as this stream drains their property. Council to provide technical advice to landowner and landowner responsibility to complete works as they would only benefit from the works on their property.
		a. Upper catchment stability control (e.g. planting, stability control, pest control) - to communicate to landowner	≈ This drain is also a farm drain so it smells.
		b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) - to communicate to landowner	
		c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the culverts are managed and are the correct size and blockages are removed to ensure it performs as designed.	
		d. Stream mouth opening	
		e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs	

River Management Work Programme

Wharekawa			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Te Umukauri Stream (0 East Coast Road and rear of 54 Rata Road)	Low	Existing Assets: 1x Culverts and 2x private dams	≈ Assets are a combination of both private landowner responsibility and council responsibility.
		<p>Council to communicate and provide technical advice to landowner. Landowners responsibility to maintain and manage works and any privately owned assets on their property due to the stream only running through their property.</p> <ul style="list-style-type: none"> a. Upper catchment stability control (e.g. planting, stability control, pest control) - to communicate to land owner b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) - to communicate to landowner c. To ensure performance under flood conditions, structural integrity and stability of the dams that discharge into this stream. Ensuring the dams are not undermined with erosion around structure and is managed and blockages are removed to ensure it performs as designed. d. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the culvert is not undermined with erosion around structure, and is the correct size and blockages are removed to ensure it performs as designed. e. Stream mouth opening f. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs. 	<p>≈ Two private dams on private property require technical advice from council to ensure the performance and integrity of these dams under flood conditions to reduce the risk of dam failure.</p> <p>≈ Historical sand dune used to be along the beachfront and provide protection from coastal inundation events. However, a resident 20+ years ago removed this sand dune to sell properties and now this area is constantly flooded.</p> <p>≈ What are the Councils current maintenance guidelines?</p>

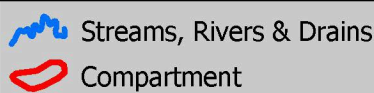
River Management Work Programme

Wharekawa			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Okarea Drain	Low	Existing Assets: 1x Culvert	≈ Ensure access to the boat ramp north of the stream.
South of Caravan park & Boat ramp		<p>Council to communicate and provide technical advice to landowner. Landowners responsibility to maintain and manage works on privately owned assets on their property due to the stream only running through their property.</p> <ul style="list-style-type: none"> a. Upper catchment stability control (e.g. planting, stability control, pest control) - to communicate to landowner b. Drain management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) - to communicate to landowner. c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the culvert is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. d. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs 	<p>≈ Assets are a combination of both private landowner responsibility and council responsibility.</p> <p>≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work. Council to provide technical advice to landowner and landowner responsibility to complete works as they would only benefit from the works on their property.</p>



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Wharekawa Coast 2120 – River Management Work Programme Streams Compartment: Four



Scale at A4
 = 1:15,000

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 Version: 1
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 File:
 REQ187879_Wharekawa



Waharau			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Waharau stream and tributaries	High	Existing Asset: 1x bridge along ECR	≈ Erosion of the left bend upstream of the bridge now has rock armouring. Further erosion above the rock armouring is occurring and may collapse during the next big event. This has altered the energy flow in the stream and is causing further erosion on the right abutment of the bridge. Repairs occurred following 2017 event.
		a. Upper catchment stability control (e.g. planting, stability control, pest control)	
		b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control)	≈ NZTA indicates repairs and further investigation is required to the right abutment. Water can still get behind the poles installed in the abutment and erosion can already be seen risking the collapse of the bridge during a high flow event.
		c. To ensure performance under flood conditions, structural integrity and stability of the asset (Waharau Bridge) on this stream . Ensuring the bridge is not undermined with erosion around structure and blockages are removed to ensure it performs as designed.	≈ Waharau stream mouth is always moving and therefore mouth gets blocked with settlement (manually opened once a year by Hauraki District Council), or when there is a big event the water flows it out itself.
		d. Stream mouth opening prior to a big event	≈ This stream has ecological significance.
		e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets (bridge) to improve performance and reduce maintenance costs	≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream. ≈ This stream requires gravel maintenance and bridge adjustment maintenance.
Waihihi stream and tributaries	Medium	Existing Assets: 1x bridge along East Coast Road	≈ The natural meander of the stream is slowly migrating the stream to the south away from the bridge (6m) therefore, erosion control is required. Rock armouring is required to ensure the stream flows towards the bridge. Erosion of the left hand bank upstream of bridge will escalate in the next big flood event.
		a. Upper catchment stability control (e.g. planting, stability control, pest control)	
		b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel via rock armouring (erosion control)	≈
		c. To ensure performance under flood conditions, structural integrity and stability assessment of the asset (Waihihi Bridge) on this stream to ensure the bridge is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed.	≈ The stream mouth is partially closed and used as a swimming hole for locals in summer. However, during winter it becomes blocked up and may begin to flood nearby houses. This also creates water quality issues, and it smells for nearby residents. Stream mouth requires opening prior to a big event (open to the south and place sediment on the south side of the stream mouth to ensure blockage doesn't reoccur).
		d. Stream mouth opening required prior to a big event	

River Management Work Programme

Waharau			
Stream/ watercourse	Priority	River Management Work Programme	Comments
		e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs (e.g bridge out of alignment with the stream and erosion issue reported by NZTA).	≈ ≈ The beachfront is an area of cultural significance as this beach was the landing location of the local tribes arriving in the Waikato. ≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.
Waiwhenua stream	Medium	Existing Assets: 1x bridge along East Coast Road a. Upper catchment stability control (e.g. planting, stability control, pest control) b. River management work - removal of blockages, maintaining channel capacity , ensuring stability of channel (erosion control as required) c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the bridge is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. d. Stream mouth opening e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs	≈ Ensure access to the boat ramp south of the stream. ≈ Private resident rock armoured the stream just upstream of the mouth about 15 years ago, as a result, the stream has got wider as deeper and coastal processes continually block the stream mouth. ≈ Blockage of the stream mouth occurs quickly due to coastal processes. Stream mouth requires opening prior to a big event (open to the south and place sediment on the south side of the stream mouth to ensure blockage doesn't reoccur). ≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.
Waihopuhopu stream	Medium	Existing Assets: 1x bridge along East Coast Road a. Upper catchment stability control (e.g. planting, stability control, pest control) b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the bridge is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed. d. Stream mouth opening required prior to a big event	≈ Hauraki District Council own the two parallel properties downstream of bridge (council reserve). ≈ Stream mouth requires opening prior to a big event (open to the south and place sediment on the south side of the stream mouth to ensure blockage doesn't occur again). ≈ The Community Panel would like clarification around the council's current maintenance guidelines for this stream.

River Management Work Programme

Waharau			
Stream/ watercourse	Priority	River Management Work Programme	Comments
		e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs.	
Paparari stream	Low	<p>Existing Assets: 1x culvert under East Coast Road, 2x private dams</p> <p>Council to communicate and provide technical advice to landowner. Landowners responsibility to maintain and manage works on any privately owned assets on their property due to the stream only running through their property.</p> <p>a. Upper catchment stability control (e.g. planting, stability control, pest control)</p> <p>b. River management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required).</p> <p>c. To ensure performance under flood conditions, structural integrity and stability of the asset on this stream. Ensuring the culvert is not undermined with erosion around structure, and blockages are removed to ensure it performs as designed.</p> <p>d. Stream mouth opening</p> <p>e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs.</p>	<p>≈ Assets are a combination of both private landowner responsibility and council responsibility.</p> <p>≈ Upstream of the culvert, there is only one landowner who would receive benefit from this work as this stream drains from 2 private dams. Council to provide technical advice to landowner and landowner responsibility to complete works as they would only benefit from the works on their property.</p> <p>≈ The Paparari stream does not have a large catchment and drains two dams on a private property.</p> <p>≈ The Paparahi stream has been dry (ephemeral) for at least the last 2 years since development of the dams. The stream only flows during large rainfall events.</p>

River Management Work Programme

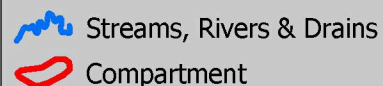
Waharau			
Stream/ watercourse	Priority	River Management Work Programme	Comments
Auwharewhare stream and unnamed tributary	Low	Existing Assets: 1x culvert underneath East Coast Road.	≈ This stream is of cultural and historical significance that will need to be considered and local iwi will need to be consulted when any works are planned and/or undertaken (Historical Kauri Mill location, urupa for Spanish Flu victims)
		<ul style="list-style-type: none"> a. Upper catchment stability control b. Stream management work - removal of blockages, maintaining channel capacity, ensuring stability of channel (erosion control as required) c. To ensure performance under flood conditions, structural integrity and stability of the assets on this stream. Ensuring the culvert is not undermined with erosion around structure, and the culvert is managed, and blockages are removed to ensure it perform as designed. d. Culvert and discharge location opening is required ensure continual clearance e. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs 	≈ No real concern around opening on the beachfront as this gets blown out during a big event but clearance may be required prior to big events to ensure no water backs up.
Murphys Culvert	Low	Existing Assets: 3 x Culverts	≈ Coastal inundation pushes the rocks up and makes a mound on the coastal side, and the road is higher than properties – therefore properties are located in a bowl and susceptible to flooding.
		<ul style="list-style-type: none"> a. To ensure asset performance under flood conditions an assessment of suitable culvert size is required. b. Management of blockages to ensure they are removed, and culverts perform as designed. c. Discharge outlets clear d. Improvement plan - investigation of issues and upgrade requirements of the existing systems and assets to improve performance and reduce maintenance costs – e.g investigate size of culverts, pathways of culverts 	≈ Murphy's Culvert splits into 3 drains and culverts, (one under the road, one to south and to north and then under road) currently only 1 is open and working. Ensure accompanying culverts are appropriate for the amount of water discharge and working with the flow of water not against.



Acknowledgements and Disclaimers

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Wharekawa Coast 2120 – River Managment Work Programme Streams

Compartment: Five

0 200 400 600 m

Scale at A4
= 1:15,000

Created by: HCE
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Long list of Options – Coastal Hazards

We worked with the Council team to come up with a ‘sky’s the limit’ list of potential options for addressing Coastal Hazard risk. The following is a glossary of the options we identified, and how we have defined them, are:

1. **Status quo** – Maintaining current coastal management approaches but introducing nothing new.
2. **Planting** – Planting of beach crest/gravel ridge areas to improve retention of material, reduce erosion and limit wave overtopping.
3. **Renourishment** – A form of soft engineering involving placing additional sediment on a beach or in the nearshore to form a wider and higher beach and ridge system providing storm protection for coastal structures and a buffer to offset erosion losses, limiting wave and surge overtopping, and enhancing the beach for recreation. The sediment is usually sources from coastal plains or sand bank or channel dredgings.
4. **Beach Scraping** – A form of soft engineering involving scraping a thin layer of sediments from one part of the beach and taking it to another part some distance away to maximise beach crest width and standard of protection.
5. **Beach push-ups** – A form of soft engineering which involves redistributing sediments from the lower part of the beach to the upper part of the beach and usually a short-term solution following erosion events.
6. **Enhance shingle crest** – Adding sediment (sand or gravel) to increase the height of the dune or beach ridge to reduce overtopping and inundation risk.
7. **Install/enhance inundation protection** – Increase existing / install new stop banks to provide greater protection from storm surge inundation including through raising of roads to provide protection to landward properties such as farmland or buildings.
8. **Inundation accommodation** – Improve resilience of current & future properties including through requiring minimum floor levels for new structures, raising of existing buildings and associated infrastructure (such as septic tanks, water pumps, drainage/stormwater networks) and/or roads to protect them from storm surge events.
9. **Vertical permeable sill** – A structure within the gravel beach that dissipates wave energy, reducing erosion losses through backwash and longshore drift and promotes the retention of gravel behind the structure.
10. **Groynes and nourishment** – Groynes are structures located perpendicular to the beach which limit the movement of gravels and sand along the coast through longshore drift, thereby reducing localised losses to erosion and providing a wider beach on which wave energy is dissipated by breaking and before reaching and eroding the dune or beach ridge. The updrift side of groynes is normally filled with

sediment sand / gravel at the time of construction and topped up with sediment from time to time to offset erosion.

11. **Breakwater** (Shore parallel, offshore breakwater (crest above MHWS)) – Structures break waves and dissipate wave energy before it reaches the shore and promote the build-up of sediment in the lee of the structure and capture longshore drift.
12. **Offshore Reef** (Shore parallel offshore reef (crest below MHWS)) – A subtidal structure that acts in the same manner as a breakwater to dissipate wave energy before it reaches the shore and promotes the build-up of sediment and capturing longshore drift.
13. **Sea Wall/Revetment** – A form of hard engineering comprising a sloping rock revetment, rock filled gabion baskets or geotextile sediment-filled bags providing protection from erosion and wave overtopping when tall enough. Can be built as a backstop structure where it is buried with sand or gravel in front to provide a beach and more natural setting and less reflective structure, but the wall forms the last line of defence.
14. **Retreat the Line** – Primary defence line retreated inland providing a high standard of inundation protection to properties behind the new defence. (Situation unchanged for those in front).
15. **Planned Resettlement** - A consultative and planned approach by Councils and the Community to enable the movement of people and/or communities, as a last resort, when alternatives for managing coastal hazard risks are no longer viable. It will give members of the community access to options and the ability to make an informed decision about relocating to safer ground. It will also enable the enhancement of previously occupied areas to a more natural state.
16. **Planned Relocation** - Relates to movement of specified public assets only, such as roads and reserves.
17. **Floodgates** – Adjustable gates and valves used to control water flow by restricting/preventing sea water going up freshwater streams but allow drainage from the land.
18. **Wave energy farms** – Offshore wave power farms to generate wave power electricity.
19. **Network of drains, pumps, water detention ponds/areas** – Introduction of a drainage network designed to manage water to prevent flooding and erosion.
20. **Drainage System Maintenance** – Drainage system condition assessment, followed by redesign, rebuilding existing structures and adding additional structures as required to ensure efficient and effective drainage operations. Following the system condition assessment, the regular maintenance of the drainage system by keeping ditch, pipework, culvert and other drainage structures, clean of debris and sediment (that may enter the system from the land or sea) and ready to carry the next flow of water efficiently.
21. **Productive Land Adaptation** – Productive land adaptation acknowledges that moving productive land is not a viable response to coastal hazards, but that adaptation of this land, to other uses may be viable to explore.

Short-listed Options by Compartment – Coastal Hazards

Short listed options were assessed for each coastal compartment, the first two technical criteria were assessed by technical experts, while the third criterion was assessed by the Community Panel.

Coastal Compartment 1a: Pūkorokoro/Miranda

Success Criteria

1. Be applicable to this compartment.
2. Be technically possible and proven.
3. Enable community goals to be achieved.

Options Long List	Criteria Assessment			Commentary
	1	2	3	
1. Status quo (maintaining only, doing nothing new)	✗	✗	✗	Status quo is not an option for this compartment as the community have already identified that the Risk Threshold has already been reached for a moderate coastal inundation event.
2. Planting	✗	✗	✗	In the south the beach ridge is very shelly, and planting is not going to do much to hold beach ridge in place nor collect windblown material and build up the ridge Planting not seen as a primary pathway – more to beautify (native plants) but when its plants vs a shelly ridge the beauty is in the eye of the beholder.
3. Renourishment	✓	✓	✓	A direct method of improving sediment (sand/gravel/shell) stores in the beach system to combat erosion and increase ridge height to combat inundation Note: It's important to return all sediment from drain clearance to the system and to the downdrift side of the drain as a complimentary approach to increase resilience. *Assumption that there is no impact to birds or bird habitat from this option
4. Beach Scraping	✓	✓	✓	Primary benefit erosion response. A very temporary and local measure – will need to be repeated. A limitation is the small volume of coarse gravel/shell in the mid-upper beach to push up to build up the ridge. A limited management practice applicable in areas where the beach ridge is low or washed out.
5. Enhance shingle crest	✓	✓	✓	Primary benefit inundation not erosion A direct method of increasing ridge height to combat inundation and reducing erosion due to wave runup and overtopping Important to source sediment from outside the system. *Assumption that there is no impact to birds or bird habitat from this option
6. Install/enhance inundation protection	✓	✓	✓	Assets are farmland, several houses/buildings, and the sea bird centre Farmland will get inundation protection if East Coast Road (which acts as a dyke or stop bank) needs to be raised in places and floodgates are installed. *Assumption that there is no impact to birds or bird habitat from this option

Short-listed Options by Compartment – Coastal Hazards

7. Inundation accommodation	✓	✓	✓	Sections of the road may need to be raised in places to allow essential services access during flooding events (a survey of road elevation would be required to determine where it needs to be raised).
8. Vertical permeable sill	✗	✓	✗	Technically possible but this approach considered old school and not best practice (looks ugly)
9. Groynes and nourishment	✓	✓	✓	Primary benefit erosion response (doesn't benefit inundation) Groynes do work on this coast with southerly directed longshore drift (e.g. groynes just north of Rays Rest) but benefit very limited/local Important to combine groynes and nourishment (backfill with sediment) particularly at time of construction.
10. Breakwater	✗	✗	✗	Primary benefit erosion response (doesn't benefit inundation) Not sure they are appropriate here where the intertidal is so vast and muddy. Important to combine breakwaters with nourishment. However, nourishment will require large volumes of sediment, a lot of machinery movement and really change the look of the coast at a Ramsar site
11. Offshore Reef	✗	✗	✗	Primary benefit erosion response (doesn't benefit inundation) I do not consider the water is deep enough offshore for a subtidal structure
12. Sea Wall/Rock revetment	✗	✓	✓	A very long and substantial structure would be required in this location.
13. Retreat the Line	✗	✗	✗	Probably only good for a decade or two, farmland is very low lying, so after that SLR will allow sea to flood inland. Raising East Coast Road may hold the line for some time.
14. Planned Resettlement/ Planned Relocation	✓	✓	✓	Assets are farmland and some buildings, the Pūkorokoro/Miranda Shorebird Centre and the road. The building could be retreated.
15. Floodgates	✓	✓	✓	Primary benefit inundation response (doesn't benefit erosion)
16. Wave energy farms	✗	✗	✗	Too little wave energy to make farms economic
17. Network of drains, pumps, water detention ponds/areas	✗	✗	✗	Won't stop erosion Low ground levels in the area means flooded area potentially vast Inundation volume so large it will likely overwhelm the network Looks complicated technically and expensive

Short-listed Options by Compartment – Coastal Hazards

Coastal Compartment 2a: Kaiaua

Success Criteria

1. Be applicable to this compartment.
2. Be technically possible and proven.
3. Enable community goals to be achieved.

Options Long List	Criteria Assessment			Commentary
	1	2	3	
1. Status quo (maintaining only, doing nothing new)	x	x	x	Status quo is not an option for this compartment as the community have already identified that the Risk Threshold has already been reached for a moderate coastal inundation event.
2. Planting	x	x	x	Planting of limited value in these gravelly ridges, won't encourage build-up of shingle by waves and does little to hold it in place in a storm event (and sediment too coarse to be eroded by/blow away in the wind). Not a primary pathway, more of a management practice that will assist.
3. Renourishment	✓	✓	✓	Renourishing the beach and ridge a good option providing suitable sediment can be sourced from outside the system (e.g., adjacent farmland or perhaps dredgings from the Hauarahi Stream and other stream mouths)
4. Beach Scraping	✓	✓	✓	Primary benefit erosion response A very temporary measure – will need to be repeated There is a good supply of the right grain size sediment in the intertidal zone for this purpose
5. Enhance shingle crest	✓	✓	✓	Primary benefit inundation not erosion. Good option here A direct method of increasing ridge height to combat inundation and reducing erosion due to wave runup and overtopping Important to source sediment from outside the system
6. Install/enhance inundation protection	✓	✓	✓	Technically feasible but construction costs will be high and ongoing maintenance will be necessary.
7. Inundation accommodation	✓	✓	✓	Raise buildings and associated infrastructure to accommodate flood levels. Raising the elevation of the cycle trail path could mitigate coastal inundation to some extent.
8. Vertical permeable sill	x	x	x	Technically possible but this approach considered old school and not best practice (looks ugly)
9. Groynes and nourishment	✓	✓	✓	Primary benefit erosion response (doesn't benefit inundation) Nourishment less needed in this compartment than on some other parts of the coast Training works on the stream may prevent stream meander, serve to keep the channel navigable and capture sediment on the updrift side. A currently working option to protect East Coast Road where it is close to the coast just north of the Kaiaua Boat Club - here there is a seawall of concrete pipes – all rather untidy, unsafe, unconsented and in need of maintenance
10. Breakwater	x	x	x	Primary benefit erosion response (doesn't benefit inundation) An offshore breakwater might work to stabilise the coast locally (e.g. just north of the river mouth) but will require large volumes of sediment to backfill the structure and change the look of the coast. Anything major here would starve the coast downdrift (south) of sediment.
11. Offshore Reef	x	x	x	Primary benefit erosion response (doesn't benefit inundation)
12. Sea Wall/Rock revetment	✓	✓	✓	Needed to primarily protect the road in places even if it's a backstop wall (i.e., one with nourishment in front). Existing pipe structure north of the Boat Club is failing and needs redesign/rebuild and possibly extension. Structure south of the river mouth (where there are also groynes) is failing and needs redesign/rebuild and possibly extension.

Short-listed Options by Compartment – Coastal Hazards

13. Retreat the Line	x	x	x	Only reserves on the sea front The Line would be East Coast Road
14. Planned Resettlement/ Planned Relocation	✓	✓	✓	
15. Floodgates	✓	✓	✓	Primary benefit inundation response (doesn't benefit erosion) Unlikely to be a practical solution for managing the Hauarahi Stream.
16. Wave energy farms	x	x	x	Too little wave energy to make farms economic
17. Network of drains, pumps, water detention ponds/areas	x	x	x	Won't stop coastal erosion Flooded area quite large as sea can get in behind the town Inundation volume so large it will likely overwhelm the drainage network Looks complicated technically and expensive
18. Drainage system maintenance	✓	✓	✓	Maintenance of the drainage system by keeping ditch, pipework, culvert and other drainage structures, clean of debris and sediment (that may enter the system from the land or sea) and ready to carry the next flow of water efficiently.
19. Beach push-ups	✓	✓	✓	Primary benefit erosion response. A very temporary measure where suitable grain size sediment exists in the intertidal area – will need to be repeated.

Coastal Compartment 3a: Whakatiwai

Success Criteria

1. Be applicable to this compartment.
2. Be technically possible and proven.
3. Enable community goals to be achieved.

Options Long List	Criteria Assessment			Commentary
	1	2	3	
1. Status quo (maintaining only, doing nothing new)	✓	✓	✓	The community risk threshold has not yet been reached; thus status quo may be appropriate in the short term. Status quo is unlikely to be an option in the medium or long term as the community risk threshold is expected to be reached soon (0-10 years). The threat of inundation erosion and are offset to some degree in the short term at least, by the land being generally relatively higher elevation on the seaward bulge in the coast formed by the stream delta and reasonably close to sources of sediment supply namely the Orere River and also the local Whakatiwai Stream. Key issues, at this time, relate to Ngāti Pāoa land and areas of cultural significance in this compartment
2. Planting	✗	✗	✗	Planting of limited value in these gravelly ridges, won't encourage build-up of shingle by waves and does little to hold it in place in a storm event (and sediment too coarse to be eroded by/blow away in the wind). Gravel ridges tend to roll back with erosion and get built up as gravel gets dropped out of suspension in wave uprush/overtopping events. Not a primary pathway, more of a management practice that will assist. Planting would likely detract from the natural state in this area. Planting may reduce roosting habitat for birds and attracts more predators/hide in vegetation.
3. Renourishment	✓	✓	✓	Renourishing the beach and ridge a good option providing suitable sediment can be sourced. Possible source of nourishment material is the abandoned Whakatiwai River channel. Need to consider any potential effects on the natural fish ponds. Need to ensure appropriate material is used.
4. Beach Scraping	✓	✓	✓	Primary benefit erosion response A very temporary measure – will need to be repeated There is a good supply of the right grain size sediment in the intertidal for this purpose. Urupa located in the beach where caravans are. As an option, this would need to ensure cultural considerations are undertaken and supported by Māori.
5. Enhance shingle crest	✓	✓	✓	Primary benefit inundation of erosion. Good option here A direct method of increasing ridge height to combat inundation and reducing erosion due to wave runup and overtopping Important to source sediment from outside the system. Whakatiwai Pt is culturally sensitive.
6. Install/enhance inundation protection	✓	✓	✓	Technically feasible but construction costs will be high and ongoing maintenance will be necessary. Whakatiwai Pt is culturally sensitive, presence of Ngāti Pāoa land/urupa would require this option to be carefully considered.
7. Inundation accommodation	✓	✓	✓	Raise buildings and associated infrastructure to accommodate flood levels
8. Vertical permeable sill	✗	✗	✗	Technically possible but this approach considered old school and not best practice (looks ugly).
9. Groynes and nourishment	✓	✓	✓	Primary benefit erosion response (doesn't benefit inundation). Nourishment less needed than on some other parts of the coast Training works on the stream may prevent stream meander in the future – management intervention. Urupa areas are unsuitable for this option.

Short-listed Options by Compartment – Coastal Hazards

10. Breakwater	x	x	x	<p>Primary benefit erosion response (doesn't benefit inundation)</p> <p>Might work here however, nourishment will require large volumes of sediment, a lot of machinery movement and change the look of the coast. Anything major here would starve the coast downdrift (south) of sediment.</p> <p>Unacceptable from a natural character and cultural effects perspective.</p>
11. Offshore Reef	x	x	x	<p>Primary benefit erosion response (doesn't benefit inundation)</p>
12. Sea Wall/Rock revetment	✓	✓	✓	<p>Primary benefit erosion response - existing rock revetment alongside road in the south of the compartment will need at least maintenance if not shoring up and lengthening in the future, The groynes in front which are trapping sediment also need regular maintenance.</p> <p>Would only make sense where there is active erosion happening. A very long and substantial structure would be required in this location.</p> <p>Existing seawall is not a long-term solution.</p>
13. Retreat the Line	x	x	x	<p>The land is low lying though is in some areas higher than others and there are homes exposed to inundation in a large event</p> <p>In the south the Line would be the road.</p> <p>Whole of community solution desired. People understand about the flood risk and adapt accordingly.</p>
14. Planned Resettlement/ Planned Relocation	✓	✓	✓	<p>Will require more detailed surveys to consider this as an option for assets in the whole compartment which are low lying.</p> <p>50-60 years, this likely to be the only option.</p>
15. Floodgates	✓	✓	✓	<p>Primary benefit inundation response (doesn't benefit erosion)</p> <p>Important because of the Whakatiwai Stream and some smaller streams in the south that will allow the land to be flooded.</p> <p>One existing flood gate and 4 drain pipes which need to have valves to prevent ingress of the sea.</p>
16. Wave energy farms	x	x	x	<p>Too little wave energy to make farms economic</p>
17. Network of drains, pumps, water detention ponds/areas	x	x	x	<p>Won't stop erosion</p> <p>Higher ground in the area means flooded area small</p> <p>Inundation volume so large it will likely overwhelm the network</p> <p>Looks complicated technically and expensive</p> <p>Seawater travels up the pipe and there needs to be a single direction valve to prevent seawater travelling up it.</p>
18. Drainage system maintenance	✓	✓	✓	<p>Maintenance of the drainage system by keeping ditch, pipework, culvert and other drainage structures, clean of debris and sediment (that may enter the system from the land or sea) and ready to carry the next flow of water efficiently.</p>

Coastal Compartment 4a: Wharekawa

Success Criteria

1. Be applicable to this compartment.
2. Be technically possible and proven.
3. Enable community goals to be achieved.

Options Long List	Criteria Assessment			Commentary
	1	2	3	
1. Status quo (maintaining only, doing nothing new)	✓	✓	✓	The community risk threshold has not yet been reached; thus status quo may be appropriate for at least the short and medium term. No community risk threshold is expected to be reached as a result of the moderate event scenario, and the threshold for the major event scenario is not expected to be reached until the long term (50-70 years). The threat of inundation erosion and are offset to some degree in the short term at least, by the land being generally relatively higher elevation and reasonably close to sources of sediment supply from the Orere River. Land generally higher elevation here. Beach here being close to source of sediment supply (i.e., gravel/coarse sand) from the Orere River
2. Planting	✗	✗	✓	Planting of limited value in these gravelly ridges, won't encourage build-up of shingle by waves and does little to hold it in place in a storm event (and sediment too coarse to be eroded by/blow away in the wind). Gravel ridges tend to roll back with erosion and get built up in wave uprush/overtopping events.
3. Renourishment	✓	✓	✓	Renourishing the beach and ridge a good option providing suitable sediment can be sourced.
4. Beach Scraping	✓	✓	✓	Primary benefit erosion response A very temporary measure – will need to be repeated Only a limited back beach of coarse gravel/cobble sediment to push up to build up the ridge – renourishment better option.
5. Enhance shingle crest	✓	✓	✓	Primary benefit countering inundation not erosion. Good option here A direct method of increasing ridge height to combat inundation and reducing erosion due to wave runup and overtopping Important to source sediment from outside the system.
6. Install/enhance inundation protection	✓	✓	✓	Raise the road where needed rather than retreat the road but the road in this compartment is already quite elevated.
7. Inundation accommodation	✓	✓	✓	Raise buildings and associated infrastructure to accommodate flood levels (there are 9 main buildings, 2 exposed in major events (but maybe not flooded above floor level). Sections of the road may need to be raised in places to allow essential services access during flooding events (a survey of road elevation would be required to determine where it needs to be raised).
8. Vertical permeable sill	✗	✗	✗	Technically possible but this approach considered old school and not best practice (looks ugly)
9. Groynes and nourishment	✓	✓	✓	Primary benefit erosion response (doesn't benefit inundation) Groynes do work on this coast with southerly directed longshore drift but benefit very limited/local. Maybe useful to rock wall along side of road Important to combine groynes and nourishment (backfill with sediment)
10. Breakwater	✓	✗	✗	Primary benefit erosion response (doesn't benefit inundation) Offshore breakwater might work here however, backfilling the structure at time of construction will require large volumes of sediment, a lot of machinery movement and change the look of the coast. Anything major here would starve the coast downdrift (south) of sediment

Short-listed Options by Compartment – Coastal Hazards

11. Offshore Reef	x	x	x	Primary benefit erosion response (doesn't benefit inundation) I don't think the water is deep enough offshore for a subtidal structure.
12. Sea Wall/Rock revetment	x	✓	✓	An option where the road is close to the shore Primary benefit erosion response (doesn't benefit inundation) as sea can flood either side of the structure.
13. Retreat the Line	x	x	x	Flooded area is relatively small so doesn't make sense
14. Planned Resettlement/ Planned Relocation	✓	✓	✓	There are a couple of houses and Kaiaua Seaside Lodge Maybe an option particularly if rest of community ends up retreating.
15. Floodgates	✓	✓	✓	Install flood gates on streams and re-engineer floodgate design/operation as necessary to accommodate any change in drainage levels (because there comes a point in time when as sea level rises relative to the level of the flooded water over farmland that gravity drainage is seriously impaired).
16. Wave energy farms	x	x	x	Too little wave energy to make farms economic
17. Network of drains, pumps, water detention ponds/areas	x	x	x	Won't stop erosion Inundation volume so large it will likely overwhelm the network Higher ground in the area means flooded area small Looks complicated technically and expensive

Coastal Compartment 5a: Waharau

Success Criteria

1. Be applicable to this compartment.
2. Be technically possible and proven.
3. Enable community goals to be achieved.

Options Long List	Criteria Assessment			Commentary
	1	2	3	
1. Status quo (maintaining only, doing nothing new)	✓	✓	✓	The community risk threshold has not yet been reached; thus status quo may be appropriate in the short to medium term. Status quo is unlikely to be an option in the long term as the community risk threshold is expected to be reached in the short to medium term (10-30 years). The threat of inundation erosion and are offset to some degree in the short term at least, by the land being generally relatively higher elevation and reasonably close to sources of sediment supply from the Orere River.
2. Planting	✗	✗	✗	Planting of limited value in these gravelly ridges, won't encourage build-up of shingle by waves and does little to hold it in place in a storm event (and sediment too coarse to be eroded by/blow away in the wind). Gravel ridges tend to roll back with erosion and get built up in overtopping events.
3. Renourishment	✓	✓	✓	Renourishing the beach and ridge a good option providing suitable sediment can be sourced
4. Beach Scraping	✓	✓	✓	Primary benefit erosion response A very temporary measure – will need to be repeated Only a limited back beach of coarse gravel/cobble sediment to push up to build up the ridge – renourishment better option.
5. Enhance shingle crest	✓	✓	✓	Primary benefit inundation not erosion. Good option here A direct method of increasing ridge height to combat inundation and reducing erosion due to wave runup and overtopping Important to source sediment from outside the system.
6. Install/enhance inundation protection	✓	✓	✓	Low lying land susceptible to inundation. Raise the road where needed rather than retreat the road but the road in this compartment is already quite elevated.
7. Inundation accommodation	✓	✓	✓	Raise buildings and associated infrastructure to accommodate flood levels.
8. Vertical permeable sill	✗	✗	✗	Technically possible but this approach considered old school and not best practice (looks ugly).
9. Groynes and nourishment	✓	✓	✓	Primary benefit erosion response (doesn't benefit inundation) Groynes do work on this coast with southerly directed longshore drift (e.g. groynes just north of Rays Rest) but benefit very limited/local Important to combine groynes and nourishment (backfill with sediment).
10. Breakwater	✓	✗	✗	Primary benefit erosion response (doesn't benefit inundation) Offshore breakwater might work here, however, backfilling the structure at time of construction will require large volumes of sediment, a lot of machinery movement and change the look of the coast. Anything major here would starve the coast downdrift (south) of sediment.
11. Offshore Reef	✗	✗	✗	Primary benefit erosion response (doesn't benefit inundation) Unlikely that the water is deep enough offshore for a subtidal structure to be beneficial.
12. Sea Wall/Gabion Baskets	✓	✓	✓	There is a good supply of sediment coming from the north and the Orere River via wave driven longshore transport which will offset erosion to some extent. Gabion baskets filled with beach rocks are already used and more could be placed in erosion 'hotspots' in future.
13. Retreat the Line	✗	✗	✗	Land is higher than in the south, but still fairly low in places and homes will be exposed in a large event.

Short-listed Options by Compartment – Coastal Hazards

14. Planned Resettlement/ Planned Relocation	✓	✓	✓	Applicable only to those assets that are near the sea on low ground.
15. Floodgates	✓	✓	✓	Primary benefit inundation response (doesn't benefit erosion). There is very little low-lying land, landward of the road therefore limited benefit in installing floodgates.
16. Wave energy farms	✗	✗	✗	Too little wave energy to make farms economic.
17. Network of drains, pumps, water detention ponds/areas	✗	✗	✗	Won't stop erosion. Higher ground in the area means flooded area small. Inundation volume so large it will likely overwhelm the network. Looks complicated technically and expensive.

Coastal Hazards

Assessment Criteria

weighting by

Compartment

We worked with the Council team to determine the relative importance of each criterion and decided that the criteria weightings needed to be on a 'by compartment' basis due to the differing challenges to coastal hazards along the coastline.

Criteria	Performance of the option in reducing risk			Effect of implementing the option		
	1. Manages the risks of natural hazard(s)	2. Ability to adapt to changing risks	3. Potential for risk transfer	4. Impact on humans (social / cultural)	5. Impact on the natural environment	6. Impact on the economy
Criteria Description	<ul style="list-style-type: none"> Reduced exposure to natural hazard(s) Meets objectives over long timeframes Responds proportionately to the scale and nature of the hazard risk 	<ul style="list-style-type: none"> Readily responds to uncertain climate outcomes Includes measure to enable and support future adjustments 	<ul style="list-style-type: none"> Exacerbation of natural hazard risk within or between areas Transfer of risk to others, including future generations 	Effects on humans caused by implementation of an option such as: <ul style="list-style-type: none"> Effects on community safety, loss of amenity value, decline in recreation values or loss of community facilities Effects on health, education, sports/recreation Effects on cultural sites of significance Effect on heritage sites / values Restrictions on access to and the carrying out of customary activities 	Environmental effects caused by implementation of an option such as: <ul style="list-style-type: none"> Effects on natural coastal ecosystems Effects on shorebirds and RAMSAR site Effects on the natural character of the coastal environment. 	Economic effects caused by implementation of an option such as: <ul style="list-style-type: none"> Effects on primary industries farming / fishing/ agriculture Effects on tourism Impacts on property values.

Criteria Weighting: 1=Important, 2=Very Important, 3=Critical

Compartment 1A Pūkoro/Miranda	2	3	3	3	3	2
Compartment 2A Kaiaua	2/3	3	3	3	3	2
Compartment 3A Whakatiwai	2	3	3	3	3	1
Compartment 4A Wharekawa	1	3	3	3	3	2
Compartment 5A Waharau	1	3	3	3	3	1

Adaptation

Pathways assessed

for each

Compartment

COMPARTMENT 1A: PŪKOROKORO/MIRANDA						
(Special note: Significant cultural values present in this compartment – All options require consultation with Ngāti Pāoa)						
Short term		→	Medium term		→	Long term
Pathway 1	Flood gates + Enhance shingle crest + Productive land adaptation	→	Planned resettlement (Buildings and associated infrastructure) + Productive land adaptation	→	Inundation accommodation (Raising East Coast Road) + Productive land adaptation	
Pathway 2	Flood gates + Productive land adaptation	→	Renourishment + Enhance shingle crest + Groynes + Flood gates (Re-design + build/maintain existing) + Productive land adaptation	→	Planned resettlement + Inundation accommodation (Raising East Coast Road) + Productive land adaptation	
Pathway 3	Flood gates + Enhance shingle crest + Productive land adaptation	→	Inundation protection (Raising East Coast Road) + Flood gates + Planned resettlement (Buildings and associated infrastructure) + Productive land adaptation	→	Inundation accommodation (Raising East Coast Road) + Productive land adaptation	
Pathway 4	Flood gates + Productive land adaptation	→	Planned resettlement (Buildings and associated infrastructure) + Productive land adaptation	→	Planned relocation (East Coast Road) + Productive land adaptation	

Adaptation Pathways considered for each Compartment

COMPARTMENT 2A: KAIAUA				
(Special note: Significant cultural values present in this compartment – All options require consultation with Ngāti Pāoa)				
Short term		→	Medium term	
		→	Long term	
Pathway 1	Inundation accommodation (Buildings and associated infrastructure) + Implement drainage system maintenance	→	Inundation accommodation (Buildings and associated infrastructure) + Planned resettlement	→ Planned resettlement
Pathway 2	Inundation accommodation (Buildings and associated infrastructure) + Seawall/Revetment (Re-design + build/maintain existing) + Renourishment + Implement drainage system maintenance + Beach push-ups	→	Seawall/Revetment (Enhance/maintain existing) + Renourishment + Beach scraping	→ Renourishment in additional areas + Seawall/ Revetment (Enhance/maintain existing) + Beach scraping
Pathway 3	Inundation accommodation (Buildings and associated infrastructure) + Seawall/Revetment (Re-design + build/maintain existing) + Groynes (South of compartment) + Renourishment + Implement drainage system maintenance + Beach push-ups	→	Seawall/Revetment (Enhance/maintain existing) + Groynes (South of compartment) + Beach scraping	→ Planned resettlement

Adaptation Pathways considered for each Compartment

COMPARTMENT 3A: WHAKATIWAI						
(Special note: Significant cultural values present in this compartment – All options require consultation with Ngāti Pāoa)						
Short term		→	Medium term		→	Long term
Pathway 1	Status quo + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest + Groynes	→	Planned resettlement	
Pathway 2	Inundation accommodation (Buildings and associated infrastructure) + Implement drainage system maintenance	→	Flood gates	→	Planned resettlement	
Pathway 3	Inundation accommodation (Buildings and associated infrastructure) + Seawall/Revetment (Re- build + maintain existing) + Groynes + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest	→	Planned resettlement	
Pathway 4	Renourishment + Enhance shingle crest + Groynes + Implement drainage system maintenance	→	Planned resettlement	→	Planned resettlement	

Adaptation Pathways considered for each Compartment

COMPARTMENT 4A: WHAREKAWA				
(Special note: Significant cultural values present in this compartment – All options require consultation with Ngāti Pāoa and Ngāti Whanaunga)				
Short term		→	Medium term	
		→	Long term	
Pathway 1	Inundation accommodation (Raising East Coast Road)	→	Renourishment + Enhance shingle crest + Beach scraping + Productive land adaptation	→ Planned resettlement + Productive land adaptation
Pathway 2	Status quo	→	Flood gates + Inundation accommodation (Raising East Coast Road) + Productive land adaptation	→ Planned resettlement + Productive land adaptation
Pathway 3	Flood gates	→	Flood gates + Inundation accommodation (Raising East Coast Road) + Productive land adaptation	→ Planned resettlement + Productive land adaptation
Pathway 4	Status quo	→	Planned resettlement + Productive land adaptation	→ Planned resettlement + Productive land adaptation

Adaptation Pathways considered for each Compartment

COMPARTMENT 5A: WAHARAU				
(Special note: Significant cultural values present in this compartment – All options require consultation with Ngāti Whanaunga)				
Short term		→	Medium term	
		→	Long term	
Pathway 1	Status quo + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest + Beach scraping	Planned resettlement (Low lying buildings)
Pathway 2	Status quo + Implement drainage system maintenance	→	Inundation accommodation (Buildings and associated infrastructure) + Gabion Baskets	Planned resettlement (Low lying buildings)
Pathway 3	Status quo + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest + Beach scraping + Inundation accommodation (Buildings and associated infrastructure) + Gabion Baskets	Planned resettlement (Low lying buildings)
Pathway 4	Renourishment + Enhance shingle crest + Beach scraping + Inundation accommodation (Buildings and associated infrastructure) + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest + Beach scraping + Inundation accommodation (Buildings and associated infrastructure)	Planned resettlement (Low lying buildings)

Compartment 1A Pūkoro/Miranda

COMPARTMENT 1A: PŪKOROKORO/MIRANDA

PATHWAY 1

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Pāoa)

Short term	→	Medium term	→	Long term
Flood gates + Enhance shingle crest + Productive land adaptation	→	Planned resettlement (Buildings and associated infrastructure) + Productive land adaptation	→	Inundation accommodation (Raising East Coast Road) + Productive land adaptation

Pathway Description

Short term - Accept some shoreline erosion but enhance shingle crest in places and install flood gates to prevent flooding from the sea in small-medium sized events. Initiate planning for options to adapt productive land to future potential uses.

Medium term – Flood gates may continue to provide some benefit. Relocate the Shorebird Centre and other buildings to higher ground in response to threat of coastal flooding. Productive land may need to start to adapt to other uses.

Long term - If sea level rises 1m and storm surge events become more frequent then unless productive land is protected by the road operating as a stopbank, productive land adaptation to other uses will need to continue e.g. Blue Carbon. Sections of the road may need to be raised in places to allow essential services access during flooding events (a survey of road elevation would be required to determine where it needs to be raised).

COMPARTMENT 1A: PŪKOROKORO/MIRANDA

PATHWAY 2

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Pāoa)

Short term	→	Medium term	→	Long term
Flood gates + Productive land adaptation	→	Renourishment + Enhance shingle crest + Groynes + Flood gates (Re-design + build/maintain existing) + Productive land adaptation	→	Planned resettlement + Inundation accommodation (Raising East Coast Road) + Productive land adaptation

Pathway Description

Short term - Accept some shoreline erosion in the short term, install flood gates to prevent flooding from the sea in small-medium sized events. Initiate planning for options to adapt productive land to future potential uses.

Medium term - Renourishment/ Enhance shingle crest/Groynes with nourishment mitigate coastal erosion by building up the beach and gravel ridge through trapping longshore transport (using groynes at erosion hot spots) and by using gravel from external source such as the paddocks (nourishment).

Reengineer floodgate design/operation as necessary to accommodate any change in drainage levels (because there comes a point in time when as sea level rises relative to the level of the flooded water over productive land that gravity drainage is seriously impaired). Productive land may need to start to adapt to other uses.

Long term - Relocate the Shorebird Centre and other buildings to higher ground in response to threat of coastal flooding. It could be that as coastal erosion and more frequent flooding occur that in the south of the compartment choices will need to be made between continuing to farm the land or letting the (RAMSAR) wetlands role back landwards of the road (sections of the road could be realigned or culverted or bridged). Sections of the road may need to be raised in places to allow essential services access during flooding events.

COMPARTMENT 1A: PŪKOROKORO/MIRANDA

PATHWAY 3

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Pāoa)

Short term	→	Medium term	→	Long term
Flood gates + Enhance shingle crest + Productive land adaptation	→	Inundation protection (Raising East Coast Road) + Flood gates + Planned resettlement (Buildings and associated infrastructure) + Productive land adaptation	→	Inundation accommodation (Raising East Coast Road) + Productive land adaptation

Pathway Description

Short term - Accept some shoreline erosion but enhance shingle crest in places and install flood gates to prevent flooding from the sea in small-medium sized events. Initiate planning for options to adapt productive land to future potential uses.

Medium term – Raise the road to protect productive land from flooding. A survey of road elevation would be required to determine where it needs to be raised. Reengineer floodgate design/operation as necessary to accommodate any change in drainage levels (because there comes a point in time when as sea level rises relative to the level of the flooded water over productive land that gravity drainage is seriously impaired). Relocate the Shorebird Centre and other buildings to higher ground in response to threat of coastal flooding. Productive land may need to start to adapt to other uses.

Long term – Road height raised sufficiently in the medium term to provide accommodation (i.e., to allow essential services access during flooding events) in long term. If sea level rises 1m and storm surge events become more frequent then unless productive land is protected by the road operating as a stopbank, then productive land may need to adapt to other uses e.g Blue Carbon.

COMPARTMENT 1A: PŪKOROKORO/MIRANDA

PATHWAY 4

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa)

Short term	→	Medium term	→	Long term
Flood gates + Productive land adaptation	→	Planned resettlement (Buildings and associated infrastructure) + Productive land adaptation	→	Planned relocation (East Coast Road) + Productive land adaptation

Pathway Description

Short term - Accept some shoreline erosion in the short term, install flood gates to prevent flooding from the sea in small-medium sized events. Initiate planning for options to adapt productive land to future potential uses.

Medium term – Relocate the Shorebird Centre and other buildings to higher ground in response to threat of coastal flooding. Productive land may need to start to adapt to other uses.

Long term – Relocate the road to higher ground and continue to raise buildings as required. A road will remain in place to service productive land which will likely need to adapt to changes in land use.

Coastal Compartment 2a: Kaiaua

COMPARTMENT 2A: KAIAUA

PATHWAY 1

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa)

Short term	→	Medium term	→	Long term
Inundation accommodation (Buildings and associated infrastructure) + Implement drainage system maintenance	→	Inundation accommodation (Buildings and associated infrastructure) + Planned resettlement	→	Planned resettlement

Pathway Description

Short term – Raise buildings and associated infrastructure to accommodate flood levels. Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently.

Medium term – Continue to raise buildings as required and relocate some buildings and associated infrastructure to higher ground. Continue drainage system maintenance.

Long term - Relocate additional buildings and associated infrastructure to higher ground.

COMPARTMENT 2A: KAIAUA

PATHWAY 2

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa)

Short term	→	Medium term	→	Long term
Inundation accommodation (Buildings and associated infrastructure) + Seawall/ Revetment (Re-design + build/maintain existing) + Renourishment + Implement drainage system maintenance + Beach push-ups	→	Seawall/Revetment (Enhance/maintain existing) + Renourishment + Beach scraping	→	Renourishment in additional areas + Seawall/Revetment (Enhance/maintain existing) + Beach scraping

Pathway Description

Short term – Raise buildings and associated infrastructure to accommodate predicted flood levels. Re-design and build replacement for existing sea wall (old pipe structure north of Kaiaua boat club) and bury it with sand/gravel to create a backstop structure (Primary objective here is to protect the road and it will also maintain a beach). Nourish coastal erosion hot spots south of the river mouth e.g. along Hauraki Cycle Trail. Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently. Beach push-ups potentially useful immediately after storm event as an erosion response in localised areas.

Medium term – Maintain/enhance existing areas of nourishment and seawall/revetment. Beach scraping potentially useful immediately after storm event as an erosion response in localised areas. Continue drainage system maintenance.

Long term - Maintain/enhance existing areas of nourishment and seawall/revetment. Beach scraping potentially useful immediately after storm event as an erosion response in localised areas. Probably need to nourish additional parts of the shoreline (e.g., south of the river mouth). Continue drainage system maintenance.

COMPARTMENT 2A: KAIAUA PATHWAY 3

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa)

Short term	→	Medium term	→	Long term
Inundation accommodation (Buildings and associated infrastructure) + Seawall/ Revetment (Re-design + build/maintain existing) + Groynes (South of compartment) + Renourishment + Implement drainage system maintenance + Beach push-ups	→	Seawall/ Revetment (Enhance/maintain existing) + Groynes (South of compartment) + Beach scraping	→	Planned resettlement

Pathway Description

Short term – Raise buildings and associated infrastructure to accommodate predicted flood levels. Re-design and build replacement for existing sea wall (old pipe structure north of Kaiaua boat club) (Primary objective here is to protect the road). Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently. Re-design/ rebuild groynes and nourish coastal erosion hot spots south of the river mouth e.g. along Hauraki Cycle Trail. Beach push-ups potentially useful immediately after storm event as an erosion response in localised areas.

Medium term – Maintain/enhance seawall/revetment and groynes. Beach scraping potentially useful immediately after storm event as an erosion response in localised areas. Continue drainage system maintenance.

Long term - Relocate some buildings and associated infrastructure to higher ground.

Coastal Compartment 3a: Whakatiwai

COMPARTMENT 3A: WHAKATIWAI

PATHWAY 1

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa)

Short term	→	Medium term	→	Long term
Status quo + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest + Groynes	→	Planned resettlement

Pathway Description

Short term - The community risk threshold has not yet been reached; but is expected to be reached soon (~0-10 years). But is there a need to maintain existing structures (e.g. the rock revetment protecting the road south of Whakatiwai). Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently.

Medium term - Continue drainage system maintenance. Beach renourishment coupled with raising the shingle crest and groynes at erosion hot spots near buildings or at rock revetment protecting the road. Possible source for nourishment is the bed material of the abandoned Whakatiwai River channel. Note that Urupa are located on much of the beach fronting the village and cultural considerations need to be undertaken and any interventions supported by Ngāti Paoa.

Long term – Relocate buildings and associated infrastructure to higher ground.

COMPARTMENT 3A: WHAKATIWAI

PATHWAY 2

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa)

Short term	→	Medium term	→	Long term
Inundation accommodation (Buildings and associated infrastructure) + Implement drainage system maintenance	→	Flood gates	→	Planned resettlement

Pathway Description

Short term - Raise buildings and associated infrastructure to accommodate flood levels. Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently.

Medium term – Short-term actions continued. Install flood gates on streams and one-way valves (e.g., duck bill) on drains to prohibit entry by the sea. Re-engineer floodgate design/operation as necessary to accommodate any change in drainage levels (because there comes a point in time when as sea level rises relative to the level of the flooded water over productive land that gravity drainage is seriously impaired). Note that Urupa are located on much of the beach fronting the village and cultural considerations need to be undertaken and any interventions supported by Ngāti Paoa.

Long term – Relocate buildings and associated infrastructure to higher ground.

COMPARTMENT 3A: WHAKATIWAI PATHWAY 3

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa)

Short term	→	Medium term	→	Long term
Inundation accommodation (Buildings and associated infrastructure) + Seawall/ Revetment (Re-build/maintain existing) + Groynes + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest	→	Planned resettlement

Pathway Description

Short term – Rebuild/improve/maintain the rock revetment seawall and groyne field protecting the road south of Whakatiwai where erosion is happening (could be a backstop wall i.e. one with nourishment in front). Raise buildings and associated infrastructure to accommodate flood levels. Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently.

Medium term - Continue drainage system maintenance. Maintain the rock revetment seawall and groyne field. Use beach renourishment coupled with raising the shingle crest and with groynes at erosion hot spots near buildings. Possible source for nourishment is the bed material of the abandoned Whakatiwai River channel. Note that Urupa are located on much of the beach fronting the village and cultural considerations need to be undertaken and any interventions supported by Ngāti Paoa. Maintain rock revetment seawall and groynes (with nourishment) which protect the East Coast Road in the south of the compartment.

Long term – Relocate buildings and associated infrastructure to higher ground.

COMPARTMENT 3A: WHAKATIWAI PATHWAY 4

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa)

Short term	→	Medium term	→	Long term
Renourishment + Enhance shingle crest + Groynes + Implement drainage system maintenance	→	Planned resettlement	→	Planned resettlement

Pathway Description

Short term - Use beach renourishment coupled with raising the shingle crest and with groynes at erosion hot spots near buildings. Possible source for nourishment is the bed material of the abandoned Whakatiwai River channel. Note that Urupa are potentially located on much of the beach fronting the village and cultural considerations need to be undertaken and any interventions supported by Ngāti Paoa. Maintain rock revetment seawall and groynes (with nourishment) which protect the East Coast Road in the south of the compartment. Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently.

Medium and Long term – Relocate buildings and associated infrastructure to higher ground.

Coastal Compartment 4a: Wharekawa

COMPARTMENT 4A: WHAREKAWA PATHWAY 1

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa and Ngāti Whanaunga)

Short term	→	Medium term	→	Long term
Inundation accommodation (Raising East Coast Road)	→	Renourishment + Enhance shingle crest + Beach scraping + Productive land adaptation	→	Planned resettlement + Productive land adaptation

Pathway Description

Short term - The community risk threshold has not yet been reached; but is expected to be reached in the long term (~50-70 years). Sections of the road may need to be raised in places to allow essential services access during flooding events (a survey of road elevation would be required to determine where it needs to be raised).

Medium term – Nourish the beach and enhance the shingle crest in selected areas. Beach scraping an immediate post-event erosion response in localised areas. Productive land may need to start to adapt to other uses.

Long term - Relocate the several buildings and associated infrastructure on seaward side of the road - houses, Kaiaua Seaside Lodge. Productive land may need to continue to adapt to other uses.

COMPARTMENT 4A: WHAREKAWA PATHWAY 2

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa and Ngāti Whanaunga)

Short term	→	Medium term	→	Long term
Status quo	→	Flood gates + Inundation accommodation (Raising East Coast Road) + Productive land adaptation	→	Planned resettlement + Productive land adaptation

Pathway Description

Short term - The community risk threshold has not yet been reached; but is expected to be reached in the long term (~50-70 years).

Medium term – Although community risk threshold here is high, a conservative approach might be to install flood gates/one-way valves on the 4 small streams/productive land drains that flow under the road embankment to prohibit entry by the sea (primary objective to mitigate flooding of productive land). Subsequently re-engineer floodgate design/operation as necessary to accommodate any change in drainage levels (because there comes a point in time when as sea level rises relative to the level of the flooded water over productive land that gravity drainage is seriously impaired). Sections of the road may need to be raised in places to allow essential services access during flooding events (a survey of road elevation would be required to determine where it needs to be raised). Productive land may need to start to adapt to other uses.

Long term - Relocate the several buildings and associated infrastructure on seaward side of the road - houses, Kaiaua Seaside Lodge. Productive land may need to continue to adapt to other uses.

COMPARTMENT 4A: WHAREKAWA PATHWAY 3

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa and Ngāti Whanaunga)

Short term	→	Medium term	→	Long term
Flood gates	→	Flood gates + Inundation accommodation (Raising East Coast Road) + Productive land adaptation	→	Planned resettlement + Productive land adaptation

Pathway Description

Short term - Re-engineer floodgate design/operation as necessary to accommodate any change in drainage levels (because there comes a point in time when as sea level rises relative to the level of the flooded water over productive land that gravity drainage is seriously impaired).

Medium term – Although community risk threshold here is high, a conservative approach might be to install flood gates/one-way valves on the 4 small streams/productive land drains that flow under the road embankment to prohibit entry by the sea (primary objective to mitigate flooding of rural land). Subsequently re-engineer floodgate design/operation as necessary to accommodate any change in drainage levels (because there comes a point in time when as sea level rises relative to the level of the flooded water over productive land that gravity drainage is seriously impaired). Sections of the road may need to be raised in places to allow essential services access during flooding events (a survey of road elevation would be required to determine where it needs to be raised). Productive land may need to start to adapt to other uses.

Long term – Relocate the several buildings and associated infrastructure on seaward side of the road - houses, Kaiaua Seaside Lodge. Productive land may need to continue to adapt to other uses.

COMPARTMENT 4A: WHAREKAWA PATHWAY 4

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Paoa and Ngāti Whanaunga)

Short term	→	Medium term	→	Long term
Status quo	→	Planned resettlement + Productive land adaptation	→	Planned resettlement + Productive land adaptation

Pathway Description

Short term – The community risk threshold has not yet been reached; but is expected to be reached in the long term (~50-70 years).

Medium and Long term – Relocate buildings and associated infrastructure to higher ground. Productive land may need to start to adapt to other uses.

Coastal Compartment 5a: Waharau

COMPARTMENT 5A: WAHARAU PATHWAY 1

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Whanaunga)

Short term	→	Medium term	→	Long term
Status quo + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest + Beach scraping	→	Planned resettlement (Low lying buildings)

Pathway Description

Short term - The community risk threshold has not yet been reached; but is expected to be reached in the short-medium term (~10-30 years). Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently.

Medium term – Beach renourishment coupled with raising the shingle crest at erosion hot spots near buildings and East Coast Road. Beach scraping an immediate post-event erosion response in localised areas. Continue drainage system maintenance.

Long term – In the long term, storm tide levels of 3.6m MVD-53 elevation or more will flood many houses in the settlements on the seaward side of the road. (Note: With future projected SLR of 0.5m the upper limit of storm tides is 3.7m. With future projected SLR of 1.0m the upper limit of storm tides is 4.2m). Flood gates on waterways passing through East Coast Road are not seen as a useful option as coastal inundation appears in most part to be confined to the seaward side of the road where ground levels are lower.

COMPARTMENT 5A: WAHARAU PATHWAY 2

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Whanaunga)

Short term	→	Medium term	→	Long term
Status quo + Implement drainage system maintenance	→	Inundation accommodation (Buildings and associated infrastructure) + Gabion baskets	→	Planned resettlement (Low lying buildings)

Pathway Description

Short term - The community risk threshold has not yet been reached; but is expected to be reached in the short-medium term (~10-30 years). Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently.

Medium term – Raise buildings to accommodate flood levels. Storm tide levels of will flood some houses in the settlements on the seaward side of the road. Construct gabion baskets at erosion 'hotspots'. Continue drainage system maintenance.

Long term – In the long term, storm tide levels of 3.6m MVD-53 elevation or more will flood many houses in the settlements on the seaward side of the road. (Note: With future projected SLR of 0.5m the upper limit of storm tides is 3.7m. With future projected SLR of 1.0m the upper limit of storm tides is 4.2m). Flood gates on waterways passing through East Coast Road are not seen as a useful option as coastal inundation appears in most part to be confined to the seaward side of the road where ground levels are lower.

COMPARTMENT 5A: WAHARAU PATHWAY 3

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Whanaunga)

Short term	→	Medium term	→	Long term
Status quo + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest + Beach scraping + Inundation accommodation (Buildings and associated infrastructure) + Gabion baskets	→	Planned resettlement (Low lying buildings)

Pathway Description

Short term - The community risk threshold has not yet been reached; but is expected to be reached in the short-medium term (~10-30 years). Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently.

Medium term – Beach renourishment coupled with raising the shingle crest at erosion hot spots near buildings and East Coast Road. Beach scraping an immediate post-event erosion response in localised areas. Raise buildings above flood levels. Construct gabion baskets at erosion ‘hotspots’. Continue drainage system maintenance.

Long term – In the long term, storm tide levels of 3.6m MVD-53 elevation or more will flood many houses in the settlements on the seaward side of the road. (Note: With future projected SLR of 0.5m the upper limit of storm tides is 3.7m. With future projected SLR of 1.0m the upper limit of storm tides is 4.2m). Flood gates on waterways passing through East Coast Road are not seen as a useful option as coastal inundation appears in most part to be confined to the seaward side of the road where ground levels are lower.

COMPARTMENT 5A: WAHARAU PATHWAY 4

(Special note: Significant cultural values present in this compartment –
All options require consultation with Ngāti Whanaunga)

Short term	→	Medium term	→	Long term
Renourishment + Enhance shingle crest + Beach scraping + Inundation accommodation (Buildings and associated infrastructure) + Implement drainage system maintenance	→	Renourishment + Enhance shingle crest + Beach scraping + Inundation accommodation (Buildings and associated infrastructure)	→	Planned resettlement (Low lying buildings)

Pathway Description

Short and Medium term – Beach renourishment coupled with raising the shingle crest at erosion hot spots near buildings and East Coast Road. Beach scraping an immediate post-event erosion response in localised areas. Raise buildings above flood levels. Implement drainage system maintenance programme to keep system clean of debris and sediment and working efficiently.

Long term – In the long term, storm tide levels of 3.6m MVD-53 elevation or more will flood many houses in the settlements on the seaward side of the road. (Note: With future projected SLR of 0.5m the upper limit of storm tides is 3.7m. With future projected SLR of 1.0m the upper limit of storm tides is 4.2m). Flood gates on waterways passing through East Coast Road are not seen as a useful option as coastal inundation appears in most part to be confined to the seaward side of the road where ground levels are lower.



Our Place, Our People.

Companion Report to the Wharekawa Coast 2120 Community Panel Recommendation Report

July 2022



Cover Image – Sand spit at Whakatīwai, Deborah Kissick

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Report Information

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Executive Summary

Significant coastal inundation and river flooding events along the Wharekawa Coast contributed to Hauraki District Council recognising the need to holistically consider planning for the future of these coastal communities, and the Wharekawa Coast 2120 project was born. The project area spans more than 20km, from Waharau in the North at the boundary with Tamaki Makaurau (Auckland) to Pūkoro/Miranda in the South.

This report is a companion report to the *Wharekawa Coast 2120 Community Panel's Recommendation Report 2022*. Together, the two reports summarise the work to date on the Wharekawa Coast 2120 project. The reports will be used to inform the development of a Community Plan for the Wharekawa Coast, to define a path for the future of these communities while enabling flexibility to respond to changing conditions.

Wharekawa Coast 2120 has explored a range of topics including climate change, natural hazards, future development, economic opportunities, and community infrastructure. The project's aim is to provide for a resilient and prosperous future for the communities of the Wharekawa Coast over the next 100 years.

This report provides a summary of the overall project development, structure, process and technical information requirements, while the Community Panel's Recommendation Report provides detail of the recommendations made by the Community Panel to the Councils for their further consideration and implementation.

The Wharekawa Coast 2120 project sees the collaboration of three main groups, who each have their own terms of reference:

- ≈ **The Joint Working Party ("JWP")** which is responsible for guiding and providing governance oversight to the project and includes Councillors from Waikato Regional Council, Hauraki District Council and Waikato District Council and iwi representatives from Ngāti Pāoa and Ngāti Whanaunga.
- ≈ **The Technical Advisory Group ("TAG")** which is responsible for the project management, technical support and delivery and includes Council staff and consultants.
- ≈ **The Community Panel** which is responsible for providing informed decisions around community values, aspirations, impacts, and adaptive pathways. A detailed stakeholder mapping exercise was undertaken by the TAG, nominations called for and appoints to the Panel made by the Chair of the JWP. The recommendations of the Community Panel are provided in the Wharekawa Coast 2120 Community Panel Recommendations Report which should be read alongside this report.

The TAG agreed that a Community Panel was an efficient and effective way of enabling a collaborative, community-driven approach to developing the Wharekawa Coast 2120 Community Plan. The TAG maintained a Risk Register, that included risk mitigation measures throughout the project. While initially in-person, TAG, JWP and Community Panel meetings were taken online in response to the Covid-19 pandemic.

The Wharekawa Coast 2120 project area was split into sub areas referred to as “compartments” based on physical coastal processes and river catchment areas. This approach allowed the issues and opportunities within each compartment to be understood and a specific response developed.

The following natural hazards are in the scope of the project:

- ≈ coastal inundation and erosion;
- ≈ freshwater flooding;
- ≈ land stability and
- ≈ vertical land movement.

A series of technical reports have been prepared to inform the project, covering these hazards as well as social and ecological impact assessments and a Natural Hazard Risk Assessment. The Risk Assessment brings together information on natural hazards and impact assessments and presents the likely impacts of natural hazard event scenarios for each compartment in the project area.

The Wharekawa Coast 2120 project uses the ‘adaptation pathways’ approach to manage coastal inundation and erosion risks and aligns with the 10-step decision cycle framework outlined in the Ministry for the Environment’s 2017 Coastal Hazards and Climate Change - Guidance for Local Government (“MfE Guidance”).

Community Risk Thresholds were developed which identify when hazard events are no longer tolerable to the community and these were used to guide decision making around the timing and nature of actions needed to ensure these community risk thresholds are not met.

The development of the Wharekawa Coast 2120 Community Plan is the next step in the project. This will be the Councils’ response to the recommendations from the community and will develop steps to implement the recommendations from the Community Panel’s Recommendation Report including:

- ≈ A range of general community actions including actions specific to each of the compartments,
- ≈ The River Management Work Programme, and
- ≈ The development of signals (the early warning signs) and triggers (the decision points) for the coastal adaptation pathways to ensure that these pathways are truly adaptive.

PART A



Project Overview

1 Introduction

1.1 Report purpose

The purpose of this report is to sit alongside the *Wharekawa Coast 2120 Community Panel's Recommendation Report* and provide further detail on the project including project development, structure, process and technical information.

The Wharekawa Coast 2120 project has been underway since 2018. Over this time, the project has generated a wealth of information, with the process documented in this report and the Community Panel's recommendations and actions captured in their Recommendation Report.

In response to the Community Panel's desire to ensure their recommendations were reflective of the voice of the community, the project Technical Advisory Group ("TAG") recommended that the Wharekawa Coast 2120 Recommendations Report be split into the Community Panel Recommendations Report and this companion report, prepared by the project's independent facilitators, to record the process and technical details which accompanied the project.

2 Context

2.1 Project background

In New Zealand, we are exposed to a wide variety of natural hazards that impact on people, property, infrastructure and the wider environment. Given the coastal nature of the Wharekawa area, the range of natural hazards includes coastal hazards such as sea level rise as well as coastal erosion and coastal inundation. River flooding is also recognised as a significant hazard in the project area, and the impacts of freshwater flooding and coastal inundation events occurring together is particularly challenging.

Hauraki District Council identified in its 2018-2021 Long Term Plan,

The need for community planning has been identified for our local communities with the Kaiaua and Pūkorokoro / Miranda Coast and Ngatea areas being the first we'll work on. This planning will look at a range of issues for these areas such as water and wastewater services, flood protection, economic development and land use planning, in a coordinated way that will deliver common objectives. The preparation of community plans is also a work stream of the Waikato Plan and will also tie in with local civil defence recovery plans that we need to start preparing. We'll start the Kaiaua community planning in 2018/19.

This was prompted in part by coastal inundation (Jan 2018) and river flooding (2017) events occurring at the Wharekawa Coast and the existing, and increasing risk of natural hazards, recognising the need to holistically consider planning for the future of these coastal communities.

In terms of a statutory framework, the project is underpinned by the following statutory documents:

- ≈ New Zealand Coastal Policy Statement 2010
- ≈ Resource Management Act 1991
- ≈ Hauraki Gulf Marine Park Act 2000
- ≈ Local Government Act 2002
- ≈ Civil Defence and Emergency Management Act 2002,
- ≈ Waikato Regional Policy Statement and Regional Plans and
- ≈ Hauraki and Waikato District Plans.

As well as these Acts, the Ministry for the Environment's Guidance on Coastal Hazards is particularly relevant and is detailed in the following section.

2.2 Project Area

The project area is on the western side of Tīkapa Moana o Hauraki (The Firth of Thames). The project area extends from Waharau in the north, through the settlements of Whakatiwai and Kaiaua to Pūkorokoro/Miranda at the southernmost extent.



Figure 1 Project Area Location

A portion of the Waikato District, directly adjacent to the boundaries of the Hauraki District Council, is included in the project area given the geographical and hazard risk similarities of this area.

Given the size of the Wharekawa Coast 2120 project area, the project area was divided into compartments based on physical coastal processes and river catchment areas. This approach allowed the issues and opportunities within each compartment to be understood and a specific response developed.

Coastal compartments identified by Tonkin and Taylor in 2010 (for the Kaiaua Wharekawa Coastal Compartment Management Plan, prepared by Franklin District Council, Auckland Regional Council and Environment Waikato) were used as an initial basis for this project's compartments. These were then

reviewed by Waikato Regional Council based on the appropriateness for this project and their alignment with physical coastal processes and river catchment areas. The methodology of this approach is documented in Appendix 1.

Five separate compartments are identified along the Wharekawa coastline as indicated on Figure 2 below. Each compartment has a coastal sub compartment (a) and an inland sub compartment (b) as follows:

- ≈ 1 (a) & (b) Pūkorokoro/Miranda
- ≈ 2 (a) & (b) Kaiaua
- ≈ 3 (a) & (b) Whakatiwai
- ≈ 4 (a) & (b) Wharekawa
- ≈ 5 (a) & (b) Waharau

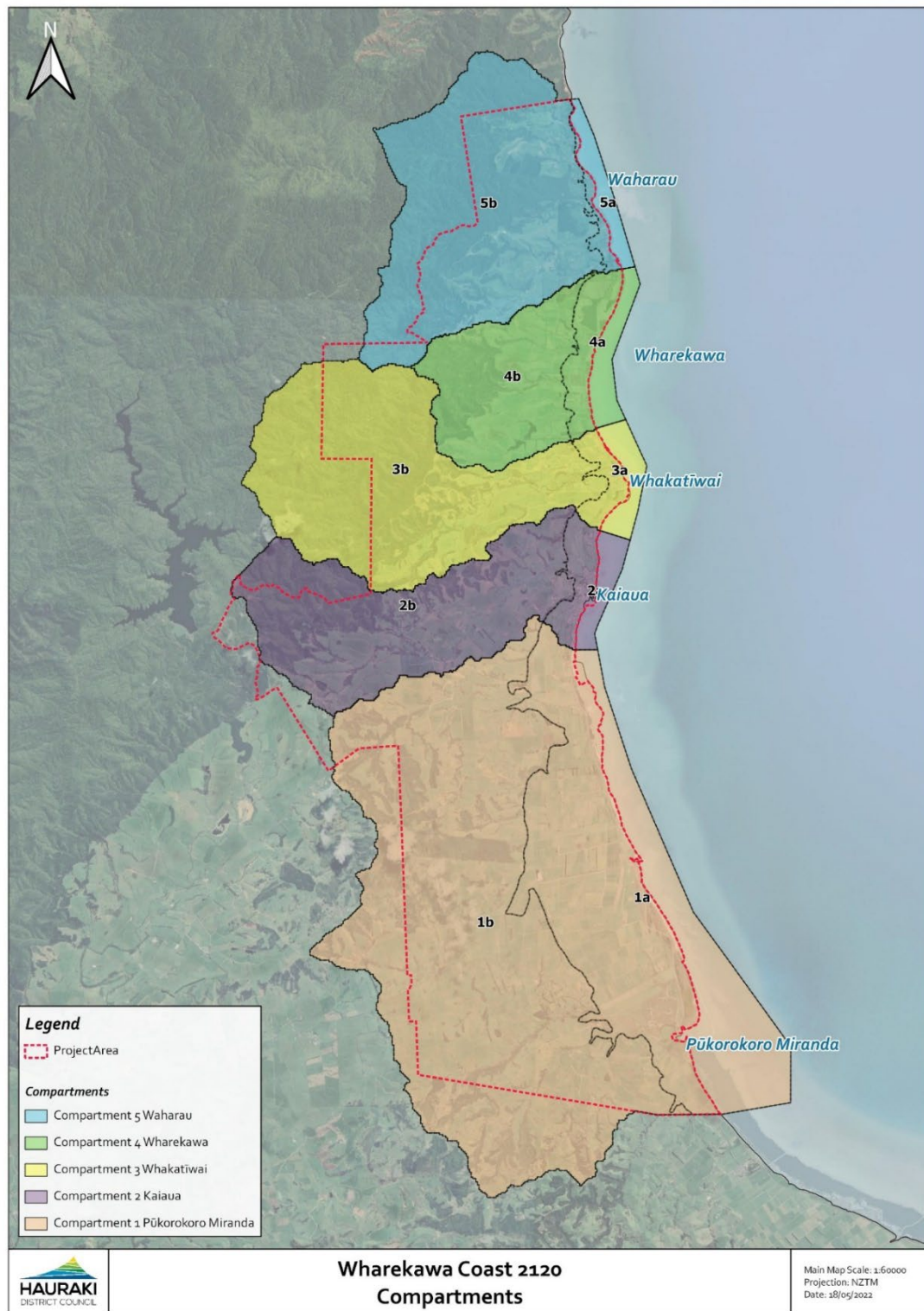


Figure 2: Project Area showing the Compartment Areas

2.3 Ministry for the Environment: Coastal Hazards and Climate Change – Guidance for Local Government

In December 2017, the Ministry for the Environment published guidance for Local Government on Coastal Hazards and Climate Change.

The guidance is structured around an iterative 10-step framework. It is made up of elements to secure and implement a long-term strategic planning and decision-making framework for coastal areas potentially, or already, affected by coastal hazards and climate change effects such as sea level rise.

The 10-step framework decision cycle is structure around the following key questions (Figure 1):

- ≈ What is happening?
- ≈ What matters most?
- ≈ What can we do about it?
- ≈ How can we implement the strategy?
- ≈ How is it working?

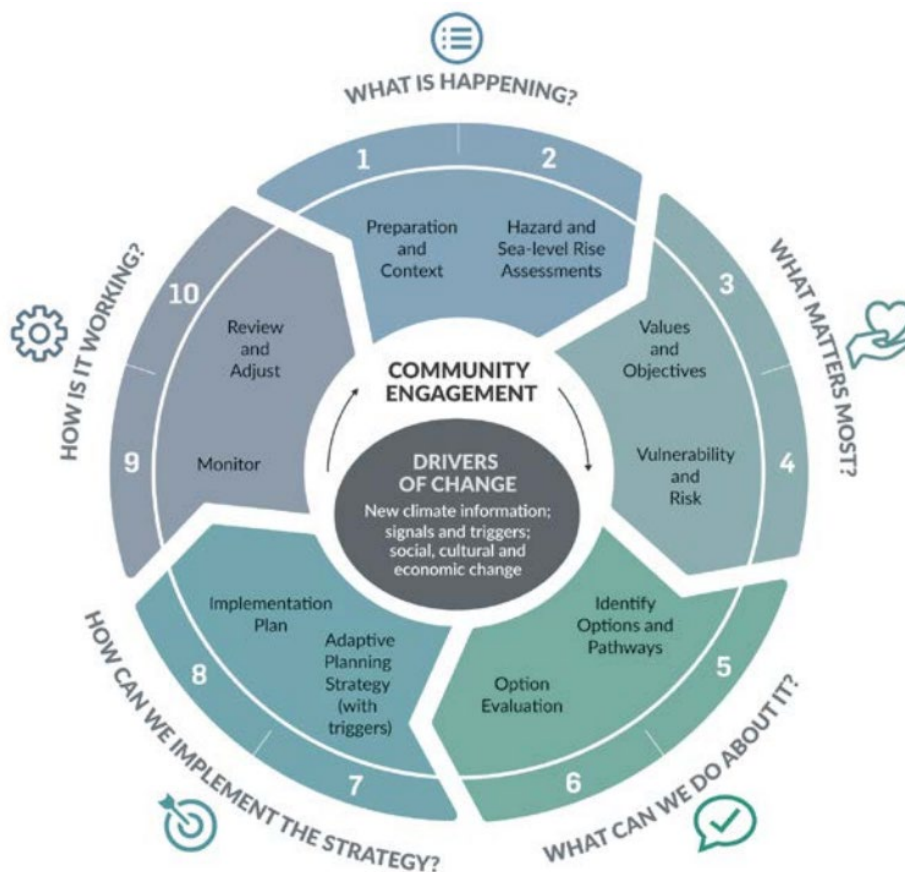


Figure 3: 10-step decision framework. Source: Ministry for the Environment, Coastal Hazards and Climate Change Guidance for Local Government 2017 - Adapted from Max Oulton (University of Waikato) and UN-Habitat (2014)

The Wharekawa Coast 2120 process has been developed to ensure alignment with the MfE guidance wherever possible. The project implements the first six steps in the framework identified in Figure 3. The Community Panel's Recommendation Report completes Step 6 of the 10 step process, with the strategy to implement the options identified being passed to the Councils' for Step 7 onward.

2.4 New Zealand Coastal Policy Statement 2010

The New Zealand Coastal Policy Statement 2010 ("NZCPS") provides direction for resource management in relation to New Zealand's coastal environment.

The NZCPS recognises the dynamic, and varied nature of the coastal environment around the country and seeks to manage activities in the coastal environment for a range of functions, including to manage coastal hazard risks, taking account of climate change.

Policies in the NZCPS provide direction to Councils including requiring the identification of areas potentially affected by coastal hazards, prioritising areas at high risk and assessing hazard risks over a period of at least 100 years. The Wharekawa Coast 2120 Community Plan project has been developed to provide a response to this requirement for the Wharekawa Coast.

The NZCPS requires that subdivision, land use and development are managed to avoid increasing the risk of harm from coastal hazards, and encouraging changes that reduce hazard risks, including managed retreat. This includes the promotion of alternatives to hard protection structures, favouring natural defences but also recognising that in some areas, hard protection structures may be the only practical means to protect existing infrastructure.

In evaluating options for reducing coastal hazard risk, the NZCPS requires that the potential change to coastal hazard risk over at least a 100-year timeframe and the likely costs and benefits of coastal hazard reduction options are evaluated.

3 The Project

The project seeks to bring the Wharekawa Coast communities together to define a path for the future and look at a wide range of issues to provide for a resilient and prosperous future over the next 100 years.

The project focusses on:

- ≈ The effects of climate change and natural hazards over a 100 year timeframe
- ≈ Future development and land use
- ≈ Economic opportunities
- ≈ Community infrastructure (including Wharekawa (Kaiaua) Marae, Kaiaua school, roads, utilities, reserves, businesses, ecologically significant areas and tourist attractions).

A Community Plan, to be prepared following receipt of the Community Panel's recommendation report by Hauraki District Council, together with Waikato Regional Council and Waikato District Council, will provide future direction for the region. This plan will be designed in a way to retain flexibility in responding to issues as conditions change and as more information becomes available. The project uses the 'adaptation pathways' approach outlined in the Ministry for the Environment's 2017 Coastal Hazards and Climate Change - Guidance for Local Government ("MfE Guidance"). To ensure these pathways are adaptive to future change and information, signals (the early warning signs) and triggers (the decision points) will need to be developed by the Councils.

4 Project Structure

The structure of the project is made up of three main groups:

- ≈ the Joint Working Party,
- ≈ the Community Panel, and
- ≈ the Technical Advisory Group.

The **Joint Working Party** (“JWP”) will make final recommendations to the representative Councils who will ultimately make decisions on the community plan.

The **Community Panel** have a recommendatory function with their recommendations being considered by the Wharekawa Coast 2120 Joint Working Party before final recommendations are made to partner Councils for the final decision. Further details of the formation of the community panel are detailed in Section 4.1 below.

The **Technical Advisory Group’s** (“TAG”) role is to manage the project and to assist the Community Panel and the Joint Working Party with technical support to facilitate sound and informed recommendations and decision making.

The relationship between the groups in the decision-making process is illustrated in Figure 4 below.

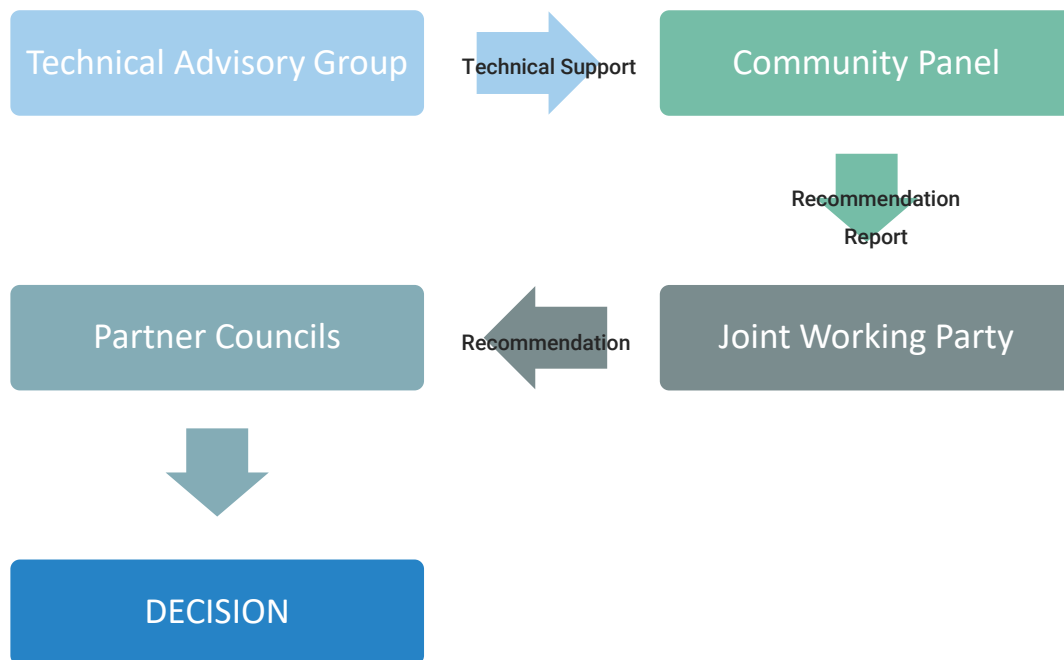


Figure 4 Decision making roles and process

Implementing the recommendations adopted as a result of this process will require long-term funding decisions to be made by the representative Councils. It is also anticipated that as a result, statutory documents such as the Waikato Regional Policy Statement, the Waikato Regional Plan, the Waikato District Plan and the Hauraki District Plan, along with other council documents such as Asset Management Plans will need to be updated to respond to agreed actions.

It is acknowledged that the 'recommendatory' function of the Community Panel does contain some process risk. There is the potential for recommendations to be re-litigated in the future by the decision-making Councils. However, this risk has been mitigated by having Councils elected members from the Joint Working Party involved as observers in the Community Panel process. This ensures that when recommendations are ultimately adopted, the reasons for them will be well understood by the elected Council representatives.

Further detail on the structure and function of these groups is explained in Table 1 below.

Table 1 Project Structure

Group	Purpose and membership
Community Panel	<p><u>Purpose</u> - The purpose of the Community Panel is to provide informed recommendations to the Hauraki District Council, Waikato Regional Council and Iwi, through a Joint Working Party, on the following matters:</p> <ul style="list-style-type: none"> i. Community values and aspirations; ii. The potential impacts of climate change and natural hazards risks; iii. Long-term adaptation pathways to respond to those risks; and iv. Key actions for achieving community aspirations. <p><u>Members</u> – community, mana whenua and key stakeholder representatives</p> <p>Refer to the Community Panel Terms of Reference (Appendix 2) for further details.</p>
Wharekawa Coast 2120 Joint Working Party	<p><u>Purpose</u> - The Joint Working Party has responsibility for guiding and providing governance oversight for the development of Wharekawa Coast 2120, including:</p> <ul style="list-style-type: none"> i. The identification of natural hazards extents and risks as informed by technical assessments and the development of an adaptive plan to respond to those risks; ii. The consideration of the relevant planning provisions (primarily the Hauraki District Plan) in light of the hazards risks identified and planning responses proposed, and the subsequent recommendation of changes required to the planning provisions; iii. The review of economic development opportunities in light of the identified hazards risks and the subsequent identification of appropriate development; iv. Considering and recommending a draft Wharekawa Coast 2120 plan to the Partner Councils for public notification;

Group	Purpose and membership
	<ul style="list-style-type: none"> v. Considering comments and submissions on the draft plan and making appropriate recommendations to the Partner Councils; and vi. Considering and recommending a final plan to each of the Partner Councils for approval. <p><u>Members</u> – WRC, HDC, WDC Councillors and Ngāti Pāoa, Ngāti Whanaunga Iwi representatives</p> <p>Refer to the Joint Committee Terms of Reference (Appendix 3) for further details.</p>
Technical Advisory Group	<p><u>Purpose</u> – Technical Advisory Group has the responsibility for the project management, technical support and delivery of Wharekawa Coast 2120, including:</p> <ul style="list-style-type: none"> i. Project managing Wharekawa Coast 2120; ii. Completing tasks and project work as directed by the Joint Working Party; iii. Leading project engagement with the community and stakeholders; iv. Providing technical information and support for the Joint Working Party to enable sound and informed decision making; v. Developing, agreeing, maintaining and reporting on a Project Budget; vi. Managing consultants engaged for the project; vii. Facilitating information and knowledge exchange between the Councils; and viii. Ensuring Council inputs and activities are integrated, aligned and complementary. <p><u>Members</u> – WRC, HDC, WDC staff and consultants</p> <p>Refer to Technical Advisory Group Terms of Reference (Appendix 4) for further details.</p>

4.1 Technical Advisory Group

Staff from the Hauraki District Council, Waikato Regional Council and Waikato District Council formed a technical advisory group (“TAG”) during the last quarter of 2018 to undertake the project. The TAG are a multi-disciplinary group, with expertise including Mātauranga Māori, resource management and planning, policy, engineering, coastal science, hazard and risk assessment and communications and engagement. An independent Project Advisor was appointed to provide adaptive planning expertise to the project, and other consultants were engaged as needed to provide additional technical expertise.

TAG meetings were agreed to be held 6-weekly for 2 hours duration. This was adapted to respond to project demands throughout the project and while initially in-person, these meetings were taken online in response to the Covid-19 pandemic. TAG developed their own Terms of Reference which were approved by the JWP.

The TAG group kept a Risk Register throughout the project. The purpose of this was to identify potential project risks, the potential consequences of these risks and provided a rating around the probability of the risk and the impact of the risk if it were to occur. The Risk Register included risk mitigation measures in place by TAG. The Risk Register was reviewed and updated at each TAG meeting, where new risks were added as they arose and risk levels were altered to respond as circumstances changed.

4.2 Joint Working Party

Early meetings of the TAG worked through and proposed the membership structure and meeting frequency (quarterly meetings) for the JWP. The terms of reference were also drafted by TAG for review and approval by JWP members. Requests from TAG to each Council for representatives on the JWP were made and Iwi representatives were sought.

Local government triennial elections in 2019 resulted in changes to the elected members represented on the JWP.

4.3 Community Panel

4.3.1 Community Panel purpose

The TAG agreed that a community panel was an efficient and effective way of enabling a collaborative, community-driven approach to developing the community plan. This approach was favoured over a more traditional public consultation process that typically follows a public meeting / published draft / written feedback / submissions process approach.

In broad terms, the Community Panel is responsible for:

- ≈ Developing a broad understanding beyond their immediate lived experience of the cultural, social, environmental and economic landscape of the Wharekawa Coast
- ≈ Developing an understanding of the natural hazards that affect the Wharekawa coastline
- ≈ Assisting to confirm the risks posed by those hazards
- ≈ Developing and assessing options for responding to those risks
- ≈ Articulating short, medium and long-term community aspirations for the Wharekawa Coast area
- ≈ Engaging with the broader community (with Council assistance) to test their ideas; and
- ≈ Presenting recommendations to the Wharekawa Coast 2120 Joint Working Party.

4.3.2 Number of panels

Taking account of the project area size, and in response to cost effectiveness and logistical matters, it was recommended by TAG and endorsed by the JWP, that a single Community Panel be formed for the project.

4.3.3 Community Panel Membership

Waikato Regional Council (“WRC”) facilitated a stakeholder mapping exercise with TAG to identify stakeholders within the project area. TAG then used the outcome of this exercise to identify potential panel membership.



Figure 5 Stakeholder mapping exercise facilitated by WRC

From the stakeholder mapping work, the outcomes of which are included as Appendix 5, TAG identified that local views of both the villages and rural communities was important, including representation of those landowners who are not permanent residents. It was also identified that there are a range of cultural, environmental, recreational and social interests within the project area that needed to be represented on the panel.

TAG sought to achieve the membership representation for the Community Panel outlined in Table 2.

Table 2 Proposed Community Panel Membership

Seat / Position	Description	Seats on Panel
Urban settlements	Representatives of the urban settlements along the coast including representation of non-permanent resident landowners	3
Rural landowners	Representatives of rural landowners along the coast	3
Mana Whenua	Representatives from local iwi/hapū along the coast	3
Network utility representative	Representation from the network utility service providers in the area such as power and telecommunication.	1
Recreation	Representation from groups or clubs with recreational interests in the area	1
Rural Support Trust	Representation from the Rural Support Trust recognising their knowledge and experience of rural issues in this area	1
Community Services	Representation of local community services including police, fire, ambulance and civil defence services in the area	1
Local business	Representation of local businesses in the area	1
Department of Conservation	Responsible for the New Zealand Coastal Policy Statement, input on biodiversity matters	1

At a community meeting on 30 November 2019, TAG sought nominations from individuals interested in being part of the community panel. Following a good number of self-nominations, the Chair of the JWP appointed community members to the Community Panel and approaches were made to mana whenua, Department of Conservation and Rural Support for representatives.

Near the beginning of the panel process, some Community Panel members chose to leave the process for various reasons. This allowed time for a project reset, appointment of a new Community Panel chair and the on-boarding of new panel members.

4.4 Community Panel Process

TAG provided a schedule of workshops (Figure 6) to guide the Community Panel process. This schedule was formulated around the steps posed in the MfE Guidance and sought to outline the topics to be

addressed in order to successfully complete a broad-ranging report with recommendations of actions needed in the area.

The schedule was amended in an ongoing manner; in response to the Community Panel's wish to co-design the project, and in response to the unforeseen challenges posed by Covid-19.

As a result of Covid-19 lockdowns and restrictions on groups meeting face-to-face, the Community Panel elected to progress the workshop schedule using an online Zoom meeting format. This enabled the Community Panel to continue to meet and progress the project but was a less effective meeting method than previous in-person meetings, due to factors such as of the necessary reduction in meeting durations to account for online meeting fatigue.

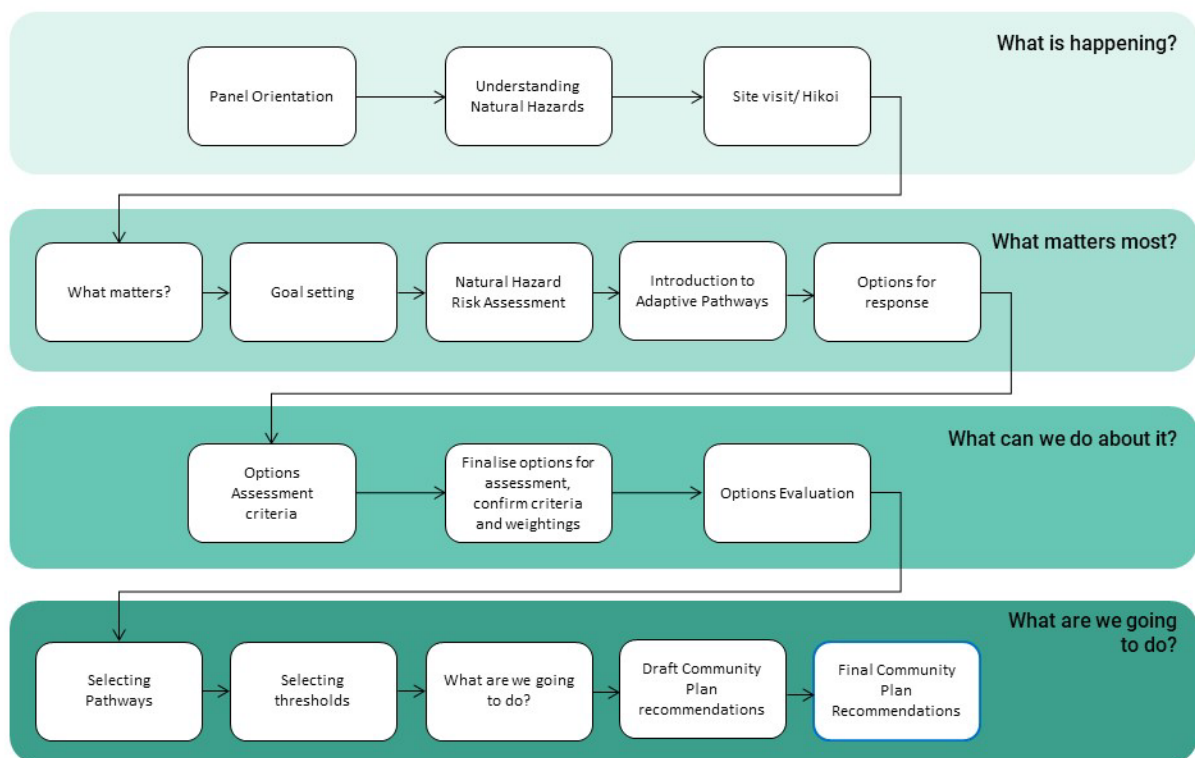


Figure 6 Community Panel Workshop Schedule

To further progress project outcomes, the Community Panel elected to develop Focus Groups from the existing panel. These five, topic specific sub-groups of the Panel worked outside of the Panel workshop schedule to progress the development of the community plan (Figure 7).

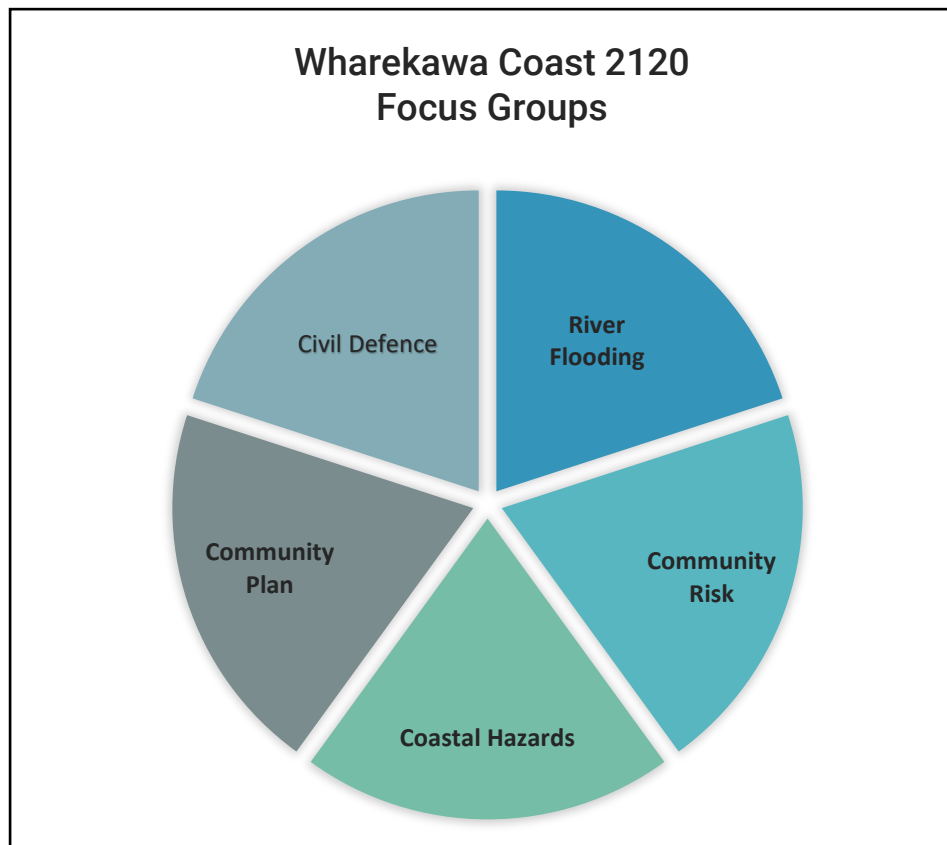


Figure 7 Community Panel Focus Groups

A summary of the responsibilities of each Focus Group, together with their recommendations, are included in the *Wharekawa Coast 2120 Community Panel Recommendations Report*.

4.5 Community Plan development process

The following diagram shows how the Community Panel process fits within the wider Community Plan project. This was developed with the Community Panel, in response to the panel members request to clarify their role in the project.

Opportunities for engagement with the wider community on the Community Plan project was limited as a result of Covid-19 meeting restrictions.

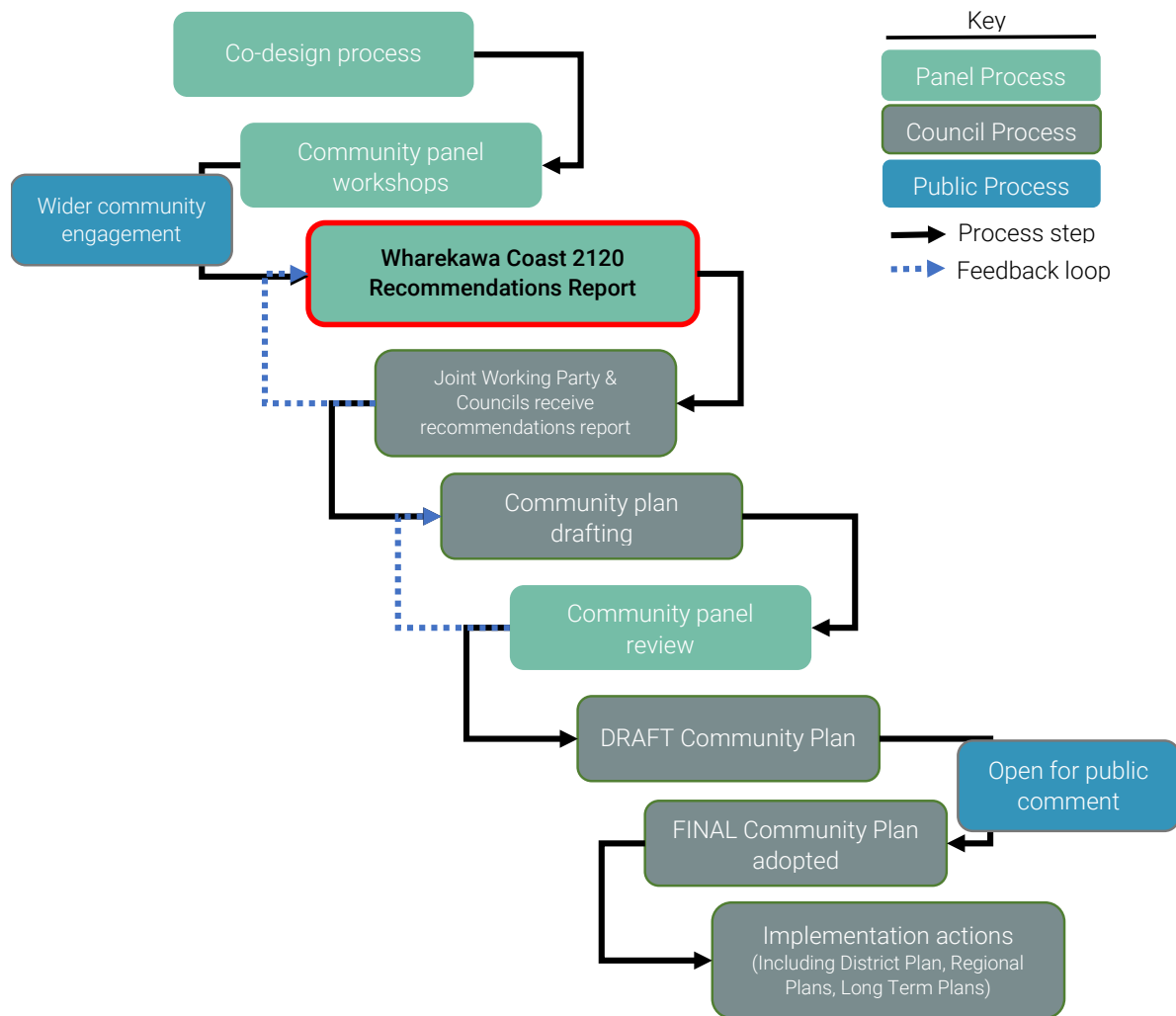


Figure 8 Community Plan development process

5 What Matters Most?

To understand community values, the TAG group held a community workshop in late 2019. Attendees were divided into small groups and were asked to identify:

- ≈ What they love and value about the Wharekawa Coast,
- ≈ What they want to see or see more,
- ≈ What they didn't want to see or see less, and
- ≈ What they are concerned about.

Attendees were then asked to mark a map of the Project Area with any specific places where the values or concerns they had identified are. The Community Panel used this information to identify their key themes and goals for the project and to develop specific actions for addressing matters of concern.

Summaries of the community values, the key theme and goals and the recommendations to address these matters are contained in the *Community Panel's Recommendation Report*.

6 Natural Hazards

6.1 Background to Natural Hazards

The Resource Management Act 1991 defines Natural Hazards to mean:

“any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment.”

Alternative definitions are also provided in the Civil Defence and Emergency Management Act 2002 and the Building Act 2004 however for the purpose of this project, the above definition is considered to be sufficiently broad to describe natural hazards.

6.2 Natural Hazard Risk on the Wharekawa Coast

The TAG group identified the following Natural Hazards are within the scope of the Wharekawa Coast 2120 project:

- ≈ Coastal inundation
- ≈ Coastal erosion
- ≈ Freshwater flooding
- ≈ Slips/land instability
- ≈ Vertical land movement

Earthquake and liquefaction, tsunami and groundwater hazards are all considered to be out of scope of the Wharekawa Coast 2120 project.

6.3 Technical reports informing the project

To help with understanding the risks of natural hazards in the area, a series of technical reports have been prepared. These include natural hazard reports and impact assessment reports.

6.3.1 Natural hazard reports

Reports have been prepared for the priority hazards of:

- ≈ coastal inundation
- ≈ coastal erosion and
- ≈ river flooding.

These are outlined in the Table 3 below.

Table 3 Natural Hazard Reports informing Wharekawa Coast 2120 project

Report	Content
Coastal processes and hazards Dr Terry Hume, 2021	Provides an understanding of coastal hazards and coastal processes (including coastal erosion) and what climate change means for these natural hazards.
Hauarahi Stream rapid flood assessment Waikato Regional Council, 2020	Provides a background of the 2017 flooding of the Hauarahi stream, and models flooding from rainfall events.
Climate driven river flooding Jonathan Chambers, 2021	Builds on the Hauarahi stream rapid flood assessment and considers climate change scenarios and how these impact Hauarahi Stream flooding risks
Wider River Flood Assessment Report Waikato Regional Council, 2021	Provides an understanding of the historical impacts of past river flooding events in the project area. This report recommends priority areas for further investigation based on our new understanding of the impacts of historical riverine flood events in the project area. This report also identifies a range of relatively low-cost stream maintenance options that may be implemented to reduce the immediate flooding risk in the project area as a short term solution

A short summary of these reports is provided in Appendices 6-9 with the full version available on the [Project Website](#).

6.3.3 Impact assessment reports

The impacts of natural hazards on social and ecological values have been considered and are outlined in Table 4 below. These reports provide a more comprehensive picture of what the effects of natural hazards could look like for local people and the local environment.

More work is required on the views of mana whenua/tangata whenua of Wharekawa on potential impacts of natural hazards and climate change.

Table 4 Impact Assessment Reports informing Wharekawa Coast 2120 project

Report	Content
Natural hazards social impact assessment EnviroStrat, 2020	Considers the social impact and implications of sea-level rise on communities along Wharekawa coast
Ecological values assessment Stephen Hunt and Michael Townsend (WRC), 2020	Considers the future state of the intertidal areas, chenier plains and intertidal vegetation of the Pūkoro/Miranda area under different scenarios.
Natural Hazard Risk Assessment Waikato Regional Council, 2020	Brings together information from the natural hazards and impact assessment background reports and presents the likely impacts of natural hazard event scenarios for each sub-compartment in the project area

A short summary of these reports is provided in Appendices 10 - 12 with the full version available on the [Project Website](#).

7 Next steps

The next steps for the Wharekawa Coast 2120 Community Plan project are for the development of a Community Plan, based on the recommendations contained in the Recommendations Report of the Wharekawa Coast 2120 Community Panel which should be read alongside this report.

References

List of full resources available at <https://wharekawacoast2120.hauraki-dc.govt.nz/resources/>

Chambers C. 2021 *Climate-Driven Impacts On Fluvial Inundation Hazards In Coastal Kaiaua* Department of Civil and Environmental Engineering University of Auckland, Auckland, New Zealand

<https://wharekawacoast2120.hauraki-dc.govt.nz/wp-content/uploads/2021/06/Climate-Driven-impact-River-Flooding-Chambers.pdf>

Grant D, Marsh S, Munro A, Liefing R. 2020 *Rapid flood hazard assessment of Hauarahi Stream, Kaiaua* Waikato Regional Council Internal Series 2020/Document #: 16080983

<https://wharekawacoast2120.hauraki-dc.govt.nz/wp-content/uploads/2021/07/Rapid-flood-hazard-assessment-Hauarahi-Stream-WRC.pdf>

Hauraki District Council *Hauraki District Plan - Franklin Section* <https://www.hauraki-dc.govt.nz/our-council/franklindp/>

Hume, T. 2021 *Wharekawa Coast 2120 Coastal Processes and Hazards Reported* prepared for Waikato Regional Council by HCL Hume Consulting Ltd. <https://wharekawacoast2120.hauraki-dc.govt.nz/wp-content/uploads/2021/06/Coastal-processes-report-Hume.pdf>

Hunt S, Townsend M. 2020 *Wharekawa Coast 2120: Ecological Values Impact Assessment*. Report prepared for Waikato Regional Council.

<https://wharekawacoast2120.hauraki-dc.govt.nz/wp-content/uploads/2022/05/Ecological-Values-Impact-Assessment.pdf>

Liefing R. 2020 *Memo to Wharekawa Coast 2120 TAG and Community Panel – Wharekawa Coast 2120 compartment methodology* File number 32 90 73

<https://wharekawacoast2120.hauraki-dc.govt.nz/wp-content/uploads/2021/06/Memo-Compartment-methodology.pdf>

Marsh S, Mills W, Mourot P, Hume T, Liefing R, Hunt S. *Wharekawa Coast 2120 Natural Hazard Risk Assessment* Waikato Regional Council Technical Report 2020/08 Document #: 16978499

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MFE 2017 *Coastal Hazards and Climate Change, Guidance for Local Government*. Ministry for the Environment.

<https://environment.govt.nz/publications/coastal-hazards-and-climate-change-guidance-for-local-government/>

MFE 2018 *Climate Change Projections for New Zealand: Atmosphere Projections Based on Simulations from the IPCC Fifth Assessment, 2nd Edition*. Ministry for the Environment.

<https://environment.govt.nz/assets/Publications/Files/Climate-change-projections-2nd-edition-final.pdf>

Mills W, Blunt A, Munro A, Growden K, de Laborde A. 2021 *Wharekawa Coast 2120 - Wider River Flood Assessment* Waikato Regional Council Waikato Regional Council Technical Report 2021/Document #: 21075591

<https://wharekawacoast2120.hauraki-dc.govt.nz/wp-content/uploads/2021/09/Wider-River-Flood-Assessment-Wharekawa-Coast-2120-150921.pdf>

New Zealand Department of Conservation 2010 *New Zealand Coastal Policy Statement* ISBN 978-0-478-14836-7.

<https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/new-zealand-coastal-policy-statement-2010/>

Stancu, C 2020 *Wharekawa Coast 2120: Natural Hazards Social Impact Assessment for Wharekawa* Report prepared for Hauraki District Council by Envirostrat Limited

<https://wharekawacoast2120.hauraki-dc.govt.nz/wp-content/uploads/2021/06/Natural-hazards-social-impact-Stancu.pdf>

Waikato Regional Council 2005 *Waikato Regional Council Coastal Plan*

<https://www.waikatoregion.govt.nz/council/policy-and-plans/regional-coastal-plan/>

Waikato Regional Council 2019 *Waikato Regional Policy Statement Implementation Practice Note on Natural Hazards*

<https://www.waikatoregion.govt.nz/assets/WRC/wrps-natural-hazard-practice-note.pdf>

PART D



Appendices

Appendix 1

Compartments Report

Memo

File No: 32 90 73

Date: 26 June 2020

To: Wharekawa Coast 2120 TAG and Community Panel

From: Rick Liefting

Subject: Memo – Wharekawa Coast 2120 compartment methodology

1 Background

The delineation of compartments within the Wharekawa Coast 2120 project area is required to allow for the alignment of information and management options within similar river and coastal environments. The compartments will be used to summarise information from the project area into logical sub areas.

The delineation of the coastal areas was previously undertaken by T&T 2010 and is used as the initial basis for the Wharekawa 2120 compartments.

2 Methodology

2.1 Coastal processes areas

The T&T 2010 coastal compartments (Figure 1) were reviewed by Dr Terry Hume and WRC (Rick Liefting and Stephen Hunt) on their appropriateness for the Wharekawa Coast 2120 project and their alignment with physical coastal processes and river catchment areas (see Section 2.2). The review resulted in changes to some of the compartment boundaries to better fit with the current knowledge of coastal processes and better alignment with river catchments.

The primary changes to the T&T 2010 coastal compartments are a change in boundaries for the Whakatiwai area and an additional compartment to the north (Figure 1). The change in coastal compartment areas will not result in any significant issues with information exchange from the T&T 2010 work.

The landward extent of the coastal areas is defined by a generalisation of the 5.0 m RL (MVD53) elevation. The 5.0m RL (MVD53) elevation was chosen as it reasonably represents the potential extent of coastal processes to 2120.

2.2 River Catchment areas

The NZ River Environment Classification (<https://www.mfe.govt.nz/environmental-reporting/about-environmental-reporting/classification-systems/fresh-water.html>) layers were used to delineate river

catchments in the project area. River catchments that aligned with the coastal compartments were merged to form one river catchment area for each compartment, with sub-compartments representing the difference between inland and coastal areas.

The river catchment areas do not align with the project area (Hauraki District Council boundaries) due to:

- Catchment areas that are outside the project area and therefore are managed by either Waikato District Council or Auckland Council.
- Catchment areas within the project area that do not flow to the Wharekawa coast.

The above areas are identified in the compartments should further assessment be required in future phases (Figure 1).

3 Output

The Wharekawa Coast 2120 compartments (and sub-compartments) are available as an ARCGIS shape file layer from WRC. Figure 1 shows a map of the compartments.

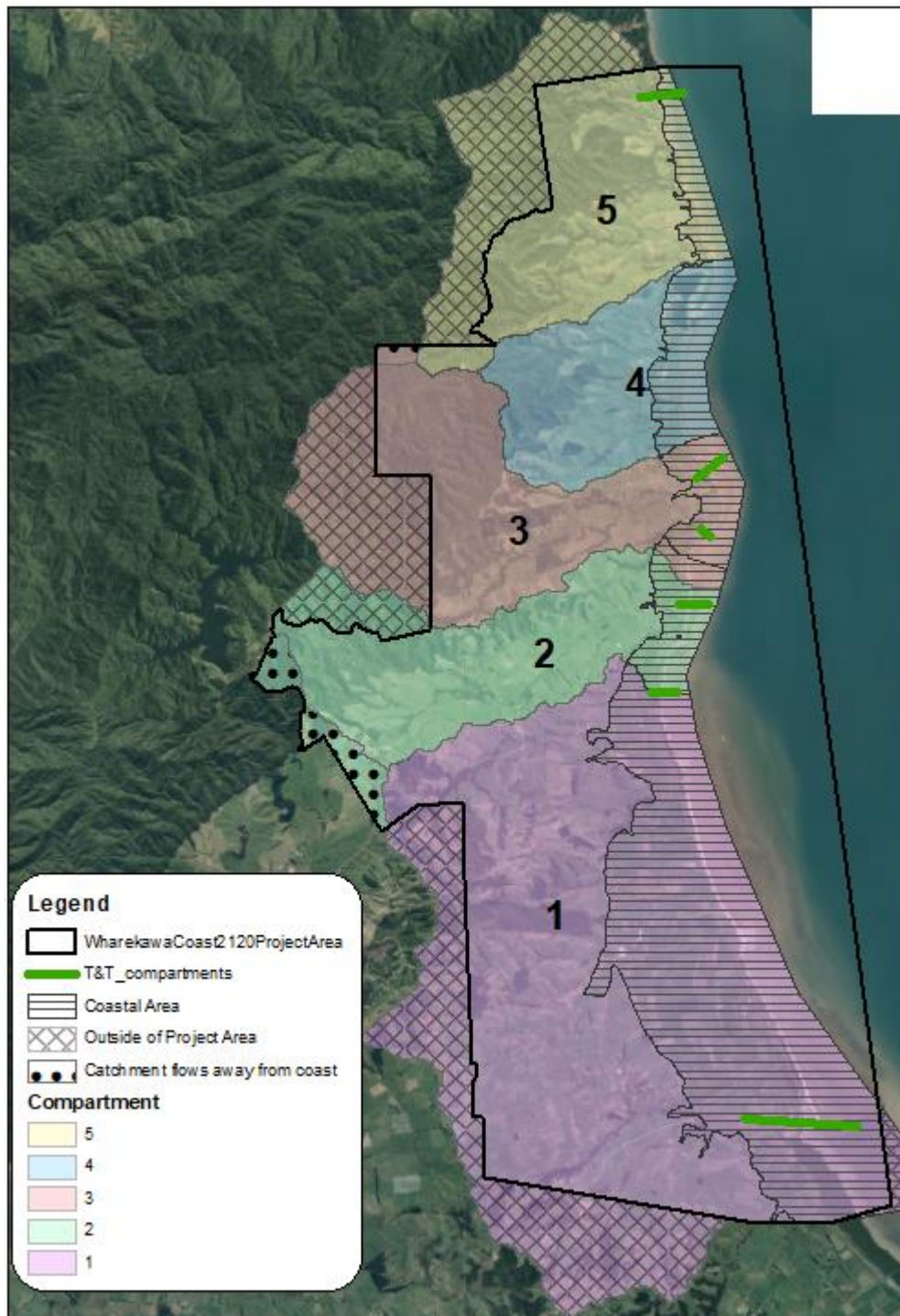


Figure 1. Compartment areas for the Wharekawa 2120 Project.

Appendix 2

Community Panel Terms of Reference

FINAL Terms of Reference

– Wharekawa Coast 2120 Community Advisory Panel

This Terms of Reference was confirmed by unanimous decision of the Wharekawa Coast 2120 Community Panel at their meeting on 5 May 2020

1. Background/Context

- 1.1. Hauraki District Council ("HDC") is preparing a community plan for the Kaiaua Pūkoro / Miranda coastal area ("Wharekawa Coast 2120") situated on the western side of the Firth of Thames.
- 1.2. The project is about the Wharekawa Coast communities coming together to define their path for the future, rather than leaving it to chance. It will provide future direction, while retaining the ability to be adaptive to an uncertain future. Regular reviews will ensure that the plan continues to deliver desired outcomes.
- 1.3. Wharekawa Coast 2120 will look at a wide range of issues around the coast, to provide for a resilient and prosperous future, with a particular focus on responding to climate change and natural hazards and the long-term future planning of communities and land use:
- 1.4. This Community Advisory Panel is being established as the key component of a collaborative process to develop Wharekawa Coast 2120. The Panel will consider a broad range of issue and, with technical support and advice, develop recommendations to the HDC and Waikato Regional Council that will inform the shape, content and direction of Wharekawa Coast 2120.

2. Name and Status

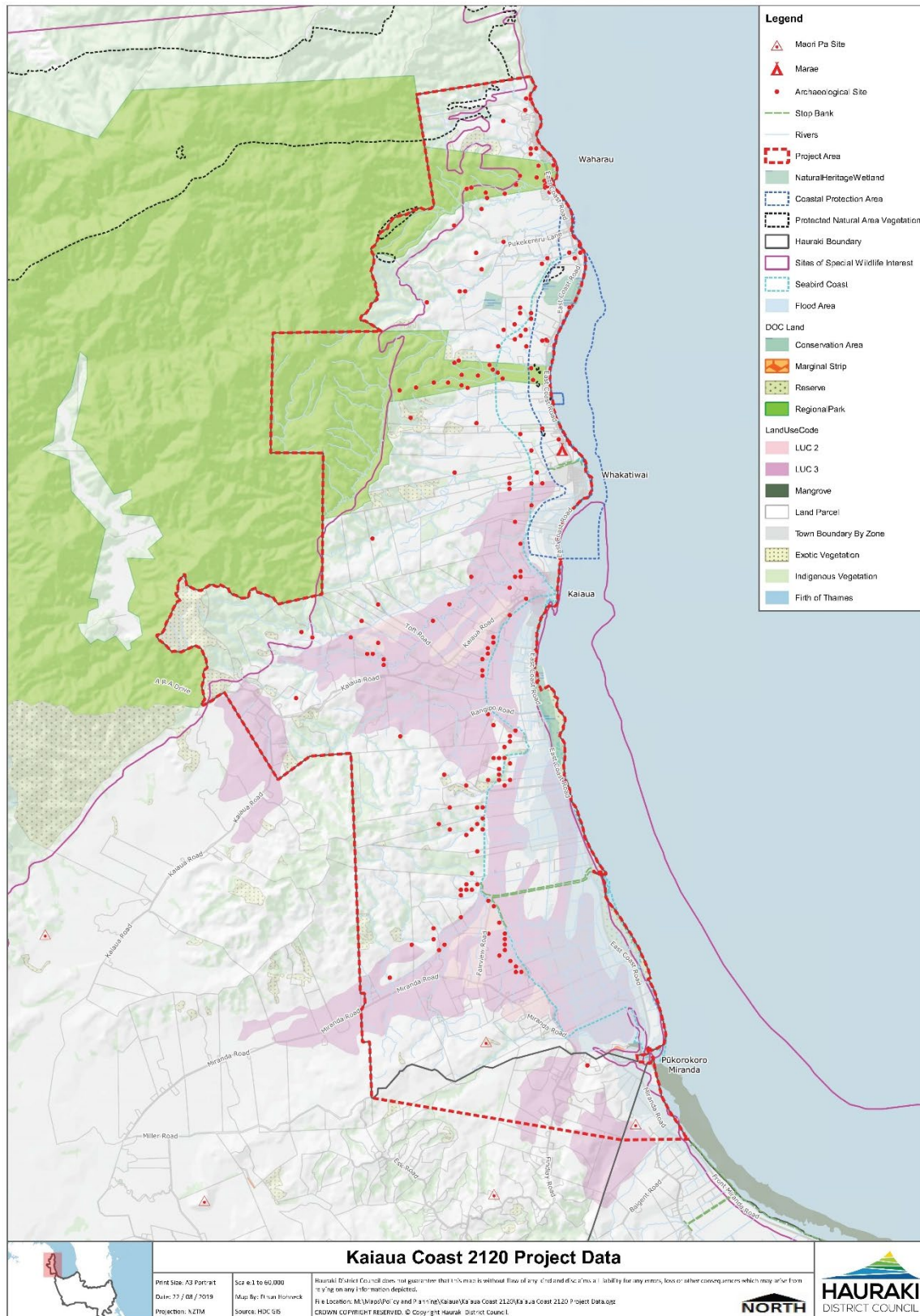
- 2.1. The Community Advisory panel shall be known as the Wharekawa Coast 2120 Community Advisory Panel ("**the Panel**").
- 2.2. The Panel is an informal entity established by agreement of its members.
- 2.3. The purpose of the Panel is to provide informed recommendations to the Hauraki District Council, Waikato Regional Council and Iwi, through a Joint Working Party, on the following matters:
 - a) Community values and aspirations;
 - b) The potential impacts of climate change and natural hazards risks;
 - c) Long-term adaptive pathways to respond to those risks; and
 - d) Key actions for achieving community aspirations.

2.4. The specific function of the Panel is to provide the Joint Working Party with input, advice and recommendations on the following matters:

- a) Facilitating engagement with the broader community, affected persons and other stakeholders in relation to the community's values, aspirations and goals and their priorities.
- b) The development of hazard response options (using an adaptive pathways approach) to respond to information provided on natural hazards risks and the effects of climate change. The range of options might include:
 - i. Doing Nothing;
 - ii. Hard Engineering solutions;
 - iii. Soft engineering solutions (e.g. beach re-nourishment, beach crest stabilisation);
 - iv. Retreat, including identification of alternative building sites and land purchase;
 - v. Emergency Management planning;
 - vi. District and Regional Plan provisions; and
 - vii. Relevant internal Council policies.
- c) Facilitating engagement with the broader community, affected persons and other stakeholders in relation to the risks posed by natural hazards and the effects of climate change and the associated proposed hazard response options.
- d) Open, objective and unbiased participation in a facilitated decision-making process to select preferred natural hazards response options.
- e) The determination of a preferred option(s) or series of natural hazards response options.
- f) The development of long-term community planning outcomes that take into account community values and aspirations and the impact of natural hazards;
- g) The preparation and delivery of reasoned recommendations to the Joint Working Party on the above matters.

3. Membership

3.1. A single panel shall be formed covering the area from Pūkoro/Miranda in the south to Waharau in north as indicated by Figure 1 below.

FIGURE 1: PROJECT AREA

3.2. Table 1 below outlines the membership distribution of the Panel.

TABLE 1: COMMUNITY ADVISORY PANEL MEMBERSHIP

Panel Members	Support Roles	Observers
Chair/co-chairs (up to 2)	Cultural Advisor (1)	Observers – Joint Working Party Members
Community panel members comprising those from Urban and Rural settlements, local business and recreation (up to 6)	Facilitator (2)	
Mana Whenua (3)	Panel Administrator (1)	
Network utility representative (1)	Technical Advisory Group / Independent Advisors	
Rural Support Trust (1)		
Community Services (1)		
Department of Conservation (1)		

4. Role Descriptions

- 4.1. **Panel Members:** Representative positions with full voting and speaking rights and participation in scoring and recommendations. A quorum of 50% of Panel Members is required for the Panel to pass any resolutions.
- 4.2. **Observers:** Present to observe and offer advice and opinions when these are requested by or through the Chair/Co-chairs. Speaking rights may be granted upon request, at the discretion of the Chair/Co-chairs. No voting rights
- 4.3. **Chair/Co-chairs:** Responsible for the efficient and fair operation of the meeting and ensuring the Terms of Reference are followed and adhered to. Responsible for handling all media enquiries regarding the work of the Panel. No voting rights, unless the position is filled by an existing panel member. Full speaking rights. The participating Councils see significant value from implementing Co-chair roles of the Panel which will share responsibility for the overall functioning of panel meeting. The Councils have a strong desire for one of the Co-chair roles to be filled by a mana whenua member of the Panel as this will bring a co-governance approach to the management of the Panel. In the event that a mana whenua Co-chair is not appointed by the Panel, the participating Councils encourage the appointment of a Deputy Chair from within the Panel.
- 4.4. **Cultural Advisor:** Responsible for ensuring tikanga is respected and followed throughout the process. Provides advice and guidance on the consideration of cultural values and impacts to ensure that the interpretation of iwi interests are appropriately captured and acknowledged. Assists Mana Whenua members as may be necessary to ensure quality relationships are developed throughout the Wharekawa Coast 2120 community plan process. No voting rights, unless the position is filled by an existing

panel member. Full speaking rights. The participating Councils are open to the role of cultural advisor to the Panel being filled from within the Panel, or as a shared role between a panel member and Hauraki District Council's Takawaenga (Iwi and Māori Liaison Officer) if the Panel consider this is appropriate.

- 4.5. **Facilitators:** Responsible for the overall management of each workshop, including managing how the Panel works and interacts, resolving conflicts, leading debates, seeking consensus, and ensuring voting members are given the full opportunity to participate. Ultimately responsible for securing the necessary outcomes from each Panel workshop in an efficient, fair, and transparent manner. Responsible for the development of a final report for each Panel, outlining the process taken and resolutions reached. No voting rights. Full speaking rights.
- 4.6. **Technical Advisory Group / Independent Technical Advisors:** Provides technical support and expertise to the Panel when this is requested through the Chair/Co-chairs. No voting rights. Speaking rights may be granted upon request, at the discretion of the Chair/Co-chairs.
- 4.7. **Panel Administrator:** Responsible for the organisation and logistics associated with the successful operation of each Panel workshop. Records the minutes, actions and resolutions from each workshop. Manages communications with all Panel members outside of each workshop. No voting rights. Speaking rights may be granted upon request, at the discretion of the Chair/Co-chairs.

5. Member attitudes and protocol for collaborative deliberation

- 5.1. The Panel represents a community-driven collaborative stakeholder process with the aim of providing the Joint Working Party with consensus advice and recommendations on a long-term approach to build resilience to natural hazards on the Wharekawa Coast over the next 100 years, and the long term aspirations for the communities, mana whenua, businesses and other stakeholders along this coast.
- 5.2. For this process to be successful, members of the Panel will need to have the ability to explore, consider and deliberate on options and recommendations with an open mind, taking into account diverse views and interests (rather than simply advocating for a particular point of view).
- 5.3. The following collaborative protocol is to be followed by all Panel members, observers and support roles:
- a) Panel members will participate co-operatively for the "long term benefit" of the region as a whole.

- b) All Panel members agree to act in good faith. This means that members must commit to open, honest, constructive, robust, respectful and collaborative deliberations. To facilitate this, the Chatham House rule¹ will apply.
- c) Contributions made within the Panel will be "without prejudice". That is, nothing said within the group may be used in a subsequent planning or legal process except for any recommendations and agreements reached by the group.
- d) Panel members agree to show respect for other members' views when communicating with their wider networks.
- e) Panel members agree to refrain from discussion and debate through media channels (i.e. newspapers, radio, television, and social media²).
- f) Any public statement regarding advice or recommendations made by the Panel are to be agreed by the Panel and made through the Chair/Co-chairs. This also applies to researchers, council staff and others who may attend in support of Panel meetings. The Project Manager is available to review any statements before they are approved by the Panel for public release.
- g) Consensus shall be strived for in all decisions made by Panel Members and is defined as every member (i.e. 100%) of the group being in agreement.
- h) Where 100% consensus cannot be reached on a specific piece of advice or a recommendation, the reasons for disagreement will be noted, any alternatives defined, and the reasons for members positions on the alternatives recorded.
- i) When the Panel reaches a decision, members will be expected to acknowledge that decision in subsequent public discussion, or presentation to the Council.
- j) If a meeting is missed by a member, members will not be able to "re-litigate" a piece of consensus advice or recommendation at a later time.
- k) Any recommendations made by the Panel must also take account of the requirements of the Local Government Act, New Zealand Coastal Policy Statement and other relevant legislation.

5.4. Members are required to declare any actual or perceived interests to the full Community Panel. The Chair/Co-chairs will then determine whether or not the interest represents a conflict, and if so, what action will be taken.

6. Operational Protocols

6.1. The following protocols shall apply to the operation of the Panel:

¹ When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.

² This does not preclude the objective and impartial use of social media to facilitate engagement with the broader community, affected persons and other stakeholders in relation to the risks posed by coastal hazards and the associated coastal hazard response options.

- a) The schedule of agreed meetings is attached as **Appendix 1** to these terms of reference.
- b) Panel Members are expected to commit to the agreed schedule of meetings in **Appendix 1** and make every effort to attend all meetings. While it is anticipated that some Panel Members will miss certain meetings through circumstances beyond their control, if a significant number of meetings are not attended by a Panel Member then at the discretion of the Chair/Co-chairs their membership may be reviewed and a reappointment process may be triggered.
- c) Unless a Panel member is otherwise remunerated for their attendance at panel meetings (i.e. because they are attending as an employee of the organisation they are there to represent), or opts out, all full voting members shall receive an honorarium per meeting attended. The value of the honorarium (and any subsequent adjustments as may be required) shall be determined by the Joint Working Party. No additional reimbursement shall be given for mileage or travel to attend workshops.
- d) A regular public reporting forum and newsletter or similar mechanism should be adopted by the Panel to ensure the wider public are kept informed of their activities.
- e) Panel meetings are not open to the public; however, the Chair/Co-chairs can invite people such as relevant experts and interested parties to specific meetings, and open certain meetings to the public and media representatives where it is considered appropriate. Elected members of the participating Councils are welcome to attend all meetings.
- f) The participating Councils will be responsible for providing all the necessary support for the effective functioning of the group including the provisions of meeting venues, refreshments, and staff support for the preparation of agendas, minutes, communications etc.
- g) Panel Members may not appoint alternates, or vote by proxy.
- h) Where a Panel Member is no longer available to continue participation for any reason, a replacement will be nominated by the relevant agency, group or community, to be accepted at the discretion of the Chair/Co-chairs.
- i) Where a Panel Member or Observer or any other party present at a meeting deliberately or otherwise breaches the requirements and expectations of their participation and attendance at Panel Meetings, as set out in this Terms of Reference, the Chair/Co-chairs may, at their sole discretion, recommend to the Joint Working Party that the person is removed. If this recommendation is confirmed by the Joint Working Party, the person in question shall immediately cease to be a member of the Panel or in the case they are not a Panel Member, shall be barred from attending future Panel meetings.

- j) Notes will be taken of all meetings. Notes will not record meeting conversations verbatim, but will provide an overall summary of the issues covered and the conclusions/decisions reached. These notes will be a public record.
- k) None of the matters in this terms of reference replaces, limits or restricts the individual decision-making of the participating Councils and organisations involved; the statutory responsibilities and obligations of the Councils for the implementation of plans and policies, including consent processing, monitoring, enforcement and compliance; or the ability to collaborate or work together in ways not defined in this terms of reference.

7. Resources

7.1. At each meeting, the Panel will have access to a Technical Advisory Group ("TAG") formed by senior staff from each of the Partner Councils. Independent technical advisors may also be engaged to assist with supporting the Panel, which may include expertise from the following areas:

- Cultural expertise
- Social impact assessment
- Coastal process science and engineering
- Landscape
- Legal
- Economics
- Planning

7.2. Attendance at specific meetings by experts shall be at the discretion of the Chair/Co-chairs.

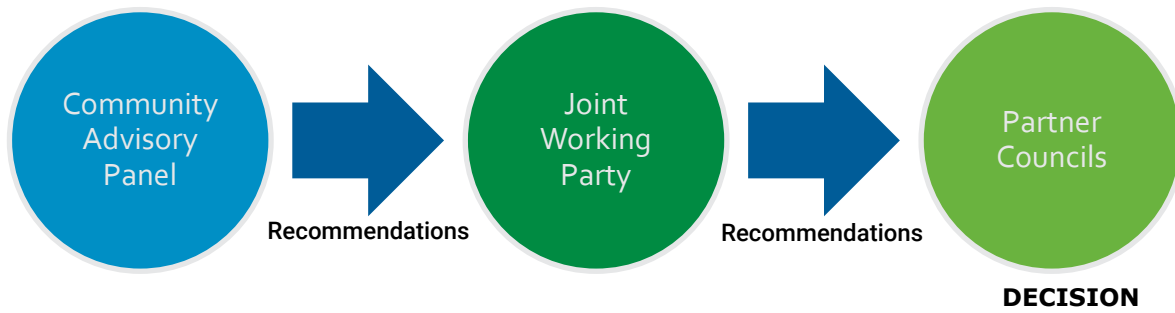
8. Recommendations and Reporting

8.1. At the conclusion of their process, the Panel will present a final report to the Joint Working Party outlining the process they have taken and a final set of recommendations to underpin Wharekawa Coast 2120.

8.2. The Joint Working Party shall, in good faith, consider the report and recommendations and may seek clarification and/or amendments from the Panel before formally receiving the report.

8.3. The Joint Working Party shall submit the final Panel report to the participating Councils with a formal recommendation.

8.4. This process is outlined in **Figure 2** below.

FIGURE 2: FUNCTIONAL RELATIONSHIPS

Appendix 1- Agreed Meeting Schedule

Meeting Schedule being reviewed in light of Covid-19 pandemic.

Agreed Meeting Schedule to be incorporated once finalised.

Appendix 3

Joint Working Party Terms of Reference

Terms of Reference, Wharekawa Coast 2120 Joint Working Party

1. Project Brief

- 1.1. Hauraki District Council ("**HDC**") is preparing a community plan for the Kaiaua Pūkoro / Miranda coastal area ("**Wharekawa Coast 2120**") situated on the western side of the Firth of Thames. The project has been confirmed in the HDC Long Term Plan 2018-2028.
- 1.2. The project is about the Wharekawa Coast communities coming together to define their path for the future, rather than leaving it to chance. It will provide future direction, while enabling the path to respond to changing conditions. Regular reviews will ensure that the plan continues to deliver desired outcomes.
- 1.3. Wharekawa Coast 2120 will look at a wide range of issues around the coast, to provide for a resilient and prosperous future, with a particular focus on:
 - i. climate change and natural hazards;
 - ii. future development and land use;
 - iii. economic opportunities; and
 - iv. community infrastructure (including Wharekawa (Kaiaua) Marae, Kaiaua School, roads, utilities, reserves, businesses, ecologically significant areas and tourist attractions).
- 1.4. This Joint Working Party is being established to provide governance oversight for the development of Wharekawa Coast 2120.

2. Name and Status

- 2.1. The Joint Working Party shall be known as the Wharekawa Coast 2120 Working Party ("**Working Party**").
- 2.2. The Working Party is an informal entity established by agreement of its members.

3. Membership

- 3.1. Council organisations represented on the Working Party shall be the Hauraki District Council, Waikato District Council and Waikato Regional Council ("**Partner Councils**").
- 3.2. Iwi organisations represented on the Working Party shall be Ngāti Paoa and Ngāti Whanaunga ("**Tangata Whenua Appointers**").
- 3.3. Each Partner Council shall appoint up to three (3) Councillors to the Working Party ("**Council Members**"). If not appointed directly to the Working Party, the Mayor of Hauraki District Council and the Chairperson of Waikato Regional Council are ex officio Council Members.
- 3.4. Tangata Whenua Appointers may appoint up to four (4) representatives in total to the Working Party ("**Tangata Whenua Members**").

4. Meetings

- 4.1. Meetings shall generally be held in in the Hauraki District Council Chambers, with approximately 4 to 6 meetings held per year in accordance with project requirements.
- 4.2. The agenda and papers for each meeting shall be circulated to Working Party Members at least 5 working days before the meeting.
- 4.3. Notice of meetings will be given well in advance in writing to all Working Party Members, and not later than one month prior to the meeting.
- 4.4. The quorum shall be 50% of the total number of confirmed Working Party members, providing that at least 1 members from each Partner Council are present.

5. Functions

- 5.1. The Working Party has responsibility for guiding and providing governance oversight for the development of Wharekawa Coast 2120, including:
 - i. The identification of natural hazards extents and risks as informed by technical assessments and the development of an adaptive plan to respond to those risks;
 - ii. The consideration of the relevant planning provisions (primarily the Hauraki District Plan) in light of the hazards risks identified and planning responses proposed, and the subsequent recommendation of changes required to the planning provisions;
 - iii. The review of economic development opportunities in light of the identified hazards risks and the subsequent identification of appropriate development;
 - iv. Considering and recommending a draft Wharekawa Coast 2120 plan to the Partner Councils for public notification;
 - v. Considering comments and submissions on the draft plan and making appropriate recommendations to the Partner Councils; and
 - vi. Considering and recommending a final plan to each of the Partner Councils for approval.

6. Administration

- 6.1. The Hauraki District Council shall be responsible for administering the Working Party including preparing and circulating agendas, confirming meeting dates and venues, taking and circulating minutes and providing a point of contact for Working Party Members.

7. Remuneration

- 7.1. Each Partner Council shall be responsible for remunerating its representatives on the Working Party and for the cost of those members participation.

- 7.2. The Hauraki District Council shall be responsible for administering the remuneration of the Tangata Whenua Members, with the cost of such remuneration shared equally by the Partner Councils and in accordance with the Waikato Regional Council's Koha Policy and guidelines.

8. Election of Chairperson and Deputy Chairperson

- 8.1. On the formation of the Working Party the members shall elect Chairperson and may elect a Deputy Chairperson.

9. Voting

- 9.1. Where voting is required, all Members of the Working Party have full speaking rights.
- 9.2. Each Member has one vote.
- 9.3. Best endeavours will be made to achieve decisions on a consensus basis.
- 9.4. The Chairperson at any meeting does not have a deliberative vote and, in the case of equality of votes, has no casting vote.

10. Review and Variation

- 10.1. On an annual basis, the appointed Project Advisor for Wharekawa Coast 2120 shall undertake a review of these terms of reference to ensure they remain fit for purpose and effective. The outcome of such review and any recommendations for changes shall be reported to the Working Party.
- 10.2. Amendments to the Terms of Reference may only be made with the approval of all Working Party Members.

Appendix 4

Technical Advisory Group Terms of Reference

Terms of Reference - Wharekawa Coast 2120 Technical Advisory Group

1. Purpose

- 1.1. This Terms of Reference describes the membership, role, function and administration of the Technical Advisory Group ("**TAG**") formed for the Wharekawa Coast Community Plan ("**Wharekawa Coast 2120**").
- 1.2. This document also confirms the agreed cost sharing arrangements (including in-kind costs) between the Hauraki District Council, Waikato District Council and Waikato Regional Council ("**the Councils**") for the development of Wharekawa Coast 2120.

2. Project context

- 2.1. Wharekawa Coast 2120 is being prepared for the Pūkoro / Miranda coastal area, situated on the western side of the Firth of Thames ("**Kaiaua Coast**"). This area includes the Waharau, Whakatiwai, Kaiaua and Miranda communities.
- 2.2. The project has been confirmed in the Hauraki District Council's Long Term Plan 2018-2028 | Tō Mātou Mahere Roa 2018-28.
- 2.3. The project is about the Wharekawa Coast communities coming together to define their path for the future, rather than leaving it to chance. It will provide future direction, while enabling the path to respond to changing conditions. Regular reviews will ensure that the plan continues to deliver desired outcomes.
- 2.4. Wharekawa Coast 2120 will look at a wide range of issues around the coast, to provide for a resilient and prosperous future, with a particular focus on:
 - i. climate change and natural hazards;
 - ii. future development and land use;
 - iii. economic opportunities; and
 - iv. community infrastructure (including Wharekawa (Kaiaua) Marae, Kaiaua School, roads, utilities, reserves, businesses, ecologically significant areas and tourist attractions).
- 2.5. A Joint Working Party is being established to provide governance oversight for the development of Wharekawa Coast 2120, formed by elected representatives of the Hauraki District Council, [Waikato District Council TBC], Waikato Regional Council and Iwi appointees.

3. Membership

- 3.1. In general, TAG shall be formed by staff representatives from each Council; however, independent and/or external appointments to TAG may be made by the agreement of all Councils.
- 3.2. The Councils may freely appoint members to the TAG at any time.

- 3.3. There shall be no upper or lower limit on the number of TAG members, except that the Councils shall seek to ensure that there are sufficient appointments to the TAG to cover the following areas of expertise:
- i. Matauranga Maori
 - ii. Resource Management and Planning
 - iii. Engineering
 - iv. Coastal Science
 - v. Hazard Risk Assessment/Management
 - vi. Communications and Engagement

4. Meetings

- 4.1. Meetings shall generally be held at the Hauraki District Council.
- 4.2. Meetings shall generally be held every 6 weeks for the duration of the project, or as may be determined by the Councils.
- 4.3. The agenda and papers for each meeting shall be circulated at least 5 working days before the meeting.
- 4.4. The external Project Advisor appointed for Wharekawa Coast 2120 shall chair TAG meetings.

5. Functions

- 5.1. TAG has the responsibility for the project management, technical support and delivery of the of Wharekawa Coast 2120, including:
 - i. Project managing Wharekawa Coast 2120;
 - ii. Completing tasks and project work as directed by the Joint Working Party;
 - iii. Leading project engagement with the community and stakeholders;
 - iv. Providing technical information and support for the Joint Working Party to enable sound and informed decision making;
 - v. Developing, agreeing, maintaining and reporting on a Project Budget;
 - vi. Managing consultants engaged for the project;
 - vii. Facilitating information and knowledge exchange between the Councils; and
 - viii. Ensuring Council inputs and activities are integrated, aligned and complementary.

- 5.2. The Hauraki District Council shall be responsible for administering the TAG including preparing and circulating agendas, confirming meeting dates and venues, taking and circulating minutes and providing a point of contact for TAG Members.

6. Cost sharing

- 6.1. Each Council shall be responsible for meeting their own costs for participating in the TAG.
- 6.2. The Hauraki District Council shall be responsible for meeting the costs of engaging an external project advisor for Wharekawa Coast 2120, this includes provision for undertaking vulnerability and social impact assessments, up to a maximum of \$290,000 over three years.
- 6.3. The Waikato Regional Council shall be responsible for meeting the costs (whether in-kind staff time or external consultant costs) of preparing a natural hazard and risk assessment for the Wharekawa Coast. Where external consultant costs are required, the Waikato Regional Council will discuss sharing costs with the project partners.
- 6.4. As a general principle, all other costs for the development of Wharekawa Coast 2120 shall be shared equally between the Hauraki District Council and the Waikato Regional Council, where those costs have been identified and confirmed in the agreed Project Budget.
- 6.5. Cost sharing for any unbudgeted costs shall be determined and agreed on a case by case basis.
- 6.6. Cost sharing arrangements for the operation of the Joint Working Party are defined in the Working Party's Terms of Reference.

7. Review and Variation

- 7.1. On an annual basis, the appointed Project Advisor for Wharekawa 2120 shall undertake a review of these terms of reference to ensure they remain fit for purpose and effective. The outcome of such review and any recommendations for changes shall be reported to the TAG.
- 7.2. Amendments to these Terms of Reference may only be made with the approval of TAG, however any amendments to Section 6 require the approval of the Joint Working Party.

Appendix 5

Stakeholder Mapping Outcome

INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
<ul style="list-style-type: none"> ≈ Te Puni Kokiri ≈ Society of Local Government Managers ≈ Dairy NZ ≈ Real Estate Institute ≈ Ministry for Primary Industry ≈ Land Information NZ ≈ NZ Sea Rise ≈ Ministry of Business Innovation and Employment ≈ Earthquake Commission ≈ Minister for Climate Change ≈ IAG Insurance 	<ul style="list-style-type: none"> ≈ Ministry for the Environment ≈ Ministry of Education (Kaiaua school) ≈ Heritage NZ ≈ Living Waters ≈ Hospitality Interest Group ≈ Teachers ≈ Farming Consultants ≈ Auckland Council ≈ Ministry of Civil Defence and Emergency Management 	<ul style="list-style-type: none"> ≈ Kaiaua residents ≈ Absentee owners (baches) ≈ NZ Insurance Council ≈ Rural Support Trust ≈ Denis Tegg ≈ Hauraki Gulf Forum ≈ NZ Fire & St Johns ≈ Auckland Council - Regional Park ≈ Ratepayers Association (Kaiaua Advisory Group) ≈ Kaiaua boating club + recreational fishers ≈ Local shops ≈ New Zealand Transport Agency 	<ul style="list-style-type: none"> ≈ Community Panel ≈ Iwi ≈ WDC, WRC, HDC staff 	<ul style="list-style-type: none"> ≈ Waikato Regional Councillors ≈ Hauraki District Councillors

INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
<ul style="list-style-type: none"> ≈ Resilience to Natures Hazards – National Science Challenge ≈ Work from home/ home occupations ≈ Commuters ≈ Bay of Plenty Regional Council ≈ All other Waikato Regional Territorial Authorities ≈ Local Government New Zealand ≈ Deep South Science Challenge ≈ Nanaia Mahuta ≈ Scott Simpson ≈ Auckland University ≈ Waikato University ≈ Landcare Research ≈ Waikato Regional Economic Development Agency Te Waka 	<ul style="list-style-type: none"> ≈ Waikato Civil Defence and Emergency Management Group – GEMO ≈ TCDC ≈ Forest & Bird ≈ Extinction Rebellion ≈ Miranda Shorebird Centre ≈ Hauraki Rail Trail Trust ≈ Hauraki Rail Trail businesses (incl new start-ups) ≈ Motorhome Association ≈ Eco Quest ≈ Destination Coromandel 	<ul style="list-style-type: none"> ≈ Kaiaua Compass ≈ Transport companies ≈ Telecommunication companies ≈ Power companies ≈ Network utilities ≈ Federated Farmers ≈ Department of Conservation ≈ Fonterra 		

Appendix 6

Summary of “Wharekawa Coast 2120 Coastal Processes and Hazards”

Dr Terry Hume, January 2021

This report is a component of the Wharekawa Coast 2120 project. The project is aimed at developing a long-term community strategy for the sustainable management of the Wharekawa coast which will provide the community and other key stakeholders with information on key hazards, assets, values and how to best manage risk and uncertainty over the short, medium and long term. This report is one of a collection of reports addressing issues such as: natural hazards (coastal processes and river flooding), impact assessments and risk assessments. It provides an assessment of coastal processes, the drivers of coastal change and coastal hazards (coastal inundation, erosion and tsunami) and the potential effects of climate change and sea level rise in respect to the coastal geomorphology. Its purpose is to inform a community strategy in order that discussions and adaptive planning options are based on a common understanding of coastal processes, drivers and hazards.

The low-lying coastal plain and beach system and associated farmland and coastal infrastructure of the Wharekawa coast are vulnerable to, and at risk from coastal inundation (flooding from the sea), coastal erosion and tsunami hazards. Coastal inundation and erosion hazards are expected to worsen with climate change and projected sea level rise.

The geomorphology varies from north to south along the coast. North of Wharekawa the coastal plain is narrow (c. 0.2 km) and steep beaches backed by low narrow gravel ridges comprised of pebbles and cobbles are fronted by a narrow intertidal zone of finer gravelly/sandy sediment. In the south near Miranda, the low-lying coastal plain is wide (c. 1.8 km), fronted by a narrow strip of wetlands and shelly composite sand-gravel beaches with low storm ridges, and low gradient muddy intertidal flats extending some 2 km offshore. Along the coast small deltas are built at the mouths of streams/drains.

The coastal plain has built seawards (prograded) of former coastal cliffs to the west in the last 6,000 years in response to an episodic supply of sediment, accommodation space provided by a formerly embayed shoreline and, importantly, an overall fall in sea level of some 2 m between 4,000 and 1,000

years ago. In this latter period the shoreline prograded rapidly (c. 4.5 m/yr) some 1.8 km near Miranda. In the last 1,000 years sea level has stabilised and, overall, the shoreline progradation is now in a state of dynamic equilibrium (oscillating forward and back) north of Kaiaua and in a similar state of dynamic equilibrium or perhaps retreating south of Kaiaua. Significant geomorphological features in the paddocks of the coastal plain are the chenier ridges which are shelly, low, approximately shore parallel ridges lying atop muddy sediment.

Today the shoreline is fed with coarse sediment (cobbles, pebbles, granules and coarse sand) primarily from the Orere River in the north. This sediment is driven south along the shore by waves generated in the Gulf that arrive at an oblique angle to the shore. During longshore transport the rock fragments break down and the fines travel faster than the coarse sediment resulting in sorting and a progressive fining of sediments to the south. In the south, large amounts of shell are fed to the beaches from the vast tidal flats offshore. All along the shore wave runup and overtopping builds the narrow, low (0.5 to 1.0 m), gravelly beach ridge barriers above high tide. In the south muds from the Waihou, Waitoa and Waitakaruru rivers are deposited on the tidal flats.

The key drivers of coastal hazards are water levels, waves, and winds. At longer time scales climate change and associated sea level rise become important.

High water levels generated during storms cause overtopping of the beach ridge barrier, determine the distance sea water travels inland over low topography, allow breaking waves to reach and erode the upper beach and beach ridge barrier, and control the mean shoreline position on longer time scales. Storm tides (a combination high astronomical/spring tides, storm surge generated by strong winds blowing down the Gulf, low barometric pressure and monthly mean sea level variation) elevate the water level above the predicted tide and 'pile it up' against the coastline resulting in coastal inundation and erosion. In addition, short term increases in water level occur during storm events due to wave setup and runup. Longer-term increases in sea level (averaging c. 1.8 mm/year over the last c. 100 years) add to the elevated water levels.

Waves breaking at the shore, particularly at times of high tide and storm tides, cause erosion. While the Firth normally has a benign wave climate, high energy conditions are driven by infrequently occurring higher energy long-period waves. These propagate into the southern Firth from the outer Hauraki Gulf. More commonly-occurring shorter period waves, generated along the large fetch, coincide with the northerly wind direction.

Coastal inundation is the major threat to the Wharekawa coast because much of the coastal plain lies at or below mean sea level (MHWs level is 1.8 m MVD-53). The low coastal barrier ridge backing the beach provides little protection against overtopping by the sea. Under present day conditions, the plain begins to flood either directly or indirectly from the sea when the sea level reaches about 2.0 m (MVD-53 datum). Flooding spreads greatly as the lower and upper storm tides raise the water level to 2.2 to 3.2 m (MVD-53 datum). Under the status quo, coastal inundation events will continue to threaten the area, just as they have done in the past. Inundation events, while infrequent, will be the largest and most extensive

when storm tides coincide with high tide and king tides and when these conditions are maintained for several days. Inundation from the sea will be further exacerbated during heavy rainfall and stream flooding that is commonly associated with storms. Sea water flooding up rivers and drains prevents the escape of flood waters to the sea and causes water levels to rise to higher levels and travel further inland and, in addition, the land remains inundated with salty water for longer periods of time. The coastal plain is so low in places that any one of those events occurring alone can cause lesser amounts of inundation. Coastal inundation will be widespread along the shoreline with the extent dictated by the topography, will proceed rapidly and little can be done at the time to mitigate the effects.

Coastal erosion is less of a hazard than coastal inundation. The low narrow gravel ridge barrier, unlike large dunes on a sandy coast, provides little buffer against erosion as the barrier contains only a small volume of sediment. Shoreline stability is very dependent on a continued supply of sand and gravel from the rivers and shell material from the tidal flats offshore. The variety of erosion protection structures along the coast including rock walls, wooden groynes, dumped concrete and concrete pipes are in various states of disrepair. Some are of questionable effectiveness and may in some instances be detrimental to coastal processes and be contributing to the erosion rather than preventing it. Coastal erosion will generally be confined to localised 'hot spots' and proceed slowly. The scale of erosion will be dictated by how well the beach is built up with sediment and provide a buffer during storm events.

Extreme coastal inundation and erosion events occur infrequently because the meteorological and oceanographic 'ducks need to line up' namely: high tide, king tide, low atmospheric pressure, strong northerly winds, large waves propagating down the Gulf and stream flooding.

Tsunamis propose only a minor hazard. While mostly small tsunami events have been reported in the Hauraki Gulf on at least 11 occasions since 1840, numerical modelling of both distantly and locally generated tsunami suggests that the likelihood for tsunami in the Firth of Thames is relatively low. Tsunami waves while low in height, will result in rapid and widespread coastal inundation in low lying areas and little can be done at the time to mitigate the effects.

Climate change and associated sea level rise will exacerbate the threats and the level of risk to assets from coastal inundation and erosion. MFE guidance issued in 2017, based on the Intergovernmental Panel on Climate Change (IPCC) 2014 report projects: 1) a global sea-level rise by 2120 of about 0.5 to 1.4 metres (above the 1995 level) and 0.3 to 0.5 metres by 2060, 2) increasing occurrence of storm tides water levels over and above the level of predicted tides, and 3) for storms to occur more frequently. For the Wharekawa coast, coastal inundation is a major threat because under a future projected 0.5 m sea level rise MHWs will rise to 2.3 m (MVD-53 datum) and the lower and upper storm tides will see water levels of 2.7 to 3.7 m (MVD-53 datum) respectively. A future projected 1.0 m sea level rise will see 0.5 m added to these levels. In addition, and importantly, events that are rare today (decadal or longer) will be increasingly common (weekly) in the distant future. Coastal erosion and shoreline retreat will increase because of higher water levels and waves closer to the shore during events. Coastal erosion may be offset to some degree by increased sediment supply from streams that will occur with increased

storminess. However, at long time scales (50 to 100 years), coastal inundation is predicted to flood the low lying coastal plain and likely to completely dominate over coastal erosion. Tsunami occurrence will not be affected by climate change, although higher long-term sea levels associated with sea level rise will allow tsunami to propagate further landward.

Appendix 7

Summary of
“Rapid Flood Hazard
Assessment of
Hauarahi Stream,
Kaiaua”
*Waikato Regional Council,
May 2020*

Purpose:

Using flood modelling, this report is intended to provide an initial assessment of:

- ≈ which areas are most at risk of flooding from Hauarahi Stream;
- ≈ how the severity of flooding changes with different frequency flood events; and
- ≈ how the severity of flooding may change with the projected effects of climate change.

This will provide the Wharekawa Coast 2120 TAG and Community Panel with preliminary information to help them understand the river flooding hazard in the context of other natural hazards that the Wharekawa Coast is exposed to, such as coastal inundation. It also provides model data that is suitably robust to use in the Natural Hazard Risk Assessment for the Wharekawa Coast.

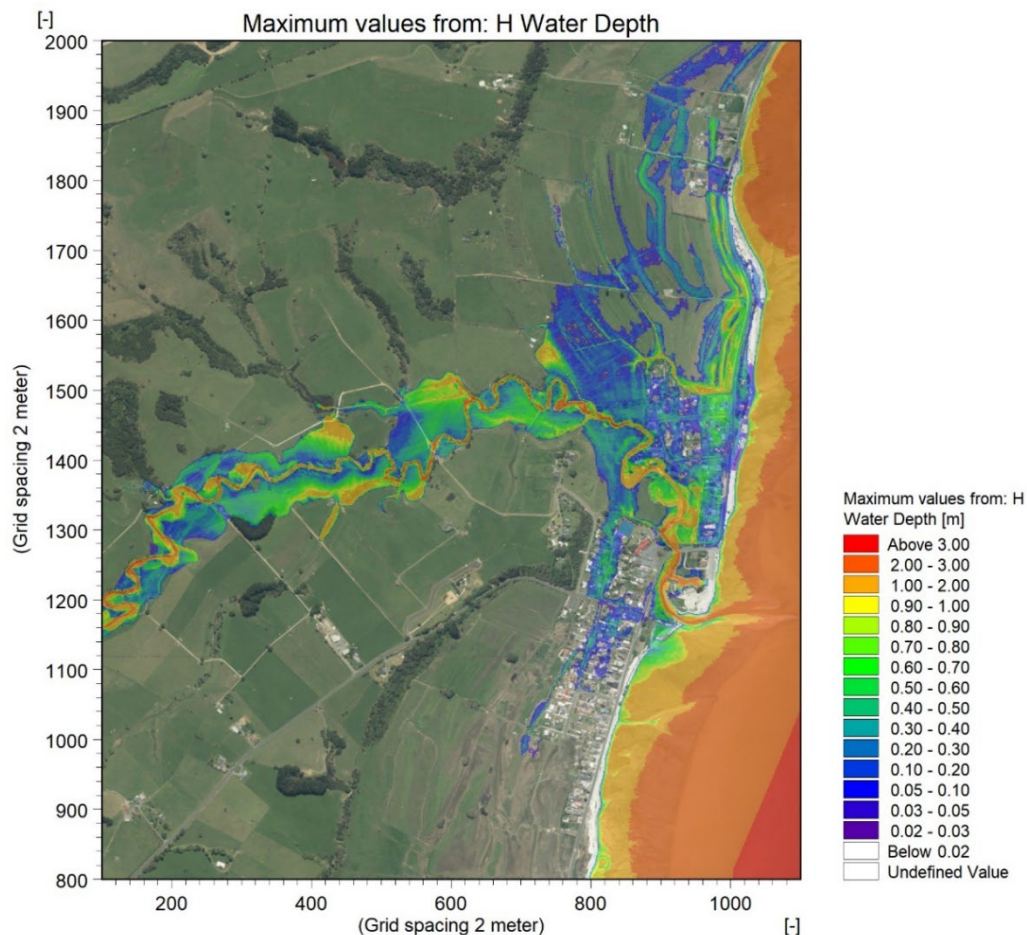
Additionally, the report provides background information on the March 2017 river flood event in the Hauarahi Stream, and on the history and options of flood, river and catchment management in the area.

Key findings:

This report presents flood model results for the 2, 5, 10, 20, 50, and 100 year annual return interval (ARI) events with current climate stream flows. It also presents the 100 year ARI event with a range of climate

change scenarios, including projected sea level rise. The maximum water depths of each event have been mapped and are provided in the report.

The figure below shows the modelled flood extent and maximum water depths for a current climate 100 year ARI flood event in Hauarahi Stream.



The results of the flood modelling show that even a 2-year ARI flood event in the Hauarahi Stream will result in some flooding of rural property and possibly residential property. As the size of the event increases (and frequency decreases), the flood hazard progressively increases, for both farmland and residential.

When the projected effects of climate change are considered, an increase in rainfall intensity alone does not cause a substantial increase in the severity of flooding. However, with 1m of projected sea level rise the increase in flood hazard is such that the majority of Kaiaua township may be inundated. Here it is important to note that much of the flooding in the lower reaches of the stream is the result of the modelled sea level rise and spring tide causing coastal inundation, rather than river flooding from Hauarahi Stream. This highlights the importance of considering the effects of river flooding in conjunction with those of coastal inundation, particularly when assessing adaptation options.

Feedback on the model results was provided by a local community member. Using observations of previous flood events, they confirmed that the models provide a good representation of real flood events. This provided confidence that the model data was appropriate to use in the Wharekawa Coast 2120 Natural Hazard Risk Assessment. However, we acknowledge that further work will be required to improve the model in order to inform a more detailed assessment of possible flood management/protection options.

Appendix 8

Summary of

“Climate-driven impacts on fluvial inundation in coastal Kaiaua”

Jonathan Chambers, 2021

Wharekawa Coast 2120 aims to bring the Wharekawa communities together to define their path for the future while enabling flexibility to respond to changing conditions such as projected climate change. This report is part of that process and outlines the climate driven impacts on fluvial inundation in coastal Kaiaua, which was developed by a master’s student at the University of Auckland for the fulfilment of their studies and outlines the impacts from fluvial flooding on buildings in Kaiaua considering different climate change pathways using the Representative Concentration Pathways (RCPs) model.

This analysis explores the impacts of fluvial flood risks to properties in Kaiaua from frequent and extreme rainfall events under two likely future climate pathways between 2020 and 2120. It identifies an increasing number of dwellings likely to experience surface flooding as well as flooding above finished floor levels in both pathways.

The Hauarahi Stream drains a 1270-hectare catchment with its headwaters adjacent to the Mangatangi reservoir, 7 kilometres from the shore and 430 metres above sea level in the eastern Hunua Ranges. It discharges to the Firth of Thames in the centre of Kaiaua, splitting the town into northern and southern areas with distinct flood dynamics. The lower two-thirds of the Hauarahi Stream catchment is pastoral farmland, and the upper third is forested.

Kaiaua is particularly prone to coastal inundation and sea-level rise. As it is a very low-lying town it is likely to be significantly affected by sea-level rise earlier than other coastal settlements around the North Island. Rising sea levels can influence flooding in Kaiaua directly, by overtopping the beach ridge barrier during high tides and storm-surge events, or indirectly, by reducing the capacity of drainage networks including the Hauarahi Stream and local flowpaths/pipe systems.

Kaiaua has experienced significant flooding in recent history from coastal inundation and flooding from the Haurahi Stream, which can break its banks in events as frequent as the 1-in-2-year storm. Some of the historic extreme flood events documented in this report include:

- ≈ January 1938
- ≈ 10 -12 January 1997
- ≈ 07-12 March 2017
- ≈ 04 - 14 April 2017
- ≈ 05 January 2018

A rapid flood hazard assessment for the lower Haurahi Stream catchment was developed in MIKE 21 by the Waikato Regional Council (WRC) in early 2020 to provide preliminary information to the Wharekawa Coast 2120 project. WRC provided this model, results, and associated input data. The model was further developed to include future climate projections to model the potential impacts to properties between 2020 and 2120.

This model provides flood depth information for frequency events of 1-in-2-year to 1-in-100-year ARI storms. A detailed literature review identified RCP6.0 M and RCP8.5 M as possible future climates that may exacerbate flood hazards to Kaiaua.

An assessment of individual buildings in the catchment identified a small number of dwellings that are influenced by coastal inundation at Mean High Water Springs (MHWS) prior to 2050, increasing to a balance of dwellings by 2080, and a majority of dwellings by 2120.

The assessment also found that the rate of change of increasing flooding in Kaiaua was sensitive to the pace of climate change. For example, the level of flooding expected in 2120 under a moderate-high climate change pathway (RCP 6.0 M) is expected in 2080 under an extreme climate change pathway (RCP 8.5 M).

The severe influence of projected sea-level rise means that relative to an optimistic coastal boundary at MHWS, the depth of flooding adjacent many existing dwellings during a 1-in-2-year ARI rainfall event in 100 years' time may exceed the depth of flooding experienced during a 1-in-100-year ARI rainfall event in the present climate.

Climate change is driving a rapid increase in beach ridge barrier-overtopping and streamflow-retarding events in Kaiaua which may culminate in the equivalent of a 1-in-200-year ARI storm surge event which

inundated the community in 2018 occurring on a monthly basis by 2120 under an extreme climate change pathway (RCP 8.5 M).

The results indicate that from around 2050 onwards, sea-level rise will become an increasingly significant factor towards flood risk at greater frequencies (lower magnitudes). This report also highlights the importance of considering the risk from coastal inundation in the future, if any flood management options are going to be considered for the Hauarahi Stream.

The modelling shows the very distinctive fluvial flood dynamics of both northern and southern Kaiaua, presenting characteristic long-section profiles of a property in both northern and southern Kaiaua. The relative proximity of Puriri Ave to the Hauarahi Stream floodplain and minimal associated depression storage may cause properties in North Kaiaua to flood up to 30 minutes sooner than properties in South Kaiaua.

For a northern Kaiaua property, flooding is driven by overtopping flows from the true left bank of the Hauarahi Stream at the intersection of Puriri Ave and Pohutukawa Ave, where runoff ponds behind the East Coast Road intersections, causing runoff to spill into low-lying land to the north as well as over East Coast Road and onto the beach. The hazard profile of an unnamed dwelling in North Kaiaua shows present-day flood depths of 250 mm (1-in-2-year ARI), 600 mm (1-in-10-year ARI) and 800 mm (1-in-100-year ARI) increasing through time. The effect of climate change on the resultant 1-in-100-year ARI flood hazard is minimal, with peak depth increasing at an average rate of 9 mm and 13 mm per decade under the respective RCP6.0 M and RCP8.5 M pathways. A far greater change is observed however in the 1-in-2-year ARI storm depth which doubles within the century under the RCP6.0 M pathway and quadruples under the RCP8.5 M pathway, as the effects of sea-level rise begin to have more of a direct effect on flooding within the town.

Flooding in South Kaiaua is driven by overtopping flows from the true right bank of the Hauarahi Stream to the west of Puriri Ave. A large proportion of the overtopping flow is attenuated in local depressions north of Lipscombe Road or conveyed towards the coast via the local roads. The remainder of the flow enters Lipscombe Road adjacent to the Kaiaua Community Hall, running along Kowhai Ave and discharging into the southern coastal plain some 800 metres downstream of its diffidence from the Hauarahi Stream. A dwelling sited at a low elevation in South Kaiaua is not likely to be flooded in storm events less extreme than a 1-in-10-year ARI event, and by around 250 mm (1-in-100-year ARI) increasing through time. The 1-in-100-year ARI flood hazard increases at a low rate of 10 mm per decade between 2020 and 2080, comparable to many dwellings in Kaiaua North. Beyond 2080, the impacts of sea-level rise are observed overtopping the beach ridge barrier and influencing far higher peak water levels in all storm events. By 2120, under the RCP8.5 M pathway the coastal inundation factor dominates the flood outcome to the point that the 1-in-100, 10, and 2-year ARI water levels are near equivalent.

Appendix 9

Summary of “Wharekawa Coast 2120 - Wider River Flood Assessment”

*Waikato Regional Council,
July 2021*

The Wharekawa Coast 2120 project will look at a wide range of natural hazard related issues within the project area to provide for a resilient and prosperous future, with one of the focuses being on climate change and natural hazards. To understand the impacts of climate change and natural hazards in the Wharekawa Coast 2120 project area, several reports have been compiled.

This Wider River Flood Assessment is part of that process, which is informed by historical river flood event information documented by Waikato Regional Council (WRC), Hauraki District Council (HDC), and the former Franklin District Council (FDC). Additional information and data were also provided by the Wharekawa Coast 2120 Community Panel, the wider community and other organisations. The purpose of this assessment is to:

1. Collate the historical and current river flooding information across the whole Wharekawa Coast 2120 project area and understand the impacts of these river flood events on the community.
2. Identify key priority areas in which may require further river flood investigation, such as refining catchment hydraulic models.
3. Recommend short term stream maintenance options which can be implemented to reduce the flood risk in the Wharekawa Coast 2120 project area. These are not intended to be long-term mitigation options or to reduce the flooding risk completely.

The findings from this report will be used to inform the Wharekawa Coast 2120 Community Panel, Technical Advisory Group and the Joint Governance Group, to better understand the historical river flooding impacts and provide the groups with the best available information to make informed decisions (with the information they hold) when determining adaptation option pathways for each compartment.

Findings from historical flooding events

The impact information presented in this report ranges from the 1960s through to 2022. A wide range of low to high impact events are documented across four impact categories of *livelihood*, *infrastructure*, *rural* and *environmental*.

This research indicates that the project area has been exposed to at least 16 documented riverine and/or coastal inundation events throughout the 1930 to 2022 period. The exposure and risk associated with these historical events vary across the project area. Coastal Kaiaua has a relatively high risk of river flooding due to the Hauarahi Stream migrating through the centre of the township and discharging into the Firth of Thames. Residential buildings in Kaiaua have been flooded on several occasions throughout the last 60 years, most recently in 2011, 2017, and 2018.

The flooding risk in Kaiaua led FDC to investigate the development of flood protection for Kaiaua township on two separate occasions, following the 1985 and 1995 joint riverine & coastal inundation events. However, flood protection assets were not constructed due to the economic cost of the development. This has left the Kaiaua township exposed to flood hazards, which are anticipated to increase because of the projected effects of climate change. Further flood hazard modelling of the Hauarahi Stream under present day and future climate scenarios has been undertaken by WRC and built upon by a Master of Engineering student from the University of Auckland.

Other streams across the project area presents their own hazards and risks as evidenced by historical flood events. These include two consecutive Whakatīwai Stream flood events in the 1960s which severely impacted most buildings in the village, left 150 acres of farmland unusable for 12 months, and took the lives of almost 500 ewes. These events initiated the development of the Whakatīwai stopbanks which have effectively reduced the flooding risk to the Whakatīwai village.

The Waharau community has also been the victim of a major flood event, when the April 2017 Ex-tropical Cyclone Debbie event closed the Waharau bridge south of the village and a slip blocked East Coast Road to the north of the village, leaving the community isolated by road for up to two weeks. Events like this highlight the secondary impacts that can be associated with some of these larger events, which have the ability to disrupt the safety blanket of individuals everyday life, such as not being able to access essential services.

Flood events associated with other major and minor streams in the project area are also documented in this report.

Identification of priority areas for further flood hazard investigation

The findings of this report provide a basis for identifying flood priority areas where further flood hazard investigation may be required. The objective of identifying these flood priority areas is to highlight key

streams where the impacts documented in this report are deemed to be intolerable, and further flood modelling and risk identification efforts may be required.

Priority areas identified include the following:

- ≈ Lower Hauarahi Stream & Kaiaua township.
- ≈ Updates & remodelling of existing river models with new input datasets such as LiDAR (currently being completed).
- ≈ A rapid Flood Hazard Assessment for the Whakatīwai Stream.
- ≈ A stopbank performance review for the Whakatīwai, Pūkorokoro and Miranda Streams.
- ≈ A roading and bridge abutment impact assessment during different high flow events along East Coast Road.
- ≈ An erosion study for Waharau Stream.

Stream maintenance plan programme

The purpose of this section is to provide an overview of a stream maintenance plan for all watercourses in the project area that drain into the Firth, that can be completed relatively quickly and at a low cost that may help to reduce the immediate risk posed by the streams.

These options were developed in a staged approach, first with the expert guidance from both WRC and HDC drainage and river managers to help identify options suitable to the project area for specific streams. These were then further refined with the guidance of the river flood focus group, in which community panel members were involved, who provided the local situational awareness, such as indicating which streams are of cultural significance, require local iwi consultation and include any further input to options not previously included. This was then followed by fieldtrip investigations to further refine options and bring additional knowledge/information to light.

An important issue that was raised across all settlements in the project area during this exercise is the maintenance of all the drainage assets (culverts and drains). Almost all drains and culverts across the project area are requiring works to be completed to ensure they preform effectively under flood conditions. Options includes drain spraying and clearing, clearing of blocked culverts and investigation into improvements options such as one way valves or reducing culvert length in the tidal zone to allow for increased discharge time.

The fundamental option that is relevant across all streams and water outlets include stream mouth dredging and clearing to allow for easy discharge during high flow events. Other options include ensuring the performance and structural integrity of assets under flood conditions such as culverts, bridges and floodgates as well as effective management of the upper catchments.

Appendix 10

Summary of

“Wharekawa Coast 2120 Natural Hazards Social Impact Assessment for Wharekawa – Social impact and implications of sea- level rise on communities along the Wharekawa Coast”

EnviroStrat May 2020

Main social and community issues

A number of issues have been frequently raised during interviews as social concerns for the area. These issues and concerns are described below:

- ≈ Relationship with Council
- ≈ Isolation and access to services (especially in times of emergency)
- ≈ Action and capability of local authorities for planning and respond to flooding
- ≈ A sense of being trapped
- ≈ Mobility and immobility of residents
- ≈ Pressure on local infrastructure from tourism
- ≈ Social cohesion
- ≈ Young people leaving the area
- ≈ Uncoordinated efforts to adapt and mitigate future risks
- ≈ Ambivalence or reluctance to change
- ≈ Social gathering places exposed to flooding risk

- ≈ The social area of influence is wider than the area affected.

Community perception of natural hazards

Many of those interviewed are highly concerned about natural hazards, either coastal or from on land. Previous experience with coastal inundation has caused direct damage and severely impacted their livelihoods e.g. farm productivity lost due to saltwater killing off pasture, homes inundated and damaged, insurance premiums increased and too costly to pay.

A smaller group of 'Doubters' question the risks coastal hazards pose. They doubt that climate change is driving changes in coastal hazards and question whether any planning should be done, as these events occur all the time. This group disassociates the previous events, such as the 2018 flooding event, with climate change and believe that the risks of such an event occurring again remain the same, i.e. rare.

A 'Denial' group is formed of those who believe that the issue is exaggerated and that nothing will change. This group also consists of those who feel that another event will not happen in their lifetime. They believe that they won't have to deal with the impacts of coastal hazards.

A 'Neutral' group perceives coastal hazards very differently to the rest of the groups. They readily accept that hazards exist but are either not directly impacted by them or believe that this is the natural progression of things, i.e. that it is better to work with nature than against it, and that adaptation is meant to occur.

Conclusions

- ≈ A broad range of key social outcomes have been identified related to community wellbeing.
- ≈ The exposure to direct impacts from coastal hazards changes along the coast. Perceptions around the 'when, how and what' coastal hazard impacts would be, differed amongst the interviewees.
- ≈ Despite the different perspectives, the individual and community experience with the 2017/18 events helped built a common level of knowledge and determination to seek sensible solutions to natural hazards.
- ≈ Interviewees who have experienced direct impacts were more likely to identify the key social outcomes for the community that are linked to coastal hazards, such as:
 - Decreased wellbeing (anxiety and stress) associated with concerns as a result of damage to (own) property, personal safety, increased insurance costs or insurance exclusion, lack of access to mortgage finance, falling resale values or non-saleability and other

- Disruption to business activities and farming, loss of revenue and increased insurance costs/exclusion, lack of access to (business) finance, falling resale value (of farm, land etc.)
- Loss of sites of value and amenities as foundations for community identity, cohesion and growth.

Appendix 11

Summary of “Wharekawa Coast 2120: Ecological Values Impact Assessment”

*Stephen Hunt and Michael
Townsend, June 2020*

The report provides a broad summary of significant ecological features of the Wharekawa coast and considers the impact that projected changes in climate and associated sea level rise might have on the ecology. The Wharekawa coast includes ecological values associated with extensive intertidal wetlands. Habitats and feeding grounds, including Mānawa/mangrove and intertidal flats, support vast numbers of resident and migratory birds, including nationally critical, declining and vulnerable species. Roosting sites for large numbers of shorebirds are provided by the nationally and globally rare chenier formations. The future state of ecological features is considered through seven scenarios:

1. The intertidal area is maintained but sediments become muddier.
2. The intertidal area does not become muddier but reduces in area.
3. The intertidal area reduces in size and becomes muddier.
4. Cheniers migrate further onshore (possibly at a faster rate) and are generated more frequently, while chenier area is maintained or possibly slightly increased.
5. Cheniers become inundated or erode and reduce in size.
6. Intertidal vegetation area is maintained.
7. Intertidal vegetation area is reduced.

Under future scenarios in which the intertidal area becomes muddier, there are likely to be changes in the abundance and composition of species living in the sediment e.g., loss of several bivalve species. If the intertidal area were to reduce in extent but not increase in muddiness, certain negative impacts may be tempered. Predicting specific effects on birdlife is difficult as this will be influenced by many interacting factors. Management of contemporary issues e.g., predator control, will play a key role in determining the future state of bird populations. If cheniers were to be inundated or erode, this would substantially reduce levels of protection provided to the shoreline, resulting in greater impacts from storm and wave action,

affecting the persistence of fringing coastal vegetation. There would be significant disruption of species that utilise chenier ridges. If the areas of saltmarsh and Mānawa/mangrove were to be maintained, it is probable they would retain some of the ecological and anthropic values currently associated with these habitats. Reduction in these habitats will lead to a reduction in carbon storage and protection of the shoreline, and potentially increased effects of flooding.

It is presently difficult to predict with certainty the ecological changes that will occur as the Wharekawa coastline responds to a changing climate. Future stressors associated with climate change include ocean acidification, changes to temperature, sea level rise, increases in the frequency of storm surge and changes to the wave climate. Future pressures on coastal habitats may include stressors, or combinations of stressors, that are yet to be identified. Climate change may have direct effects but will also modify the severity of other stressors.

Managing contemporary issues and maintaining or restoring the integrity of coastal systems needs to be a primary focus. There are still many issues that require pressing attention, including continued habitat loss and degradation, drainage and infilling disturbances, poor water quality, elevated sedimentation, contaminants and invasive marine species. Focusing efforts on maintaining and restoring the coastal area and minimising current stressors may serve as the best insurance for facing an uncertain future. Under all of the scenarios, the intertidal environment will eventually be constrained by existing coastal defences and the East Coast Road unless these structures are abandoned or modified, and the foreshore is given opportunity to retreat.

The analysis is predominantly from a western science perspective reflecting the expertise of the authors. The issues covered would benefit from, and remain open to, the inclusion of mātauranga Māori to enrich our understanding of the intergenerational relationships between people, ancestral context and location.

Appendix 12

Summary of “Wharekawa Coast 2120 Natural Hazard Risk Assessment”

*Waikato Regional Council,
2021*

Community risk threshold = The point at which the community can no longer tolerate the impacts of a natural hazard event. Adaptation actions or pathways should be implemented prior to a community risk threshold being reached.

Purpose and scope:

The purpose of this risk assessment is to:

1. Work with and enable the community panel to understand the most significant natural hazard risks to the Wharekawa Coast 2120 project area.
2. Enable the community panel and wider community to evaluate the risk posed by these hazards by determining community risk thresholds (thresholds) for the impacts of each hazard scenario.
3. Compare the relative risk of these hazards across different compartments and impact categories, to inform the development of adaptation actions and pathways.

The natural hazards assessed are coastal inundation, coastal erosion, and freshwater flooding (particularly from Haurahi Stream).

Coastal erosion and freshwater flooding (excluding Haurahi Stream) are assessed qualitatively (descriptively) as there is less accurate hazard information available and the risk is relatively lower. Thresholds are not assessed for these hazards.

Coastal inundation and Haurahi Stream flooding are assessed quantitatively (numerically using hazard, asset and other data) as there is more accurate hazard information available and the risk is relatively

greater. Thresholds are assessed for these hazards as they are more likely to result in impacts that are intolerable.

As well as the qualitative and quantitative risk assessments, this report presents information on; the impacts of historical natural hazard events, potential impacts of natural hazard events; and the vulnerability of the community to these events.

This report also documents the process used to assess thresholds, with the main exercise being led by the community panel, and provides links to the results report and posters. The threshold results will be used to provide additional context when investigating adaptation options and pathways, in terms of how much time is available and which sub-compartments and impact categories may need to be prioritised.

It is recognised that this risk assessment and the assessment of thresholds is an initial assessment, and more work may be required when assessing specific adaptation options.

Key outcomes of the Natural Hazard Risk Assessment:

This assessment shows that in terms of potential impacts, coastal inundation is the most significant natural hazard to the Wharekawa Coast 2120 project area.

Exposure to coastal inundation is greatest in sub-compartment 1a (Pūkorokoro Miranda) in the south, and reduces towards the north as the land becomes more elevated. Estimated damage costs are greatest in sub-compartment 2a (Kaiaua township), due to the high exposure and large number of buildings. Damage costs are also high in sub-compartment 1a, due to the high exposure and large areas of pasture land, as well as significant costs to buildings and roads. Estimated damage costs to sub-compartments 3a (Whakatiwai), 4a (Waihihi) and 5a (Waharau) from coastal inundation are less but still significant.

Hauarahi Stream flooding is also a significant natural hazard, particularly for sub-compartment 2a, although estimated damage costs and resident displacement from Hauarahi Stream flooding are much lower than for coastal inundation (for both the project area and sub-compartment 2a).

At present day, any impacts from coastal erosion events are expected to be low; however, impacts will potentially be significant for all coastal sub-compartments in the future, with shoreline retreat likely to be primarily driven by coastal inundation and sea level rise.

For the five streams assessed qualitatively for freshwater flooding risk, potential impacts are very low to low where stopbanks are present and flood events do not exceed stopbank design. Even for events that overtop or breach stopbanks the potential impacts for Pūkorokoro, Miranda and Tamararie Streams are still low as rural land is the main element exposed. However, the potential impacts of a stopbank breach or overtopping at Whakatiwai Stream are high, as much of the village could be flooded (as was seen in

the 1960s). Waharau Stream does not have stopbanks and the potential impacts of flooding are moderate.

Key outcomes from the assessment of community risk thresholds:

The risk threshold results are detailed in this [report](#). Posters are also available on the [project website](#), one for each sub-compartment, which were used to share the results with the community.

The key outcomes of the community risk thresholds process are:

- ≈ Generally, a sufficient level of responses was received for all sub-compartments to ensure good representation of the people who live there.
- ≈ For coastal inundation:
 - Community risk thresholds have already been reached in Pūkorokoro Miranda (1a) and Kaiaua township (2a).
 - Those living in the more northern sub-compartments (Whakatiwai to Waharau) generally indicated a higher level of tolerance, meaning that thresholds have not yet been reached.
 - For Waihihi (4a, previously known as Pukekereru), thresholds are not expected to be reached until the long term, as the impacts are relatively low.
- ≈ For Hauarahi Stream flooding, the community risk threshold has already been reached in Kaiaua township (2a).
- ≈ In Kaiaua township (2a), the level of tolerance for impacts from coastal inundation and Hauarahi Stream flooding is similar.
- ≈ All community risk thresholds (except in Waihihi where there is no threshold/NA for the moderate event) are reached significantly earlier for a moderate event than for a major event, meaning the smaller but more frequent events are less tolerable than the larger but less frequent events.
- ≈ Nearly all community risk thresholds are reached earlier than those by the asset and emergency managers.
- ≈ The community panel felt that the community risk threshold results are generally a good representation of the communities' tolerance to natural hazard events. They were not surprised by the results.

The risk threshold results will be used to indicate how much time is available before adaptation actions need to be implemented, and as a way of prioritising the sub-compartments and impact categories.

To	Strategy and Finance Committee
Report title	Adoption of Whaingaroa Harbour Strategy
Date:	14 September 2022
Report Author:	Megan May, Deputy General Manager Service Delivery
Authorised by:	Roger MacCulloch, General Manager Service Delivery

1. Purpose of the report

Te Take moo te puurongo

To inform the Strategy and Finance Committee on the engagement completed to support the development of the Whaingaroa Harbour Strategy.

AND

Strategy and Finance Committee to approve and adopt the Whaingaroa Harbour Strategy, as recommended by the Raglan Community Board.

2. Executive summary

Whakaraapopototanga matua

In late 2019, Waikato District Council (WDC) were approached by Central Government representatives, advising that there were funds available for wharf projects throughout the country. A high-level project was developed, and a funding application was made which was successful. This application provided up to \$2,500,000 of funding to deliver on high level objectives as detailed in the contract between WDC and the Ministry of Business, Innovations and Employment (MBIE), and required WDC to contribute \$480,000.

This funding supported a number of projects, one with the following deliverables:

- A community-led strategic planning initiative for the harbour that will, amongst other things, identify future jetties around Whaingaroa Harbour to connect remote communities with the Raglan township.
 - Explore opportunities for future connections with other jetties in the harbour, improving connectivity between Raglan and surrounding communities, particularly connectivity with communities on the remote side of the harbour.
-

- Increased capacity building for the community organisations involved to create a positive lasting legacy. Local stakeholders have expressed interest in the suite of work becoming an exemplar for the local community-led planning and implementation in the Waikato.

A Project Control Group (PCG) was created which included members of the Raglan Community Board, local residents, business owners and iwi representation. This group, in conjunction with Waikato District Council staff have worked with the wider Community to develop the Whaingaroa Harbour Strategy.

This document is now complete, and the purpose of this report is to present the final document for approval and adoption by the Waikato District Council Strategy and Finance Committee as recommended by the Raglan Community Board on 7 September where it was endorsed.

3. Staff recommendations Tuutohu-aa-kaimahi

THAT the Strategy and Finance Committee recommends to Council:

- a. **the adoption of the Whaingaroa Harbour Strategy, as recommended by the Raglan Community Board.**

4. Background Koorero whaimaarama

The Whaingaroa Harbour is 12 kms long and between 2 and 3 kms wide. It is well used by both local residents and visitors to the area, and there is a strong desire to protect it for future generations. Significant work has already been undertaken by community groups and the Waikato Regional Council to improve the water quality of the harbour. The purpose of the Whaingaroa Harbour Strategy is to provide guidance on what type of use / activity is appropriate in this area and what improvements the community would like to see happen in the future.

Although informal consultation had already occurred with a number of user groups and hapuu, with formal consultation on this document commenced in October 2021 and was completed in December the same year. Ninety submissions were received and approximately 30 pieces of feedback were given at a public meeting held in December 2021.

In addition to this, an additional targeted questionnaire was sent to stakeholders which resulted in 60 submissions.

All of this feedback contributed to the draft document which was provided to the community, harbour users and iwi for final feedback. This information was collated and formed the final strategy document, attached to this report (Attachment 1).

5. Discussion and analysis

Taataritanga me ngaa tohutohu

The feedback received throughout consultation helped to create the following key themes which are included in the strategy:

- Improving and protecting the health and wellbeing of the harbour is a top priority;
- The harbour is a ready source of kaimoana;
- The harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing;
- Commercialisation of the harbour and development is limited;
- Development reflects the natural environment and is in line with the current look and feel of the wharf;
- Car and boat parking issues are addressed through measures such as restrictions, enforcement and boat ramp fees;
- The harbour is used as an educational tool for children and tourists;
- Walk tracks and cycle ways from Cox Bay to Lorenzen Bay are available; and
- Residents can catch a ferry from the wharf to Te Akau and other locations around the harbour.

After a review of all feedback and engagement themes, four strategic goals were identified.

The health and wellbeing of the Whaingaroa Harbour is protected and improved	In and around the Whaingaroa Harbour is safe and accessible for recreation and commuting
New development of the Whaingaroa Harbour aligns with existing structures and the natural environment	The Whaingaroa Harbour offers an educational experience for its users.

Members of the community who assisted in the development of this document requested that it resulted in tangible outcomes. In response to the feedback through engagement, and in alignment with the themes, an action plan has been created and is a key aspect of this strategy. Not only do these actions identified parties responsible, it also proposes timelines and mechanisms to progress the action.

In addition to this, the full engagement summary is included to provide transparency. It also includes details of stakeholders who contributed and what level of involvement they had.

The final strategy document was presented to the Raglan Community Board on 7 September where feedback was provided and the document was endorsed for adoption by the WDC Strategy and Finance Committee.

5.1 Options

Ngaa koowhiringa

Staff have assessed that there are two reasonable and viable options for the Strategy and Finance Committee to consider.

Option 1 (**recommended option**): The Strategy and Finance Committee approve the recommendations of this report.

This Strategy has been developed by the Raglan Community, users and Iwi and reflects their aspirations for the harbour. Endorsement for this recommendation has been received from the Raglan Community Board on 7 September.

Option 2: Council can decline the recommendations of this report.

By not adopting this Strategy, there is risk that the contributors of the document would feel disempowered.

5.2 Financial considerations

Whaiwhakaaro puutea

There are no material financial considerations currently associated with the recommendations of this report. As the strategy includes aspirations, community support to include projects in future Long Term Plans should be expected.

5.3 Legal considerations

Whaiwhakaaro-aa-ture

Staff confirm that adoption of this strategy complies with the Council's legal and policy requirements.

5.4 Strategy and policy considerations

Whaiwhakaaro whakamaaherehere kaupapa here

The recommendation of this report is to adopt a strategic document which has not, historically, been created. The report writer acknowledged that this document does not align with standard strategic documents utilised by Waikato District Council.

Despite this, the Whaingaroa Harbour Strategy **does not** create inconsistencies with other WDC policies and plans and can be utilised as guidance for a wide range of businesses and organisations.

5.5 Maaori and cultural considerations

Whaiwhakaaro Maaori me oona tikanga

The Whaingaroa Harbour Strategy has been created with the assistance and input of representatives from hapu groups across the entire harbour. This included:

- Tainui o Tainui
- Ngati Mahanga
- Ngati Hourua
- Ngati Tamainupo
- Ng Uri o Tahinga
- Oorareroa
- Ngati Kawera
- Poihakena Marae
- Waingaro marae
- Nga Uri o Mahanga
- Omaero
- Te Paporotu
- Aramiro

5.6 Climate response and resilience considerations

Whaiwhakaaro-aa-taiao

Throughout the consultation process, the strategic direction of the report realigned to respond more closely to environmental opportunities rather than infrastructure. The communities' approach to climate response and resilience is reflected in the strategy and supports a more sustainable approach to harbour management.

5.7 Risks

Tuuraru

No risks have been identified.

6. Significance and engagement assessment

Aromatawai paahekoheko

6.1 Significance

Te Hiranga

The decisions and matters of this report are assessed as of moderate significance, in accordance with the Council's [Significance and Engagement Policy](#).

6.2 Engagement

Te Whakatuutakitaki

Highest level of engagement	Inform <input type="checkbox"/>	Consult <input type="checkbox"/>	Involve <input type="checkbox"/>	Collaborate ✓	Empower ✓
Tick the appropriate box/boxes and specify what it involves by providing a brief explanation of the tools which will be used to engage.	The Whaingaroa Harbour Strategy has been created through consultations and guidance from the Community, Iwi and users of the Harbour. This document can be utilised as evidence of the future outcomes sought from these groups.				

State below which external stakeholders have been or will be engaged with:

Planned	In Progress	Complete	
<input type="checkbox"/>	<input type="checkbox"/>	✓	Internal
<input type="checkbox"/>	<input type="checkbox"/>	✓	Community Boards/Community Committees
<input type="checkbox"/>	<input type="checkbox"/>	✓	Waikato-Tainui/Local iwi and hapuu
<input type="checkbox"/>	<input type="checkbox"/>	✓	Affected Communities
<input type="checkbox"/>	<input type="checkbox"/>	✓	Affected Businesses
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other (Please Specify)

7. Next steps

Ahu whakamua

Once adopted, the Whaingaroa Harbour Strategy can become a supporting document for future Long Term Plans, community funding applications and can support work yet to be completed by the Waikato Regional Council. It is the report writer's suggestion that this document could be formally presented to the Waikato Regional Council for information.

8. Confirmation of statutory compliance Te Whakatuuturutanga aa-ture

As required by the Local Government Act 2002, staff confirm the following:

The report fits with Council's role and Committee and Community Board's Terms of Reference and Delegations.	Confirmed
---	-----------

Refer to the [Governance Structure](#)

The report contains sufficient information about all reasonably practicable options identified and assessed in terms of their advantages and disadvantages (<i>Section 5.1</i>).	Confirmed
--	-----------

Staff assessment of the level of significance of the issues in the report after consideration of the Council's Significance and Engagement Policy (<i>Section 6.1</i>).	Moderate
---	----------

The report contains adequate consideration of the views and preferences of affected and interested persons taking account of any proposed or previous community engagement and assessed level of significance (<i>Section 6.2</i>).	Confirmed
---	-----------

The report considers impact on Maaori (<i>Section 5.5</i>)	Confirmed
--	-----------

The report and recommendations are consistent with Council's plans and policies (<i>Section 5.4</i>).	No – refer to section 5.4.
---	----------------------------

The report and recommendations comply with Council's legal duties and responsibilities (<i>Section 5.3</i>).	Confirmed
--	-----------

9. Attachments Ngaa taapirihanga

Attachment 1 – Whaingaroa Harbour Strategy



WHĀINGAROA MOANA RAUTAKI

WHĀINGAROA HARBOUR
STRATEGY

TE RĀRANGI KAUPAPA

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APPENDICES

Appendix A – Engagement Summary

Appendix B – Summary of Existing Strategies for the Harbour

Appendix C – Table of Existing Funded Projects

Taiao

*Create a living connection
between land and sea*

He Pūtoi Whakarākei

*Celebrate local culture
and heritage*

Manākitanga

Safe and inclusive spaces





TIMATANGA

INTRODUCTION



TE TŪĀPAPA

BACKGROUND

Funding for this project has been secured through the Provincial Growth Fund provided by the government. The funding agreement provides for a project which delivers for the following:

- A community-led strategic planning initiative for the harbour that will, amongst other things, identify future jetties around Whāingaroa Harbour to connect remote communities with the Raglan township.
- Explore opportunities for future connections with other jetties in the harbour, improving connectivity between Raglan and the surrounding communities, in particular connectivity with communities on the remote northern side of the harbour.
- Increased capacity building for community organisations involved to create a lasting positive legacy. Local stakeholders have expressed interest in the suite of work being an exemplar for local community-led planning and implementation in the Waikato District.

The Provincial Growth Fund objectives are aimed at enhancing economic development opportunities, create sustainable jobs, enable Māori to reach their full potential, boost social inclusion and participation, build resilient communities and help meet New Zealand's climate change targets.

TE RAUTAKI MŌ

WHĀINGAROA

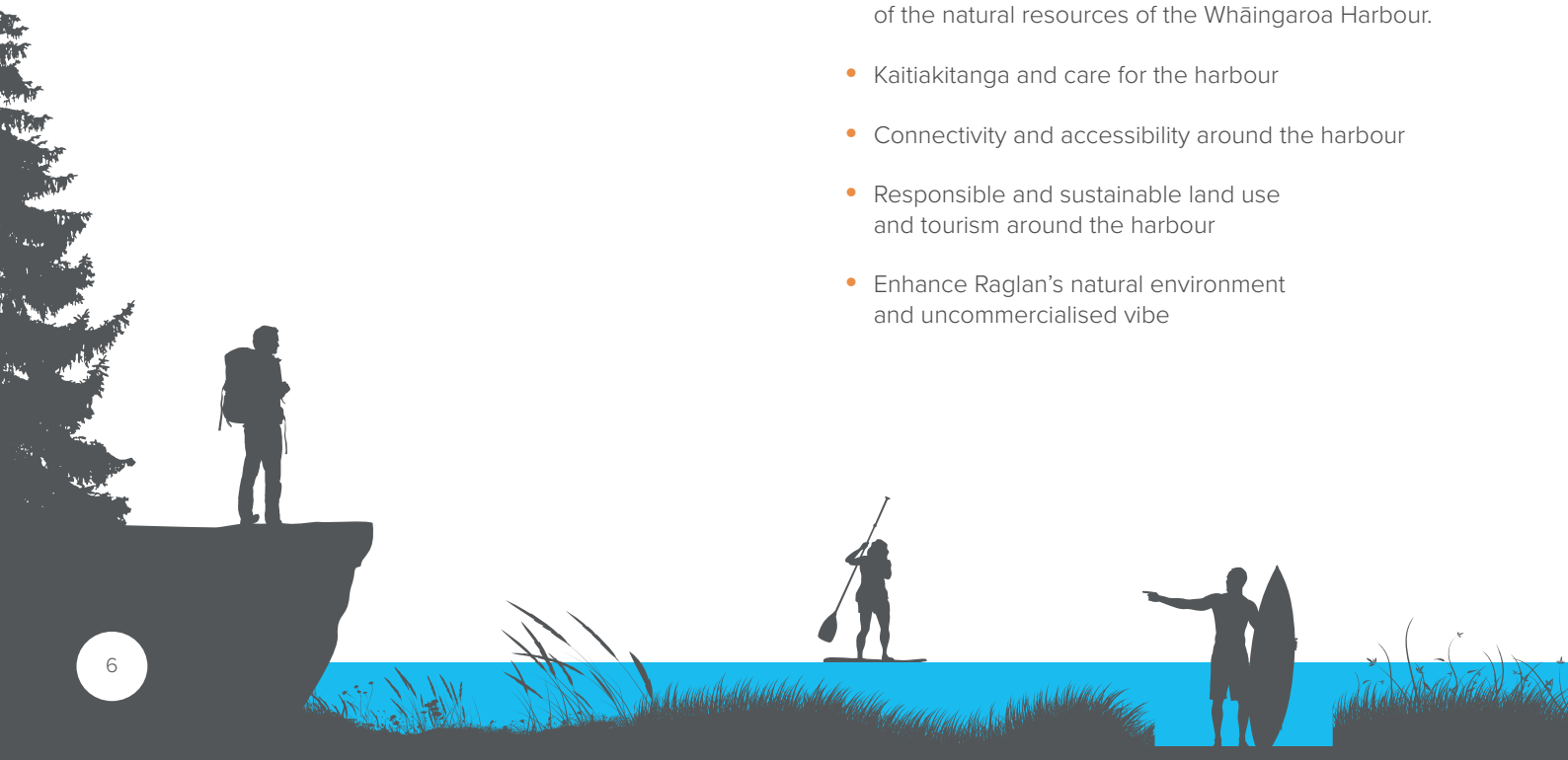
WHAT IS THE WHĀINGAROA HARBOUR STRATEGY?

Waikato District Council (WDC) with support from the Raglan Community Board and the wider community are developing the 'Whāingaroa Harbour Strategy'. The strategy has a 30-50 year time horizon that looks to enhance the harbour by bringing the community together with people-orientated facilities such as jetties to move people from place to place by boat, or walkways around the harbour edge to connect them to wharf/jetty facilities.

Feedback from the community on the Whāingaroa Harbour and aspiration for Raglan has already been provided through the development of other strategies such as Raglan Naturally (2020), the Raglan Blueprint (2018) and submissions on the Waikato District Long Term Plan 2021-2031. The strategy builds on this existing information rather than starting engagement from scratch.

The key themes identified in the other strategies for Raglan and the harbour are:

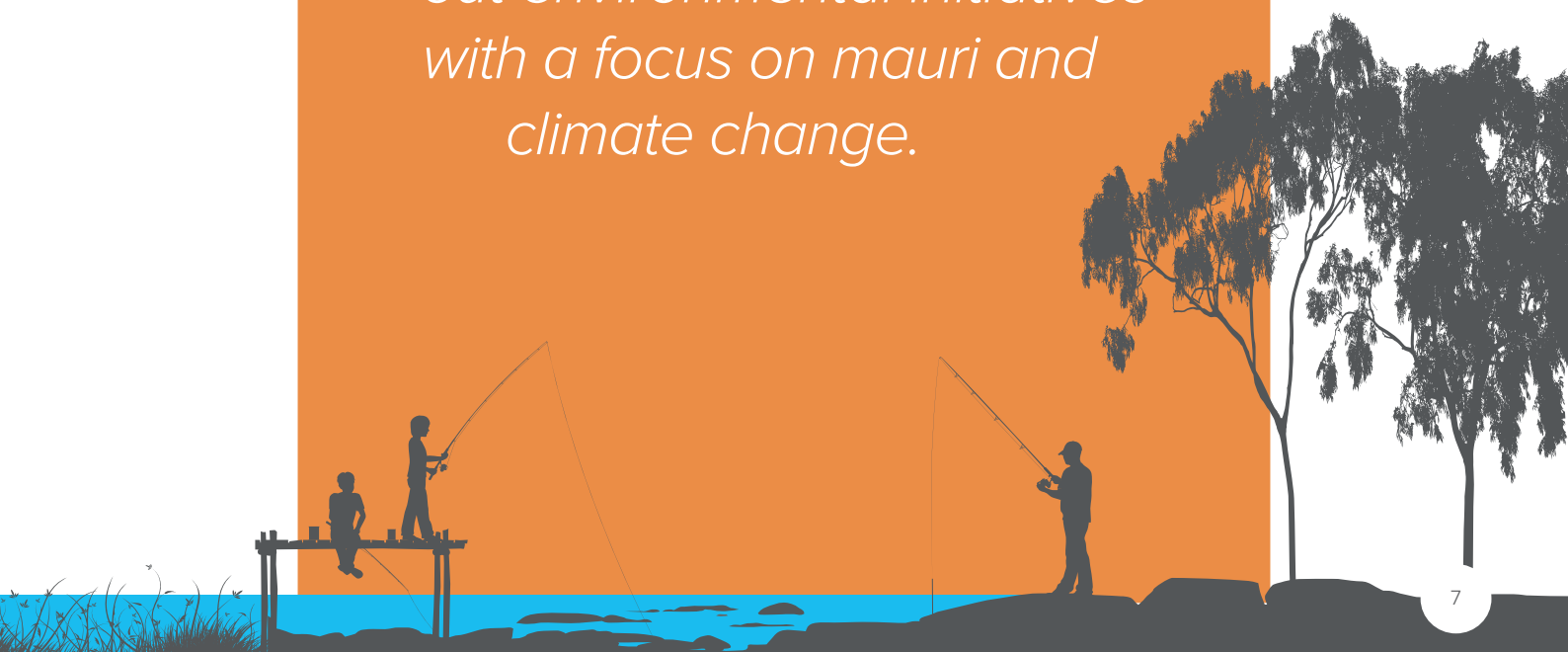
- Foster and maintain effective working relationships between organisations on an ongoing basis.
- Statutory agencies will actively engage with the Whāingaroa Harbour Catchment community
- Ensure that planning and regulatory mechanisms for Whāingaroa Harbour and its catchment are consistent in their application, aligned in their aims and mutually supportive.
- Promote the effective kaitiakitanga and stewardship of the natural resources of the Whāingaroa Harbour.
- Kaitiakitanga and care for the harbour
- Connectivity and accessibility around the harbour
- Responsible and sustainable land use and tourism around the harbour
- Enhance Raglan's natural environment and uncommercialised vibe



TE TIROHANGA WHĀNUI

VISION

To better-connect Raglan and the surrounding communities by enhancing harbour access with people-orientated facilities such as jetties, walkways and cycleways. To provide access and information that supports care of the natural environment as our communities recreate, gather food, work and carry out environmental initiatives with a focus on mauri and climate change.



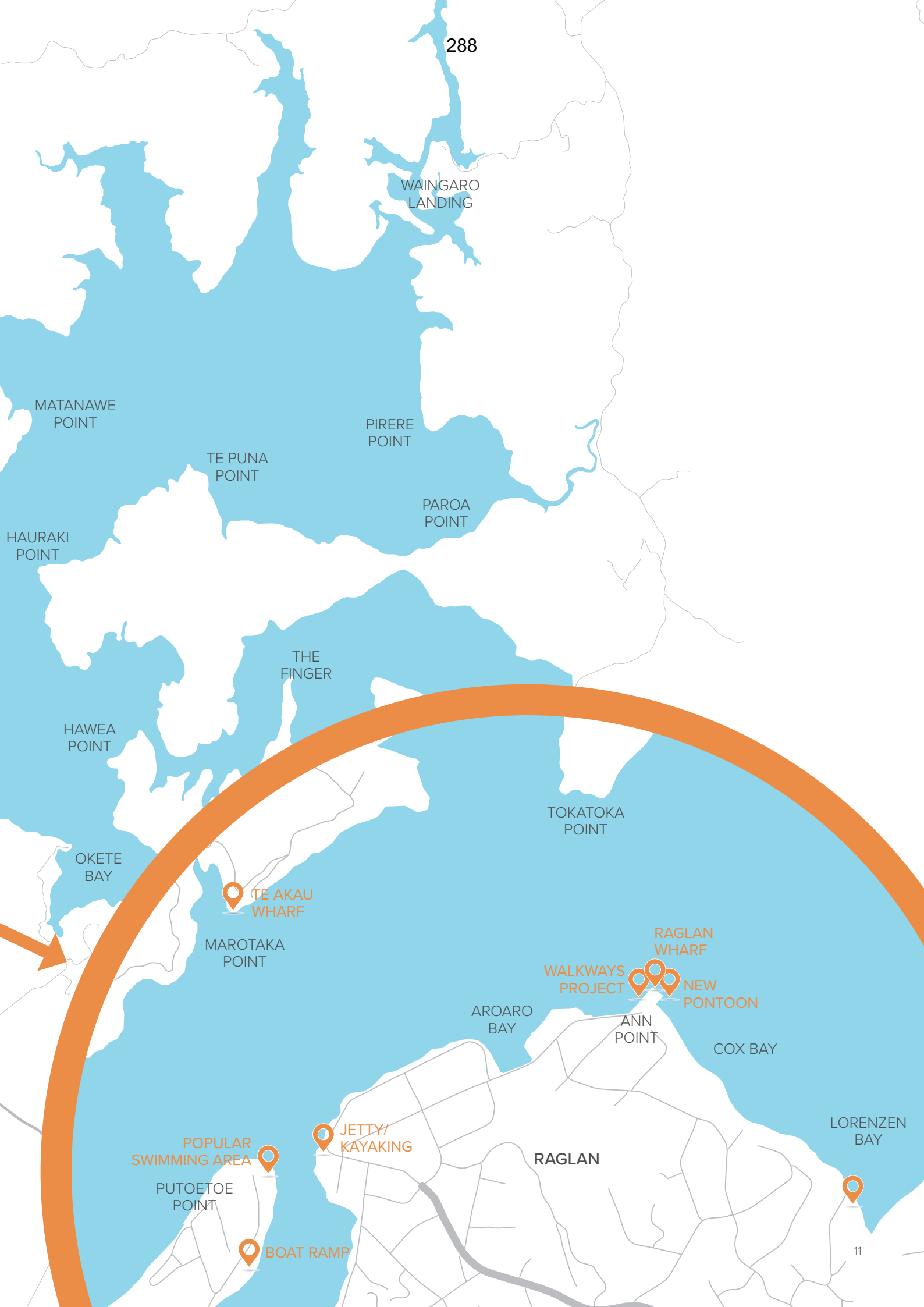
NGĀ KŌRERO O WHĀINGAROA

*STORIES OF
WHĀINGAROA
HARBOUR*



The Whāingaroa Harbour is 12km long and 2-3km wide, with two arms fed by the Waingaro and Waitetuna rivers.





288

WAIKATO
LANDING

MATANAWA
POINT

PIRERE
POINT

TE PUNA
POINT

PAROA
POINT

HAURAKI
POINT

THE
FINGER

HAWEA
POINT

TOKATOKA
POINT

OKETE
BAY

TE AKAU
WHARF

MAROTAKA
POINT

WALKWAYS
PROJECT

RAGLAN
WHARF

NEW
PONTON

AROARO
BAY

ANN
POINT

COX BAY

POPULAR
SWIMMING AREA

PUTOETOE
POINT

JETTY/
KAYAKING

BOAT RAMP

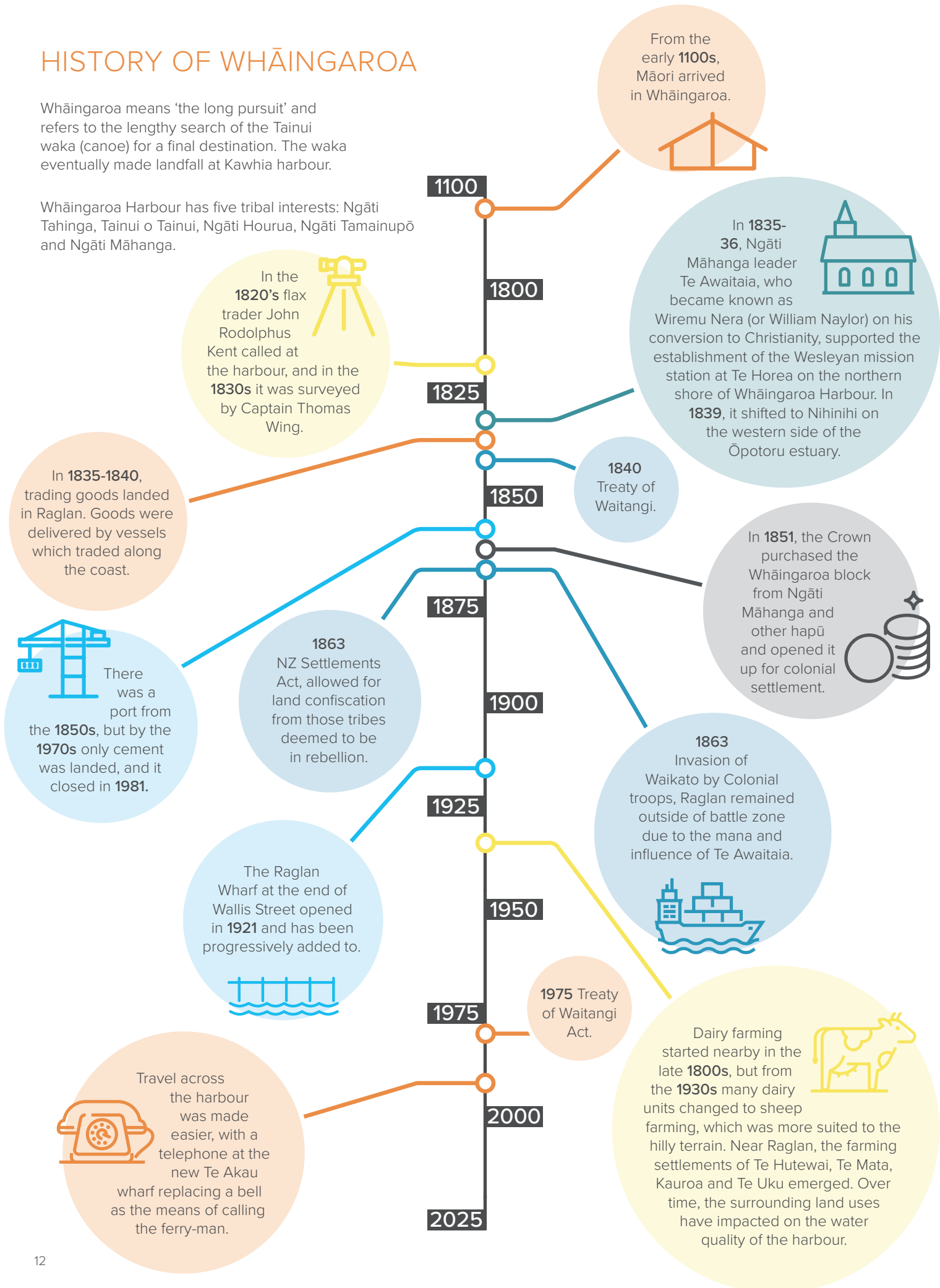
RAGLAN

LORENZEN
BAY

HISTORY OF WHĀINGAROA

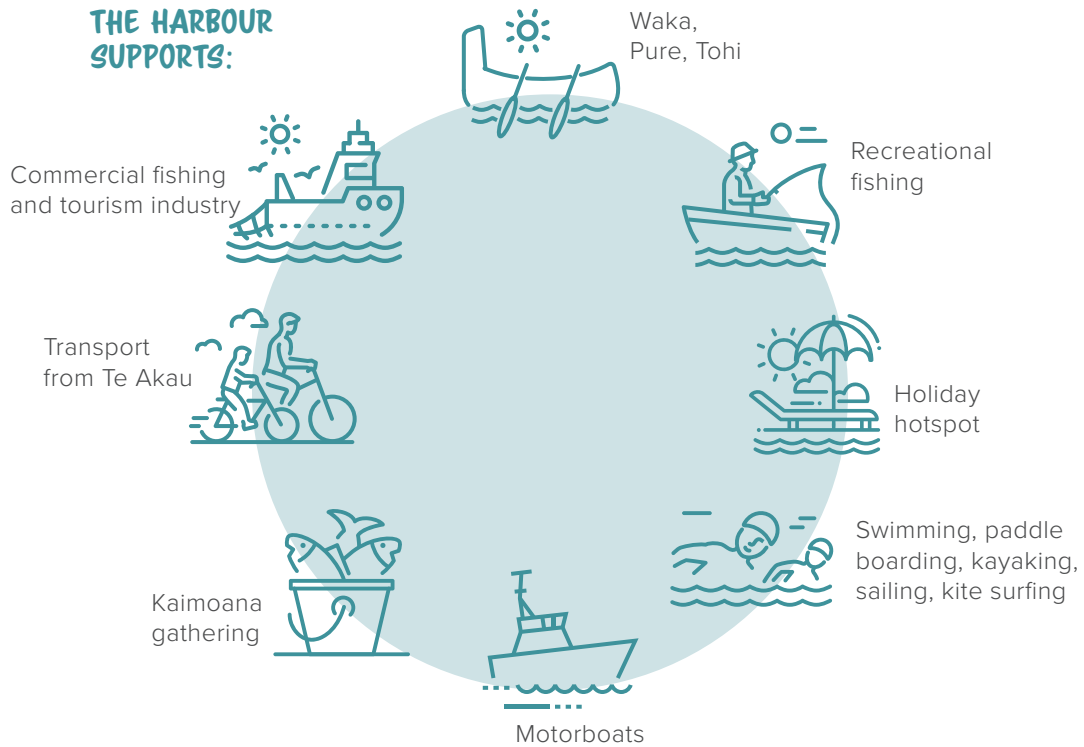
Whāingaroa means 'the long pursuit' and refers to the lengthy search of the Tainui waka (canoe) for a final destination. The waka eventually made landfall at Kawhia harbour.

Whāingaroa Harbour has five tribal interests: Ngāti Tahinga, Tainui o Tainui, Ngāti Hourua, Ngāti Tamainupō and Ngāti Māhanga.



CURRENT DAY

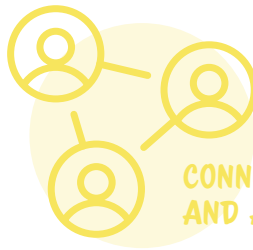
THE HARBOUR SUPPORTS:



IS AN IMPORTANT
NATURAL
ENVIRONMENT



CONNECTION TO HISTORY
AND ANCESTORS



HEART OF THE
TOWN AND
COMMUNITY



POPULATION
GROWTH



The population of Whāingaroa is approximately **4,370** and population is projected to increase by **2,000** in the next **20** years. (Population predictions University of Waikato). New developments are expected such as Rangitahi Peninsula. As Whāingaroa grows the environmental protection and managed use of the harbour will become even more important and essential.

The harbour and catchment is a special place to many people for many reasons. People appreciate its landscapes, natural beauty, water quality, customary and recreational activities, heritage places and values, clear air, and productive land. It is a memorable place and widely recognised by past visitors.

TUHINGA WHAIKĪ

ENGAGEMENT SUMMARY



Engagement on the Whāingaroa Harbour Strategy was carried out from October 2021 to December 2021. The Engagement Summary document attached as Appendix A provides an outline of who was engaged through the development of the strategy, the engagement activities undertaken and a summary of the feedback received during this time.

Engagement was carried out with iwi, stakeholders, community, and iwi. Iwi who were engaged with represented the following hapū groups:

- Tainui o Tainui
- Ngāti Māhanga
- Ngāti Hourua
- Ngāti Tamainupō
- Nga Uri o Tahinga
- Ooraeroa
- Ngāti Kawera
- Poihākena Marae
- Waingaro Marae
- Ngā Uri o Māhanga
- Ōmaero
- Te Papaōrotu
- Arāmiro

Below is a snapshot of the amount of feedback received throughout the development of the strategy:



90

Submissions were received via online and hardcopy survey

Around

30

pieces of feedback were received during a public information session held at the Wharf Bar and Kitchen on Thursday 16 December 2021

60

Submissions were received from key stakeholders via an additional targeted online survey



After a review of all feedback received the following key themes have been identified:

Improving and protecting the health and wellbeing of the harbour is a top priority

The harbour is a ready source of kaimoana

The harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing

Commercialisation of the harbour and development is limited

Development reflects the natural environment and is in line with the current look and feel of the wharf

Car and boat parking issues are addressed through measures such as time restrictions, enforcement and boat ramp fees

The harbour is used as an educational tool for children and tourists

Walk tracks and cycleways from Cox Bay to Lorenzen Bay are available

Residents can catch a ferry from the wharf to Te Akau and other locations around the harbour

WHĀINGA RAUTAKI

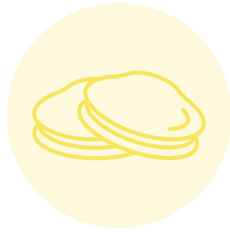
KEY THEMES/
STRATEGIC
GOALS





After a review of all feedback received and engagement themes, the following four strategic goals have been identified:

The health and wellbeing of the Whāingaroa Harbour is protected and improved



Waikato Regional Council (WRC) are progressing the development of the Whāingaroa Catchment Management Plan which is about “what we can collectively do to improve the health and wellbeing of our unique and special west coast harbour catchments”. The management plan is seeking to provide an integrated approach to managing the catchment of the Whāingaroa Harbour as a connected system. The plans while being non-statutory will also acknowledge regulatory change (national and regional) and link to WRC funded initiatives. In the context of Whāingaroa Harbour these initiatives could be continued harbour-side planting, continued stream riparian planting and fencing of areas not captured by stock exclusion regulations to ultimately include all streams entering the harbour and extending to the top of their catchments.

Smaller scale community initiatives could include living sea walls along the rock armour around the harbour/ wharf which provide habitat and diversification of sea life.

Engagement and collaboration with key surrounding landowners to the harbour and local fishing fleet will aid in support and collaboration for initiatives.

Indicators of success:

- Plentiful kaimoana/sea life and clear harbour water

In and around the Whāingaroa Harbour is a safe and accessible place for recreation and commuting



Harbour space is managed by the Regional Coastal Plan and the Navigational Safety Bylaw. WDC manage much of the land surrounding the wharf and other harbourside hotspots, either as public road or as reserve. This goal aims to enhance, maintain and regulate wharf and jetty facilities and landside facilities such as car parking for boat trailers at key locations. This will facilitate easy access to the harbour for watercraft and help manage behaviours at boat ramps and wharfs, whilst not over developing the harbour area. It is important that swimming and passive recreation areas are safe and accessible, initiatives such as swimming pontoons encourage swimming in safe, designated areas. Walking and cycling tracks/boardwalks are established where possible around the harbour. Where tracks are not feasible, alternative wayfinding such as signage or pavement painting is utilised. Wharfs and jetties are fit for operation by water taxis to service the residents of Te Akau and movement around the harbour.

Indicators of success:

- Designated areas and effective safety rules are in place for swimming, kayaking, jet skiing, boating and fishing
- Wharf facilities are safe and can manage the level of demand
- Parking is available and managed through time restrictions and fees
- Walking and cycling tracks around the harbour are available
- Access around the harbour by boat is available

New development of the Whāingaroa Harbour aligns with existing structures and the natural environment



Part of Raglan's unique identity is its uncommercialised vibe. Future development should look to re-purpose older existing buildings first rather than building new, avoiding concrete over parks and reserves. Harbour space should not be over-crowded with marinas and structures. A hapū and iwi Raglan design guide could be formulated with WDC to influence future development and maintain the Raglan 'look and feel'.

Indicators of success:

- The natural environment of the harbour is most prominent
- Design of new development is influenced by a Raglan Harbour Area Design Guide
- The community is proud of Raglan's uncommercialised vibe

The Whāingaroa Harbour offers an educational experience for its users



Interpretive and information signage around the harbour edge conveys information and QR codes to information sites about the past and present environmental issues around the harbour. Volunteers host educational events in the community and schools. WDC, Department of Conservation (DOC), Harbour Care, Whāingaroa Environment Centre, Whāingaroa Environmental Defence Incorporated, hapū and iwi are organisations that could offer support and funding for education initiatives.

Indicators of success:

- Interpretive and information signage about Māori occupation, history taonga, or heritage around the harbour edge approved by hūpu and iwi of each area
- Anyone visiting the harbour, including schools and other community groups utilise this educational experience and leave with further understanding and knowledge of the harbour





WHAKATINANATANGA

ACTION PLAN



The Action Plan below sets out specific and tangible actions to be carried out as key responses to this strategy and the community engagement process that led to it.

The Action Plan sets out a description of each action; the key mechanism to carry out that action (meaning whether that is a funding request to an external funder, a design and consenting process, advocacy to a separate organisation through another process; identifying the lead organisation to be responsible for the action (with the supporting community groups and partner organisations); and the timeframe based on financial years for completing the action.

The aim of this Action Plan is to create specific actions to be undertaken in response to this strategy to achieve the broad goals and aspirations that emerged during the community engagement. The Action Plan also sets out accountabilities for the organisations responsible for leading each action, setting a timeframe for the action, and connecting each action to a funding source to support the action being carried out.

Whilst each action is linked to a key theme from the community engagement undertaken as identified in the previous section, there is overlap between the key themes and many of the actions contribute to achieving more than one of the key themes.

Some of the actions identified in the Action Plan are projects already allocated funding in Waikato District Council's Long Term Plan 2021-2031. These are included within a separate table of actions below as actions that are already funded and will be delivered in coming years. They are included in this strategy as they will directly contribute to achieving the aspirations expressed in the key engagement themes.

Mana whenua will be engaged with by the lead organisation on all actions throughout the implementation of the strategy.



Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
Improving and protecting the health and wellbeing of the Whāingaroa Harbour is a top priority.	Launch of a coordinated advocacy effort on behalf of the community on the current review of the Waikato Regional Coastal Plan. Focus of advocacy on erosion-resilience and climate change resilient initiatives.	Regional Coastal Plan review currently being undertaken by Waikato Regional Council (WRC) during 2022 and 2023, with a Proposed Regional Coastal Plan planned for late 2022. Direct engagement with Waikato Regional Council during 2022, with public submissions and hearings process in 2023.	Raglan Community Board in conjunction with the Raglan Naturally Committee. A collaborative approach between local organisations, WDC and WRC will be important in implementing this action.	2022/2023	None, time input only.
The Whāingaroa harbour is a ready source of kaimoana.	Implement a coordinated advocacy effort between the boating and maritime clubs for the next review of space allocation (boat lanes, users etc) for the Whangaroa Harbour.	Navigation Safety Bylaw 2020 is administered by Waikato Regional Council. Last reviewed and updated in 2020 following original adoption on 2013.	Raglan Community Board in conjunction with the Raglan Naturally Committee.	2022/2023	None, time input only.

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
The Whāingaroa Harbour is a ready source of kaimoana.	<p>Engage with the Whāingaroa Catchment Management Plan process 2022/2023.</p> <p>Focus of advocacy on the below key issues:</p> <ul style="list-style-type: none"> • Mangrove management • Achieving a bush-lined harbour edge. • Restoration of wetlands on the harbour edge. • Rahui on shellfish gathering to better manage the resource. • Pest species • Water quality 	Raglan/ Whāingaroa Harbour and Catchment Management Plan about to be reviewed by Waikato Regional Council due for completion in 2022/2023.	Raglan Community Board in conjunction with the Raglan Naturally Committee and the Horongarara Community Group for Te Akau South.	Being reviewed in 2022/2023.	None, time input only.

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
Commercialisation of the Whāingaroa Harbour and development is limited.	Develop a business-oriented document pack that introduces new businesses or business-people to the 'Raglan way of doing business' by promoting the existing strategies and studies for Raglan.	Purpose to ensure that as new businesses are welcomed to Raglan that they are well-informed about the emphasis on sustainable and environmentally focused businesses with a strong community and environmental ethic in relation to the Whāingaroa Harbour and community. Aim also to contribute to a cohesive 'Raglan Naturally'-type marketing message that is focused on sustainable tourism and a reciprocal relationship between people and place.	Raglan Chamber of Commerce in conjunction with Raglan Naturally and the Whāingaroa Raglan Destination Management Org. (DMO).	2022/2023	To be funded through the Raglan Chamber of Commerce.
Commercialisation of the Whāingaroa Harbour and development is limited.	Develop a 'Whāingaroa Harbour Design Guide' that then acts as a guidance document for future buildings and projects around the harbour edge and gives effect to the 2018 Raglan Blueprint and 2020 Raglan Naturally document aspirations, and to the recent Raglan Special Character Study.	The 'Whāingaroa Harbour Design Guide' would be a non-statutory document that sits outside the district plan but can be used to influence specific developments and to express the 'look and feel' the community want for buildings and projects around the harbour edge. An alternative action is to advocate for the implementation of the Raglan Special Character Study.	Raglan Chamber of Commerce and Raglan Community Board.	2023/2024	Funded by Waikato District Council.

Goal / Activity	Action	Mechanism for progressing action	Organisation lead and partner organisations / groups	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
Development around the Whāingaroa Harbour reflects the natural environment and is in line with the current 'look and feel' of the Raglan Wharf and other harbour infrastructure.	Establish a Raglan Community Board and Waikato District Council design protocol for future Council funded projects around the harbour edge utilising the Raglan Special Character Study.	Waikato District Council administer the public parks and reserves around the harbour edge and manage and build the facilities on those reserves. Purpose of the protocol is to ensure that for all future public facilities designed and constructed by Council around the harbour edge that an agreed design 'look and feel' is followed and that there is a process agreed for local input.	Raglan Community Board and Waikato District Council.	2022-2023	Funded by Waikato District Council existing budgets.
Development around the Whāingaroa Harbour reflects the natural environment and is in line with the current 'look and feel' of the Raglan Wharf and other harbour infrastructure.	Installation of interpretative signage around key points along the harbour edge to explain the history of harbour, important values and features of the harbour, to express the significance of the harbour to mana whenua and the community and express the cultural and historic values of the harbour.	Purpose to enhance the understanding of visitors and the community to the values and significance of Whāingaroa harbour, and of the environmental and land use issues affecting it. With a consistent branding and 'look and feel' for the signage around the harbour edge to reflect the local environment. This also provides an opportunity for mana whenua to express te ao Māori, kaitiakitanga and mātauranga Māori for the harbour.	Waikato District Council partnering with Raglan Museum and mana whenua.	2023-2025	Funding to be sought when Waikato District Council next formulate budgets in 2023 for the Long-Term Plan 2024-34, and/or from external funders to be sourced.

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
Car and boat parking issues are addressed through measures such as time restrictions, enforcement and charging of fees.	<p>Develop car and boat parking or solutions at locations near existing boat ramps, to relieve pressure on Raglan Wharf car and boat parking which is currently highly constrained.</p> <p>Identified solutions include:</p> <ul style="list-style-type: none"> • Boat ramp fees • Shuttle service from parking areas to the wharf • Rebuild historical jetty off Cliff Street 	The Raglan Community Board need to identify the priority boat ramp locations for further car and boat parking and solutions to be developed, and to advocate to Waikato District Council for funding of solutions.	Raglan Community Board and Waikato District Council.	2023-2025	Funding to be sought when Waikato District Council next formulate budgets in 2023 for the Long-Term Plan 2024-34, and/or from external funders to be sourced.

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
Walking tracks and cycleways around the Whāingaroa Harbour edge.	Involvement in Waikato District Council's Connectivity Strategy Review (previously Trails Strategy).	<p>Advocate for the following infrastructure projects to be adopted on the strategy review:</p> <ul style="list-style-type: none"> Walking tracks, boardwalks and cycleways from Cox Bay to Lorenzen Bay along the foreshore to the wharf. A walkway from the jetty past the footbridge and extended to the museum along the seaside. Wheelchair accessible landings at Bow Street jetty, Te Akau and Rangitahi Peninsula. 	Raglan Community Board and the Horongarara Community Group for Te Akau South.	2022-2030	Funding to be sought when Waikato District Council next formulate budgets in 2023 for the Long-Term Plan 2024-34, and/or from external funders to be sourced.
Enhancing boating connections to key points around the Whāingaroa Harbour.	Enhancing the ability for residents from Te Akau to travel to and from the Te Akau boat ramp to Raglan by boat safely and effectively.	Physical enhancements to the boat ramp at Te Akau and installation of cleats along the walkway towards the old Coastguard building and nearby ramp.	Raglan and Te Akau Ward Councillors in conjunction with the Horongarara Community Group for Te Akau South and other Te Akau residents.	2023-2025	Funding to be sought when Waikato District Council next formulate budgets in 2023 for the Long-Term Plan 2024-34, and/or from external funders to be sourced.

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
Enhancing boating connections to key points around the Whāingaroa Harbour.	Enhancing the ability of the harbour communities including Raglan residents to access a wider variety of points around the harbour by boat safely and effectively.	Raglan Community Board to advocate to Waikato District Council for review of all Whāingaroa Harbour boat ramps and jetties, and associated car and boat parking facilities. Purpose to identify specific upgrades to be undertaken and will need to consider projected changes in sea-level due to climate change effects to build resilience into community harbourside facilities.	Raglan Community Board and the Horongarara Community Group for Te Akau South.	2023-2025	Funding to be sought when Waikato District Council next formulate budgets in 2023 for the Long-Term Plan 2024-34, and/or from external funders to be sourced.

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
Enhancing boating connections to key points around the Whāingaroa Harbour.	<p>Further to the present wharf development that has been supported by Ministry of Business, Innovation and Employment (MBIE) investigating the potential to reclaim land to the south of the Wharf (Cox Bay side) to provide the following facilities for both able and disabled users:</p> <ul style="list-style-type: none"> • Improve the existing boat ramp making it wider and steeper for larger boat launching • Create an area for additional boat and trailer parking • Provide Coastguard with a facility to haul and store their rescue craft above the water line • Provide additional floating docks that cater small craft and to rowing skiffs, kayakers and jet skis 	<p>Advocate to Waikato District Council to undertake a technical feasibility study and early engagement for reclamation potential.</p> <p>Ensure action included in the Raglan/ Whāingaroa Harbour Management Plan in 2022.</p>	Waikato District Council, MBIE and Raglan Community Board.	2022-2035	Funding to be sought when Waikato District Council next formulate budgets in 2023 for the Long-Term Plan 2024-34, and/or from external funders to be sourced.

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/ or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
Enhancing boating connections to key points around the Whāingaroa Harbour.	Provide the opportunity to develop infrastructure on the water edge with the Coastguard, Raglan Sailing Club and Raglan Sport Fishing Club (and any other relevant community organisations) so that they can continue to develop the services they provide to the community as it expands.	Advocate to Waikato District Council / Waikato Regional Council to carry out study and early engagement on where additional facilities can be built and procure or receive land for development. Options could include reclaimed land at the wharf, or purpose-built sailing club building at Lorenzen Bay or other suitable location.	Waikato District Council, Raglan Community Board, Raglan Sailing Club, Raglan Sport Fishing Club and Raglan Coastguard.	2022-2035	Work with the organisations to ensure an action is included in both the Regional Coastal plan and the Raglan/ Whāingaroa Harbour Management plan in 2022. No cost, time only.
The Whāingaroa Harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing, with easy pedestrian and cycling access around the harbour-edge.	Swimming pontoons are placed in the water at key swimming locations to draw swimmers away from high boat use areas. Likely locations could be Aroaro Bay and near the footbridge.	Some discussions with the harbour master to avoid navigational safety issues; funding to be obtained; an enquiry made with Waikato Regional Coastal regarding the mooring of swimming pontoons within the harbour.	Raglan Community Board with support from Waikato District Council.	2022/2023	Minimal cost and could be funded through Raglan Community Board discretionary fund or Waikato District Council parks and reserves funding.



NGĀ ĀPITI HANGA

APPENDICES



APPENDIX A

ENGAGEMENT SUMMARY

1. EXECUTIVE SUMMARY

The Whāingaroa Harbour Strategy is a long-term strategic document focused on the future of the harbour.

The purpose of this strategy is to look at how we can better-connect Raglan and the surrounding communities by enhancing the harbour with people-orientated facilities such as jetties, walkways and cycleways.

Engagement on the Whāingaroa Harbour Strategy was carried out from October 2021 to December 2021. This document provides an outline of the engagement activities undertaken and summarises the feedback received during this time.

A snapshot of the amount of feedback received over this engagement period is provided below:

- 90 submissions were received via online and hardcopy survey
- Around 30 pieces of feedback were received during a public information session held at The Wharf Kitchen and Bar on Thursday 16 December 2021
- 60 submissions were received from key stakeholders via an additional targeted online survey

2. ENGAGEMENT ACTIVITIES

The below table summarises the engagement activities carried out from October to December 2021.

Table 1: Engagement activities carried out from October to December 2021.

Task	Outcome
Stakeholder survey	Key stakeholders were surveyed to identify what is important to them for the future of the harbour.
Online and hardcopy survey	An online and hardcopy survey were available for the wider community to have their say on what is important to them for the future of the harbour.
E-newsletter x 2	An e-newsletter was created and sent with updates on each of the four Whāingaroa Wharf projects.
Workshop with key stakeholders x 2	Two workshops were held online with key stakeholders.
Hui with hapū representatives x 2	Two hui were held online with hapū representatives.
Signage around town and at the wharf	Nine boards – three A0 size and six 2400 x 1200 – signs were erected around the town centre and at the wharf to provide project information and encourage residents to submit feedback on the projects.
Social media campaign	A robust social media campaign was run including posts and an event on the Waikato District Council Facebook page, posts on four Raglan community Facebook pages and posts on Waikato District Council's Instagram page. Several of the Facebook posts were shared by other community groups increasing visibility.
Media release x 2	Two media releases were sent out and published in the Raglan Chronicle.
Magazine advertorial	A magazine advertorial was published in the Raglan Chronicle in the Summer Holiday guide.

Task	Outcome
Advertising	Two advertisements were run in the Raglan Chronicle.
FAQs and website content	FAQs and website content was developed and is available at https://shape.waikatodistrict.govt.nz/whaalingaroa-wharf-redevelopment-project .
Email invitation to stakeholders	An email invitation was created and sent to all stakeholders inviting them to the public information session at The Wharf Kitchen and Bar.
Flyer drop around town	A printed flyer was delivered to shops around town and handed out to locals to encourage them to attend the public information session at The Wharf Kitchen and Bar.
Face-to-face discussions with businesses and locals on the street about the project	Face-to-face discussions about the four projects were had with local business owners and locals on the street in the town centre.
Public information session at The Wharf Kitchen and Bar	An information session was held at The Wharf Kitchen and Bar on 16 December 2021 for residents to meet the project team, ask any questions and have their say on the projects.

3. WHO WE SPOKE TO

We spoke to representatives from the following hapū.

Table 2: Hapū and marae representatives

Hapū/marae	How
Tainui o Tainui	A representative has attended project meetings
Ngāti Māhanga	A representative has attended project meetings
Ngāti Hourua	A representative has attended project meetings
Ngāti Tamainupō	A representative has attended project meetings
Ngā Uri o Tahinga	A representative has attended project meetings
Ooraeroa	A representative has attended project meetings
Ngāti Kawera	A representative has attended project meetings
Poihākena Marae	A representative has attended project meetings
Waingaro Marae	A representative has attended project meetings
Ngā Uri o Māhanga	A representative has been made aware of the project
Arāmiro	A representative has been made aware of the project
Te Papaōrotu	A representative has been made aware of the project
Ōmaero	A representative has been made aware of the project

We also spoke to the following stakeholders.

Table 3: Stakeholders

Organisation	How
Raglan Naturally Trust	Two workshops have been held for stakeholders
Waikato Regional Council Harbour Master	Two workshops have been held for stakeholders
Whāingaroa Environment Centre	Two workshops have been held for stakeholders
Heritage New Zealand Pouhere Taonga	Two workshops have been held for stakeholders
Whāingaroa Harbour Care	Two workshops have been held for stakeholders
Bike Waikato	Two workshops have been held for stakeholders
Whāingaroa Moana Collective	Two workshops have been held for stakeholders
Whāingaroa Environmental Defense	A representative has attended project meetings
Raglan Business Chamber	Two workshops have been held for stakeholders
Raglan Lions Club	Two workshops have been held for stakeholders
Raglan Coastguard	Two workshops have been held for stakeholders
Raglan Rowing Club	Two workshops have been held for stakeholders
Fishing charter	Two workshops have been held for stakeholders
Raglan Boat Charter: Wahine Moe	Two workshops have been held for stakeholders
Wharf building owners	Two workshops have been held for stakeholders
Raglan Fish	Two workshops have been held for stakeholders

Organisation	How
Tony Sly	Two workshops have been held for stakeholders
Youmans Capsule	Two workshops have been held for stakeholders
Soul shoes/silos	Two workshops have been held for stakeholders
Wharf coffee	Two workshops have been held for stakeholders
Wharf Kitchen	Two workshops have been held for stakeholders
Harmony Scenic Cruises	Two workshops have been held for stakeholders
The Silos Apartments	Two workshops have been held for stakeholders
Raglan Sports Fishing Club	Two workshops have been held for stakeholders
Raglan Kayak and Paddleboard	Two workshops have been held for stakeholders
Raglan Area School	Two workshops have been held for stakeholders
Commercial fishermen	Two workshops have been held for stakeholders
Rangatahi Limited	Two workshops have been held for stakeholders
Horongarara Community Group	Two workshops have been held for stakeholders
Raglan Sailing Club	Two workshops have been held for stakeholders

4. SUMMARY OF FEEDBACK

4.1 Summary of feedback from hapū representatives

Below is a summary of the feedback received from hapū representatives during the two online hui:

- Improving and protecting the quality of the water should be a top priority
- Protecting the health and population of kaimoana is important
- Recreational activities could take place in the harbour in the future but commercial activities should be limited
- The Whāingaroa Harbour Strategy should build off previous strategies such as the Raglan Coastal Reserves Management Plan

4.2 Summary of stakeholder survey

Prior to public engagement, targeted stakeholder engagement was undertaken which involved two workshops with the stakeholder group and an online survey. A total of 60 stakeholders responded to the online survey. Below is a summary of this feedback.

Table 4: Summary of stakeholder feedback via the online survey

Survey questions	Key feedback items
How often do you use the harbour?	<ul style="list-style-type: none"> • Daily x15 responses • Weekly x9 • Seasonally x6 • Monthly x1
What do you use the harbour for and how?	<ul style="list-style-type: none"> • Kayaking, swimming, walking, paddle boarding, sailing, rowing, fishing, shooting, jet skiing • Ferry to Te Akau • Viewing/visual amenity • Mental health/therapy • Living • Exercise • Watching/appreciating sealife • Boating/Launching • Kaimoana gathering

Survey questions	Key feedback items
Why is the harbour important to you?	<ul style="list-style-type: none"> • Recreation/pleasure/enjoyment • Environmental/nature/biodiversity/sealife/wildlife • Amenity • An escape • Part of Raglan life/essence/meaning/core of daily life • Mental and physical health • Provides fish and kaimoana • Free resource/resource for our children and future generations • Holds mana and mauri • Main access to Raglan and Te Akau • Needs care and protection • Source of income
Why is it important to Raglan and surrounding communities?	<ul style="list-style-type: none"> • Source of kaimoana • Recreational resource • Visual amenity • Tourism and commercial based activities • Ecological habitat/system • Taonga and lifeline • Jobs • Heart and soul of the town/unique identity for Raglan and the community, brings people together • Transportation/access/commuting • Holidaying

Survey questions	Key feedback items
Visualise the harbour in 30 years' time. What does it look like to you?	<ul style="list-style-type: none"> • Unpolluted, tranquil/quiet/peaceful • Bush lined/planted • Affected by rising sea-levels • Not overdeveloped with housing and roads encroaching foreshore • Full of natural life and biodiversity and free of pest species • No powered or noisy crafts or manmade structures • Restored wetlands and protected from erosion • Main boat ramp and wharf widened • Land to the southeast of boat ramp reclaimed for parking and dry storage for lifeguard boat and along Cox Bay to allow pedestrian access • Boardwalks • Employment • Regular ferry transport around the harbour servicing community needs • Numerous structures to support water access and transport • Safe environment for people • Speed signs on wharfs/footbridge and popular boating/jet skiing areas • An example of beauty/peace/rest and care • No effluent and stormwater runoff contamination • More docking space at Raglan Wharf and better boat ramps and water access • Improved public facilities

Survey questions	Key feedback items
How are people and/or goods being moved around the harbour?	<ul style="list-style-type: none"> • Boats, kayaks, paddleboards • Sail or electrical boats • Ferry
How could the harbour be used for recreational or commercial activities in the future?	<ul style="list-style-type: none"> • Fishing, swimming, harbour tourism, charter boats, floating bar • Walking tracks • Limited commercial activity – only boat trips – and number of recreational fishing and infrastructure • Anything self-powered or solar – not polluting • A water taxi • Commercial fishing limited to 10km out of Harbour to protect wildlife (Māui dolphin and fish supplies) • Regular ferry service to Te Akau • More significant launching point for big game fishing • Hydro power • House boats • Yacht club • Water skiing lanes • Educational facilities • Conservation • Better and more tourism

Survey questions	Key feedback items
What kind of infrastructure would be needed and where?	<ul style="list-style-type: none"> • Mangrove management • Sediment controls • Wheelchair accessible landings at Bow St jetty, Te Akau wharf and Rangitahi • Walk tracks/ boardwalks/ cycleways from Cox Bay to Lorenzen Bay along foreshore. Walkway from jetty past footbridge extended to museum along seaside • More parking at the wharf including boat trailer parking • People using the commercial fishing charters should be shuttled or walk from parking further afield e.g. Aroaro Bay • Parking close to the wharf for short term users only • Charge for parking within 100 meters of all boat launching ramps • Pontoon at the wharf • Infrastructure to divert treated wastewater away from the harbour • Land secured at the end of Lily Street and on various places around from Lorenzen Bay. Also going along the beach by the airfield and along to the surf beach - a wall or support for these areas. • Existing pier developed for commercial fishing • Land behind fire station utilised for recreation or limited business that would benefit the community • Remove 'the dolphin' (jetty structure) no longer used • Rebuild historical jetty off Cliff Street • Wharf boat ramp widened and upgraded

Survey questions	Key feedback items
What kind of infrastructure would be needed and where?	<ul style="list-style-type: none"> • Seabed on Cox Bay side ramp reclaimed for car and boat trailer parking with slipway for bigger boats and dry storage for Coastguard boat • Marina at the wharf which also caters for launching of jet skis, kayaks, rowing skiffs - Alternatively dredge and put marina in Aroaro Bay • Jetty at Te Akau upgraded • Turning to go under the bridge to get to the boat ramp at Papahua Domain is tricky at low tide, needs dredging to make to deeper for safer access • Speed signage for jet skis and boats • More points of public access and docking facilities • More public toilets • More public potable water supplies • Floating dock • Relocated airport • Te Akau boat ramp and pontoon • No further infrastructure except walking and cycling tracks

Survey questions	Key feedback items
Are there any opportunities or risks that should be taken into account?	<p>Opportunity</p> <ul style="list-style-type: none"> • To be mindful of tangata whenua and traditional usage of our harbour, keep it clean and keep it pleasurable for the children • Development of commercial activities carefully considered as currently cannot operate successfully over peak summer periods • Opportunities to fully restore the health of the harbour and foreshore • Rahui on shellfish to help replenish • Opportunity for private investment • Harbour is in a reasonable state now - prioritise what needs to happen to keep it like it is or improve it • Utilise community who are keen to be involved in right type projects that add value • Renewable energy solution • Good quality sustainable tourism • The opportunity exists to enhance the Whāingaroa Harbour and generate considerable economic activity from visitors to the region. A strong local economy typically leads to additional funding for beautification and protection of the waterway • There is opportunity to prevent sewerage spilling into the harbour by spending rates on proper sewerage treatment • Education • To plan for growth properly • World famous for social responsibilities

Survey questions	Key feedback items
Are there any opportunities or risks that should be taken into account?	<p>Risks</p> <ul style="list-style-type: none"> • Damage to shellfish beds • Harbour is polluted less attractive due to loss of amenity • Sea-level rise • The risk of opening up this area to more polluting and environmental unfriendly activities is against multiple laws, agreements and treaties • Airport in centre of expanding town • Loss of houses due to erosion • Excessive commercial activity • Recreational fisheries • Property developers • Over population • Small minority oppose any infrastructure development • Too much negativity then people give up on initiatives • Too many boats • Consultant fees • Ecological balance of the harbour not maintained • Not acting now • Risks that our rates expenditure is misdirected away from improved footpaths and infrastructure for the existing ratepayers. Looking after the locals comes first before making Raglan a place for people outside the area.

4.3 ONLINE AND HARDCOPY SURVEY AND PUBLIC INFORMATION SESSION

The below table is a summary of the feedback received from the public online and hardcopy survey and at the public information session at The Wharf Kitchen and Bar.

Table 5: Feedback received during public engagement relevant to the Whāingaroa Harbour Strategy

Survey questions	Key feedback items
Why is the harbour important to you?	<ul style="list-style-type: none"> • Lifeblood/heart of the town • Used for variety of recreational activities • Transportation route for those who live in communities such as Te Akau • Supports biodiversity • A source of food/collecting kaimoana • A gateway to Raglan
Visualise the harbour in 30 years' time. What does it look like to you?	<ul style="list-style-type: none"> • Increased recreational use • A healthy harbour is paramount • Water is kept clean and wastewater is controlled • Erosion is controlled and maintained • Modern and is an attraction for the town • Used for gathering kaimoana • Better parking access to the wharf • Retains traditional and historic character • Important it doesn't become more commercialised • Any new infrastructure or improvements should be kept as close to the original style of the wharf as possible • Sustainable and ecofriendly recreational activities • More walkways to, from and around the harbour

Survey questions	Key feedback items
What types of recreational or commercial activities could take place in the harbour?	<ul style="list-style-type: none"> • Recreational activities such as harbour cruises, boating, swimming, kayaking, SUPS, walks • Do not increase commercial activity • Recreational activity should be sustainable and eco friendly • The harbour should be used as an educational tool • Opportunity for more cafes, bars and restaurants at the wharf and around the harbour • Commercial charter boats
What type of infrastructure would be needed and where?	<ul style="list-style-type: none"> • More car and boat parking is needed • Boat ramp fees and time restrictions on parking • Walkways and seating areas around the wharf and harbour • Walking track to Lorenzen Bay • Walkway along Cliff Street towards town • Land reclamation for more parking • Jetties for fishing along Cliff Street • Dry marina for Coast Guard • Boating and fishing club building • Infrastructure modelled on the natural environment so as not to become an eye sore • Water taxi/ferry link around the harbour and to Te Akau • Storage space for hire • Boat launching area away from the wharf • A pontoon for swimming • Shoreline planting

5. KEY THEMES

After a review of all feedback received the following key themes have been identified:

- Improving and protecting the health and wellbeing of the harbour is a top priority
- The harbour is a ready source of kaimoana
- The harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing
- Commercialisation of the harbour and development is limited
- Development reflects the natural environment and is in line with the current look and feel of the wharf
- Car and boat parking issues are addressed through measures such as time restrictions, enforcement and boat ramp fees
- The harbour is used as an educational tool for children and tourists
- Walk tracks and cycleways from Cox Bay to Lorenzen Bay are available
- Residents can catch a ferry from the wharf to Te Akau and other locations around the harbour

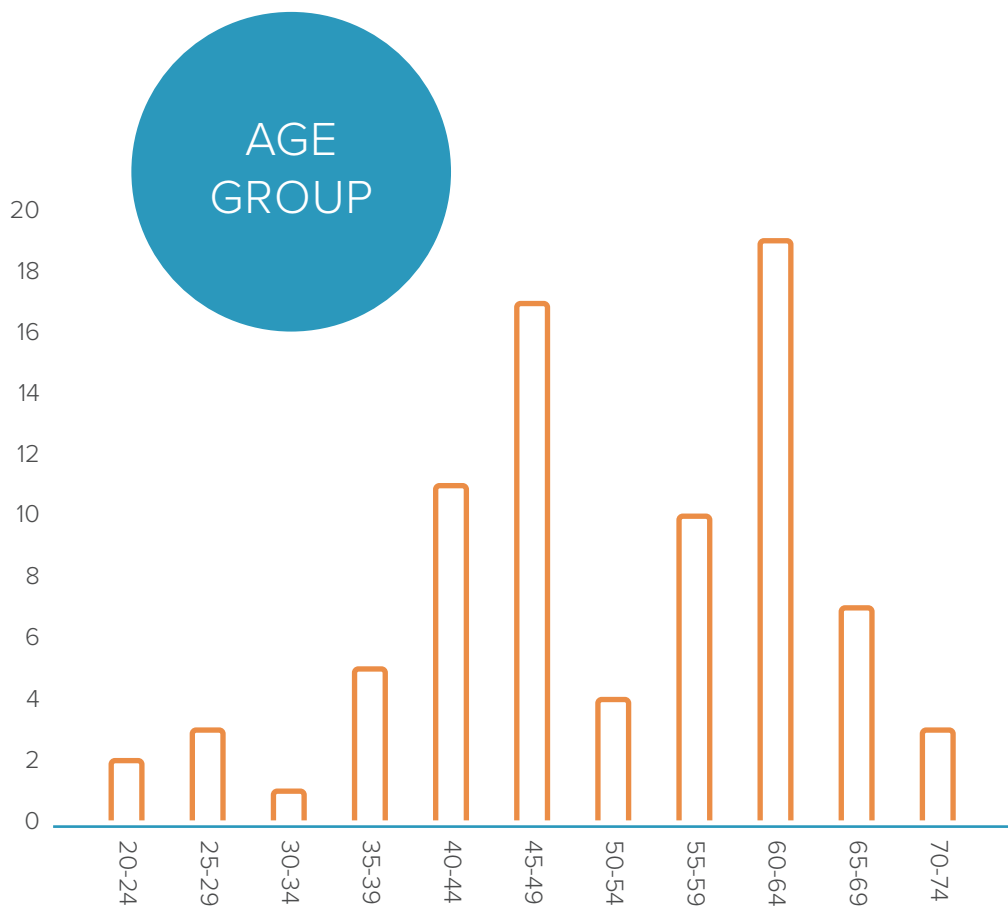


6. DEMOGRAPHICS FOR ONLINE AND HARDCOPY SURVEYS

6.1 Age group of survey respondents

Of those who responded to both surveys 19 were 60-64 years old, 17 were 45-49 and 11 were 40-44. The lowest number of respondents belonged to age group 30-34 (one respondent) followed by 20-24 (two respondents) and 25-29 and 70-74 (both three respondents).

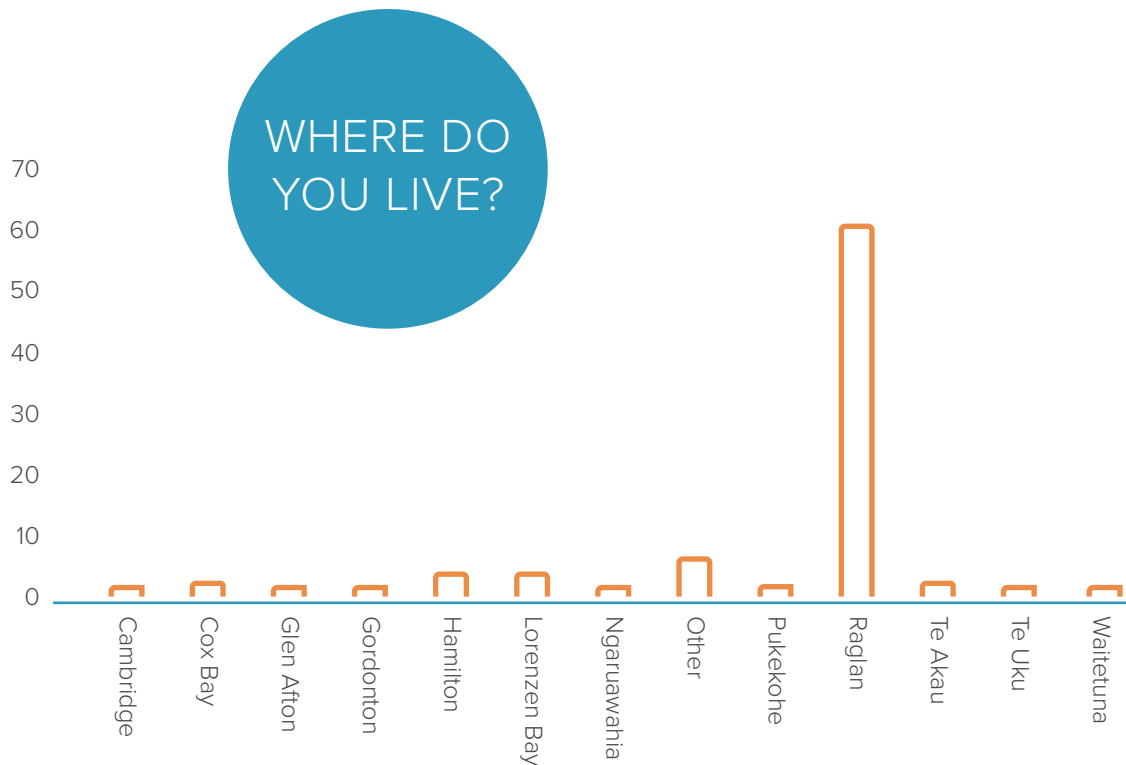
Chart 1: Breakdown of survey respondents by age group



6.2 Location

Of those who submitted feedback via the online and hardcopy survey, 61 lived in Raglan, three lived in Lorenzen Bay and one person lived in Cox Bay. The remainder lived outside of the Raglan area.

Chart 2: Breakdown of survey respondents by location



7. NEXT STEPS

The project team is now in the process of developing the draft Whāingaroa Harbour Strategy. This will be done with input from the project working group and using the feedback gathered during the first phase of public engagement.

Once this stage is complete, we expect to carry out the following:

- A further hui with hapū representatives to workshop the draft strategy
- Workshop with key stakeholders
- A second round of public engagement to provide an opportunity for the wider community to have their say on the draft strategy
- Finalise the draft strategy using feedback gathered during the second phase of engagement.

APPENDIX B

SUMMARY OF EXISTING STRATEGIES FOR THE HARBOUR

RAGLAN NATURALLY 2020

The Raglan Naturally Community Plan is a document created by the community, for the community. It is a celebration of Raglan's unique character and culture - filled with ideas for action, goals and aspirations that will help to guide the community as it grows and evolves.

Feedback and aspirations provided in the community plan that may be relevant to the Whāingaroa Harbour Strategy are identified below.

Feedback	Stakeholder Input	Key Themes
<p>We are involved in local decision making and in collaboration with the council have created a future-focused plan for transport and connectivity within and from outside Raglan. Through this we have more cycle and walkways, safe roads and footpaths to connect us to home, school, town and our beaches and reserves.</p> <p>Transport, Recreation and CBD</p> <p>There are more buses (including a local shuttle bus) and fewer cars - we are biking more, and parking is no longer a problem here! We are healthier and more connected to the environment as a result.</p> <p>These changes in transport support active recreation by creating added safety, accessibility and variety in our options.</p> <p>Business, Employment and Tourism</p> <p>We have a balanced approach to tourism, with local interests at the forefront of visitor growth. Raglan is a leading example of responsible and sustainable tourism. We have a cohesive marketing message, focused on sustainable tourism. Visitors are educated about our community and given opportunities to contribute.</p>	<p>Advisory Committee:</p> <p>Anna Cunningham (Chair)(Whāingaroa Environment Centre),</p> <p>Denise Reynolds (Ngāti Māhanga/Hourua spokesperson),</p> <p>Gabrielle Parson (Project Coordinator Raglan Community Board),</p> <p>Heather Thomson (Ngāti Māhanga/Hourua representative),</p> <p>Karamea Puriri (Raglan Business Chamber),</p> <p>Lisa Thomson (Raglan Ward Councillor),</p> <p>Rangi Kereopa (Raglan Community Board) and</p> <p>Rolande Paekau (Poihākena Marae Committee).</p>	<ul style="list-style-type: none"> • Connectivity and accessibility • Active mode connections • Improved parking and public transport • Responsible and sustainable tourism • Mana Whenua/hapu and community partnership • Retain Raglan's natural environment and uncommercialised vibe • Integrated planning of harbour development and management

Feedback	Stakeholder Input	Key Themes
<p>Local Participation in Planning Decisions and Partnership</p> <p>Treaty partnerships - the community has learned much about the Te Tiriti o Waitangi in our local context, and space has been created for the stories of this place to be told. We are learning about te reo Māori, tikanga Māori and te ao Māori (language, culture and the Māori world). This learning and sharing has laid the foundations of a strong partnership between iwi/ hapū and others in the community. We all come together around shared values and aspirations and we support each other's planning and celebrate as dreams are realised.</p> <p>Community planning and well-managed growth – we lead the way as a forward-thinking, sustainable community, building resilience as we grow. We continue to work together with iwi and hapū to explore our visions and values for this place, supporting one another's planning and aspirations. We develop cohesively in line with our community vision and values. Collaboration occurs between stakeholders/parties in planning and implementation. Local government works closely with us to support our community and align its plans with our own, providing continuity and ongoing support, in a spirit of true partnership.</p> <p>Most Common Themes from The Community:</p> <ul style="list-style-type: none"> • More walkways and cycleways <p>Possible Pathways to Achieving these Aspirations:</p> <ul style="list-style-type: none"> • Manu Bay to be free from additional building development • Surf school activities are kept to Ngarunui beach. • A pontoon out by the walk bridge • Recognise the Whaanga Coast (originally known as the Karioi Native Reserve) as a significant space for Tainui Iwi and local hapū. • Transport services to beach and back for everyone. • Walking and cycling are supported; they provide transport solutions, have a low impact on the environment and encourage exercise to improve health. They also attract tourists in a manner which minimises their adverse impacts on the area. • New and upgraded walking and cycling tracks. • Local healthcare services are holistic, accessible and affordable. • Don't want to become commercialized • Include the new recommended sea-level • Changes in all infrastructure and planning decisions to reduce the cost to future residents to respond to climate change. 	<p>Iwi:</p> <ul style="list-style-type: none"> • Tainui (ki Whāingaroa) • Poihākena Marae Committee • Ngāti Māhanga • Ngāti Hourua • Ngāti Whakamarurangi <p>Iwi:</p> <ul style="list-style-type: none"> • Raglan community 	

Feedback	Stakeholder Input	Key Themes
<ul style="list-style-type: none"> • Accessible green spaces including mixed ability access ways (i.e. pushchair, wheelchair, flat options) • Continue sand dune planting and protection to act as natural buffers for sea-level rise and coastal erosion • Eco-tourism • Harbour-wide development consents taking into account changing sea-levels • Walking track connecting township to beaches and surf breaks – connects people to the environment, encourages people out of cars • Review the Whāingaroa Harbour Catchment Plan and work with the Regional Council on their Harbour Catchment Management Plans • Cohesive planning of sustainable transport, including walking, cycling, pedestrianisation, public transport (buses and possibly ferries), speed limits, charges for parking (probably with passes for locals) and other ways to reduce parking demand in crowded areas. 		

WAIKATO DISTRICT LONG TERM PLAN 2021-2031

The Long-Term Plan (LTP) sets out the District's vision, direction, work plan and budgets for the next 10 years. With input from Waikato communities, Waikato District Council develops a new LTP every three years.

Below are the topics of interest from the Raglan community in the LTP submissions.

Feedback	Stakeholder Input	Key Themes
<ul style="list-style-type: none"> • Food collection • Parking • Sports facilities • Roading and three waters infrastructure upgrades • Horse riding access to beaches • Reserves in the Raglan area need to be under the control of the community board • There should be a playground/reserve in the Lorenzen Bay/ Greenslade Road part of Raglan • LTP for 2023 for a rebuild, storm water drainage, resealing and car park marking of the front car park on the local reserve at 5 Stewart St, Raglan • It was not clear from the LTP document what support for Raglan tourism has been included, we would like the Council to consider how it can support the Raglan ihub given the need to support local businesses and community in response to covid and recovery on going • Raglan Wharf commercial moorage fees of \$1,332/yr need to be compared to other similar wharf facilities in regional coastal communities to ensure it is appropriate 	<ul style="list-style-type: none"> • Lucy Marshall on behalf of HAAWI (Horse Access Advocates Waikato Inc.) • Raglan Community Board • Individual Members of the Raglan Community 	<ul style="list-style-type: none"> • Parking and access • More reserve/ recreation areas and access

THE RAGLAN BLUEPRINT

In 2018, Waikato Regional Council carried out extensive consultation with its communities and used the results of this to create blueprints for each town. These blueprints are plans for the future and include objectives to create liveable, thriving and connected communities.

Feedback	Stakeholder Input	Key Themes
<ul style="list-style-type: none"> • Raglan's strong unique identity should be built upon and celebrated • There are a number of environmental community initiatives which need support and funding • Raglan's strong Māori culture should be supported • Housing affordability is an issue • Social programmes supporting the disadvantaged and elderly are needed • The reliance of businesses on tourism - but the town's economy should rely on more than tourism • More community spaces are needed • Traffic safety issues and parking issues need to be addressed • A better bus service is needed <p>One of the key objectives which has been included in the blueprint is to extend walking and cycling networks in Raglan, including to Whale Bay. It has been given 'very high' priority in the plan and is relevant to the Whāingaroa Harbour Strategy because this project also seeks to improve walking and cycling infrastructure between harbours.</p> <p>Another key objective, identity, is particularly relevant to the Whāingaroa Harbour Strategy. It is described below:</p> <p>"Build on the strong identity of Raglan based on the unique qualities of the local area (refer to DW1.2 to 1.4). Consider nature, regeneration, environmental initiatives, the arts, and surfing."</p> <p>The Whāingaroa Harbour Strategy should align well with this objective because it aims to work in collaboration with the community to identify infrastructure that will better connect the town, provide better access to Raglan for remote communities and strengthen its connection to the water.</p>	Raglan community	<ul style="list-style-type: none"> • Maintain Raglan's unique identity • Promote strong Maori culture • Fund environmental and community initiatives • Walking and cycling networks

RAGLAN COASTAL RESERVES MANAGEMENT PLAN - FOR PAPAHUA, MANU BAY AND WAINUI RESERVES

The Raglan Coastal Reserves Management Plan presents a framework for the future management and development of Papahua Recreation Reserve, Wainui Reserve and Manu Bay Reserve. The purpose of reserve management plans is to provide for and ensure the use, enjoyment, maintenance, development, protection and preservation of the reserves. Papahua Recreation Reserve is within the harbour area (Wainui and Manu Bay are outside of the harbour area) the key themes for this reserve are identified below.

Feedback	Stakeholder Input	Key Themes
<p>Papahua Recreation Reserve (Papahua)</p> <p>Reserve issues can be identified in two groups being environmental and people:</p> <ul style="list-style-type: none"> • Environmental: Coastal Erosion and Sea-level Changes • People: Activities, Impacts and Numbers • To ensure that the cultural, historical heritage, environmental and recreation resources of Papahua are protected through co-management with local mana whenua. <p>Papahua Recreation Reserve Vision</p> <p>Core values and principles: The values expressed in this section weave together mana whenua views and the diverse connections all people have to Papahua; Papahua is a treasure and is to be protected in perpetuity; Papahua provides for recreation activities including access to the coastal margins. The land space is limited, therefore some activities may not be appropriate on this land.</p>	<p>Waikato District Council/crown</p>	<ul style="list-style-type: none"> • Mana whenua values and co-management • Historical heritage • Coastal margin enhancement and protection

Feedback	Stakeholder Input	Key Themes
<p>Actions to Implement</p> <ul style="list-style-type: none"> • Ensure partnerships with mana whenua reflect the principles outlined in Te Tiriti o Waitangi and tuku, to protect and manage wāhi tapu, and establish an authentic Māori presence • Develop interpretive signage that provides visitors with an understanding of the cultural and historic values of this area • Ensure that Council staff and contractors are aware of Council's accidental discovery protocols in regard to the uncovering of cultural or historical artefacts and/or remains • Support the installation of pou or other appropriate artwork that reflects the Ngāti Māhanga relationship to this land <p>Actions to Implement:</p> <ul style="list-style-type: none"> • Maintain specimen trees and succession planting of new trees • Monitoring health of specimen trees and undertaking arboriculture work as required • Provide successional planting with native species for natural shade • Where trees and shrubs are used to screen buildings, take into account public safety and graffiti control issues identified through Crime Prevention Through Environmental Design Principals (CPTED). • Maintain a coastal margin enhancement and protection programme, based on local and regional advice • Continue monitoring of dune changes and erosion along harbour foreshore. • Encourage visitors and camp users to use only identified access routes between the reserve and harbour / estuary areas. 		

WHAINGAROA CATCHMENT MANAGEMENT PLAN

Catchment management plans are developed by Waikato Regional Council (WRC) and reflect a collective vision for our natural environment, and identify actions needed to get there, building on our growing program of catchment management works in these areas.

WRC recognise the need to consider social, cultural, environmental and economic outcomes. Importantly, WRC want the work to be owned and driven by the community, for the community.

This process is underway, and WRC advise they have commenced further discussion with partners, agencies, iwi representatives, rural landowners and local communities to understand their concerns, aspirations and ideas for the catchments and their harbours.

APPENDIX C

TABLE OF EXISTING FUNDED PROJECTS

Actions Already Funded through Waikato District Council's Long Term Plan 2021-2031

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
The Whāingaroa Harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing, with easy pedestrian and cycling access around the harbour-edge.	Replacement of timber footbridge opposite 13 Cliff Street.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council with input from Raglan Community Board.	2022/2023	Some funding already allocated in WDC Long Term Plan for 2022/2023 financial year as part of the Open Spaces Renewal Programme 2021-31.
The Whāingaroa harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing, with easy pedestrian and cycling access around the harbour-edge.	Replacement of main jetty at Cliff Street Esplanade including two staircases, handrails and piles.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council with input from Raglan Community Board.	2022/2023	Some funding already allocated in WDC Long Term Plan for 2024/2025 financial year as part of the Open Spaces Renewal Programme 2021-31.
The Whāingaroa harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing, with easy pedestrian and cycling access around the harbour-edge.	Replacement of bench seats, rubbish bins and picnic tables.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council with input from Raglan Community Board.	2024/2025	Some funding already allocated in WDC Long Term Plan for 2024/2025 financial year as part of the Open Spaces Renewal Programme 2021-31.

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/ or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
The Whāingaroa harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing, with easy pedestrian and cycling access around the harbour-edge.	Replacement of bench seats, rubbish bins and picnic tables.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council with input from Raglan Community Board.	2024/2025	Some funding already allocated in WDC Long Term Plan for 2024/2025 financial year as part of the Open Spaces Renewal Programme 2021-31.
The Whāingaroa harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing, with easy pedestrian and cycling access around the harbour-edge.	Sea wall renewal along Wi Neera Street from jetty to Coastguard building.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council with input from Raglan Community Board.	2024/2025	Some funding already allocated in WDC Long Term Plan for 2024/2025 financial year as part of the Open Spaces Renewal Programme 2021-31.
The Whāingaroa harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing, with easy pedestrian and cycling access around the harbour-edge.	Replacement of boat ramp and harbour marker beacon (large triangular harbour marker on dunes north of camp) at Puriri Park.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council with input from Raglan Community Board.	2024/2025	Some funding already allocated in WDC Long Term Plan for 2024/2025 financial year as part of the Open Spaces Renewal Programme 2021-31.
The Whāingaroa harbour is a space for recreational activities such as swimming, kayaking, jet skiing, boating and fishing, with easy pedestrian and cycling access around the harbour-edge.	Replacement of concrete boat ramp at Joys Point Reserve.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council with input from Raglan Community Board.	2026/27	Some funding already allocated in WDC Long Term Plan for 2026/2027 financial year as part of the Open Spaces Renewal Programme 2021-31.

Goal / Activity	Action	Mechanism for progressing action	All organisations will need to partner with iwi to carry out all actions and/or initiatives.	Timeframes to complete action (Financial Year)	Specific Activity in Council Long Term Plan Budgets or other funding request to external funder
Car and boat parking issues are addressed through measures such as time restrictions, enforcement and boat ramp fees.	Resurfacing sealed area to boat ramp at Papahua Recreation Reserve from main accessway and access to campground and sealed carpark in front of boat ramp.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council.	2024/2025	Some funding already allocated in WDC Long Term Plan for 2024/2025 financial year as part of the Open Spaces Renewal Programme 2021-31.
Walking tracks and cycleways around the Whāingaroa Harbour edge.	Replacement of concrete retaining wall alongside 54 Wallis Street and foreshore in front of 56 Wallis Street.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council.	2027/2028	Some funding already allocated in WDC Long Term Plan for 2027/2028 financial year as part of the Open Spaces Renewal Programme 2021-31.
Walking tracks and cycleways around the Whāingaroa Harbour edge.	Various funded walkway projects around the harbour edge including construction of a walkway from Cliff Street jetty to Raglan wharf, the Aroaro Bay walkway, and the Lorenzen Bay walkway.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council.	2022/2023	Some funding already allocated in WDC Long Term Plan for 2022/2023 financial year as part of the Open Spaces Renewal Programme 2021-31.
Improving and protecting the health and wellbeing of the Whāingaroa Harbour is a top priority.	Replacement of storm water channel, storm water catchpit and storm water culvert in multiple sites throughout ward.	An already funded item, with the action being for Raglan Community Board to advocate on the design of the improvement.	Waikato District Council.	2024/2025	Some funding already allocated in WDC Long Term Plan for 2022/2023 financial year as part of the Open Spaces Renewal Programme 2021-31.

It is noted that WDC are currently investigating options for upgrading Raglans wastewater treatment infrastructure. Consultation with mana whenua, stakeholders and the community is part of this process.





To	Strategy & Finance Committee
Report title	Approval to adjust and rename the Te Kauwhata Railway Station Feasibility project budget
Date:	14 September 2022
Report Authors:	Vishal Ramduny, Strategic Initiatives and Partnerships Manager; & Erin Hawes (Management Accountant)
Authorised by:	Clive Morgan, General Manager Community Growth

1. Purpose of the report

Te Take moo te puurongo

For the Strategy and Finance Committee to consider and recommend to Council approval for the renaming of the Te Kauwhata Rail Amenities Feasibility Study budget in both Waka Kotahi's Transport Investment Online (TIO) system and in Council's Long-Term Plan to also include Pookeno.

2. Report

Puurongo

Waikato District Council (WDC) has \$102,000 approved in the 2022/2023 Waka Kotahi public transport infrastructure approved budget for a Te Kauwhata rail amenities feasibility study. This budget attracts 51% Waka Kotahi Financial Assistance Rate (FAR), however, 76% FAR was used in WDC's Long Term Plan (LTP).

Therefore, to maximise the full budget of \$102,000, staff have identified additional local share of \$25,500 from the roading team's passenger transport budget.

On 17 June 2023, the Te Huia Sub-Committee approved a feasibility study for a potential railway station for Pookeno on the understanding that the Waikato Regional Council will also make a financial contribution of \$50,000 for this study. The Regional Transport Committee subsequently approved this financial contribution on 22 August 2022.

This means that there will be a total budget of \$152,000 available for this study made of WDC, WRC and Waka Kotahi contributions as follows:

7RL-70008-E-0-1202-0000	102,000.00	Approved budget
7RL-70008-E-0-1202-0000	50,000.00	Budget increased as per Te Huia Sub-Committee approval conditions
	152,000.00	Total feasibility study budget for Te Kauwhata and Pookeno train stations
Funded by:		
7RL-70008-E-0-3301-0000	-52,020.00	NZTA Subsidy at 51% of original budget (\$102K)
7RL-70008-E-0-9011-0000	-24,480.00	WDC General Rate funding (approved in LTP)
7RL-70008-E-0-9011-0000	-25,500.00	General Rate funding transferred from Passenger Transport budget
7RL-70008-E-0-3406-0000	-50,000.00	WRC funding contribution to meet Te Huia Sub-Committees approval conditions
	-152,000.00	Total Funding split

Strategically, it makes sense to combine the feasibility study for a potential railway station at Te Kauwhata and Pookeno into a single business case and combine potential funding from Waikato Regional Council as well.

As Council does not have any funds allocated specifically for a railway station feasibility study for Pookeno, attributing an additional local share of \$25,500 from Council's public transport budget would increase Council's local share to \$49,980 thereby enabling us to use the 51% Waka Kotahi FAR raising the total allocation to \$102,000. This will require renaming the *'Te Kauwhata Rail Station (pre-implementation phase) passenger facilities and infrastructure improvements'* in Transport Investment Online (TIO) and the associated Long Term Plan cost centre to *'Te Kauwhata and Pookeno Railway Stations (pre-implementation phase) passenger facilities and infrastructure improvements.'*

This change will enable the scope of the feasibility study (to be done through a single-stage business case) to include both Te Kauwhata and Pookeno. This will not only be a more cost-effective way to utilise the funds, but it will also help pool together a potential funding contribution from the Regional Council and ensure that the wider scope of the feasibility study (by the inclusion of Pookeno) will offer a more robust outcome.

It is important to reiterate that staff are not asking for an increase in budget but merely seeking the Strategy & Finance Committee's approval for the renaming of the budget to include Pookeno. Waikato Regional Council has advised that there is a requirement for WDC to confirm the 2022/2023 budget with Waka Kotahi. Any changes to existing projects, such as this name change, can occur at this time.

3. Staff recommendations Tuutohu-aa-kaimahi

That the Strategy and Finance Committee:

- a. notes the respective financial contributions from Waikato District Council, Waka Kotahi and Waikato Regional Council making up the \$152,000 available for a railway station feasibility study (business case) for Te Kauwhata and Pokeno;
- b. recommends to Council the renaming the *'Te Kauwhata Rail Station (pre-implementation phase) passenger facilities and infrastructure improvements'* in Transport Investment Online (TIO) and the associated Long Term Plan cost centre to *'Te Kauwhata and Pokeno Railway Stations (pre-implementation phase) passenger facilities and infrastructure improvements.'*; and
- c. recommends that Council approves the necessary budget changes to correct the Waka Kotahi (NZTA) subsidy income to 51% (\$52,020) from 76% (\$77,520) as was adopted in the 2021-2031 LTP and the transfer of General Rate funding from the Roding Passenger Transport budget of \$25,500.

4. Attachments Ngaa taapirihanga

Nil.

To	Strategy and Finance Committee
Report title	Adoption of the Hamilton-Waikato Metropolitan Transport Programme Business Case
Date:	14 September 2022
Report Author:	Vishal Ramduny, Strategic Projects Manager
Authorised by:	Clive Morgan, General Manager Community Growth

1. Purpose of the report

Te Take moo te puurongo

To receive and approve the Hamilton-Waikato Metropolitan Transport Programme Business Case (PBC).

To seek approval for the General Manager Community Growth and the General Manager Service Delivery to finalise any outstanding matters related to finalising the PBC.

To outline next steps and the post-PBC work programme.

2. Executive summary

Whakaraapopototanga matua

This report is an update on the progress and finalisation of the Hamilton-Waikato Metropolitan 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.

The purpose of the PBC is to recommend a programme for more detailed analysis (through detailed business cases) to give effect to the preferred approach of focussing growth and intensification within the core Hamilton city area supported by rapid bus transit routes to these areas within the city and more frequent bus transit routes to towns within the metropolitan area (such as Ngaaruawaahia, Cambridge and Te Awamutu) and as far north as Huntly and east to Morrinsville.

The PBC is premised on thinking about the metropolitan area as landuse and transport ecosystem which transcends political boundaries. The success of its implementation will be on ensuring cross-boundary planning translates into implementation.

Elected members have been part of several workshops on the PBC over the past year-and-a-half. 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.

Staff consider the matters in this report have a high significance and that the recommendations comply with the Council's legal requirements.

The Future Proof Implementation Committee (FPIC) meets on 2 September 2022 to consider adopting the final Hamilton-Waikato Metropolitan Transport Programme Business Case and recommend to each partner council to do likewise.

The full Hamilton-Waikato Metropolitan Transport PBC can be accessed through the following link (To be provided after FPIC on 2 September)

3. Staff recommendations Tuutohu-aa-kaimahi

That the Strategy and Finance Committee recommends to Council:

- a. **the approval of the Hamilton-Waikato Metropolitan Transport Programme Business Case;**
 - b. **delegates the General Manager Community Growth and the General Manager Service Delivery the authority to finalise any outstanding matters, including review feedback related to the Programme Business Case documents;**
 - c. **notes that the Hamilton-Waikato Metropolitan Transport Programme Business Case was considered for approval by the Future Proof Implementation Committee on 2 September 2022;**
 - d. **notes that further detailed work will be required to plan for implementation of the recommended programme outlined in the Hamilton-Waikato Metropolitan Transport Programme Business Case;**
 - e. **notes that staff will do an assessment of the existing LTP budget to understand how capital and maintenance work in the WDC area within the Hamilton-Waikato metropolitan area can support the implementation of the PBC; and**
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- f. **notes that LTP 2024-2034 will need to consider how Council can financially support the implementation of the Hamilton-Waikato Metropolitan Transport PBC for the benefit of its communities within the Hamilton-Waikato Metropolitan Area on the understanding that this will require implementation across the jurisdictional boundaries of Hamilton city, Waikato district and Waipa district.**

4. Background

Koorero whaimaarama

The Hamilton-Waikato Metropolitan Transport PBC is a long-term strategic vision for transformative transport in the metropolitan area. The work has been carried out pursuant to a Terms of Reference developed by the Future Proof partnership and endorsed by FPIC in 2019.

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.

This business case will inform land use and infrastructure decisions in the future, including the update to the sub-regional Future Development Strategy (FDS) and provide an evidence base for further investigations, funding approvals and decision-making for partner Councils to support the sub-region’s growth and strategic transport network planning.

The vision of the PBC as developed by the 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”

In May 2021 we updated the project’s goals and objectives from the Hamilton-Waikato Metropolitan Spatial Plan (which was developed in 2019/20 and which informed the transport PBC. The key objectives of the PBC as agreed by the partners are:

- 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.
-

The business case process also focuses a great deal on benefits the PBC outcomes could bring to the metropolitan area and the wider sub-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.

Benefits based around increased choice and housing, as well as those related to urban form and quality of life, were weighted the highest.

5. Discussion and analysis

Taataritanga me ngaa tohutohu

Previous Approvals and Future Proof Implementation Committee

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".

On 2 September 2022, FPIC meets to discuss the finalisation of the PBC and to discuss the next steps of the process. The following recommendations were to be presented at that meeting:

- i. The Hamilton-Waikato Metropolitan Transport Programme Business Case is endorsed as the strategic direction for transport and land use integration in the Metropolitan Spatial Plan area.
- ii. It is noted that the level of detail is appropriate for a Programme Business Case, but that further detailed work will be required for plan implementation.
- iii. 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.

These recommendations are the core of the current work programme being developed by staff. These are described in more detail below.

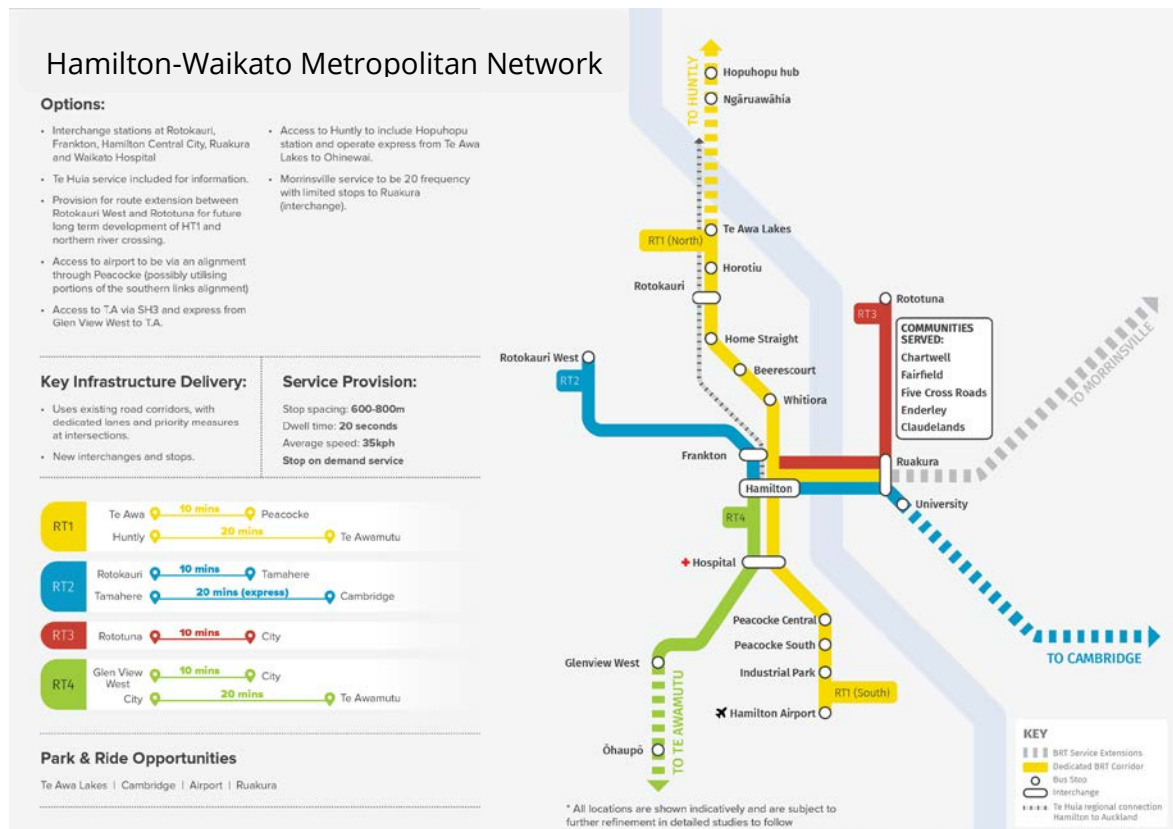
Current Status and Next Steps

The intention of this report 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.

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.

The recommended programme remains unchanged from that supported and endorsed in principle May and June 2022. 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 workshops 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.

The key focus corridors for the implementation of the PBC is show below.



Finalising the Programme Business Case & Next Steps

All technical work on the PBC has been completed and the Waka Kotahi IQA team is undertaking a final review of the management and financial cases. This will not change the preferred programme or the evidence base.

There have been no revisions to any matters related to previous recommendations endorsed FPIC. All financial updates and work (not yet detailed) related to future cost shares and funding agreements across the Future Proof partners will be brought to future meetings of this Committee. Hamilton City Council has funding to continue the momentum of the project and to address the tasks outlined below are provided for within the 2021/31 LTP. Waikato District Council, Waipa District Council and Waikato Regional Council will be required to assess their respective LTPs to see how planned interventions for their respective jurisdictions within the metropolitan area can support the pre-implementation work.

Post-PBC Work Programme

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.

Staff from the Future Proof partners form the Transport Working Group (TWG). 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. 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.
 - ii. Scoping of next stages of business case for the 3 corridor route protection projects identified (RT1 north, south and east, see Figure 1) or based on funding, what can be achieved in next 18 months.
 - iii. Scope other business cases recommended as priorities (primarily a freight post Waikato Expressway 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.
 - 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 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.
- x. Detailed resourcing conversation around partner commitments to undertake work programme beyond existing TWG membership.

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 capital expenditure, operational expenditure, property costs and other organisational elements. This will all form part of regular updates to Council.

Metro Spatial Plan-Long Term Plan 2024 Alignment

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.

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 Transport PBC recommended programme in both timing and purpose, projects that align in purpose but not in timing, projects that are misaligned from the PBC entirely and may need to be reconsidered. This will be done by assessing other opportunities and constraints as well.

It is important to headline projects that are fundamentally essential to the success of the Transport PBC recommended programme and ensure 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 Micro Mobility Business case or are in the process of being informed (e.g., the transport considerations of the Ngaruawahia | Hopuhopu | Taupiri Structure Plan). It is also important to understand gaps in delivery, particularly when focusing on the first three years and the staged delivery of trails and cycleways, bus services, and other supportive infrastructure programmes within the metropolitan area.

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 Transport PBC recommended programme from an infrastructure and spatial/land use perspective.

The overall purpose is to develop a "Metropolitan 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. 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

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.

Subsequently, as a priority action, the TWG does need to identify a form of 'meeting space' to use on a regular basis at one of the Hamilton-based partners in the short-term.

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.

Fundamentally, however, the proposals require that projects deliver a climate change response and reduced vehicle kilometres travelled through micro mobility (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.

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.

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.

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".

Timing & Priorities





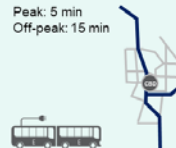


Integral to the success of the programme are:

- i. Investment in walk and cycle programme especially within Hamilton city, 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.

The diagram below provides an overview of the staging and sequencing interventions for the PBC. (Note: costs are indicative and indicate total cost. Hamilton City Council and Waikato Regional Council are expected to be the main contributors to budget but Waikato District Council and Waipa District Council are also expected to contribute.

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 <ul style="list-style-type: none">Biking and micro-mobility 10 year programmeDevelop city centre/traffic circulation plan and low traffic neighbourhoodsFacilitate safe and easy active mode access to stations	40% of cycle network <ul style="list-style-type: none">Extend cross city connections to more peripheral centres and growth cells – Rotorua, Omaside, Rotorua, Rotorua and R2Begin to fill out network with build-out of cross city connections, community links and local linksImprove Te Awa River Ride cycle path to Hānauwāhā and Cambridge	70% of cycle network <ul style="list-style-type: none">Active mode network in town centres and growth cellsContinue build-out of cross city connections, community links and local links	100% of cycle network <ul style="list-style-type: none">Complete build-out of cross city connections, community links and local links
	Cost					
Cost	Cost – CAPEX (per year)	146 million	138 million	162 million	62 million	5 million
	Existing LTP maintained (per year)	110 million	110 million	8 million	8 million	5 million
	Cost – OPEX (per year)	24 million	27 million	35 million	38 million	66 million

5.1. Financial considerations

Whaiwhakaaro puutea

The PBC will be finalised with recommended programme costs for the 30-year investment period (2024 – 2054) a range of between \$4.0 - \$6.5 billion.

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.

Several activities identified in the business case are already included in partner Long Term Plans (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.

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.

The business case assumes that funding will be sourced solely from the partner 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.

Clearly, HCC will have a significant portion of the programme to fund commensurate to most of the programme interventions being undertaken with 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.

Staff will report back to the new Council with the findings of the scoping studies and any associated funding requirements for the next steps.

5.2. Legal considerations

Whaiwhakaaro-aa-ture

Staff confirm that this matter complies with Council's legal and policy requirements.

5.3. Strategy and policy considerations

Whaiwhakaaro whakamaaherehere kaupapa here

The development of the Hamilton-Waikato Metropolitan Transport PBC aligns to the Future Proof Strategy and the Hamilton-Waikato Metropolitan Spatial Plan.

5.4. Maaori and cultural considerations

Whaiwhakaaro Maaori me oona tikanga

The Transport PBC was developed with input from Waikato-Tainui. Engagement has also been held with relevant mana whenua groups within the metropolitan area as well as with the Future Proof Future Proof Ngā Karu Atua o te Waka.

5.5. Climate response and resilience considerations

Whaiwhakaaro-aa-taiao

The recommended programme from the PBC is based on an emission and Vehicle Kilometre Travelled (VKT) reduction related scenario. This aligns well with Council's Climate Adaptation Strategy.

5.6. Wellbeing Considerations

Whaiwhakaaro-aa-oranga tonutanga

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').

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.

Social

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.

The Hamilton-Waikato Transport PBC and the emerging work programme will contribute towards social wellbeing outcomes by ensuring metropolitan and major growth areas are better connected and accessible and transport equity issues are identified and countered.

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 most 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

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.

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

The Hamilton-Waikato metropolitan area 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.

The Waikato's transportation emissions per capita are higher than the New Zealand average. The metropolitan 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).

Consistent with the Government's priorities, the emerging programme of work seeks environmental gains for transport through enhanced public transport and cycling / walking initiatives, which will reduce emissions.

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.

Monitoring along key routes will likely include key environmental indicators, such as air quality, urban runoff, and noise.

Cultural

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.

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.

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.

5.7 Risks

Tuuraru

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 soon-to-be developed FDS to align with the Transport PBC.
- 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.

5.8 Significance and engagement assessment

Aromatawai paahekoheko

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. 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.

6. Attachments

Ngaa taapirihanga

Nil.

To	Strategy and Finance Committee
Report title	Adoption of the Northern Hamilton-Waikato Metropolitan Wastewater Detailed Business Case
Date:	14 September 2022
Report Author:	Keith Martin (Waters Manager) and Vishal Ramduny (Strategic Projects Manager)
Authorised by:	Gavin Ion, Chief Executive

1. Purpose of the report

Te Take moo te puurongo

To update the Strategy and Finance Committee on progress on the Hamilton-Waikato Metropolitan Wastewater Detailed Business Case (DBC) project and for the Committee to recommend to Council the approval of the DBC.

2. Executive summary

Whakaraapopototanga matua

On 4 July 2022 Waikato District Council (WDC) approved the Southern Hamilton-Waikato Metropolitan Wastewater DBC and associated Memorandum of Understanding (MOU). Hamilton City Council (HCC), Waipaa District Council (Waipaa DC) and the Waikato-Tainui Executive Committee have all approved the DBC as well.

The Northern Hamilton-Waikato Metropolitan Wastewater DBC project builds on the Southern Hamilton-Waikato Metropolitan Wastewater 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.

On 4 July 2022, the WDC endorsed Option A (centralisation of wastewater treatment at the Pukete Wastewater Treatment Plant (WWTP) as the preferred option for further refinement and completion of the Northern Hamilton-Waikato Metropolitan Wastewater DBC.

The Project Governance Group (PGG), HCC and Waikato-Tainui have also endorsed Option A as the preferred option for further refinement and completion of the Northern Hamilton-Waikato Metropolitan Wastewater DBC.

Option A includes:

- i. Upgrading and expanding the Pukete WWTP including moving to a Membrane Bioreactor (MBR) process.
- ii. Conveying wastewater from 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.

The Northern Hamilton-Waikato Metropolitan Wastewater 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 Hamilton-Waikato Metropolitan Wastewater DBC; and the agreements in the MoU have also informed completion of the Northern Hamilton-Waikato Metropolitan DBC.

Both WDC and HCC asset management have informed and supported the financial modelling undertaken to evaluate funding impacts for the Northern Hamilton-Waikato Metropolitan Wastewater DBC.

Key elements of the Northern Hamilton-Waikato Metropolitan Wastewater DBC are detailed in the summary document (unformatted) in **Attachment 1**. The Northern Hamilton-Waikato Wastewater DBC document (unformatted) is in **Attachment 2**.

Approval of the Northern Hamilton-Waikato Metropolitan Wastewater 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.

Consideration of the impacts of accelerating the development of the Southern Subregional Wastewater Treatment Plant (WWTP) is still being undertaken. This work will be presented to Council on completion. Due diligence investigations to support the pre-implementation phases of the Southern-Subregional WWTP continue, including the purchase of land by HCC. HCC Long Term Plan (LTP) funding is being used to progress these activities. Development of the Multi-Party Funding Agreement (MPFA) between HCC, WDC and Waipaa DC for the Southern Sub-Regional WWTP continues.

We have been very clear. To finance this, we need to have a share in ownership. Our share (\$2.5M) needs to be secured over land which records WDC as an owner with partial interest. However, if an MPFA cannot be agreed between the parties, alternative funding options will be required, or the work stopped.

Staff consider the decisions in this report have low significance in terms of Council's Significance and Engagement Policy. The recommendations comply with Council's legal requirements.

3. Staff recommendations Tuutohu-aa-kaimahi

That the Strategy and Finance Committee recommends to Council:

- a. **the approval of the Northern Hamilton-Waikato Metropolitan Wastewater Detailed Business Case noting the preferred option was endorsed at the 4 July 2022 Council meeting.**
- b. **delegates authority to the Chief Executive to finalise any outstanding matters including review feedback related to the Business Case documents.**
- c. **notes that Schedule 3 of the approved Memorandum of Understanding between the partners will be updated to reflect the preferred wastewater option for the Northern Hamilton-Waikato Metropolitan area.**
- d. **notes that the Northern and Southern Hamilton-Waikato Metropolitan Wastewater DBC programmes will need to be integrated into a planned investment programme, including further consideration of wastewater system investment timing and triggers and development and implementation of the sub-regional wastewater consenting strategy.**
- e. **notes that estimated costs associated with conveyancing wastewater from the Ngaaruawaahia WWTP to the Pukete WWTP may be used to inform the National Transition Unit (NTU).**

4. Background Koorero whaimaarama

The Waters Governance Board and Council have been kept regularly informed of the progress with regards to both the Southern and the Northern Hamilton-Waikato Metropolitan Wastewater DBCs. The project is being delivered in partnership with mana whenua, Waikato-Tainui, HCC, WDC and Waipaa DC.

The key elements that inform the Southern Hamilton-Waikato Metropolitan Wastewater DBC and the proposed MoU have been approved and endorsed by the PGG. The PGG is made up of elected representatives from the partner organisations. Council's governance representative is Garth Dibley (member of the Waters Governance Board) with Mayor Allan Sanson and Deputy Mayor Aksel Bech as alternates.

The draft Northern Hamilton-Waikato Metropolitan Wastewater DBC was presented and endorsed by the PGG on the 5 September 2022. At the 4 July 2022 Council meeting, WDC approved the Southern Hamilton-Waikato Metropolitan Wastewater DBC, and the associated MoU. HCC, Waipaa DC, and the Waikato-Tainui Executive Committee have also approved these documents.

The Northern Hamilton-Waikato Metropolitan Wastewater DBC project builds on the Southern Hamilton-Waikato Metropolitan Wastewater DBC decisions, including the project vision and objectives, growth projections, minimum treatment performance standards and the two short-listed options identified for the northern metropolitan area.

The Northern Hamilton-Waikato metropolitan communities being considered as part of the project are Taupiri, Hopuhopu, Ngaaruawaahia, Horotiu, Te Kowhai and northern 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.

An update on the Northern Hamilton-Waikato Metropolitan Wastewater DBC was provided to the 4 July 2022 Council 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 Hamilton-Waikato Metropolitan Wastewater DBC.

At the 4 July 2022 Council meeting, details of the Northern Hamilton-Waikato Metropolitan Wastewater DBC 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.

Council approved Option A as the preferred option for further refinement and completion of the Northern Hamilton-Waikato Metropolitan Wastewater DBC. The PGG, HCC and Waikato-Tainui have also endorsed Option A as the preferred option for further refinement and completion of the Northern Hamilton-Waikato Metropolitan Wastewater DBC.

Southern Sub-Regional (SS) WWTP Project

The Southern Hamilton-Waikato Metropolitan Wastewater DBC preferred option includes development of a new Southern Sub-Regional WWTP. HCC is the lead council for this 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 Southern Sub-Regional WWTP project.

The scope of the pre-implementation phases for the Southern Sub-Regional WWTP includes:

- i. Land acquisition for wastewater activities
- ii. Site designation and consenting activities including associated investigations and engagement.

As noted in the 4 July Council meeting, HCC is proceeding with the pre-implementation work on the Southern Sub-Regional WWTP project.

5. Discussion Matapaki

Northern Hamilton-Waikato Metropolitan Wastewater DBC Project

The Northern Hamilton-Waikato Metropolitan Wastewater DBC is a substantial document that pulls together key elements of the project to meet the requirements of the Treasury Better Business Case model and support the recommended investments. A summary of the 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. The Northern 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 DBC, the authors have sought to minimise duplicating relevant components of the Southern Hamilton-Waikato Metropolitan Wastewater DBC, and instead make references to that document. The Northern Hamilton-Waikato Metropolitan Wastewater DBC cost estimates have been independently peer reviewed by Stantec and Alta. The peer review comments are currently being assessed.

The Northern DBC document is being independently peer reviewed by Stantec using the Treasury Better Business Case Peer Review template. The peer reviewers' comments will be factored into 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 Council in the future.

Strategic Case

The content of the Southern Hamilton-Waikato Metropolitan Wastewater DBC Strategic Case is directly relevant to the Northern 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 Hamilton-Waikato Metropolitan Wastewater DBC, but rather refer to that document where appropriate.

Economic Case

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.

The capital and operating cost estimates for the preferred option are included below. These estimates were reported previously to Council 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%. 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

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. 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

The expected annual operational costs in 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

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

Financial Case

The cost allocation and financing principles used for the Southern Metropolitan Wastewater DBC and agreed in the MoU have been used for the Northern 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 DBC all conveyance capital and operating costs will all be allocated to WDC.

The financial analysis in the Northern 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.

An evaluation of funding and financing options available to councils was undertaken and assessed during the development of the Southern Hamilton-Waikato Metropolitan Wastewater DBC and the outcomes adopted for the Northern 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.

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.

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.

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

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 Hamilton-Waikato Metropolitan Wastewater DBC assessments.

Management Case

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.

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 several “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 Southern Sub-Regional WWTP.

Southern and Northern Metro WW DBC Integration Activities

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

Implementing the recommendations of the Southern DBC is closely linked to implementation of the Northern 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 Southern Sub-Regional WWTP) and finalising and implementing a sub-regional wastewater consenting strategy.

Southern Sub-Regional WWTP Project

HCC is the lead council for the Southern Sub-Regional WWTP. As outlined in the approved MOU key roles of the lead Council include driving delivery and financing of the project.

The Southern Sub-Regional 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.

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.

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.

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

HCC LTP funding in FY2022/23 is being used to continue with this work and maintain momentum while the funding agreements with WDC 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)

An MPFA has been drafted to reflect project funding and cost allocation for the pre-implementation phase of Southern Sub-Regional 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.

As neither WDC nor Waipaa DC have included funding in our respective LTPs to contribute toward the southern WWTP project, it is uncertain whether funding can be secured meet the timeframes, particularly given Three Waters reforms.

In the long term, HCC will be the primary benefactor of the Southern Sub-Regional WWTP, and accordingly the largest funder. The Chief Executives and Water Managers from each organisation are working through these matters, and staff will bring a recommendation back to Council.

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 Three Waters Reforms proceed.

6. Financial Considerations

Whaiwhakaaro Puutea

Northern Hamilton-Waikato Metropolitan Wastewater DBC

Implementing the Northern Hamilton-Waikato Metropolitan DBC recommendations will have significant financial implications for the HCC and WDC. 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 LTPs.

The HCC LTP includes \$116.8M for wastewater treatment plant upgrades and a further \$37.9M for wastewater treatment renewals). WDC has allowed for \$53M for upgrades at the Ngaaruawaahia WWTP and \$10.5M for district wide pump station and reticulation renewals.

Further funding from HCC and WDC will be required to implement the Northern-Hamilton Waikato Metropolitan DBC and realise the servicing benefits that it will provide to the northern metropolitan 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 WWTP Project

Implementing the Southern Hamilton-Metropolitan Wastewater DBC recommendations is likely to have significant financial implications for the 2021–31 LTP for HCC. 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. HCC's funding for the Southern Sub-Regional 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 WWTP generated from Hamilton communities in 2061.

The proportion of flow to the Southern Sub-Regional WWTP generated from Hamilton 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%. As noted by Council on 4 July 2022, we (WDC) have not allowed for any costs associated with the Southern Sub-Regional WWTP in our LTP but have noted an unbudgeted provisional sum towards upfront investment in land acquisition, designation, and consenting processes to signal a commitment to delivering sub-regional solutions. Waipaa DC has not included or noted any funded or unfunded provision to contribute toward the new WWTP in its 2021-2031 LTP.

Further funding from HCC will be required to construct the Southern Sub-Regional WWTP and realise the servicing benefits that it will provide to Hamilton and the wider metropolitan area. A full breakdown of potential costs for the new WWTP was presented in the final DBC and summarised in the summary document and MoU which went to Council on 4 July 2022.

If an MPFA between the partners cannot be agreed, additional funding will be required to complete the pre-implementation phase of the Southern Sub-Regional WWTP. At present the process for seeking additional funding is unclear, given Three Waters Reforms, however since this work can be linked to the Pukete WWTP consenting activities, it may be possible for HCC to utilise LTP funding for the Pukete wastewater discharge consent renewal to complete the Notice of Requirements and Consent applications for the Southern Sub-Regional WWTP. This option is being further explored by HCC. New funding will be required to finance construction of the plant with timing expected to be beyond 2024/25.

7. Legal and Policy Considerations

Whaiwhakaaro-aa-ture

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

8. Wellbeing Considerations

Whaiwhakaaro-aa-oranga tonutanga

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').

Both the Southern and Northern Hamilton-Waikato Metropolitan Area Wastewater DBCs adopt the Treasury Better Business Case Programme Business Case model. The 4 wellbeings 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

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. 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 Hamilton-Waikato Metropolitan Wastewater DBC recommendations and the investment needed at the Pukete WWTP overtime; and
- iii. Cost and recovery considerations. Also, ensuring certainty of the amount contributed. An uncapped contribution is not acceptable to Council.

Risk management plans have been developed as part of completing the DBCs.

9. Climate Change and Sustainability

Ahua o te rangi

Wastewater is recognised as a significant source of greenhouse emissions. Carbon dioxide produced directly from a treatment system is a biogenic source. The new and upgraded wastewater treatment plants will help reduce this with newer technology which will bring an enhanced level of sophistication to the plant.

10. Significance & Engagement Policy

Kaupapa here whakahira/anganui

Having considered the Significance and Engagement Policy, staff have assessed that the matters in this report have a low level of significance. However the funding risks associated with implementation phase of the projects will likely be transferred to the new waters entity.

Given the low level of significance determined, the engagement level is low. Iwi and mana whenua have been key project partners. This project is a partnership delivered through collaboration of the project partners: HCC, WDC, Waipaa DC, Waikato-Tainui and mana whenua.

11. 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

DRAFT



Revision History

Revision N°	Prepared By	Description	Date
1	Mhairi Rademaker		

Document Acceptance

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

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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.

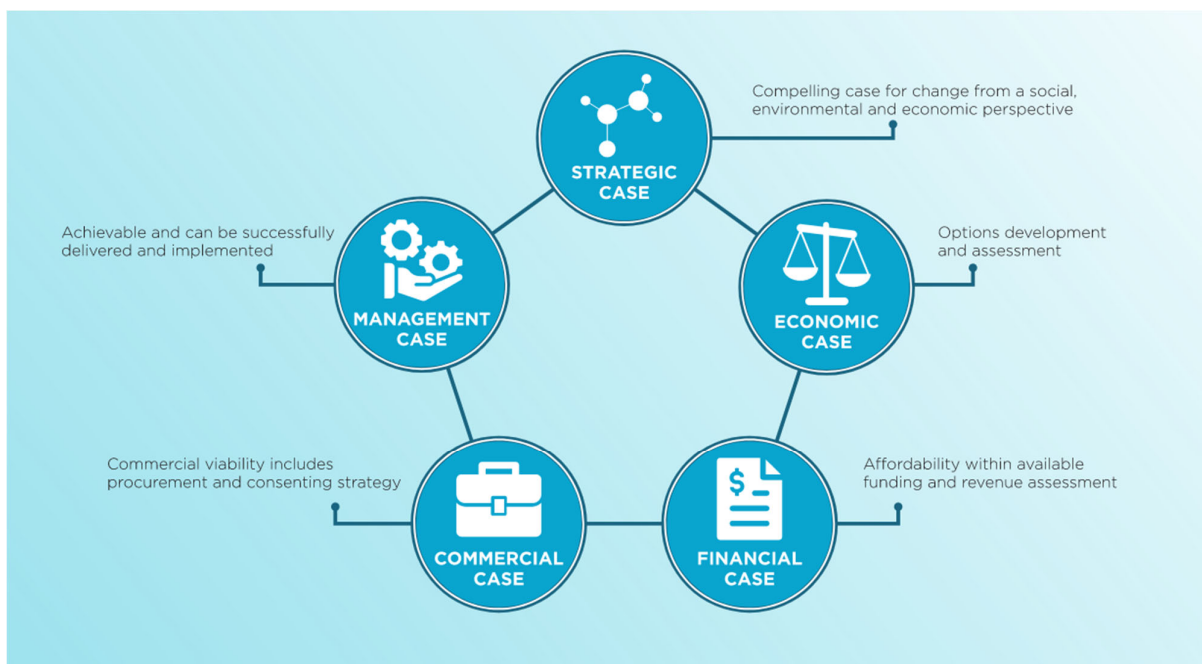
The project governance group made up of elected representatives from each partner group have overseen the project and endorsed or approved the key recommendations and decisions that

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)

Māori 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.

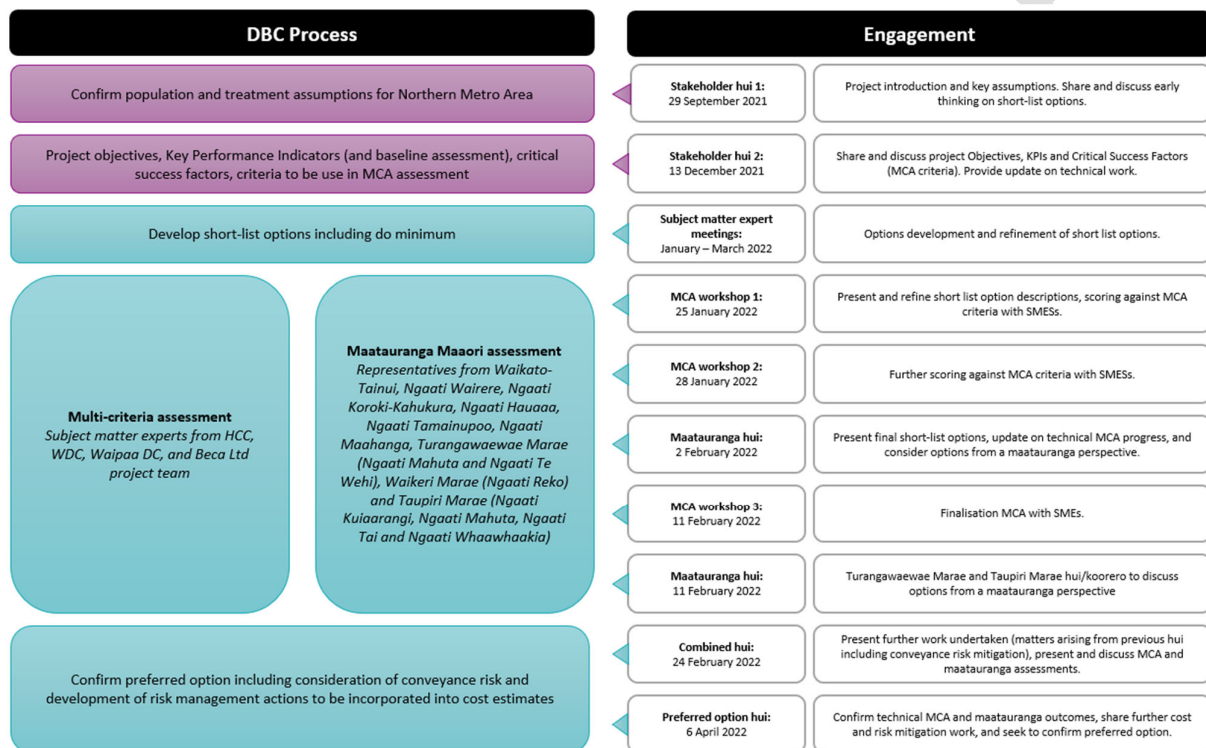


Figure 2: Options development process

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

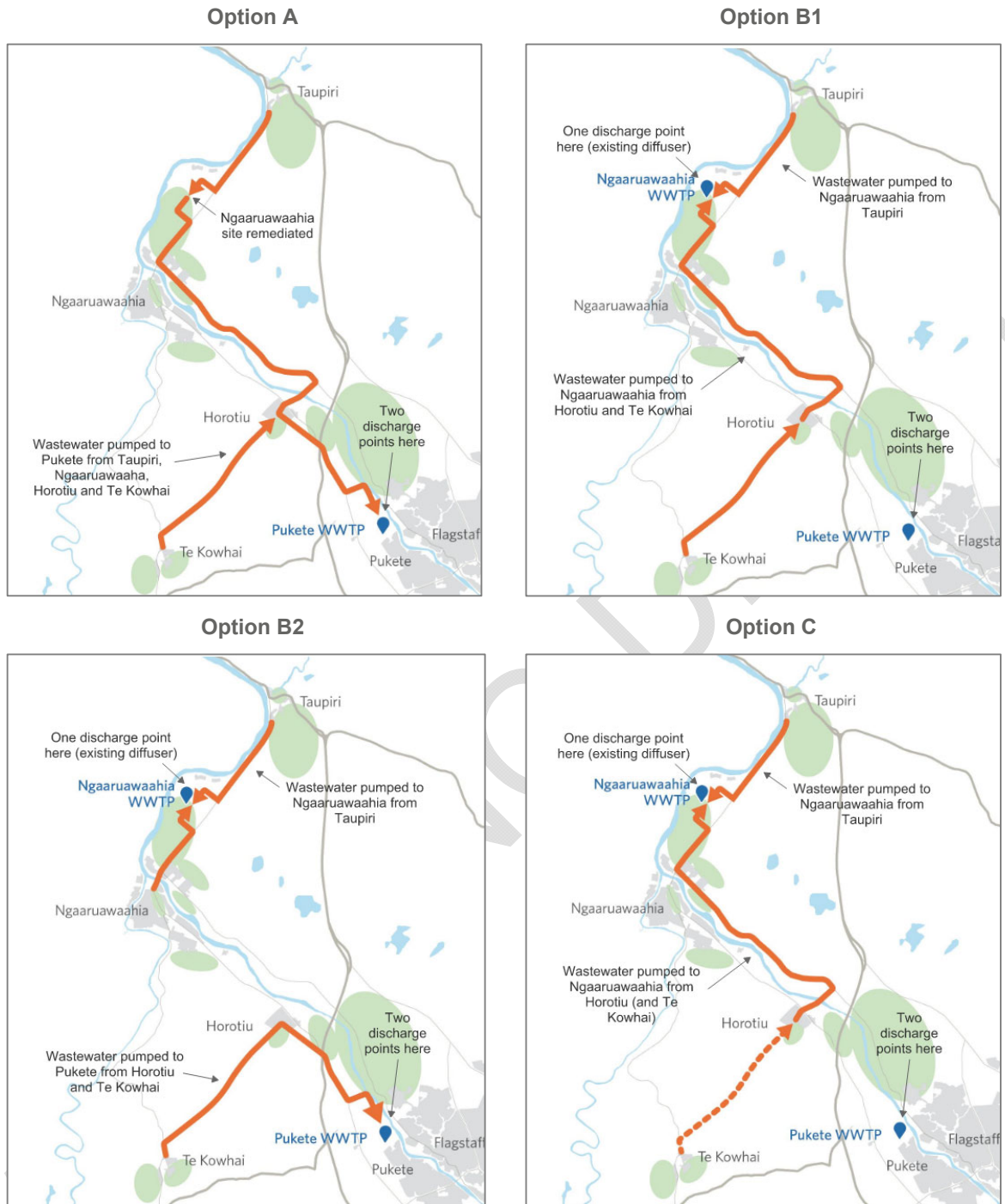


Figure 3: Overview of short-list options

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/m ³ Total P: < 0.5 g/m ³
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.

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	<p>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.</p> <p>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.</p>
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

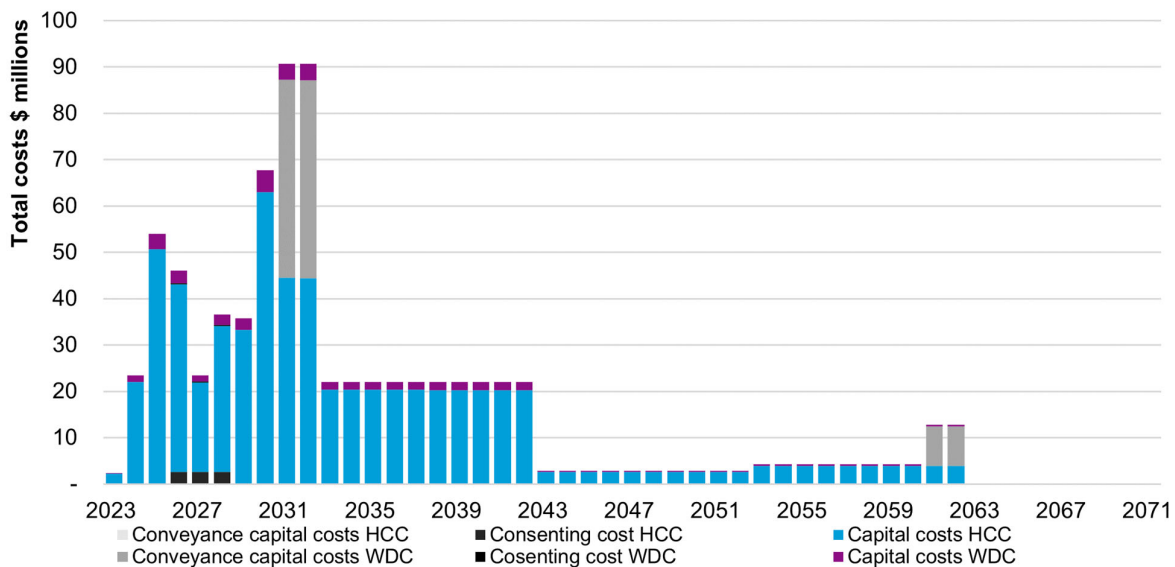


Figure 4: Capital cost council allocation

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.

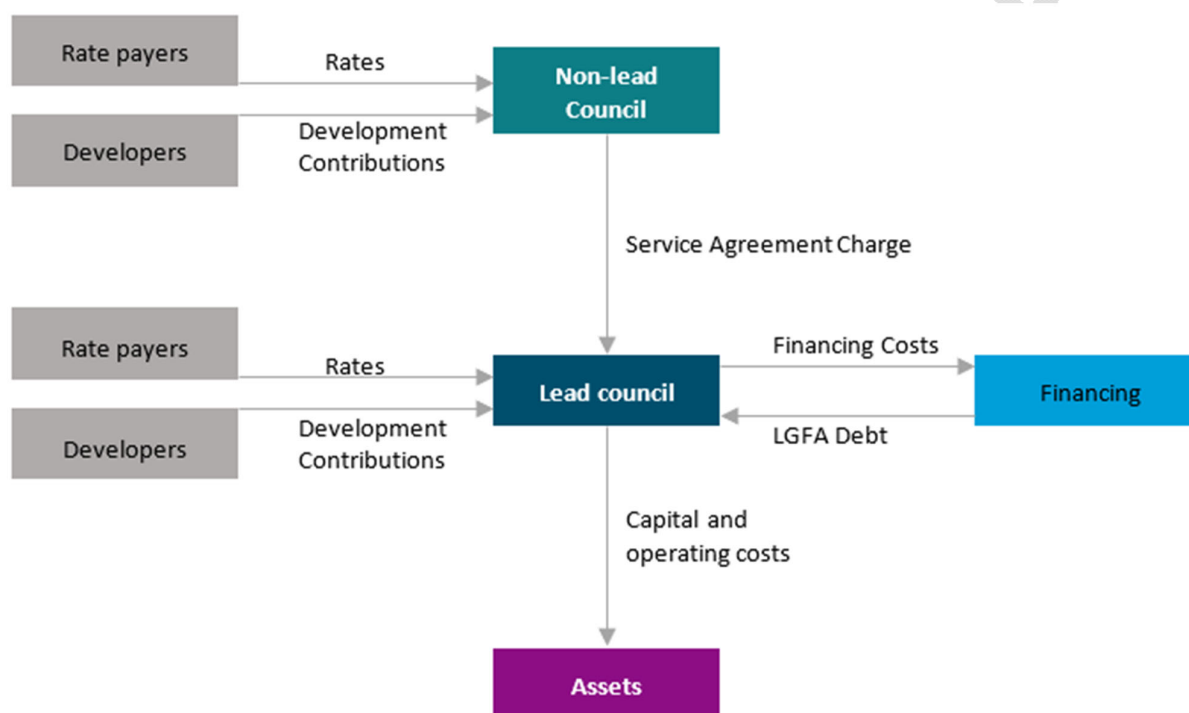


Figure 5: Funding and financing flows

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 Report³.

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 WDC⁵. 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 guidance⁶.
- 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 policy⁷.

Table 8: 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 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” contract.

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 off-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.

WORKING DRAFT

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 Ngaaruwaahia 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.

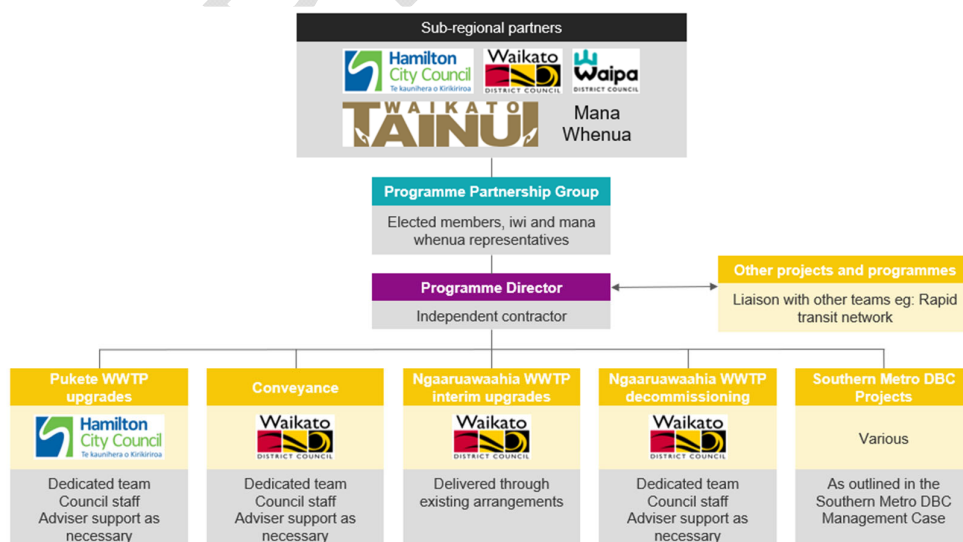


Figure 6: Governance and delivery structure

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 Ngaaruwaahia 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 Ngaaruwaahia 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

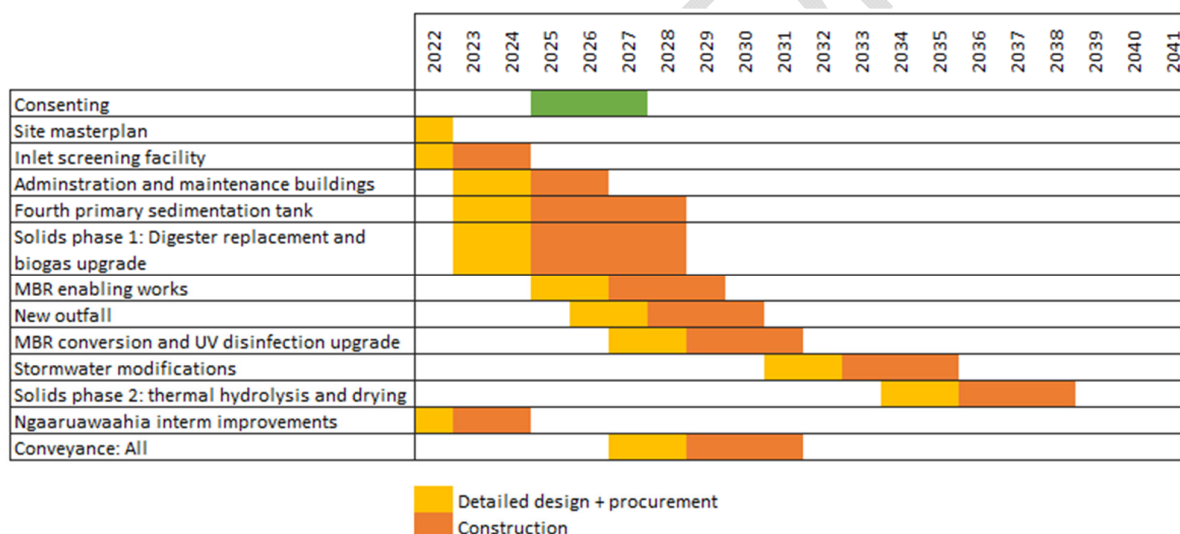
This DBC will result in two major operational changes:

- **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		

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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.

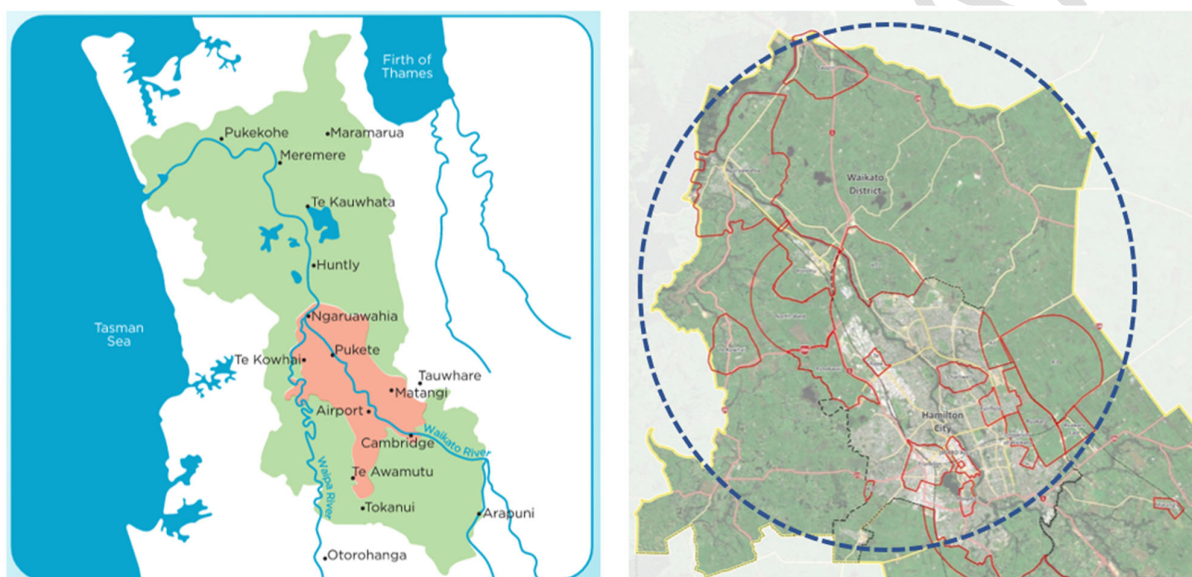


Figure 1: LEFT – Metro Area shown in orange. RIGHT – Northern Metro Area

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 tohūtō (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 Tukutuku 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.

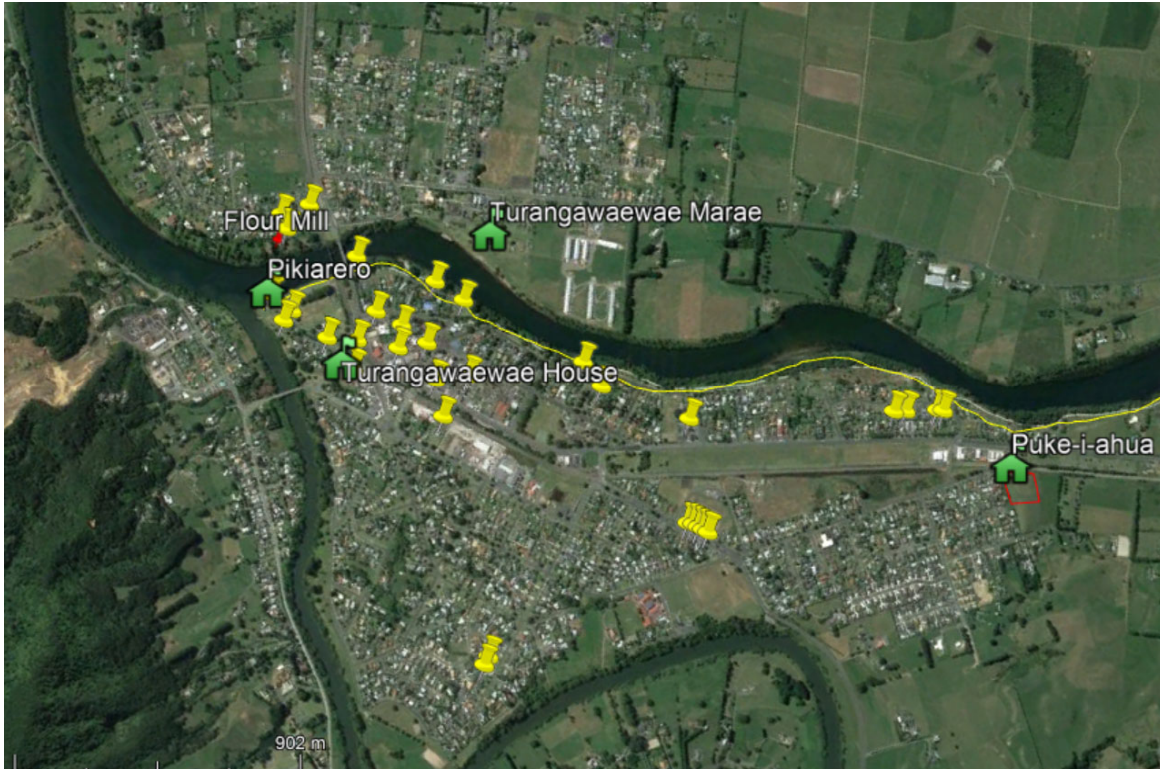


Figure 4: Sites of significance around Ngaaruawaahia [Source: Te Huia Consultants Limited]

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 staple 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, Wharetiipeti 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 Tapuae 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 Tapuae, 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 besieged 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.

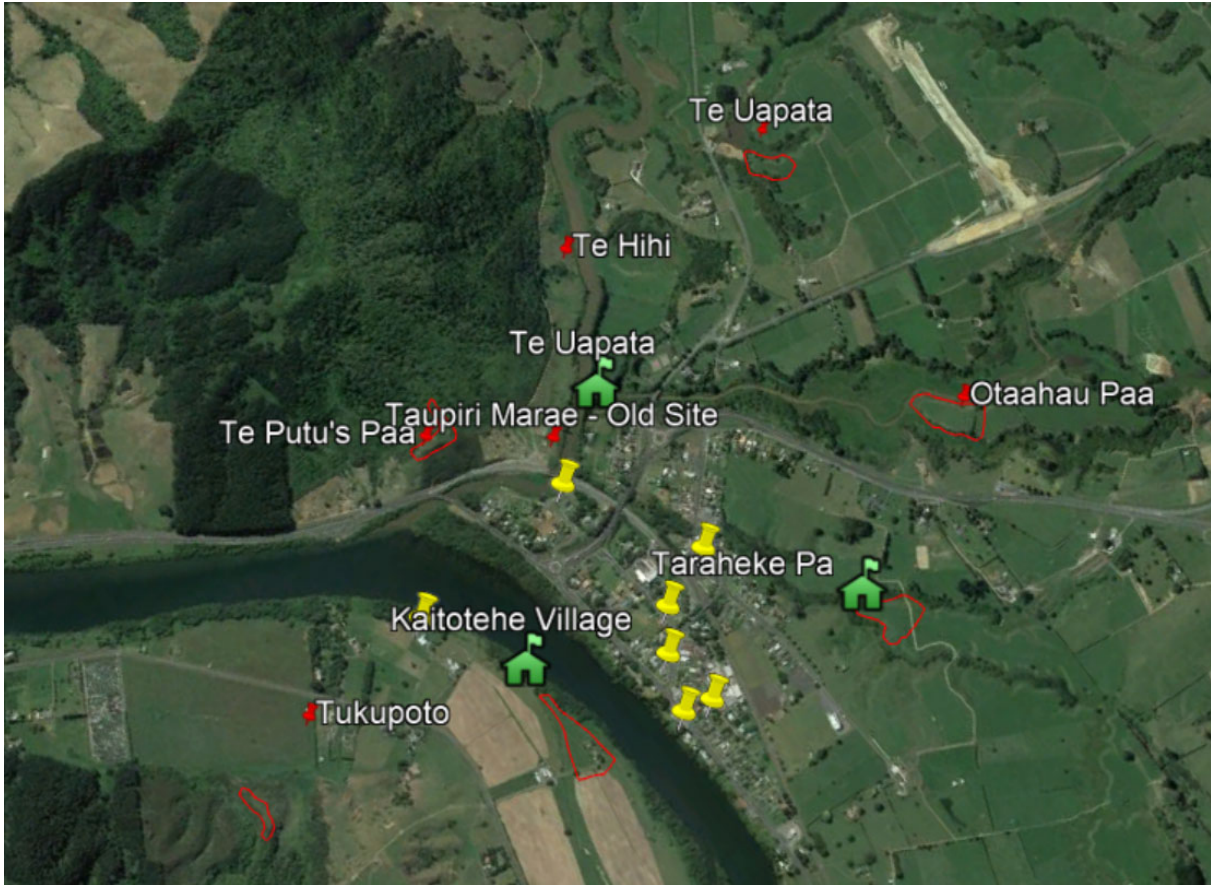


Figure 5: Sites of significance around Taupiri [Source: Te Huia Consultants Limited]

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).

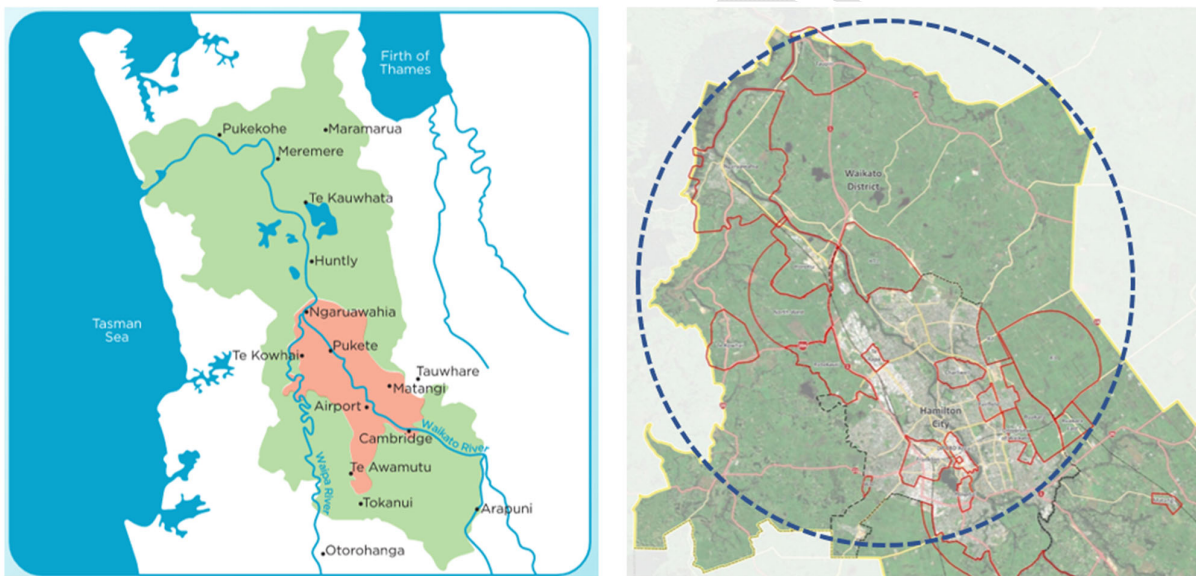


Figure 6: LEFT – Metro Area shown in orange. RIGHT – Northern Metro Area

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.

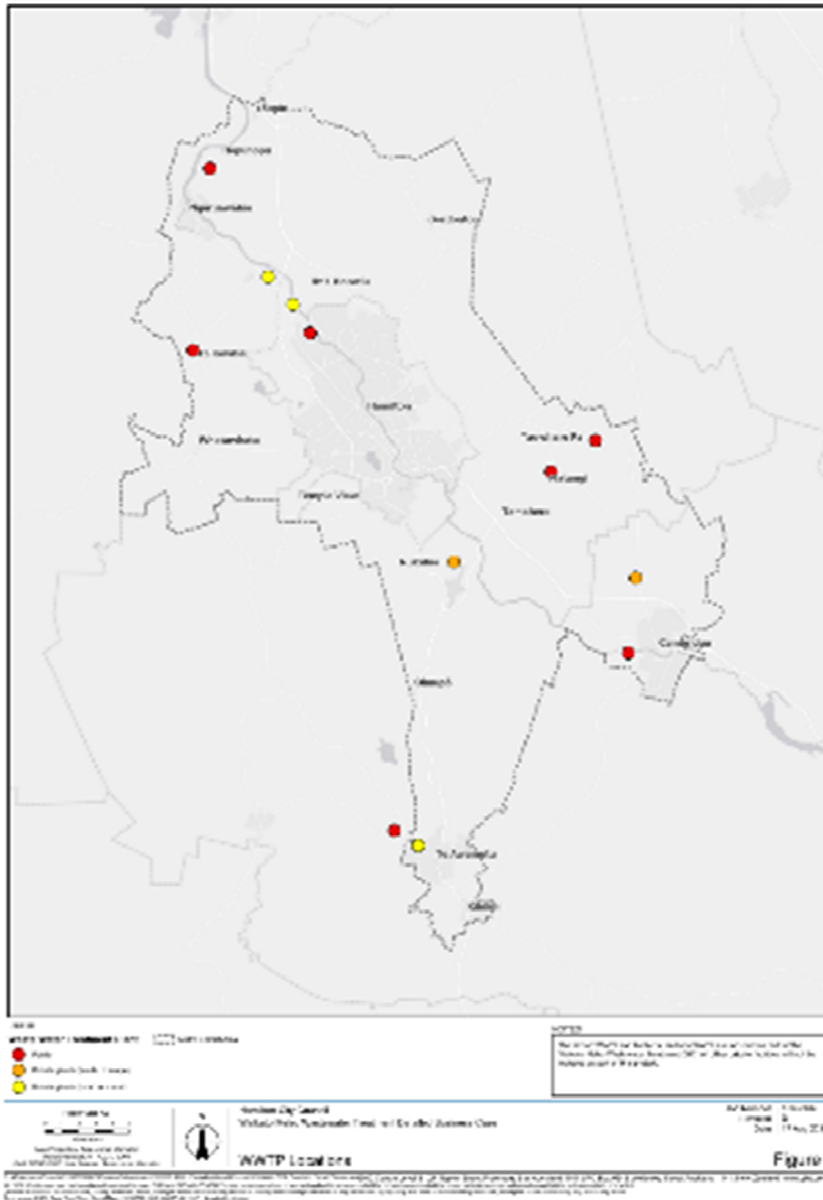


Figure 7 WWTPs servicing the Metro Area [Figure to be replaced]

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 m³/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/m³ and each quarter no more than 3 exceedances over 100 g/m³		
cBOD5	Over each calendar month, no more than 8 exceedances over 10 g/m³ and each quarter no more than 3 exceedances over 50 g/m³		



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 3,120m³/day and receives peak flows of 4,500m³/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 report² notes the following exceedances:

Nutrient	Consent limit	2020/21 actuals
Ammoniacal-nitrogen	20 g/m ³ (90 th 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 deslugged 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/m³ (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 10 g/m³ and 90 th percentile shall not exceed 20 g/m³
Total phosphorus (TP)	Median shall not exceed 8 g/m³ (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/m³ and 90 th percentile shall not exceed 60 g/m³
cBOD5	Median five day shall not exceed 30 g/m³ and 90 th percentile shall not exceed 60 g/m³

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 3,000m² 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 re-consenting 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	<p>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.</p> <p>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.</p>	<p>This DBC is consistent with the objectives of the Three Waters Reform both in terms of anticipated improvements and cross-territorial authority collaboration.</p> <p>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.</p>
Te Ture Whaimana – Vision and Strategy for the Waikato River	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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).</p>	<p>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).</p> <p>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.</p> <p>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.</p> <p>It is not enough to simply put Te Ture Whaimana as the starting point, meaningful engagement with taangata whenua is needed to guide how the DBC should give effect to both the water quality and relationship aspects of Te Ture Whaimana.</p>

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	<p>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 of wetlands and stream, improve outcomes for aquatic ecosystems and indigenous species, and improve reporting.</p> <p>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.</p> <p>There is a hierarchy of obligations in Te Mana o te Wai that prioritises:</p> <ol style="list-style-type: none"> first, the health and well-being of water bodies and freshwater ecosystems second, the health needs of people (such as drinking water) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future. 	<p>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</p> <p>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.</p> <p>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.</p>
Housing intensification	<p>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.</p> <p>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.</p>	<p>Changes in density have two impacts:</p> <ul style="list-style-type: none"> • 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	<p>The Waikato Regional Policy Statement: Te Tauāki 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.</p> <p>The RPS promotes a collaborative and holistic approach to resource management that looks beyond organisational and administrative boundaries.</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>This DBC takes a boundaryless approach to wastewater management and acknowledges and provides for the relationship of Māori and their culture and traditions with their ancestral land, water, sites, waahi tapu and other taonga.</p> <p>Both the Pukete and Ngaaruwaahia 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.</p> <p>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.</p>
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.	<p>Provision of three waters infrastructure is a key enabler for sustainable development and growth in the H2A corridor and region. Three waters services are:</p> <ul style="list-style-type: none"> • fundamental to community wellbeing and the quality of the environment

Strategy/Policy	Priorities / key outcomes	Alignment
		<ul style="list-style-type: none"> • 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	<p>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</p> <p>It sets out how and where our communities should grow which will allow advance planning and delivery of future infrastructure requirements.</p>	The population growth assumptions used to develop the options in this DBC are based on the Metro Spatial Plan.
Future Proof Strategy 2021	<p>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.</p> <p>This Strategy recognises that three waters services represent major infrastructure investment and present significant opportunity to maximise and deliver the greatest value for investment.</p> <p>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</p>	<p>The KPIs and critical success factors outlined in this DBC are consistent with the Strategy's growth management directives, including:</p> <ul style="list-style-type: none"> • 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	<p>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.</p> <p>The strategy sets out justification for the strategic issues identified, which are still relevant today. The vision of the 3 Waters Strategy is: <i>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.</i></p>	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.

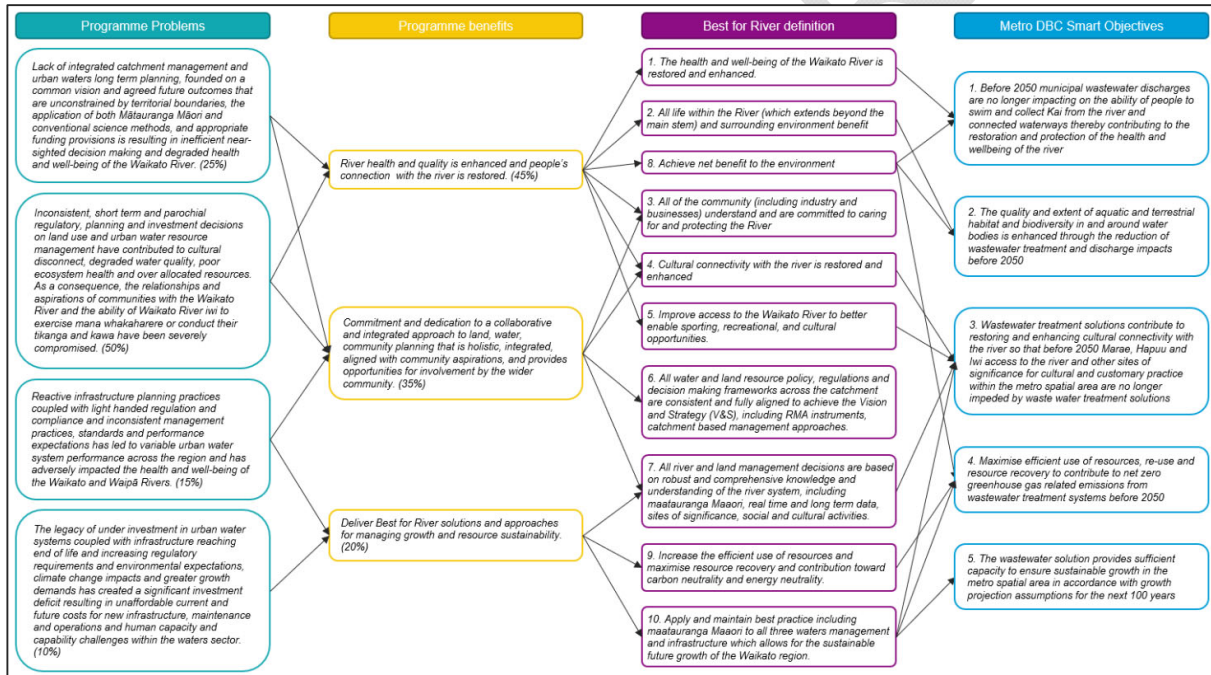


Figure 11: Southern Metro DBC Investment Logic Map (refer [Appendix A](#) for full size image)

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 Ngaaruwaaahia WWTP discharges in comparison to other wastewater discharges in the region.

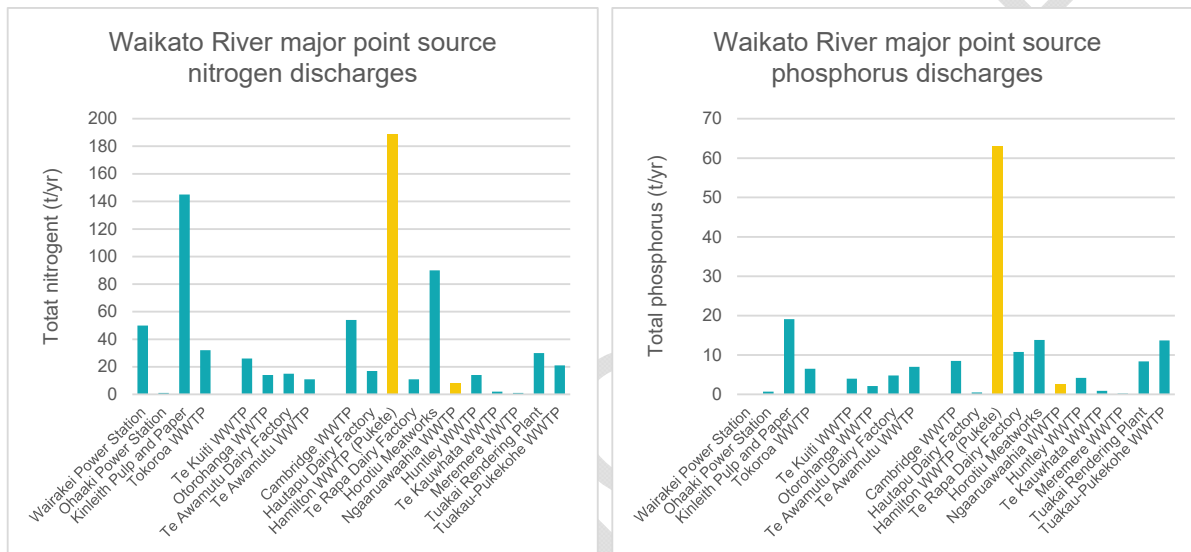


Figure 12: Nitrogen and phosphorus from point source wastewater discharges to the Waikato and Waipaa Rivers⁷

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

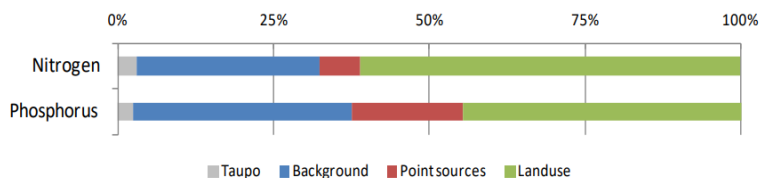


Figure 6 - Sources of nutrients, Waikato/Waipā rivers 2003–2012³³

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 Tātohunga a Te Rōpū Whakawā

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

⁷ Adapted from Waikato Regional Council Technical Report 2014/56: Sources of nitrogen and phosphorus in the Waikato and Waipā 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/manua 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

Māori express a relationship with water as kaitiaki. Māori 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 mātauranga Māori 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 Māori, 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 Māori-owned land have further severed the physical relationship of other lands with the river.

4.2.5 Population growth

Refer problem 1 & 4

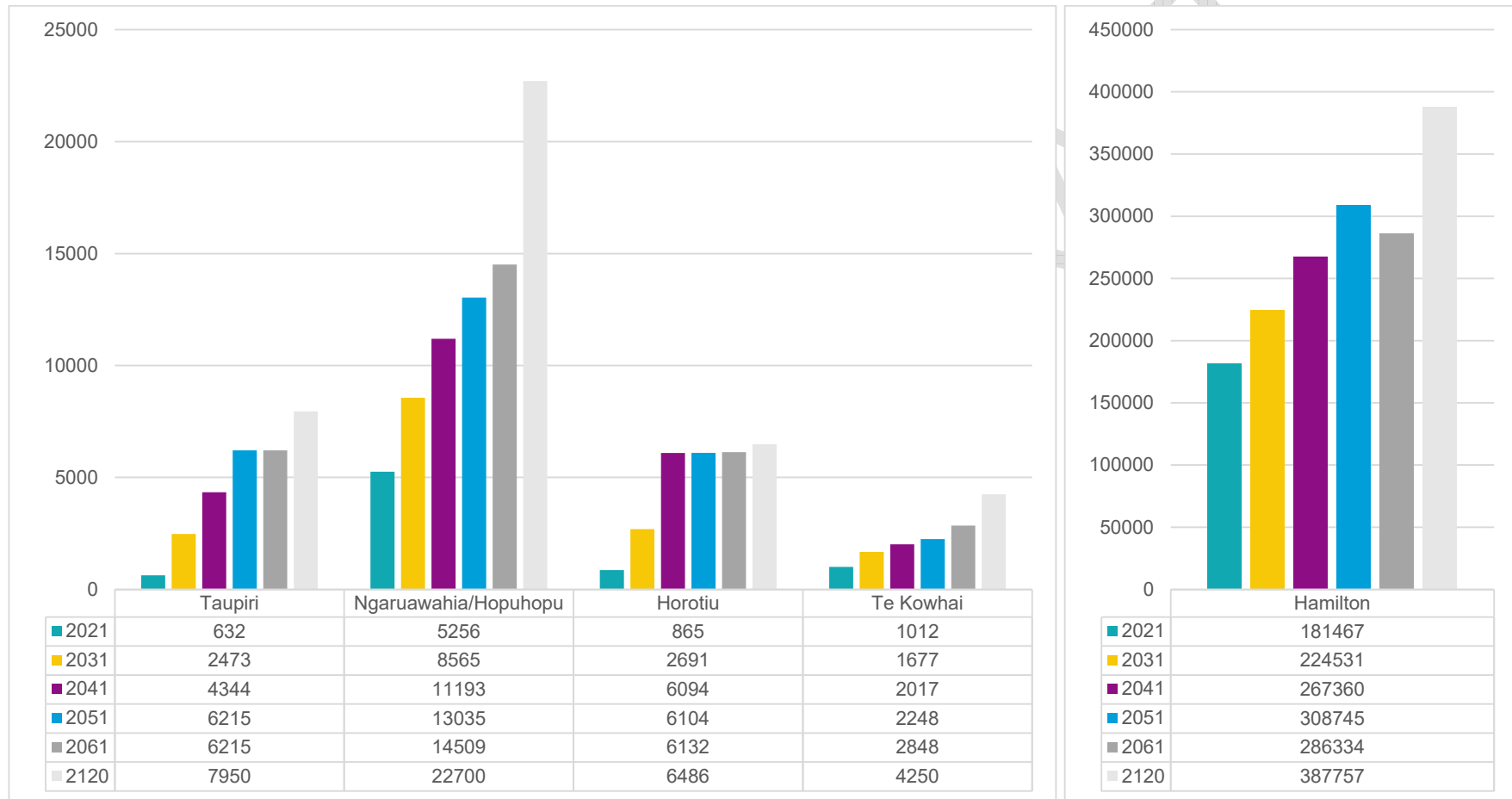
The Northern Metro Area is growing. New residential areas, infill development, and new mixed use and industrial developments will add to the wastewater generated in the area.

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.

WORKING DRAFT

Assumed population growth

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).

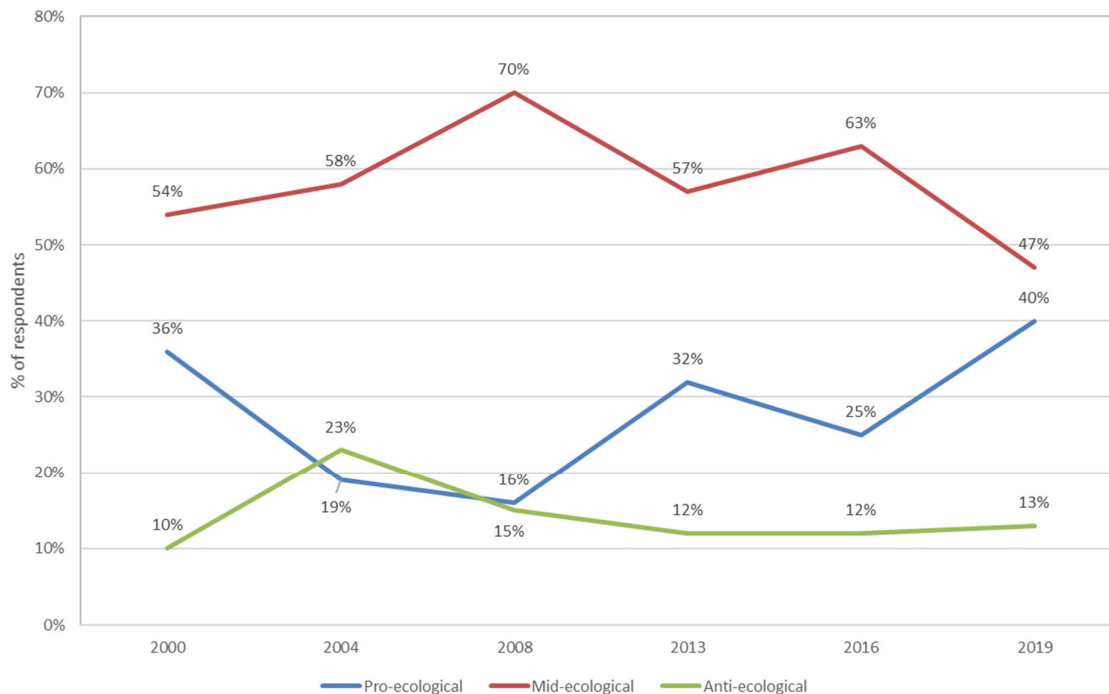


Figure 14: People's environmental attitudes to regulation

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 is 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.

Capital investment

The estimated requirement for capital investment over the next 30 years is estimated at \$12.8 billion, as shown in graph below:

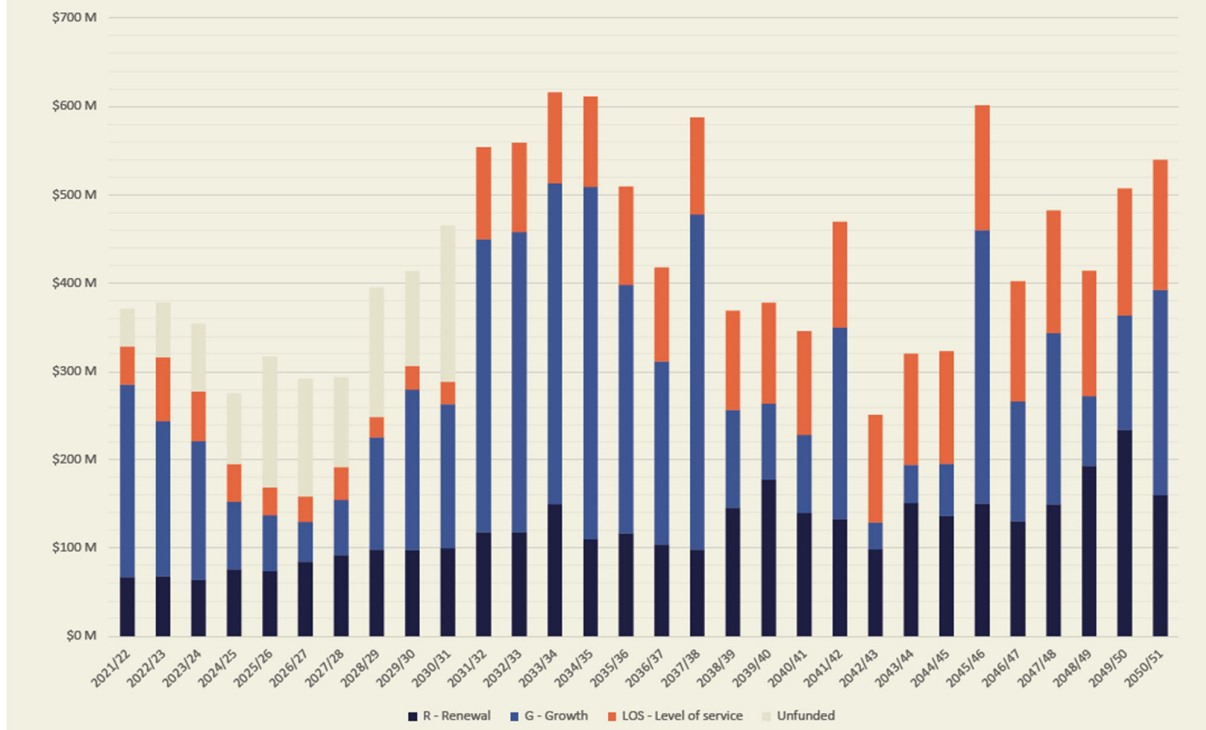


Figure 15: Estimated capital investment – Hamilton City Council Infrastructure Strategy (2021-2051)

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 activities¹²). 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 Punui 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 above¹³

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.

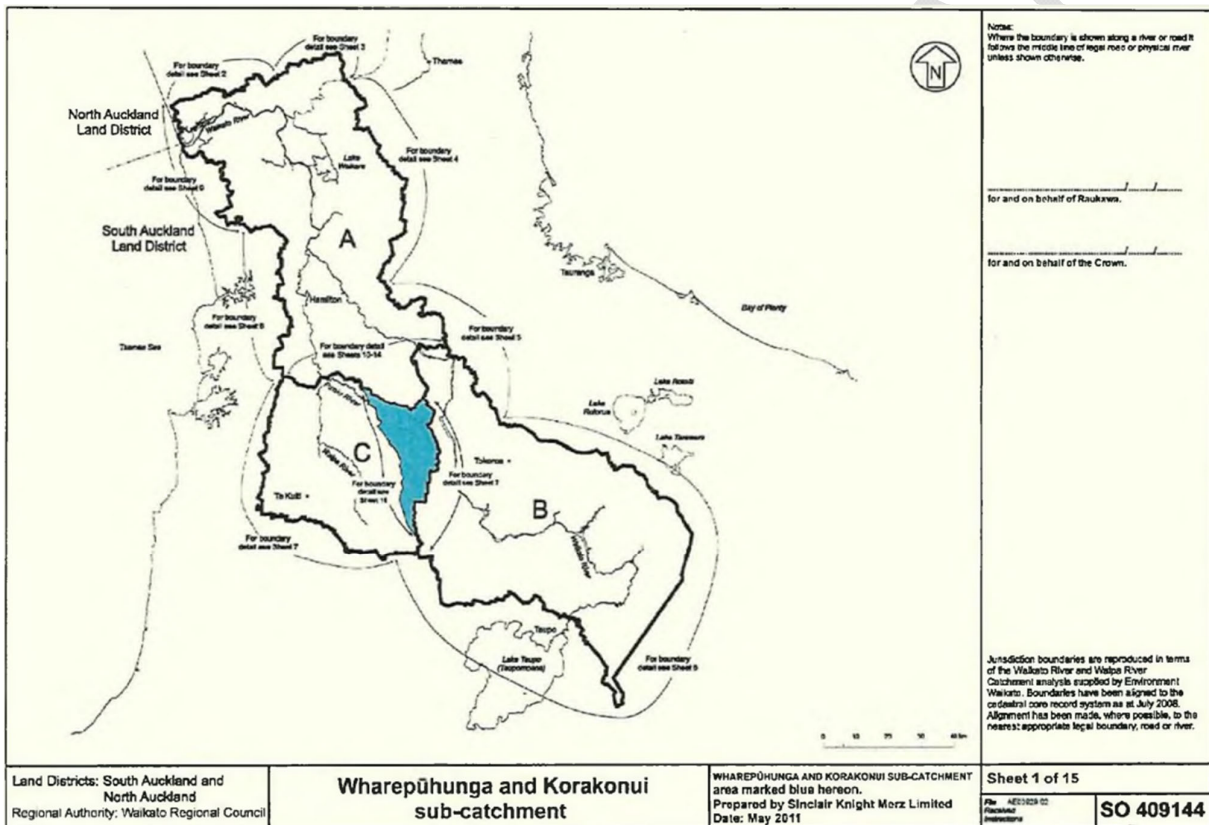


Figure 17: Plan SO 409144 outlines the extent of the Waikato and Waipaa Rivers as defined under settlement legislation

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 protected¹⁴*
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 relationships¹⁵ 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 <u>and pathogens</u> within the WWTP discharges	Concentration of E. coli in treated wastewater discharges (compliance monitoring data).
KPI 1.2 Concentration of Total nitrogen <u>load</u> contaminants impacting the river and connected waterways from WWTPs	Mass load (kg/day) of total nitrogen and total phosphorus in treated wastewater discharges (compliance monitoring data).
KPI 1.3: Concentration of Total phosphorous <u>load</u> contaminants impacting the river and connected waterways from WWTPs	Concentrations of contaminants in the Waikato River are already monitored on a monthly basis by Waikato Regional Council.
KPI 1.4: Proportion of plants which are compliant against discharge quality consent conditions	WWTP Compliance monitoring data sourced from local/regional councils.
<i>Reason for changes: It is the mass load of nutrients that is more important in this context.</i>	
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 <u>and wetland</u> 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
<p><i>Reason for changes: Riparian and wetland vegetation are different and specific measurement of both is considered important.</i></p> <p><i>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,</i></p>	
<p>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</p>	
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 <u>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</u>	<p>Waikato Fishing and Game website.</p> <p>Hamilton City River Plan.</p> <p>Property titles/district plan requirements (buffer zones).</p> <p>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.</p>
<p><i>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.</i></p> <p><i>Further work required: Development of a Maatauranga Maaori Cultural Health Index and completion of Cultural impact assessment</i></p>	
<p>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</p>	
KPI 4.1: Water reuse, water allocations and accounting <u>Volume of wastewater reuse as a percentage of discharge volume</u>	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) <u>as a proportion of wastewater treated</u>	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 <u>recovered for beneficial reuse safely reused for beneficial purposes</u>	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.
<p><i>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.</i></p>	
<p>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</p>	
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.
<i>Reason for change: No changes proposed</i>	

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.

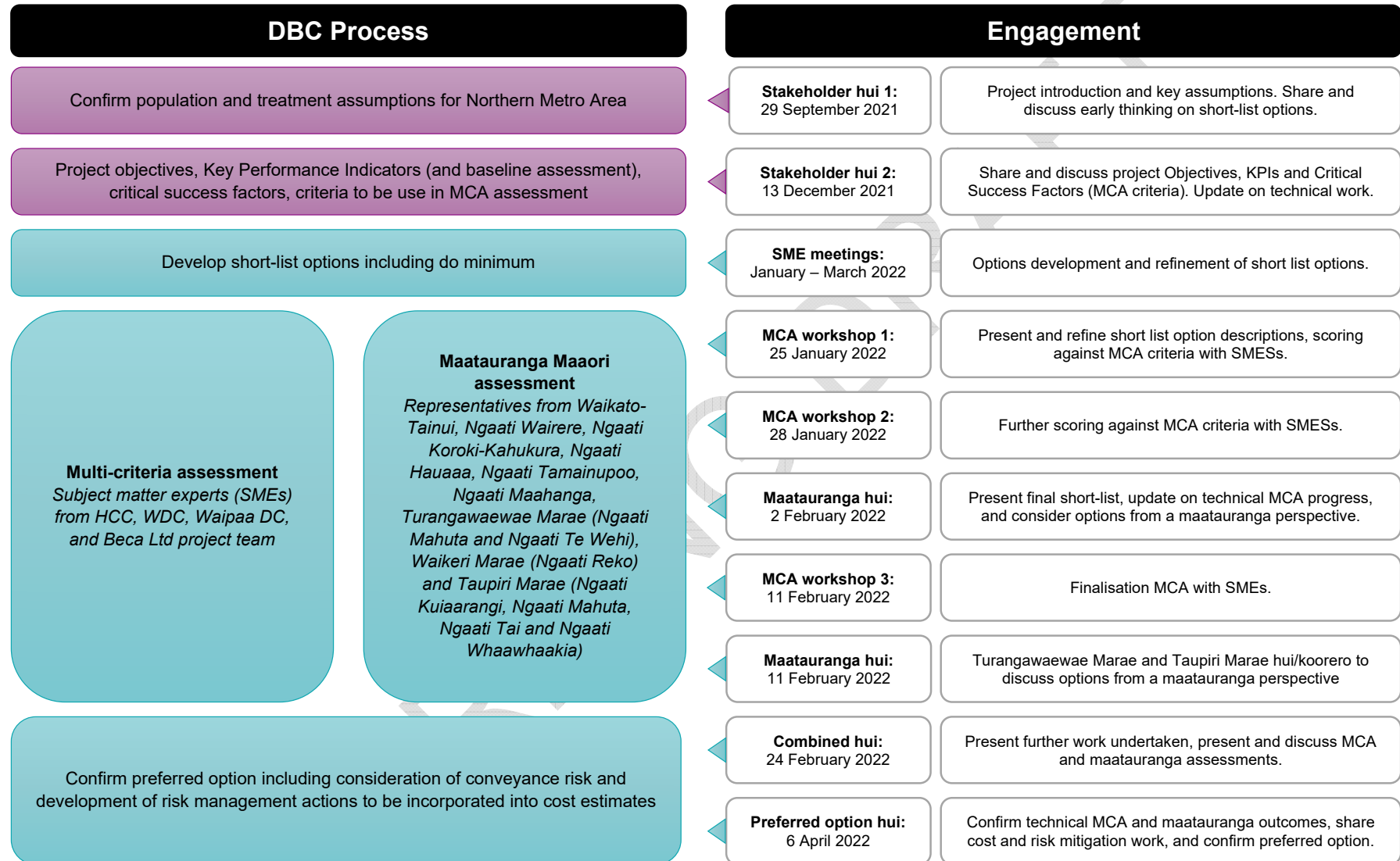


Figure 18: Options evaluation process

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 people¹⁶. 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 people¹⁷. 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

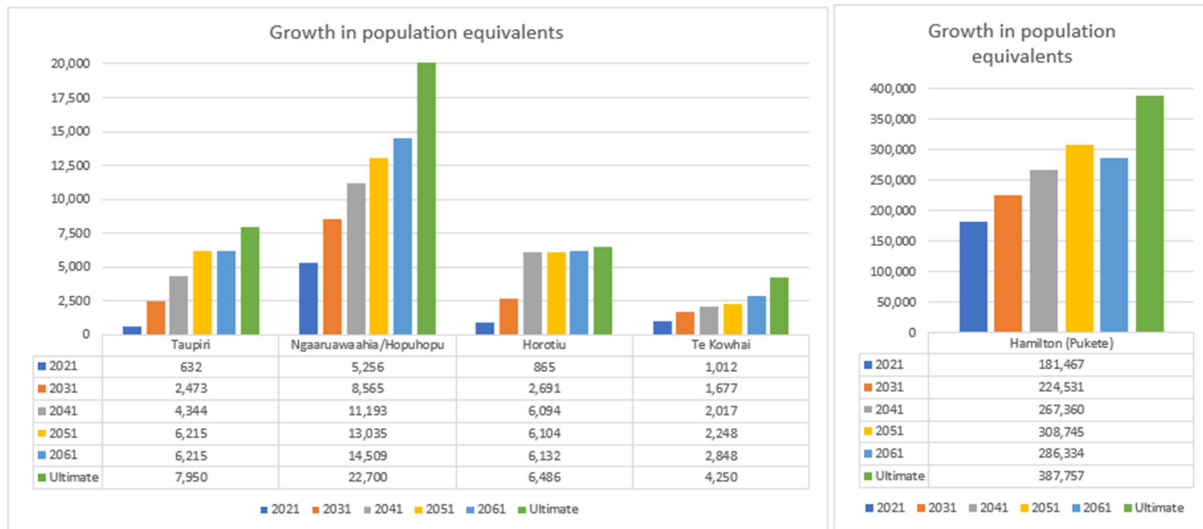


Figure 19: Growth assumption in Population Equivalents. Assumes the proposed southern WWTP brought on-line between 2051 and 2061. Note the different y-axis scales between the two charts.

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 (N₂O) 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 N₂O 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 through engagement with the project partners including HCC and WDC technical staff and iwi with refinements made 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	<p>In developing business cases, it is best practice to include either a do nothing or a do minimum.</p> <p>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.</p> <p>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</p> <p>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).</p>	

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/m³
 - Total phosphorus: 0.5 g/m³
 - 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/m³
 - Total phosphorus: 0.5 g/m³
 - E.coli: 126 CFU/100mL
- A new discharge point will be required
- Limited opportunities for reuse and recovery of energy, water, biosolids, and nutrients.

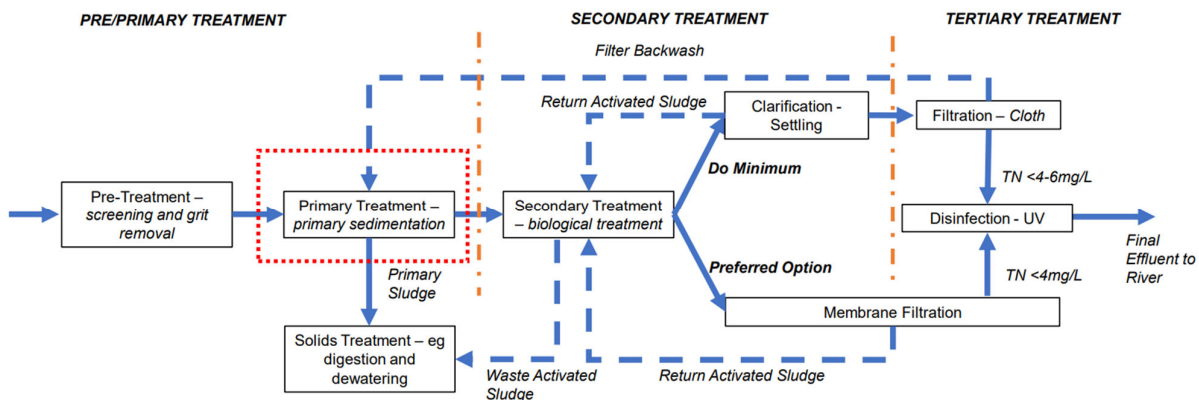


Figure 20: Pukete WWTP process overview

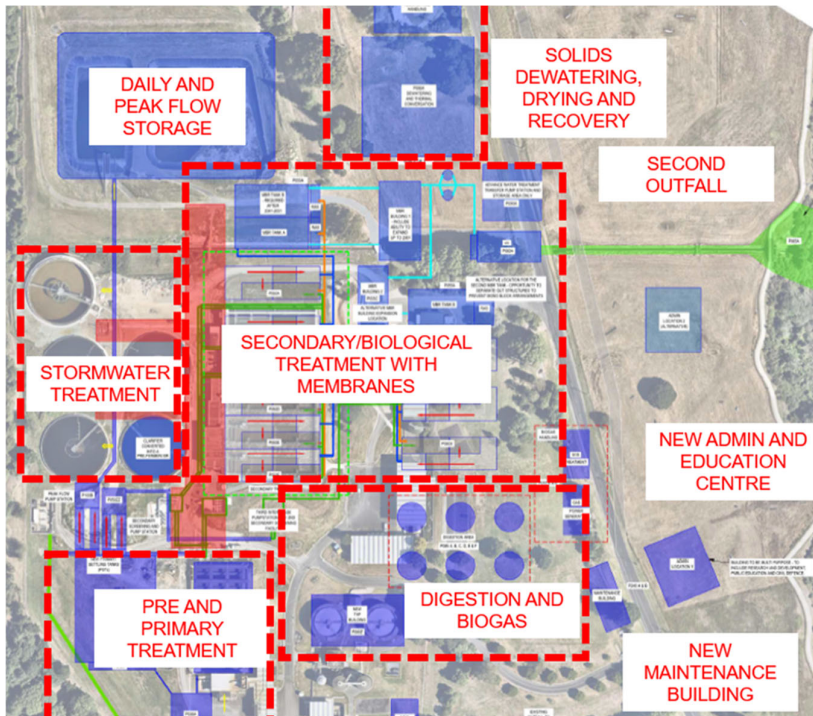


Figure 21: High-level concept layout for Pukete MBR plant

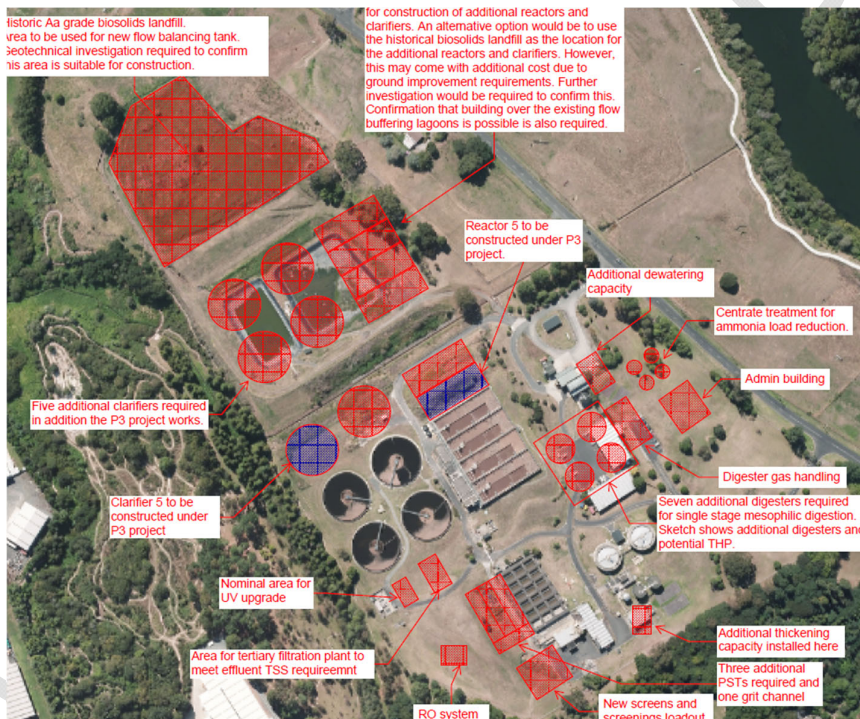


Figure 22: High-level concept layout for Pukete conventional upgrade

9.2 Ngaaruwaaahia WWTP upgrade

Options B1 and B2 include an MBR upgrade at Ngaaruwaaahia. 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/m³
 - Total phosphorus: 0.2 g/m³
 - E.coli: 14 CFU/100mL
- Options for reuse of water and biosolids
- Limited opportunities for reuse and recovery of energy or nutrients (eg struvite).

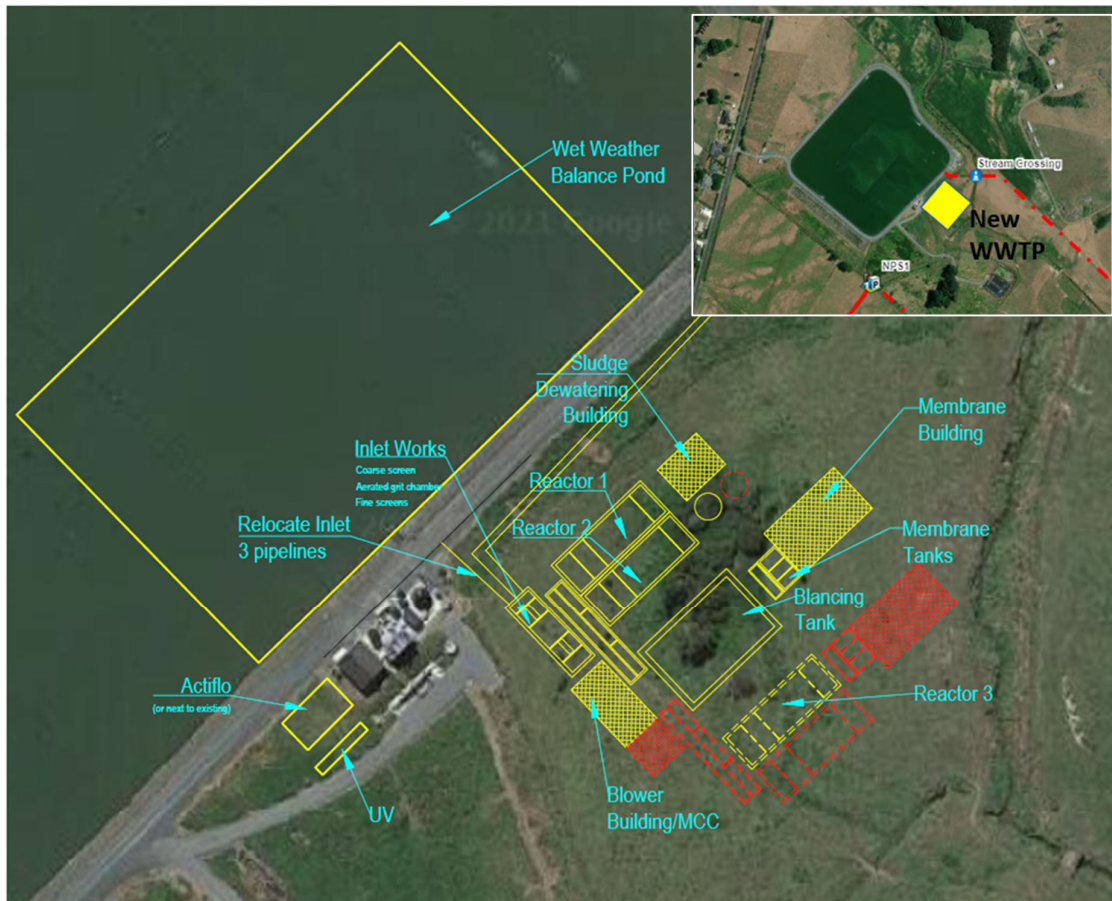


Figure 23: Concept layout for Ngaaruawaahia MBR plant

Option A

Treatment:

- Pukete (MBR)

Treatment standard:

- Total N: 4g/m³
- Total P: < 0.5 g/m³

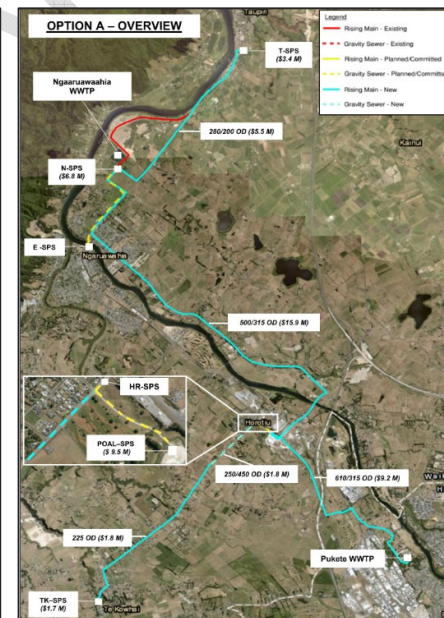
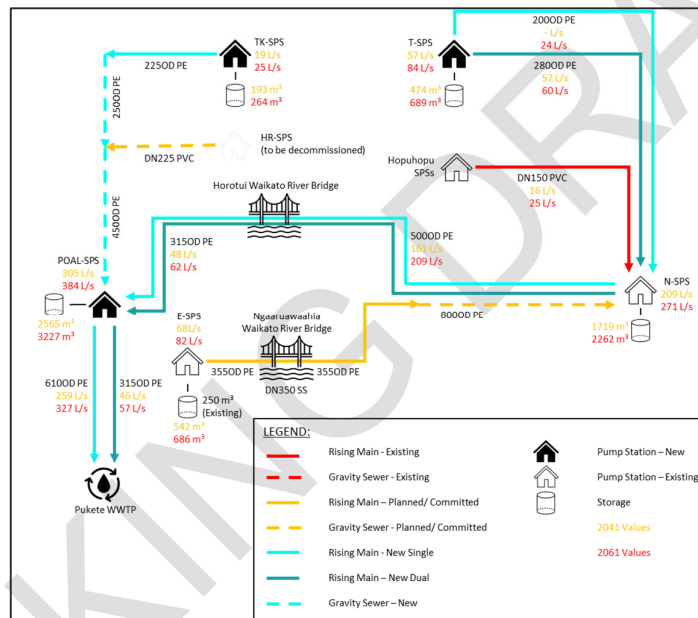
Discharge:

- 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:

- 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

Footprint:

- Reduction in total footprint with option to provide remediation of Ngaaruwaahia site
- New pump stations at several sites.

Staging:

- Dual pipelines could be used for some of the routes eg Horotiu to Pukete WWTTP
- Existing Taupiri pump stations and rising mains can be used until reach capacity

Option B1**Treatment:**

- Pukete (MBR)
- Ngaaruawaahia (MBR)

Treatment standard:

- Total N: 4g/m³
- Total P: < 0.5 g/m³ (Pukete)
< 0.2 g/m³ (Nga)

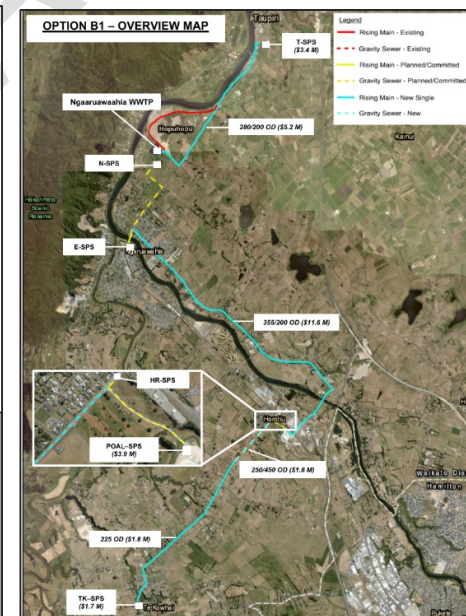
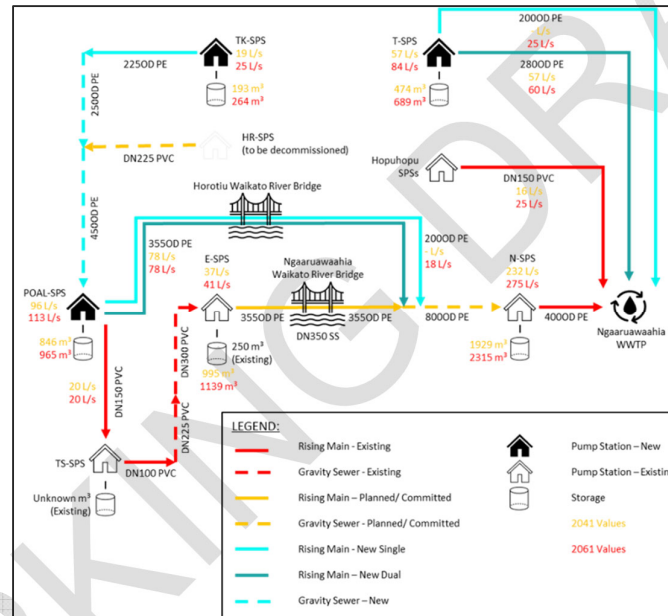
Discharge:

- Two discharge points near Pukete
- One at Ngaaruawaahia

Delivery:

- Single operator or multiple operations

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

**Reuse and recovery:**

- 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

Footprint:

- Maintain existing footprint at Pukete. Reduction in footprint at Ngaaruawaahia resulting from smaller plant and removal of most of the oxidation pond.

Staging:

- 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)
- Ngaaruwaahia (MBR)

Treatment standard:

- Total N: 4g/m^3
- Total P: $< 0.5\text{g/m}^3$ (Pukete)
 $< 0.2\text{g/m}^3$ (Nga)

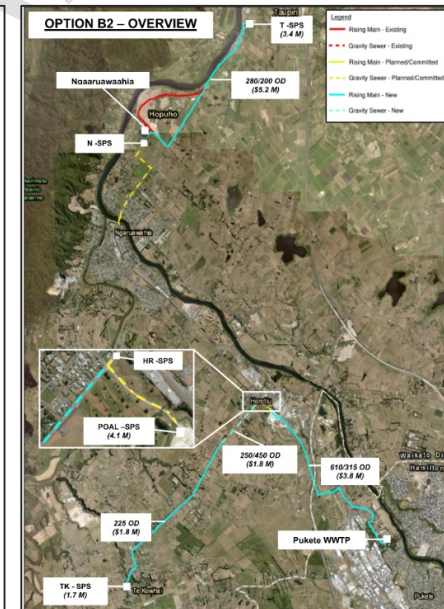
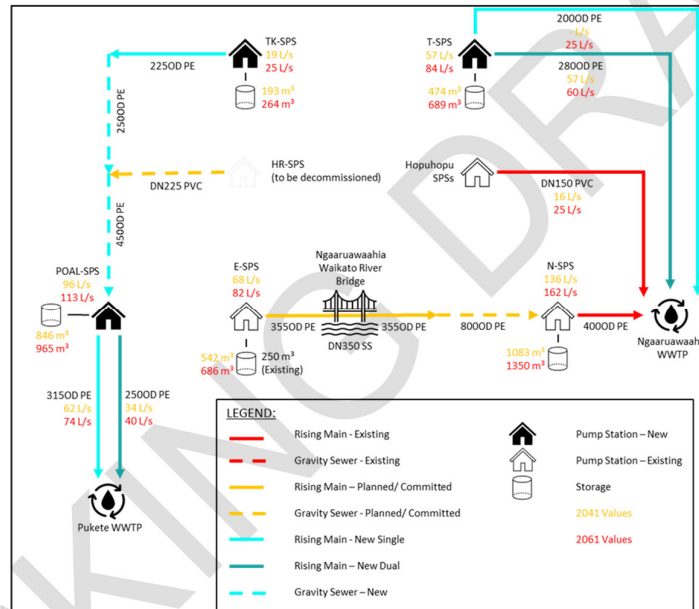
Discharge:

- Two discharge points near Pukete
- One at Ngaaruwaahia

Delivery:

- Single operator or multiple operations

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

**Reuse and recovery:**

- Water reuse but no/minimal resource or energy recovery at Ngaaruwaahia. Achieve ~90% of Option A recovery
- Biosolids able to be reused subject to market with advanced treatment options at Pukete only

Footprint:

- Maintain existing footprint at Pukete. Reduction in footprint at Ngaaruwaahia resulting from smaller plant and removal of most of the oxidation pond.

Staging:

- Install 2 reactors at Ngaaruwaahia.
- 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, Ngaaruwaahia 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.	<i>Not applicable as this objective refers to River Iwi as described under the Settlement Act.</i>	<i>Not applicable as this objective refers to River Iwi as described under the Settlement Act.</i>	<i>Not applicable as this objective refers to River Iwi as described under the Settlement Act.</i>
(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

MCA criteria	Raw scores			
	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

Scenario	Weighted average score			
	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
<p>Option A (with a single WWTP) scores better against criteria influenced by the number and size of treatment plants:</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ○ Fewer discharge structures 	<p>Option B2 (with shorter conveyance routes) scores better against criteria influenced by the conveyance network:</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ○ 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
Horotiu / Te Kowhai			\$870M

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	

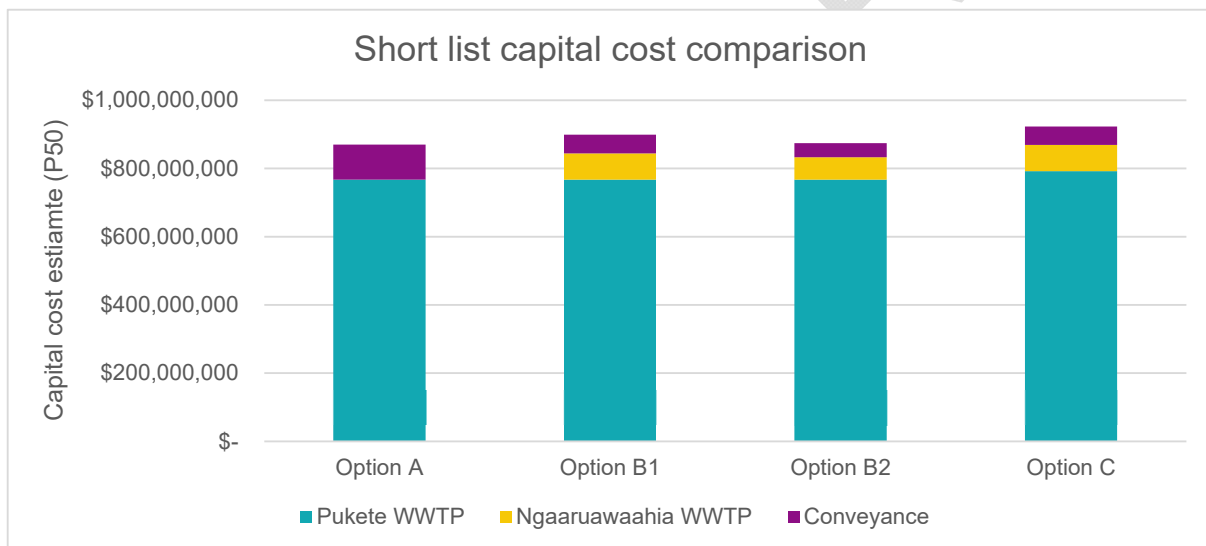


Figure 24: Short list capital cost comparison

10.3.2 Operational cost

Comparative operational costs²² 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

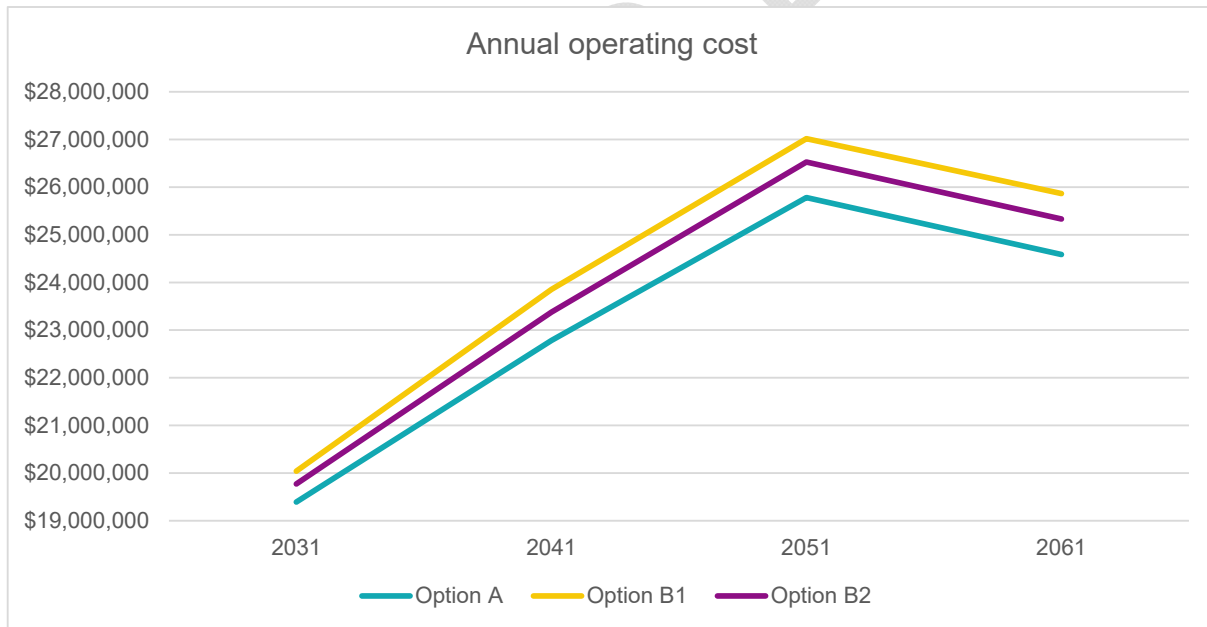


Figure 25: Annual operating cost comparison

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 increasingly 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 tCO₂-e (being the balance between the additional Ngaaruwaaahia WWTP materials for Options B1 and B2 vs the additional conveyance materials required for Option A).

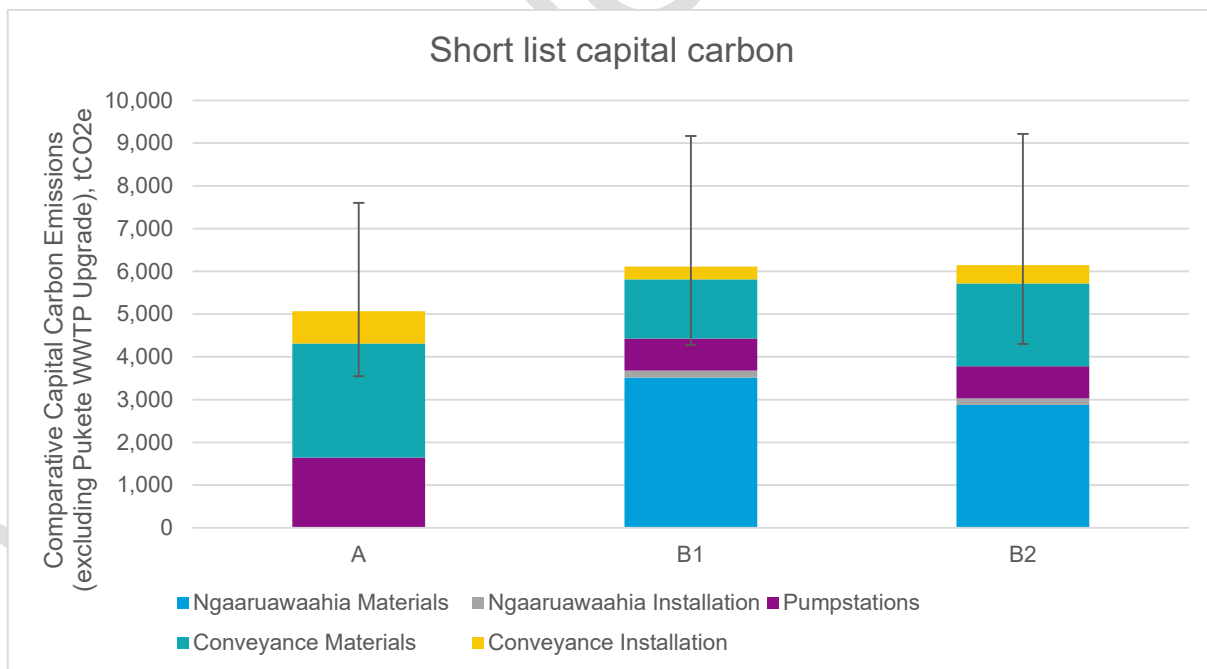


Figure 26: Short list capital carbon comparison

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.

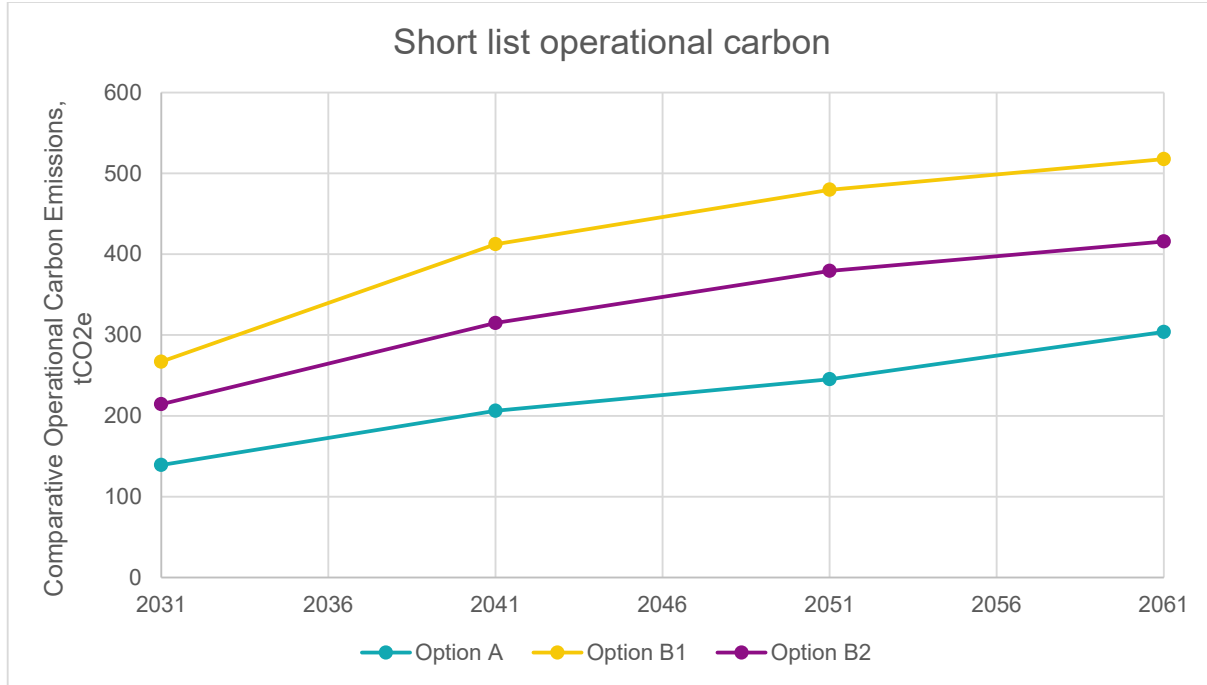


Figure 27: Short list operational carbon comparison

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 through 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	<p>understanding of the river system, including real time and long term data.</p> <p>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.</p>
8. Achieve net benefit to the environment	<p>The preferred option will result in a significant improvement in discharge quality resulting in a net benefit to the environment.</p>
9. Increase the efficient use of resources and maximise resource recovery and contribution toward carbon neutrality and energy neutrality	<p>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.</p>
10. Apply and maintain best practice to all three waters management and infrastructure which allows for the sustainable future growth of the Waikato region.	<p>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 technology.</p>

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/m ³ Total P: < 0.5 g/m ³
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.

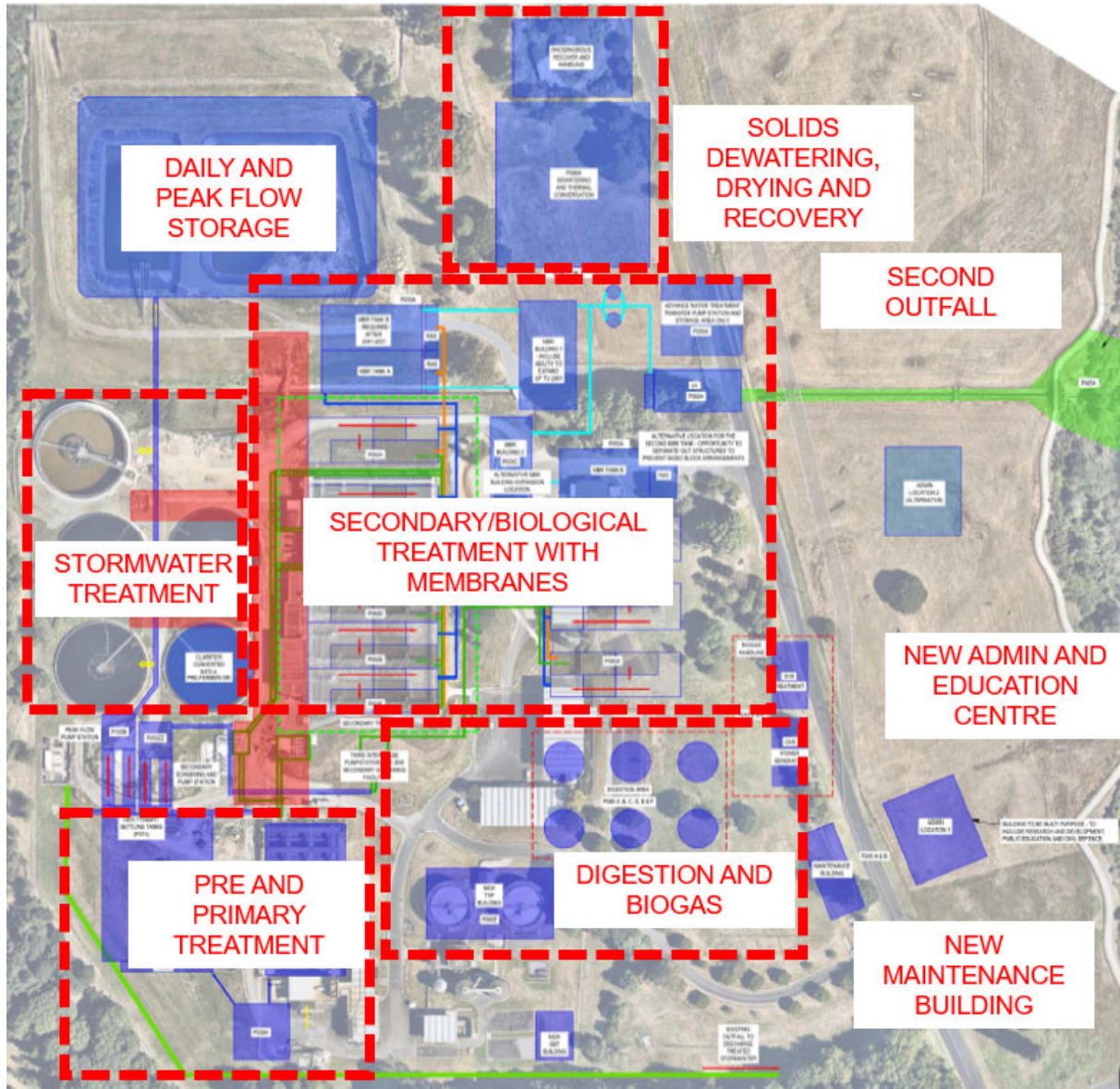


Figure 28: Preferred option Pukete WWTP site layout

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 4 th primary sedimentation tank is needed now. Further sedimentation tanks will be required as flows increase. Duplication of aerated grit chamber 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: 474m³ with an additional 689m³ post-2041
 - Ngaaruawaahia pump station: 1,719m³ with an additional 543m³ post-2041
 - Te Kowhai pump station: 265m³
 - Horotiu/POAL: 2,565m³ with an additional 662m³ post-2041

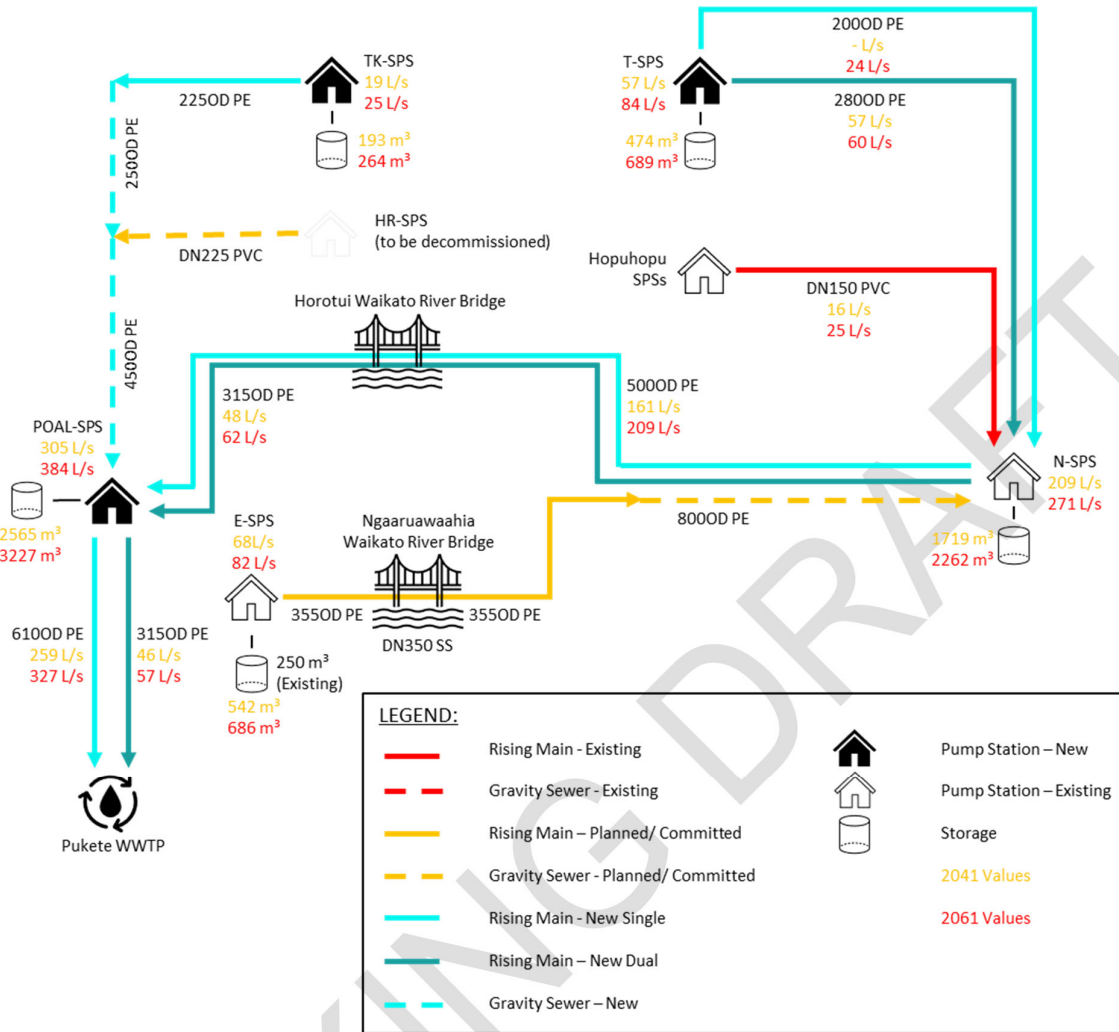


Figure 29: Preferred option conveyance schematic

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.

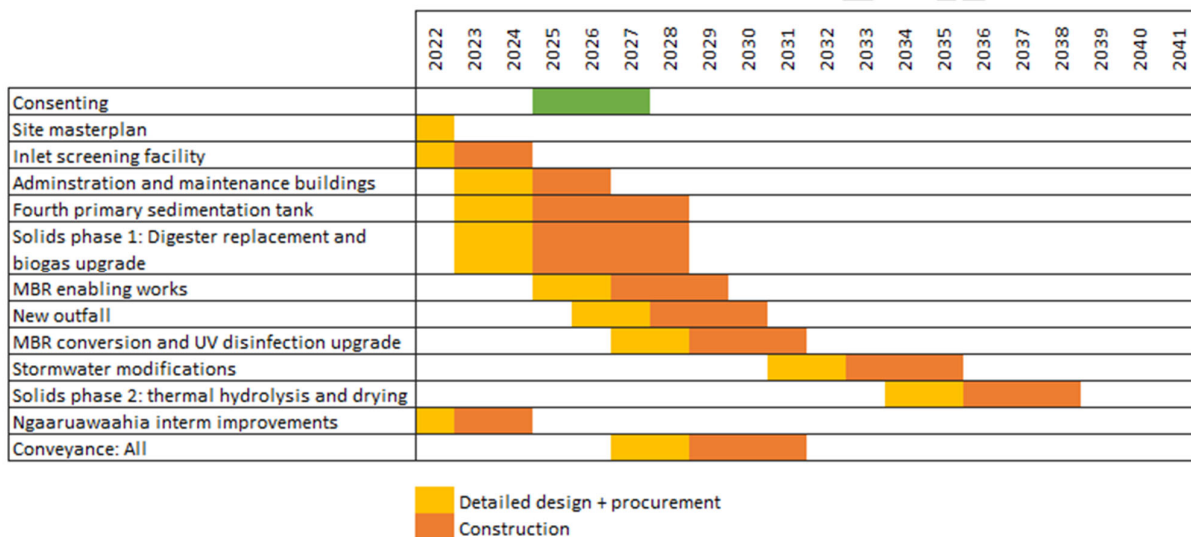


Figure 30: Proposed staging of preferred option

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

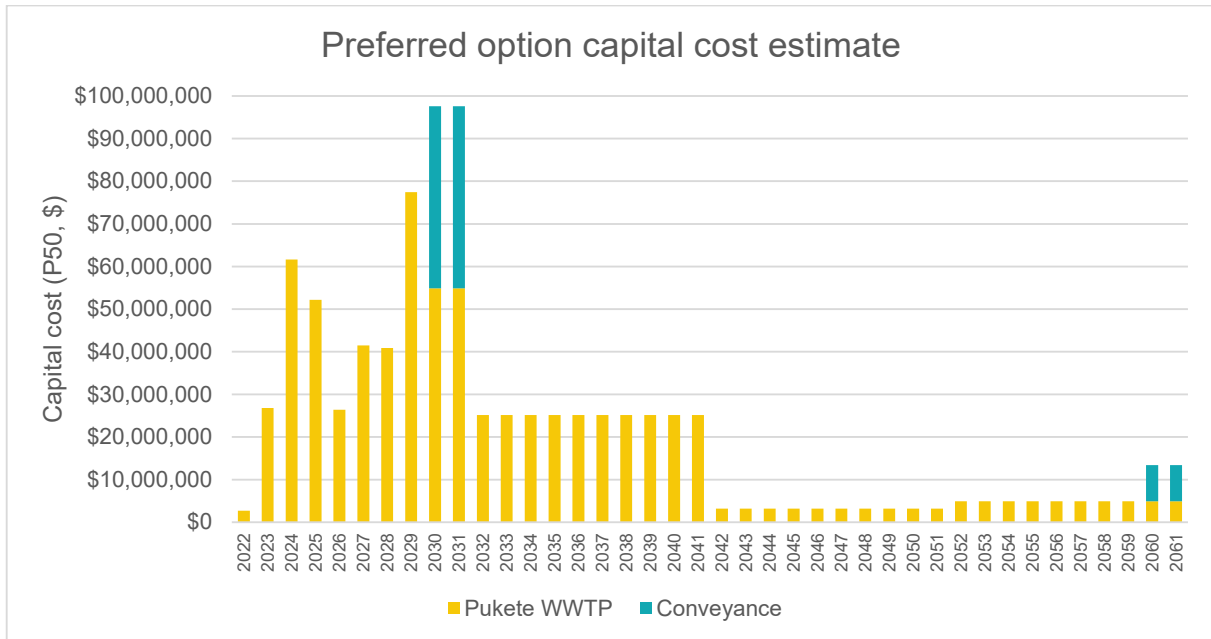


Figure 31: Preferred option annual capital investment estimate (excluding renewals)

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

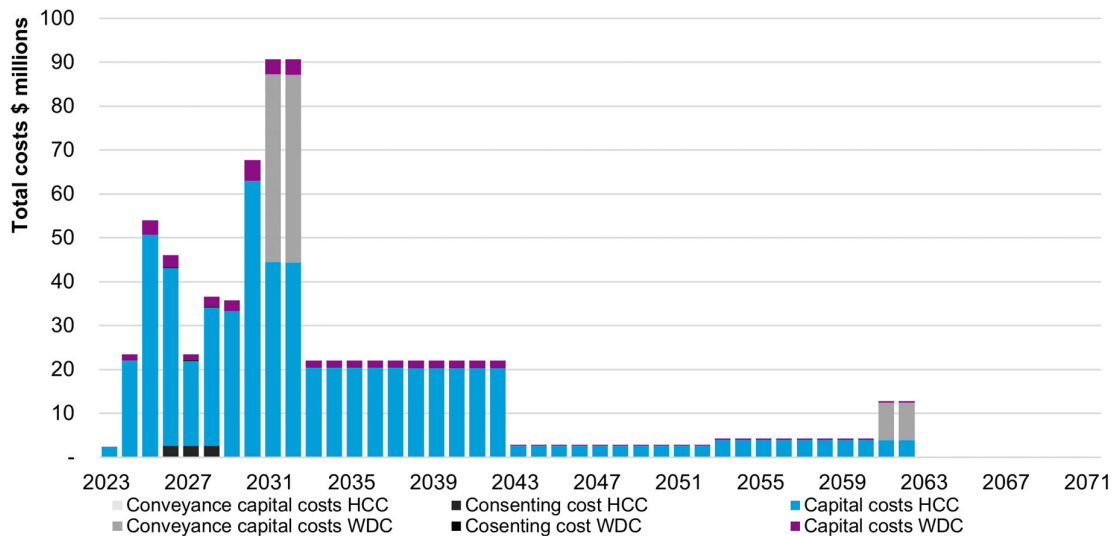


Figure 32: Capital cost council allocation

²⁴ Operating costs continue will continue beyond 2071.

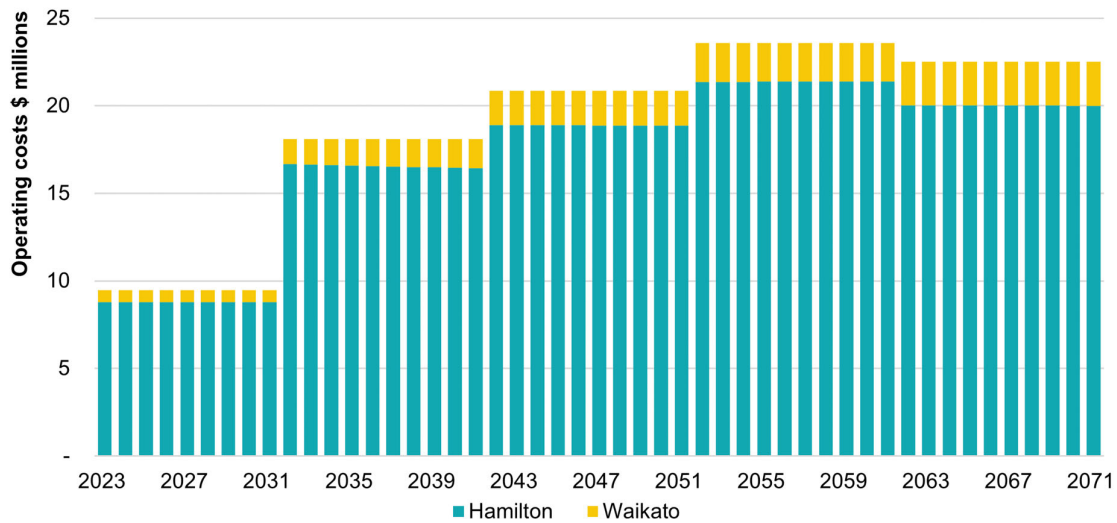


Figure 33: Operating cost council allocation

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

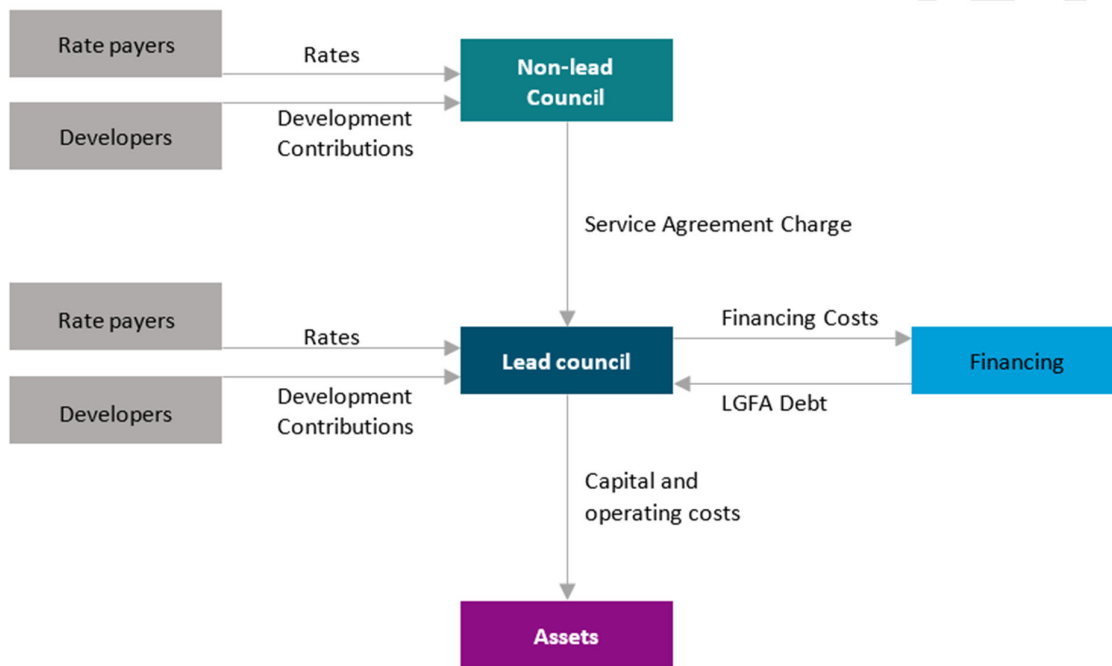
- The allocation of consenting costs allocated based on the council's population equivalent proportion in the final year of capital spend, 2062; and
- The build costs which are predominantly allocated to HCC based on the population equivalents served.

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

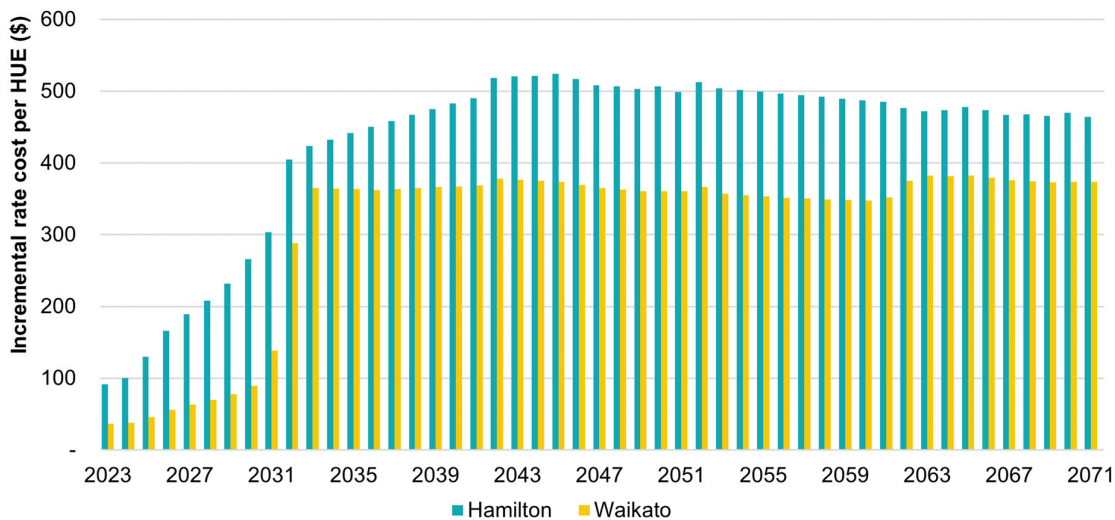


Figure 34: Estimated annual rates impact per HUE

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 Report²⁵.

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.

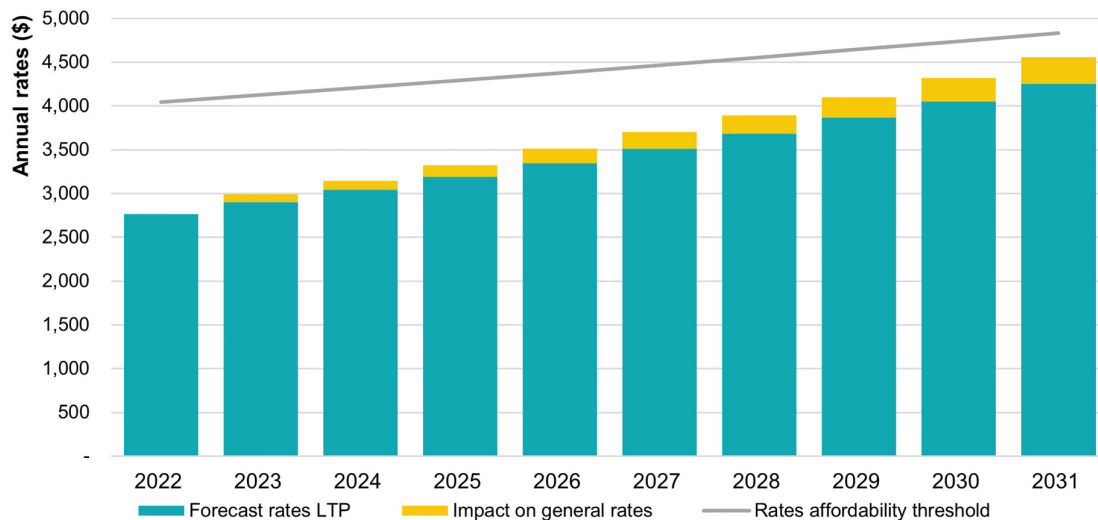


Figure 35: HCC ratepayer affordability

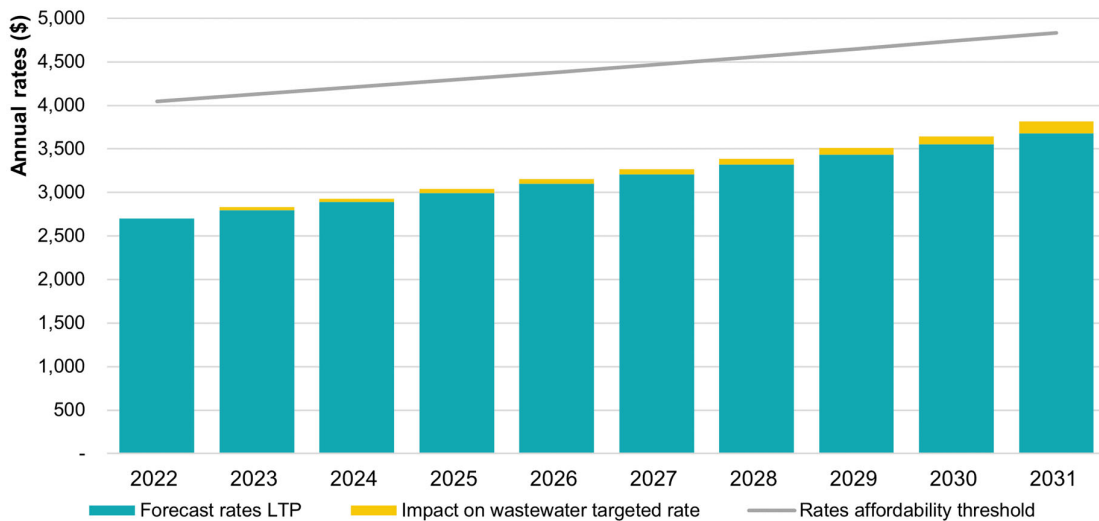


Figure 36: WDC ratepayer affordability

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 WDC²⁷. 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 guidance²⁸.
- 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 policy²⁹.

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.

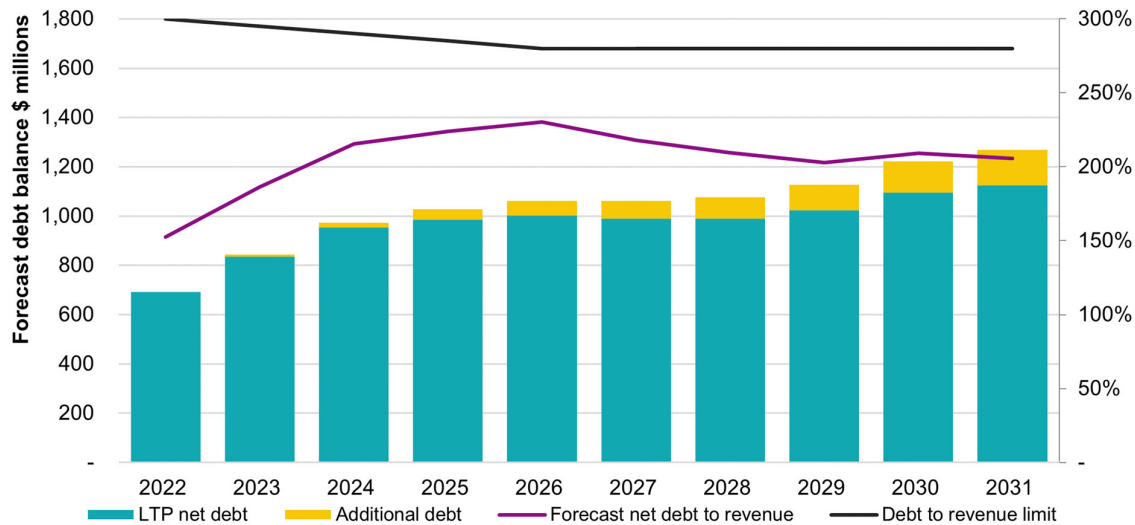


Figure 37: Forecast HCC debt-to-revenue

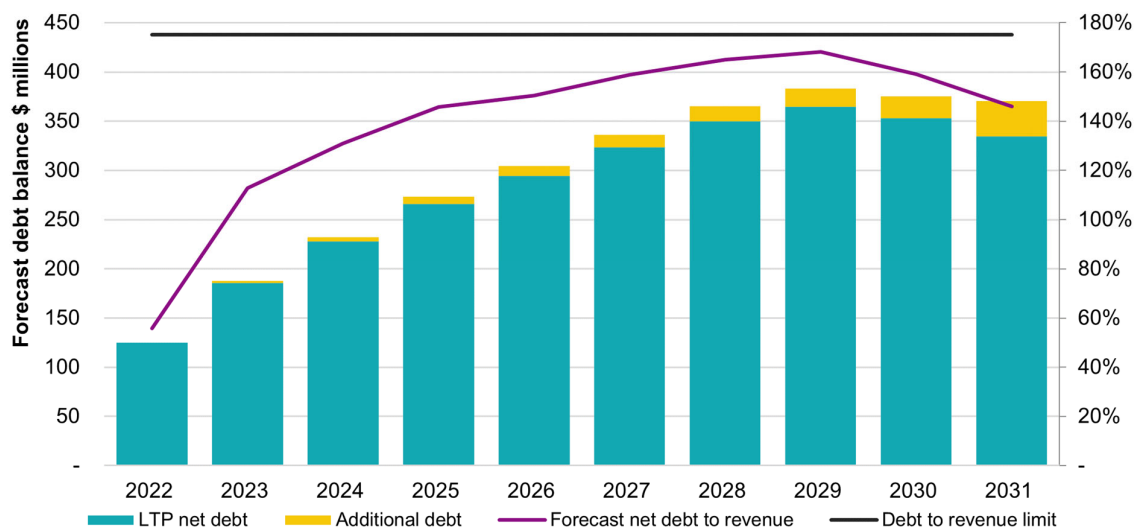


Figure 38: Forecast WDC debt-to-revenue

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 Policy³¹ 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 Policy³² 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:

- Ngaaruwaahia WWTP interim works
- Ngaaruwaahia 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 Method³³ 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.

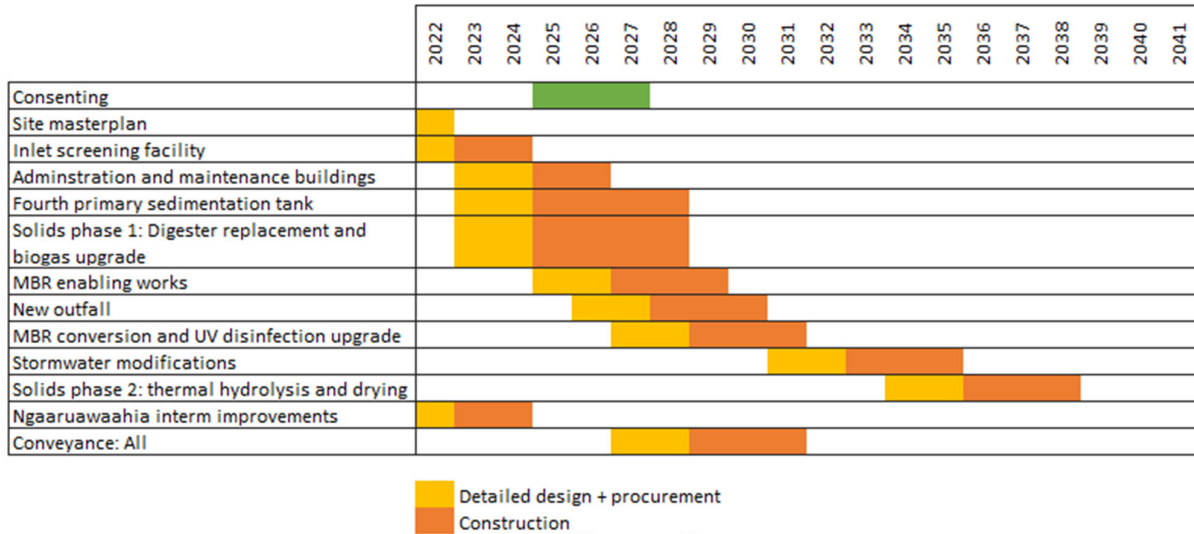


Figure 39: Proposed procurement timeline

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.	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> ○ 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
			<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Council only interacts with one party, simplifying the process. • Council retains overall control of the project including design aspects. • Transfers interface risk to the managing 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. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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
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.	<ul style="list-style-type: none"> • Incentivises a 'best for project' and integrated approach. • 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. 	<ul style="list-style-type: none"> • High consequence of staff turnover, poor culture, etc as relationship/collaboration critical to success. • 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 disproportionately 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).	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Highest degree of risk transfer 	<ul style="list-style-type: none"> • 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
			<ul style="list-style-type: none">• 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 re-consenting 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.

WORKING DRAFT

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
4 th primary sedimentation tank	4 th primary sedimentation tank	4 th primary sedimentation tank	4 th primary sedimentation tank	4 th 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 6 th reactor	Conversion to MBR and addition of 6 th reactor	Conversion to MBR and addition of 6 th reactor	Conversion to MBR and addition of 6 th reactor	Conversion to MBR and addition of 6 th 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
<ul style="list-style-type: none"> × Higher transactional cost associated with many contracts × Less chance to establish a longer term collaborative working relationship between owner, designers and constructors 	<ul style="list-style-type: none"> × 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 recognise 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 	<ul style="list-style-type: none"> ✓ 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 	<ul style="list-style-type: none"> ✓ 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 	<ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> Lower tender costs than other options Provides rigour of owner's engineer undertaking design work 	Yes
D&B	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 recognise 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 suggests 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 re-consenting of the discharge to the river is complete.
Packaging recommendation	<p>The following packages are recommended:</p> <ul style="list-style-type: none"> • Inlet works • New administration and maintenance buildings • 4th primary sedimentation tank

	<ul style="list-style-type: none"> • Solids phase 1 • New outfall • MBR conversion and UV • Stormwater • Solids phase 2 <p>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.</p> <p>Similarly, there is an opportunity to identify a contractor partner through the early packages who could be engaged to continue with the subsequent packages.</p>
Contracting recommendation	<p>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.</p> <p>A traditional “construction only” contract model is recommended for all packages except the new buildings where a Design and Built contract could be considered.</p>

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	<ul style="list-style-type: none"> • Lower tender costs than other options 	Yes

	<ul style="list-style-type: none"> Provides rigour of owner's engineer undertaking design work 	
D&B	<ul style="list-style-type: none"> 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:	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	<p>Traditional / construction only for pipes with an opportunity to further explore D&B for pump stations.</p> <p>An option here would be to engage two contractors in a "panel" arrangement and issue individual conveyance packages as design is completed.</p>

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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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.

WORKING DRAFT

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 Ngaaruwaahia 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 difficulty of transitioning to Entity B associated with these other structures.

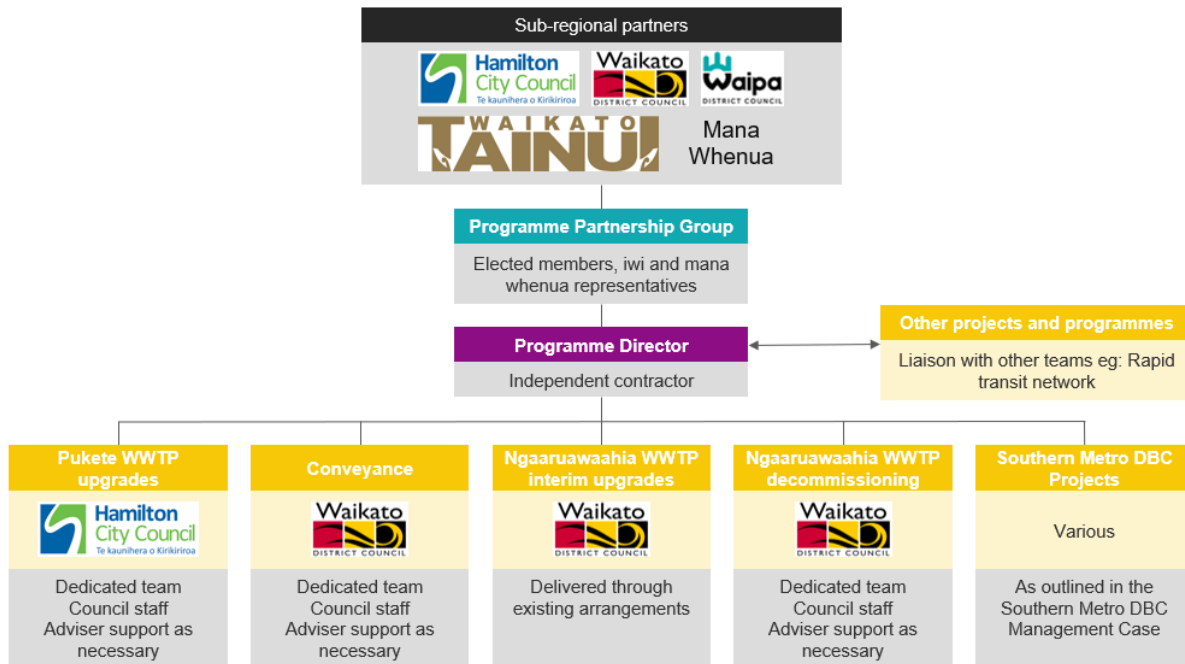


Figure 42: Governance structure

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

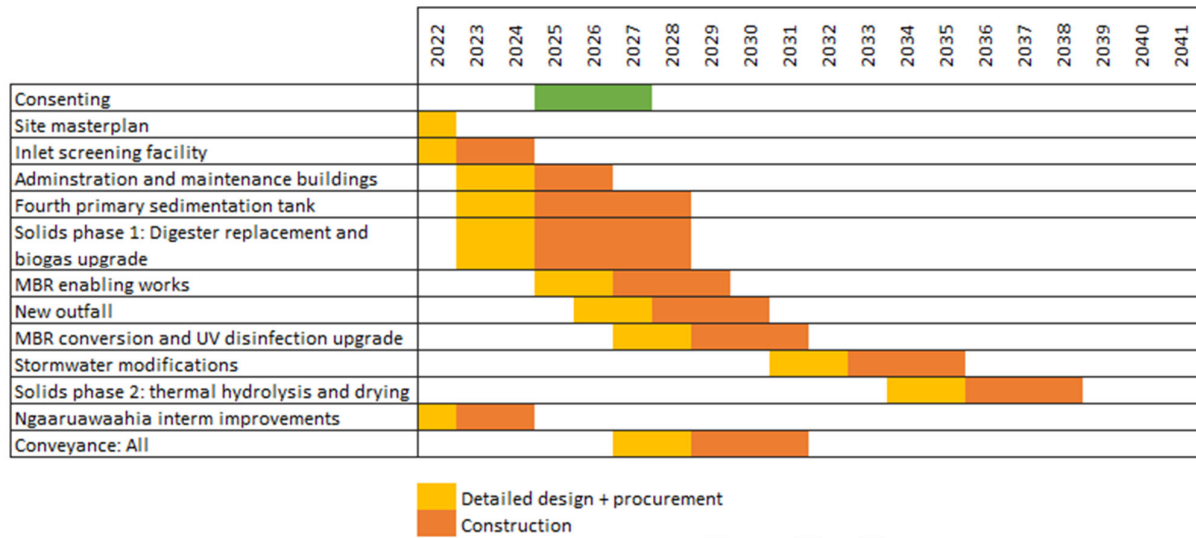
The Local Government Act 2002 requires that all councils provide annual reporting on the performance of their wastewater systems. The reporting covers key performance metrics including compliance with resource consents, number of wastewater overflows, and any public health incidents.

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 78MLD³⁵

Following initial conveyance upgrades, the next major capacity-driven conveyance works are:

- Taupiri to Ngaaruwaahia Stage 2: Programmed when flows reach 84 L/s (ie 2061 in the base case)³⁶
- Ngaaruwaahia 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 689m³ programmed when flow reach 57 L/s (ie 2041 in the base case)
 - Ngaaruwaahia pump station: additional 543m³ programmed when flow reach 209 L/s (ie 2041 in the base case)
 - Horotiu/POAL: additional 662m³ 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 assuming 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. They 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

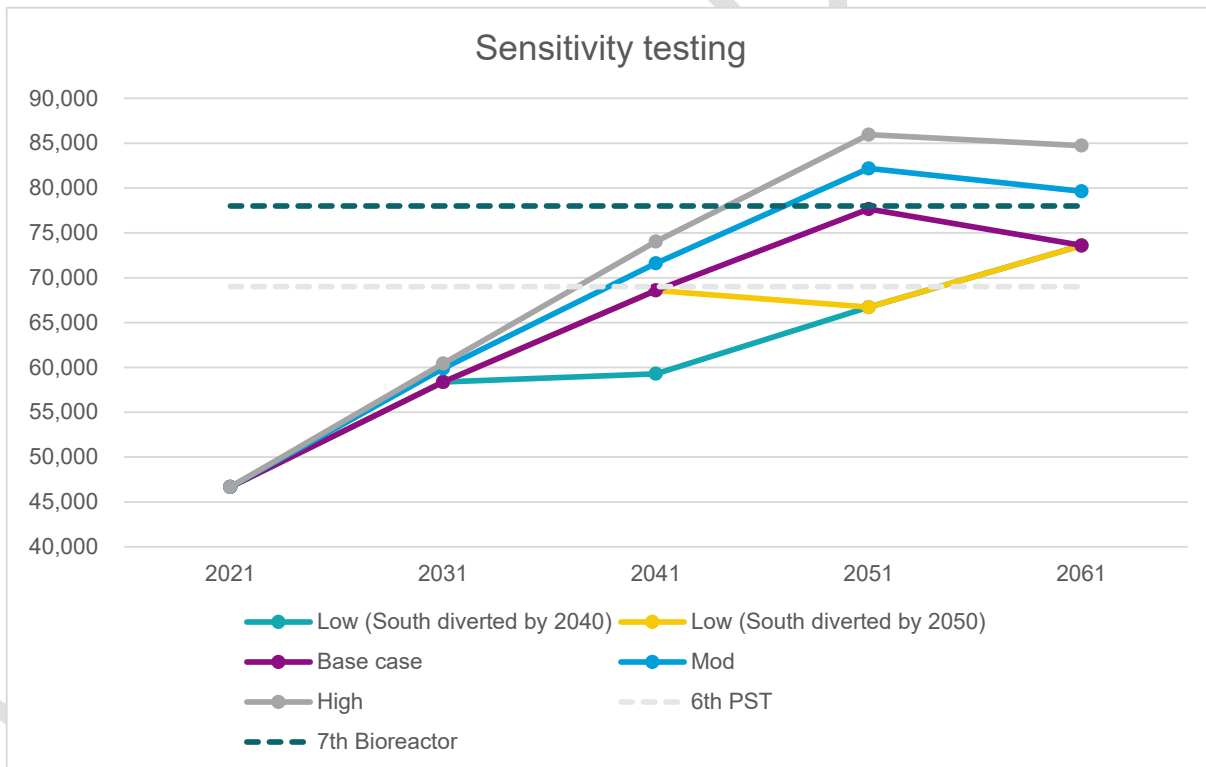
The individual factors have been combined into high, medium, and low scenarios.

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 m³/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 vegetation 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	Years 1-10 ³⁷	Target Years 11-30	Years 30+	Action	Responsibility for the identified action
	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	Years 1-10 ³⁷	Target Years 11-30	Years 30+	Action	Responsibility for the identified action
	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 Ngaaruwaahia 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 Ngaaruwaahia 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
<ul style="list-style-type: none"> Design new pump stations to accommodate stage 2 upgrade and stage 2 pump fitout with minimal changes. Build larger wet well in stage 1⁴¹ 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). 	<ul style="list-style-type: none"> 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 and 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 re-consent 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 Māori 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 (NBE) 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 NBE. 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 set 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 Ture 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

To	Strategy and Finance Committee
Report title	Area R2, Area WA and HT1 – Next Steps
Date:	14 September 2022
Report Author:	Vishal Ramduny, Strategic Projects Manager
Authorised by:	Tony Whittaker, Chief Operating Officer

1. Purpose of the report

Te Take moo te puurongo

To inform the Strategy and Finance Committee on the next steps for areas R2, WA and HT1 (parcels of land currently within the Waikato district which have been earmarked for transfer to Hamilton city) and to request the Committee to seek Council's approval to initiate the land transfer process whenever it is triggered by Hamilton City Council.

2. Executive summary

Whakaraapopototanga matua

Areas R2, WA and HT1 within Waikato district are identified future urban growth areas for Hamilton city. The Strategic Boundary Agreement (Strategic Agreement) signed by both Waikato District Council (WDC) and Hamilton City Council (HCC) for the transfer of these parcels of land was signed on 5 November 2020 after a review of the original 2005 Strategic Agreement.

The Strategic Agreement notes the process of transferring each of these areas will be commenced by the Chief Executive of HCC providing written notice to the Chief Executive of WDC of a transfer request (transfer request).

Any decision by HCC to issue a transfer request will be made considering the impacts of growth on Hamilton city, strategic infrastructure decisions affecting HCC, financial considerations, and the outcomes of the strategic land use planning processes.

WDC and HCC will jointly do all things necessary to give effect to the transfer request including, if required, submitting to the Local Government Commission, a reorganisation plan in accordance with the Local Government Act.

In the interim, and to inform the land transfer trigger, HCC will be undertaking scoping studies for Area R2 and Area WA due to more advanced developer interest. Area HT1 is also in the Strategic Agreement but developer intent in this area is not as advanced as R2 and WA and no submission was made to advance this area through the review of Future Proof.

The scoping studies for R2 and WA and the development potential of HT1 will be used to inform the sub-regional Future Development Strategy (FDS) which is a requirement of the National Policy Statement on Urban Development (NPS – UD).

The studies will help inform the staging and sequencing of the development of these parcels of land and the timing of the land transfer process from WDC to HCC.

3. Staff recommendations Tuutohu-aa-kaimahi

That the Strategy and Finance Committee:

- a. **notes that Hamilton City Council will commence scoping studies for R2 and WA and, together with consideration being given to the development potential of HT1, use the findings to inform the sub-regional Future Development Strategy and the timing of the land transfer process with Waikato District Council.**
- b. **recommends to Council that R2, WA and HT1 be transferred from Waikato District Council to Hamilton City Council as per the 2020 Strategic Boundary Agreement once written notice is provided by the Chief Executive of Hamilton City Council to the Chief Executive of Waikato District Council of a transfer request.**

4. Background Koorero whaimaarama

Hamilton City Council (HCC) and Waikato District Council (WDC) are parties to the Strategic Agreement for the transfer of parcels of land called Area R2, Area WA and Area HT1 from the Waikato district to Hamilton city. The Strategic Boundary agreement was signed on 5 November 2020 after a review of the original Strategic Boundary Agreement which was signed in 2005.

The areas earmarked for transfer are shown on the map in Attachment 1 and can be broadly described as follows:

- R2 is the area between Greenhill Road and Borman Road (being approximately 200ha).
-

- WA being an area on the western edge of Hamilton city bounded by Whatawhata Road and Wallace Road (being approximately 25 ha). This area was intended to be transferred to HCC upon its capacity to service this area for full urban.
- HT1 is an area of land roughly triangular between the Waikato River, the existing city boundary along Kay Road/Horsham Downs Road, the Waikato Expressway, and the Horotiu/Te Rapa Bypass (being approximately 780 ha in area).

The revised Strategic Agreement is intended to provide a co-operative and planned approach to the transfer of land, to facilitate the future development of the city. Key principles to be considered in this regard include:

- Reference to the strategic framework both councils operate under from a planning perspective. This includes Future Proof, the Auckland Hamilton Corridor and Hamilton-Waikato Metropolitan Spatial Plan – which are documents that provide a logical framework for the growth of the city and have had both WDC and HCC involvement and approval.
- The transfer of HT1, R2 and WA based on appropriate triggers. The planning documents referred to above include growth forecasts and settlement patterns, timing of growth and the need for the land.
- Inclusion of financial principles (already agreed) upon which any land transfer will be based. This is intended to protect WDC's rating base for a period to allow for Council to adjust for the loss of income or to replace that rating base with alternate growth. The principles also provide HCC with certainty. The Strategic Agreement provides for WDC to be no worse off financially from the transfer of the land for a period of at least 10 years. It also provides for the transfer to HCC of any debt associated with the land.
- Provision for additional parcels of land to be considered for transfer in the future based on mutual agreement, and HCC land requirements as underpinned by the planning documents referred to above (this includes HCCs actual growth versus capacity). Note that Tamahere has been specifically excluded from being able to be considered by HCC as a future land transfer area.
- Strengthening boundaryless principles. This is intended to reflect the fact the growth of the city should not automatically require a boundary change. Although this is absolutely a possibility, the intention is that both councils will work together and explore all options for supporting the growth, which could for example, include WDC urbanising land on the city boundary.

The Process

The Strategic Agreement notes that the process of transferring these areas will be commenced by the Chief Executive of HCC providing written notice to the Chief Executive of WDC of a transfer request (transfer request). The Agreement also states that while the timing of a transfer request will be at the sole discretion of the Chief Executive of HCC, it will be preceded by open and transparent dialogue by both councils wherein the prospect of a transfer request will be clearly identified.

Any decision by HCC to issue a transfer request will be made considering the impacts of growth on HCC, strategic infrastructure decisions affecting HCC, financial considerations, and the outcomes of the strategic land use planning processes.

The Strategic Agreement further states the following:

- Upon receiving a transfer request WDC will use best endeavours to give prompt effect to the transfer request in accordance with the requirements of the Local Government Act 2002 (LGA).
- WDC and HCC will jointly do all things necessary to give effect to the transfer request including if required, submitting to the Local Government Commission, a reorganisation plan pursuant to Subpart 1B of Schedule 3 to the LGA (reorganisation plan).
- 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 by HCC to WDC to account for local government funding issues arising because of the transfer of rateable land from WDC to HCC.

5. Discussion and analysis

Taataritanga me ngaa tohutohu

To inform the land transfer trigger in accordance with the Strategic Agreement, HCC will be undertaking scoping studies for Area R2 and Area WA over the next 6 months. These areas have been identified for a scoping study due to more advanced developer thinking regarding that area's growth and development. HT1 is also in the Strategic Agreement but developer intent in this area is not as advanced as R2 and WA insofar as the areas identified for transfer within the Waikato district are concerned. However, HT1 is acknowledged as a future growth area for the city but the timing of this transfer will need to be considered by HCC in conjunction with R2 and WA.

The scoping studies for R2 and WA will be used to inform the sub-regional Future Development Strategy (FDS) which is a requirement of the National Policy Statement on Urban Development (NPS – UD) and needs to be completed by June 2024.

The Future Proof Strategy has recognised R2, WA and HT1 as Future Enablement Areas which can be triggered as per the Strategic Agreement between WDC and HCC.

HCC is also reviewing the Hamilton Urban Growth Strategy (HUGS) which is due for consultation in October/November 2022. The strategy will articulate a preferred urban form to help guide decision making to support growth over the next 50 years. The strategy prioritises Central City growth, key transport corridors and committed greenfield growth areas.

Next steps and timeframes for R2, WA and HT1

The next steps for R2 and WA are for HCC to undertake desktop scoping studies and report back to the new Council with findings, resourcing, and funding requirements. This will also inform the timing and sequencing of HT1 which is not subject to a scoping study at this stage.

Subject to findings from the scoping studies, resources and funding HCC will:

- i. Enter an MOU with key landowners and commence the more detailed land use assessments and infrastructure assessments required for a boundary change.
- ii. Undertake commercial negotiations.
- iii. Fund and establish a project team to action the boundary change process.

Like WDC, HCC's growth resources are at capacity with several major projects, government reforms, and strategies underway or planned alongside planning for the next 2024-34 Long Term Plan. Any progression of more detailed investigations will require additional funding for resources by HCC. Consideration of impact on existing work programmes will also need to be considered prior to commencing the boundary change process which will have implications for both WDC and HCC staff and elected representatives.

Both HCC and WDC staff will remain close to this work and will report back to the new councils at the appropriate time on the findings of the scoping studies and the next steps.

5.1. Options

Ngaa koowhiringa

Waikato District Council can decide not to transfer the identified parcels of land. However, doing this will dishonour the Strategic Agreement of 2020. It will also be paradoxical to the Future Proof Strategy and may result in the city being unable to integrate the proposed developments into its urban footprint and ensure they are adequately serviced.

5.2. Financial considerations

Whaiwhakaaro puutea

There are no financial implications as it has been agreed that HCC will lead and fund the process where required. There will be some support required from our staff however which we hope to deliver with existing resources.

The Strategic Agreement provides for financial payments in recognition of the net revenue (rates) foregone from the transfer of the land for a period up to ten years. This is intended to provide Council with financial security while additional growth replaces that land transferred.

5.3. Legal considerations **Whaiwhakaaro-aa-ture**

Staff confirm that the recommendations comply with the Council's legal and policy requirements. Legal advice may be required process for any future boundary change process.

5.4. Strategy and policy considerations **Whaiwhakaaro whakamaaherehere kaupapa here**

Besides the Strategic Agreement of 5 November 2020, Area R2, Area WA and Area HT1 have been identified in the Future Proof Strategy for future transfer from Waikato district to Hamilton city for urban growth.

5.5. Maaori and cultural considerations **Whaiwhakaaro Maaori me oona tikanga**

Council will keep Waikato-Tainui informed of the land transfer once HCC has triggered the land transfer.

5.6. Climate response and resilience considerations **Whaiwhakaaro-aa-taiao**

Progressing scoping studies 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 out-of-boundary principles are at the forefront of any decisions going forward. 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 can identify these areas and relevant work required to achieve these outcomes.

5.7. Risks **Tuuraru**

There is a risk that both WDC and HCC may not have sufficient resource capacity to undertake the land transfer process considering other demands as alluded to previously in this report. This may result in delays, missed opportunities and/or staff burnout. This can be mitigated through ensuring the resources are in place and funded and assessing the existing work programme prior to commencing the processes.

There is an opportunity for HCC to capture value from the proposed areas and to use that value to reinvest in the amenity and infrastructure needed to support the delivery of a new community.

There is a risk for HCC 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 HCC through the scoping studies and associated internal processes to consider such areas to support decision making regarding boundary changes.

6 Significance and engagement assessment **Aromatawai paahekoheko**

6.1 Significance **Te Hiranga**

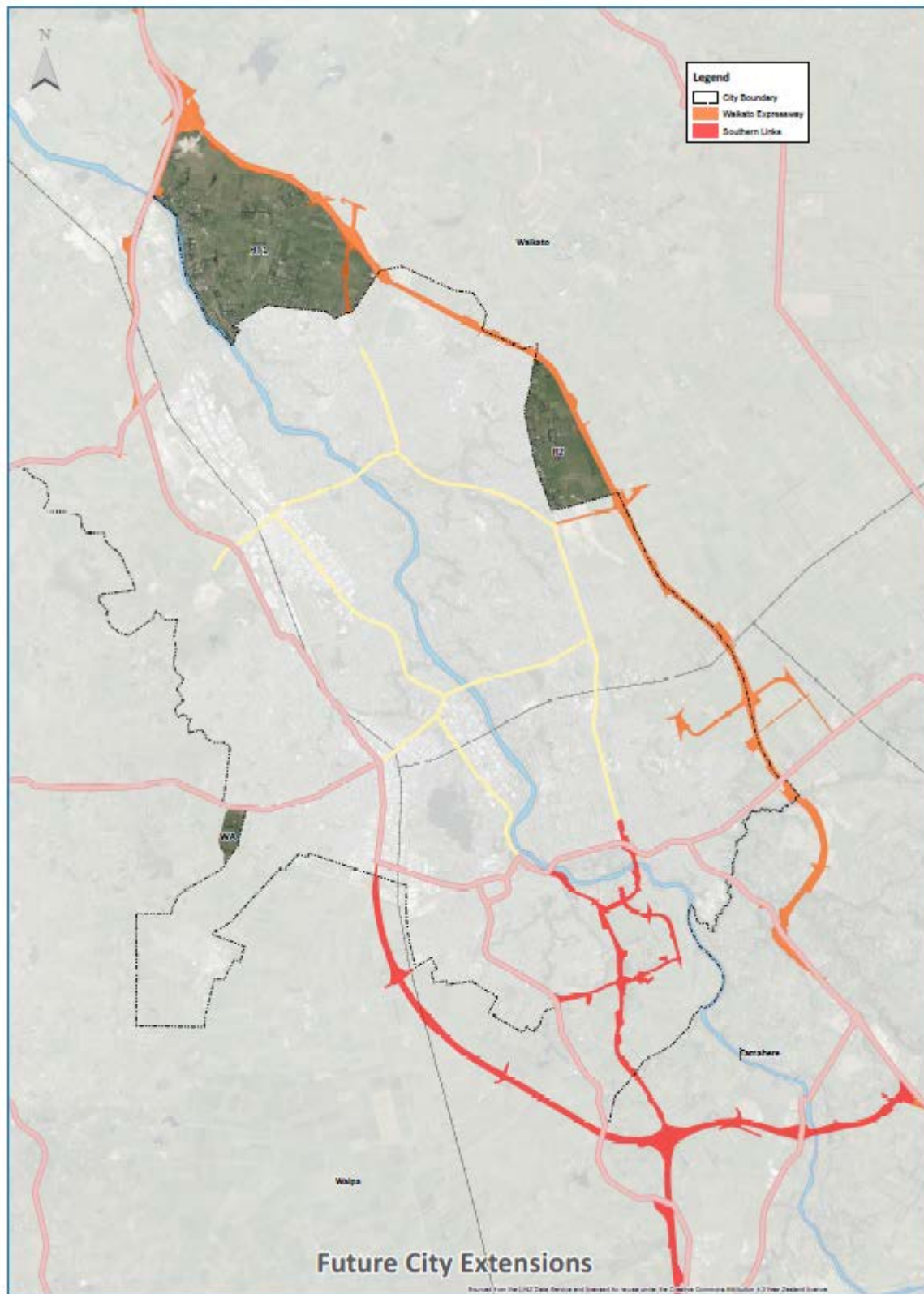
The decisions and matters of this report are assessed as of low significance, in accordance with the Council's Significance and Engagement Policy.

6.2 Engagement **Te Whakatuutakitaki**

The Future Proof Strategy was consulted on as part of the Special Consultative Procedure of the Local Government Act 2002. The additional scoping studies referred to above and the development of the FDS will enable further engagement with developers in these areas.

7 Attachments **Ngaa taapirihanga**

Attachment 1 - Map showing the location of Area R2, Area WA and Area HT1.



To	Strategy & Finance Committee
Report title	Exclusion of the Public
Date:	2 September 2022
Report Author:	Elizabeth Saunders, Democracy Advisor
Authorised by:	Gaylene Kanawa, Democracy Manager

1. Staff recommendations

Tuutohu-aa-kaimahi

THAT the public be excluded from the following parts of the proceedings of this meeting.

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 are as follows:

General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
PEX 1 - Confirmation of Minutes PEX2.1 – Development Agreement Variation for Rangatahi Limited, Raglan PEX2.2 – Development Agreement Principles, Stuart PC Ltd (Hynds Pipes), Pokeno	Good reason to withhold exists under Section 6 or 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 No.	Section	Interest
Item PEX 1 Confirmation of Minutes	Refer to the previous Public Excluded reasons in the agenda for the 3 August 2022 Strategy & Finance meeting.	
PEX2.2 – Development Agreement Variation for Rangatahi Limited, Raglan	7(2)(i)	To enable negotiations to carry on without prejudice or disadvantage.
PEX2.3 – Development Agreement Principles, Stuart PC Ltd (Hynds Pipes), Pokeno	7(2)(b)(ii)	To protect information that would otherwise unreasonably prejudice a person's commercial position

2. Attachments Ngaa taapirihanga

There are no attachments for this report.
