



If calling, please ask for Democratic Services

Hutt Valley Flood Management Subcommittee

Tuesday 9 August 2022, 4.30pm

Hutt City Council Chamber, 30 Laings Road, Lower Hutt

Members

Greater Wellington Regional Council

Cr Lamason (Chair)

Cr van Lier (Deputy Chair)

Cr Connelly

Cr Lee

Hutt City Council

Deputy Mayor Lewis

Cr Edwards

Upper Hutt City Council

Mayor Guppy

Cr Wheeler

Recommendations in reports are not to be construed as Council policy until adopted by Council

Hutt Valley Flood Management Subcommittee

Tuesday 9 August 2022, 4.30pm

Hutt City Council Chamber, 30 Laings Road, Lower Hutt

Public Business

No.	Item	Report	Page
1.	Apologies		
2.	Conflict of interest declarations		
3.	Public participation		
4.	Confirmation of Public Minutes of the Hutt Valley Flood Management Subcommittee meeting 28 June 2022	22.298	3
5.	Update on Progress of Action items from previous meetings – August 2022	22.322	6
6.	Asset Management Report for Te Awa Kairangi/Hutt, Wainuiomata and Waiwhetu Floodplains 2021/22	22.235	9
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Please note these minutes remain unconfirmed until the Hutt Valley Flood Management Subcommittee meeting on 9 August 2022.

Report 22.298

Public minutes of the Hutt Valley Flood Management Subcommittee meeting on Tuesday 28 June 2022

Council Chamber, Upper Hutt City Council
838 Fergusson Drive, Upper Hutt at 4.33pm.

Members Present

Greater Wellington Regional Council

Councillor Lamason (Chair)
Councillor van Lier (Deputy Chair)
Councillor Connelly
Councillor Lee

Hutt City Council

Deputy Mayor Lewis
Councillor Edwards

Upper Hutt City Council

Mayor Guppy
Councillor Wheeler

Councillors Edwards and Lee participated at this meeting remotely and counted for the purposes of quorum in accordance with clause 25B of Schedule 7 to the Local Government Act 2002.

Public Business

1 Apologies

There were no apologies

2 Declarations of conflicts of interest

There were no declarations of conflicts of interest.

3 Public participation

There was no public participation.

4 Confirmation of the Public minutes of the Hutt Valley Flood Management Subcommittee meeting on 5 April 2022 – Report 22.148

Moved: Deputy Mayor Lewis / Cr van Lier

That the Subcommittee confirms the Public minutes of the Hutt Valley Flood Management Subcommittee meeting on 5 April 2022 - Report 22.148

The motion was **carried**.

5 Update on Progress of Action Items from Previous Hutt Valley Flood Management Subcommittee Meetings – June 2022 – Report 22.180 [For Information]

Graeme Campbell, Manager, Flood Protection, spoke to the report.

6 RiverLink Project Update Report – Report 22.216

Tracy Berghan, RiverLink Lead, Tom Biggin, Project Manager, RiverLink, Hutt City Council, Tom Newsom, PMO, and David Allen, Buddle Findlay, spoke to the report.

Moved: Cr Connelly / Deputy Mayor Lewis

That the Subcommittee:

- 1 Endorses the addition of the Mills Street stopbank in the early works for RiverLink to enable construction to start in the 2023/24 construction season.
- 2 Notes that the preferred Alliance model has now changed from a hybrid alliance to a pure alliance model.
- 3 Notes that the Riverlink Request for Proposal (RFP) will now be issued in mid August 2022.

The motion was **carried**.

Noted: The Subcommittee requested that officers invite the Independent Board Chair of RiverLink to the next Subcommittee meeting.

7 Hutt Valley Flood Management Project Update Report – Report 22.259 [For Information]

Sharyn Westlake, Team Leader, Floodplain Management Plan Implementation, spoke to the report.

Noted: The Subcommittee requested that officers provide members with the Local Government Official Information and Meetings Act 1987 response to the request on fly tipping on the Hutt River.

The public meeting closed at 5.23pm.

Councillor P Lamason

Chair

Date:

**Hutt Valley Flood Management Subcommittee
9 August 2022
Report 22.322**



For Information

**UPDATE ON PROGRESS OF ACTION ITEMS FROM PREVIOUS HUTT VALLEY
FLOOD MANAGEMENT SUBCOMMITTEE MEETINGS – AUGUST 2022**

Te take mō te pūrongo

Purpose

1. To update the Hutt Valley Flood Management Subcommittee (the Subcommittee) on the progress of the action items arising from the previous Subcommittee meetings.

Te horopaki

Context

2. The items raised at the Subcommittee's previous meeting, which required action by officers, is listed in [Attachment 1](#). The status is noted and the information requested is provided.

Ngā hua ahumoni

Financial implications

3. There are no financial implications arising from this report.

Ngā tūāoma e whai ake nei

Next steps

4. The completed items will be removed from the action items table for the next report. Any new items will be added to the table, following this Subcommittee meeting, and circulated to the relevant business group for action.

Ngā āpitihanga

Attachment

Number	Title
1	Action items from previous Hutt Valley Flood Management Subcommittee Meeting – August 2022

Ngā kaiwaitohu

Signatory

Approver	Wayne O'Donnell, General Manager, Catchment Management Group
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He whakarāpopoto i ngā huritaonga Summary of considerations
<i>Fit with Council's roles or with Committee's terms of reference</i> The action items are of an administrative nature and support the functioning of the Committee.
<i>Contribution to Annual Plan / Long Term Plan / Other key strategies and policies</i> Action items contribute to Council's or Greater Wellington's related strategies, policies and plans to the extent identified in Attachment 1 .
<i>Internal consultation</i> There was no additional internal consultation in preparing this report and updating the action items.
<i>Risks and impacts - legal / health and safety etc.</i> There are no known risks or impacts.

Attachment 1 to Report 22.322

Action items from previous Council/committee meetings

Date	Action item	Status and comment
28 June 2022	<p>RiverLink Project Update Report – Report 22.216</p> <p>Noted:</p> <p>The Subcommittee requested that officers invite the Independent Board Chair of RiverLink to the next Subcommittee meeting.</p>	<p>Status: Work in progress</p> <p>Comment:</p> <p>Invitations have been sent.</p>
28 June 2022	<p>Hutt Valley Flood Management Project Update Report – Report 22.259</p> <p>Noted:</p> <p>The Subcommittee requested that officers provide members with the Local Government Official Information and Meetings Act 1987 response to the request on fly tipping on the Hutt River.</p>	<p>Status:</p> <p>Completed</p> <p>Comment:</p> <p>Democratic Services emailed the response to Subcommittee members.</p> <p>The response has been proactively released on Greater Wellington’s website - https://www.gw.govt.nz/document/19760/lgoima-response-to-request-2022-063-28-june-2022</p>

**Hutt Valley Flood Management Subcommittee
9 August 2022
Report 22.235**



For Decision

**ASSET MANAGEMENT REPORT FOR TE AWA KAIRANGI/HUTT, WAINUIOMATA
AND WAIWHETU FLOODPLAINS 2021/22**

Te take mō te pūrongo

Purpose

1. To advise the Hutt Valley Flood Management Subcommittee (the Subcommittee) of progress made with the Flood Protection department's asset management system, and the overall performance and physical condition of flood protection and erosion control infrastructure assets.

He tūtohu

Recommendation

That the Subcommittee **recommends** to the Environment Committee that it is satisfied that flood protection and erosion control infrastructure assets have been satisfactorily assessed and that identified issues are being addressed through maintenance and improvement work programmes.

Te tāhū kōrero

Background

2. The Flood Protection department (the Department) is responsible for flood protection and erosion control infrastructure assets, and land and property located on 15 river schemes across the Wellington Region. These assets have a total combined value of \$428 million¹ and provide flood and erosion protection to the communities, businesses and infrastructure located on these floodplains.
3. The Department has a comprehensive asset management system, which demonstrates that the service levels of our infrastructure assets are being maintained in an efficient and cost-effective manner, will perform as designed and, where required, are being improved.
4. The Environment Committee has overall responsibility to monitor the maintenance and improvement of these assets on behalf of Council. The Environment Committee relies on feedback from the various subcommittees, scheme advisory committees and friends' groups to confirm infrastructure assets are being satisfactorily maintained to the agreed service level.

¹ As at 30 June 2020

Te tātaritanga Analysis

Highlights and future challenges

5. The context and overall environment in which Operations and Maintenance (O&M) is undertaken has changed significantly and increased resources are required to ensure we can maintain scheme service levels and continue to undertake routine O&M activities.
6. COVID-19, the raft of central and local government reforms coupled with increasing compliance costs (HS&W and environmental), increasing expectations on how we should work to improve environmental outcomes, partnering with mana whenua and the increasing community desire for consultation and engagement to achieve broader social objectives are all increasing the resources required. This necessitates that our people resource has a broader skill set. Climate change is also requiring more complex planning, and more frequent extreme weather events may mean more reactive maintenance.
7. Specifically, COVID-19 continues to present both significant challenges and opportunities. Issues around contractor resource, and material supply, will continue to test us in the delivery of our work programmes.
8. Looking to the future, two key work streams continue to progress that will advance our Asset Management maturity. The Department is progressing with the implementation of our river management resource consents for Te Awakairangi/Hutt River and Wainuiomata River. These new resource consents represent a step change in how Greater Wellington will undertake river management activities in the future. This coupled with Ngātahi (Greater Wellington's new asset management system) provide both the driver and tools to enable this business step change.

Asset condition and maintenance

9. Asset condition is a measure of the physical state of the asset and is assessed visually on an annual basis. Asset condition does not identify the criticality of the asset or whether the asset meets the required service level. This criticality is addressed in paragraphs 20-26 of this report.
10. Monitoring asset condition enables us to predict and plan maintenance, forecast replacement requirements and develop effective, proactive work programmes. This is essential to managing flood risk because it influences the likelihood of asset failure, and, therefore, the performance of the assets to ensure they achieve required service levels.
11. Infrastructure assets on Te Awa Kairangi/Hutt River, the Wainuiomata River, and Waiwhetu Stream are being well maintained with 92 percent of assets rated in Very Good (1) to Moderate (3) condition. This has remained consistent over the last three years, however since 2021 there has been a slight decrease (-2%) in the number of assets in Very Good to Moderate condition shown in **Table 1** below. A detailed summary of asset condition is included in **Attachment 1** – Detailed breakdown of condition by asset type.

Year	2022		2021		2020	
Asset Condition Rating Scores	Ratio	Count	Ratio	Ratio	Count	Ratio
1 - V. Good	92%	392	94%	516	92%	487
2 - Good		935		841		1016
3 - Moderate		378		375		405
4 - Poor	8%	137	6%	76	8%	130
5 - V. Poor		22		26		44
Totals	100%	1864	100%	1834	100%	2082

Table 1: Summary of asset condition

12. While the number of Very Poor assets has marginally decreased in 2022, the number of Poor assets has increased by 61. This can largely be attributed to high flow events in the previous 12 months, as well as general wear of assets over time. This is being addressed through our annual operations work program.
13. The Climate resilience work being undertaken has already improved the condition of some of the assets in Te Awa Kairangi/Hutt River but the completion and final sign off of those works has not been complete so the benefits of this work will not be reported until next year.
14. Tree removal from stopbanks has continued to be a priority for the Operations team. Another focus has been on repairing rocklines along the length of Te Awa Kairangi/Hutt River; these have been 'topped up' with rock. This is necessary as scouring at the base of the rockline causes the lining to slump and holes to form. The addition of rock ensures that the integrity of the rockline is maintained.
15. As part of the annual maintenance works the team has completed the willow and native planting programs as well as the floodgate/structures maintenance program. This is necessary to maintain the level of service within our flood safety system.
16. Further additional work was carried out by the team assisting with the Riverlink prototype Belmont willow edge protection works. This will test a softer vegetative edge approach to edge protection, looking to widen our flood protection toolkit for better environmental outcomes.
17. Following the flood events earlier this year the Operations team has focused on clearing the berms and access tracks to maintain our agreed level of service post flood event.

Asset performance, criticality, and risk

18. The Department uses a comprehensive risk-based framework developed at a national level to produce a risk profile for each river.
19. The framework assesses both the probability and consequence of failure of a group of assets within a discrete section of the river. Assessing the probability of failure includes analysing the structural strength of stopbanks (intrinsic strength), the capacity of the

channel to attenuate flood flows, and the physical condition of infrastructure assets. The consequence of failure relates to risk posed to both the community and environment from failure of a design flood event. Once a probability and a consequence score have been determined for each reach, a risk level is assigned at this level from 'Very Low' to 'Very High'.

20. Application of the framework also highlights where the confidence in the underlying technical information is low and informs the Department's investigative work programme to gather new or additional information to improve this confidence.
21. Assets do not work in isolation, they typically belong to a system of assets, which itself is a collection of assets that interact or are interconnected. Flood protection and erosion control schemes are no different. A system of assets can be distinguished as being critical in the same way individual assets can.
22. The risk profile produced for each river identifies critical assets systems or reaches, and critical assets within those systems are defined as those which have a high consequence of failure.
23. Generally, most of the infrastructure assets on the Te Awa Kairangi/Hutt River, the Wainuiomata River, and Waiwhetu Stream are assessed as 'Very Low' to 'Medium' risk and this continues the trend from the previous years.
24. There are, however, a small number of sections of Te Awa Kairangi/Hutt River and Wainuiomata River that have been assessed as 'High' or 'Very High' risk. This risk can be attributed to one or more of the following failure modes: intrinsic strength, capacity, condition, or consequence. **Attachment 2** - Te Awa Kairangi/Hutt River and Wainuiomata River risk assessment maps 2022 identifies these areas.

Management response

25. All 'High' or 'Very High' risks shown in **Attachment 2** are known to officers and have been identified for treatment either through an existing Floodplain Management Plan (FMP), a technical investigation or operational work programme. Existing and proposed FMP improvements works have been budgeted and prioritised. These risk areas are discussed below, moving from downstream to upstream of Te Awakairangi/Hutt River and the Wainuiomata River.
26. At the Te Awa Kairangi / Hutt River Mouth downstream of the Estuary Bridge capacity is an issue; the area is inundated in the design event and is shown as 'High' risk. There are no stopbanks in this reach and no new stopbanks are currently signalled in the Hutt River Floodplain Management Plan (HRFMP). Initial investigations have been completed through the RiverLink project and these will be progressed further when the HRFMP is reviewed. Riverlink is due for completion by 2027.
27. Sections of Te Awa Kairangi/Hutt River from Moera to Strand Park, and adjacent to Alicetown are 'High' risk. This is an inherent risk as the consequence of any stopbank failure is high.
28. The Riverlink design process highlighted that there is a potential pathway for flood water between Ava and Ewen Bridge. Technical investigations are planned for 2022/23 and this has been given high importance to investigate.

29. The Pharazyn Street and Lower Hutt city stopbanks have capacity issues and average intrinsic strength; they are predicted to overtop in the 2,800 cumec design event and are shown as 'Very High' risk. As both the probability and consequence of failure are very high the risk rating reflects this. RiverLink will retreat, raise, and improve the stopbanks and enhance channel capacity through this section of the Te Awa Kairangi/Hutt River. Riverlink is due for completion by 2027, however early works are currently in proposal stage to complete these works ahead of the main Riverlink works program.
30. Along Harcourt Werry and Taita Drives, and River Road there are sections of berm that are actively eroding or edge protection assets that are in poor condition putting these sections at either 'High' or 'Very High' risk. As the consequence of a stopbank failure is high or very high in these sections, the risk reflects this. These sections are currently being remediated through the Climate Resilience programme due for completion by August 2022. The construction of rock groynes has been completed at Taita Drive. Once these assets are in place the risk in this section will lower.
31. The River Road stopbank above Moonshine Bridge has a capacity issue and average intrinsic strength; it is predicted to overtop in the 2,800 cumec event and is shown as 'Very High' risk. Report 2022:337 in this order paper on the Moonshine Stopbank Capacity Assessment details the technical investigations completed to date, the results of these and the proposed approach to remedy the asset.
32. Sections of the urban reach adjacent to the Wainuiomata River are 'High' risk and are either predicted to over top in the 1 percent Annual Exceedance Probability (AEP) or have edge protection assets that are in poor condition. Further technical investigations into the capacity and proposed plan to address, are programmed for the 2022/23 financial year and continued maintenance and improvements to the edge protection assets have been incorporated into operational work programmes.

Ngā hua ahumoni Financial implications

33. The proposed decision has no financial implications.
34. The Hutt and Wainuiomata catchments have an expenditure of approximately \$1.9million on routine maintenance and operations of the existing assets.

Ngā Take e hāngai ana te iwi Māori Implications for Māori

35. The Department is continuing to explore opportunities for Māori through the consenting space as well as through the Riverlink and Climate Resilience projects.
36. Recently granted river management consents for Te Awa Kairangi/Hutt River and the Wainuiomata River represent a step change in how Greater Wellington will undertake river management activities in the future. These consents enable co-design and development of key plans and strategies that set the parameters by which river management activities are undertaken in these rivers.

37. Ngāti Toa Rangitira and Taranaki Whānui ki Te Upoko o Te Ika are members of the RiverLink Board.
38. Cultural liaison or co-design contracts have been signed by Te Rūnanga o Toa Rangitira Inc., Rangitāne ō Wairarapa Inc., Ngati Kahungunu ki Wairarapa Charitable Trust and Port Nicholson Block Settlement Trust for enhanced involvement and collaboration on programme work for the Climate Resilience Projects.

Te huritao ki te huringa o te āhuarangi Consideration of climate change

39. The matters requiring decision in this report have been considered by officers in accordance with the process set out in the Greater Wellington Climate Change Consideration Guide.
40. The assets discussed in this report were developed over an extensive period of time, during which climate change projections (e.g. rainfall intensity, sea level rise etc.) have evolved with the scientific community's understanding of how climate change will affect the Wellington Region. Climate change projections were incorporated into the modelling that underpins relevant management plans and asset designs at the time they were developed. Unless specified differently for specific projects, these values are an increase in rainfall intensity of twenty percent, and a sea level rise of 0.8 metres.
41. The greenhouse gas (GHG) emissions from rock supply for maintenance varies depending on the quarry source of the rock and transport to the work sites. Quarry sources for projects vary. The emissions from rock supply production and transport are not presently part of the organisation's GHG inventory.
42. Our maintenance will also use heavy machinery to carry out the work proposed in these projects. The emissions from these have not been estimated. However, in the 2018-2019 year, use of heavy machinery mainly for flood protection works at Greater Wellington represented 2% of the total organisational carbon footprint (835 tCO₂e).
43. Quarry selection is the single largest determinant of emissions. While it seemed possible that quarry operations could be improved and cartage distances reduced to help lower emissions, there are few options to obtain rock of the required quality.

Ngā tikanga whakatau Decision-making process

44. The matters requiring decision in this report have been considered by officers against the requirements of Part 6 of the Local Government Act 2002.

Te hiranga Significance

45. Officers considered the significance (as defined by Part 6 of the Local Government Act 2002) of this matter, taking into account Council's *Significance and Engagement Policy* and Greater Wellington's *Decision-making Guidelines*. Officers recommend that this matter is of low significance due to the administrative nature of the decision.

Te whakatūtakitaki
Engagement

46. Due to the low significance of this matter, no engagement was considered necessary.

Ngā āpitihanga
Attachments

Number	Title
1	Detailed breakdown of condition by asset type
2	Te Awa Kairangi/Hutt River and Wainuiomata River risk assessment maps 2022

Ngā kaiwaitohu
Signatories

Writer	Lucy Ashford – Section Leader, Operations Planning
Approvers	Jacky Cox – Team Leader, Operations Planning and Delivery Graeme Campbell – Manager, Flood Protection Wayne O’Donnell – Group Manager, Catchment Management

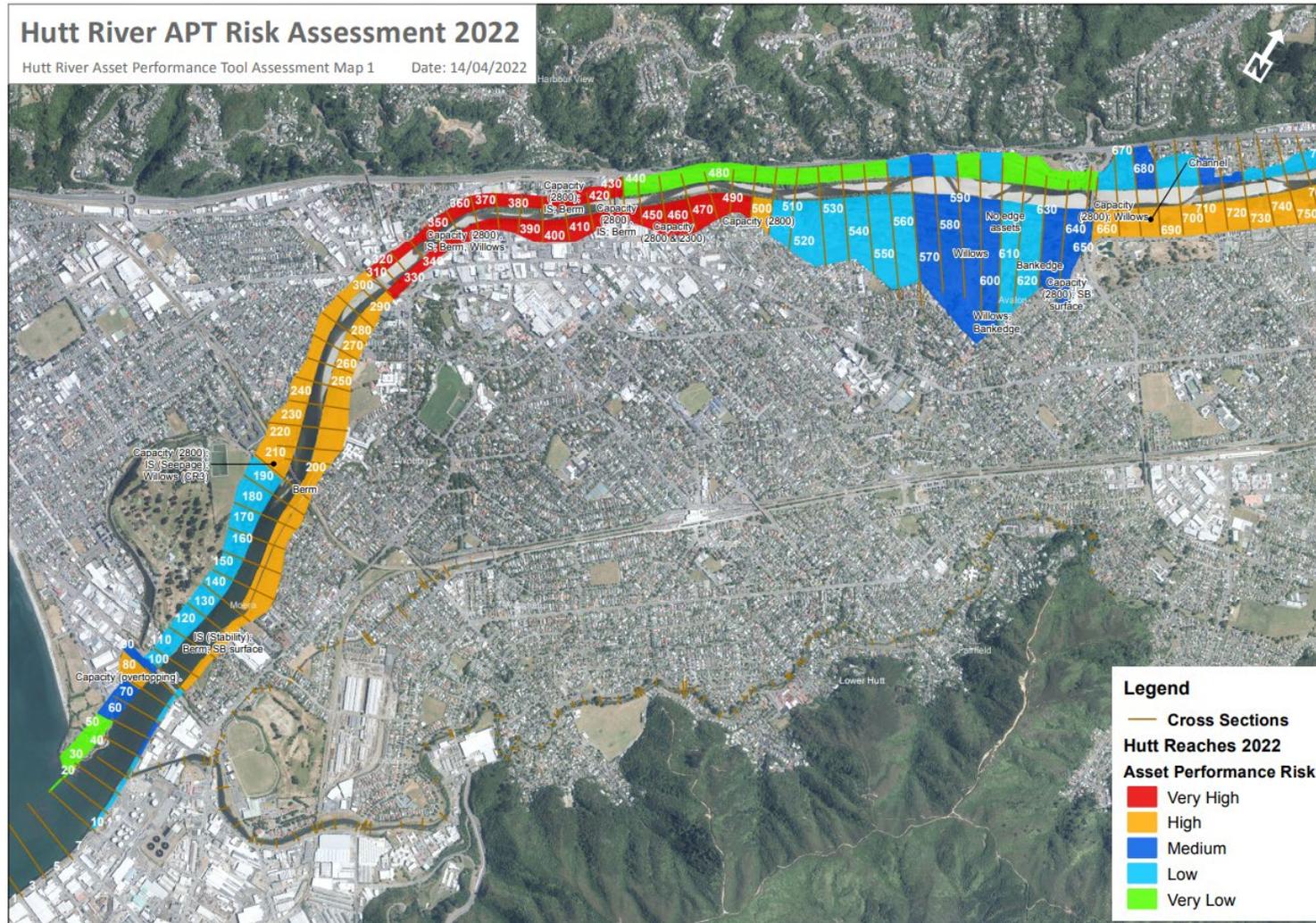
He whakarāpopoto i ngā huritaonga Summary of considerations
<p><i>Fit with Council's roles or Committee's terms of reference</i></p> <p>The Subcommittee provides oversight of the development, implementation, and review of the Floodplain Management Plan for the Te Awa Kairangi/Hutt River floodplain; the infrastructure assets that form the flood protection and erosion control scheme are a critical element of this.</p>
<p><i>Contribution to Annual Plan / Long term Plan / Other key strategies and policies</i></p> <p>The confirmation from the Subcommittee that the infrastructure assets in the Te Awa Kairangi/Hutt River, the Wainuiomata River, and Waiwhetu Stream have been satisfactorily maintained fulfils one of the Department's non-financial performance measures in the Long Term Plan. This report and confirmed minutes are supplied as evidence to Audit NZ that the Department has achieved this.</p>
<p><i>Internal Consultation</i></p> <p>There was no internal consultation.</p>
<p><i>Risks and impacts: legal / health and safety etc.</i></p> <p>The reports note that there are a small number of sections of Te Awa Kairangi/Hutt River and Wainuiomata River that pose either a 'Very High' or 'High' risk to the communities and businesses on the River's floodplain but that the infrastructure assets providing protection are in very good to moderate condition. These areas are also identified in for either a technical investigation or in an operational or improvement programme.</p>

Attachment 1 to Report No. 22.235

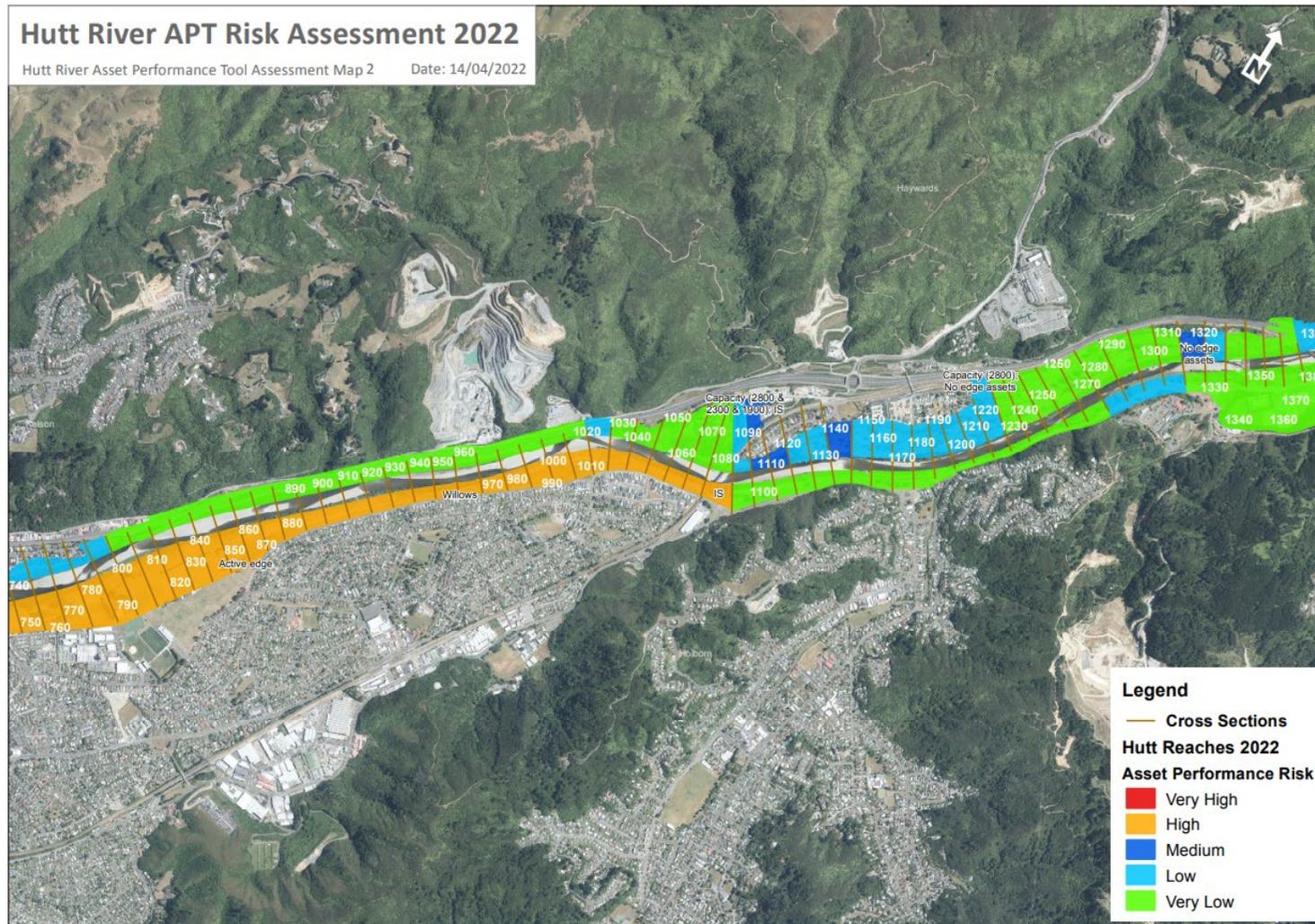
Attachment 1 – Detailed breakdown of condition by asset type

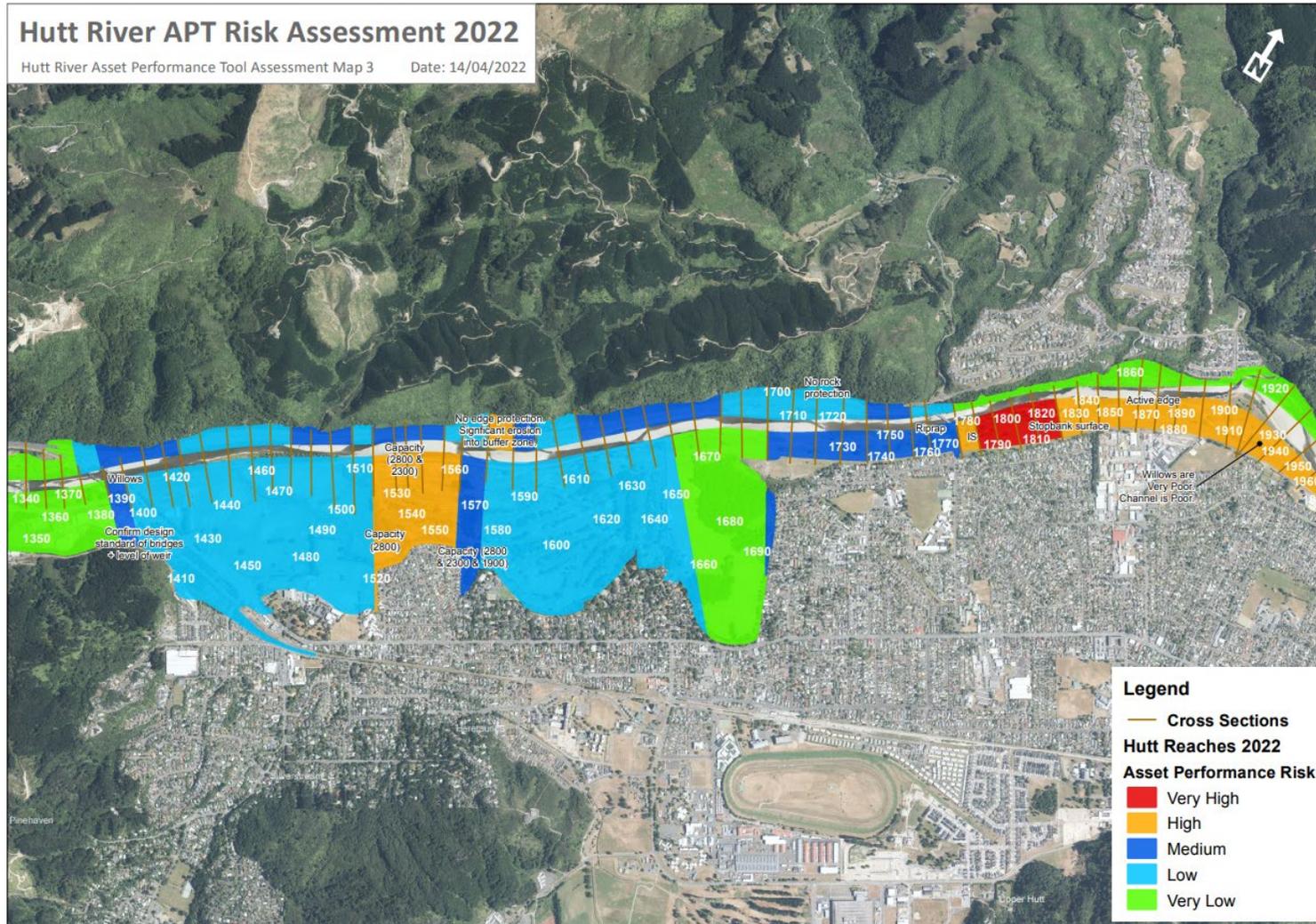
Asset Type	1 - Very Good	2 - Good	3 - Moderate	4 - Poor	5 - Very Poor	Total
BLOCKLINE	4	4		1		9
BRIDGE		1				1
BUILDING		1				1
CHANNEL	187	178	46	3		414
CULVERT		4	2			6
DEBRIS ARRESTOR		3	2		2	7
DEBRIS FENCE		19	19	11	4	53
DEMOLITION LINE		2	6	2		10
DRAIN	6	59	6	2		73
FENCE		2				2
FENCE RAIL IRON NET				1		1
FLOODGATE	6	11	1			18
FLOODWALL	9	17				26
GATE	7	46	5			58
GROYNE	5	38	21	12	6	82
HEADWALL		5	1			6
MANHOLE		1				1
NATIVE PLANTING	1	37	35			73
RETAINING WALL	1	2	2			5
RIPRAP	5	40	18	28	1	92
ROCK MATTRESS			1			1
SEAT	2	8	2			12
SIGN	1	8	2			11
STOPBANK	78	127	42	8		255
TRACK	65	202	57	14		338
TRAINING BANK	5	6		1		12
WILLOW	8	112	110	54	9	293
WINGWALL	2	2				4
Total	392	935	378	137	22	1864

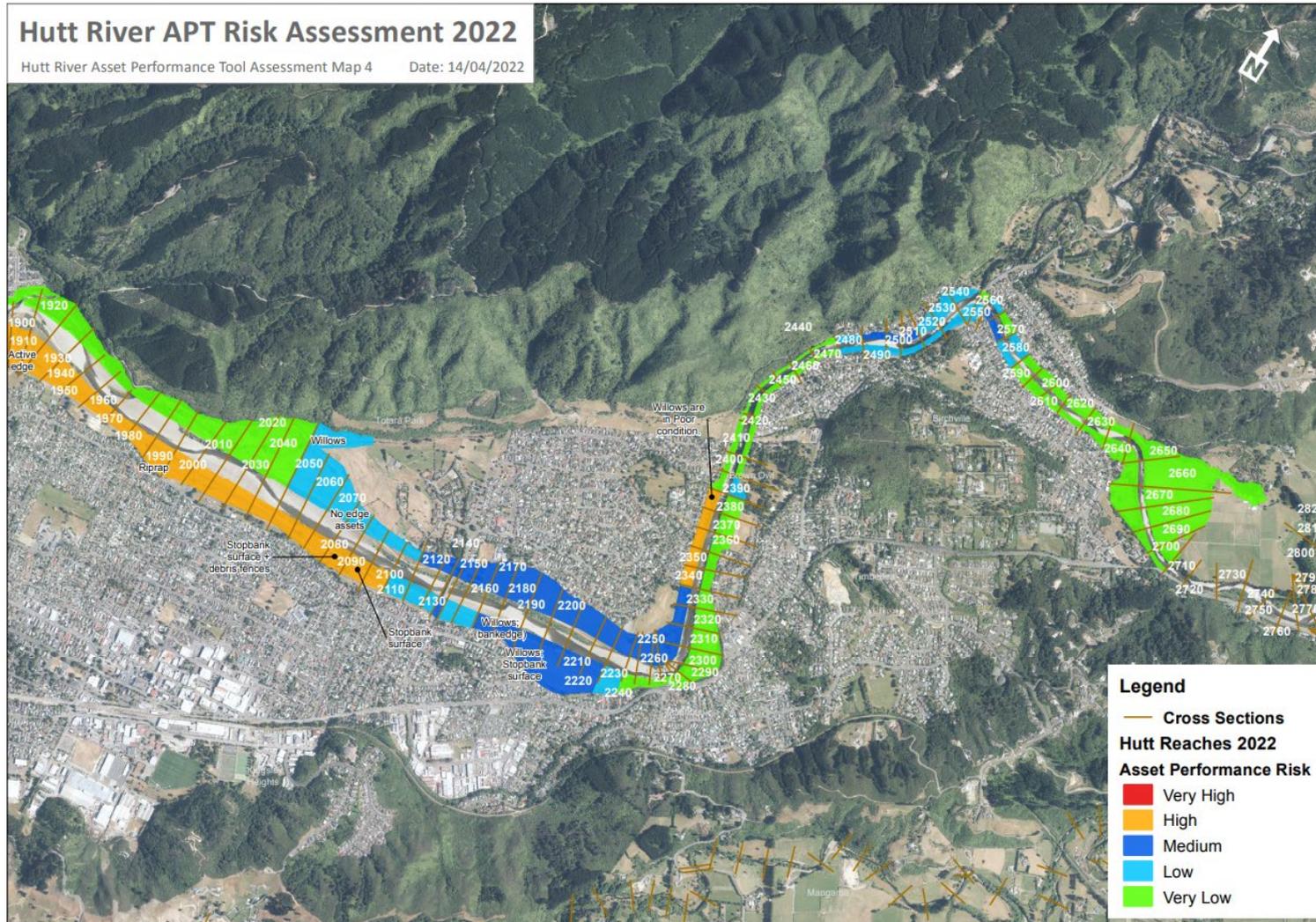
Attachment 2 – Te Awa Kairangi / Hutt River and Wainuiomata River risk assessment maps 2022



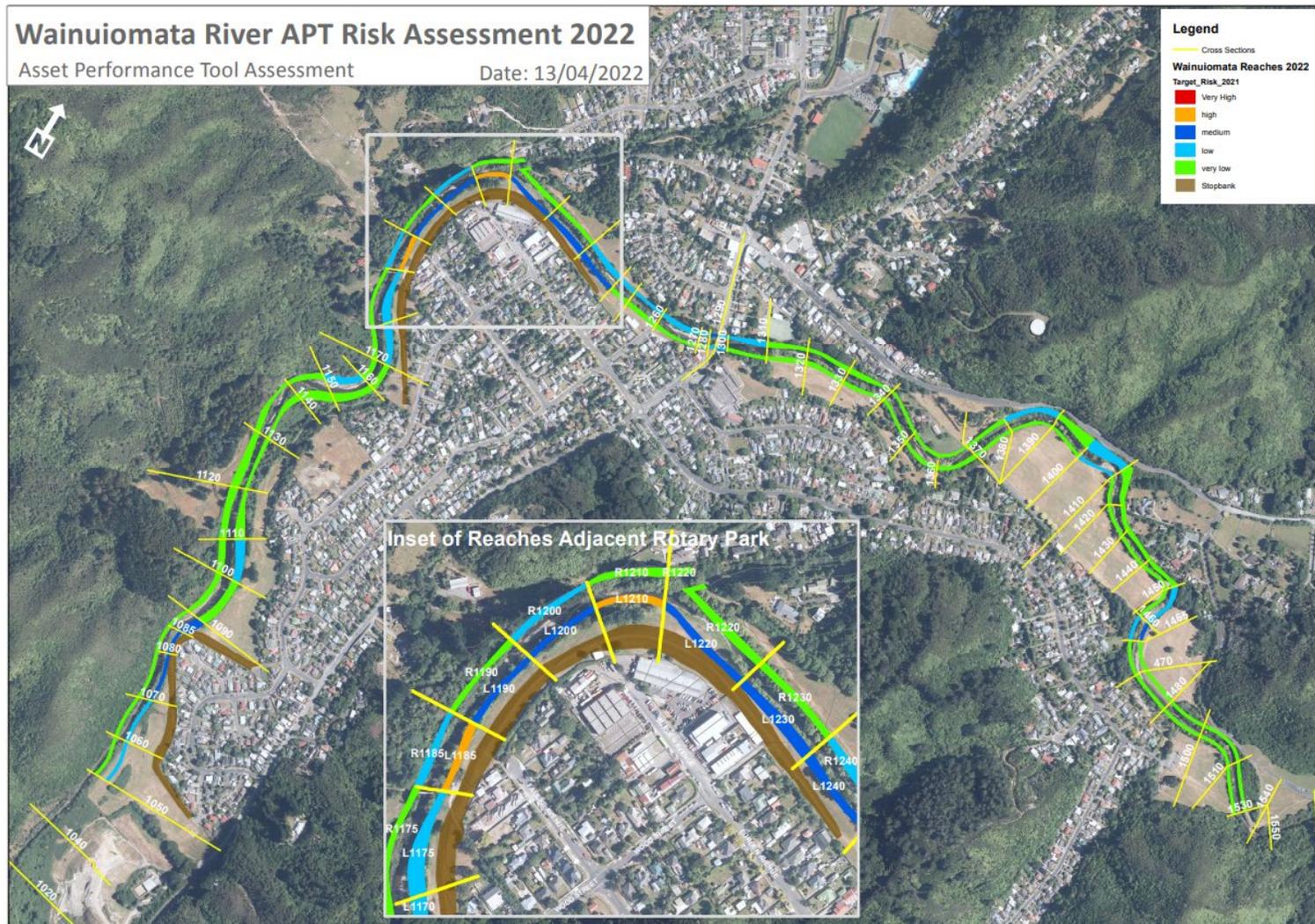
Attachment 2 to Report 22.235







Attachment 2 to Report 22.235



Hutt Valley Flood Management Subcommittee
9 August 2022
Report 22.337



For Decision

MOONSHINE STOPBANK CAPACITY ASSESSMENT

Te take mō te pūrongo

Purpose

1. To advise the Hutt Valley Flood Management Subcommittee (the Subcommittee) of the capacity investigation into the Moonshine stopbank in response to the 2021 asset performance assessments and presents the proposed action plan to address the matter.

He tūtohu

Recommendation

That the Subcommittee endorses the proposed Response Plan.

Te tāhū kōrero

Background

2. The Hutt Valley is one of New Zealand's most heavily populated flood plains where large stop banks aim to provide a 1 in 440 year (currently 2300 cumec flow) level of protection.
3. Annual asset performance assessments occur on all flood defence infrastructure across the region. The combination of visual asset condition, model capacity and consequence of failure is combined to provide a rating. The high and very high rated assets are then assessed in further detail to confirm the issue and subsequently determine improvements.



Figure 1 - Location Plan Moonshine

4. The 2021 Asset Assessments for Te Awakairangi/Hutt River identified a section of stop bank immediately upstream of the Moonshine bridge in Upper Hutt as being of concern. The location of this section of stop bank is shown in red in Figure 1 above.
5. This section of stop bank is situated between Moonshine Road and Whakatiki Street in Upper Hutt and provides protection to Trentham and the Moonshine area of Upper Hutt. Overtopping or breach in this location could inundate the residential areas behind it.

Te tātaritanga Analysis

6. Between January and June 2022, initial investigations to confirm the asset performance assessment outputs were conducted. The investigations have concluded that:
7. The model results indicate that:
 - a Under the 1 in 440 flood or the 2,300 m³ /s discharge scenario:
 - i The stop banks do not overtop.
 - ii The freeboard provided is below the 900mm design standard for Te Awakairangi/Hutt River stop banks.
 - b Under the 1 in 440 flood, when climate change impacts out to 2110 are applied, or the 2,800 m³ /s discharge scenario:
 - i The stop banks overtop.
 - ii The maximum depth of flow over the stop bank is approximately 600 mm.
 - iii A peak flow rate of approximately 120 m³/s across the stop bank is predicted, with no allowance for stop bank failure.
 - iv This does not include any blockage of the Moonshine Bridge. This will need to be assessed through further sensitivity testing.

8. These are shown below in figures 2 and 3 respectively.



Figure 2 – Peak water levels in the 1 in 440 or the 2,300 cumec event

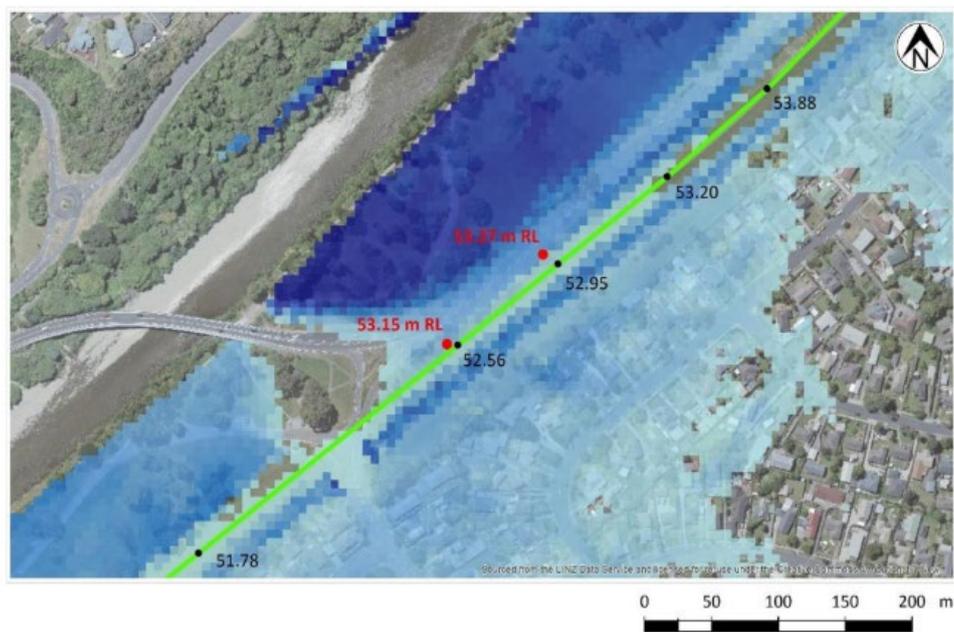


Figure 3 - Peak water levels in the 1 in 440 + CC or the 2,800 m3/s event

9. The investigation has identified that the stop bank is in good visual condition but below the desired design height of the 1 in 440 level plus a 900mm freeboard. The stop bank provides protection in events up to the 440-year return period event but only with a freeboard of 200mm
10. The Kanoa climate resilience programme has delivered recreational and landscape improvements to Poets Park. This area is immediately adjacent to the stop bank of concern. The impact of the improvements being progressed in this area have been

tested in the hydraulic model which has indicated that planting above Whakatiki Street has no impact on flood levels at the Moonshine stop bank.

Our Response

11. In response to the issue confirmed by the Investigation the following steps are proposed to be undertaken.

Short term	<ul style="list-style-type: none"> • Emergency Action Plan
Medium term	<ul style="list-style-type: none"> • Options Assessment • Prioritisation
Long term	<ul style="list-style-type: none"> • Implementation

Short term

12. The immediate actions proposed are:

- a *Emergency Action Plan* –Develop a short-term emergency plan should a flood event occur while the design crest level is below the required standard.
- b This action plan will include trigger actions for Greater Wellington, Upper Hutt City Council and Civil Defence Emergency Management and detail the actions to be undertaken should an over design flood be experienced. This may include identifying properties that would need to be evacuated in a major flood and additional monitoring of the Moonshine Bridge and stop bank during severe flood events.

Medium term

13. In the medium-term officers will:

- a *Options Assessment* –assess options that will address the below crest level issue. The preferred solution must:
 - i Provide the required freeboard and level of protection.
 - ii Be maintainable and implementable
 - iii Be adaptable for future climate change (e.g. future raising)

14. This assessment will consider options including the do nothing, do minimum, opportunities to give the river more room (if any) and options for providing the required standard of protection such as stop bank raising or modifications to the berm and bridge.

15. The options assessment will deliver an outline design of the preferred option, cost estimates and a proposed construction methodology sufficient to progress through to detailed design, consenting and construction.

16. Waka Kotahi will be engaged through this options analysis phase as they are a recognised major stakeholder both through design and construction. This is because the bridge is considered a restriction to the flood flow and Whakatiki Street and State Highway 2 will have to be modified.

17. *Prioritisation* – Once the preferred option and cost estimate has been developed the Moonshine stopbank works will be assessed against regional priorities and identify a

preferred timescale for implementation. It is recognised that the priority for the Hutt Catchment at this stage is the Riverlink programme as levels of protection there are only a 65 year return period with no freeboard.

Long term

- 18. After the completion of the analysis of options we will look to implement the preferred option.
- 19. *Implementation* - This is anticipated to be a complex civil engineering project that will cost in the order of \$10 to \$20 million minimum. The site is constrained by the development behind the stop bank, the Moonshine bridge and the State Highway so access for construction will be limited.

Indicative programme

- 20. The short-term actions will be completed by September 2022, with the options analysis completed in the 2022/23 financial year. Delivery of the preferred option, which at the earliest, dependent on funding, will take place from the 2023/24 financial year.

Indicative Costs

Phase	Activity	Indicative Cost	Comments
Short term	Emergency Action Plan	\$20,000	Trigger points, and in flood incident inspection regimes.
Medium term	Options Assessment	\$500,000	Consultant design package including hydraulic modelling, outline design, and budget cost estimating.
	Prioritisation	\$500,000	Evaluated on consequence and likelihood of failure will determine timeframes for long term action.
Long term	Implementation	\$10,000,000 to \$20,000,000	Detailed design, construction planning, consenting, construction and handover will be required. This cost is only indicative and will depend on the preferred option. If modifications to the Moonshine Bridge is required, then the cost could raise significantly.

Risks

- 21. **Complexity** – The stop bank is situated in a constrained site between the Longfellow Street properties and the State Highway. It is initially estimated that raising of approximately 1.5 million will be required which may impact road design and may require land-purchase. This will be a complex design and an equally challenging construction process.
- 22. **Interface with Waka Kotahi** – Waka Kotahi will be a key player in the design and construction of this project. They will need to be engaged early to identify any impact on roading and bridge structures. Recent experience through Riverlink has indicated that we will be able to apply the learnings from that project into this one.

Opportunities

23. **Poets Park Improvements** – There may be opportunities to deliver wider improvements to the Poets Park area as the stop bank design and construction progresses.
24. **Recreational Improvements** – There may be opportunities through the redesign of the stop bank and the junction of SH2 and Moonshine Road to improve cycling and pedestrian opportunities.

Ngā hua ahumoni

Financial implications

25. Funding is available to complete the short- and medium-term actions identified in this report.
26. Future funding will be required for the implementation of the preferred solution. This is currently forecast to be in the order of \$10 – 20 million. The variability in this cost estimate exists because of the technical complexity of implementing a solution at this constrained location and the interface with Waka Kotahi infrastructure. This will be considered in the forthcoming annual planning and Long Term Plan cycle.
27. Ongoing maintenance costs will be estimated during the design process and will be a factor in the multi-criteria analysis used to assess viable options.

Ngā Take e hāngai ana te iwi Māori

Implications for Māori

28. At this stage there are no known specific implications for Māori, beyond those that exist for all work in Te Awa Kairangi/Hutt River. We will involve Mana Whenua in the short and medium-term actions to further consider this matter.

Te huritao ki te huringa o te āhuarangi

Consideration of climate change

29. Climate change is a key consideration for any Flood Protection infrastructure. Adaptation for future changing climate scenarios will be considered during the design and optioneering process.
30. The matter requiring decision in this report was considered by officers in accordance with the process set out in Greater Wellington's *Climate Change Consideration Guide 2020*.

Ngā tikanga whakatau

Decision-making process

31. The matter requiring decision in this report was considered by officers against the decision-making requirements of Part 6 of the Local Government Act 2002.

**Te hiranga
Significance**

32. Officers considered the significance (as defined by Part 6 of the Local Government Act 2002) of this matter, taking into account Council's *Significance and Engagement Policy* and Greater Wellington's *Decision-making Guidelines*. Officers recommend that this matter is of low significance, as the provision of flood protection to the Hutt community is consistent with the floodplain management plan.

**Te whakatūtakitaki
Engagement**

33. Engagement has not been carried out on this matter to date. However, engagement with Waka Kotahi and Upper Hutt City Council will be required as the project progresses. Engagement with Civil Defence will be required on the creation of the Emergency Action Plan.

**Ngā tūāoma e whai ake nei
Next steps**

34. Following this Committee meeting if the approach is endorsed officers will proceed to develop the Emergency Action Plan and will commence the Options Assessment.

**Ngā kaiwaitohu
Signatories**

Writer	Andy Brown – Team Leader Investigations, Strategy & Planning.
Approvers	Graeme Campbell – Manager Flood Protection. Wayne O’Donnell – General Manager, Catchment Management Group

<p>He whakarāpopoto i ngā huritaonga Summary of considerations</p>
<p><i>Fit with Council's roles or with Committee's terms of reference</i></p> <p>This committee has the responsibilities to:</p> <ol style="list-style-type: none"> 1. Oversee the development and review of Flood Management Plans (FMPs) for the Te Awa Kairangi/Hutt River floodplain, for consideration by the Environment Committee. 2. Oversee the public involvement process during development or review of FMPs for the Te Awa Kairangi/Hutt River floodplain. 3. Review periodically the effectiveness of implementation and delivery of FMPs for the Te Awa Kairangi/Hutt River floodplain, and recommend any changes to the Environment Committee. <p>This issue relates to the ongoing effectiveness of the flood protection measures as described in the Hutt FMP.</p>
<p><i>Contribution to Annual Plan / Long Term Plan / Other key strategies and policies</i></p> <p>This investigation has been carried out in accordance with the Flood Protection Asset Management Plan.</p>
<p><i>Internal consultation</i></p> <p>This issue is being shared with Greater Wellington Leadership prior to the Subcommittee meeting.</p>
<p><i>Risks and impacts - legal / health and safety etc.</i></p> <p>The issue covered in this report concerns a below standard flood protection asset. The risks are as follows:</p> <ul style="list-style-type: none"> • Risk to life – An overtopping or breach could cause property damage and loss of life. • Risk to reputation – An event which caused widespread property damage or loss of life would have an adverse impact on our social licence to operate. • Legal compliance – we are legally mandated to maintain our assets to the agreed standard of service.

**Hutt Valley Flood Management Subcommittee
9 August 2022
Report 22.312**



For Information

RIVERLINK PROJECTION UPDATE

Te take mō te pūrongo

Purpose

1. To update the Hutt Valley Flood Management Subcommittee (the Subcommittee) on RiverLink and comment on the items raised in the Report of the Project Director - RiverLink ([Attachment 1](#)).

Te tāhū kōrero

Background

2. RiverLink is a partnership project between Greater Wellington Regional Council (Greater Wellington), Hutt City Council (HCC), Waka Kotahi NZ Transport Agency (Waka Kotahi), Ngāti Toa Rangitira and Taranaki Whānui.
3. Greater Wellington's interest in RiverLink relates to Greater Wellington's strategic priority of regional resilience and implementation of the Hutt River Floodplain Management Plan. The flood protection benefits derived from the project are Greater Wellington's focus. Greater Wellington's funding primarily relates to delivery of these project outcomes.
4. Greater Wellington's strategic priorities of freshwater quality and biodiversity, and multi-modal transport options are also supported by the successful completion of the RiverLink project.
5. Hutt City Council's objectives for RiverLink are that Te Awa Kairangi between Ewen Bridge and Kennedy Good Bridge becomes the centre piece of the city by:
 - a Turning our city around to face and embrace Te Awa Kairangi;
 - b Pedestrian/cycle bridge linking new Melling station to Lower Hutt City Centre;
 - c Revitalised open space alongside the river to provide various features for rest and play; and
 - d Engaging with the private sector to redevelop key sites along the river corridor for residential and leisure use.

Te tātaritanga Analysis

Highlighted items included in the Report of the Project Director - RiverLink

6. Report of the Project office Programme Director – RiverLink is included as **Attachment 1**.

Phase 1 Consenting and Hearing

Planning and Consenting Pathway

7. Project Partners are waiting for a decision from the court. It is expected in August 2022.

Phase 2- Procurement

8. 8A market update, about the status of the projects, was held in mid July 2022 with three consortia interested in constructing the project.
9. The commercial model update and the move to a Pure Alliance was presented to CEs from both HCC and Greater Wellington.
10. The Request for Proposal (RFP) is almost complete. The RFP, release to the market, will need to accommodate the New Zealand Upgrade Programme (NZUP) reporting timeframes. At this stage all projects across the NZUP programme are being sighted by Ministers in mid-late August 2022.
11. The Project Procedures Manual (PPM) update has commenced. This will need to be agreed by the partners after the PPA v2 is signed.

Greater Wellington

12. Greater Wellington has successfully purchased 114 properties of 129 properties, with three further purchases imminent.
13. Greater Wellington will come back to the Regional Council for approval/endorsement of the preferred consortia (Alliance Partner) at the end of the RFP stage of procurement, which is currently programmed for December 2022, and to enter the IPAA phase (design refinement and pricing by the consortia), proposed to start in February 2023.

Waka Kotahi

14. Further detail is provided in the attached RiverLink Project Director's report.

Hutt City Council

15. HCC have submitted a Request for Proposal to the Housing Infrastructure Acceleration Fund (IAF), administered by Kāinga Ora. HCC have requested IAF funding for wastewater and stormwater upgrades to enable housing development in the city centre and across the valley floor. HCC have been advised that they have been successful in progressing to the next stage of the process, negotiation.
16. HCC have identified opportunities for works which could be constructed in advance of the Project Alliance being formed and/or as early works by the Alliance.

17. A team has been formed to assist Waka Kotahi with providing a replacement skate park for the one lost at Melling due to the interchange works. The new skate park will likely be delivered separately from the Alliance as advanced works in 2023.

Te huritao ki te huringa o te āhuarangi

Consideration of climate change

18. The Greater Wellington components of the RiverLink Project are subject to Greater Wellington's initiatives designed to minimise greenhouse gas emissions and enhance sequestration capacity. We will work with our project partners to develop a joint procurement approach that supports Greater Wellington's mitigation objectives once we have entered that stage of the design process. The current basis of reference for this includes the Code of Practice for River Management (Te Awa Kairangi 2020). This guides all river management activities undertaken by Greater Wellington for the purposes of flood and erosion protection across the Wellington Region. The Greater Wellington corporate sustainability programme is Nga kōwhiringa.

Ngā hua ahumoni

Financial implications

19. Greater Wellington has, through its 2021-31 Long Term Plan and annual planning processes, committed funding of \$295 million to delivery of the flood protection benefits of RiverLink. The current forecasts for delivery of the flood protection benefits are being reviewed through the project processes.
20. Greater Wellington through the 2022/23 Annual plan has secured additional funding for RiverLink.
21. These budgets do not include allowances for improvements to facilities related to public transport associated with the relocation of Melling Train Station, as Waka Kotahi are responsible for its relocation.

Financial implications for Hutt City Council

22. HCC voted in favour of increasing its 2021-2031 Long Term Plan funding for RiverLink to \$136.5 million, with a net cost of \$93 million after revenue from subsidies and land sales. The new funding became accessible from 1 July 2021, with the majority of expenditure scheduled to occur over the next five years. The funding will allow HCC to deliver key RiverLink scheme components including a pedestrian cycle bridge, a riverbank park, city centre urban revitalisation, intersection improvements, strategic property purchases and parking areas.

Ngā Take e hāngai ana te iwi Māori
Implications for Māori

- 23. Ngāti Toa Rangitira and Taranaki Whānui ki Te Upoko o Te Ika are members of the RiverLink Project Management Board.
- 24. The Mana Whenua steering group established between Waka Kotahi and Ngāti Toa Rangitira and Taranaki Whānui ki Te Upoko o Te Ika to oversee Te Ara Tupua, Eastern Bays Pathway has been expanded to include RiverLink.

Ngā āpitihanga
Attachment

Number	Title
1	Report of the Project Director – RiverLink

Ngā kaiwaitohu
Signatories

Writers	Tracy Berghan – RiverLink Lead, Greater Wellington Tom Biggin – Project Manager- RiverLink, Hutt City Council
Approvers	Graeme Campbell – Manager, Flood Protection Wayne O’Donnell – General Manager, Catchment Management Group

<p>He whakarāpopoto i ngā huritaonga Summary of considerations</p>
<p><i>Fit with Council’s roles or Committee’s terms of reference</i></p> <p>The Subcommittee’s specific responsibilities include to “review periodically the effectiveness of implementation and delivery of floodplain management plans for the Te Awa Kairangi/Hutt River floodplain”, of which the RiverLink project is part of.</p>
<p><i>Contribution to Annual Plan / Long term Plan / Other key strategies and policies</i></p> <p>RiverLink contributes to the delivery of Greater Wellington’s strategic priorities of Regional Resilience, Freshwater Quality and Biodiversity, and Public Transport.</p>
<p><i>Internal consultation</i></p> <p>There was no internal consultation in preparing this report.</p>
<p><i>Risks and impacts: legal / health and safety etc.</i></p> <p>The programme leading to commencement of construction is currently impacted by the:</p> <ul style="list-style-type: none"> • Complexity of integrating Waka Kotahi into the consenting work stream, including agreeing a variation to contract and signing of the deed of accession to the project partner agreement; • Additional design work required for the Hutt City urban edge that forms the interface between Te Awa Kairangi/Hutt River and the city to enable commencement of the assessment of environmental effects work-streams.

Attachment 1 to Report 22.312

Report of the Project Director - RiverLink

Date: 9 August, 2022

RiverLink – Project Update Report

1. Purpose

This report builds on regular reports the Hutt Valley Flood Management Subcommittee (the Subcommittee) has received which provides an update on the RiverLink programme; it does not repeat, or duplicate information previously provided.

In June, the Subcommittee received a report which provided an update on the consenting and procurement workstreams. Mr David Allen, Buddle Findlay, (Riverlink’s Legal Counsel) provided a verbal update. The Subcommittee was also updated on the procurement workstream and the decision to pursue a pure alliance delivery model.

This report updates Members on the planning and consenting workstream, and Mr David Allen (Buddle Findlay), RiverLink’s Legal Counsel, will again kindly attend the Subcommittee to provide an update. Further information is provided on the procurement workstream, the funding allocation model, property matters, advanced works and communications.

This report should be read in conjunction with a covering report on the Subcommittee’s agenda, which provides an update on specific matters as they relate to Greater Wellington Regional Council and Hutt City Council.

COVID-19

COVID-19 business continuity plans continue to be implemented. A number of the project team have been impacted by COVID, and have had to take time off work to recover. The Project Director is monitoring the situation.

2. Background

Since 2020 Members have received reports which have provided a high-level overview of the RiverLink programme. The vision and strategic objectives have been outlined, as has the partnership approach and supporting governance structure. The partners have agreed to work collaboratively in an integrated, joined-up manner, the benefits of which were outlined in the February 2020 report. The partners work on the basis of achieving a “best for programme” outcome.

3. The consenting workstream

The planning and consenting workstream is progressing well and Members have received regular updates since October last year. Members are reminded that the direct referral consenting pathway has been pursued, and information has been provided on the number and nature of submissions, etc.

At the June meeting Mr David Allen summarised the proceedings of Environment Court which ran from 28 April – 5 May.

Attachment 1 to Report 22.312

Report of the Project Director - RiverLink

It is anticipated that an **interim decision** will be issued shortly. Whilst interim, it is anticipated that it will represent the final wording on approximately 80% of the consent. For the remaining 20% or so, the Court may request that:

- Some conditions/mitigation measures are revised;
- This will require further consultation with key parties, which may take up to 6 weeks;
- The Court will then take up to 12 weeks to issue its final decision.

Any party may appeal the interim and final decision, however, they can only appeal on points of law and this is believed to be a low risk

The Court's decision represents a significant milestone for the RiverLink programme.

Members are reminded that the plans and drawing submitted to the consenting authorities as part of the resource consents are **indicative only**. They are consenting plans and not detailed engineering plans. Detailed engineering plans and drawings will be prepared by the alliance, as the procurement and delivery progress progresses.

Members are reminded that addressing the concerns of submitters by, for example, widening the scope of the programme of works and agreeing to new/amended conditions do have **cost implications**. These costs have been included to inform the reference design and estimate revision.

4. Programme and procurement

The **key steps** between now and the anticipated start of the main works contract are:

August	(anticipated) Interim decision of Environment Court.
Early Sept	(tentative) Issue Request for Proposal (RFP)
September	Close of proposals
November	Preferred proponent identified. Commence Interim Project Alliance Agreement (IPAA)
February	Preferred proponents announced
April 2022	Main works commence.

Members are reminded that the Project Board and the Chief Executives have unanimously agreed that the best interests of the programme would be served by progressing with a **pure alliance** delivery model.

Attachment 1 to Report 22.312

Report of the Project Director - RiverLink

A programme of **advance/early works** are being developed by both Greater Wellington Regional Council and Hutt City Council – please see the accompanying report for details.

5. **Mana Whenua Steering Group**

The Mana Whenua Steering Group is a key contributor and is critical to the ongoing development of the procurement documents, overall programme and procurement milestones.

6. **Property**

The partners are working together on schedules to **coordinate all property matters**. The schedules summarise the status of all the property required by the programme of works and this in turn is aligned with the anticipated timeframe to ensure that all legal requirements regarding the required property portfolio have been achieved.

Details are not provided as they are commercially sensitive.

Of the outstanding properties required, whilst negotiations are continuing in good faith, the Project Board will need to consider the option of pursuing **compulsory acquisition**, should it be deemed necessary, in the best interest of the project. Some existing leases extend beyond the anticipated start date of the project and they will require specific management so as not to delay the implementation of the programme of works.

The project partners are very sensitive to the issues faced by **tenants** who are required to vacate their properties. Finding suitable alternative arrangements in a tight housing market is challenging.

Utility survey works are currently being completed and on-going engagement continues with the main **utility providers**. The realignment of the main trunk sewer is an issue which the project partners are addressing with associated cost implications.

7. **Budgets**

The Subcommittee has been informed of an ongoing cost revision exercise which is being continuously revised as the project progresses, and as the minimum requirements are agreed.

Members will be aware that due to primarily global macro-economic factors price escalation is a very real risk for all capital projects.

The partners are working together to address this challenge and mitigate and manage this significant challenge. A key consideration of the commercial model is the partner funding allocation and associated risks. The Project Board and

Attachment 1 to Report 22.312

Report of the Project Director - RiverLink

the Chief Executives are progressing this key workstream and an update will be provided at the Subcommittee meeting.

Both local authorities are applying separately for central government funding which is outlined in the accompanying report.

8. Communications and engagement

The Project Board continues to receive regular updates on the delivery of the communications and engagement strategies.

A communications strategy for phase 2 is being considered by the project partners as the project transitions from phase 1, consenting, to phase 2, post lodgement and procurement. As the programme of works is firmed up the emphasis will shift from “information/consultation” to “information/progress”.

The June community update has been circulated and a video of the geotechnical investigations has been shared on social media and the website.

RiverLink have set up an engagement pod in Andrews Ave in Lower Hutt – the community are invited to attend and find out how the project is progressing. The pod is open lunch times (12-2pm) Monday, Wednesdays, and Fridays (weather permitting). The project has recently leveraged off the “Sweet as chocolate challenge”, with people enjoying a hot chocolate whilst receiving an update on the programme.

Project partners have attended a meeting with the Southend Business Group, (20th July), which was well attended and addressed a number of queries from the group. The dialogue with the group is ongoing.

RiverLink has been working with local partners on a travel survey by circulating survey forms to local businesses.

Riverlink attended a “Pathways” event on 28 June, as a means of facilitating the transition from education to employment.

9. Other matters

Further **geo technical investigations** have been progressing to inform and update the reference design and cost estimates. Advance notice will be provided to affected property owners and information posters will be provided to keep the community abreast of progress.

The Subcommittee should remain confident that proposals which will be delivered are those as per the proposals plans which have been shared with the local community.

The Subcommittee has been advised that with such a large and complex programme of works that there will inevitably be **disruption** in and around Te

Attachment 1 to Report 22.312

Report of the Project Director - RiverLink

Awa Kairangi and in Hutt CBD. Roads, cycleways and pathways will be temporarily closed, traffic will be diverted and there will be noise, dust and vibration. Contractors will be required to minimise these disruptions and follow industry standards and apply best practice and implement an engagement plan to advise and inform the community of mitigation proposals.

9. Project governance

The **project partner agreement** (PPA) which covered phase 1 – the pre design and consenting phase, is in the process of being updated to ensure that an extant agreement is in place to cover phase 2 (a) which will keep the Riverlink partnership together, as the project transitions into the delivery phase.

The PPA sets out parties intent to enter into a **Memorandum of Understanding** (MOU) to govern relationship and funding of Phase 2B (construction).

The commercial model discussions are only taking place within the bounds of alignment in the PPA and the MOU is to be drafted to reflect the partnering principles and commitments. The MOU is intended to be entered into at about the same time as execution of the Project Alliance Agreement (PAA) as the final cost sharing model will be co-dependent on PAA costings.

The **Chief Executive's RiverLink Relationship Management** meetings are now held monthly, and they continue to be a forum to reinforce the collaborative nature of the project and solve issues collectively. This group meets with the Project board on an as and when basis, to maintain strategic alignment.

10. Conclusions

As Phase 1 (Planning and consenting) is nearing completion, the project is transitioning to the procurement and delivery phases. The Project Board remains focussed on the overall programme, budget and reference design with the partners remaining aligned and working collegiately.

Future reports will continue to keep the Subcommittee informed of progress.

**Hutt Valley Flood Management Subcommittee
9 August 2022
Report 22.236**



For Information

HUTT AND PINEHAVEN FLOODPLAIN MANAGEMENT PLAN IMPLEMENTATION ANNUAL REPORT TO JUNE 2022

Te take mō te pūrongo

Purpose

1. To advise the Hutt Valley Flood Management Subcommittee (the Subcommittee) of progress made to June 2022 in implementing the Hutt and Pinehaven Floodplain Management Plans.

Te tāhū kōrero

Background

Western Floodplain Management Plans – implementation

2. The scoping and planning of the Hutt River and Pinehaven Stream Floodplain Management Plans (FMPs) were completed in 2001 and 2016 respectively. The Plans recommend both structural, non-structural and environmental measures to reduce the flood risk to the respective floodplains with improvement to the environment. Greater Wellington Regional Council (Greater Wellington) has adopted a 40-year time frame to fully implement the Flood Management Plans (FMPs). Implementation of the FMPs commenced in 2001. This report updates the committee on the progress for implementing these plans.

Te Awa Kairangi/Hutt River Flood Management Plans (HRFMP)

3. Projects being completed within the managed extent of Te Awa Kairangi/Hutt River are outlined in the Hutt River Flood Management Plan (HRFMP) and Te Awa Kairangi/Hutt River Environmental Strategy.
4. An Environmental Strategy Action Plan update was completed in August 2018, superseding the 2001 version. The Action Plan component was included to clearly prioritise environmental and community outcomes.
5. Currently, the focus area for the HRFMP is delivery of RiverLink, the length of river between Kennedy Good Bridge and Ewen Bridge near to the Hutt City Central Business District. Three separate but interdependent projects comprising Flood Protection, Making Places, and Melling Transport Improvements have been combined into the RiverLink Project. The RiverLink project is a collaboration between Greater Wellington, Hutt City Council (HCC) and Waka Kotahi NZ Transport Agency (Waka Kotahi).

6. The project supports the Long Term Plan (LTP) priority outcome of Regional Resilience, and also supports, or has positioned itself, to be able to support delivery across several of Greater Wellington's other LTP priorities, Freshwater Quality and Biodiversity, and Public Transport.
7. The construction phase of this project is currently forecast for commencement in 2023. However, programme alignment with HCC and Waka Kotahi's New Zealand Upgrade Programme will determine the final construction programme.
8. The benefits in terms of flood damages saved are estimated at 35 percent of the total benefits the HRFMP will deliver. The benefits achieved on the basis of flood damages saved, against targets in the HRFMP, will be 66 percent when the flood protection upgrade and Melling Bridge replacement components of the RiverLink project are completed.

Pinehaven Stream Flood Management Plan

9. The Pinehaven Stream Flood Management Plan (PSFMP) was completed in 2016 with a range of structural and non-structural flood risk management measures proposed. These measures will guide the long-term management of the catchment. The implementation of the plan is being led by Upper Hutt City Council (UHCC). Wellington Water Limited has been appointed by UHCC to act as the agent to complete the physical work. Funding for the PSFMP has been established through a Memorandum of Understanding with a 50/50 allocation between Greater Wellington and UHCC being confirmed.

Summary of progress

Implementation progress

10. In the 2021-31 Long Term Plan, the resilient future community outcome for flood protection has the strategic priority of 'communities safeguarded from major flooding'. The level of service is to 'provide the standard of flood protection agreed with communities', with the performance measure 'major flood protection and control works are maintained, repaired and renewed to the key standards defined in the relevant documents'. Implementing the HRFMP helps achieve this strategic priority.
11. RiverLink also has a performance measure of 'Implement RiverLink in accordance with the approved preliminary design', with a target for 2021/22 of 'statutory approvals issued'.
12. Implementation of the FMP outcomes are measured as a percent of progress against the measures recommended in the FMP. Table 1 shows the FMP structural measures implemented as a percentage of progress of the recommendations within the respective FMP. The figures for the Hutt FMP are shown in more detail in the Hutt and Pinehaven FMP Implementation Annual Report 21/22 in [Attachment 1](#).
13. Pinehaven Stream % complete is based on expenditure against the estimated cost for the original scope of 12 stages of work (which is \$32.2 million).
14. Wellington Water estimate that with the reduced scope of work to fit the currently available budget we will achieve 60% of the total FMP structural improvements by June 2023 based on total expenditure of \$19.25 million.

Table 1: Implementation progress

FMP or Scheme	Actual % Complete to June 2021	Actual % Complete to June 2022
Hutt	41%	41%
Pinehaven	38%	47%

15. Table 2 outlines the financial summary of the implementation of the FMPs.

Table 2: Financial summary

FMP or Scheme	Original FMP Total 40 year estimate (\$M) - Adjusted for Inflation ¹	Expenditure to June 2022(\$M) ²	Total Budgeted to 2031 (\$M) ²	Total expenditure forecast to 2031 (\$M) ²
Te Awa Kairangi/Hutt	133.5	143.1	249.9	393.0
Pinehaven	6.0	6.6	5.0	11.6

Key deliverables 2021-2022

Te Awa Kairangi/Hutt River FMP

16. Table 3 outlines the progress on the key deliverables for the Hutt River FMP.

Table 3: Hutt River FMP key deliverables and other work

Item	Progress	Forecast
Strengthening our relationships with mana whenua partners through our implementation projects	RiverLink Project Management Board - Taranaki Whānui and Ngati Toa Rangitira membership.	Achieved
	For the Hutt River Erosion Site projects within the Climate Resilience Programme, contracts with a heavier emphasis on co-design partnership are in place with both Ngāti Toa and Taranaki Whānui. Working towards true partnership on projects is a monumental step in creating more	In Progress

¹ Hutt 1999 (estimate \$78.00 million), Pinehaven 2014 (estimate \$5 million).

² All figures have been indexed to 2020 dollar values using reserve bank CPI calculator (index value based on 30 June of year. No inflation included for year estimate originated. General CPI values have been used)

Item	Progress	Forecast
	meaningful and equal engagement with mana whenua.	
RiverLink – Consent and Initial Design Phase	Consent lodged and heard in the Environment court. We are awaiting a decision of the Court which is expected in August 2022.	Achieved
RiverLink – Greater Wellington property acquisition programme (willing buyer/willing seller approach) for project in alignment with property strategy. Now engaging the Public Works Act as appropriate.	112 out of 129 properties acquired (Greater Wellington responsibility) 116 out of 141 properties acquired (all project partners)	Achieved
Other work		
Summer Engagement Programme 21/22	The engagement programme connected RiverLink with the communities of Lower Hutt and showcased Te Awa Kairangi/Hutt River as a treasure at the heart of Lower Hutt. The programme was run Feb/Mar 2022 in the Riverbank Carpark (near the Market). It covered talking to the community about RiverLink – an opportunity to inform, educate, listen and discuss what’s important to people. The ‘Sound Bites’ programme also was run – local musicians playing in the container in the afternoon - so people could enjoy sitting by the river and listening to music. Engagement has continued in Andrews Ave in Lower Hutt: Monday, Wednesdays and Fridays 12-2pm (May to August).	Completed

Item	Progress	Forecast
<p>Hutt River Erosion Sites</p>	<p>During the COVID-19 alert levels lockdown periods, work was undertaken to obtain funding from Kānoa - the Regional Economic Development and Investment Unit for building resilient river communities.</p> <p>Greater Wellington was successful in obtaining funding from Kānoa for a total of \$10.752 million over two years with a further 45 percent contribution expected from Greater Wellington. This funding is being used to bring forward work on 15 projects on the Hutt River.</p> <p>For the Hutt River erosion sites specifically, designs are complete for all sites, construction is complete at 4 sites, works are underway at 1 site, and contract negotiations are underway for the remaining sites.</p> <p>Sustainable procurement is being applied to each project, ensuring deliverables for social well-being, social procurement, environmental responsibility, and community involvement and enhancement are all met in an effective and meaningful manner.</p>	<p>In progress</p>
<p>Pomare Bridge, Lower Hutt – Stopbank Repair</p>	<p>Work to repair a damaged stopbank took place from September 2021 to November 2021.</p>	<p>Completed</p>
<p>River Road (SH2), Upper Hutt – Erosion Protection Project</p>	<p>Construction along River Road (State Highway 2), directly across the awa from the Royal Wellington Golf Club, began in June 2022. For this mahi we're building three groynes to help maintain river alignment.</p> <p>Construction is expected to be completed in July 2022.</p>	<p>In progress at time of writing this report</p>

Item	Progress	Forecast
<p>Royal Wellington Golf Course (north), Upper Hutt – Erosion Protection Project</p>	<p>Across the river from the Royal Wellington Golf Club in Upper Hutt, 3 groynes were built along the riverbank to protect against bank erosion.</p> <p>Work at this site began in May 2022 and was finished in June 2022.</p>	<p>Completed</p>
<p>Stokes Valley, Lower Hutt – Weir Reconstruction and Fish Passage</p>	<p>A new, permanent rock weir will be constructed in the stream to replace the one that has failed.</p> <p>A fish passage will be incorporated into the design to improve fish migration in the area. This will include 2 ramps for the fish pass over the weir as well as resting pools.</p>	<p>In progress</p>
<p>Taitā Drive, Pomare, Lower Hutt – Erosion Protection Project</p>	<p>We have built a 185-metre-long rock wall along the riverbank and two 38-metre-long groynes.</p> <p>Work at this site began in January 2022 and was finished in March 2022.</p> <p>For an image of site works, see <i>Figure 1</i> below.</p>	<p>Completed</p>
<p>Royal Wellington Golf Course (south), Upper Hutt – Erosion Protection Project</p>	<p>River flooding caused by heavy rain washed out a riverside section of Hutt River Trail in July 2021.</p> <p>To help protect the riverbank from future erosion, this work included building a protective rock wall along the riverbank and rock groynes.</p> <p>320 metres of riverbank was rebuilt with around 5,500 tonnes of rock being used.</p> <p>Work at this site began in August 2021 and was finished ahead of schedule in December 2021.</p>	<p>Completed</p>

Item	Progress	Forecast
	For an image of site works, see <i>Figure 2</i> below.	
Awakairangi Park, Upper Hutt – Erosion Protection Project	<p>It is planned to remove obstructions that are in the river and carry out bed recontouring and bank planting.</p> <p>This mahi will help protect from continued erosion, which would cut into the recreational area of the popular Awakairangi Park</p> <p>This mahi is planned for winter 2022.</p>	In progress
Tōtara Park Horse Paddock, Upper Hutt – Erosion Protection Project	<p>Across the river from River Road (State Highway 2) in Upper Hutt, we’re planning to build 1 groyne along the riverbank to protect against bank erosion.</p> <p>We’ll also be planting willow trees to further protect against the erosion of the riverbank and planting native plants to increase biodiversity and community enjoyment.</p> <p>This mahi is planned for winter 2022.</p>	In progress
Port Road Erosion Protection	<p>Greater Wellington and HCC have worked together towards addressing erosion concerns of businesses and property owners in the Seaview area near Port Road, Lower Hutt. In the 2018/19 year, HCC completed temporary (10 year estimated life) repair work to a section of the erosion protection south of the Waiwhetu Stream mouth.</p> <p>Further protection along the bank from the mouth of the Waiwhetu Stream to Estuary Bridge, which is the responsibility of Greater Wellington, was forecast to commence in 2031, however Kānoa funding has enabled advancing this mahi. The detailed design is approved, and consent</p>	In progress

Item	Progress	Forecast
	<p>granted. The works are designed to protect against a 1% Annual Exceedance Probability (AEP) design event. Physical works are set to begin shortly, in winter 2022.</p>	
<p>Poets Park, Lower Hutt – Park Enhancement Project</p>	<p>Throughout the 2.5 kilometre stretch of Poets Park, Upper Hutt, we’re planning to re-design the park to increase recreational space (making it more pedestrian and cycle friendly) and bring back biodiversity.</p> <p>More than 40,000 native plants will be planted.</p> <p>A rongoā garden will be planted throughout the park, incorporating ~2,000 medicinal plants such as harakeke, kowhai, and manuka.</p> <p>Mahi on-site will start August 2022 and be completed December 2022.</p>	<p>In progress</p>
<p>Taitā Park, Lower Hutt – Park Enhancement Project</p>	<p>Throughout the 2 kilometre stretch of Taitā Park, Lower Hutt, we’re carrying out safety improvements, and enhancing the recreational and environmental values of the park by making it more pedestrian and cycle friendly and bringing back biodiversity.</p> <p>This will create an attractive, safe community space for relaxation and recreation.</p> <p>More than 7,000 native plants/trees will be planted.</p> <p>Some mahi on-site has taken place, and further works will start September 2022 and be completed by October 2022.</p>	<p>In progress</p>
<p>Manor Park, Lower Hutt - Walking and cycling path construction</p>	<p>Work to build a walking and cycling path through Manor Park's beautiful native bush is progressing well. Hutt City Council is managing this project.</p>	<p>In progress</p>

Item	Progress	Forecast
	<p>This work aims to encourage more people to use healthier, more environmentally friendly ways to get around – like walking and cycling – to support national emission reduction goals.</p> <p>Mahi on-site began in September 2021.</p> <p>For an image of site works, see <i>Figure 3</i> below.</p>	
<p>Hulls Creek, Upper Hutt – Pedestrian/cyclist Bridge Construction and Landscaping</p>	<p>A pedestrian/cyclist bridge will be constructed over Hulls Creek, as a part of the popular Hutt River Trail.</p> <p>A gravel path will be re-installed.</p> <p>Over 500 native plants will be planted and landscaping mahi completed.</p> <p>Mahi on-site is set to begin in August 2022 and be completed in October 2022.</p>	<p>In progress</p>
<p>Planting and Revegetation Guidelines for River Edges</p>	<p>“Integrating native planting and flood protection: an operational guide for Greater Wellington” is available on-line in the Greater Wellington documents library.</p>	<p>Completed</p>
<p>Future of the Te Awa Kairangi/Hutt River Corridor Environmental and Recreational Management Plan and Operations Manual</p>	<p>Sets out the framework within which all future recreational management of the river corridor will be carried out and provides detail to guide development and maintenance activities, for example, conventions for signage, furniture types to be used, bollards etc. This document is available on-line in the Greater Wellington documents library.</p>	<p>Completed</p>
<p>Flood Warning Improvements</p>	<p>Greater Wellington continues to work with the Wellington Region Emergency Management Office to improve flood response, warning and awareness across the Region. Greater Wellington has developed new Flood Response procedures and updated</p>	<p>In progress</p>

Item	Progress	Forecast
	catchment specific information. Training and exercises have also been carried out.	
Flood Monitoring Network improvements	Flood Protection has teamed up with Greater Wellington’s Environmental Science team to deliver a regional programme of improvements to the hydrometric flow gauging network. This network is critical for the provision of flood warnings and for the development of hydraulic models. This includes the key sites in the Te Awa Kairangi catchment.	In progress



Figure 1: Pomare/Taitā Drive Erosion Protection Mahi



Figure 2: Royal Wellington Golf Club (South) Erosion Protection - Completed Mahi



Figure 3: Manor Park Pedestrian and Cyclist Trail Construction - In progress Mahi

Pinehaven Stream Floodplain Management Plan

17. The objective of the planned Pinehaven Stormwater Improvements project is to improve flood level protection by increasing the capacity of the watercourse to achieve a 4% AEP flow capacity for the upgraded sections and to provide a 1% AEP level of protection for habitable floor levels.
18. The project is being delivered in three distinct sections:
 - a Upgrading culverts at Sunbrae Drive and Pinehaven Road (this is an Upper Hutt City Council roading renewal project)
 - b Enabling works – includes house removal and service relocation/upgrades
 - c Stream capacity and environmental improvement works – widening the stream, planting, bank stabilisation, retaining walls and earthworks (twelve stages)

19. The culvert upgrades and enabling works are complete. Funding for the full scope of works is now estimated by Wellington Water to cost \$32 million. The budget confirmed by Greater Wellington and UHCC for this project is \$19.25 million. There have been several rounds of value engineering undertaken to prioritise which works should be carried out within the remaining budget of approximately \$5.2 million from the agreed funding. The scope of stream capacity and environmental improvement works has been reduced from twelve stages to two stages to fit within the remaining budget. This work will be primarily construction of new rock walls, widening the stream bed and replacement of a pedestrian bridge within Willow Park.
20. There is the possibility that some additional funding may be made available by UHCC and Greater Wellington. This has not been confirmed and project planning is proceeding on the basis that the budget will not increase.
21. Progress on the key deliverables for the Pinehaven Stream Floodplain Management Plan is listed in Table 4. Figure 4 to Figure 8 show works carried out.

Table 4: Pinehaven FMP key deliverables

Item	Progress	Forecast
Upgrading culverts	Culvert upgrades at Sunbrae Drive and Pinehaven Road were installed with practical completion of the project achieved in January 2022.	Completed
Enabling works	Enabling works were completed alongside the culvert upgrades, with practical completion of the project achieved in January 2022.	Completed
Stream capacity and environmental improvement works	Consent was granted for the full scope of works. Construction on the agreed reduced scope of work is expected to take place starting January 2023.	Progressing – reduced scope



Figure 4 Pinehaven Culvert during construction (photo credit: UHCC)

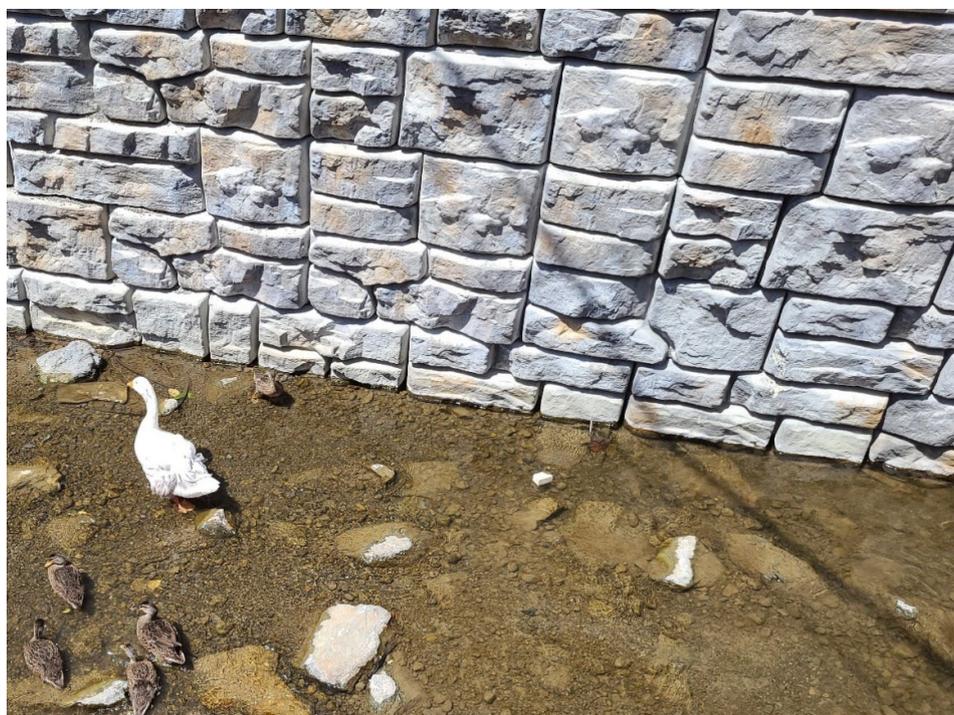


Figure 5 The Pinehaven Goose and some ducks enjoying the new Redi-Rock walls downstream of Pinehaven Culvert (photo credit: GHD)



Figure 6 Reinstatement planting at 48 Blue Mountains Rd where a house crossing the stream was removed



Figure 7 Redi-Rock walls and scour protection upstream of Sunbrae Culvert (photo credit: GHD)



Figure 8 Placement of stream bed material within Pinehaven Culvert using conveyors (photo credit: GHD)

Waiwhetū Stream

22. Greater Wellington has continued to work with HCC to support the activities of the Friends of Waiwhetū Stream. Friends of Waiwhetū Stream won the Environment Award at the Hutt City Volunteer Community Awards in 2021.
23. Greater Wellington has been working with HCC and Wellington Water Limited to complete the flood hazard modelling for the Waiwhetū Stream. Consultation on draft flood hazard maps was carried out in August 2021.

Long Term Plan Priorities

24. The following are priorities for the Long-Term Plan:
 - Construction of the RiverLink project.
 - Implement outcomes of the Hutt and Pinehaven Flood Management Plans.
 - Implement outcomes of the Hutt and Pinehaven Environmental Strategies and support community groups to enhance river environments.

Specific planned work for 2022/23

25. The following table includes key work planned for 2022/23. It is not a complete list of all work being carried out across the region and does not include work that may be required to address storm and flood damage.

River/FMP	Details
Te Awa Kairangi/Hutt River FMP	<ul style="list-style-type: none"> • Progress RiverLink property purchases and increase efforts with remaining owners • Appoint a contractor and commence construction • Community connection and project awareness for RiverLink • Maintain planting and monitoring of Belmont wetland. • Gauging and monitoring improvements • Complete CIP-funded work on Hutt River erosion sites and environmental projects.
Pinehaven Stream FMP	<ul style="list-style-type: none"> • Stream capacity and environmental improvement works (stages 9 and 10)
Other Related Matters	<ul style="list-style-type: none"> • Programme and project management process improvements • Integrated Catchment, Environment and Te Hunga Whiriwhiri outcomes support

Ngā hua ahumoni Financial implications

26. For this reporting period, projects are within the current flood protection budgets.
27. Kānoa projects require part funding from Greater Wellington. LTP funding has been brought forward to accommodate this work.

Ngā Take e hāngai ana te iwi Māori Implications for Māori

28. Ngāti Toa Rangitira and Taranaki Whānui ki Te Upoko o Te Ika are members of the RiverLink Board.
29. Cultural liaison or co-design contracts have been signed by Te Rūnanga o Toa Rangitira Inc., Rangitāne ō Wairarapa Inc., Ngati Kahungunu ki Wairarapa Charitable Trust and Port Nicholson Block Settlement Trust for enhanced involvement and collaboration on programme work for the Climate Resilience Projects.

Te huritao ki te huringa o te āhuarangi
Consideration of climate change

- 30. Each project within the catchment considers and responds to the predicted impacts of climate change when considering the appropriate response to the issue the project seeks to address.
- 31. This programme aligns with the 2015 Climate Change strategy, which states we will help the region adapt to climate change. The projects increase climate change adaptation and resilience to natural disasters in the region.
- 32. The greenhouse gas (GHG) emissions from rock supply vary depending on the quarry source of the rock and transport to the work sites. Quarry sources for projects vary. The emissions from rock supply production and transport are not presently part of the organisation’s GHG inventory.
- 33. The project will also use heavy machinery to carry out the work proposed in these projects. The emissions from these have not been estimated. However, in the 2018-2019 year, use of heavy machinery mainly for flood protection works at Greater Wellington represented 2% of the total organisational carbon footprint (835 tCO₂e).
- 34. Quarry selection is the single largest determinant of project emissions. While it seemed possible that quarry operations could be improved and cartage distances reduced to help lower emissions, there are few options to obtain rock of the required quality.
- 35. Targeted planting will be carried out to mitigate CO₂ emissions for the Kānoa - REDIU projects. The location and scope of this is currently being worked through.
- 36. Greater Wellington currently assesses options to address flood risk based on the predicted impacts of climate change over the next 100 years. Unless specified differently for specific projects, these values are an increase in rainfall intensity of twenty percent, and a sea level rise of 0.8 metres.

Ngā āpitihanga
Attachment

Number	Title
1	Hutt and Pinehaven FMP Implementation Annual Report 21/22

Ngā kaiwaitohu
Signatories

Writer	Sharyn Westlake – Team Leader, Floodplain Management Plan Implementation
Approvers	Graeme Campbell – Manager, Flood Protection Wayne O’Donnell – General Manager, Catchment Management

He whakarāpopoto i ngā huritaonga Summary of considerations
<p><i>Fit with Council’s roles or Committee’s terms of reference</i></p> <p>The Subcommittee’s specific responsibilities include “reviewing periodically the effectiveness of implementation and delivery of Floodplain Management Plans for the Te Awa Kairangi/Hutt River floodplain”.</p>
<p><i>Contribution to Annual Plan / Long term Plan / Other key strategies and policies</i></p> <p>The projects contained within this report deliver on Greater Wellington’s strategic priority area of te tū pakari a te rohe/regional resilience, and support delivery of Greater Wellington’s strategic priority area of te oranga o te wai māori me te rerenga rauropi/freshwater quality and biodiversity.</p>
<p><i>Internal consultation</i></p> <p>Specific projects consult with groups and departments across Greater Wellington where relevant to a project.</p>
<p><i>Risks and impacts: legal / health and safety etc.</i></p> <p>The purpose of implementation floodplain management plans is to reduce the risk to communities and improve the region’s resilience.</p>

Attachment 1 to Report 22.236

Updated 24 July 2022

TOTALS IMPLEMENTATION HUTT FMP										
WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	Target % at completion	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	0.00%	HRFMP (Page #)
					2000-2051	\$77.76	100.00%			41.12%

REACH 1 : River Mouth to Estuary Bridge

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	4.69%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	0.00%	HRFMP (Page #)
River Mouth Channel Works	1	6	after 2010	2032-2035	\$3.65	4.69%	Port Road rock work Waiwhetu Stream to Estuary Bridge in design	0	0.00%	52

REACH 2 : Estuary Bridge to Ava Rail Bridge

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	17.16%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	6.71%	HRFMP (Page #)
Shandon golf course (RB) stopbank	2	2	after 2010	Ava Woolen Mills [2028-2034]	\$1.72	2.21%			0.00%	54
Light rock protection works (Estuary to Ava rail bridge)	2	2	after 2010	Ava Woolen Mills [2028-2034]	\$0.43	0.55%	Partial Work	0.5	0.28%	54
Woolen mills (Estuary to Ava LB) stopbank	2	6	after 2010	Ava Woolen Mills [2028-2034]	\$3.99	5.13%			0.00%	54
Relocation and rock lining (Estuary to Ava LB)	2	6	after 2010	Ava Woolen Mills [2028-2034]	\$2.20	2.83%			0.30%	54
Ava rail bridge investigations	2	1	2000-2002	Alicetown Strand Project [2000-2010]	\$0.23	0.30%	Complete	1	0.30%	54
Ava rail bridge waterway improvements	2	1	2003-2008	Alicetown Strand Project [2000-2010]	\$4.77	6.13%	Complete	1	6.13%	54

REACH 3 : Ava Rail Bridge to Ewen Bridge

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	38.14%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	20.45%	HRFMP (Page #)
Strand park (Ava to Ewen RB) river realignment and land purchase	3	3	2000-2005	Alicetown Strand Project [2000-2010]	\$4.48	5.76%	Complete	1	5.76%	56
Strand park stopbank upgrade (Ava to Ewen LB)	3	1	2000-2010	Alicetown Strand Project [2000-2010]	\$2.64	3.40%	Complete	1	3.40%	56
Tama Street stopbank upgrade (Ava to Ewen RB)	3	3	2000-2010	Alicetown Strand Project [2000-2010]	\$2.48	3.19%	Complete	1	3.19%	56
Melling Bridge investigations	3	3	2001-2002	RiverLink [2015-2028]	\$0.06	0.08%	In Design		0.00%	56
Daly Street (Ewen to Melling RB) stopbank upgrade and land purchase	3	1	2008+	RiverLink [2015-2028]	\$4.61	5.93%	In Design + land	0.5	2.96%	56
Marsden Bend (RB) channel works	3	3	after 2010	RiverLink [2015-2028]	\$1.91	2.46%	In Design		0.00%	56
Pharazyn St (Ewen to Melling RB) stopbank	3	3	after 2010	RiverLink [2015-2028]	\$3.70	4.76%	In Design		0.00%	56
Riverside car park channel works (LB) and light protection works (Ewen to Melling LB)	3	1	after 2010	RiverLink [2015-2028]	\$1.78	2.29%	In Design		0.00%	56
Land for Melling Bridge Upgrade	3	14	after 2010	RiverLink [2015-2028]	\$8.00	10.29%	In Design + land	0.5	5.14%	56

REACH 4 : Melling Bridge to Kennedy Good Bridge

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	11.75%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	9.99%	HRFMP (Page #)
Melling to Kennedy Good Bridge channel works	4	1	after 2010	RiverLink [2015-2028]	\$1.11	1.43%	In Design		0.00%	58
Melling Bridge (RB) stopbank upgrade	4	3	after 2010	RiverLink [2015-2028]	\$0.26	0.33%	In Design		0.00%	58
Boulcott Golf Course (LB) stopbank upgrade and land compensation	4	1	after 2005	Boulcott [2010-2013]	\$5.44	7.00%	Complete	1	7.00%	58
Connolly Street (LB) stopbank and land purchase	4	1	after 2010	Boulcott [2010-2013]	\$2.33	3.00%	Complete	1	3.00%	58

REACH 5 : Kennedy Good Bridge to Pomare Rail Bridge

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	5.61%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	0.91%	HRFMP (Page #)
Kennedy Good Bridge to Pomare (LB) stopbank upgrade	5	4	after 2010	KGB Pomare [2037-2042]	\$0.86	1.11%			0.00%	60
Vegetation at Kennedy Good Bridge to Pomare rail bridge (LB/RB)	5	14	after 2010	KGB Pomare [2037-2042]	\$1.63	2.10%			0.00%	60
House Raising at Belmont to 1900	5	8	after 2010	KGB Pomare [2037-2042]	\$0.45	0.58%			0.00%	60
Rock protection at Belmont, Nash St. and Pomare Rail Bridge (LB/RB)	5	4	after 2010	KGB Pomare [2037-2042]	\$1.42	1.83%	Partial Work	0.5	0.91%	60

REACH 6 : Pomare Rail Bridge to Silverstream Bridge

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	2.98%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	0.00%	HRFMP (Page #)
Pomare rail bridge to Silverstream Bridge channel works (LB/RB)	6	13	after 2010	Manor Park Pomare [2041-2051]	\$1.34	1.72%			0.00%	62
Manor Park stopbanks to 2300	6	13	after 2010	Manor Park Pomare [2041-2051]	\$0.98	1.26%			0.00%	62

REACH 7 : Silverstream Bridges to Moonshine Bridge

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	5.85%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	0.60%	HRFMP (Page #)
Moonshine Bridge investigations	7	10	2001-2002	Trentham to Whakatikei [2032-2036]	\$0.06	0.08%			0.00%	64
Moonshine bridge waterway upgrade	7	10	after 2010	Trentham to Whakatikei [2032-2036]	\$3.31	4.26%			0.00%	64
Whirinaki Crescent stopbank to 2300	7	5	2004-2006	Trentham to Whakatikei [2032-2036]	\$0.47	0.60%	Complete	1	0.60%	64
Trentham to Whakatikei stopbank (part)	7	8	after 2010	Trentham to Whakatikei [2032-2036]	\$0.71	0.91%			0.00%	64

REACH 8 : Moonshine Bridge to Whakatikei River

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	2.89%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	0.00%	HRFMP (Page #)
Trentham to Whakatikei (LB) stopbank (part)	8	8	after 2010	Trentham to Whakatikei [2032-2036]	\$2.00	2.57%			0.00%	66
Moonshine to Maoribank (LB) channel works (part)	8	10	after 2010	Trentham to Whakatikei [2032-2036]	\$0.25	0.32%			0.00%	66

REACH 9 : Whakatikei River to Norbert St. Footbridge

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	8.31%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	0.00%	HRFMP (Page #)
Totara park stopbanks to 2300	9	10	after 2010	NOT IN AMP	\$1.42	1.83%			0.00%	68
Elbow park channel upgrade	9	10	after 2010	NOT IN AMP	\$1.41	1.81%			0.00%	68
Whakatikei to Maoribank (LB) stopbank	9	10	after 2010	NOT IN AMP	\$0.28	0.36%			0.00%	68
Moonshine to Maoribank channel works (part)	9	10	after 2010	NOT IN AMP	\$3.35	4.31%			0.00%	68

REACH 10 : Norbert St. Footbridge to Gemstone Drive

WORK REQUIREMENT	REACH	PRIORITY	DATE 2001 FMP	DATE AMP	COST \$M 2001 FMP	2.61%	STAGE	% Complete (0 = not complete, 0.5 Part complete, 1 = complete)	2.45%	HRFMP (Page #)
Norbert Street footbridge to Akatarawa Channel works	10	14	2004-2005	2037-2042	\$0.34	0.44%	Complete	1	0.44%	70
Akatarawa Road (LB) floodwall at 1900	10	12	2004-2005	2037-2042	\$0.72	0.93%	Complete	1	0.93%	70
Gemstone Drive channel works to 1900	10	12	2005-2006	2037-2042	\$0.64	0.82%	Complete	1	0.82%	70
Gemstone Drive (LB) stopbank to 1900	10	12	2005-2006	2037-2042	\$0.15	0.19%	Complete	1	0.19%	70
Bridge Road House Raising to 1900	10	7	2003-2007	NOT IN AMP	\$0.18	0.23%	Partial Work	0.3	0.07%	70