

Te Kāuru Upper Ruamahanga Floodplain Management Plan

Options for flood risk management (Option Combinations Report)

TE KĀURU

Issues

Flooding and erosion issues identified within the catchment are documented in a separate report. This report is available online and in printed format.

Link to online issues report:

GWRC file reference: [FMPL-4-37](#)

Vision

A connected, resilient, prosperous and sustainable community, proud of its rivers, that is involved in managing flood risks in a manner that recognises local identity and protects, enhances or restores natural and cultural value.

Aims

1. To work together to develop a sustainable floodplain management plan

- Provide affordable flood hazard management across a whole continuum of flood risk
- Align with integrated catchment management principles
- Follow the principles set out in the flood protection code of practice
- Endeavour to make future development and land-use compatible with flood risk

2. To support sustainable economic development

- Inform the long term plans of local authorities
- Reduce the likelihood of loss to private property, business and agriculture
- Make property owners aware of their flood risks and damage potential
- Manage or reduce the risk to essential public infrastructure and maintain lifelines during flood events.

3. To protect and improve the cultural values of rivers

- Improve the recognition of impacts of flood and flood hazard management on cultural activities and values
- Improve the mauri of water ways within the catchment
- Improve access for mahinga kai and cultural practices
- Recognise and consider the interconnectedness of natural systems

4. To recognise local community needs and build resilient communities

- Make communities aware of their flood and erosion risk
- Recognise opportunities to support the sustainable aspirations of the community and landowners
 - Identify and support opportunities for improved public access to and along rivers
- Maintain and improve the level of safety for recreation users of the rivers

5. To protect and enhance our natural spaces

- Improve awareness and understanding of the natural values and character of the river environment
 - Improve recognition of impacts of flood and flood hazard management on environmental and ecological values
- Create more space for rivers and their natural processes
- Improve the water quality and habitat diversity along the rivers
- Make the use or extraction of natural resources including gravel management sustainable and compliant with relevant policies

Development of the option combination

The option combination presented in this report commenced development in February 2015. The process of development considers a broad range of information. This information falls into two main categories, values and issues.

The options have undergone a continual improvement process, making use of a Multi Criteria Analysis type tool to assist with identification of where an option can be improved when measured against Floodplain Management Plan Aims. This tool has been used by the subcommittee guiding the development of the floodplain management plan, and also the wider community.

Option Types

Options are typically described as structural or non-structural approaches, each covering a broad range of option types within each category. However these categories are too general when describing how an aim or issue will be responded to. Therefore the following categories have been developed based on who will be the implementers and roughly what

method of risk management approach each undertakes (Avoid, Prevent, Manage, Accept).

Policy or planning response (avoidance)

- district plan rule or regulation
- regional policy

Major project response (control)

- Stopbank upgrade or replacement
- Work in excess of \$30,000 to \$50,000
- Works that would have a significant impact on values

Maintenance or minor project response (management)

- Routine works that have costs below \$30,000 to \$50,000
- Works likely to have low impact on river values (either cumulative or one off)
- Management targets and trigger levels

Community or emergency management response (acceptance)

- Education and awareness raising responses
- Warning systems and civil defence planning
- Temporary works to prevent damage or loss of life

Code of Practice Notes

These notes are provided to give guidance to restrictions that may be imposed by the code of practice in relation to certain values within a reach or specific sites of value.

The Flood Protection Code of Practice defines tools and methods for delivery of flood protection outcomes, considered at a regional scale. While consideration of individual catchments has fed into the development of the code of practice it does not intend to determine the best method or tool to use at a catchment, river or reach scale.

Determination of appropriate methods at a catchment, river or reach scale is established within each floodplain management plan or scheme. The floodplain management plan recommends methods that should be avoided in certain locations or during certain conditions or time periods.

The decision to make use of a certain method or tool is made by the area engineer or supervisor.

TEMPLATE

Reach name

Overview

Used to describe in general terms the approach being taken in the reach and the reach priorities. Format is descriptive

Major Project Response

Identification of any projects that will be considered major works in the reach. GWRC has not classified what major works are, however for the purposes of this project they are generally assumed to cost in excess of \$30,000 and intended to be a permanent fix to a problem.

Policy Response

Identification of a method used to tackle an issue through a planning response. Implemented primarily through regional or district plan controls. Generally will apply at a catchment and district level rather than on a reach by reach level.

Operational Response

Identification of specific issues that require ongoing monitoring and maintenance. As well as any management of assets left as a legacy of major projects. Many aspects of this apply at a catchment level. These works will generally have a cost lower than \$30k - \$50k and be non-permanent in nature.

Community Response

Identification of responses that need to be led by the community or community agencies. This includes WREMO responses, as well as environmental and amenity initiatives.

Code of Practice Notes

Notes included to assist people working within the reach delivering on any responses to align with the code of practice requirements. The level of information required is not yet clear from the Code and this section will need to be adjusted in response to the code requirements.

Western Rivers

Common tools

The following responses aim to address the issues, vision and aims. The following tools are recommended by the Floodplain Management Plan and are common to the Waingawa, Waipoua and Ruamahanga Rivers along their length.

River Edge Envelopes

Implementer: GWRC Flood Protection Operations

Priority: High

Timing: Year 1 of implementation

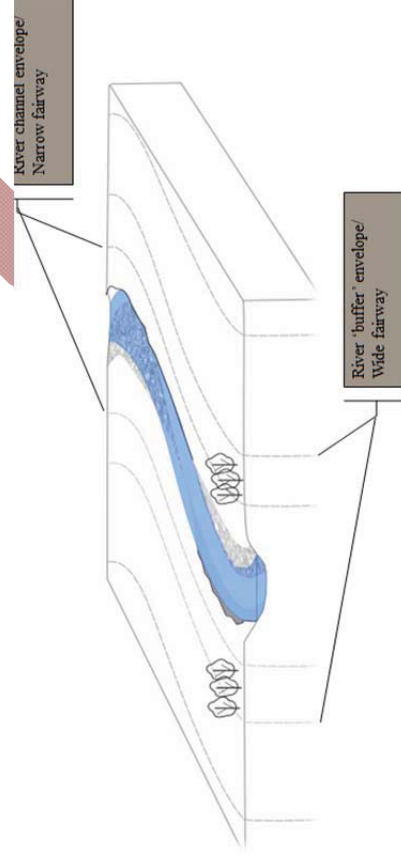
Cost: \$50,000

Redraw design fairway and buffer strip to reflect the erosion potential of the rivers.

Identify historic channel extents and include as a line on design fairway maps. Use to highlight risk from very large flood events that may cause channel shift.

Promote within community the acceptance of land loss to erosion for managed reaches to recharge gravel within system.

Recognise the value of the buffer strips as a management tool and establish annualised rates rebate approach to maintain awareness and acceptance within community.



River Bed Envelope

Implementer: GWRC Flood Protection Operations

Priority:

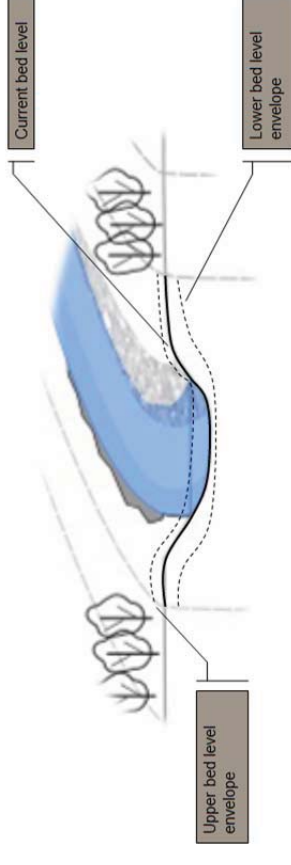
Timing:

Cost:

Levels of gravel beds within rivers naturally fluctuate over time in response to both natural and river management influenced events.

Establishment of bed level envelopes that set upper and lower limits for bed levels at cross section intervals will assist with guidance of appropriate management of the beds and will influence the rates of erosion occurring to the river banks.

The river system needs to be allowed to recharge its gravel by taking this from the banks when upstream supply is limited. Maintaining a balanced approach to gravel impacts that recognises and allows for natural process provides for a more sustainable management, however this will require a change in method away from using increasingly hardened edge protection in rural areas.



The use of bed envelopes will include the setting conditions for the upper and lower envelope. These controls in first instance will set a stop type action on extraction and bed ripping for the lower envelope, with consideration given to upstream ripping and bank softening to aid recharge, and the alternate to this for the upper envelope.

Monitor > Stop > Alert > Investigate

Recognition of buffers as a river management tool

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

This tool supports the River Edge Envelopes and River Bed Envelope tools.

Pool, Riffle, Run Envelope

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

A pool, riffle and run count is a proven method for ensuring habitat and river form diversity is maintained within a managed river system. Within a highly managed or stable river it is practical to set an exact number of pools, riffles and runs. In a less intensively managed or less stable river this is more challenging.

The reaches of the Western Gravel bed rivers will have a pool, riffle and run count assigned, with a defined upper and lower acceptable limit forming an 'envelope'. This envelope will be used by river managers to assess the form of the river before and after any maintenance works are carried out to encourage formation or retention of habitat and river form diversity.

This method will not require intervention in the river system to modify natural changes to the pool, riffle and run count which may occur during flood events. Use of the pool riffle and run count will only be required in response to work carried out to meet a flood risk management need.

Reporting of this method will be through annual reports to the management committee. These reports will include details of adjustments to pool, riffle and run counts measured immediately after any works have been completed.

In-water operations should be carried out on the presumption that a % (arbitrarily 5-10%) of the cost will cover any restorative measures necessary to leave a worked stretch of river with a degree of flow and depth diversity as appropriate to the overall river reach within which the work is carried out. (Suggest that training will be required for Operational staff/Staff in general – to reaffirm or upskill knowledge and understanding).

The use of planted willow buffers for river and erosion management has been a practice in development for more than 30 years. It is a proven technique to provide certainty to landowners about erosion extents from frequent flooding, and is an accepted practice. The willows operate to increase resistance to erosion along a bank edge without preventing erosion occurring altogether. In effect it slows the erosion process, meaning less area of land will be eroded if planted with willows that when compared to bare, unplanted land. The willow roots serve to bind the river bank material together.

The use of willows is reliant on them and the land they are planted on being available to erode, meaning that this land is sacrificial for the purposes of limiting erosion damage, and a buffer zone planted with willows may 'vanish' at any time, eroded by a flood event. This is their purpose and what they have been designed for. At times these buffers naturally refill with gravel and are replanted as the river meanders transition downstream, and at other times these buffers are artificially reconstructed by machine work and replanted.

Much of the land on which these planted buffers exist are on privately owned property, and there has been mixed success in establishment of planted buffers. These buffers are seen as an expectation of the scheme, and are not recognised economically within the schemes for their value to managing river erosion.

It is recommended that the area denoted as a buffer is recognised as a scheme contribution and a rebate dollar figure is assigned to it which can be offset against the rating cost on the landowner for the management of the rivers.

Historic Channel Lines

Implementer: GWRC Flood Protection Advisory

Priority:

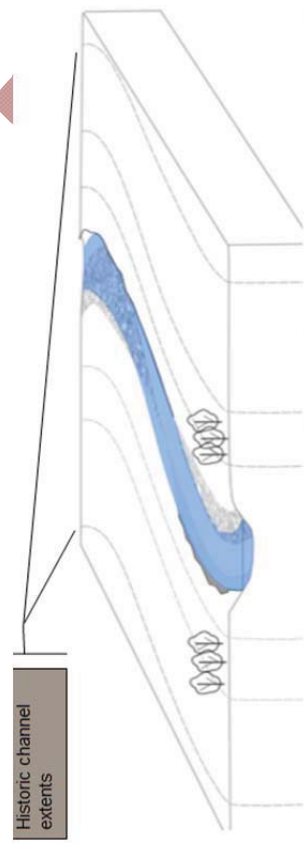
Timing:

Cost:

The river system has meandered widely across the Wairarapa plains. Some of these historic channels are clearly visible due to locations of old river terraces visible in the landform (ie the hillside behind Oxford St in Masterton). In other cases these historic channels have been infilled to improve or change the land use in that area. During large flood events, these areas of infilled or old channels are often reoccupied by rivers, and may become areas of higher hazard or subject to greater erosion impacts.

The identification of photographed and observed historic channel extents on plans within the FMP, and on the scheme managers plans will raise

awareness of historic landform to enable informed decision making by property and asset owners when siting infrastructure.



These historic channel lines would be used in an information only approach, and aim to capture those assets of a farm or business that would not be controlled under district plan rules for avoidance of hazard. This is intended to include rotary irrigators, cattle shelters, some farm outbuildings and other utility type structures. It may also help with siting of roads or other infrastructure.

Isolated works fund

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

To address works outside of scheme area or outside of scheme function (ie if a scheme is only set up for flood capacity issues isolated works fund could be used to address a specific isolated erosion issue), establish fund for each river that can be used by landowners to carry out small scale erosion management works. 30% cost paid by Regional fund.

Community Preparedness

Implementer: WREMO

Priority:

Timing:

Cost:

Provide WREMO with address list for properties affected by 1-in-100 year flood risk with intent that community preparedness message is delivered to these property owners and occupants. Properties that are vulnerable to more frequent floods will be highlighted.

Map of vulnerable access routes or lifelines and scale of event that will cause these lifelines to be cut.

Land use controls

Implementer: District Councils

Priority:

Timing:

Cost:

District Plan amendments to update recommended land use controls based on updated flood and erosion information. Include overlays and zones that capture provisions of (or similar to);

- River Corridor
- Overflow Path
- Inundation area (ponding)
- Shallow Overland Flow
- Residual ponding and overflow

Flood Forecasting and Warning System

Implementer: GWRC Flood Protection Environmental Science

Priority:

Timing:

Cost:

A project to review the GWRC flood warning system started in January 2016. This project will consult stakeholders (including existing river scheme members/landowners and agencies representing the wider community) to determine appropriate levels of service for flood warning.

A parallel technical review is underway to review the network of rain and flow gauges that currently provide flood warning alerts.

The outcomes of these two reviews will be agreed levels of service and recommendations to achieve them. As an example, some potential areas that have already been identified for investigation/improvement are:

- Use of automated technology to replace telephone dialling trees
- Providing the means for warning recipients to manage their own subscriptions to alerts (so that details are kept up to date)
- Additional or relocated gauges to provide greater warning time (especially on the upper reaches of rivers)
- Purchasing advanced weather forecasting and/or supporting improved forecasting through financial contributions (eg contributing to a new weather radar site)

- Improved reliability and redundancy of communications for critical warning sites
- Additional resourcing to carry out more river gaugings to improve the accuracy of flow estimates
- Opportunities to expand or develop the flood forecasting system to give advance warning of flooding
- Developing ways to monitor river flow gauges for landslide dam formation, especially during heavy rainfall events.

Emergency Management Planning

Implementer: WREMO with support from GWRC Flood Protection

Priority:

Timing:

Cost:

WREMO carries out emergency planning for floods and other events. GWRC Flood Protection will support WREMO with technical advice and detailed mapping tailored to emergency management uses.

Code of Practice

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

Use methods identified in code of practice to manage impacts on values within the catchment. Follow guidance provided at a reach specific level relating to further considerations specific to that reach.

Designations

Implementer: District Councils

Priority:

Timing:

Cost:

Designation of flood protection assets and permanent maintenance access points within district plan

Plan of designations is included in appendix.

Rural Stopbanks Policy

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

The stopbanks in rural areas have a variety of service levels. Definition of these service levels for each stopbank to categorise them in terms of service level and criticality to enable management priority decision making.

Mixed Vegetative Plantings

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

In New Zealand, vegetation has, and still does, play a major role in the stabilisation and rehabilitation of eroded lands and in stream and river control works. By combining vegetative controls with river engineering principles, the energy of the flowing water can be absorbed, and/or redirected, so that erosion of the river banks and channels is less likely to occur.

The advantages of vegetated buffers include:

- Reduced lateral erosion.
- Improved meander alignment and reduced channel distortions.
- Cover and habitat for wildlife.
- Reduced bank erosion and sedimentation.
- Natural filter of debris and sediment runoff.

River management in the Wairarapa relies heavily on willow planting to maintain stable bank edges. Willows are fast growing, have branch growth which reduces flood velocities on berms and dense root mass which binds the bank-edge soils. Planting is generally undertaken by willow poles being placed in furrows in the ground. Locations for planting are carefully chosen, with consideration given to the surrounding environment.

A transition from a monoculture exotic planting approach towards a mixed native/exotic planting buffer approach is occurring both regionally and nationally. Depending on the location, this could involve using willows for front-line defences and using natives further away from the active channel or under planting natives into willow stands until they are

mature enough to remove what remains of the willow stands where practicable.

Including a range of suitable native plant species provides the added benefit of improving biodiversity, enhancing visual amenity, improving water quality and further stabilising stream and river beds. There is also a growing realisation of the long-term risk of pests and disease when using only willows for river bank plantings. Mixed planting can reduce this vulnerability.

GWRC has established good working relationships with landowners who are part of river management schemes, but could explore opportunities to broaden the involvement of these groups and those landowners outside of these groups who have an interest in river management.

Initiatives to plant and maintain mixed vegetative buffers should be led by the community, with the assistance of the GWRC Community Support Officer. Operational support and 'heavy lifting' will be provided by GWRC Operations.

Long term retirement plan for crack willow

Alternate land uses within planted buffers

Implementer: Landowners

Priority:

Timing: In place and ongoing

Cost:

Planted buffers in most instances currently serve only a single purpose of making land available for erosion control and protection. There have been some alternate land uses trialled to recognise potential alternate revenue streams from these parcels of land that are not available for the adjacent rural land use (usually cropping, dairy or sheep and beef). These additional revenue streams include beekeeping, and growth of willows as a fodder crop.

Through the community support officer tool, advice and support will be made available to landowners who wish to explore additional revenue opportunities from the planted buffers.

Land lease for public recreation, access and flood protection and erosion control purposes

Public Ownership of River Margins

Implementer: Regional Council/District Council

Priority:

Timing: Generational

Cost:

Public ownership of river margins provides the most certainty for river management purposes. There is a perception among private landowners that public ownership of river margin areas would lead to increase criminal activity and loss of security for private landowners.

A catalogue of areas that would be the ideal picture of public owned land alongside river corridors will be developed, costed and a strategy put in place to acquire this over time.

Tools to achieve this would include creating right of first refusal for councils on all land within a certain distance of the top of bank, or within a defined area. District plan controls strengthened with regard to esplanade strip creation.

Protection against deforestation in Upper Catchment

Implementer: District Councils

Priority:

Timing: In place and ongoing

Cost:

The Upper Catchments of the Western rivers fall within the Tararuas and the Tararua Forest park. Much of this area is protected as Department of Conservation Estate. Areas outside of this that are currently forested have differing levels of protection.

Rules are required to prevent deforestation within the upper catchment, and ensure that the run-off characteristics of this area remain intact.

Can be achieved through regional plan rules and district plan. Advice and support from Land Management

Landslide Monitoring

Implementer: GWRC Environmental Science

Priority:

Timing: Ongoing, commences in

Cost:

Triennial or event triggered monitoring of landslide and slope stability in upper catchment to assist with long term downstream gravel management. Ideal to align with regional photography updates. Reporting to be done through GWRC committee reporting structure and advice given to affected landowners.

Care Groups and Clubs

Implementer: Community

Priority:

Timing: Ongoing

Cost:

Healthy streams and rivers can be an asset for any community. They are peaceful and fun places to be near, have cultural significance and can be full of wildlife.

River care groups can help GWRC look after the health of our rivers by taking actions including:

- managing stock to keep them out of rivers and other waterways;
- planting vegetation to protect and stabilise river banks;
- maintaining vegetation to prevent waterway obstruction; and
- managing animal and plant pests.
- Monitoring river condition and activities

Care groups have been an ongoing success in many of the region's rivers. These have been most successful when targeted at sections of a river or set up on smaller streams. The western rivers of the Wairarapa are perhaps more suited to the care group concept than those in the eastern half of the valley, given that they have better public access and higher rates of recreational use.

There are numerous care groups that Greater Wellington Regional Council currently works with in the Wairarapa including Fensham Wetland Group, Friends of Millennium Reserve, Makoura Stream Restoration Project, Papawai Stream Restoration Project, Whangaehu River Group and the Whangaimoana Dune Restoration Group.

The range of tasks carried out by river care groups can include:

- Strategic planning: developing a stream restoration plan and timeline for the work;
- Communications: keeping all interested people informed;
- Baseline assessment: walking the river/stream and recording what state it is in at the start, so we there is something to measure improvements against.
- Research: working to find the most successful and efficient techniques for improving the health of the stream/river;
- Operations: rubbish removal, planting, weeding and all the other jobs to restore and maintain a healthy stream/river.

Establishing a Community Support Officer at GWRC will prove useful to build community relations and encourage the establishment of new river care groups in the western half of the valley.



Scheme decision making policy

Implementer: GWRC Flood Protection Operations

Priority:

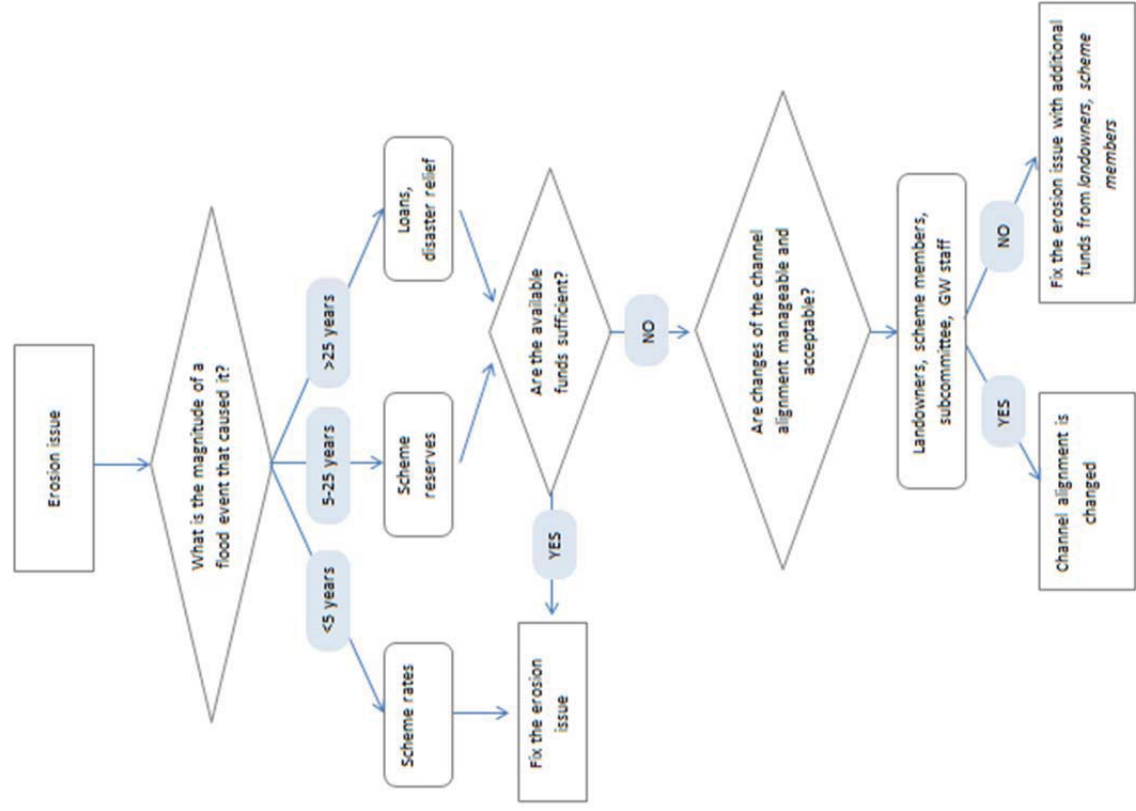
Timing: in place in 2018/2019

Cost:

The current scheme funding model addresses flood events up to a 1-in-5 year event through annual rates, a 1-in-25 year event through scheme reserves. The decision making process regarding works required in excess of these funding levels will be clarified by development of a policy that will;

- What works can be carried out under annual works
- What works can be carried out using scheme reserves

- Who makes the decision regarding works that exceed scheme reserve funds



Community Support Officer

Implementer: GWRC Flood Protection Operations

Priority:

Timing: Ongoing, role established in

Cost:

Greater Wellington currently works with communities to manage flood risk from the region's rivers and streams. This includes developing floodplain management plans, providing free advice and consultation service in relation to flood and erosion risks, maintaining and building new flood protection works, maintaining or improving the environment

and recreational opportunities and providing management and advice to Civil Defence during large floods.

Further opportunities exist for GWRC to build upon existing relationships with landowners and the wider community who wish to be involved in the health of river environments.

There is potential to establish a part time role within flood protection operations to support and advise the community on local projects and initiatives relating to the river environment (similar to a River Ranger). The key tasks of this role will include:

- Providing a point of connection with the community;
- Building relationships with local/river recreational groups;
- Calling for volunteers through GWRC website, social media and volunteer websites;
- Facilitating practical education days with community groups including schools/marae/business organisations;
- Showcasing the areas of concern in the region and the positive results of volunteer efforts at local events to encourage greater participation.

This role could be facilitated by including a portion of current officer working time for community support and draw on local expertise and knowledge to work with the broader community, current scheme committees and landowners. For the Eastern hills area, this role could cross over with Land Management advisors who already work with rural landowners and have established relationships in the area.

Abandonment/Retirement of assets

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

A number of assets no longer provide the service or perform the function they were designed for. These assets have been identified within each reach, including the method of retirement/abandonment and an indicative time frame where practical to do so.

Environmental Strategy

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

An environmental strategy captures and expands on the vision of the floodplain management plan. It co-ordinates projects required to deliver environmental, amenity and cultural outcomes sought by the floodplain management plan that are beyond those achieved through the flood and erosion risk management.

It helps to co-ordinate the actions of groups involved in managing the rivers and creates a strategy to enable these groups and organisations to work in a supportive manner.

Reach 14 – Waingawa River

Waingawa Headwaters

Major Project Response

There is no identified need for any major works to be carried out in this reach.

Policy Response

No specific requirements

Operational Response

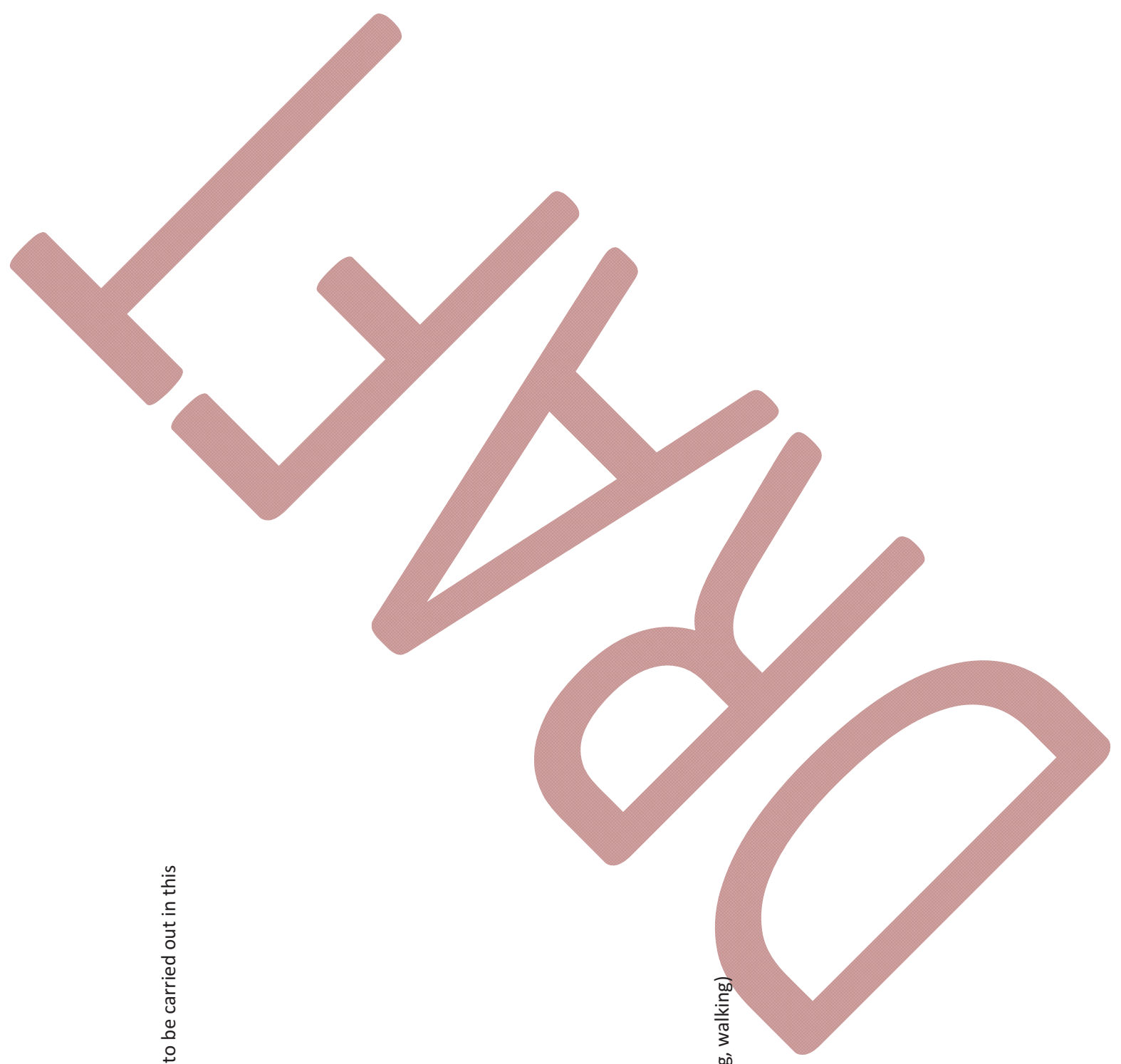
No specific requirements

Community Response

No specific requirements

Code of Practice Notes

- High ecological value
- High scenic value
- Low modification
- Recreation use (kayaking, wilderness fishing, walking)



Reach 15 – Waingawa River

Upper Waingawa

Major Project Response

Masterton water supply (ID# - 0, 1, 2)

Implementer: Masterton District Council

Priority:

Timing:

Cost:

TO BE FURTHER DEVELOPED AT WORKSHOP – 15/03/16

Long term upgrade or replacement of pipe bridge crossing to reduce risk to water supply pipeline. Preferential outcome will be through WWUP with water supply secured by dam supply and new pipeline aligned away from river erosion zone

Option to address Masterton water supply pipeline alignment and erosion issues. Possibly enabled through WWUP

Policy Response

No specific requirements

Operational Response

Masterton Water Supply (ID# - 0, 1, 2)

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

Provide continued advice and support to MDC with regard to operation of water supply infrastructure. Opportunity for long term replacement of vulnerable infrastructure through WWUP links.

Continue to provide erosion protection to the supply pipeline as a priority for the Waingawa River.

Recreation Access

Implementer:

Priority:

Timing:

Cost:

Formalisation of Upper Waingawa Road access point as a maintained recreation site that provides suitable and safe access to the river.

Maintenance of site to be provided by community supported by Local Authorities.

Community Response

Recreation Access

Implementer:

Priority:

Timing:

Cost:

Formalise access point to river at end of Upper Waingawa Road. Initiate care group and work with clubs that use this location.

Code of Practice Notes

- High ecological value
- High scenic value
- Low modification
- Recreation use (kayaking, wilderness fishing, walking)

To do list

- Check levels of house ID4

Reach 16 – Waingawa River

Upper Plains

Major Project Response

South Masterton Stopbank Upgrade (ID# - 26, 27, 31) [PRIORITY TASK]

Implementer: GWRC Flood Protection implementation

Priority:

Timing:

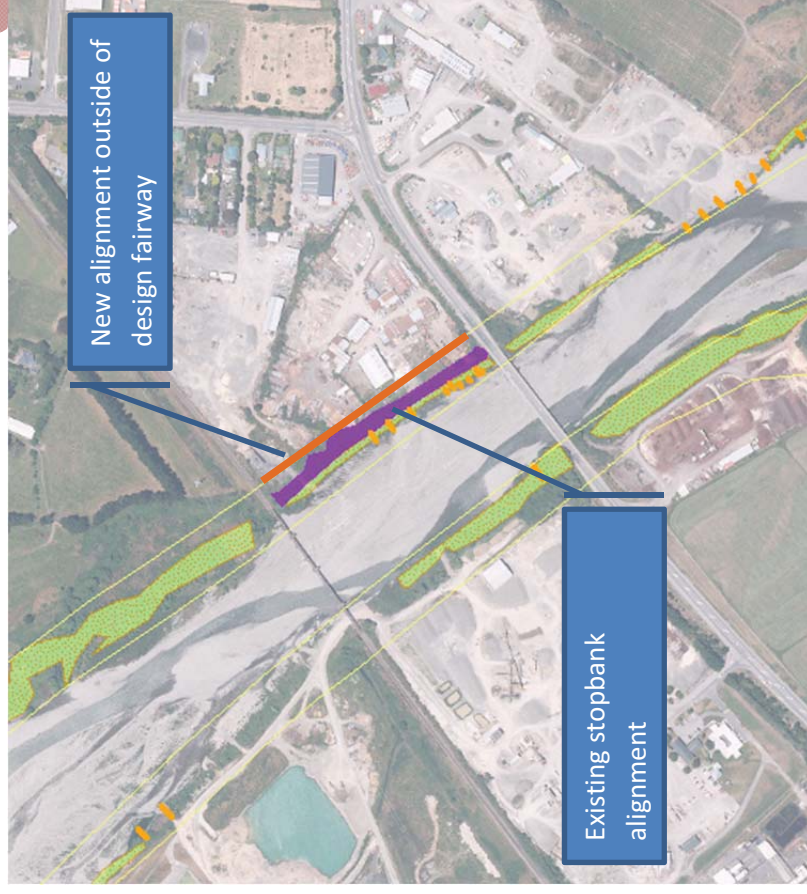
Cost:

TO BE FURTHER DEVELOPED AT WORKSHOP – 15/03/16

Remove and replace stopbank between Railbridge and SH2 on True Left Bank. Provide 1-in-100 year flood level, and retreat alignment from current riverbank location.

Remove waste materials (asphalt, waste concrete, waste timber) from river channel and banks adjacent to and downstream of SH2/Railbridge

Aim to bring into public use/ownership land adjacent to river upstream and downstream of bridges on both banks



Water race (ID# - 6)

Implementer: Carterton District Council/WWUP

Priority:

Timing:

Cost:

Duplication and redundancy for Water Race intake through WWUP. Plan for future retirement of water race.

Policy Response

Future Water Treatment Site (ID# - 175)

Implementer: Masterton District Council

Priority:

Timing:

Cost:

Ensure that future water treatment site on TLB of Waingawa river considers the flooding and erosion risk when development of infrastructure occurs.

Operational Response

Water-race (ID# - 6)

Implementer: Carterton District Council/GWRC

Priority:

Timing:

Cost:

Ongoing maintenance plan linked to bed level envelopes to maintain security of water race until replacement or retirement.

Buffer establishment

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

Establishment of successful buffer planting along the Waingawa is difficult in many places due to the high, steep sided and actively eroding banks. A key tool to enable buffer establishment is shallower profile banks which are then able to be planted to establish river edge vegetation. Shallower bank profiles will require the sacrifice of some buffer areas to the river, to enable formation of more gentle slope gradients.

Must conform with River Bank Envelope common tools

Skeets Road Stopbanks

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

The Skeets Road stopbanks are built and maintained to a high standard. They provide protection against overflows from the Waingawa River. These overflows would enter the Masterton Urban area in event of their breach. Continuation of existing asset monitoring and maintenance plan for these stopbanks is essential.

Infrastructure security planning (ID# - 7, 9, 10, 12)

Implementer: Masterton District Council

Priority:

Timing:

Cost:

MDC responsible for contingency and repair plan to address the risk of loss of water supply infrastructure.

MDC responsible for inspection of infrastructure attached to bridges to be after flood events.

Masterton Gateway

Implementer: GWRC/MDC

Priority:

Timing:

Cost:

Identify Masterton gateway site and develop as an amenity and recreation access site. Creation of a site that the Masterton and Wairarapa community can easily interact with rivers, and that forms an identity and Southern gateway for Masterton. This links with and could be implemented alongside South Masterton Stopbank Upgrade option.

Recreation Access

Develop access locations at ##### on left bank and ##### on right bank. Formalise and monitor.

Community Response

Recreation

Implementer:

Priority:

Timing:

Cost:

Provide for recreation access on TLB downstream of SH2 bridge.

Develop three rivers trail to link Masterton with Waingawa, Ruamahanga and Waipoua Rivers

Friends Group Establishment

Implementer:

Priority:

Timing:

Cost:

Support formation of Masterton Gateway friends group, and encourage planting of native species at gateway to Masterton. Support initiatives to improve the values of the gateway area. Work with groups to improve quality of access points and rubbish clean up and reporting.

WREMO (ID# - 3, 5, 13, 15, 18, 21, 22, 27)

Implementer: WREMO

Priority:

Timing:

Cost:

Add Upper Waingawa Road to WREMO register of lifelines affected by large scale flood events.

Add asset owners for vulnerable assets at ID24 and ID25 of level of risk, add to WREMO register of vulnerable assets.

Advise WREMO of breach scenario consequences for Skeets Road stopbank and development of contingency plan.

Develop contingency plan for Water Supply for Masterton urban area in event of system failure.

Infrastructure

There are a number of locations where infrastructure has been installed in locations that make it vulnerable to flood risk. The asset owners of this infrastructure have been advised of this risk and it is recommended that this is built into their contingency plans. GWRC will advise the asset owners in the event that they observe any damage to these assets.

Code of Practice Notes

- Waingawa River Bush RAP site
- SLUR site registered at TLB north or rail bridge
- Recreation access sites
- Medium modification (High at bridge area)

To Do

- ID8 confirm level of erosion risk
- ID9/10 Confirm level of erosion risk
- ID15 Confirm level of erosion risk
- ID18 Confirm flood and erosion risk
- ID12 Confirm flood level and level of pump station
- ID13 Confirm floor and flood levels
- ID17 Confirm stop-bank criticality
- ID25 Confirm flood and erosion risk
- ID21 model breach scenario
- Identify timeframes for reinstatement of water supply to Masterton in event of disruption due to flooding/erosion.

Reach 17 – Waingawa River

South Masterton

Major Project Response

Aerodrome rock work (ID# - 39, 40, 41)

Implementer:

Priority:

Timing:

Cost:

TO BE FURTHER DEVELOPED AT WORKSHOP – 15/03/16

Reinforcement of rock line at end of Hood Aerodrome Runway. Joint project between GWRC/MDC/Asset Owner. Rock groynes on opposite right bank will remove need for maintenance of willows within flight path.

Implementation of this rock line can be event triggered and is not a priority task. Risk to Aerodrome managed currently through use of vegetation, however level of protection provided is lower than rock alternative.

Policy Response

No specific actions required

Operational Response

Buffer establishment

Implementer:

Priority:

Timing:

Cost:

Buffer plantings within the Waingawa are challenging in many places. A key tool to their establishment is the erosion of banks to create shallower profile banks which are then able to be planted to establish river edge vegetation. Shallower bank profiles will require the sacrifice of some buffer areas to the river.

Maintain flight path security (ID# - 39, 40, 41)

Implementer: GWRC Flood Protection Operations

Priority:

Timing:

Cost:

Flightpath tree height restrictions.

Illegal Dumping (ID# - 43, 44)

Implementer: GWRC/MDC/CDC

Priority:

Timing:

Cost:

Management strategy for access points to tackle rubbish dumping. Coordinate with Friends Group established to manage these access points.

Community Response

Recreation trail

Implementer: Wairarapa Trails Trust

Priority:

Timing:

Cost:

Establish three rivers trail to link Masterton to Waingawa, Ruamahanga, Waipoua Rivers. Incorporate as part of larger Trails Wairarapa projects/initiatives. Link to tourism Wairarapa

Recreation access (ID# - 43, 44)

Implementer:

Priority:

Timing:

Cost:

Develop and formalise access points on TRB and TLB, establish care groups to manage these areas

Code of Practice Notes

- Demolition material loose downstream of bridges
- Recreation access sites
- Medium modification (high at bridge area)
- Mauri at confluence area

To do

- ID33 Confirm flood and erosion risk
- ID32 Confirm flood and erosion risk