

Attachment 2

Te Kāuru Upper Ruamāhanga April Work Shop

The purpose of this workshop is to confirm the floodplain management responses included within the Working Draft of the Te Kāuru Upper Ruamāhanga Flood Management Plan. Conclusions and recommendations identified by the sub-committee through this process will be documented within a Phase 2 Summary Report. This will help inform subsequent refinement and tasks to complete the FMP through Phase 3.

Part 1 of workshop sets out a Multi Criteria Analysis to confirm the nature of responses so far developed in the following areas:

- Homebush Wastewater Treatment Plant
- Dakins Road
- Paierau Road
- Floodplain upstream of Waipoua Rail Bridge
- Masterton District Council Raw Water Supply Pipe Line
- Aerodrome Rock Work

Further information in relation to each response is included within Volume 2 of the Working Draft of the FMP. Draft responses have been set out below to help guide and inform confirmation of selection of preferred options.

Workshops for the following areas have been undertaken previously and notes documenting the identified directions are included for completeness:

- Rathkeale Stopbank
- River Road Properties
- Masterton South Waingawa Stopbanks

Part 2 of the workshop seeks to update an understanding of how the common methods are applied across each reach. This provides an opportunity to confirm the selection of this combination of common methods can work to address the overarching aims identified within the Flood Management Plan across each river.

Part 1: Multi Criteria Analysis

Multi Criteria Analysis (MCA) was developed through Phase 2 to help guide the evaluation of preferred options. This involved redefining overarching FMP aims in order to identify a framework of measurable criteria as set out below.

- To **work together** to develop sustainable floodplain management plan
- To support sustainable **economic** development
- To protect and improve **cultural** values of rivers
- To recognise local **community needs** and build **resilient communities**
- To protect and enhance our **natural** spaces

The commitment to work together was considered inherent through the FMP process. The remaining overarching aims are specific to the process of option evaluation and have been grouped to provide a series of questions to prompt discussion and guide responses, as follows:

Economic	Is it affordable (now and into the future)?
	Does it reduce likelihood of loss to private property, business or agriculture?
	Does it enhance wider economic opportunities?
Resilient Communities	Is it adaptable to change?
	Does it manage or reduce the risk to essential public infrastructure?
	Does it protect the health and safety of the community?
Cultural	Are cultural values recognised?
	Does it recognise the interconnectedness of natural systems?
Natural Spaces / Processes	Does it improve natural values / character?
	Does it improve natural processes / ecology?
Community Needs	Does it improve river access?
	Does it improve recreation safety?
	Does it respond to community aspirations?

Based on the above criteria, a simple traffic light system was also used to help ensure preferred options aligned with identified criteria:

In essence, the MCA process was developed to provide a feedback loop through which options could be refined based on feedback received during consultation including workshops with the FMP sub-committee:

Homebush Waste Water Treatment Plant

Working Draft TKURFMP Volume 2: Reach Specific Response – Pages 40 - 41

Issue

There is potential for the head works facility to become inundated with flood water as a result of overtopping a lower section of stop bank.

Options

Three options have been considered:

Status Quo

Option 1: Raise lower section of stop bank

Option 2: Increase elevation and associated resilience of headworks facility

Evaluation

Multi-criteria Analysis of Homebush Waste Water Treatment Plant

	Status Quo	Option 1 Raise lower section of stop bank	Option 2 Increase elevation and associated resilience of headworks facility
Economic	<ul style="list-style-type: none"> Potential increased ongoing repair / servicing cost 	<ul style="list-style-type: none"> High initial cost 	<ul style="list-style-type: none"> High initial cost Ongoing servicing repair
Resilient Community	<ul style="list-style-type: none"> Risk to essential infrastructure 	<ul style="list-style-type: none"> Managed risk Less adaptable to change 	<ul style="list-style-type: none"> Managed risk Remains response to change within river margin
Cultural	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values
Natural Spaces / Processes	<ul style="list-style-type: none"> Existing natural character modified in this area 	<ul style="list-style-type: none"> Existing natural character modified in this area 	<ul style="list-style-type: none"> Existing natural character modified in this area
Community Needs / Amenity	<ul style="list-style-type: none"> Potential for recreation trail 	<ul style="list-style-type: none"> Potential for recreation trail 	<ul style="list-style-type: none"> Potential for recreation trail

Preferred Option Developed in FMP

Increase resilience of headworks facility

Dakins Road

Working Draft TKURFMP Volume 2: Reach Specific Response – Pages 48 - 49

Issue

A section of Dakins Road is prone to subsidence caused by erosion along an adjoining cliff face. Dakins Road forms a small rural unsealed no exit public road.

Options

Three options have been considered:

Status Quo

Option 1: Construct Rock Groynes to hold channel alignment

Option 2: Realign road outside buffer strip

CDC have committed to implementing a rock groyne which will likely be completed in the next 12 months.

Evaluation

Multi-criteria Analysis of Dakins Road

	Status Quo	Option 1 Construct Rock groynes to hold channel alignment	Option 2 Realign the road outside
Economic	<ul style="list-style-type: none"> Risk to private property 	<ul style="list-style-type: none"> Potential ongoing costs for management in the future 	<ul style="list-style-type: none"> Requires loss of rural lifestyle property
Resilient Community	<ul style="list-style-type: none"> Threatens health and safety of community preventing access 	<ul style="list-style-type: none"> Protects health and safety of community Less adaptable for change 	<ul style="list-style-type: none"> Protects health and safety of community
Cultural	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values
Natural Spaces / Processes	<ul style="list-style-type: none"> Road within buffer strip prone to erosion 	<ul style="list-style-type: none"> Constricted space for river 	<ul style="list-style-type: none"> Increased room for river
Community Needs / Amenity	<ul style="list-style-type: none"> Threatens recreation safety 	<ul style="list-style-type: none"> Responds to community aspirations 	<ul style="list-style-type: none"> Potential conflict with community aspirations for rural lifestyle land use

Preferred Option Developed in FMP

Construct Rock groynes to hold channel alignment – recognised that long term response to re-aligning road may not be acceptable to the land owners affected by land purchase for road

Paierau Road

Working Draft TKURFMP Volume 2: Reach Specific Response – Pages 84 - 85

Issue

The southern approach to Paieru Road Bridge is inundated to a depth of 0.5m in a 5 year flood and up to 1.0m in a 100 year flood.

Options

Three options have been considered:

Status Quo:

Option 1: Install warning signs and improved road closure warning based on rainfall triggers

Option 2: Increase stop bank heights / replace bridge

Evaluation

Multi-criteria Analysis of floodplain upstream of Paierau Road

	Status Quo	Option 1 Install warning signs and improved road closure warning	Option 2 Increase stop bank heights / replace bridge
Economic	<ul style="list-style-type: none"> Low ongoing cost 	<ul style="list-style-type: none"> Low ongoing cost 	<ul style="list-style-type: none"> High initial and ongoing cost
Resilient Community	<ul style="list-style-type: none"> Potential risk to health and safety of road users 	<ul style="list-style-type: none"> Potential flooding risk to health and safety managed Road has local safety issues 	<ul style="list-style-type: none"> Less flexibility for future changes to river management
Cultural	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values
Natural Spaces / Processes	<ul style="list-style-type: none"> No significant issues identified 	<ul style="list-style-type: none"> No significant issues identified 	<ul style="list-style-type: none"> Constricts space for river
Community Needs / Amenity	<ul style="list-style-type: none"> Access across river will periodically be prevented 	<ul style="list-style-type: none"> Access across river will periodically be prevented 	<ul style="list-style-type: none"> Improved river access

Preferred Option Developed in FMP

Install warning signs and improved road closure warning.

Floodplain upstream of Waipoua Rail Bridge

Working Draft TKURFMP Volume 2: Reach Specific Response – Pages 86 - 87

Issue

A section of narrow river channel has potential to cause the following issues:

- Higher upstream flood levels
- Increased scour risk around the bridge
- Increased erosion risk along the true right bank of the river accommodating an existing industrial area

Options

Four options have been considered which form part of wider urban issues:

Status Quo

Option 1: Widen River Channel

Option 2: Rock lining the true right bank

Option 3: Realign river channel along true left bank

Evaluation

Multi-criteria Analysis of floodplain upstream of Waipoua Rail Bridge

	Status Quo	Option 1 Widen River Channel	Option 2 Rock lining the true right bank	Option 3 Realign river channel across true left bank
Economic	<ul style="list-style-type: none"> • Potential loss to industrial property 	<ul style="list-style-type: none"> • High initial cost • Reduces likelihood to loss of industrial property 	<ul style="list-style-type: none"> • High initial cost • Potential ongoing cost to maintain rock lining 	<ul style="list-style-type: none"> • Substantial initial cost to establish
Resilient Community	<ul style="list-style-type: none"> • Limited scope for alternative erosion protection works • Potential risk to rail bridge 	<ul style="list-style-type: none"> • No significant issues identified 	<ul style="list-style-type: none"> • Less adaptable to change 	<ul style="list-style-type: none"> • No significant issues identified
Cultural	<ul style="list-style-type: none"> • Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> • Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> • Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> • High degree of modification to natural system • Requires ongoing collaboration to recognise cultural values
Natural Spaces / Processes	<ul style="list-style-type: none"> • Restricted room for river impacts on industrial land 	<ul style="list-style-type: none"> • Provides more room for the river 	<ul style="list-style-type: none"> • Ongoing restriction of river in localised area 	<ul style="list-style-type: none"> • Requires major modification to existing river alignment
Community Needs / Amenity	<ul style="list-style-type: none"> • Potential to restrict access along river margin 	<ul style="list-style-type: none"> • Maintain river access • Provide room for planting within buffer strips 	<ul style="list-style-type: none"> • Maintain river access 	<ul style="list-style-type: none"> • Requires modification of river channel • Maintain river access

Preferred Option Developed in FMP

Widen River Channel

Masterton District Council Raw Water Supply Pipe Line

Working Draft TKURFMP Volume 2: Reach Specific Response - Pages 100 - 104

Issue:

The pipeline supplying Masterton's potable water supply is vulnerable to lateral bank erosion from even small flood events. There are two areas of primary concern, namely:

- 1) The true left bank downstream 250 metres downstream from the Taratahi Water Race intake
- 2) A narrow strip of land between riverbank and upper terrace on approach to water treatment plant.

Options

This issue is to be developed with the MDC as the Asset Owner. The following options were considered as part of development of the FMP:

Status Quo

Option 1: Construct Rock Groynes to hold channel alignment

Option 2: Coordinate river management and emergency management planning

Option 3: Relocate water supply line out of buffer zone.

Evaluation

Multi-criteria Analysis of Council Raw Water Supply Pipe Line

	Status Quo	Option 1 Construct Rock groynes to hold channel alignment	Option 2 Coordinated River Management and Emergency Management Planning	Option 3 Relocate water supply line out of buffer zone.
Economic	<ul style="list-style-type: none"> Potential economic threat to Masterton 	<ul style="list-style-type: none"> High initial and potential ongoing costs 	<ul style="list-style-type: none"> Limited ongoing costs Will not work independently of other options 	<ul style="list-style-type: none"> Substantial initial cost
Resilient Community	<ul style="list-style-type: none"> Risk to essential public infrastructure 	<ul style="list-style-type: none"> Manages risk to essential infrastructure Less adaptable for change 	<ul style="list-style-type: none"> Manages risk to essential infrastructure Less adaptable for change 	<ul style="list-style-type: none"> Technical issues remain
Cultural	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values
Natural Spaces / Processes	<ul style="list-style-type: none"> Essential infrastructure retained in buffer strip 	<ul style="list-style-type: none"> Constricts space for river processes in localised area 	<ul style="list-style-type: none"> No significant issues identified 	<ul style="list-style-type: none"> Recognises space for natural processes along river
Community Needs / Amenity	<ul style="list-style-type: none"> No significant issues identified 	<ul style="list-style-type: none"> No significant issues identified 	<ul style="list-style-type: none"> No significant issues identified 	<ul style="list-style-type: none"> No significant issues identified

Preferred Option Developed in FMP

Coordinated River Management and Emergency Management Planning + Construct Rock groynes to hold channel alignment

Aerodrome Rock Work

Working Draft TKURFMP Volume 2: Reach Specific Response – pages 120 - 121

Issue

The runway of the hood aerodrome is at risk of erosion.

Options

The following options were identified:

Status Quo

Option 1: Rock revetment with willow poles

Evaluation

Multi-criteria Analysis of Aerodrome Rock Work

	Status Quo	Option 1 Rock revetment
Economic	<ul style="list-style-type: none"> Potential for loss of airport business 	<ul style="list-style-type: none"> Increase in cost Reduces likelihood of loss to airport business
Resilient Community	<ul style="list-style-type: none"> Risk to airport infrastructure 	<ul style="list-style-type: none"> Reduces risk to airport infrastructure
Cultural	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values
Natural Spaces / Processes	<ul style="list-style-type: none"> Potential for erosion to extend beyond buffer strip 	<ul style="list-style-type: none"> Localised rock revetment within buffer strips
Community Needs / Amenity	<ul style="list-style-type: none"> Potential for restrict access adjoining runway 	<ul style="list-style-type: none"> Opportunity to allow river access Protects runway as community asset

Preferred Option Developed in FMP

Rock revetment with river poles

Rathkeale Stopbank

Working Draft TKURFMP Volume 2: Reach Specific Response – Pages 24 - 29

Issue:

The ongoing costs of rock armouring and remedial river bank work would require a high ongoing cost. Conversely, the loss of part of the playing fields will result in an economic cost associated with the loss of existing land. Field remediation costs will vary and may be high and ongoing where these are protected to a lower level of service. Protecting buildings provides economic certainty to Rathkeale College to ensure their ongoing business activity. The risk to life is considered to be low. Shifting stop banks has potential to modify cultural sites and care needs to be taken to ensure sites and cultural values remain protected.

The presence of existing trees beyond the stopbank creates a sense of things seeming benign at the moment – though it was noted that trees on opposite bank were recently eroded.

Options

The following options were considered:

- **Status Quo:** Maintain stop bank in current position
- **Option 1:** Retreat stop bank behind current buffer
- **Option 2:** Retreat stop bank behind new buffer
- **Option 3:** Retreat stop bank behind playing fields
- **Option 4:** TBC

Evaluation

Continued use of rock lining is inconsistent with allowing the natural processes to occur along the river corridor and 'giving the river room'. Moving the stopbanks outside the river corridor netter enables natural processes to occur. Impacts of flooding and erosion are limited to playing fields, however there is potential that these are recognised as having wider value to the community. Shifting stop banks has potential to modify cultural sites and care needs to be taken to ensure sites and cultural values remain protected.

Multi-criteria Analysis of Rathkeale Stopbank Options

	Status Quo Maintain stop bank in current position	Option 1 Retreat stop bank behind current buffer	Option 2 Retreat stop bank behind new buffer	Option 3 Retreat stop bank behind playing fields	Option 4 TBC
Economic	<ul style="list-style-type: none"> • Considerable increased cost, level of service of ongoing rock armouring expense 	<ul style="list-style-type: none"> • Increased level of service, cost of rock armouring • Loss of part of the playing field 	<ul style="list-style-type: none"> • Loss of part of the playing field • Reduction in likelihood of loss to private property 	<ul style="list-style-type: none"> • Cost of loss of field for risk of affecting part of season following flooding • Cost of tidying playing fields following flood event • Reduction in likelihood of loss to private property 	<ul style="list-style-type: none"> •
Resilient Community	<ul style="list-style-type: none"> • Least adaptable to change • Potential increased impacts up stream and down stream • No risk to essential public infrastructure / 	<ul style="list-style-type: none"> • Potential impacts upstream and downstream • No risk to essential public infrastructure / community health and safety 	<ul style="list-style-type: none"> • Adaptable to change • No risk to essential public infrastructure / community health and safety 	<ul style="list-style-type: none"> • Most adaptable to change • No risk to essential public infrastructure / community health and safety 	<ul style="list-style-type: none"> •

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	community health and safety				
Cultural	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Potential impacts on cultural sites Uncertainty around relationship with cultural values in terms of protection / exposure from river 	<ul style="list-style-type: none"> Potential impacts on cultural sites Uncertainty around relationship with cultural values in terms of protection / exposure to river 	<ul style="list-style-type: none"> Potential construction impacts on cultural sites Uncertainty around relationship with cultural values in terms of exposure to river Best represents the interconnectedness of natural systems 	<ul style="list-style-type: none">
Natural Spaces / Processes	<ul style="list-style-type: none"> Requires most rock armouring Least room for river, natural processes 	<ul style="list-style-type: none"> Would require ongoing rock armouring Reduced room for river, natural processes 	<ul style="list-style-type: none"> Ensures the river has room Opportunities for natural processes / ecology 	<ul style="list-style-type: none"> Ensures the river has room Opportunities for natural processes / ecology 	<ul style="list-style-type: none">
Community Needs / Amenity	<ul style="list-style-type: none"> No change in river access or safety No reduction in playing fields 	<ul style="list-style-type: none"> Reduction in playing fields Increased stop bank height along edge of buffer strip 	<ul style="list-style-type: none"> Reduction in playing fields Reduced stop bank height 	<ul style="list-style-type: none"> Reduction in playing fields Lowest stop bank height further from river 	<ul style="list-style-type: none">

Preferred Option Developed in FMP

The Preferred Option to be developed around the following:

- Allow fields to be flooded from time to time
- Ensure buildings area protect from flooding
- Identify more room for buffer strips within which erosion may occur
- Determine changes in stopbank locations in consultation with Iwi to respect cultural site
- If land owner wants additional protection, regional council might not fund work

River Road Properties

Working Draft TKURFMP Volume 2: Reach Specific Response – Pages 38 - 39

Issue

Risk to property in this area is related to erosion. Issue is whether current level of risk is acceptable or additional work is needed to fix this going forward. Erosion risk currently managed through rock groynes and gravel management. Six properties along River Road are closest to river margin and therefore are at the greatest level of risk.

Options

The following options were considered:

- **Status quo:** Rock groynes, willow buffers, gravel management
- **Option 1:** New rock line for 200+ metres
- **Option 2:** Purchase 6 properties to reduce risk
- **Option 3:** Encourage overflow path on true left hand side of river

Evaluation

This location is considered important to hold given potential for subsequent erosion to continue downstream. There is not much opportunity to relax bank edge. Acquiring properties at greatest risk to erosion, relieves some pressure and increases opportunities available. Combined within this, rock is expensive but can provide further assurance that it will not wash away in a big event. There may also be opportunities to work with the overflow on the opposite side of the river, however there is implications in terms of existing pine plantation established in this area.

Multi Criteria Analysis of River Road Properties Options

	Status quo Rock groynes, willow buffers and gravel management	Option 1 New rock line for 200+ metres	Option 2 Purchase 6 properties to reduce risk	Option 3 Encourage overflow path on true left hand side of river
Economic	<ul style="list-style-type: none"> • Repeated work means that costs build up over the long term • No long term protection guarantee 	<ul style="list-style-type: none"> • Estimate \$300k – \$500k • No long term protection guarantee 	<ul style="list-style-type: none"> • High initial cost • Would work with ongoing rock work 	<ul style="list-style-type: none"> • Unlikely to work independently of other options
Resilient Community	<ul style="list-style-type: none"> • Limited options to manage erosion risk in this location • Protecting erosion in this location protects against further erosion down stream 	<ul style="list-style-type: none"> • Protecting erosion in this location protects against further erosion down stream 	<ul style="list-style-type: none"> • Further options to protect against further erosion downstream • Provides more time for erosion events without threatening life or property 	<ul style="list-style-type: none"> • Concern with potential downstream erosion effects
Cultural	<ul style="list-style-type: none"> • Requires ongoing collaboration to recognise cultural values including confluence • Threats to cemetery 	<ul style="list-style-type: none"> • Protect cemetery • Requires ongoing collaboration to recognise cultural values including confluence 	<ul style="list-style-type: none"> • Protect cemetery • Requires ongoing collaboration to recognise cultural values including confluence 	<ul style="list-style-type: none"> • Protect cemetery • Requires ongoing collaboration to recognise cultural values including confluence
Natural Spaces / Processes	<ul style="list-style-type: none"> • Requires fighting river in critical location • Managing erosion risk predominantly relies on hard engineering 	<ul style="list-style-type: none"> • Requires fighting river in critical location • Managing erosion risk predominantly relies on hard engineering 	<ul style="list-style-type: none"> • Gives river further room 	<ul style="list-style-type: none"> • Works with natural processes of river
Community Needs / Amenity	<ul style="list-style-type: none"> • Limited amenity options 	<ul style="list-style-type: none"> • Limited amenity options 	<ul style="list-style-type: none"> • Opportunity to improve access along river margin (3 rivers trail concept) 	<ul style="list-style-type: none"> • Limited amenity options

Preferred Option Developed in FMP

This area is a high priority and work needs to ensure ongoing protection of the true right bank of the Ruamahanga downstream of the Waipoua confluence for the purpose of ensuring erosion protection for the cemetery and landfill.

Masterton South Waingawa Stopbanks

Working Draft TKURFMP Volume 2: Reach Specific Response – Pages 112 - 113

Background:

This relates to erosion and flooding issues affecting an area of industrial area between SH2 Bridge and Waingawa Railway Bridge. The integrity of the current stopbank is unknown, but not expected to be high. Were erosion to continue beyond existing stop bank, there may be implications to SH2. Old timber yard within the site which is vulnerable to erosion is on the Selected Land Use Register (SLUR) relating to sites where activities involving hazardous substances have or may have taken place.

East of the industrial site, the predicted flow over Ngaumutawa Road is less than 10cm depth. If you take climate change predictions out of model, it does not overtop this road. The risk to property damage east of Ngaumutawa Road is therefore low.

Options

The following options were considered:

- **Status Quo:** Repair existing stopbank in situ when required
- **Option 1:** Relocate existing stopbank outside design fairway when significant damage occurs
- **Option 2:** Raise road centre line of Ngaumutawa Road
- **Option 3:** Remove existing stopbank in its entirety
- **Option 4:** Provide erosion control along margins of river

The following estimated costings were also identified to help inform the selection of a preferred option as follows:

- New rock line to achieve erosion protection = \$250 ~ \$300k
- Removing stop bank = ~\$50k + depending on material
- New stopbank = ~\$250k
- Repairing stop bank = ~\$10k + (depends on event size)
- Land purchase = ~\$450k (not including relocation).

Evaluation

The following general comments were identified:

- This area is a low priority and risk is relatively small now.
- To identify how aesthetic and access considerations might work in this gateway location.
- There is an ongoing need for erosion protection in the context of the adjoining SH2 road bridge. Consider opportunities to discuss future aspirations with land owner.
- Matter to sort with FMP implementation.

The FMP subcommittee questioned whether additional parks are necessary in Masterton acknowledging that the SH2 road-bridge was identified as an area recreation users including kayakers obtained access to the river.

Multi-criteria Analysis of Masterton South Waingawa Stopbank Options

	Status Quo Repair existing stopbank in situ when required	Option 1 Relocate existing stopbank when significant damage occurs	Option 2 Raise Ngaumutawa Road	Option 3 Remove existing stopbank in its entirety	Option 4 Bank edge security
Economic	<ul style="list-style-type: none"> • Could be expensive to fix if it fails • Does not cost much currently 	<ul style="list-style-type: none"> • Implications for loss of local business 	<ul style="list-style-type: none"> • Concern with loss of protection of new business land (new shed) 	<ul style="list-style-type: none"> • Concern with loss of protection of new business land (new shed) • 	<ul style="list-style-type: none"> • High initial cost

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Resilient Community	<ul style="list-style-type: none"> Risk limited to industrial land Not adaptable to change 	<ul style="list-style-type: none"> Risk limited to industrial land Less adaptable for future changes 	<ul style="list-style-type: none"> Risk limited to industrial land More adaptable to change 	<ul style="list-style-type: none"> Flooding risk limited to industrial land More adaptable to change 	<ul style="list-style-type: none"> Address risk to bridge structure
Cultural	<ul style="list-style-type: none"> Less consistent with Mano o te wai in this important gateway location Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Consistent with Mano o te wai in this important gateway location Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Consistent with Mano o te wai in this important gateway location Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Consistent with Mano o te wai in this important gateway location Requires ongoing collaboration to recognise cultural values 	<ul style="list-style-type: none"> Requires ongoing collaboration to recognise cultural values
Natural Spaces / Processes	<ul style="list-style-type: none"> Does not give the river room 	<ul style="list-style-type: none"> Fits with principle of giving river room 	<ul style="list-style-type: none"> Fits with principle of giving river room 	<ul style="list-style-type: none"> Fits with principle of giving river room 	<ul style="list-style-type: none"> Localised containment along river margin
Community Needs / Amenity	<ul style="list-style-type: none"> Reduce room for aesthetics 	<ul style="list-style-type: none"> Provides space for aesthetics 	<ul style="list-style-type: none"> Provides increased space for aesthetic and potential recreation access at gateway 	<ul style="list-style-type: none"> Provides increased space for aesthetic and potential recreation access at gateway 	<ul style="list-style-type: none"> Reduce room for aesthetics

Preferred Option Developed in FMP

Ongoing erosion protection is necessary to prevent bank erosion threatening this area. Beyond this, the existing industrial area has the potential to be swapped with a more elevated gravel yard to the north in order to avoid the need to construct a new stopbank in this location. The eventual purchase of the related gravel yard could occur in the event open space / river access in this area was to be formalised.