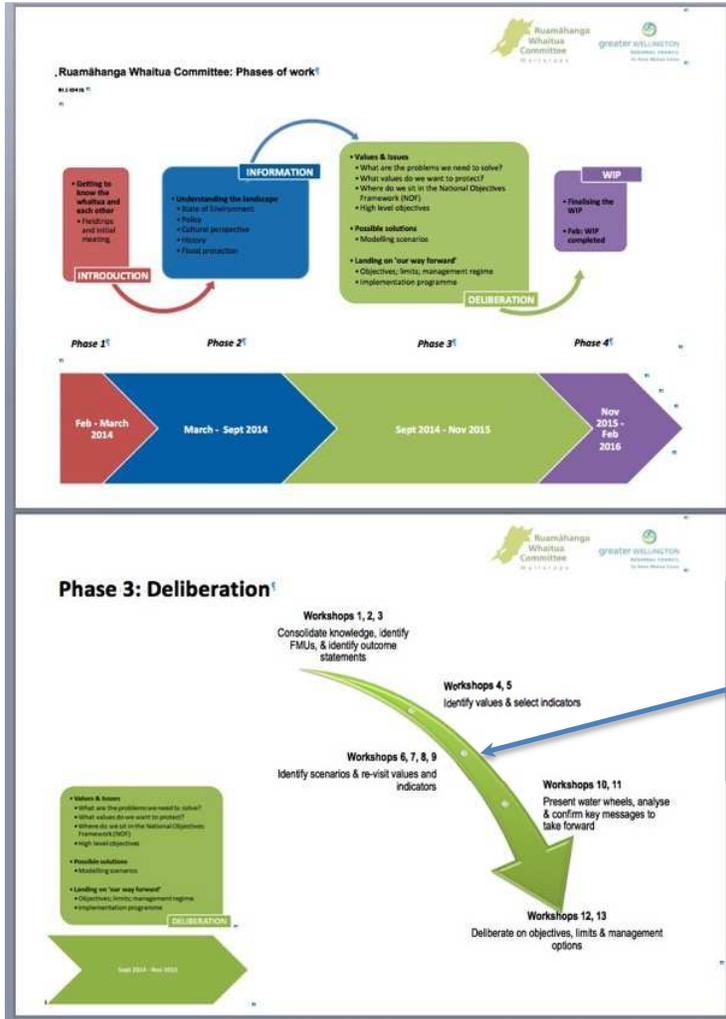


# Meeting Notes: Ruamāhanga Whaitua Committee

## Deliberations Phase 3 - Workshop 28

September 5 2016 1:00pm – 6:00pm at

Masterton Club



Workshop 28

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**Summary**

This report summarises notes from a workshop of the Ruamāhanga Whaitua Committee held September 5 2016 at the Masterton Club.

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**Contents**

These notes contain the following:

- A. Workshop Attendees
- B. Workshop Purpose and Agenda
- C. Follow Up Actions to Previous Meetings
- D. Scenario Development – Reviewing the Aspirational Water Future against key documents
- E. Adjustments to the Aspirational Future for Ruamahanga Whaitua
- F. Review and Confirmation of Management Option List
- G. Business as Usual Scenario
- H. Generating Management Option Bundles

**Appendix 1:** Ruamāhanga Whaitua Committee Aspirational Futures

**Appendix 2:** Management options – modellable and management option?

**Appendix 3:** Additional management options identified

**Appendix 4:** Ruamāhanga Whaitua Committee Management Options – Workshop 5/9/16

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## A Workshop Attendees

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**Workshop Attendees**

*Committee:* Colin Olds, Andy Duncan, Ra Smith, Peter Gawith, Esther Dijkstra, David Holmes, Aidan Bichan, Philip Palmer, Russell Kawana, Vanessa Tipoki.

*Modellers:* Harvey Perkins, Richard Storey, John Bright, Mike Toews, Michelle Sands.

*GW Project Team:* Mike Thompson, Natasha Tomic, Hayley Vucjich, Murray McLea, Shane Parata, Mike Grace, Grace Leung, Alton Perrie.

*Independent Facilitator:* Michelle Rush.

*Apologies:* Mike Ashby, Mike Birch, Rebecca Fox, Chris Laidlaw.

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## B Workshop Purpose

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### Workshop Purpose

The workshop purposes were:

- To review and further develop the aspirational Ruamahanga Whaitua future
- To understand the bundle of ‘management options’ for:
  - the business as usual scenario
- To develop the bundle of ‘management options’ for:
  - the aspirational future
- To describe the management option bundles, and all the assumptions associated with them, in a clear, unambiguous manner so that everyone – RWC, Modellers and Project Team know what is intended, and what is required.

The purposes were achieved in part: Three break out groups got part way through developing a management options bundle for the Aspirational Future. The break out groups will continue their work on their bundle at the next committee meeting.

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### Workshop Agenda

The agenda is below.

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| TIME        | Task                                                                                   | Who                    |
|-------------|----------------------------------------------------------------------------------------|------------------------|
| <b>1:00</b> | <b>Lunch</b>                                                                           |                        |
| 1:30        | Welcome, Karakia, Purpose, Agenda                                                      |                        |
| 1:40        | Reviewing Our Aspirational Future for Ruamahanga whaitua in light of key RWC documents | All                    |
| 2:30        | The Management Options – review and addition                                           | John                   |
| 2:45        | Workshop Session – Generating Management Option Bundles                                | All (break out groups) |
| <b>3:00</b> | <b>Afternoon Tea</b>                                                                   |                        |
| 3:15        | Workshop Session continues                                                             | All                    |
| 4:15        | Plenary report back on Management Option Bundles                                       |                        |
| 5:30        | Conclusion and Next Steps                                                              |                        |
| <b>6:00</b> | <b>Close</b>                                                                           |                        |

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## C Follow Up Actions

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### **Social Science Workshop date**

RWC members were asked for a preferred date for the Social Science workshop.

- Most opted for September 20<sup>th</sup>, as the preferred date. Morning works for the majority: 9:00 am -1:00pm.
  - Prefer a Carterton or Greytown venue.
  - Apologies for this from Philip.
  - Agenda and venue to be sent out once confirmed.
- 

### **Marae Involvement in Community Engagement**

Comment (David) - meetings at Marae so far have not been well attended, need to think of ways to improve.

River groups not always involved.

Ra - Whaitua Committee is a good representation of community/proxy/voice for community.

It was agreed that this would be addressed in due course when planning the next round of community engagement.

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## D Scenario Development – Reviewing the Aspirational Water Future against key documents

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### Overview

Working in two's or threes, RWC members were given an item of background information (all of which had been circulated prior with the meeting papers) and asked to do the following:

- Refresh yourself with the information you have;
  - Identify the key things this says about future aspirations for the catchment; and
  - Report these back to the wider group.
- 

### Review 5 Guiding Principles

*Key messages from this for future aspirations for the whaitua:*

Innovations around water usage/efficiency/reduce waste

- Public perception on actual state of environment - improve knowledge
  - Some Maori feel they could be more engaged - can engagements be held on Marae and look at other ways of improving Maori engagement.
- 

### Te Mana o te Wai

*Key messages from this for future aspirations for the whaitua:*

- vision of potential of what our waterways could be
  - water that can support all aspects of life
  - quality of water that allows this aspiration to be sustainable
- 

### Vision

*Key messages from this for future aspirations for the whaitua:*

- we are all connected with the water
  - a sustainable economic future
  - water quality is improving
  - safety and security of drinking water supply - has never been potable all of the time so as long as there is improvement we're achieving something.
  - improving conservation - some industry have closed over the years, improving farming practices suggest heading in the right direction including improvements in allocation practices.
-

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Community engagement findings</b> | <p><i>Key messages from this for future aspirations for the whaitua:</i></p> <ul style="list-style-type: none"> <li>• community needs to work together/take ownership of waterways to make change</li> <li>• lots of feeling for natural character and returning river course to natural shape/course</li> <li>• 100 year plan vs 100 day plan - small steps to create steady improvement</li> <li>• aspirations for landuse - wetlands, flow attenuation, enhancing habitat.</li> </ul> <hr/> |
| <b>Whaitua values</b>                | <p><i>Key messages from this for future aspirations for the whaitua:</i></p> <p>Prioritising values in table with the futures in mind:</p> <p>1- Public health and securing water supply pref without treatment</p> <p>2- water isn't owned by anybody but is managed by everyone. Economic use and resilience.</p> <p>3 - Improving habitat and biodiversity.</p> <p>4 - Te mana o Ruamahanga</p> <p>5 - Maori use and mahinga kai &amp; recreation</p> <hr/>                                 |

## **E Adjustments to the Aspirational Future for Ruamahanga Whaitua**

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|                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Overview of the exercise</b>                | <p>Participants split into three groups and discussed the draft aspirational future in relation to the key messages. They considered the following two questions before reporting back:</p> <ul style="list-style-type: none"> <li>• What do we need to add to our aspirational future?</li> <li>• What do we need to revise?</li> </ul> <p>The suggestions made are set out below.</p> <hr/>                                                                                                                                                                                                                 |
| <b>Group 1 Aspirational Future Suggestions</b> | <p><b>Additions to aspirational future suggested by Esther Dijkstra, Andy Duncan, Hayley Vujcich, Richard Storey, Peter Gawith, &amp; Alton Perrie.</b></p> <ul style="list-style-type: none"> <li>• happy healthy community</li> <li>• natural character</li> <li>• animals other than fish i.e. birds, invertebrates</li> <li>• farming and landuse to match what land is capable of supporting and use that fits in with landscape. More diverse and balanced landuse - for economic and resilience against climate change. Looking at public good impact of individual property landuse.</li> </ul> <hr/> |

**Group 2  
Aspirational  
Future  
Suggestions**

**Additions to aspirational future suggested by Ra Smith, Russell Kawana, Mike Grace, Mike Toews, Michelle Sands, Shane Parata.**

- water clarity if it's not clear, how long should it take to get clear.
  - water quality for children and more susceptible people. Should e-coli limit be 260?
  - difference between lowland and upland rivers - different aspirations.
  - native fish and tuna - should look at in terms of overall habitat and biodiversity instead of just those species. Resilience of habitat.
  - Rimutaka to be a national park to protect waterways .
  - Lakes Wairarapa and Onoke - need to put river back in.
  - Rivers also need to be clean and healthy.
  - More rain.
  - Natural water storage and recharging of aquifers.
  - Address climate change - changing allocation.
  - Change of agriculture - in planned way - diversification of crops to build resilience and look at crops for more water efficiency.
- 

**Group 3  
Aspirational  
Future  
Suggestions**

**Additions to aspirational future suggested by Vanessa Tipoki, Philip Palmer, Aidan Bichan.**

- Safe drinking water that doesn't need to be chlorinated.
  - Natural quality of landscape to support highest quality of living be it social, cultural, economic and mana whenua values.
- 

**Combined  
Statement for  
Aspirational  
Future**

**The group agreed** that for the purposes of the scenario creation exercise, it was sufficient to 'hold lightly' all the contributions from the sub-groups to the aspirational future as they proceeded to the identification of a management option bundle to achieve this aspirational water future of the Ruamahanga.

See **Appendix 1** for the combined updated Ruamahanga Aspirational Future.

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## F Review and Confirmation of Management Option List

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### Workshop Session - The Management Options

- Participants reviewed the list of potential management options, which had been scored (at an indicative level only) for their relative sensitivity score for N, P, Sediment, E-Coli, Enhancing Habitat, Enhancing Natural Character, and Flow Rates (Or Water Supply Reliability).



Rough guide - rating  
potential managemen

- These were discussed and confirmed, and participants asked for any additional management options they wanted to see added to the list.
-

**Ra's alternative management options matrix - breakout group activity**

Ra Smith provided a series of suggested additional management options. Working in breakout groups, participants discussed and determined which were either policy options or management options and which could / could not be modelled.



Additional management options

The results of this discussion are as follows:

Not modellable (but does not preclude it being part of the policy discussion and / or included in WIP):

- best management practice by local individuals
- all policy options (John Bright - assumptions need to be made around how much policy options are taken up)
- planting of kahikatea (can't model for species specific vegetation)
- extensive willow and alder control program
- increasing floating wetlands
- repopulating indigenous fish
- clearfelling trees
- native fish survey (don't have enough data to model impact of improving habitat). Richard Storey - yes very little abundance data but can get data on presence absence.
- some are goals rather than options (e.g. increasing water fowl population, kakahi age range)

MISSING:

- Treated waste water discharge - e.g can limit discharge at only 3 times average flow, no discharge in summer.

The completed matrix of these discussions can be found in **Appendix 2**. A summary of those additional options identified by the committee to be both modellable and management options rather than policy options is contained in **Appendix 3**.

These were added to the original management options list but it was decided not to rate them for an indication of environmental impact as the Ruamāhanga Whaitua Committee already had an idea of the kind of impacts there would be from these options.

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## **G Business as Usual Scenario**

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**Management  
Options -  
Scenario 1 -  
Business as  
usual examples**

Hayley gave a presentation on the Business as Usual scenario, which, put simply, is a continuation of existing management options and policies, for example, relevant provisions from the natural resources plan, e.g. stock exclusion.



PRESENTATION  
Scenario 1 BAU - Man

Q: Does Scenario 1 give us the status quo (as things are now)?

A: No. Scenario 1 is what happens in the future if we roll out the current management regime. Information about the status quo (calibration stage) will be included in the status quo report.

Q: What about population growth?

A: Status quo modelling includes growth that has happened over time. Can be included in scenarios. Partly based on population growth assumptions for wastewater treatment plant by territorial authorities. Need to be covered by BAU as an assumption and needs to include visitor numbers.

Comment: Birds should be considered as a significant source of pollution.

A: Can be addressed through management options.

Q: Are all, e.g. discharge options, going to be modelled across all timeframes?

A: Modellers need to help decide which variations will be valuable to model.

Q: What about political constraints?

A: Decisions around what these are will come later.

Other comments on Aspirational Management options:

- Need to determine where values behind aspirational futures applies (geographically)
- Is full implementation of all farm plans sufficient to achieve the aspirational future? Need to know more detail of farm plans and what they cover.
- Riparian extent, width, vegetation types and what impact that has. Information on Mahi Waiora is in progress.
- Need to clarify timeframe resolutions of modelling.

Scenario 1 implementation plan will cover methods from the PNRP.

**ACTION:** Suggest inviting David Cameron to talk about what's covered by farm plans and what impact that's expected to have. Conversation with land management plan is in progress.

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## H Generating Management Option Bundles

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### Overview

Working in breakout groups, RWC and PT members generated management options that they believed would see the aspirational future achieved. The instructions provided were as follows:

Your task is to determine what mix of management options your group believes will get us to (or close to) the **aspirational future** we identified for the Ruamahanga Whaitua.

1) Identify your list of management options.

2) Then, for EACH management option identified, work through the following:

**What?** Describe the management option

**Why?** What are you trying to achieve with this management option? (**Why** are you including it?)

**Where? Where** in the catchment will this management option apply? And **To whom / to what** will this management option apply?

**When by? When** will the management option apply? Include all the timing assumptions you are making about this management option.

3) When you have finished your selection and detailing tasks (Questions 1 and 2), take a few minutes to **review the mix of management options you have come up with against the water future you are hoping it will be able to achieve.**

- Does our mix of management options provide for **all** the dimensions of our water future?
- Does our mix of management options get us close enough to that future?
- If not, what other management option(s) should be included? (**Repeat steps above for this/these**)
- Confirm the bundle (package) of management options you believe must be implemented together to achieve our water future.

**Note:** This activity was not finished. To be continued next meeting. **Appendix 4** sets out the interim results from each group.

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## Appendix 1: Ruamāhanga Whaitua Committee Aspirational Futures

- Water quality is suitable for swimming everywhere all of the time (clarity, E.coli and periphyton)
- Everyone is well after swimming – allowing for E.coli standards which mean all children and vulnerable people are well after swimming in both lowland and upland rivers.
- Native fish and trout populations are healthy and abundant
  - Habitat accommodates wider range of fish
  - There is a range of habitats
  - Biodiversity
- Tuna health and abundance supports iwi Manaakitanga
- Water flows and water quality provide for mana whenua values
- Lakes Wairarapa and Onoke are clear and healthy (healthy trophic state)
- Put the river back into Lakes Wairarapa and Onoke
- Reliably meet all foreseeable demands on the water
- Safe drinking water that doesn't need to be chlorinated
- We want the natural quality of our landscape to support the highest quality of living in terms of environmental, economic, cultural, social and mana whenua values.
- Happy, healthy and prosperous communities
- Natural character
- Wildlife health to include fish and birds
- Buffer zones for land and water interactions
- Landuse is matched to what it is good for.
- Establish Remutaka and/or Tararuas as National Park.
- Planned changes in agriculture to allow for:
  - Climate change
  - Efficient water allocation and use
  - Resilient crops

## Appendix 2: Management options – modellable and management option?

| OPTIONS                                                          | CAN BE MODELLED | MANAGEMENT OPTION | POLICY OPTION |
|------------------------------------------------------------------|-----------------|-------------------|---------------|
| GREEN INFRASTRUCTURE                                             |                 |                   |               |
| Gradual planting of Lake Wairarapa in macrophytes                | ✓✓?             | ✓✓✓               |               |
| Planting of Kahikatea in the headwaters for attenuation          | ✓x              | ✓✓✓               |               |
| Planting of wetlands for sediment traps and nutrient removal     | ✓✓✓             | ✓✓✓               |               |
| Planting of wetlands for attenuation and varying water flow      | ✓✓✓             | ✓✓✓               |               |
| Increasing wetland construction by being an alternative to ponds | ✓✓✓             | ✓✓✓               | ✓             |
| Harvesting of wetland flaxes to continue nutrient extraction     | ✓✓              | ✓✓✓               |               |
| Creating backwaters to grow kuta in areas with methane           | ✓x              | ✓✓✓               |               |
| Increase the native riparian planting for shade                  | ✓✓✓             | ✓✓✓               |               |
| Moving central channels closer to hard rock banks of water ways  | ? ✓x            | ✓✓✓               |               |
| BLUE INFRASTRUCTURE                                              |                 |                   |               |

|                                                                                   |    |     |     |
|-----------------------------------------------------------------------------------|----|-----|-----|
| Highlighting springs and seeps for protection and monitoring                      | ✓  | ✓?✓ | ✓   |
| Springs and seeps mapped to establish puna infrastructure                         | ✓  | ✓✓✓ | ✓   |
| Wetland springs highlighted to understand the possibility to redesign the wetland | ✓  | ✓✓✓ | ✓   |
| Increase the number and the age range of kakahi                                   | ?x | ✓✓  |     |
| GREY INFRASTRUCTURE                                                               |    |     |     |
| Removing metal from natural sediment traps in the dry                             | x  | ✓✓✓ |     |
| Gravel take requires finer sediment take                                          | x  | ✓✓  | ✓?  |
| Working with T Bar gravel groynes and removing gathered sediment                  | x  | ✓✓  | ✓?  |
| Artificial bunds alongside rivers and throughout paddocks to stop sediment flow   | ✓✓ | ✓✓✓ |     |
| PEOPLE INFRASTRUCTURE                                                             |    |     |     |
| Adapting Matrix of good management matrix to the whitua                           | ✓  | ✓   | ✓✓  |
| Good management practice through local representatives of stakeholders            | ?  |     | ✓✓✓ |
| Best management practice by local individuals of stakeholders                     | ?  |     | ✓✓✓ |
| Good management practice through community members represented by RWC             | ?  |     | ✓✓✓ |

|                                                                                                       |     |     |     |
|-------------------------------------------------------------------------------------------------------|-----|-----|-----|
| Best management practice through community members represented by RWC                                 | ?   |     | ✓✓✓ |
| WAIRARAPA MOANA                                                                                       |     |     |     |
| Variation to the length of time current lake is opened at Onoke & at barrage gates                    | ✓✓✓ | ✓✓✓ | ✓   |
| Variation to the current lake depth                                                                   | ✓✓✓ | ✓✓✓ |     |
| An extensive weed control programme targeting willows and alder                                       | ?   | ✓✓✓ | ✓✓  |
| The lagoon to be artificially opened twice to reduce nutrient and sediment levels in the water column | ✓✓  | ✓✓✓ |     |
| Increased riparian planting on Lake Wairarapa                                                         | ✓   | ✓✓✓ |     |
| Increase number of water fowl at Wairarapa Moana through better conditions for water fowl             | ?   | ✓   |     |
| Construction of floating wetlands                                                                     | ?   | ✓✓✓ |     |
| Harvesting of lake weed                                                                               | ?   | ✓✓✓ |     |
| RUAMĀHANGA WHAITUA                                                                                    |     |     |     |
| Setting different water allocation rates                                                              | ✓✓✓ | ✓✓  | ✓   |
| Setting catchment nutrient loads from agriculture                                                     | ✓✓✓ | ✓✓  | ✓   |
| Providing for cultural flows in waterways                                                             | ✓✓✓ | ✓✓  | ✓   |

|                                                                               |       |     |  |
|-------------------------------------------------------------------------------|-------|-----|--|
| Halt the progressive infestation by weeds of sedge-lands and water bodies.    | x     | ✓✓✓ |  |
| Frequency and extent of drain maintenance works in tributaries                | x     | ✓✓✓ |  |
| Indigenous Fish repopulating                                                  | x     | ✓✓  |  |
| Construction of a place for phosphorus-locking plants                         | ?     | ✓✓  |  |
| Increased trees in Eastern hills                                              | ✓✓✓   | ✓✓✓ |  |
| Change to tree harvesting regime from clear felling to targeted trees ongoing | ?     | ✓✓✓ |  |
| <b>ADDITIONAL</b>                                                             |       |     |  |
| Aquatic habitat diversity (pools, riffles, runs etc)                          | Maybe | ✓   |  |
| WWTP discharge to water only @ >3x, median flow                               | Yes   |     |  |
| No WWTP discharge to water Nov-May                                            | Yes   |     |  |
| Greywater taken out of the waste water stream                                 | ?     | ✓   |  |

### Appendix 3: Additional management options identified

WWTP discharge to water only @ >3x, median flow  
No WWTP discharge to water Nov-May  
Greywater taken out of the waste water stream

} Effluent discharge practice/ Remove WWTP discharge

Planting of wetlands for sediment traps and nutrient removal  
Planting of wetlands for attenuation and varying water flow  
Increasing wetland construction by being an alternative to ponds

} Riparian enhancement/ sediment mitigation

Variation to the length of time current lake is opened at Onoke & at barrage gates  
Variation to the current lake depth

} Replumbing Lake

Setting different water allocation rates → Increased minimum flows/decreased allocation

Setting catchment nutrient loads from agriculture → New?  
Increase the native riparian planting for shade → New?  
Aquatic habitat diversity (pools, riffles, runs etc) → New?  
Providing for cultural flows in waterways → New?

## Appendix 4: Ruamāhanga Whaitua Committee Management Options – Workshop 5/9/16

### Group 1: Aidan, Vanessa, Peter, Mike Toews (GNS), Mike Thompson, Murray, Grace

| <b>What</b><br>Describe the management option                           | <b>Why</b><br>What will the management option achieve? (Why are you doing it?)                                                           | <b>Where</b><br>Where/to whom does the management option apply?                                    | <b>Timeframe</b><br>Describe the timeframe(s) if relevant | <b>Other details</b><br>Describe any other assumptions of relevance                                                                                                                                    |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Planting hill country/erosion control (retire hill country)             | Improve water clarity<br>Reduce phosphorous<br>Mana whenua benefit<br>Greater water retention<br>Diversity/biodiversity + amenity values | Eastern hill country<br>Soft sediment soil types                                                   | All farm plans to be fully operational within 10 years    | Running lighter stock on soft soil can help reduce soil erosion<br>Assume farm plans = good/best practice and will achieve intent of this option<br>Can rates rebates be given to those who implement? |
| Stock exclusion                                                         | Improve water quality<br>Mana whenua benefit<br>Natural character<br>Habitat                                                             | Whole catchment (category 1,2,3 waterbodies)<br>Total exclusion for<br>-deer<br>-cattle<br>-pigs   | 2022                                                      | Total exclusion does not necessarily mean total fencing. Could be other management practices to exclude stock                                                                                          |
| Riparian enhancement (planting of natives, not just retirement of land) | Improve water quality<br>Create sediment traps<br>Natural character<br>Biodiversity                                                      | Whole catchment, all land uses targeting high risk areas where cross-surface flow enters waterways | 2022 – can we model to a date like this?                  | Farm + environment plans<br>Needs ongoing maintenance plan<br>More info needed on impacts of different vegetation types.                                                                               |

**Group 2: Esther, Andy, Phillip, Michelle Sands, Harvey, Hayley**

| <b>What</b><br>Describe the management option                                                   | <b>Why</b><br>What will the management option achieve? (Why are you doing it?)                                                                                                                                                                                                                                                                                     | <b>Where</b><br>Where/to whom does the management option apply?                                     | <b>Timeframe</b><br>Describe the timeframe(s) if relevant | <b>Other details</b><br>Describe any other assumptions of relevance                                                                                                            |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Effluent discharges are all to land<br>-WWTP<br>-agricultural & industrial effluent<br>-septics | Treat all poo similarly to get it out of the water<br>-E. coli, nitrogen, phosphorous<br>-Reduce offense to cultural values (everybody)<br>All WWTPS have similar regime<br>Amenity and recreation<br>Health<br>Nitrogen<br><ul style="list-style-type: none"> <li>- To manage periphyton</li> <li>- To deal with catchment cumulative effects on lakes</li> </ul> | WWTP discharges occur within a 10km radius of existing plants                                       | All discharge to land by 2025                             | Deficit irrigation to cropping system<br>Land should be suitable for irrigation<br>Require storage<br>Also note that policy could consider management of emerging contaminants |
| Solids separator for agricultural effluent discharge to land                                    |                                                                                                                                                                                                                                                                                                                                                                    | Agricultural effluent discharges<br>-dairy<br>-piggeries<br>-any other intensive agricultural areas | Installed and used by 2025                                |                                                                                                                                                                                |
| Management of erosion prone land<br>-retirement from livestock<br>Afforestation in Manuka       | Reducing sediment<br>60% comes from 4% of land                                                                                                                                                                                                                                                                                                                     | Very steep land<br>Eastern hill country<br>Land prone to river erosion                              |                                                           |                                                                                                                                                                                |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Other policy options/questions:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>- Want to revisit policy option for effluent disposal practice to look at maximising area that effluent can be spread to so that P problems are avoided</li> <li>- WOF for septics: some known problem areas (high # of rural residential over the top of aquifers used for water takes e.g. Opaki.</li> <li>- Nitrogen management: <ul style="list-style-type: none"> <li>o Interest in examining sub-catchment load and trading mechanisms as a policy option</li> <li>o Land use discharge limits could be determined by land use capacity (or similar?) system – requires further information to decide which systems</li> </ul> </li> <li>- Model output <ul style="list-style-type: none"> <li>o Want to know where nodes for sub-catchment N limits are located so that a “where” for management options are applied. Need to have values or aspirations are mapped on the catchment.</li> </ul> </li> </ul> |

**Group 3: Russell, Ra, David, John Bright, Shane, Mike Grace**

| <b>What<br/>Describe the<br/>management option</b>                           | <b>Why<br/>What will the management<br/>option achieve? (Why are you<br/>doing it?)</b>                                                       | <b>Where<br/>Where/to whom does the<br/>management option apply?</b>                                                                                                                               | <b>Timeframe<br/>Describe the timeframe(s)<br/>if relevant</b>  | <b>Other details<br/>Describe any other assumptions of<br/>relevance</b>                                                                                                                                                  |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Building on-land sediment traps i.e. bunding                                 | Reduce runoff especially overland flow<br>Nutrient reduction<br>Enhances streams, wetlands through pathogen removal                           | Farms/TLAs<br>-farm paddocks<br>-district council lands<br>-regional council lands<br>-public lands<br>Targeted critical sources/hotspots<br>Flat/gentle river/lake margins<br>Free draining soils | 50% hot spots banded by 2020                                    | Build into nutrient and farm plan management<br>Regulatory support<br>Best practice fit for purpose utilisation appropriate to soil conditions i.e. drainage<br>Bundle bunds with riparian management options<br>Setbacks |
| Return Ruamāhanga to Wairarapa Moana 100%                                    | Remove sediment<br>Improve water quality<br>Improve recruitment of native fish<br>Restore mauri by bringing entities together<br>Connectivity | Cutoff<br>Jury Island<br>Iwi<br>Wairarapa community<br>Farming<br>GW<br>WDC                                                                                                                        | 2018 Stage 1 research starts<br><br>2030 100% of river returned | Unknowns re ecosystem cost/benefits<br>Research component<br>Limits/limitations of infrastructure<br>-farming impacts<br>-climate change                                                                                  |
| Construct new wetlands in natural wetland areas<br>Increase wetland coverage | Nutrient treatment<br>Sediment retention<br>Increase habitat<br>Indigenous fish                                                               | Near rivers & low areas<br>Subcatchments<br>Landowners<br>Any property where the topography allows<br>Council land<br>DoC reserves<br>Wairarapa Moana & Onoke margins                              | 50% of potential wetland topography is wetland in 10 years      | Align with nutrient management and farm plans<br>Regulatory encouragement<br>Managed wetlands as part of farm plans                                                                                                       |
| Wastewater discharged to land<br>No discharge to river                       | Public health<br>Mana<br>Ecosystem health<br>River water quality<br>Mahinga Kai & Maori Customary Use<br>Support irrigation in low flows      | Wairarapa wide<br>District Councils<br>Henley Lake                                                                                                                                                 | 2030 all to land                                                | Wastewater is a resource<br>Stormwater separation<br>Greywater options<br>Blackwater options<br>Meeting projected population growth                                                                                       |

| <b>What<br/>Describe the<br/>management option</b>                                        | <b>Why<br/>What will the management<br/>option achieve? (Why are you<br/>doing it?)</b>                                                                                  | <b>Where<br/>Where/to whom does the<br/>management option apply?</b>                                               | <b>Timeframe<br/>Describe the timeframe(s)<br/>if relevant</b>                                                                                 | <b>Other details<br/>Describe any other assumptions of<br/>relevance</b>                       |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                                                                                           | Reduce pathogens<br>Reduce nutrients                                                                                                                                     |                                                                                                                    |                                                                                                                                                |                                                                                                |
| Stormwater managed &<br>separated from waste<br>water<br>Stormwater management<br>on site | Reduce contamination<br>Reduce discharge to streams<br>Increase efficiency of WWT<br>Reduce impact of SW on<br>natural/built environment<br>Retains groundwater recharge | Wairarapa wide<br>Identify & maximise soakage<br>potential<br>Everyone – retrofit existing<br>-requirement for new | Immediate for new<br>residential & industry<br>Target biggest sources<br>For existing - 50%<br>soakage reduction in SW<br>leaving site by 2030 | Stormwater is a resource<br>Treated by natural process before<br>returning to aquifers & river |

ENDS