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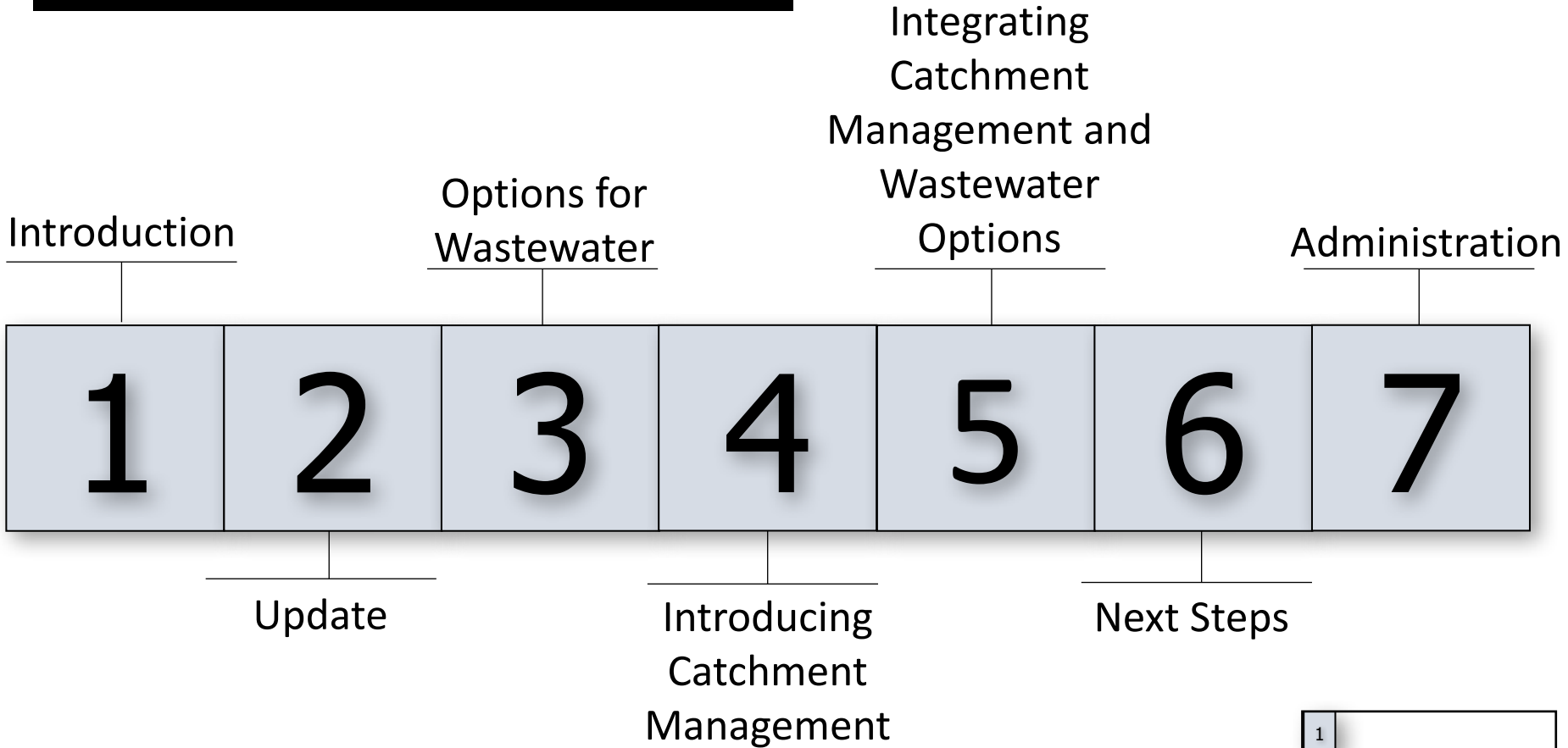
# Wairoa Wastewater Scheme Stakeholder Group Meeting

Meeting 7 – 4 September 2017

# INTRODUCTION



## Outline



# UPDATE



## Meetings

- Council Meeting
- Hui-a-Iwi
- Public Meeting
- Te whare wananga o awanui a rangi

## Eastland Network

- Compensation payment

# OPTIONS FOR WASTEWATER



22 Discharge options have been categorised as either:

Status Quo

River

Ocean

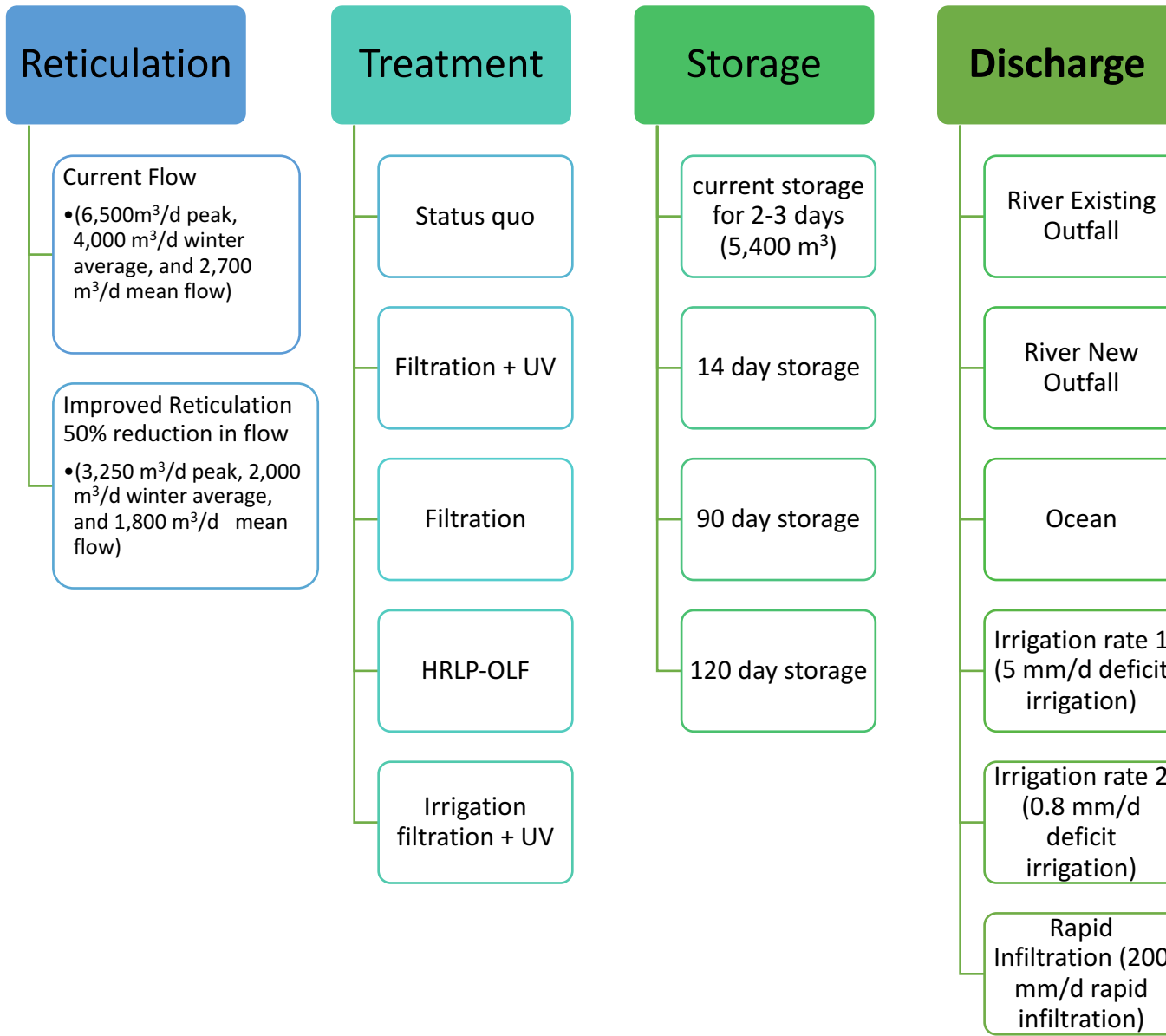
Land

Combination





# OPTIONS FOR WASTEWATER - PARAMETERS



# OPTIONS FOR WASTEWATER



Pros and Cons of each option

Consideration of the four pillars

- Cultural
- Environmental
- Financial
- Recreational/Social

What is suitable for Wairoa?

- Benefits
- Disadvantages



# OPTIONS – WHAT ARE THEY

## Status Quo

- 1.1 Status Quo
- 1.2 River-low bugs/24-hour continuous discharge

## River

- 2.1 River-low bugs
- 2.2 River-low bugs/HRLP-OLF
- 2.3 River-HRLP-OLF
- 2.4 River-50% flow/low bugs/HRLP-OLF
- 2.5 River(new)-low bugs -HRLP-OLF

## Ocean

- 3.1 Ocean
- 3.2 Ocean-HRLP-OLF

## Land

- 4.1 Land-90 day storage buffer/irrigation rate 1
- 4.2 Land-120 day storage buffer/irrigation rate 1
- 4.3 Land-50% flow/90 day storage buffer/irrigation rate 1
- 4.4 Land-50% flow/120 day storage buffer/irrigation rate 1
- 4.5 Land-90 day storage buffer/irrigation rate 2
- 4.6 Land-120 day storage buffer/irrigation rate 2
- 4.7 Land-50% flow/90 day storage buffer/irrigation rate 2
- 4.8 Land-50% flow/120 day storage buffer/irrigation rate 2
- 4.9 Land-rapid infiltration

## Combo

- 5.1 Combo-River/land-HRLP-OLF/14 day storage buffer
- 5.2 Combo-River/land-HRLP-OLF/90 day storage buffer
- 5.3 Combo-50% flow/River/land-HRLP-OLF/14 day storage buffer
- 5.4 Combo-50% flow/River/land-HRLP-OLF/90 day storage buffer

# OPTIONS – WHAT ARE THEY



## Status Quo

- 1.1 Status Quo
- 1.2 River-low bugs/24-hour continuous discharge

# OPTIONS – WHAT ARE THEY



## River

- 2.1 River-low bugs
- 2.2 River-low bugs/HRLP-OLF
- 2.3 River-HRLP-OLF
- 2.4 River-50% flow/low bugs/HRLP-OLF
- 2.5 River(new)-low bugs -HRLP-OLF

# OPTIONS – WHAT ARE THEY



## Ocean

- 3.1 Ocean
- 3.2 Ocean-HRLP-OLF





# OPTIONS – WHAT ARE THEY

## Land

- 4.1 Land-90 day storage buffer/irrigation rate 1
- 4.2 Land-120 day storage buffer/irrigation rate 1
- 4.3 Land-50% flow/90 day storage buffer/irrigation rate 1
- 4.4 Land-50% flow/120 day storage buffer/irrigation rate 1
- 4.5 Land-90 day storage buffer/irrigation rate 2
- 4.6 Land-120 day storage buffer/irrigation rate 2
- 4.7 Land-50% flow/90 day storage buffer/irrigation rate 2
- 4.8 Land-50% flow/120 day storage buffer/irrigation rate 2
- 4.9 Land-rapid infiltration

# OPTIONS – WHAT ARE THEY



## Combo

- 5.1 Combo-River/land-HRLP-OLF/14 day storage buffer
- 5.2 Combo-River/land-HRLP-OLF/90 day storage buffer
- 5.3 Combo-50% flow/River/land-HRLP-OLF/14 day storage buffer
- 5.4 Combo-50% flow/River/land-HRLP-OLF/90 day storage buffer

# OPTIONS – KEY MESSAGES



Using current discharge comes at a cost – no zero cost option

An ocean outfall will be expensive

Irrigation is expensive

Rapid infiltration could work

Combinations could work and be developed over time e.g. do basic now and add to over time

# MORNING TEA



# INTRODUCING CATCHMENT MANAGEMENT



## Two parts

- Management
- Projects



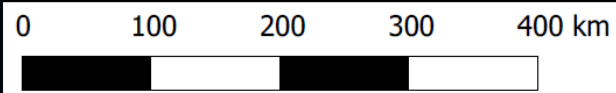
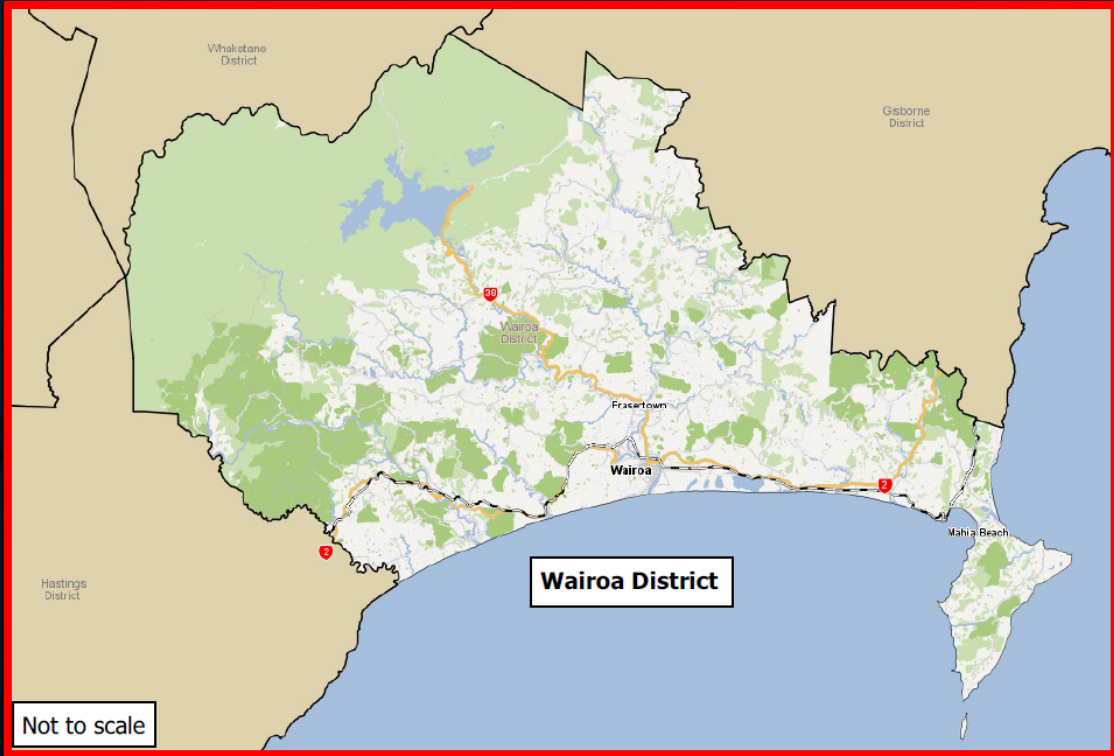


# Legend

Hawkes Bay Region



## Location of Hawkes Bay Region and Wairoa District





# Legend

Main Rivers and Lakes



Wairoa District



## Wairoa District



Lake Waikaremoana

Wairoa

0 10 20 30 40 km








# Wairoa District and Wairoa River Catchment

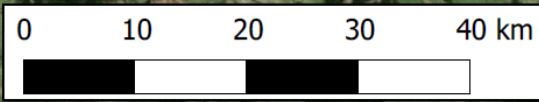
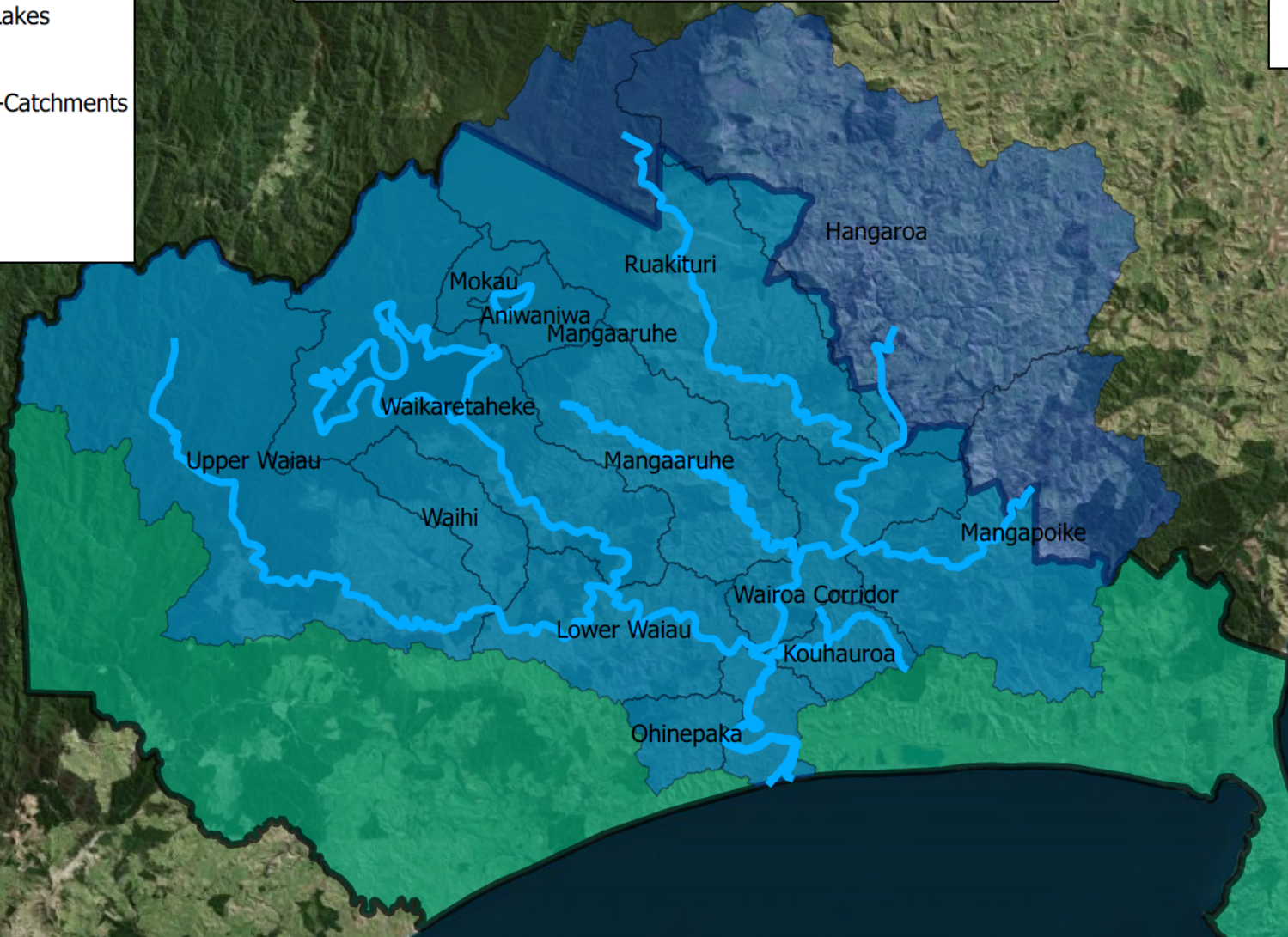


**Legend**

Main Rivers and Lakes  


Wairoa River Sub-Catchments  


Wairoa District  






# Map 4 Wairoa River Catchment

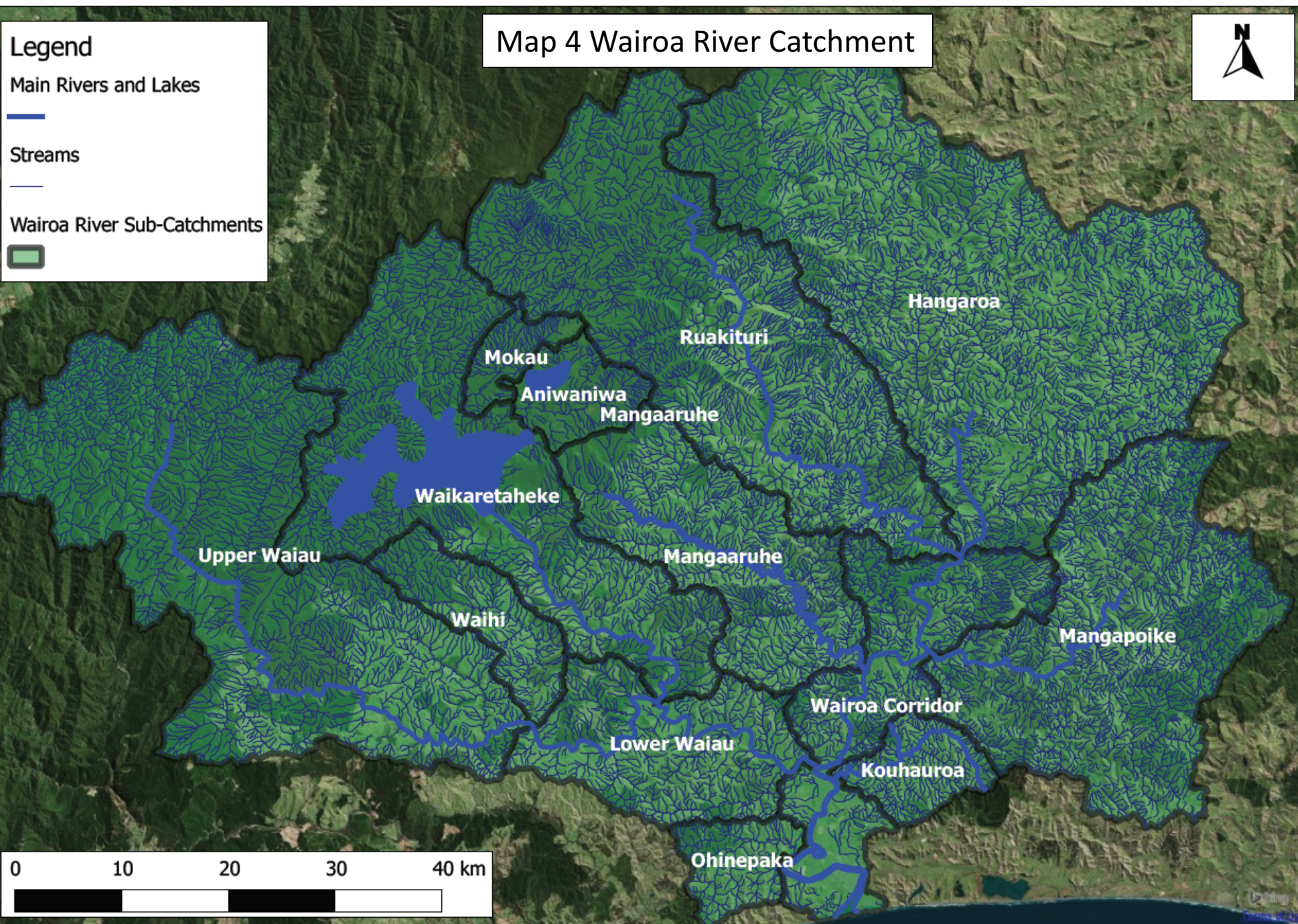
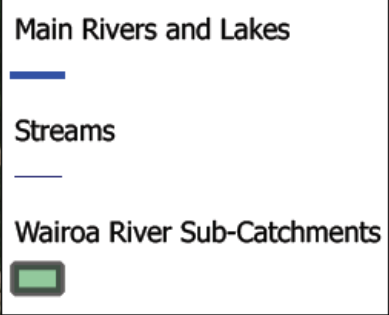


**Legend**

Main Rivers and Lakes

Streams

Wairoa River Sub-Catchments



Upper Waiau

Waihi

Lower Waiau

Wairoa Corridor

Kouhauroa

Ohinepaka

Mangapoike

Mangaaruhe

Mangaaruhe

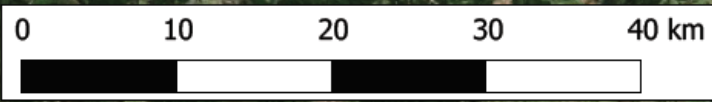
Aniwaniwa

Mokau

Ruakituri

Hangaroa

Waikaretaheke

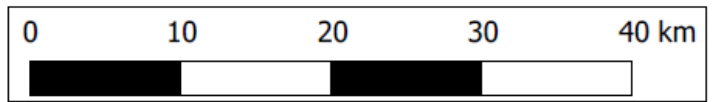
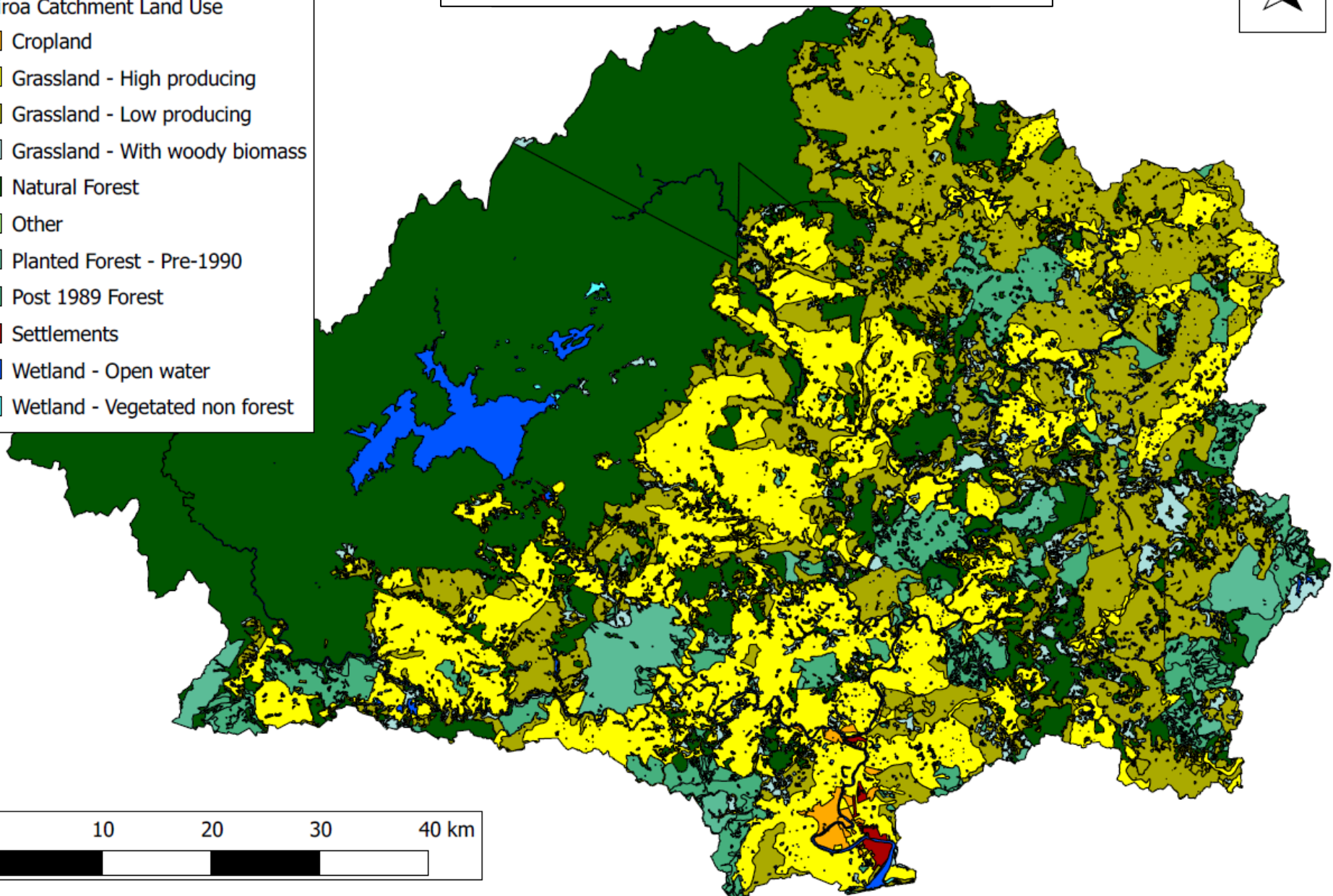




Map 5 Wairoa River Catchment Land Use



- Legend**
- Wairoa Catchment Land Use
- Cropland
  - Grassland - High producing
  - Grassland - Low producing
  - Grassland - With woody biomass
  - Natural Forest
  - Other
  - Planted Forest - Pre-1990
  - Post 1989 Forest
  - Settlements
  - Wetland - Open water
  - Wetland - Vegetated non forest



# INTRODUCING CATCHMENT MANAGEMENT



## Two parts

- Management
- Projects

### Management

- Coordination
- Administration
- Funding
- Monitoring

### Projects

- Afforestation
- Retirement of land from grazing
- Riparian planting
- Pole planting
- Structures and earthworks
- Farm Environment Plans



# INTRODUCING CATCHMENT MANAGEMENT



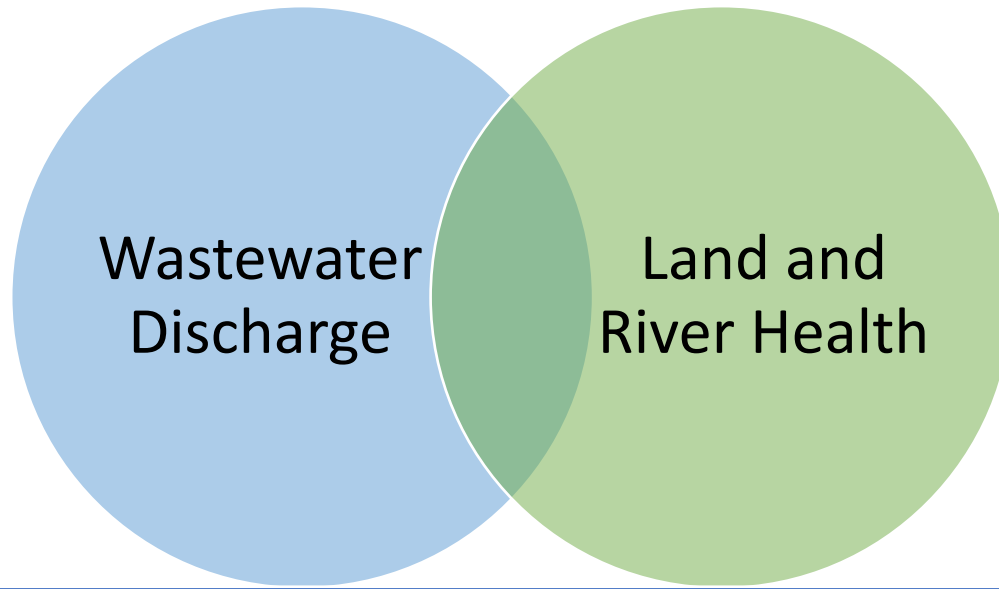
## Cost — Based on SLUI Project (Cooper, 2016)

- Afforestation \$1,300/ha
- Retirement \$1,500/ha
- Riparian \$2,625/ha
- Space Planting \$780/ha
- Gully planting \$2,166/ha
- Structures & earthworks \$600/ha
- Farm Plans \$15/ha (\$15,000 for 1,000 ha) estimate





# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS



Overall Catchment Improvement

# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS

## 9 Scenarios



2 Focus

- Land or Water Discharge
- Catchment or Wastewater

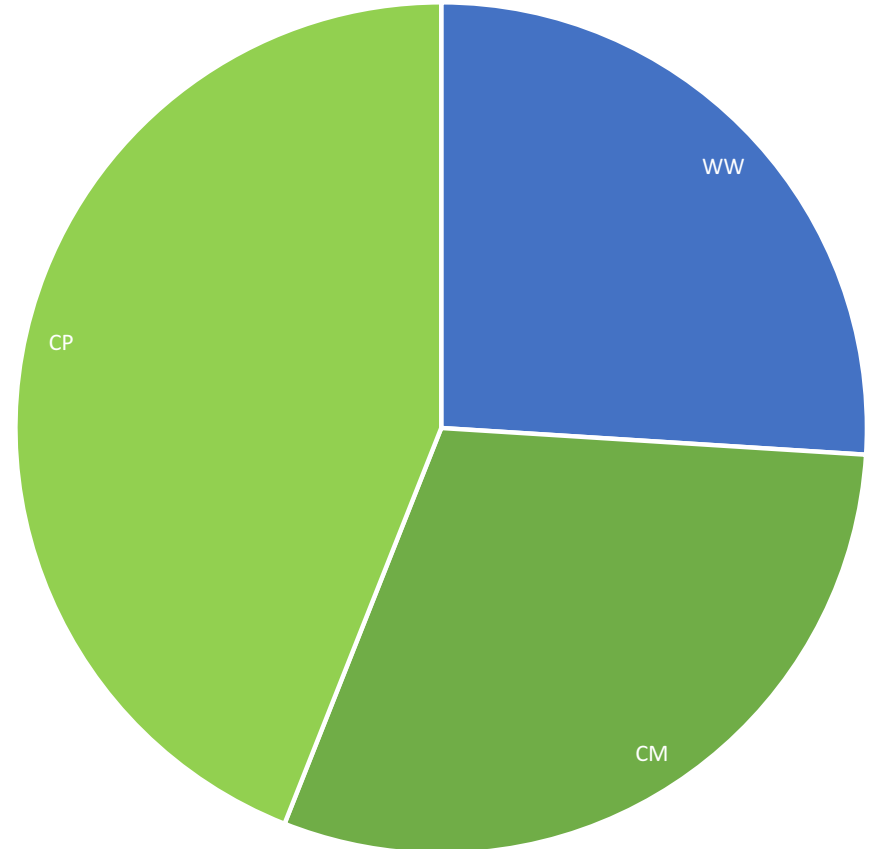
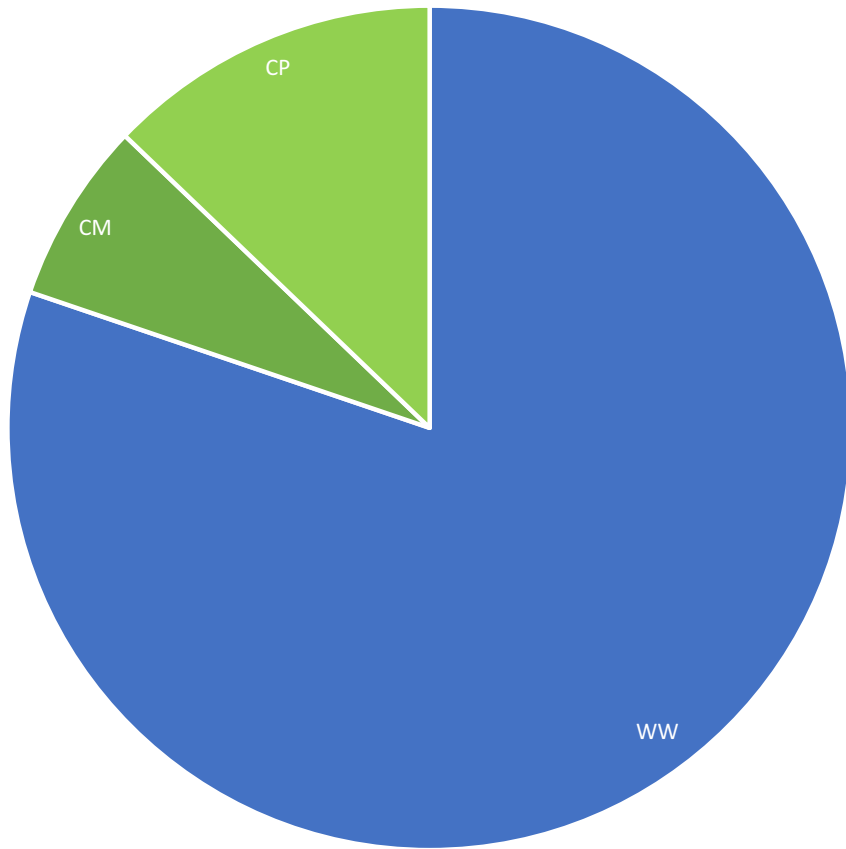
Generic Options

- Wastewater (WW)
- Catchment Management (CM)
- Catchment Projects (CP)

3 Cost Structures

- \$5M, \$200/c
- \$10M, \$400/c
- \$20M, \$800/c

# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS



# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS



## Wastewater

- Option 2.2 – HRLP, to water
- Option 4.9 – Rapid Infiltration
- Option 5.2 – Land and HRLP
- Variations of Option 5.2 (change in storage volume)

## Catchment Management

- Project facilitation
- Funding proposals
- Field staff – monitoring, project assistance

## Catchment Projects

- Farm Management Plans
- Retirement from grazing
- Erosion control
- Fencing
- Riparian planting
- Stock crossings

# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS



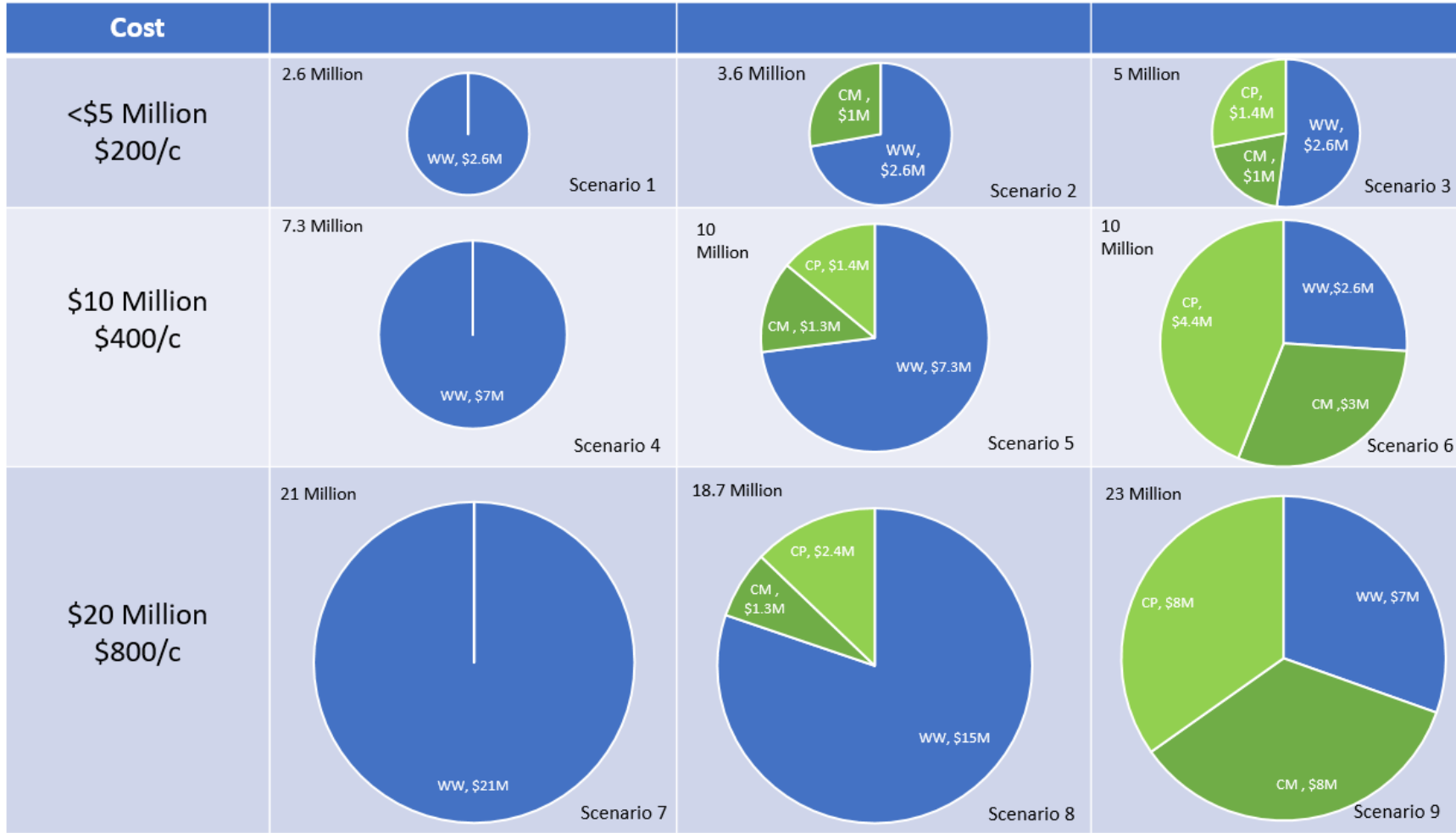
More to Water



More to Land

Discharge Focus

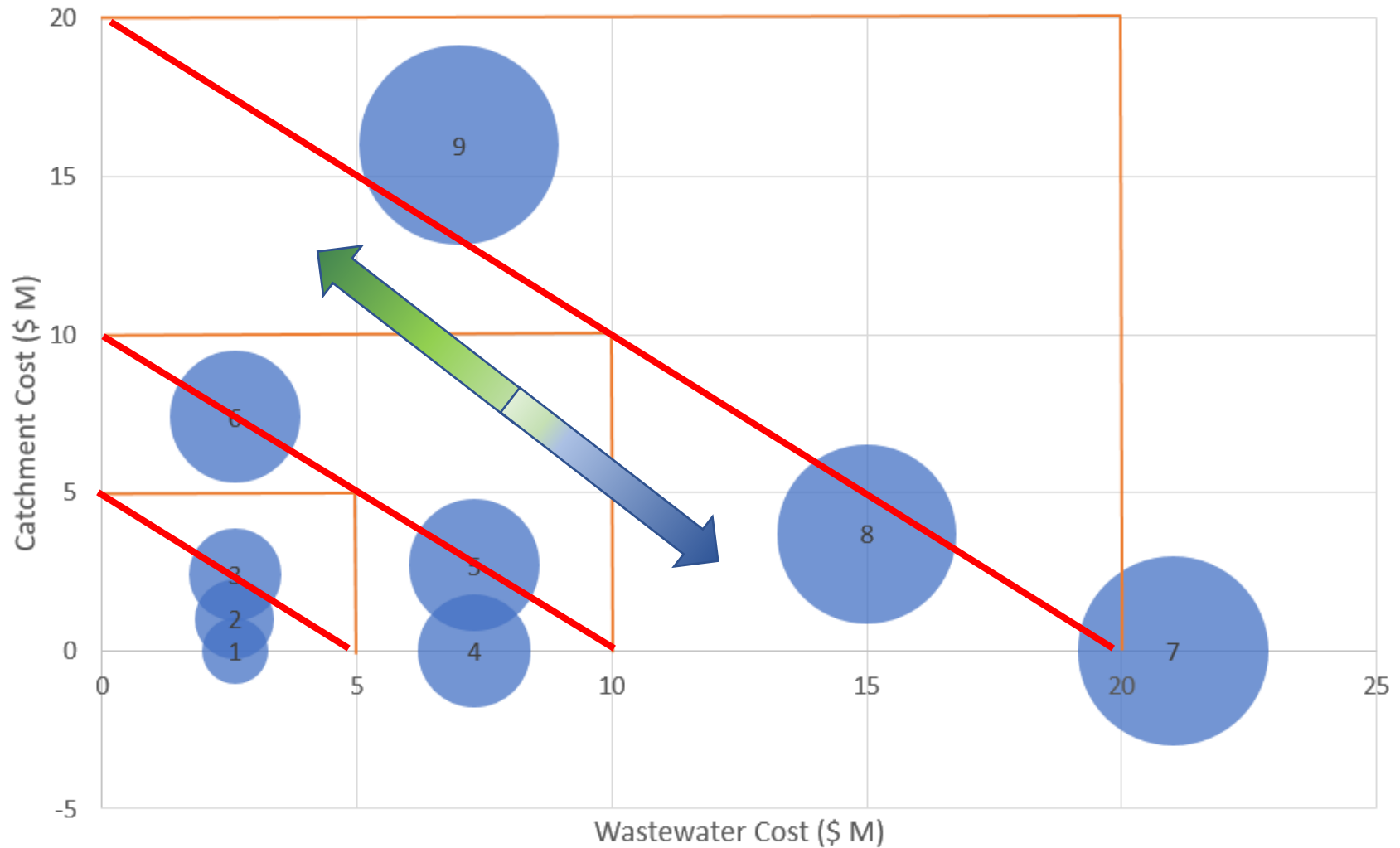
Catchment Focus



# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS



Catchment v Wastewater Costs





# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS



## Scenario Cost Breakdown

Scenario	Wastewater (\$M)	Catchment Management (\$M)	Catchment Projects (\$M)	Total (\$M)
1	2.6	0	0	2.6
2	2.6	1	0	3.6
3	2.6	1	1.4	5
4	7.3	0	0	7.3
5	7.3	1.3	1.4	10
6	2.6	3	4.4	10
7	21	0	0	21
8	15	1.3	2.4	18.7
9	7	8	8	23

# Map 6 Afforestation Scenario



## Legend

Afforestation Scenario



Wairoa River Sub-Catchment



Mangaaruhe

Scenario 3: (\$1.4m) 1,077ha

Scenario 6: (\$4.4m) 3,385ha

Mangaaruhe

Scenario 9: (\$8m) 6,154ha

0 5 10 15 20 km





# Map 7 Retirement Scenario



**Legend**

Retirement Scenario

Wairoa Sub-Catchment

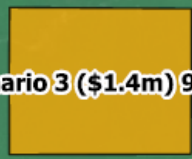
Mangaaruhe



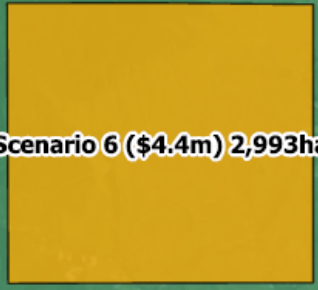
Wairoa Sub-Catchment



**Scenario 3 (\$1.4m) 933ha**

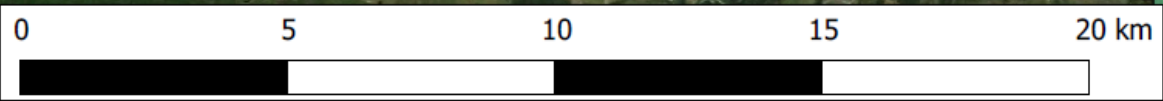


**Scenario 6 (\$4.4m) 2,993ha**



Mangaaruhe

**Scenario 9 (\$8m) 5,333ha**





# Legend

Soil Conservation Scenario



Wairoa River Sub-Catchment



Mangaaruhe

## Map 8 Soil Conservation Scenario



Scenario 3 (\$1.4m) 1,591ha

Scenario 6 (\$4.4m) 5,000ha

Scenario 9 (\$8m) 9,093ha

Mangaaruhe

0 5 10 15 20 km





# Legend

Riparian Length



Wairoa River Catchment



## Map 9 Riparian Scenario



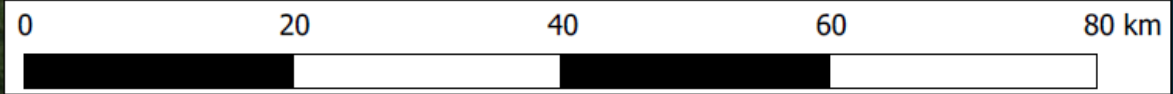
**Scenario 3: (\$1.4m) 178km**



**Scenario 6: (\$4.4m) 559km**



**Scenario 9: (\$8m) 1,016km**





# Map 10 Farm Plan Scenario

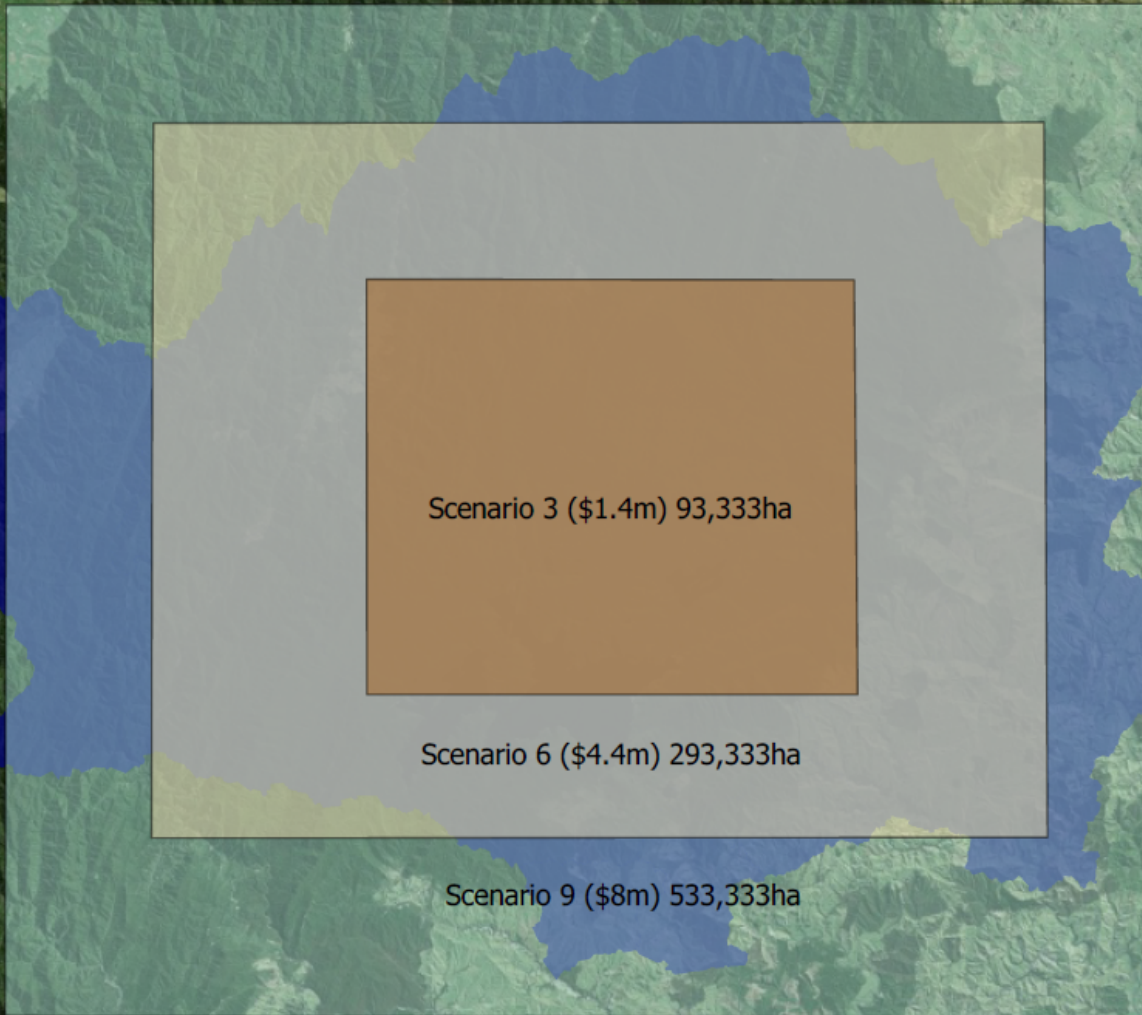


## Legend

### Farm Plan Scenario

- Scenario 3 (\$1.4m) 93,333ha
- Scenario 6 (\$4.4m) 293,333ha
- Scenario 9 (\$8m) 533,333ha

### Wairoa River Catchment



Scenario 3 (\$1.4m) 93,333ha

Scenario 6 (\$4.4m) 293,333ha

Scenario 9 (\$8m) 533,333ha

0 20 40 60 80 km

# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS



## Scenario Cost Breakdown

Scenario	Wastewater (\$M)	Catchment Management (\$M)	Catchment Projects (\$M)	Total (\$M)
1	2.6	0	0	2.6
2	2.6	1	0	3.6
3	2.6	1	1.4	5
4	7.3	0	0	7.3
5	7.3	0	1.4	10
6	2.6	3	4.4	10
7	21	0	0	21
8	15	1.3	2.4	18.7
9	7	8	8	23

Provide for balanced



# Map 11 Balance Scenario



## Legend

Balance Scenario

Afforestation

Planning

Retirement

Soil Conservation

RiparianZoneLength

Scenario 3 (\$1.4m) 32km

Scenario 6 (\$4.4m) 101km

Scenario 9 (\$8m) 183km

Wairoa River Catchment



**Scenario 3 (\$1.4)**

159ha  
183ha  
648ha 3,733ha

**Scenario 6 (\$4.4m)**

499ha  
575ha  
2,038ha 11,733ha

**Scenario 9 (\$8m)**

907ha  
1,046ha  
3,705ha 21,333ha

**Scenario 9: 183km Total**

**Scenario 6: 101km Total**

**Scenario 3: 32km Total**

**Note: Riparian Length for each scenario starts from the sea**

0 10 20 30 40 km





# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS

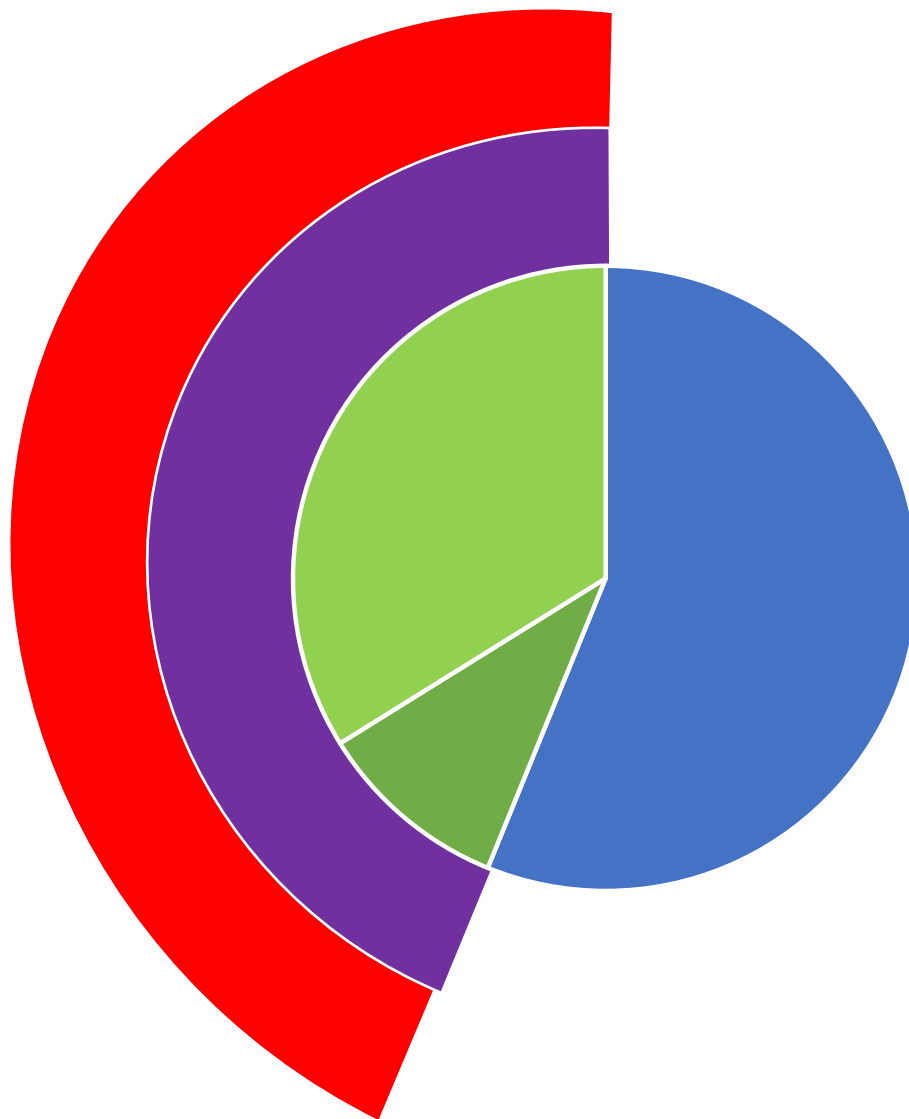


## Scenario Assumptions

- Current level of investment in reticulation improvement is used
- Catchment improvement investments are based on allocation to wastewater connections
- Wider rate payer inclusion will create more investment
- Additional funding is highly likely to be obtained for catchment improvement initiatives



# INTEGRATING CATCHMENT MANAGEMENT AND WASTEWATER OPTIONS





## NEXT STEPS?

Council Update & Endorsement

Tangata Whenua & Community Consultation

Refine Preferred Option(s)

- Discharge
- Catchment?

# ADMINISTRATION



## Dropbox information

- Who wants hard copies?

## Next meeting focus

- Options and engagement process with the community

## Meeting date and time



# LUNCH

