ROTOMA / ROTOITI SEWERAGE SCHEME CENTRALISED OPTIONS

LAND TREATMENT SYSTEM INVESTIGATION

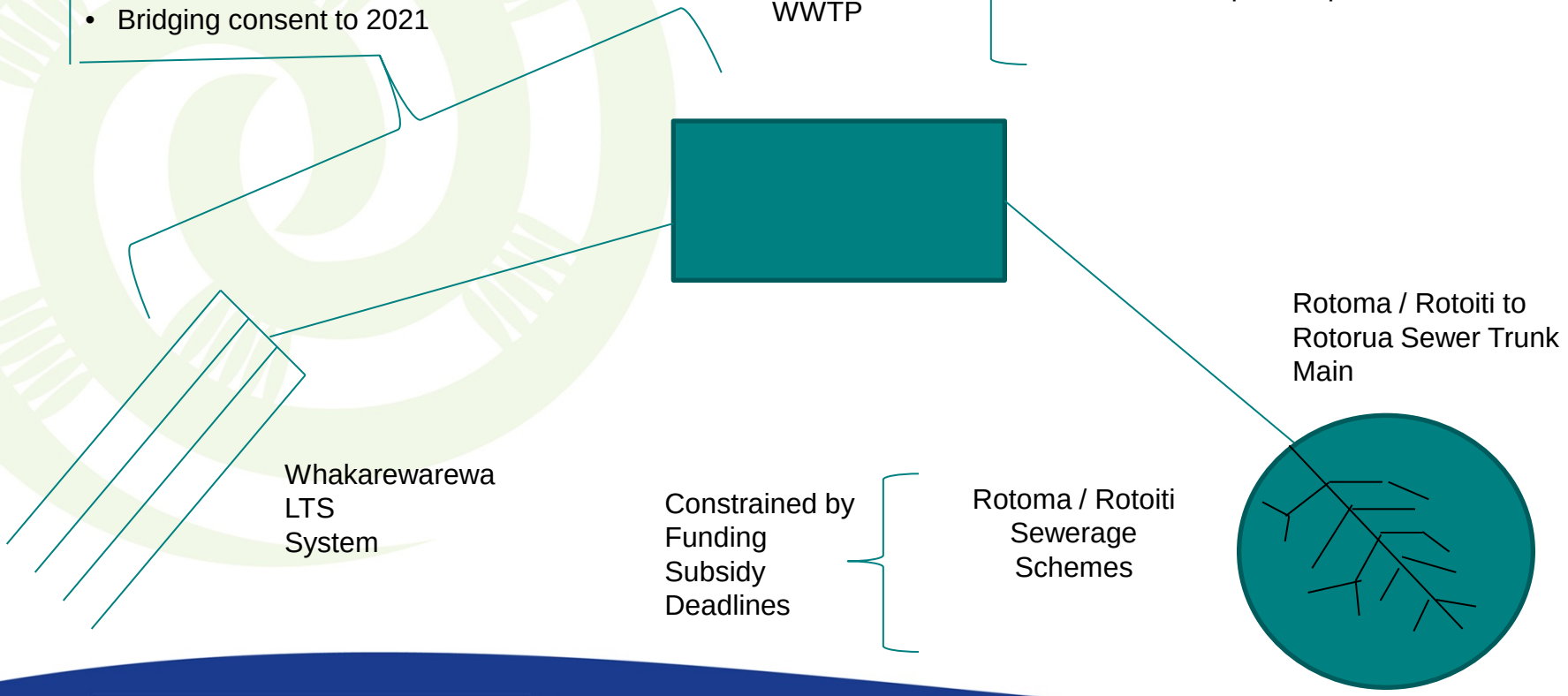
ROTORUA WWTP & LTS CHANGE IN CONSENT CONDITION APPLICATION

1.The Three Interlinked Wastewater Servicing Issues

- Inclusion of Rotoma / Rotoiti etc
- Non compliance of LTS to Nitrogen limits
- Perception / Acceptability of Additional loads to LTS
- Bridging consent to 2021

Rotorua WWTP

- Proposed change in Nitrogen consent limit and compliance point



Whakarewarewa LTS System

Constrained by Funding Subsidy Deadlines

Rotoma / Rotoiti Sewerage Schemes

Rotoma / Rotoiti to Rotorua Sewer Trunk Main

2. WWTP & LTS Options for Rotoma / Rotoiti

- Unsuccessful in obtaining EC approval – cultural issues raised during EC hearing
- BOPRC consent surrendered for Manawahe Road WWTP & LTS
- Centralised options investigated

	Capital Cost ($M)	NPV Cost ($M)
Centralised system to Rotorua	23.94	31.51
Centralised system to Kawerau	23.10	28.44

- Preferred option – Centralised System to Rotorua.
  - Long term certainty and ability to have direct control over the asset and provision of service.

3. Rotorua WWTP and LTS Resource Consent Change Application

a) LTS Performance

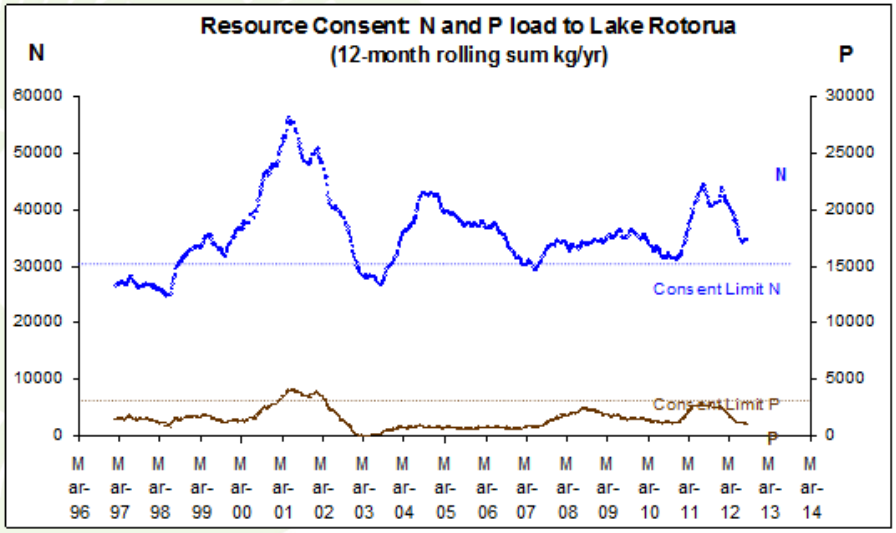


Figure 1

- Since 1998 - 30 Tonnes Nitrogen limit was exceeded at different times from a range of 1 Tonne to 19 Tonnes per annum.
- Phosphorus concentrations remained below 3 Tonnes limit.

b) Abatement Notice & EC Order (1 June 2012)

- Mediation Process (BOPRC, RDC)
  CNI as interested party.
- EC Order
  - RDC to apply for variation application for consent No 60739 as soon as possible
  - Complete options investigation identifying viable alternatives to the Whakarewarewa LTS for consultation by 1 June 2013 with RTALSG.
- The variation is a “bridging consent” to allow legal compliance.
- Consent expires in 2021

c) Proposed Variations

- Move compliance point for Nitrogen from Waipa Stream to outlet of WWTP.
- Nitrogen limit at WWTP outlet is increased from 30 Tonnes at Waipa Stream to 51 Tonnes at WWTP per 12 month period
- Phosphorus limit is increased from 3 Tonnes to 4 Tonnes per 12 month period at Waipa Stream

d) Variation Application

- Planning report – policy and legislation issues
- AEE on water quality – impact on Lake Rotorua with increased nutrient limits
- AEE on aquatic ecosystem
- AEE on soil health at LTS
- CIA

4. Scoping Report – Land Treatment System (Upgrade and Alternative Options)

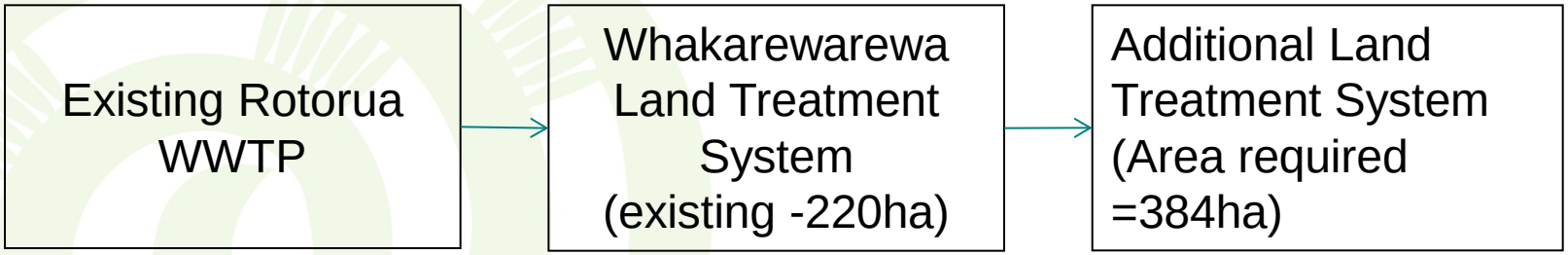
a) Options and Cost Summary

No	Option Description	Capital Cost ($m)	NPV ($M) (7% rate at 40yrs period)	Comments
1	Expanded Land Treatment System (Slow Rate Irrigation)	23.25 (Based on 384 ha purchased land)	38.22	Confirm availability of contiguous land
2	Discharge to Waterway (Existing LTS decommissioned)	19.72	28.85	Treatment arrangement to meet cultural requirements. Trials required to confirm denitrification bed performance.
3	Denitrification bed to replace existing LTS	6.89	28.40	Trials required to confirm denitrification bed performance.
4	Improve existing constructed wetland	7.2 – 12.4	23.4 – 34.2	Trials required to confirm wetland performance
5	New discharge site. (Existing LTS decommissioned)	(A) 14.85 – 47.75 (B) 18.48 – 21.81	(A) 36.39 – 64.12 (B) 40.12 – 43.46	Availability of land for purchase and stakeholder acceptance within the catchment

(A) Within the Lake Rotorua Catchment
Lower Costs Rapid infiltration
Higher Costs Slow rate with different cropping arrangement

(B) Outside the Lake Rotorua catchment
Lower Costs Rapid Infiltration
Higher Costs Slow rate with different

Option 1
Expanded Land Treatment System

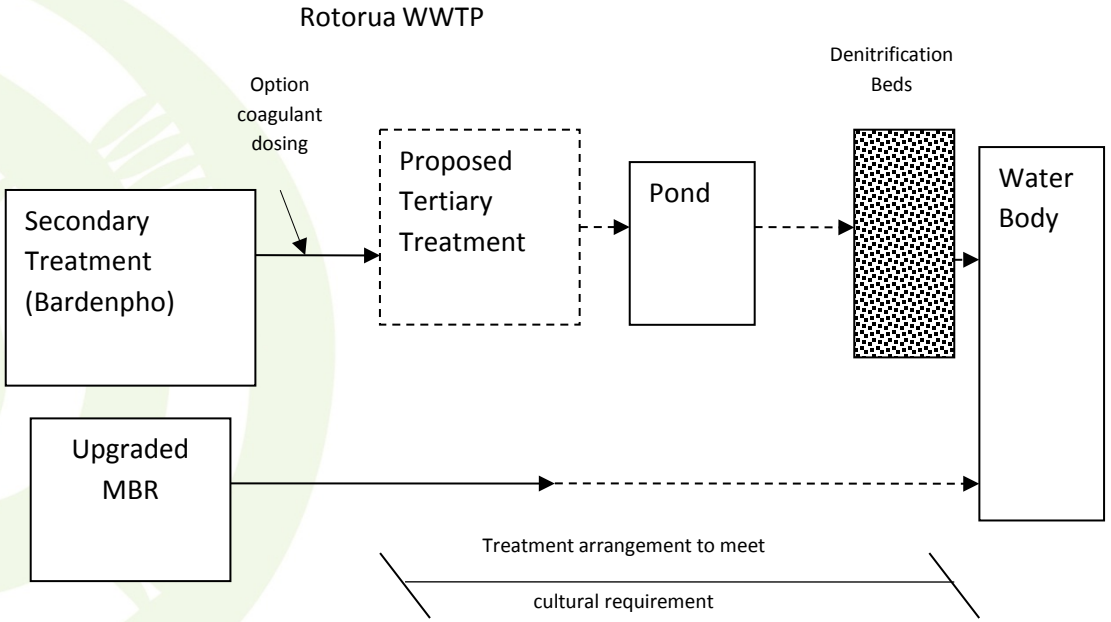


Capital Cost: $23.25M

NPV Cost: $38.22M

Comments: Confirm availability of contiguous Land

Option 2
Discharge to Waterway (Existing LTS Decommissioned)



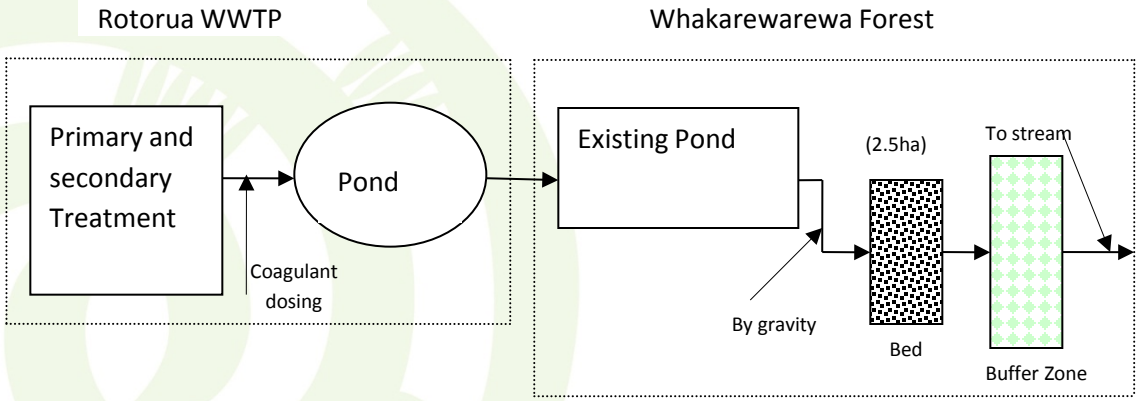
Capital Costs: $19.72M

NPV Cost: $28.55M

Comments:

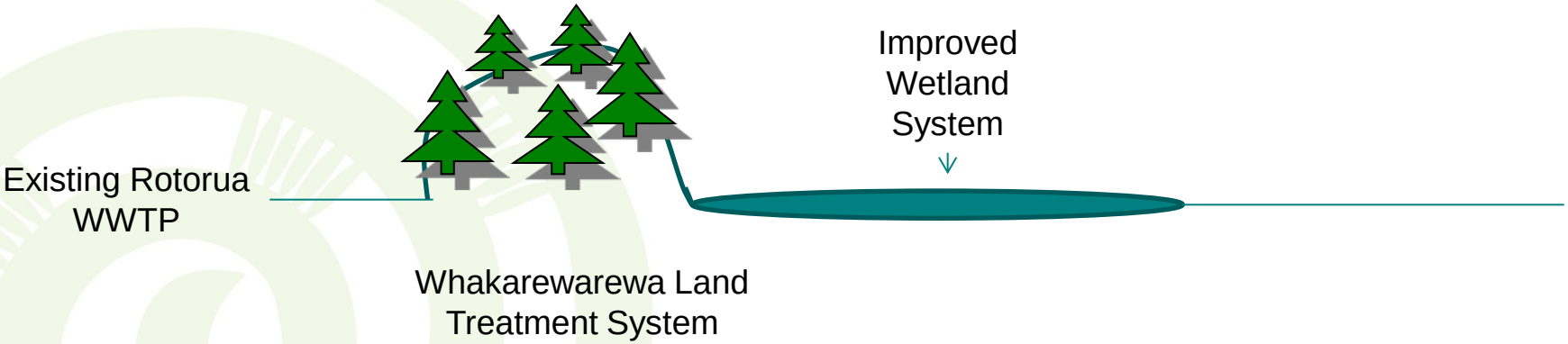
- Treatment arrangements to meet cultural requirements.
- Trials required to confirm denitrification bed performance.

Option 3
Denitrification Bed to replace existing LTS



Capital Cost:	$6.8M
MPV Cost:	$28.40M
Comments:	Trials required to confirm denitrification bed performance.

Option 4
Improve Existing Wetland



Capital Cost:	$7.2M - $12.4M
NPV Cost:	$23.4M - $34.2M
Comments:	Trials required to confirm wetland performance.

Option 5
New Discharge Site (Existing LTS Decommissioned

Existing Rotorua WWTP → New Land Treatment / Disposal Site

Options:
- Inside or outside catchment
- Slow rate irrigation with different crops (cut and carry etc.)
- Rapid infiltration

Costs:

Within the Lake Rotorua Catchment	Capital Cost	NPV Cost
Rapid Infiltration	$14.85M	$36.39M
Slow Rate Irrigation	$47.75M	$64.12M
Outside of the Rotorua Lakes Catchment	$18.48M	$40.12M
Rapid Infiltration		
Slow Rate Irrigation	$21.8M	$43.46M

Comments:
- Land Disposal / Treatment outside of Lake Rotorua has less stringent effluent quality requirements.
- Availability of land for purchase and stakeholders acceptance within the catchment

b) Other Options

- Nutrient offset (Trading System Through Land Use Change)
- Nutrient Offset (From TERAX Process)
- Algae Treatment

5. Consultation Process for LTS / WWTP/ Rotoma / Rotoiti