Groundwater update and resource management options

Otago Regional Council

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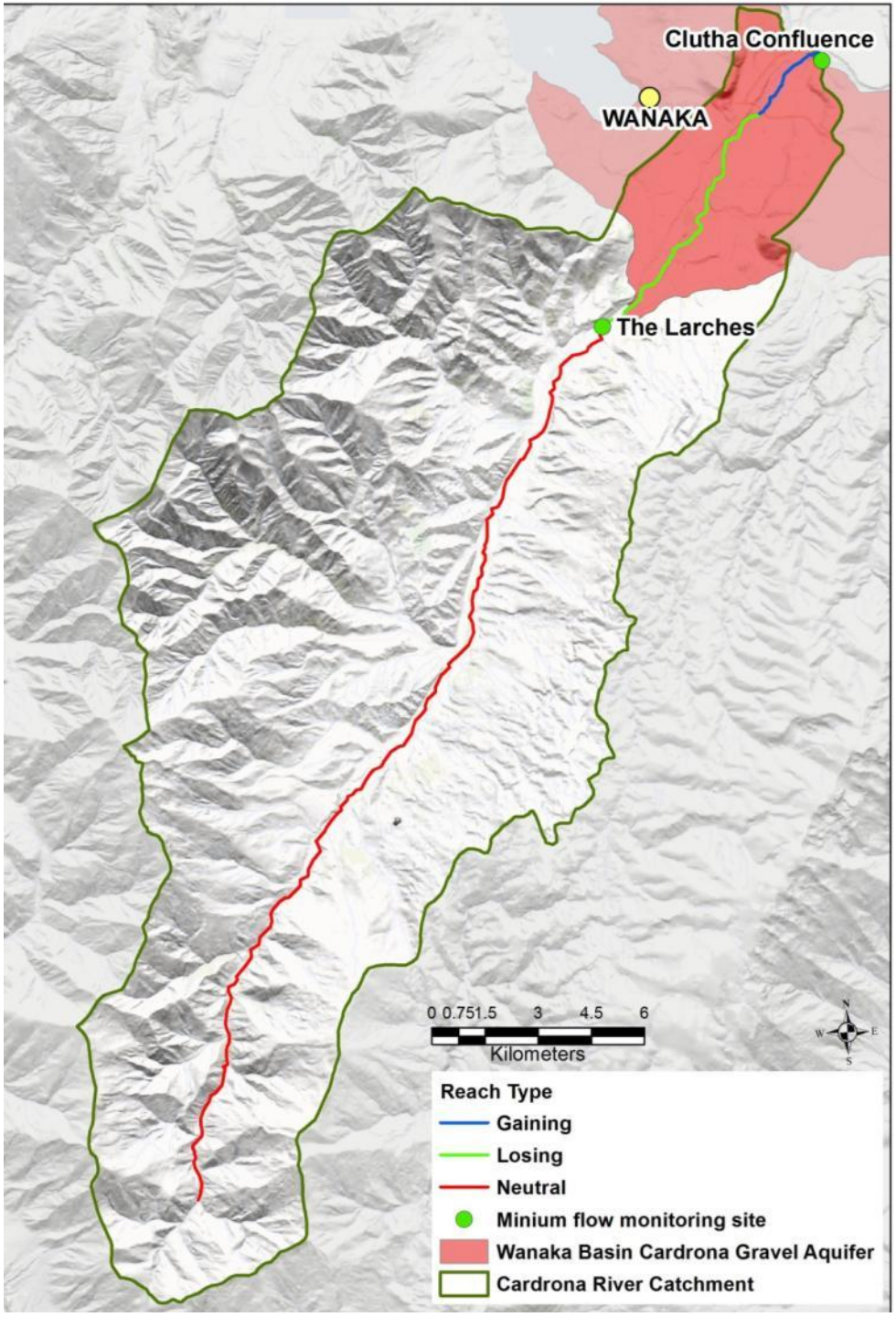
Groundwater/ Surface water interactions in the Cardrona

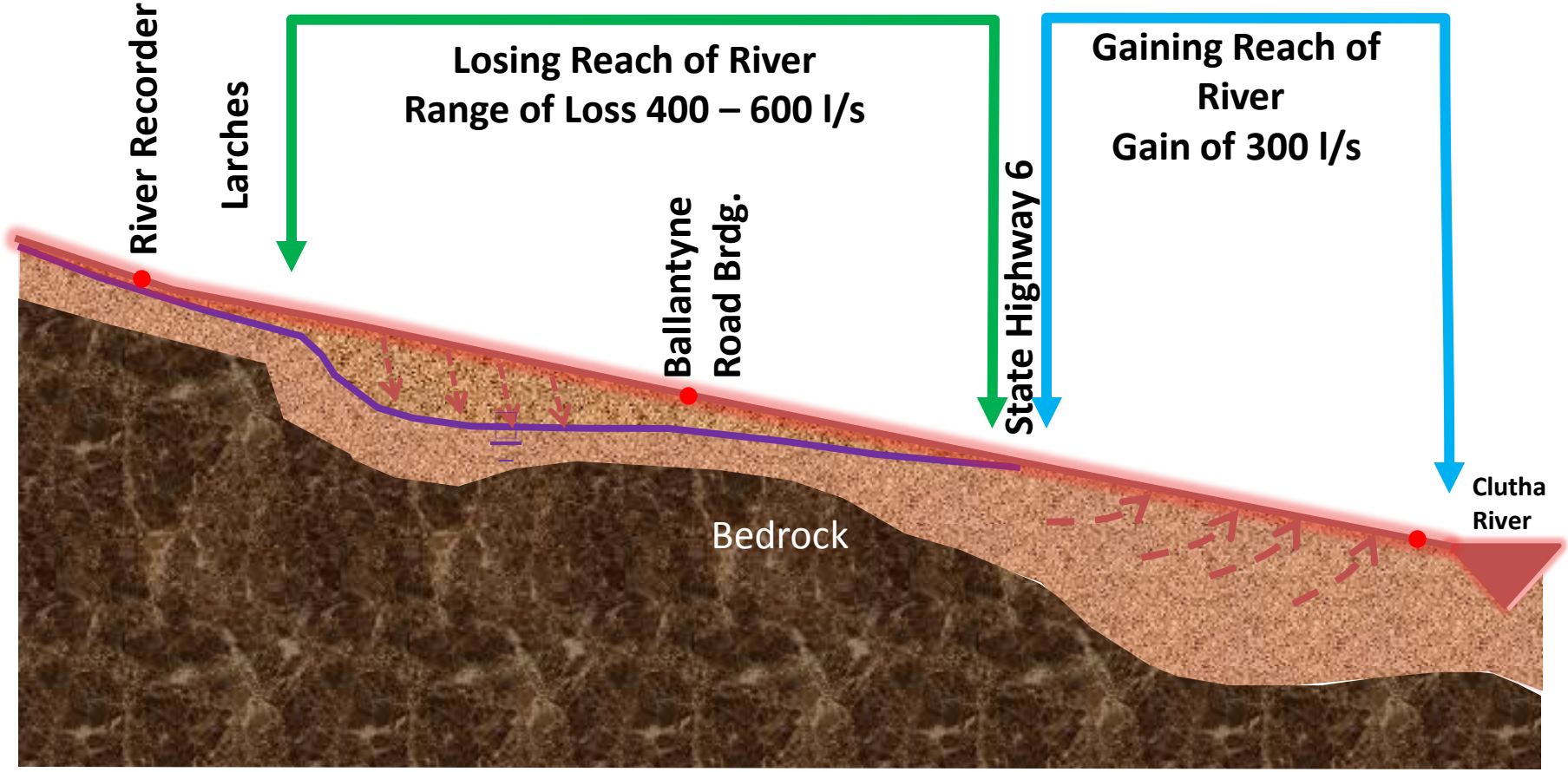
- Neutral reach – no net loss or gain from groundwater

- Losing reach – up to 600 l/s lost to groundwater

- Gaining reach – 300 l/s gained from groundwater



Cross-section of the lower Cardrona River



Groundwater

- Groundwater is replenished by Recharge
  - Cardrona River (losing reach)
  - Rainfall surplus through the soil profile
  - Irrigation surplus through the soil
- The Aquifer is drained as follows:
  - Bullock Creek
  - Lower Cardrona River (below SH6)
  - Clutha River
  - Lake Wanaka
  - Bores

Groundwater Resource Management Framework

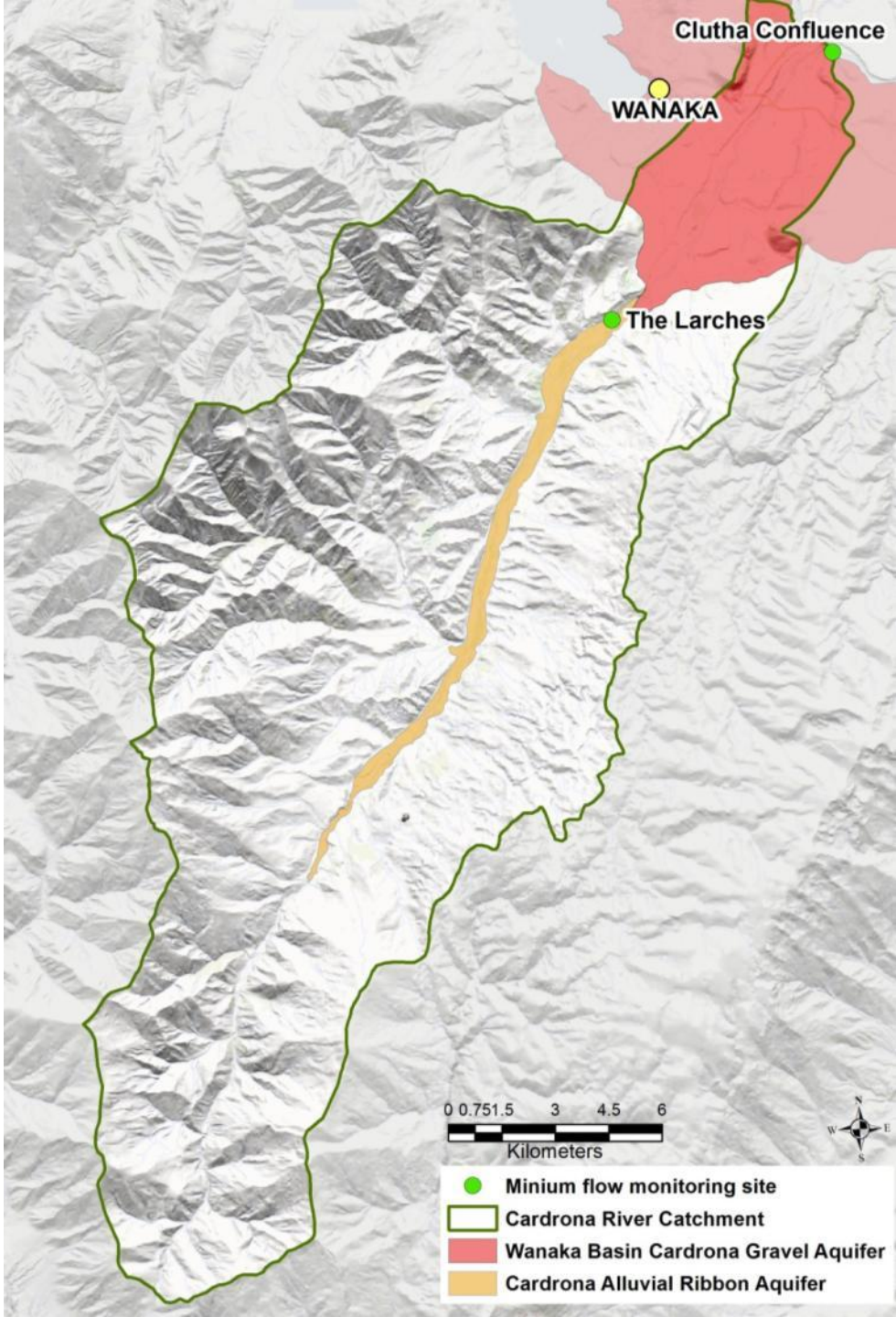
- Upper catchment groundwater managed as surface water (alluvial ribbon aquifer)

- Lower catchment below The Larches requires tailored groundwater management.

Groundwater Management Areas

- Alluvial Ribbon – no net loss or gain, effectively surface water.

- Losing & Gaining reaches over the **Wanaka Basin – Cardrona Gravel Aquifer**
  - Managed as a single aquifer
  - Subject of further discussion



Lower Catchment Groundwater Values

- Bullock Creek flows
- Lower Cardrona flows (below SH6)
- Water Supplies
  - Private domestic water supply
  - Public water supplies
  - Irrigation bore supplies

Most Sensitive Zone

- East of the Boundary-Morris road alignment towards Wanaka Airport

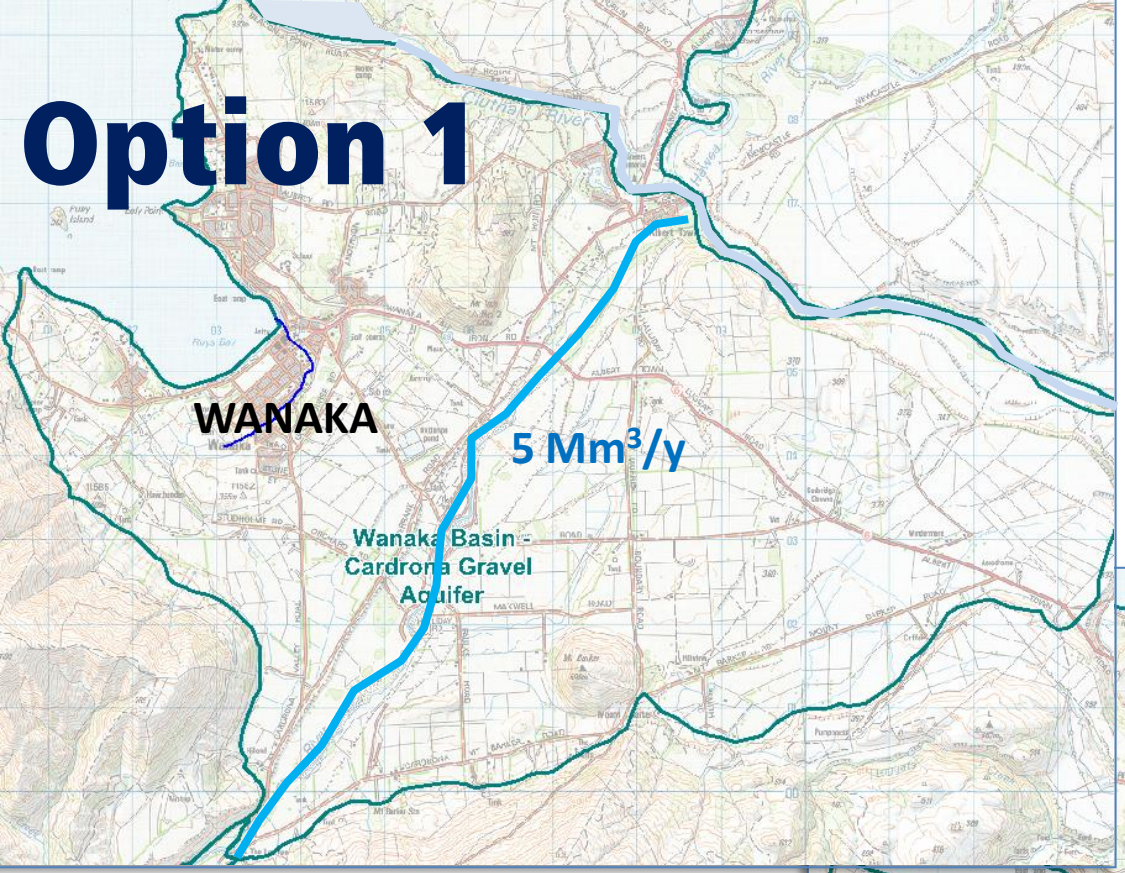
  - Increasing depth to water table
  - Thinning saturated gravel lens
  - Most distant from the main recharge source (Cardrona River)
  - Significant concentration of large takes
  - Highest risk of water table decline.

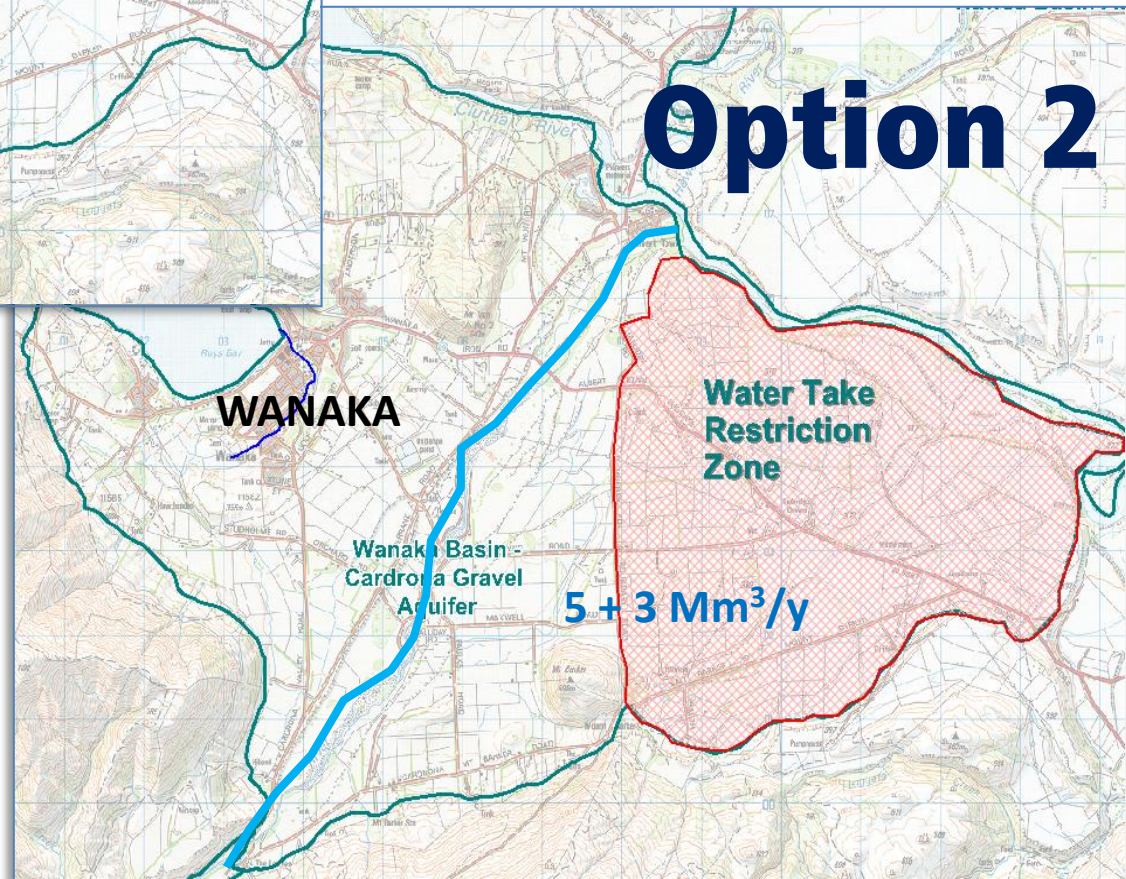
Groundwater Management Options

- **GW Option 1**: Blanket Maximum Allocation Volume
  - Set MAV to 5 million cubic m per annum (Mm^3/a) across the whole Wanaka Aquifer

- **GW Option 2**: Higher MAV & partial Water Take Restriction Zone
  - Set MAV to 8 Mm^3/a for whole aquifer
  - Set restrictions on the amount of water table drop in the eastern area of the aquifer

Water Take Restriction Zone Options





Groundwater consents can be restricted if monitored bore water levels decline to critical depths.

(Domestic & municipal bores unaffected)