

Item 3: Stormwater Briefing

SESSION TYPE: Briefing

PURPOSE/DESIRED OUTCOME:

The purpose of this briefing is to update the Wānaka-Upper Clutha Community Board on draft Stormwater Management Plan for the settlements within the Upper Clutha catchment. An outline of priority issues for further investigation and potential capital works to improve outcomes for our waterways will also be provided.

DATE/START TIME:

Monday, 12 October 2026 at 11.05am

TIME BREAKDOWN:

Presentation: 30 minutes
Questions: 15 minutes

PRESENTERS:

Helen Beaumont (Three Waters Strategy and Planning)

Prepared by:



Name: Helen Beaumont
Title: Manager, Three Waters Planning

30 September 2026

Reviewed and Authorised by:



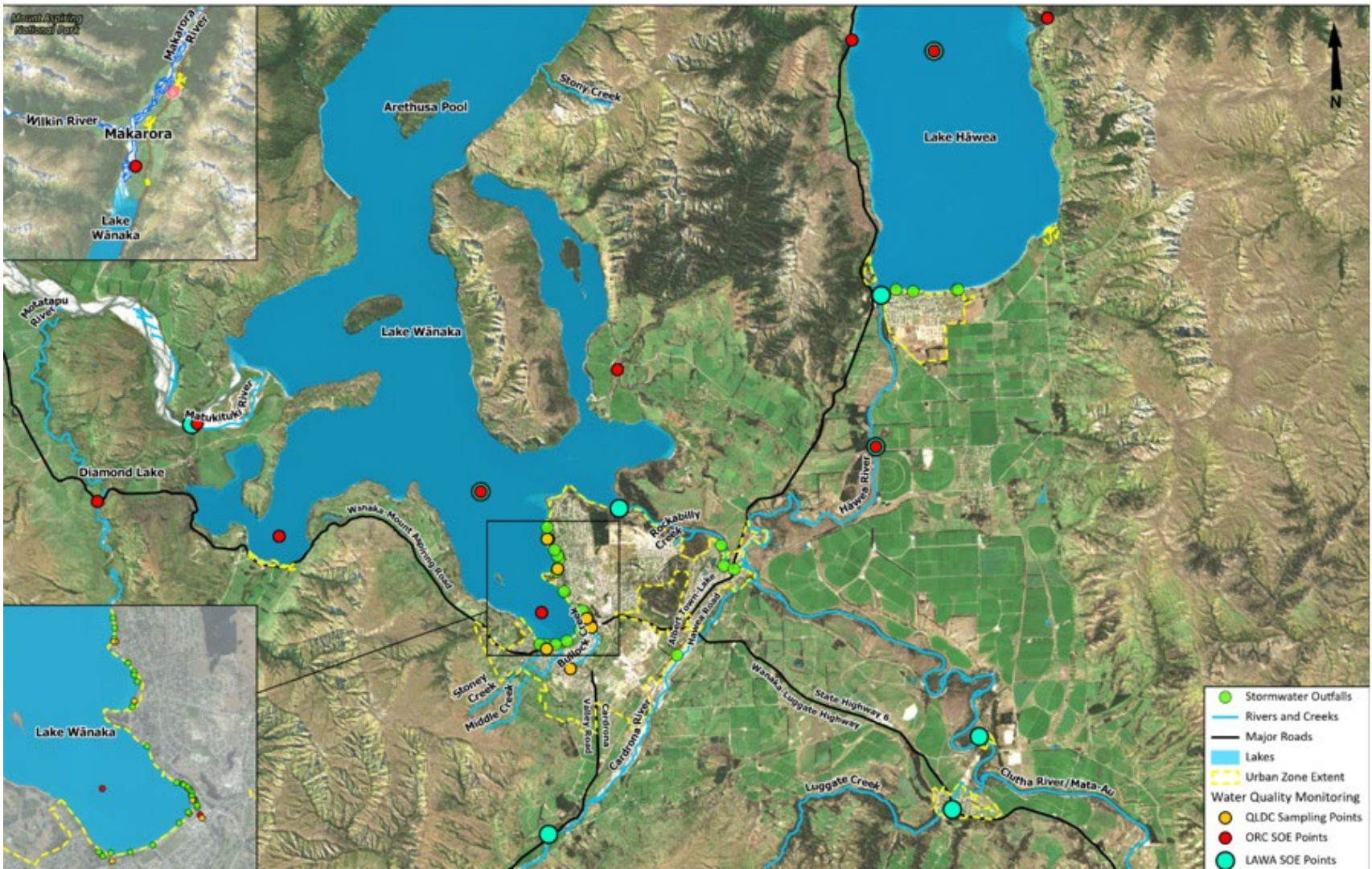
Name: Tony Avery
Title: General Manager Property & Infrastructure

1 October 2026

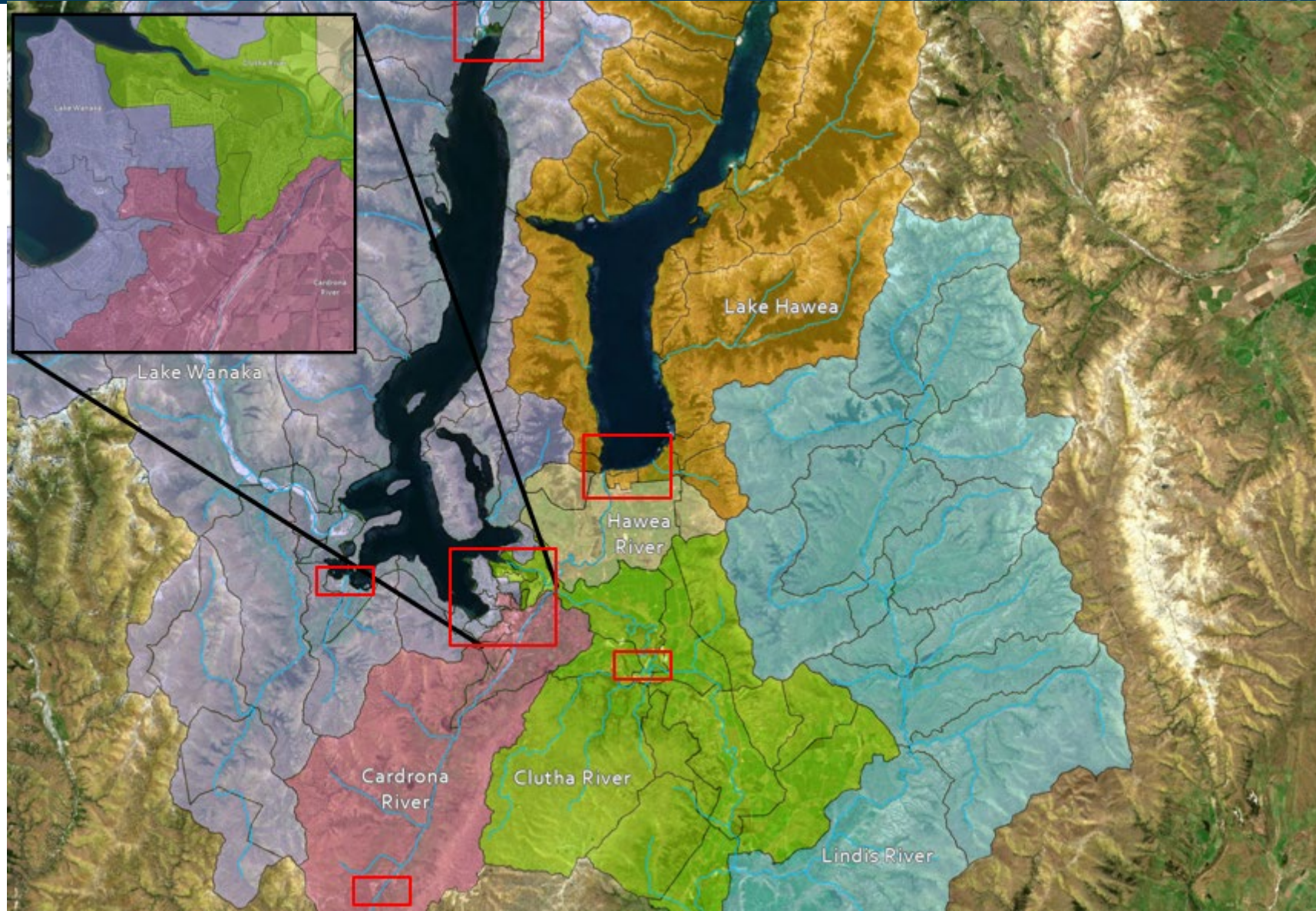
ATTACHMENTS:

A	Stormwater Management Plan Upper Clutha - Presentation
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Upper Clutha Stormwater Network Management Plan



Catchment boundaries



Blue Green Network Plan

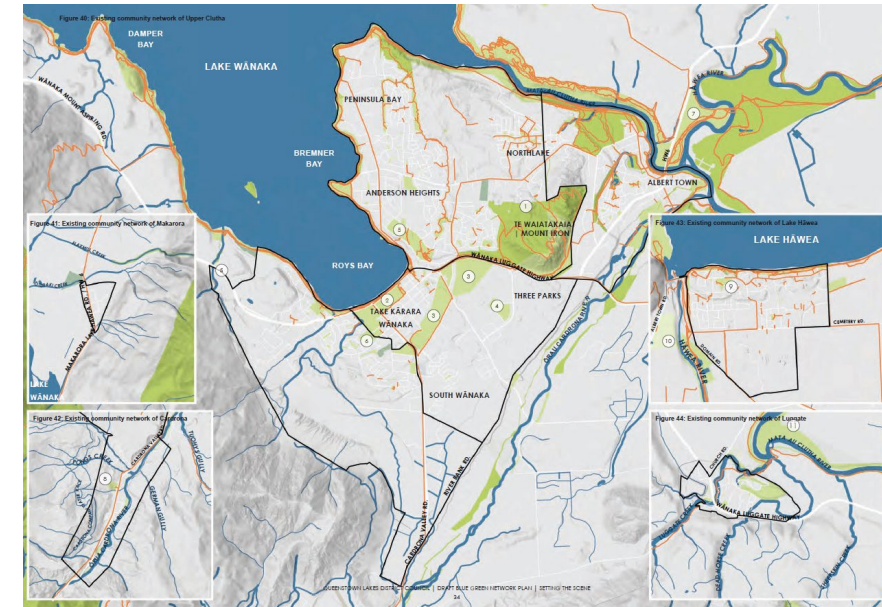
Integrating Growth, Water and Community Outcomes Across the Upper Clutha Catchment

> What is the Blue Green Network?:

- > Long term strategic framework developed by QLDC & partners to integrate water systems (blue) and open space / ecological networks (green) into future urban growth & development
- > Recognising the interconnected nature of land, water, ecology & community.

> How will it influence Stormwater Management?

- > **Space for water** - protecting and integrating waterways, wetlands, flood pathways and green infrastructure into urban development
- > **Nature based water solutions** - constructed wetlands, swales, rain gardens and detention areas to attenuate flows, improve water quality and support biodiversity
- > **Mana o te Wai** - prioritising water health, catchment-scale planning and improved treatment of urban runoff before discharge to receiving environments
- > **Climate resilience** – ability of area to handle increasing rainfall intensity
- > **Future structure planning** – ensuring stormwater infrastructure contributes to broader environmental, recreational and community outcomes.



Stormwater Network Management Plan



Catchment-scale planning framework



Integrates land use, infrastructure,
environment



Supports consistent decision-making

QLDC Code of Practice – quantity targets

Primary Level of Service (LOS)

- > The pipe network shall have a **5% AEP** primary Level of Service

Secondary Level of Service (LOS)

- > Secondary flow paths should be designed for the **1% AEP** event. The location and type of overland flow downstream discharges are to mimic pre-development scenarios
 - > No QLDC Stormwater systems should discharge to private property
 - > No flooding of habitable floors in a **2% AEP** event
 - > New buildings to have habitable floors more than **0.5m freeboard above 1% AEP flood level** (0.3 m for commercial and industrial buildings and 0.2 m for non-habitable residential buildings and detached garages)
 - > Secondary flows should not be hazardous (depth x velocity) i.e. cause harm to people or damage to property (erosion) (event dependent).
- > Allowance for Climate Change for the 2100 RCP 8.5

Water Quality Targets

- > Construction related activities shall have treatment set up prior to discharge.
 - > TSS: 3 milligrams per litre
- > All new development stormwater runoff should be treated prior to discharge to the receiving environment (treatment train shall include source control).
 - > Treatment train should have a proven track record to treat suspended solids, zinc, copper, E.Coli
- > All new industrial development must use materials that limit the discharge of zinc and copper leachate.
- > Quality devices should treat the first 20mm of rainfall from the post development catchment.
- > Post-development catchment should attempt to direct a minimum of 5 mm rainfall to the ground through soakage.
- > All discharges should meet the permitted values as per the Operative Otago Regional Plan.

Evidence Base



Hydraulic
modelling



Surface
flooding



Overland flow
paths



Network
performance

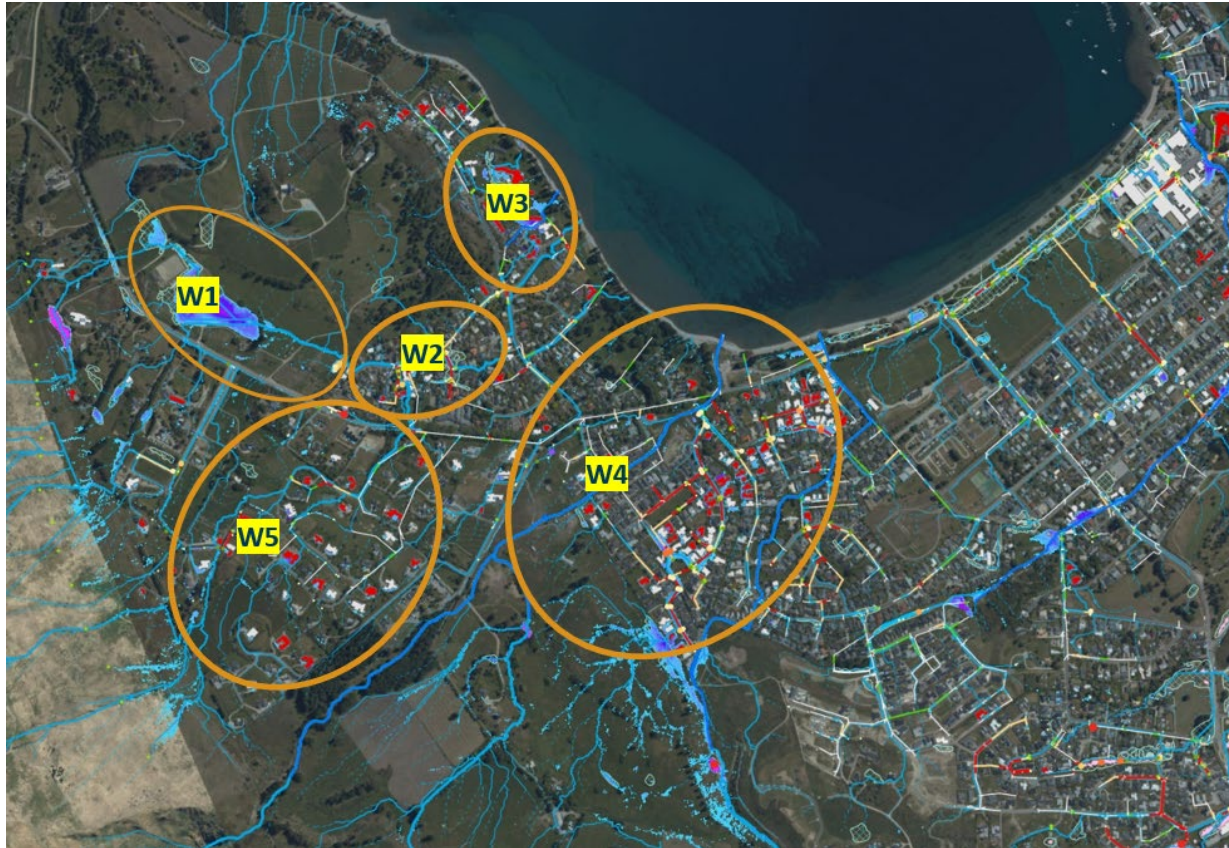


Habitable
floor flooding

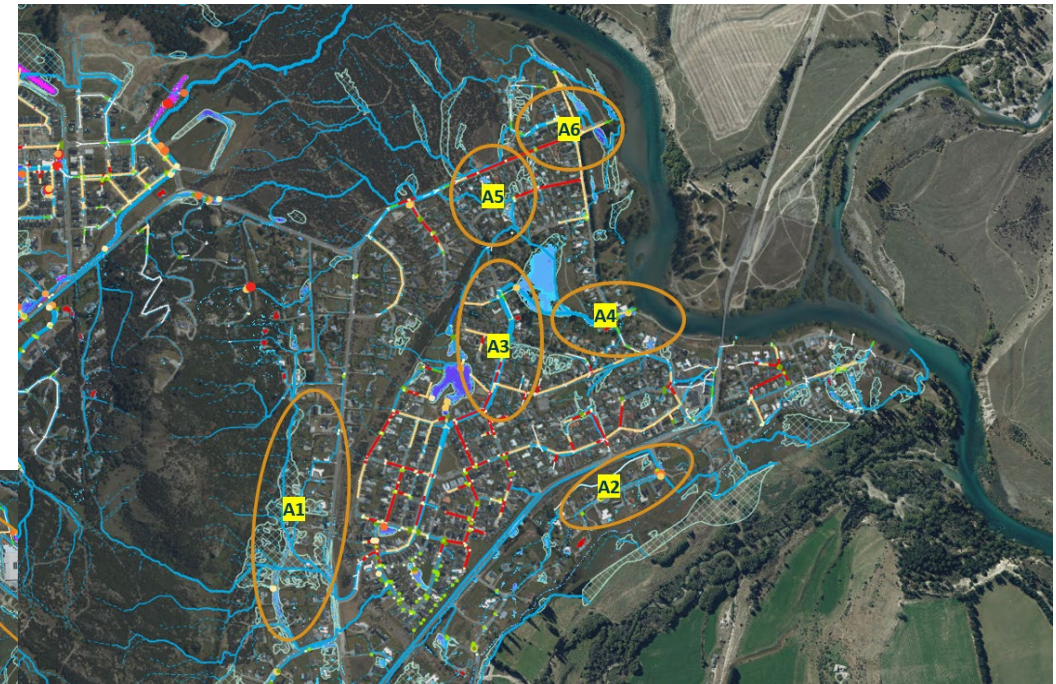
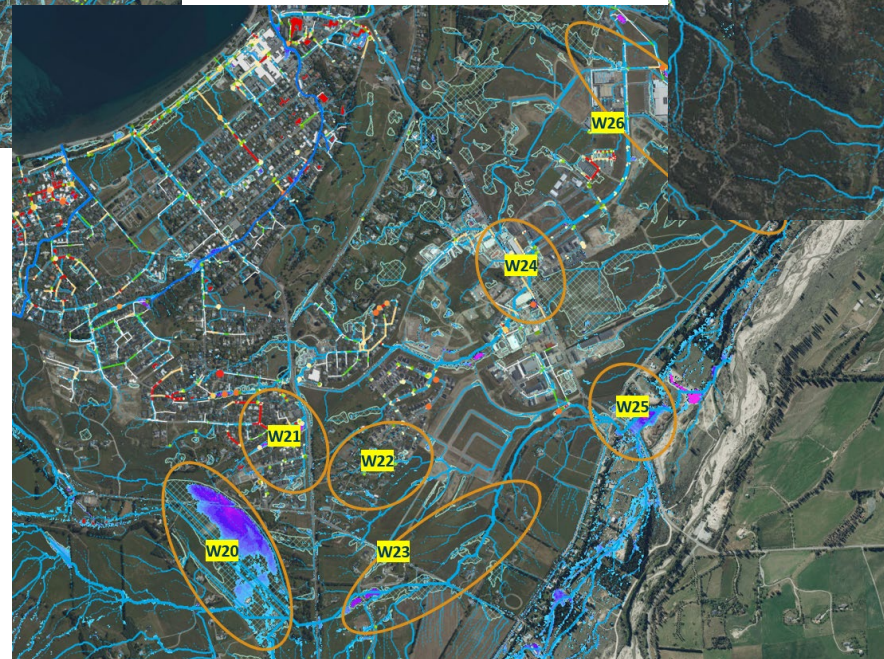
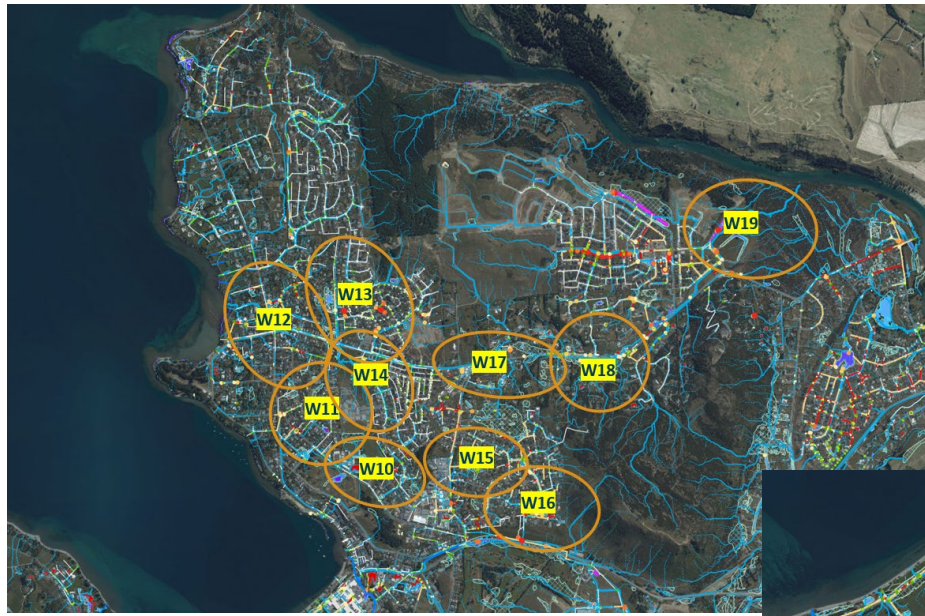
Key limitations and assumptions for flood modelling include:

- Insufficient data for calibration of extreme events
- Overland flow is simulated using a 2D model and 2022/23 LiDAR data with vertical accuracy of +/- 0.2 m
- Buildings are modelled as obstructions to overland flow, but fences or other barriers are not represented – these may affect localised flooding and ponding
- Private drainage and soakage are not always represented.

Identified Issues – Wānaka West & Central



Wānaka North, South & Albert Town



Cross Catchment Themes

- > Capacity constraints
- > Overland flow reliance
- > Development-driven runoff
- > Water quality pressures

District wide recommendations

- > Improve application of the Subdivision and Land Development Code of Practice for greenfield developments
- > Continue the stormwater outfall monitoring programme and expand to include Lake Hāwea outfalls
- > Continue to implement the flow and level monitoring programme in streams and critical infrastructure (i.e. water level sensors, rain gauges).
- > Continue to develop and improve catchment models, including calibration, to reduce uncertainties.

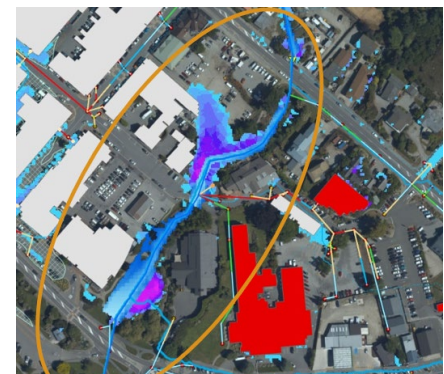
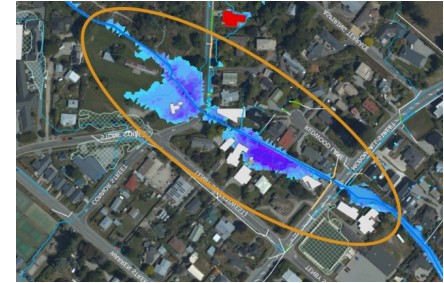
Bullock Creek 'Very Serious'

Bullock Creek, Stone Street

- > Bullock Creek system – capacity exceeded during rain events
- > Property and potential habitable floor flooding
- > Water quality issues

Reason Issues Have Developed

- > Land use change in the upstream catchment (Alpha Series Development)
- > Large, piped catchment discharge at Stone Street.
- > Higher than anticipated discharge flow from the Alpha Series pond
- > Insufficient treatment in the Alpha Series Pond
- > Discharge of untreated stormwater from urban areas (Stone Street).



Stone St / Alpha Series Interim Works

Interim works completed:

- > **Outlet structure:** constructed to improve the management of stormwater from the upstream development by enabling better utilisation of the upstream attenuation volumes.
- > **Wetland planting:** expanded wetland planting across a lengthened flow path which continues into the F & G land.



Scope: Bullock Creek / Stone Street

Proposed design objectives – long term solution

- > **Reduce flow through Bullock Creek** - divert flows from the Alpha Series stormwater detention basin and the upper Stone Street network to the Stone Street stormwater main.
- > **Improve surface water quality** by diverting sub-urban runoff away from environmentally sensitive Bullock Creek habitat.
- > **Upgrade existing Stone St SW network** to allow for additional SW flows from Alpha Series detention pond and Upper Stone St network.
- > **Implement passive natural SW treatment device** within Stone St (settlement, infiltration and evapotranspiration) and decrease SW discharge volumes to Lake Wānaka.
- > Incorporate design elements such as **paths and native plantings**.
- > **Increase capacity of Middle Creek culvert** under Wānaka – Mt Aspiring Rd to convey 20 year ARI event.



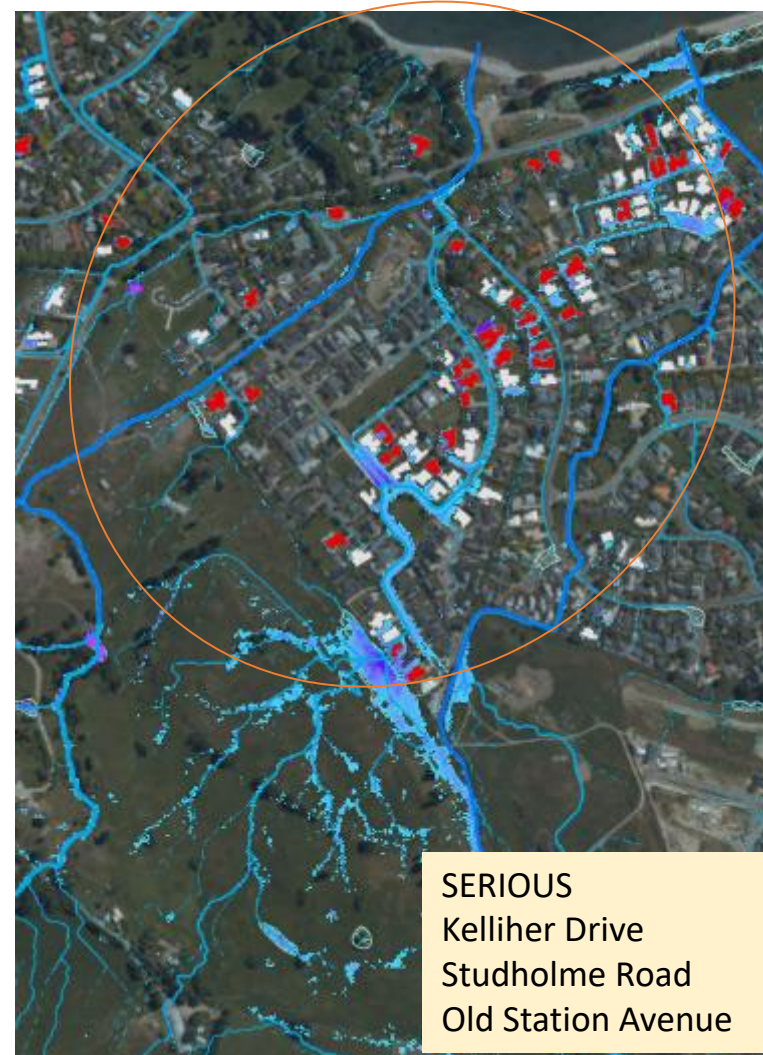
Funding in LTP FY 27/28 and 28/29.

Kelliher Drive, Studholme Road and Old Station Avenue - serious

- Large upstream catchment with insufficient flow management
- Stream capacity exceedance
- Insufficient network capacity

Next steps

- Improve and calibrate model
- Integrate investigations and future network options with the structure plan

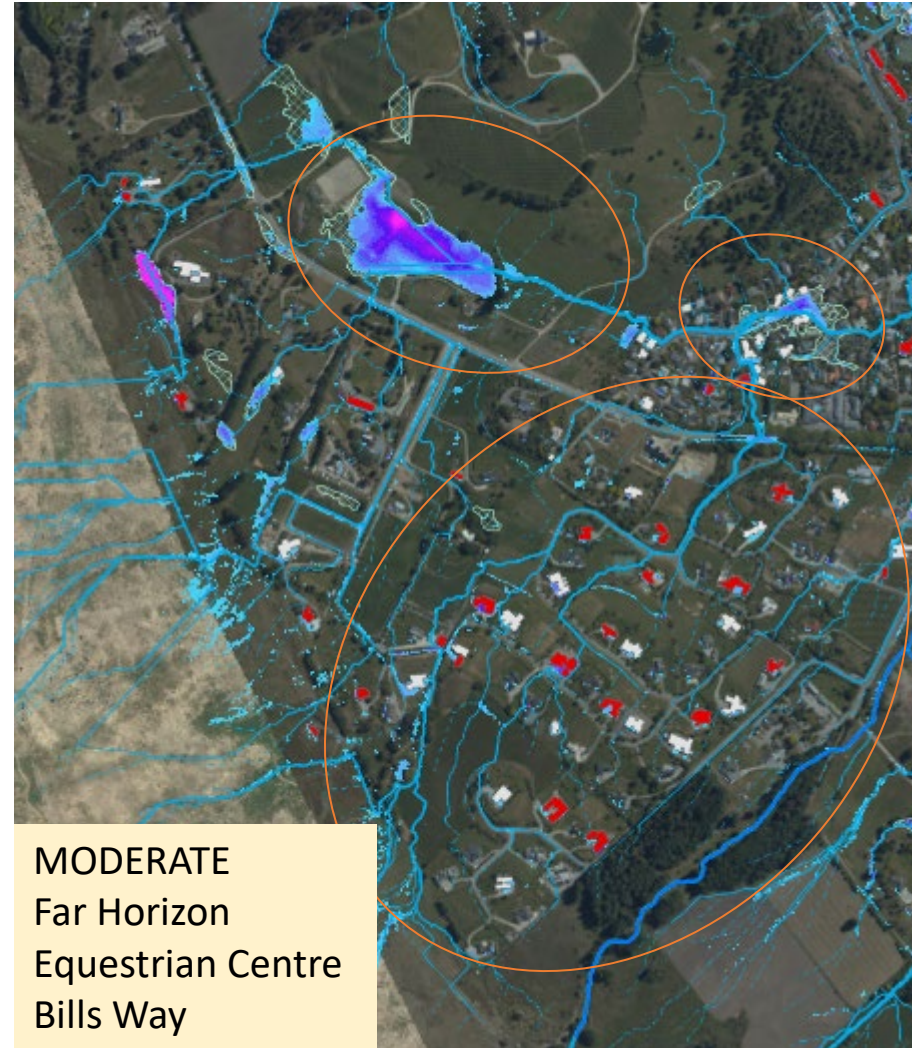


Far Horizon, equestrian centre, Bills way - moderate

- Upstream runoff impacts
- Capacity constraints
- Development interface issues

Next steps

- Improve and calibrate model
- Quantify storage / attenuation at equestrian centre
- Investigate network upgrade in Bills Way and Mt Aspiring Road

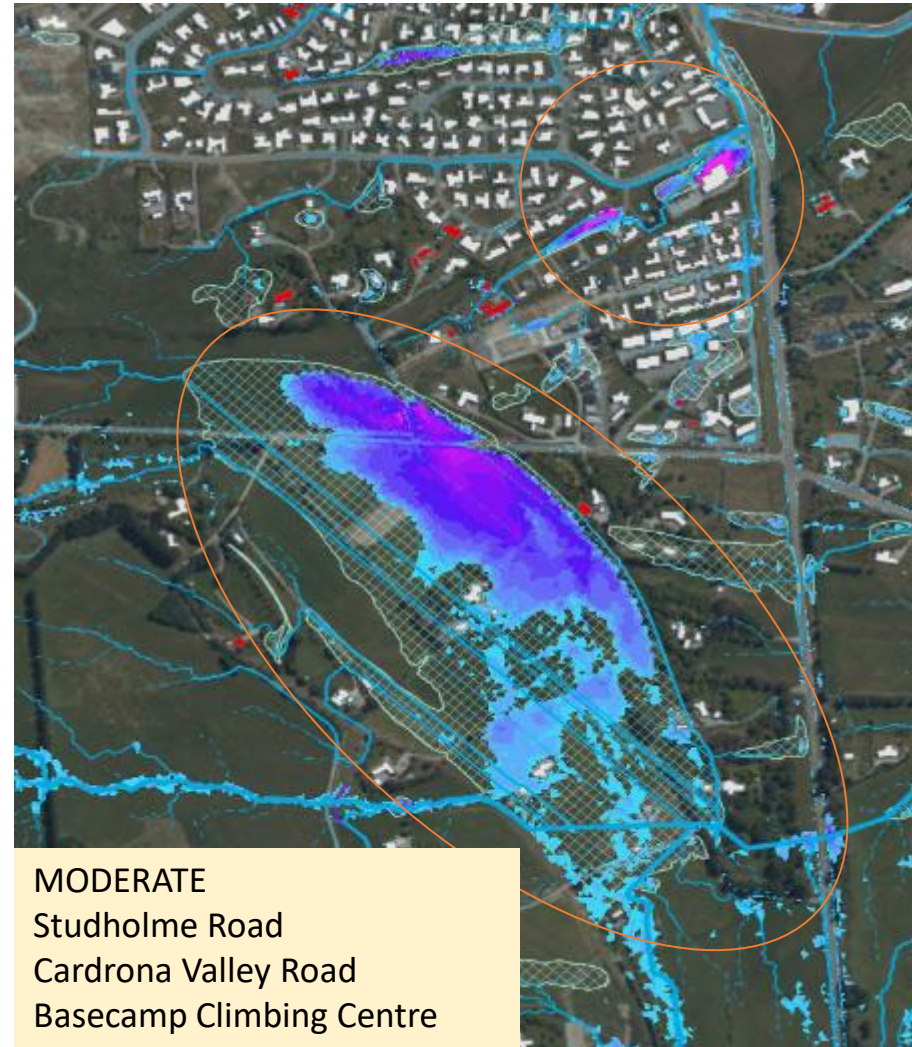


Studholme Road and Cardrona Valley Road – moderate

- Upstream hill runoff
- Topology (deep depressions)

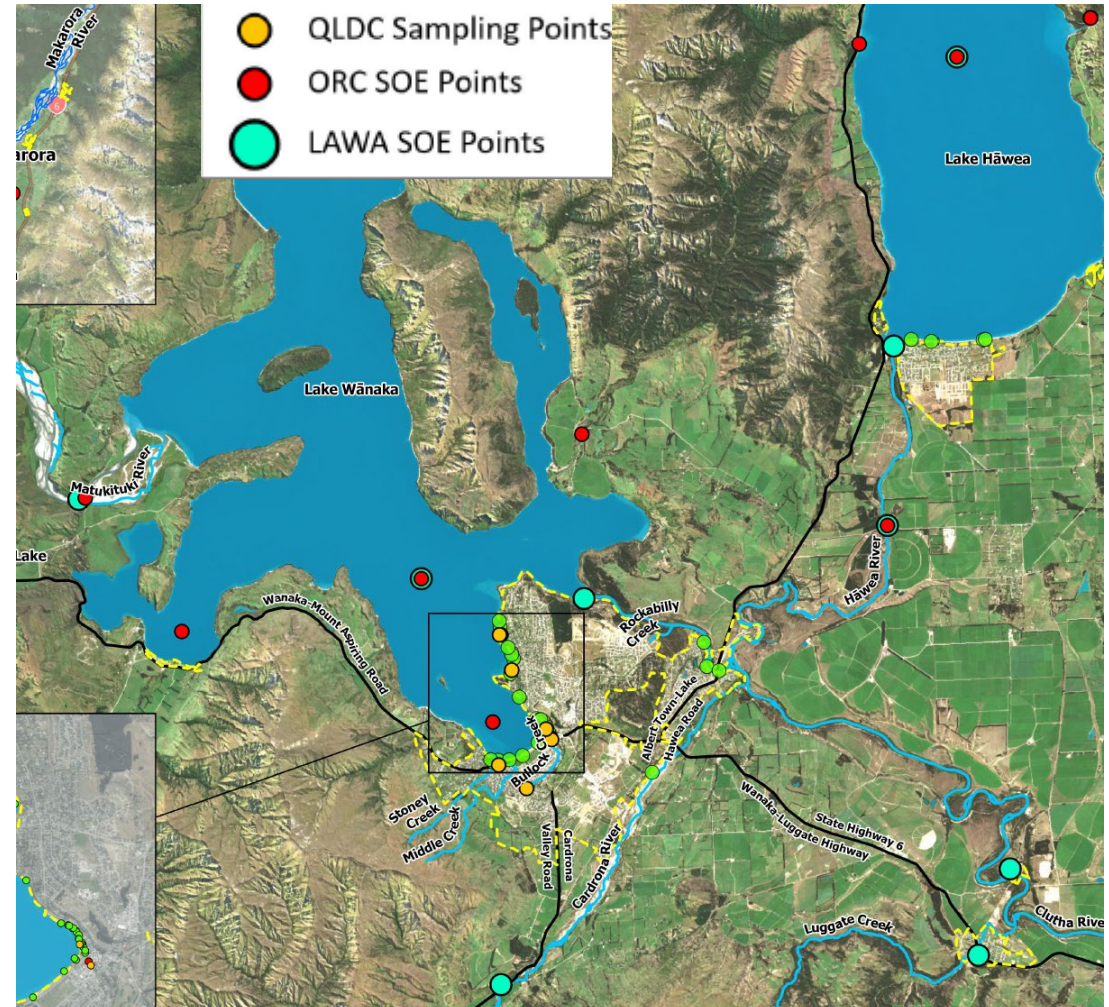
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Water Quality

- > Stormwater discharges to high-value and sensitive receiving environments (Lake Wānaka, Lake Hāwea, Cardrona River, Clutha/Mata-Au)
- > Urbanisation is increasing contaminant loads, with runoff from developed areas contributing sediment and contaminants
- > Evidence of water quality exceedances
- > Existing systems are not consistently providing sufficient treatment attenuation prior to discharge
- > Bremner Bay: water quality issues identified, follow-up sampling programme to understand source of contamination.



Drivers, hotspots & response

Drivers	Hotspots	Response
• Increased impervious surfaces (urban growth) • Inadequate treatment of first flush runoff • Sediment and nutrient mobilisation from • construction • land disturbance • Limited retrofitting of treatment in older areas	• Urban Creeks - Bullock Creek - Stoney Creek - Middle Creek • Waterfront Bremner Bay • Luggate Creek <i>[Continue with stormwater monitoring programme to quantify severity]</i>	• Requires integrated response: - Attenuation - Treatment - Development controls - Land use controls - Education - Maintenance • Supports Blue-Green Network • Integrates with growth planning

Next Steps:

1

Confirm priorities

2

Identify quick wins

3

Feed into capital planning

Upper Clutha Stormwater Network Plan

Questions & Discussion