

Water Demand Management

Council Workshop

Tuesday, 2 June 2026

Workshop purpose and structure

The purpose of this workshop is to:

- Provide an update on the water demand management programme business case
- Discuss and confirm key points noting Council initiatives and recommendations for the new water services entity
- Seek feedback and identify matters to update / investigate further.

The structure of this workshop is:

- We are going to run through five key questions
- There is supporting information for each of these questions
- Exploring these questions provides an overview of the workstream and a platform for discussion.

Key questions

Why demand management?

Do we need to implement metering and volumetric charging?

How do we make the best out of the assets we've got?

How do we lead by example?

How to manage the transition from Council to the WSCCO?

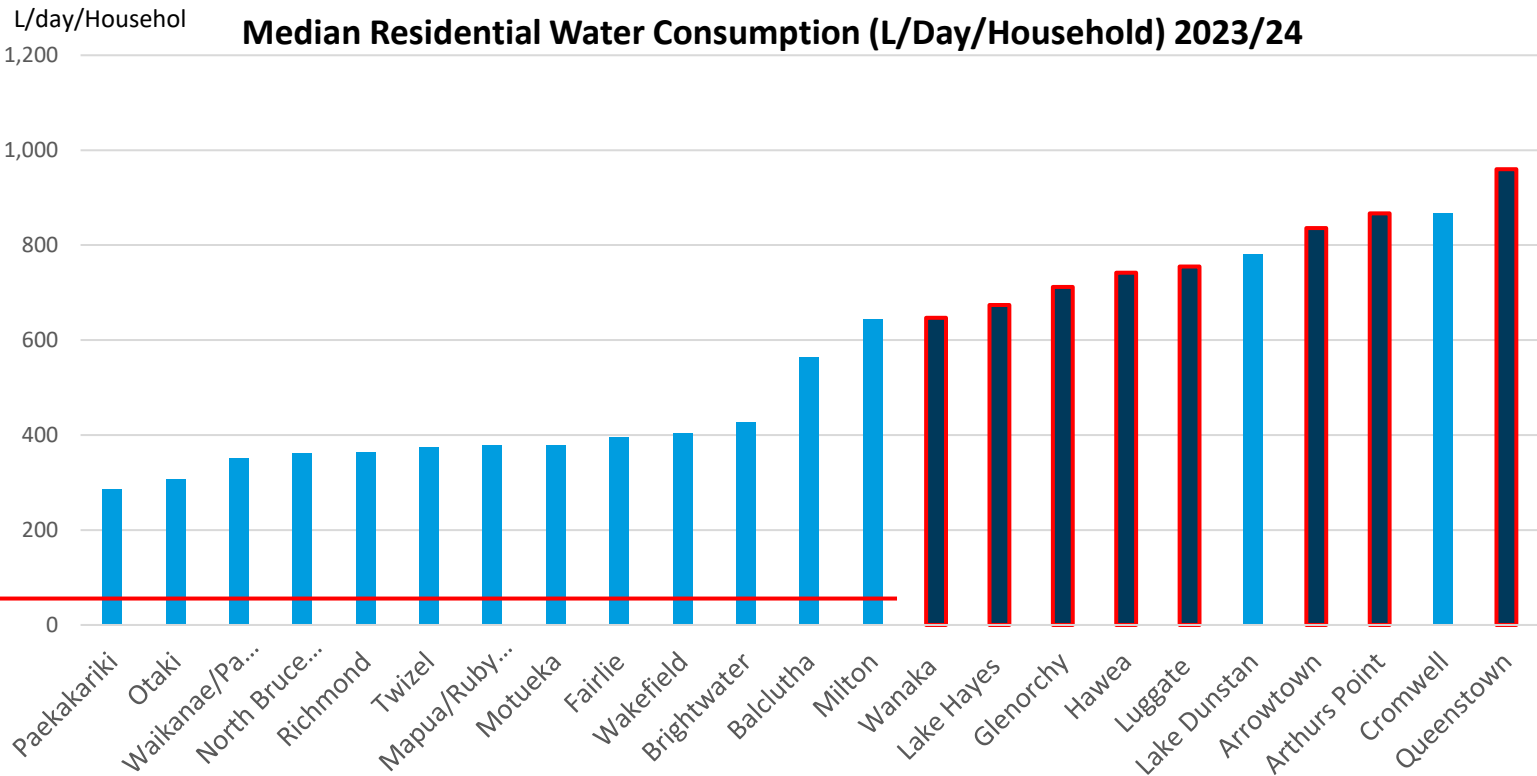
1. Why demand management?

Queenstown Lakes – high water users and rapid population growth

Our district is one of New Zealand’s fastest growing regions and our water consumption is one of the highest in New Zealand, at an average of over 500 litres per person per day.

This high demand places significant pressure on our water supply infrastructure and a substantial financial burden on our communities.

The district’s residential water consumption is high relative to comparable New Zealand water supply schemes

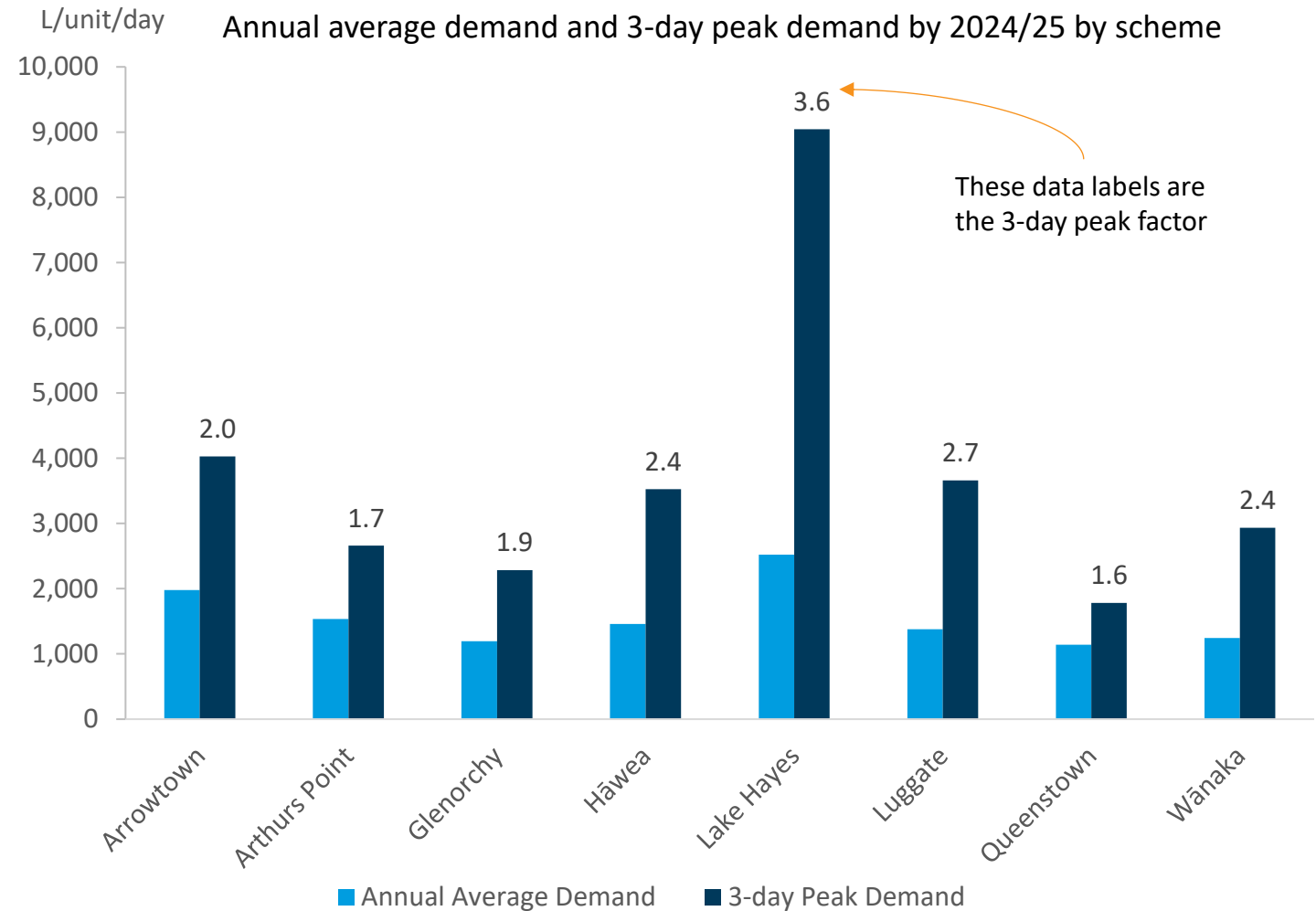


In some schemes, peak demand is up to three times average demand

This graph shows annual average demand versus the 3-day peak day demand by scheme (24/25).¹

Due to excessive demand on peak days water supply infrastructure is already at, or above, capacity, and consent limits are breached in some schemes.

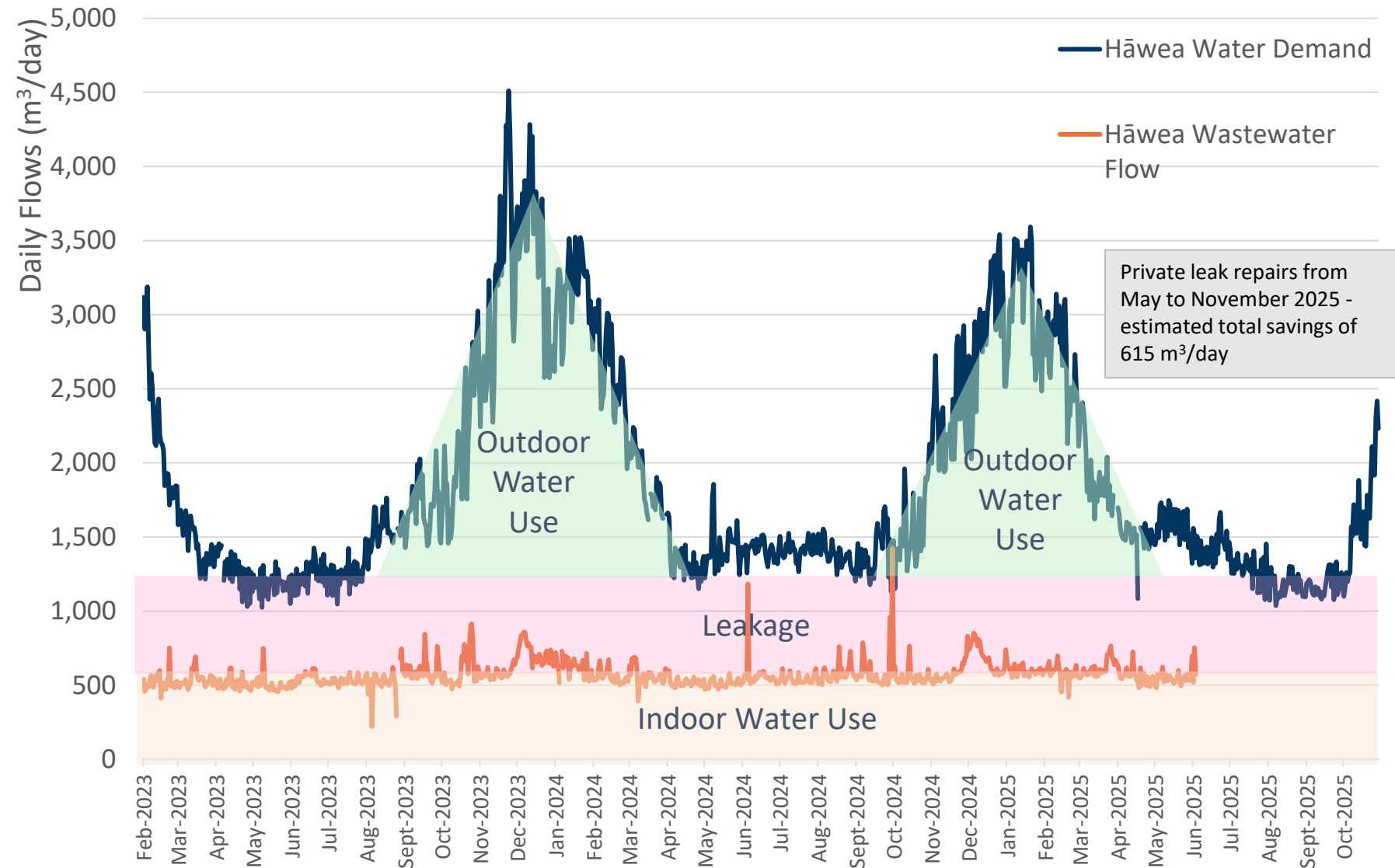
Whilst a factor in peak summer demand, higher visitor numbers are not the primary contributor, with water abstracted rising proportionately much more than population (which includes visitors).



¹ Annual average demand normalised by the total number of demand units, excluding vacant

Outdoor water use (irrigation) is the primary driver of peak demand

- This graph shows the seasonal variation in the difference between water demand and wastewater flow in Hāwea.
- Indoor water use largely returns to the wastewater system, while outdoor use does not
- The gap indicates the impact of outdoor water use, largely irrigation, on peak demand in the summer months
- A small number of very high users have undue influence on the summer peak
 - Median use 615 L/unit/day
 - Mean use 990 L/unit/day
 - Top 9% >2,000 L/unit/day amounting to 44% residential consumption.



The problems with water demand in QLDC

Council faces three interconnected challenges in delivering safe, reliable and financially sustainable water services:



Peak demand exceeds infrastructure capacity

Excessive water demand jeopardises our ability to reliably supply safe water to our communities, meet regulatory requirements, and accommodate ongoing growth



No incentives for efficient water use & inequitable cost distribution

The current water supply charging model means there are no incentives for efficient use of drinking water and the cost of meeting peak water demand is inequitably distributed across customers and communities



Limited ability to understand & manage water loss & consumption

Limited ability to understand and manage water loss and consumption results in inefficient water services and inability to achieve, and demonstrate to ratepayers and regulators, effective and cost-efficient water supply management

Challenge with supply side solutions for peak demand

Council has historically addressed increased demand through **upgrading water supply** infrastructure – new intakes, more reservoirs and increased reticulation

It is costly to address the **excessive demand** challenge by adding capacity – sizing and maintaining infrastructure to meet peak summer demands means water assets are underutilised for most of the year

Some schemes are **limited by the availability of raw water** supply – particularly for rivers, springs and bore water sources

Te Waihangā – NZ Infrastructure Commission has endorsed the need to investigate water and wastewater infrastructure needs in several urban areas, while emphasising the importance of **exploring lower-cost and non-built solutions**, including managing demand through volumetric charging

Demand management - options analysis process

A structured, staged options analysis was undertaken with Project Control Group (PCG) oversight

Long-list of 56 potential measures drawn from New Zealand and international practice, including metering, regulatory, educational, and other physical measures

Early screening to remove measures not suited to the Queenstown Lakes' context

Multi-Criteria Analysis (MCA) to assess measures against water savings, peak demand reduction, community acceptance, and implementation considerations

15 measures with the highest MCA scores carried through to the short-list

Cost-benefit analysis of shortlisted measures

Development and evaluation of programme scenarios combining the strongest measures

56 initial demand management measures → **15** shortlisted measures → **4** final programme scenarios

Programme scenarios

Scenario 1 – Basic: Leakage management, enforcement, Council-led measures. Foundational measures that can be implemented ahead of WSCCO establishment, focussing on strong cost-effectiveness with immediate impact and low implementation complexity. All council-focused measures are included.

Scenario 2 – Basic plus metering: Scenario 1 plus universal metering and leak repair remission. Metering is staggered across five, one-year phases, from July 2028, at a rate of 3,500 connections per annum.

Scenario 3 – Do more: Broader coverage including mandatory audits (schools, irrigation, hotels), at a rate of one customer type per annum, and pressure management on a scheme-by-scheme basis. Metering roll out rate same as Scenario 2.

Scenario 4 – Do more, faster: Same as Scenario 3 but accelerated delivery timetable. Metering is staggered across three, one-year phases at a rate of 5,000 connections per annum. Audits are implemented simultaneously.



2. Do we need metering and volumetric charging?

Metering enables demand management ...

Metering provides the information QLDC needs to understand and manage water loss and consumption, providing data on:

- Network and customer side leakage
- Customer water use behaviour, and
- Network pressure (depending on meter type).

This data enables improved network insight and enhances the efficacy of other demand management measures such as:

- Pipe leak detection and repair
- Managing excessive water use under the Three Waters Bylaw, and
- Water audits and optimisation of large users including Council open space and facilities.

... and volumetric charging is the most effective tool

- Experience from councils such as Central Otago, Tauranga, and Kāpiti demonstrates that volumetric charging is consistently linked to lower demand and reduced peak usage
- In the modelling for this Business Case, metering with volumetric charging is the single most effective driver of demand reduction, delivering the largest absolute water savings of any shortlisted measure by a significant margin.

20% – 30%

water demand reduction

Typical reduction in NZ supplies following implementation of metering & volumetric charges

2.6 x

more water savings

Metering + volumetric charges delivered, on average, approx. 2.6 times more water savings per annum than the next closest measure.

The policy, legal and regulatory frameworks signal the effectiveness of metering and volumetric charging

Under the **Local Government (Water Services) Act 2025**, Council is legally obligated to transition away from rateable-value based charging for water supply, and must provide cost-effective, financially sustainable and reliable water services, using water resources efficiently

The **Commerce Commission's Information Disclosure for Water services** requires Council to actively work to improve monitoring and managing of water demand and water loss

Council has already signalled a clear commitment to volumetric charging in the **2025 QLDC Water Services Delivery Plan**, which was **approved by the Department of Internal Affairs** in November 2025

Councils **2024 -2034 Long Term Plan** budgets for water demand management and assumes a 20 to 30% reduction in demand, which will not be possible without metering and volumetric charging.

Water services sector practice and the direction of reform

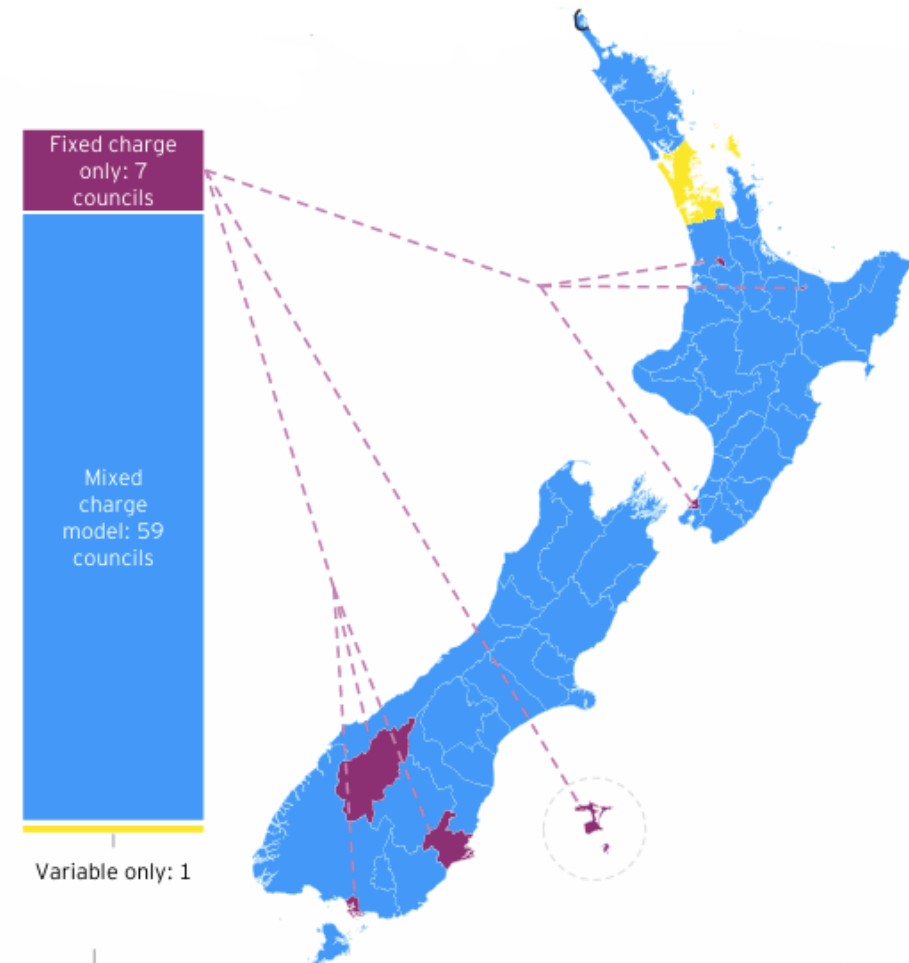
Only 7 of New Zealand's councils continue to rely solely on fixed charges for water or general rates with no volumetric component

Benchmarking shows the majority (87%) of councils use mixed tariffs (fixed plus volumetric charge)

33 charge volumetrically from the first litre and 25 include a base allowance.

QLDC's current approach is a fixed annual charge per separately used or inhabited part of a rating unit, plus a targeted rate based on capital value and land use per rating unit, both derived by scheme

This approach is increasingly out of step with sector norms.





3. How do we make the best out of the assets we've got?

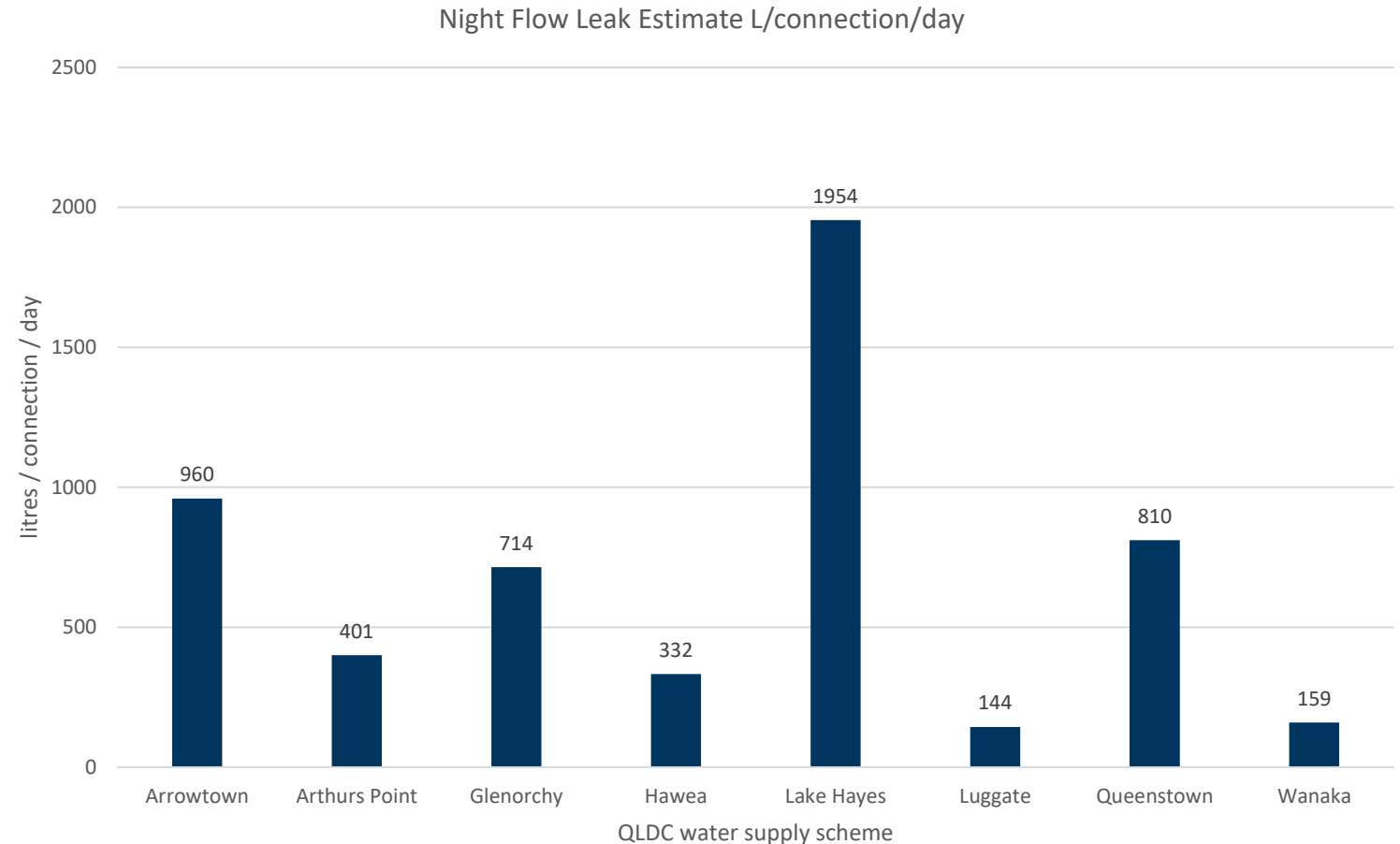
High network water loss is inefficient

There is a high level of network leakage across QLDC schemes, and some uncertainty in these estimates

Estimated loss ranges from 144 litres/connection/day in Luggate (smart meter trial) to an enormous 1954 litres/connection/day in Lake Hayes

There are financial and environmental costs to water supply and treatment

Lake Hayes and Arrowtown are a high priority.



Opportunity to improve network performance

Current network configuration

- A District Metered Area (DMA) is a discrete, hydraulically isolated section of a water network, where the flow of water into that area is measured by a high-accuracy bulk meter
- As a DMA is isolated from the rest of the network, DMAs coupled with bulk meters provide a means of more accurately tracking water use and loss
- There is a limited number of DMAs and not enough bulk meters in the QLDC water network.

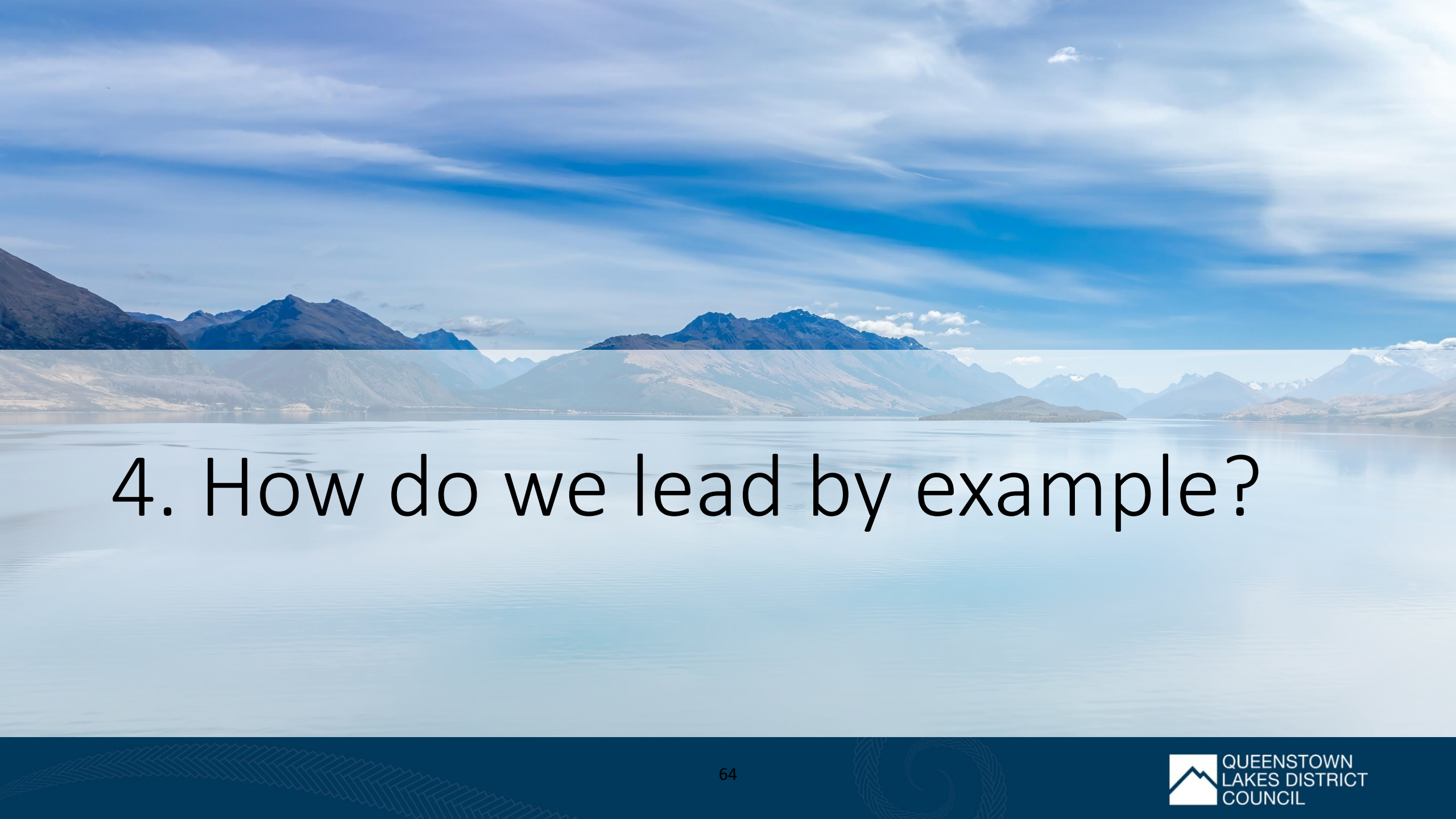
You can't manage what you can't measure

- Council cannot accurately monitor night flow demands at the right DMA-level across all schemes
- This prevents Council from measuring and monitoring leakage effectively
- Which in turn limits ability to reduce leakage and optimise network performance.

Improving network configuration can help minimise water loss and optimise the network

Project to improve leak management

- Improve the network's DMAs
 - Capturing the system parameters for each DMA
 - Renewal of meters and new meters where DMAs need to be divided
 - Actively using night flow monitoring to enable leak detection surveys, which identify, locate and diagnose leaks, and
 - Using this information to repair network and private leaks in a timely manner.
- Ensuring that all connections are metered – to understand customer use and detect private side leaks
- This project will improve Council's leak detection and repair processes
- Which in turn will help minimise water loss and improve network efficiency.



4. How do we lead by example?

Community pushback is a delivery risk ...

Public resistance to metering, volumetric charging and water restrictions may arise from concerns around perceived costs and/or fairness, or limited understanding

- This could delay or even halt programme rollout, cause reputational damage, and lead to ineffective demand reduction.

Mitigating this risk is necessary

- Educating the community on the need for water demand management and how the measures work
- Developing a comprehensive communications strategy, including mock billing and sharing data from smart meter trials
- Showing Council is taking proactive steps to reduce supply-side costs, for example, through better leak management
- Setting clear policy guidelines including exceptions for vulnerable users, leak remission and management of excessive use.

See Appendix C for other key programme risks

The three remaining projects in the Programme are designed to help address this risk (as well as reduce water demand)

Council measures:

- Council open space (parks and reserves) irrigation efficiency audit and retrofit to improve turf management and reduce water use
- Council open space irrigation optimisation, developing exemplary approach to irrigation
- Council facility water audits, including operational use – all facilities required to undertake audit and implement measures with an approved pay-back period.

Education:

- Customer communication programme to raise awareness, improve water literacy and change water use behaviour ahead of new charges
- Residential outdoor water efficiency education programme.

Regulatory and policy:

- Three Waters bylaw update to address extraordinary excessive water use
- Pipe leak repairs and remission policy, potentially providing financial assistance to residential customers to repair leaks in private property pipes between property boundary and the house.

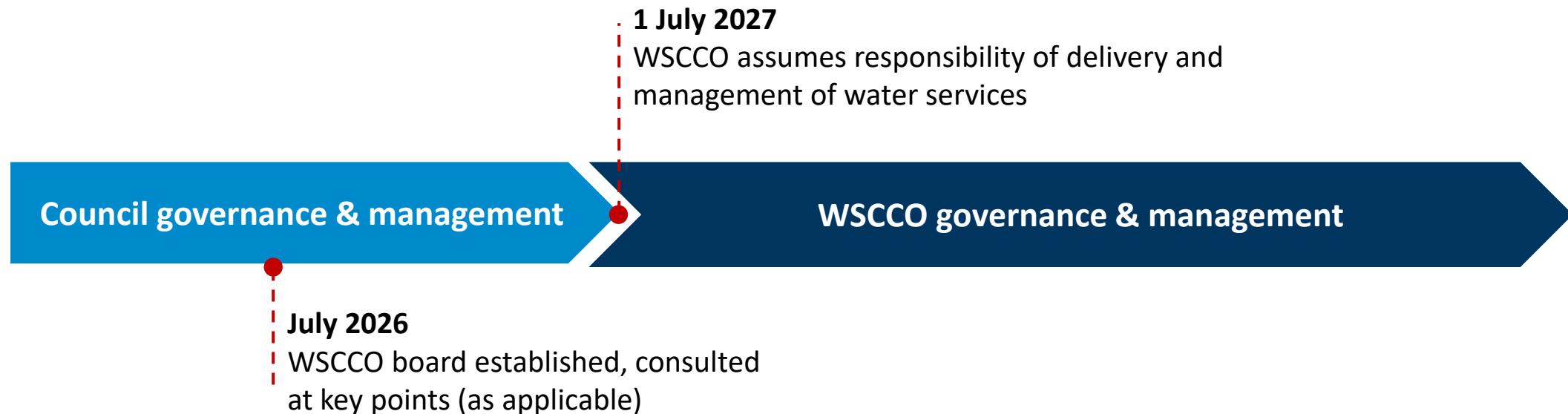


5. How will the transition from Council to WSCCO be managed?

Responsibility for water services (and the programme) is transferring from Council to the WSCCO in July 2027

- The WSCCO will be operational from 1 July 2027
- From this date, responsibility for the Programme transfers from Council to the WSCCO
- Responsibility for the Three Waters bylaw update (part of Project 3) will remain with Council.

Water demand management programme governance responsibility:



Ongoing collaboration between Council, the Establishment Team and the WSCCO will enable smooth delivery of the programme

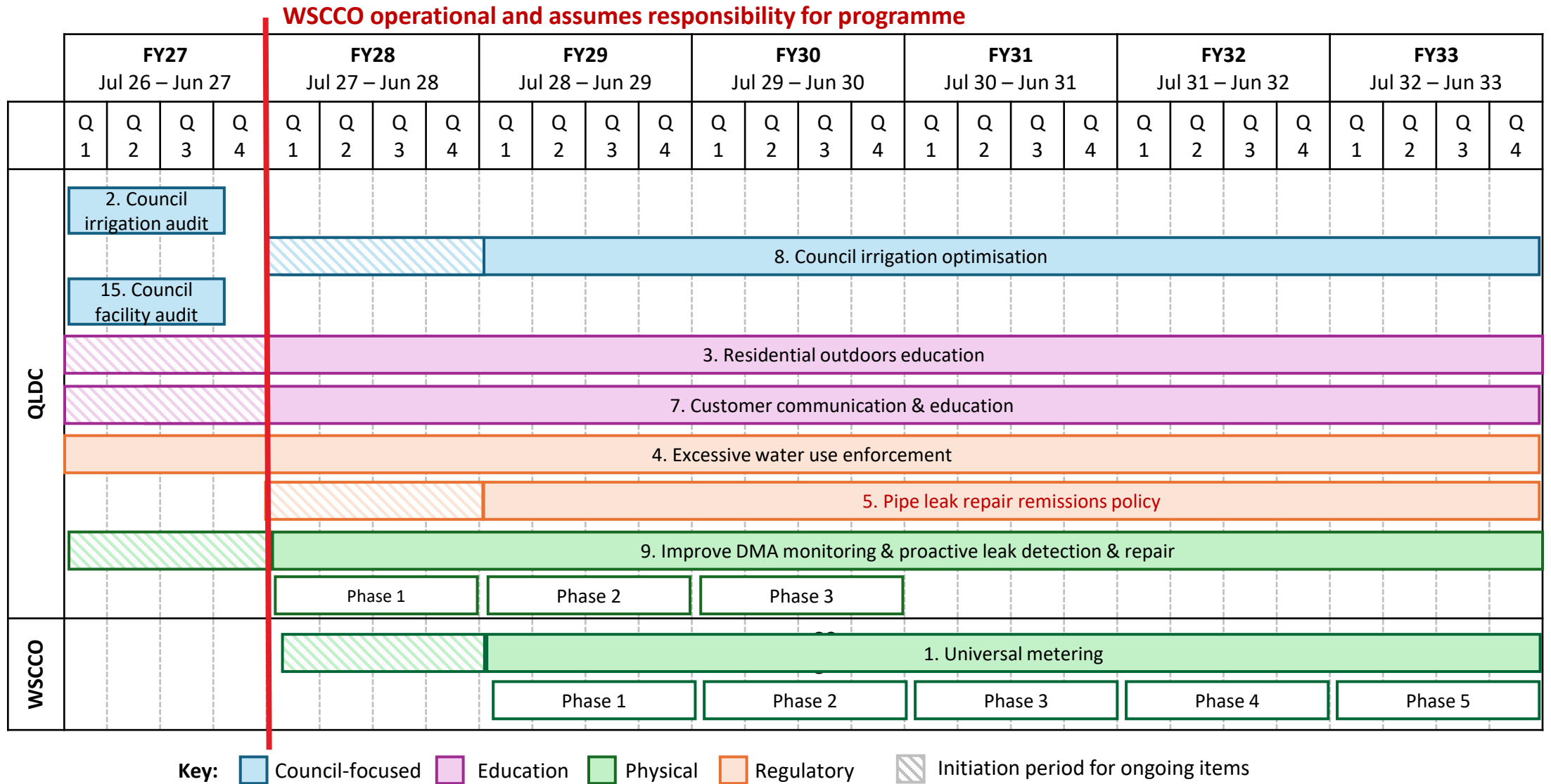
Council action and decisions (now – 30 Jun 2027)

- Approve Programme Business Case – July 2026
- Implement increased leak detection and repair programme with enhanced DMAs
- Continue the roll out of customer meters with a focus on high priority schemes
- Review and update the Three Waters Bylaw to manage excessive use
- Note \$5M for water demand management in Annual Plan for 2026/27.

WSCCO action and decisions (1 Jul 2027 -)

- Develop and approve Detailed Business Case for Universal customer metering
- Approve decision on approach to metering, including which meter type(s) will be implemented, and where others may be implemented by exception
- Roll out universal metering over five years
- Develop and consult on final water charge structure
- Note \$52M for water demand management in LTP/WSDP FY25-32.

High-level programme timing



Next Steps

Next steps for the programme are:

- 1** **Finalise Programme Business Case**
- 2** **Council decision on Programme (late July)**
- 3** **Continue with early programme implementation**

Appendix A

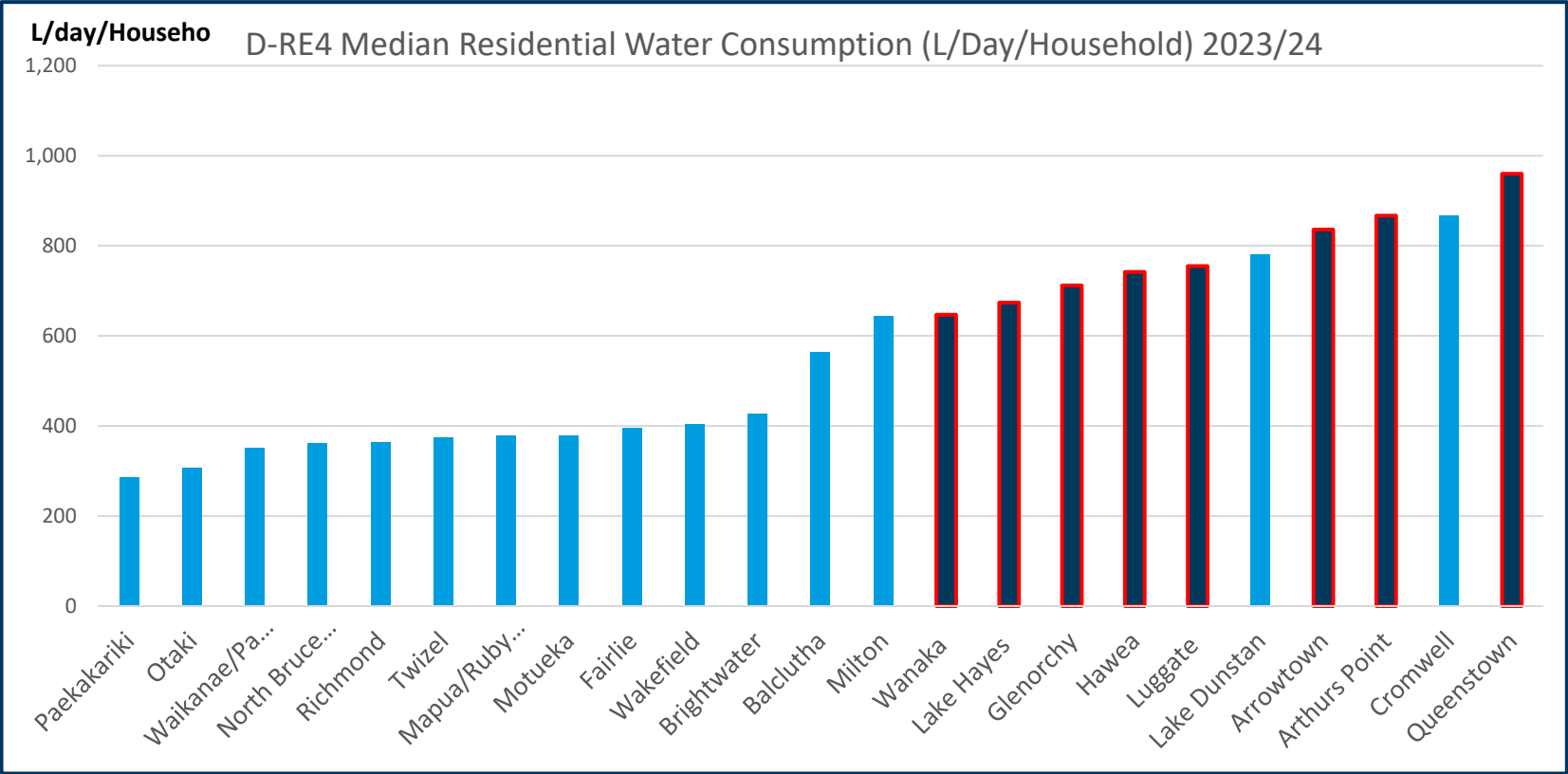
Further detail on context, problems, benefits and investment framework

Queenstown Lakes – high water users

QLDC is currently developing a business case for a suite of water demand management interventions across QLDC’s public water supply schemes. The Business Case will be finalised in June 2026.

The district’s water consumption is high relative to comparable New Zealand water supply schemes.

This graph illustrates median residential consumption of water (litres/day/household) by scheme, with Queenstown Lakes schemes accounting for 8 of the 10 highest-consuming schemes.



Water demand fluctuates a lot by season, peaking in the summer

Water demand fluctuates significantly by season in the district. It peaks in summer, when all schemes experience heightened daily demand and some schemes experience daily demand more than three times higher than average

Water supply network	Annual average demand ¹ (m ³ /day)	Annual average demand per unit ² (L/unit/day)	3-day peak factor	3-day peak demand ³ (L/unit/day)
Arrowtown	3,600	1,980	2.0	4,030
Arthurs Point	815	1,530	1.7	2,660
Glenorchy	368	1,190	1.9	2,290
Hāwea	1,920	1,460	2.4	3,530
Lake Hayes	1,170	2,520	3.6	9,050
Luggate	384	1,380	2.7	3,660
Queenstown	17,600	1,140	1.6	1,780
Wānaka	11,100	1,250	2.4	2,930

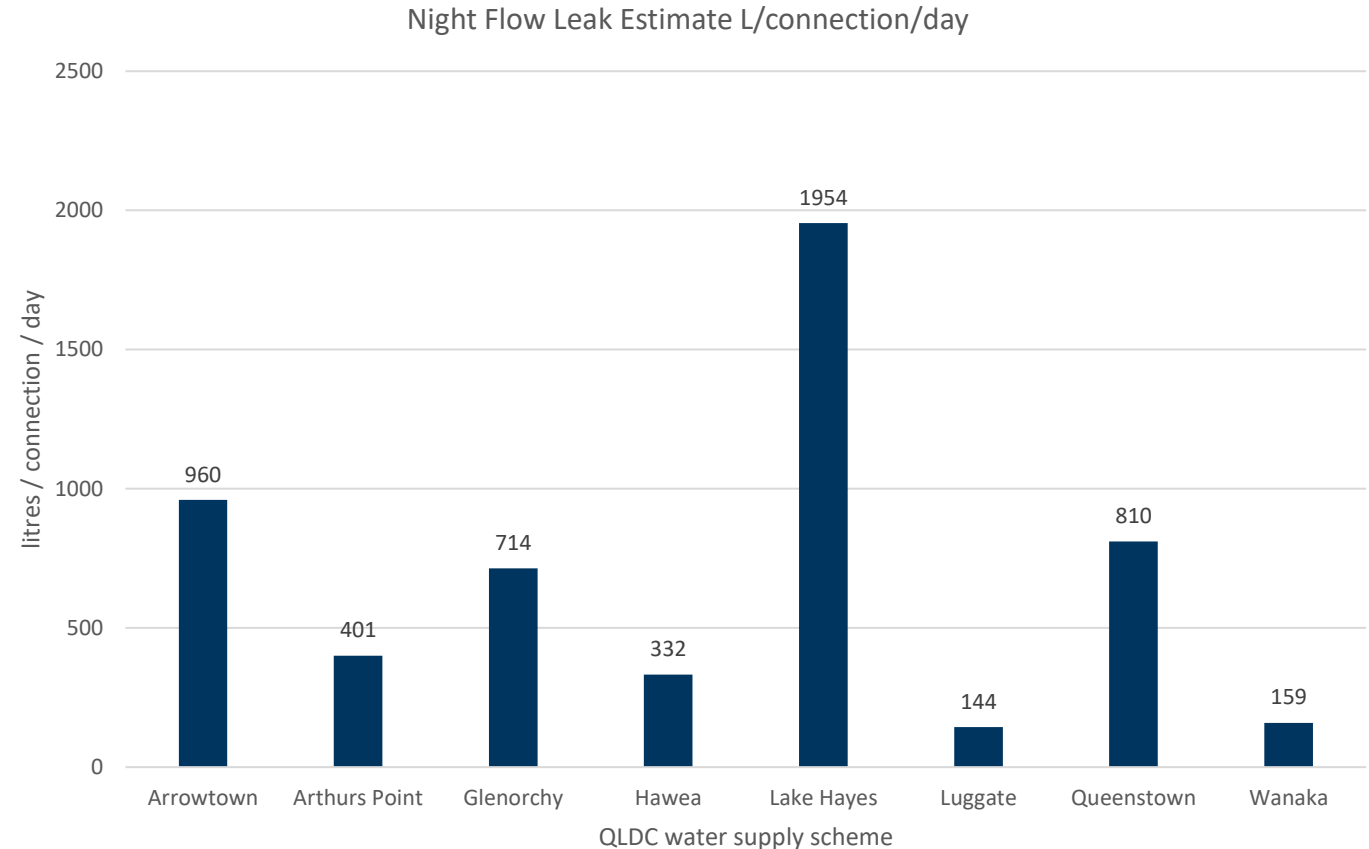
1 Total water supplied, includes network leakage, private property leakage and all customer use

2 Annual average demand normalised by the total number of demand units, excluding vacant sections

3 Peak summer use across highest 3 days

QLDC schemes also have very high leakage rates

- Estimated network leakage is very high, with a weighted average of over 500 L/connection/day (20 to 50 percent of total water demand by scheme).
- The 5-year average of estimated leakage per connection and day in a scheme ranges from 144 litres in Luggate to an immense 1954 litres in Lake Hayes
- It is difficult to accurately quantify leakage without effective DMA areas and meters.

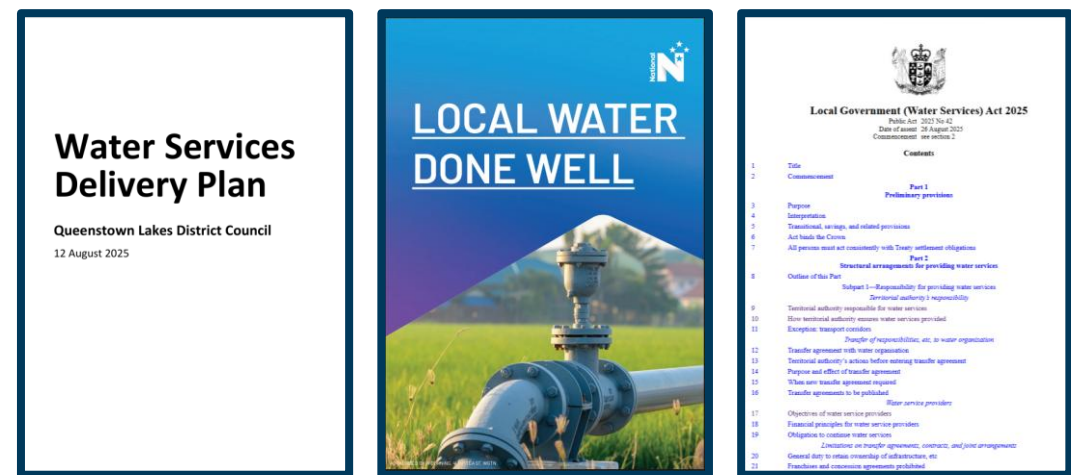


Water Demand Management Business Case - Purpose

Why demand management?

It is not fiscally prudent to address this challenge by adding capacity – sizing and maintaining infrastructure to meet peak demands means water assets would be underutilised for most of the year

New economic regulation through the Local Water Done Well reforms require providers to operate efficiently, ensure financial sustainability, charge fairly for services and to report on their performance. QLDC strategic documents such as the Water Services Delivery Plan 2025 support water demand management.



Benefits

Investment in water demand management would lead to three primary benefits for the district:



**Safe and reliable Council
water supply**



**Efficient and sustainable
water demand**



**Fair and equitable
charges for water supply**

These benefits support Council and the community, align with regulatory requirements and the QLDC Strategic Framework, and deliver environmental protection and fair water charges.

Demand Management Levers

There are many potential interventions available to the Council. These can be grouped into:

1. **Utility-side interventions:** measures aimed at reducing Council's water use and/or changing the network¹
2. **Customer-side interventions:** measures aimed at generating behavior change in customers and/or occurring beyond private property boundaries.

Utility-side interventions		Customer-side interventions	
• Network pressure management • Increased proactive leak detection and repair • Improved District Metered Area monitoring • Alternate water sources – greywater, stormwater, rainwater		• Education and awareness programmes • Water use restrictions • Council facility, school, commercial and irrigation audits and retrofits • Water efficient Landscape design • Water efficient management plans	
Both	• Metering (manual, automated, advanced) • Volumetric water charge (options for CCO)		• Excess water use – bylaw and enforcement options

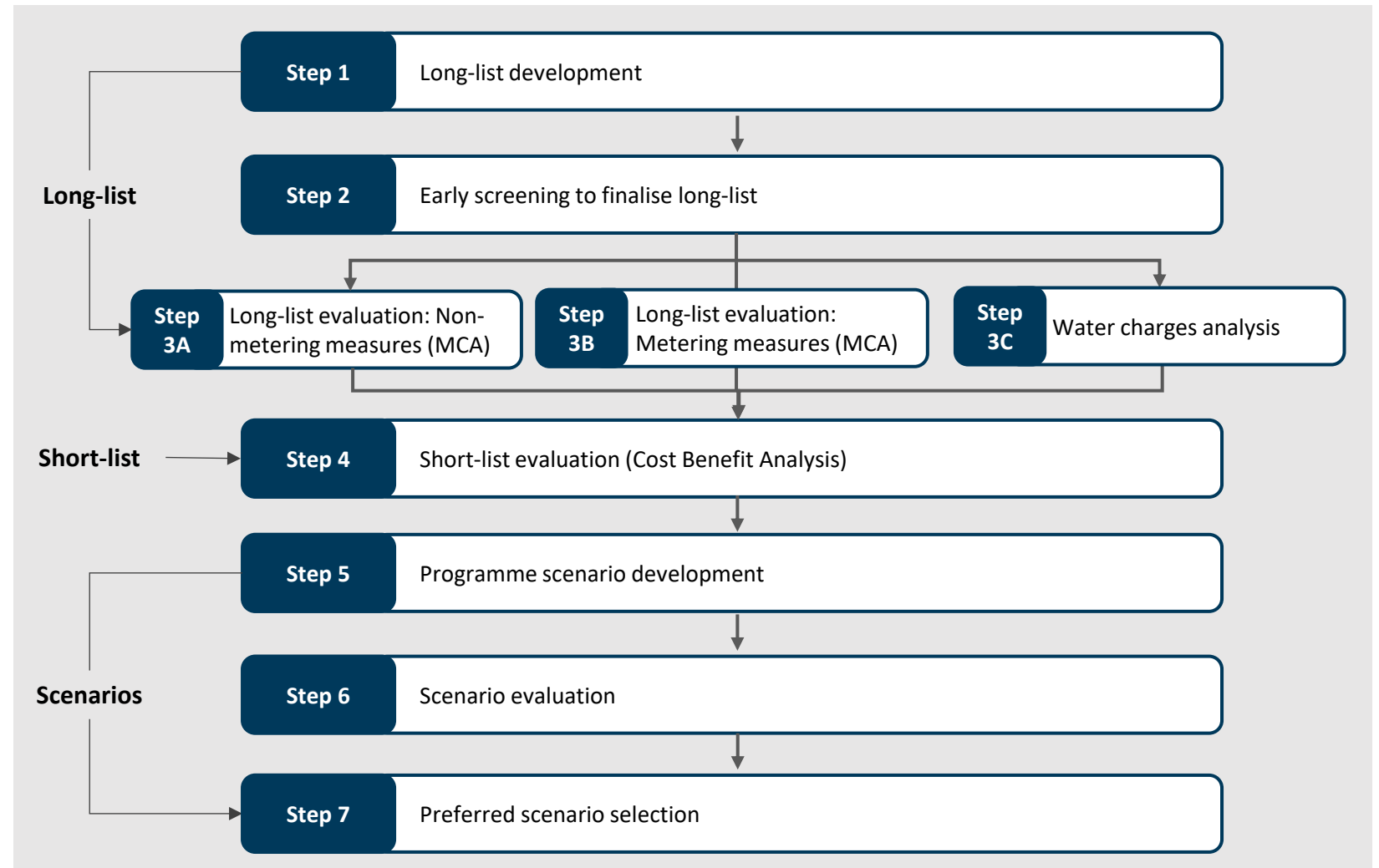
¹ Where network ends at the private property boundary

Approach to options analysis

A staged process to:

- Identify water demand management measures applicable to QLDC context
- Assess these measures, and
- Combine into optimal scenarios.

This process was completed with the Project Control Group.



Water Demand Management: Investment Logic Map

PROBLEM

BENEFIT

INVESTMENT OBJECTIVES

Excessive water demand jeopardises our ability to reliably supply safe water to our communities, meet regulatory requirements, and accommodate ongoing growth [40%]

The current water supply charging model means there are no incentives for efficient use of drinking water and the cost of meeting peak water demand is inequitably distributed across customers and communities [20%]

Limited ability to understand and manage water loss and consumption results in inefficient water services and inability to achieve, and demonstrate to ratepayers and regulators, effective and cost-efficient water supply management [40%]

Safe and reliable Council water supply 40%

KPI 1: low pressure
KPI 2: high pressure
KPI 3: System interruptions
KPI 4: Water restriction days

Efficient and sustainable water demand 40%

KPI 5a: water demand
KPI 5b: water consumption
KPI 6: water consumption
KPI 7: Network water loss
KPI 8: Water supply emissions
KPI 9: Resource consent compliance

Fair and equitable charges for water supply 20%

KPI 10: add. demand capex
KPI 11: proportional cost
KPI 12: average bill per household

IO 1: Ensure safe and reliable water supply
Optimise network performance to maintain safe and reliable water service delivery within existing and committed infrastructure capacity

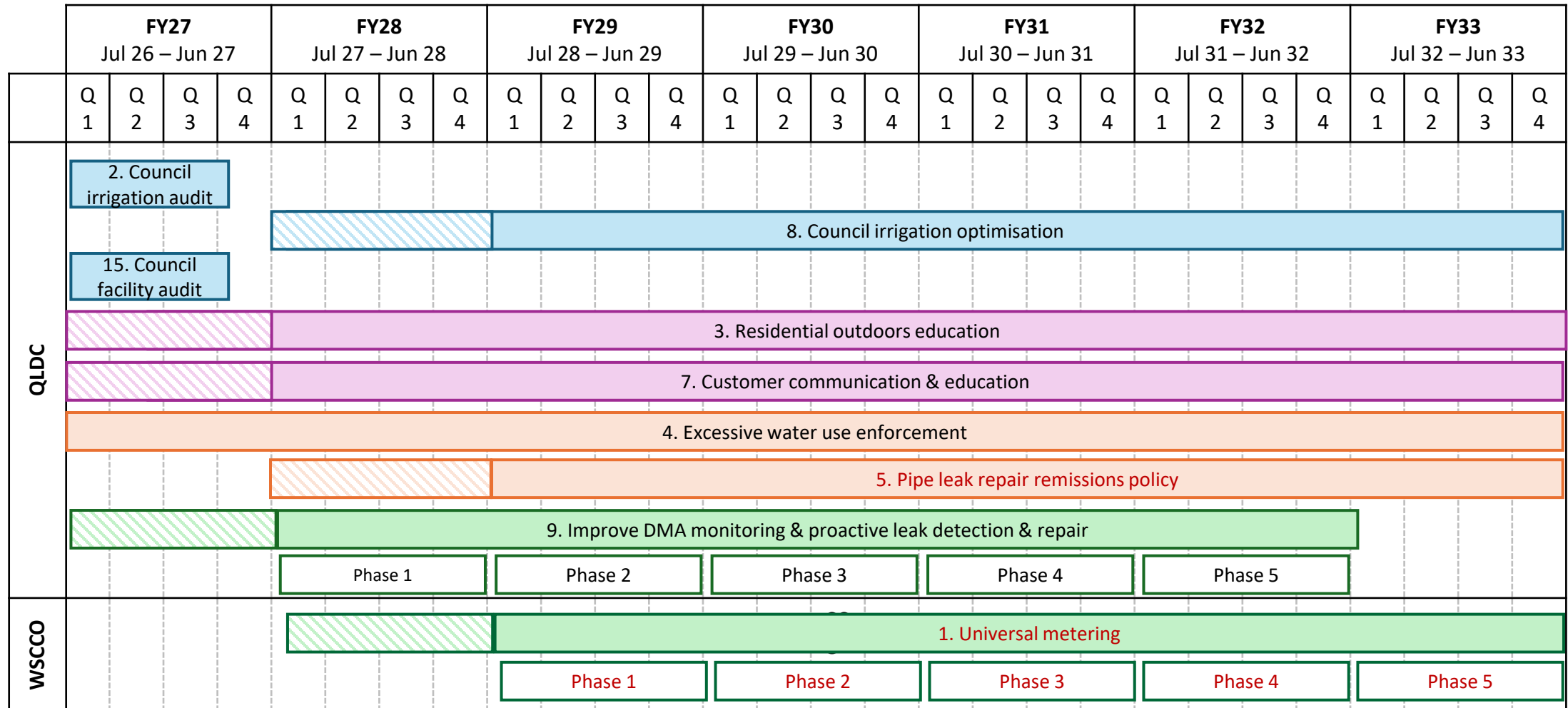
IO 2: Achieve efficient and sustainable water use
Implement comprehensive water demand measurement and management across 9 schemes to reduce water consumption to 300 litres/person/day and network losses to 20% by 3 years following implementation of WDM measures in a scheme

IO 3: Implement equitable and financially sustainable water charging
Introduce a charging regime that reflects actual consumption, ensures equitable cost distribution and supports long-term financial sustainability of water services starting in 2027 when WSCCO is operational

Appendix B

Programme and project timelines

Programme timeline



Key: ■ Council-focused ■ Education ■ Physical ■ Regulatory ▨ Initiation period for ongoing items ■ Additional measure

Project 1: Council measures

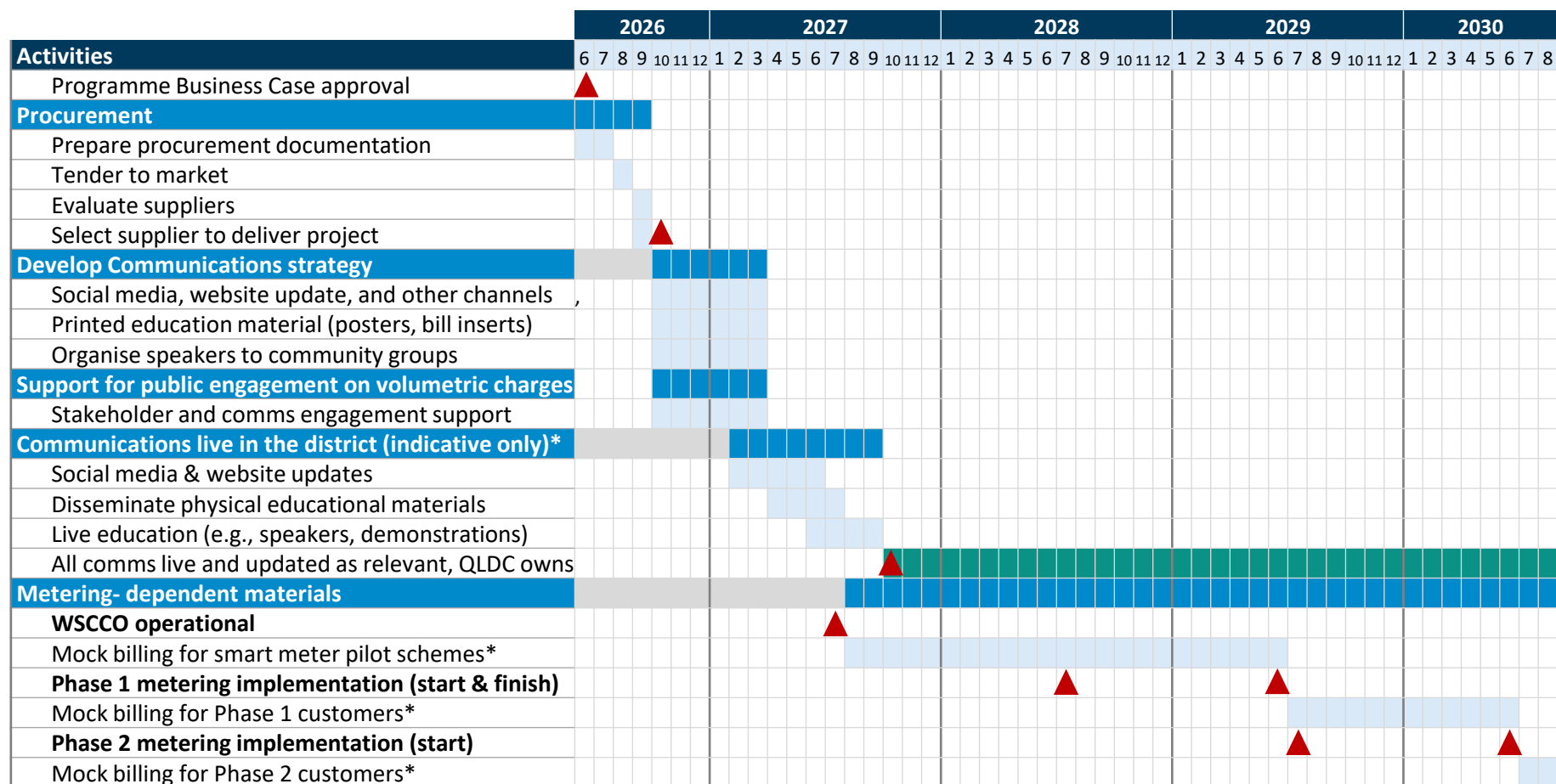
	2026												2027												2028						
Activities	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7					
Programme Business Case Approval	▲																														
Council open space irrigation efficiency audit and retrofit																															
Audits of Council open space (Parks & reserves, sport fields)																															
Procure meters (if necessary)																															
Retrofit (meters, irrigation controllers etc.)																															
Mandatory council facility water audits incl. operational use																															
Audit of Council offices																															
Audits of Sport & Recreation, Aquatic Facilities																															
Audits of community halls & venues, public toilets																															
Audits of wastewater treatment plants																															
Contingency for all audits																															
Council open space irrigation optimisation																															
Pre-implementation: develop optimisation approach																															
Apply open space irrigation optimisation approach																															

Key

Pre-implementation and delivery: planned time
 Pre-implementation and delivery: contingency
 Operational phase as applicable
 Milestones / decision points



Project 2: Education



*All timing is indicative only and will be informed by the Communications Strategy

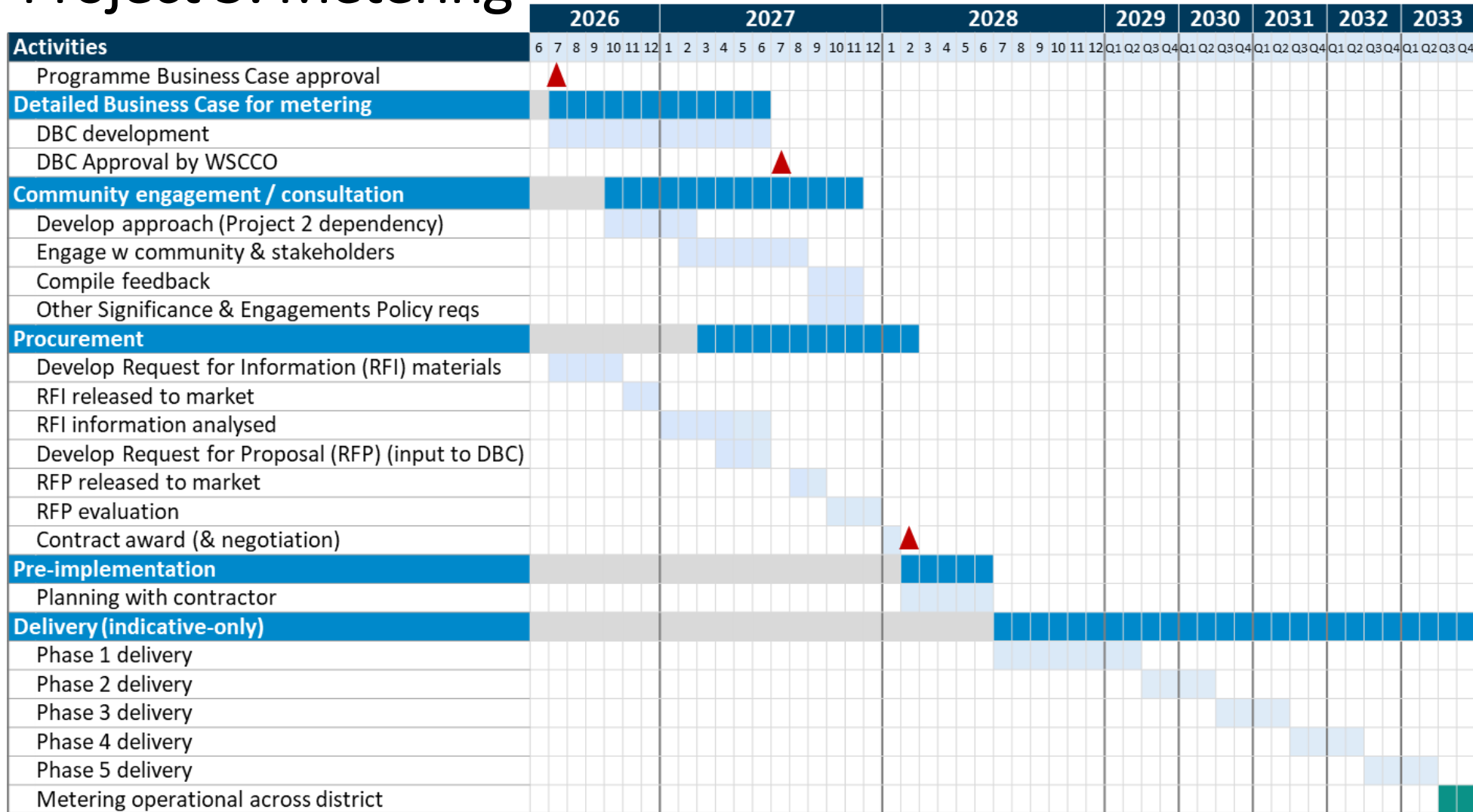
Project 3: Regulatory

[illegible]

Project 4: Leak management

	2026												2027				2028				2029				2030				2031				2032				2033			
Activities	6	7	8	9	10	11	12	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4					
Programme Business Case approval	▲																																							
Procurement																																								
Develop Request for Proposal (RFP)																																								
RFP released to market																																								
RFP evaluation																																								
Contract award (& negotiation)																																								
Planning																																								
Plan prioritised roll-out																																								
DMA improvements – delivery																																								
Phase 1 delivery																																								
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Implement in Phase 4 area																																								
Implement in Phase 5 area																																								

Project 5: Metering



Note: Scale shifts from 2029 onwards, with years condensed to quarters for formatting purposes.

Appendix C

Key risks



QUEENSTOWN
LAKES DISTRICT
COUNCIL

Key programme delivery risks & mitigants

A programme risk register has been developed. The four key risks from the register are in the table below.

Current Key Risks	Risk Description	Mitigations / Actions
Public perception / community pushback	Public resistance to metering and volumetric charging, and outdoor water use restrictions driven by perceived costs, equity/fairness issues or limited understanding of the need for water demand management.	• Communications and education are a foundational dependency and key mitigation • Develop comprehensive communications strategy, including real data from smart meter trials. • Provide mock billing ahead of charging, to enable behaviour adjustment. • Project 4 (Leak Management) key mitigant, comms to illustrate that council is focusing on their side to reduce costs.
Internal capacity and capability	Insufficient resources and capability within Council/WSCCO to implement and maintain demand management solutions. Metering and charges are key factor as requires new software, IT systems and a culture shift. Additional complexities such as the remissions policy.	• Resourcing levels are considered and proposed for funding as part of the business case • Workforce planning • Succession planning for key staff members
Market capability and capacity	Market has insufficient capacity or capability to implement and maintain demand management solutions, including metering installation and leak detection.	• Reliable forward programme of work for Leak Management and Metering (Projects 4 and 5) to enable market time to plan and react. • Explore opportunity for relationship with provider for ongoing programme.
Benefits Realisation	Demand reduction measures fail to deliver anticipated water savings.	• Benefit realisation mitigation includes option to adjust pricing over time, but needs further assessment • Establish clear roles and responsibilities and benefit owners (see 4.4). • Adjust volumetric charge until the benefit is met.

Key programme delivery risks & mitigants

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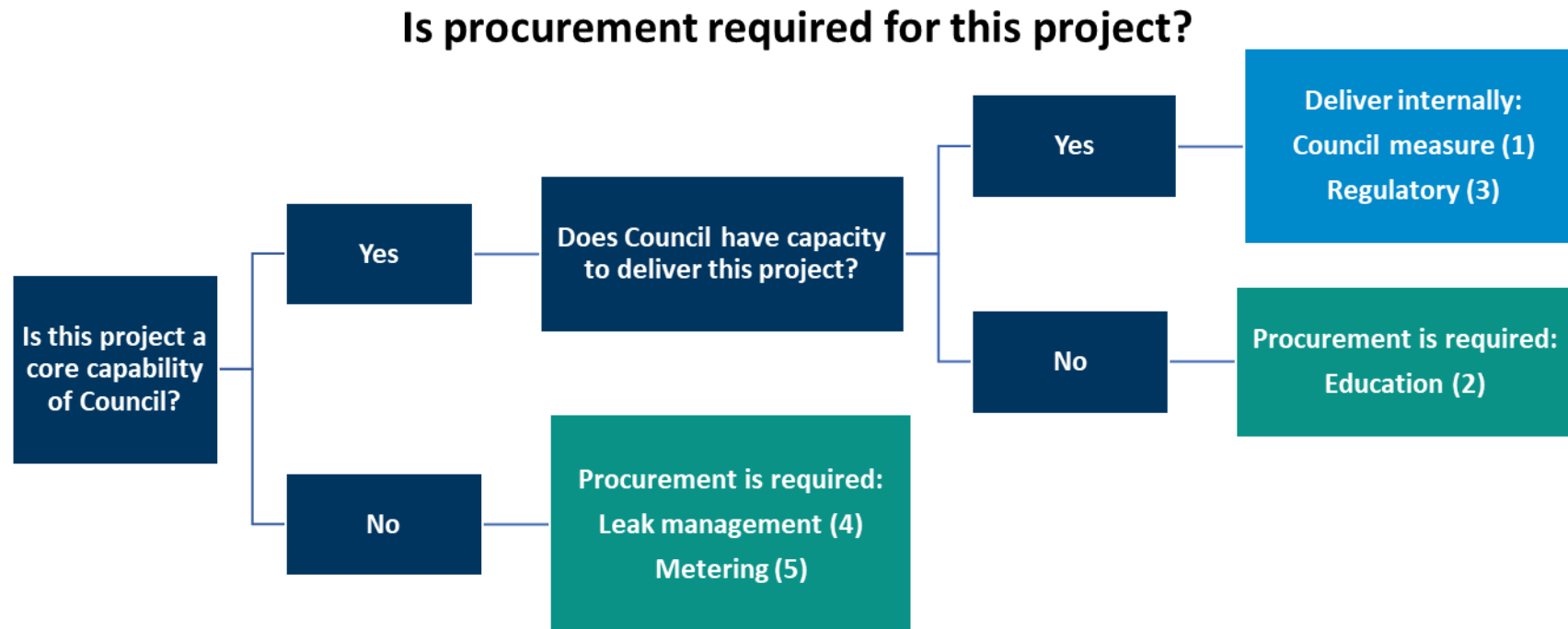
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Internal capacity and capability	Insufficient resources and capability within Council/WSCCO to implement and maintain demand management solutions. Metering and charges are key factor as requires new software, IT systems and a culture shift. Additional complexities such as the remissions policy.	• Resourcing levels are considered and proposed for funding as part of the business case • Workforce planning • Succession planning for key staff members
Market capability and capacity	Market has insufficient capacity or capability to implement and maintain demand management solutions, including metering installation and leak detection.	• Reliable forward programme of work for Leak Management and Metering (Projects 4 and 5) to enable market time to plan and react. • Explore opportunity for relationship with provider for ongoing programme.
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Appendix D

Indicative commercial arrangements

What needs to be procured?

Decisions on if procurement is required are based on scope, and where that scope is a core competency of council (e.g., policy, managing its own facilities) then it is not needed



Procurement Strategy Summary – required services

Required goods, works and services to be procured, by project, are:

- **Education (Project 2):** Communications services to develop communications strategy and materials
- Leak management (Project 4):
 - DMA meter provider and field operator (likely same supplier), and
 - Leak repairs through existing relationships
- **Metering (Project 5):**
 - Smart meter vendor(s) comprising telecommunication, hardware, software, field operators, system integrators etc.
 - While this will be determined through the DBC, it is likely that the WSCCO will seek more integrated solutions due to current in-house capability, to reduce the risk profile of delivering this project.

Procurement Strategy Summary – procurement method

The indicative preferred approach to the supplier market for the Education, Leak management, and Universal metering projects are:

- **Project 2 | Education:** single stage, open market approach for Communications Partner. May procure through panel or existing relationship, depending on the value of the contract.
- **Project 4 | Leak management:** single-stage, open market approach for DMA updates. Potential to procure leak repair service to be considered in next planning phase.
- **Project 5 | Universal metering:** two-stage, open market approach. Request for Information (RFI) to inform final procurement approach, followed by Request for Proposal (RFP). RFP structured to enable market innovation.