QUEENSTOWN LAKES DISTRICT COUNCIL

Three Waters Asset Management Plan 2021-2031

Queenstown Lakes District Council

Date: January 2021

Document History	Date	Prepared By	Reviewed By	Approved
2017/18 AMP DEVELOPMENT & REVIEW	FEBRUARY 2018	POLLY LAMBERT & MARK BAKER	MYLES LIND	PETE HANSBY
20/21 AMP DEVELOPMENT & REVIEW	JANUARY 2021	POLLY LAMBERT & MARK BAKER	POLLY LAMBERT & MARK BAKER	PETE HANSBY

Budgets are at 01.07.21, QLDC LTP21 adoption date. (N.B. Budgets are subject to change through reforecast and annual plan cycles). The 'AMP at a glance' document will provide updated information but for most up to date budgets, please refer to QLDC council minutes on the QLDC website.

FOREWORD

This Activity Management Plan was undertaken with a view to the need for a better approach to tackling the big issues facing our region's future Three Waters requirements.

"Insatiable desirability" is the term used by Queenstown Lakes District Council (QLDC) CEO Mike Theelen to describe the Queenstown conundrum of the attractiveness of the area driving significant growth, which, in turn, generates housing affordability and Three Waters challenges.

Queenstown has experienced rapid growth in population and visitor numbers. This trend is forecast to continue (post COVID-19) and, by 2048, modelling indicates that approaching 200,000 people could be in Queenstown on the busiest days. This level of growth is far greater than experienced or forecast in any other urban area in New Zealand and is placing increasing pressure on the Three Waters network.

While COVID-19 has undoubtedly had an significant impact on visitor numbers, this is a temporary phenomenon with Queenstown projected to be back to pre-COVID-19 visitor numbers by 2024, and actually provides the opportunity to address well-known Three Waters challenges at a time when they are less acute, meaning that construction would have less overall impact on the network, and put Queenstown in a good place for the projected full return of visitors by 2024.

Water supply, wastewater and stormwater services have a significant impact on how well we achieve the Council's long-term outcome of providing the Queenstown Lakes district with "*access to safe and reliable water supplies, waste disposal, flood protection systems that protect public health and ecosystems*".

The water supply is critical in that it provides clean drinking water to our communities. The wastewater assets contribute significantly in the collection, treatment and disposal of our city's sewerage to protect people's health, property and minimising effects on the environment. The stormwater network keeps the city safe through flood protection and to reduce the impact of environmental changes.

QLDC is looking to the future in its planning and is aware that the reliable and efficient provision of three water services is essential developing a robust and resilient foundation for the future that we all want. The Council is committed to a process of ongoing improvement in the management of three water services to our communities.

This plan signals an increased investment in both planned capital works and operational budgets. On the surface, this may appear challenging and there are practical issues to be considered. However, we believe that setting out the business case in this plan, supported by robust evidence, represents an important step in providing the information to engage the wider community and our business partners for the next stages.

Peter Hansby
General Manager, Property and Infrastructure
Queenstown Lakes District Council

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1. EXECUTIVE SUMMARY

QLDC's vision for Three Waters is:

"To provide access to safe and reliable water supplies, waste disposal, and flood protection systems that protect health and ecosystems."

1.1 WHAT WE PROVIDE

Three Waters services is made up of drinking water supplies, wastewater collection and treatment and stormwater management:

- The water supply is essential in that it provides clean drinking water to our communities of the district. It is critical to the wellbeing and prosperity of our district that those services are safe, reliable and cost-effective.
- The wastewater assets contribute significantly in the collection, treatment and disposal of our city's sewerage to protect people's health, property and minimising effects on the environment. Reticulated wastewater systems are recognised internationally as the most effective method of collecting urban domestic and business liquid wastes for treatment while protecting public health and the environment.
- The Stormwater network keeps the district safe through flood protection and to reduce the impact of environmental changes. Effective management of rain through these systems is critical to limiting erosion and property damage, as well as ensuring public amenity of open spaces and protection of the environment.

1.2 KEY ISSUES / CHALLENGES

QLDC faces many challenges and these have been discussed throughout our Asset Management Plan. Our Three Waters Programme has been developed to address these challenges and the problems they bring.

CLIMATE CHANGE	THE BIGGEST ENVIRONMENTAL CHALLENGE OF OUR TIME
TECHNOLOGY	LONG LIFE ASSETS IN A FAST CHANGING TECHNOLOGICAL WORLD
DEMAND	IMPACT OF CHANGES IN DEMAND AND GROWTH
ECONOMIC	IMPACT OF THE ECONOMY ON OUR COMMUNITY
GEOPOLITICAL	HOW OUR PHYSICAL LANDSCAPE INFLUENCES DECISION MAKING
REGULATORY CHANGES	ENSURING THAT OUR NETWORKS COMPLY WITH CHANGING LEGISLATION

1.3 OUR STRATEGY

QLDC as a district is looking to the future in its planning and it is aware that the reliable and efficient provision of three water services is essential in developing a robust and resilient foundation for the future that we all want. Ensuring existing infrastructure networks and services are well-maintained, safe, and compliant is Council's core infrastructure business.

To achieve this, a step-change in capital expenditure is required to respond to aging infrastructure, levels of service, changing legislation, and high levels of growth in the district. The effect of this high-cost, essential

investment is a portfolio that is predominantly aligned to our people and economic strategic outcomes. People will be protected from harm, and services will strike a balance of quality and affordability. We will invest in protecting our natural environment and take positive steps towards understanding and building resilience.

It is important that the Council is able to make informed decisions about how infrastructure should be developed, maintained and disposed in order to meet resilience and service efficiency. Although this may involve making some difficult decisions; we are always working towards ensuring our residents and businesses requirements in our planning for a sustainable outcome.

The first ten-years of infrastructure investment will create the necessary foundations to realise our health promotion, economic stability, resilient communities, and environmental regeneration goals.

1.4 OUR PROGRAMMES

Our three waters programme consists of our continuous programme, indicating how we will maintain, operate and renew our network, as well as our improvements programme, which addresses gaps in level of service and new growth areas that need to be serviced.

The QLDC three waters programme for the 2021/31 LTP has been developed to maximise delivery of benefits clearly aligned with QLDC's Vision 2050 and Infrastructure Strategy within a constrained funding environment. The financial impact of the post-COVID-19 environment on our district cannot be underestimated. QLDC have lost a number of non-rate related revenue streams and are very cognitive that we must minimise the impact on our ratepayers and as such have limited rates increase to under 6%. This has resulted in a rethink on the priorities within our corporate investment programme.

QLDC have had an intensive review of the timing of the programme, a number of improvement projects have been pushed beyond years 1-3, whilst others have been pushed later into the 21-31 investment cycle.

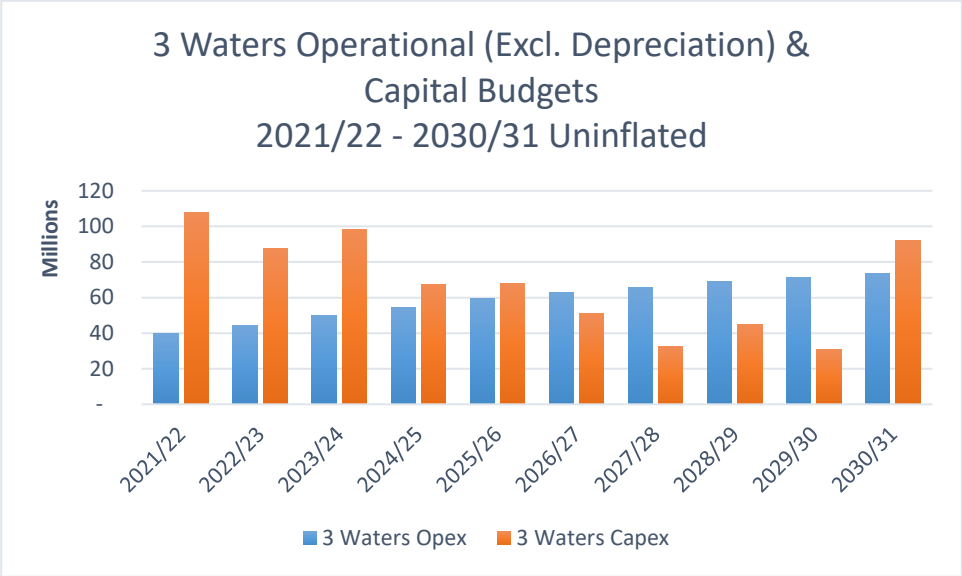
A key driver that has shaped the first three years of QLDC's Long Term Plan is the Taumata Arowai's new drinking water supply compliance rules, which has highlighted the urgency for required upgrades in 6 out of the district's 10 water supply schemes. The upgrades of these 6 schemes consists of a water treatment element but in all cases there are also upgrades required for water storage, conveyance and/or the water intake to meet the growing population.

Significant upgrades are required to the districts wastewater treatment plants, this is driven by growth and regulatory and environmental reasons. The urgency of these upgrades is felt more in the Upper Clutha oppose to Queenstown and as such upgrades to both Hawea wastewater scheme and the existing Project Pure treatment plant have been prioritised and programmed the first three years of the Long Term Plan. Due to financial constraints, the difficult decision to defer the upgrades to the Shotover treatment plant in Queenstown was taken and is now programmed in year 4. Wastewater network improvements are also required in the district which will build on infrastructure projects that are currently in delivery.

Throughout our district significant investigations are planned to gain better understanding of the stormwater. This will consist water sampling, flow monitoring, hydraulic modelling and contaminant load modelling. These will be used to identify issues and reduce flooding as well as protecting our waterways.

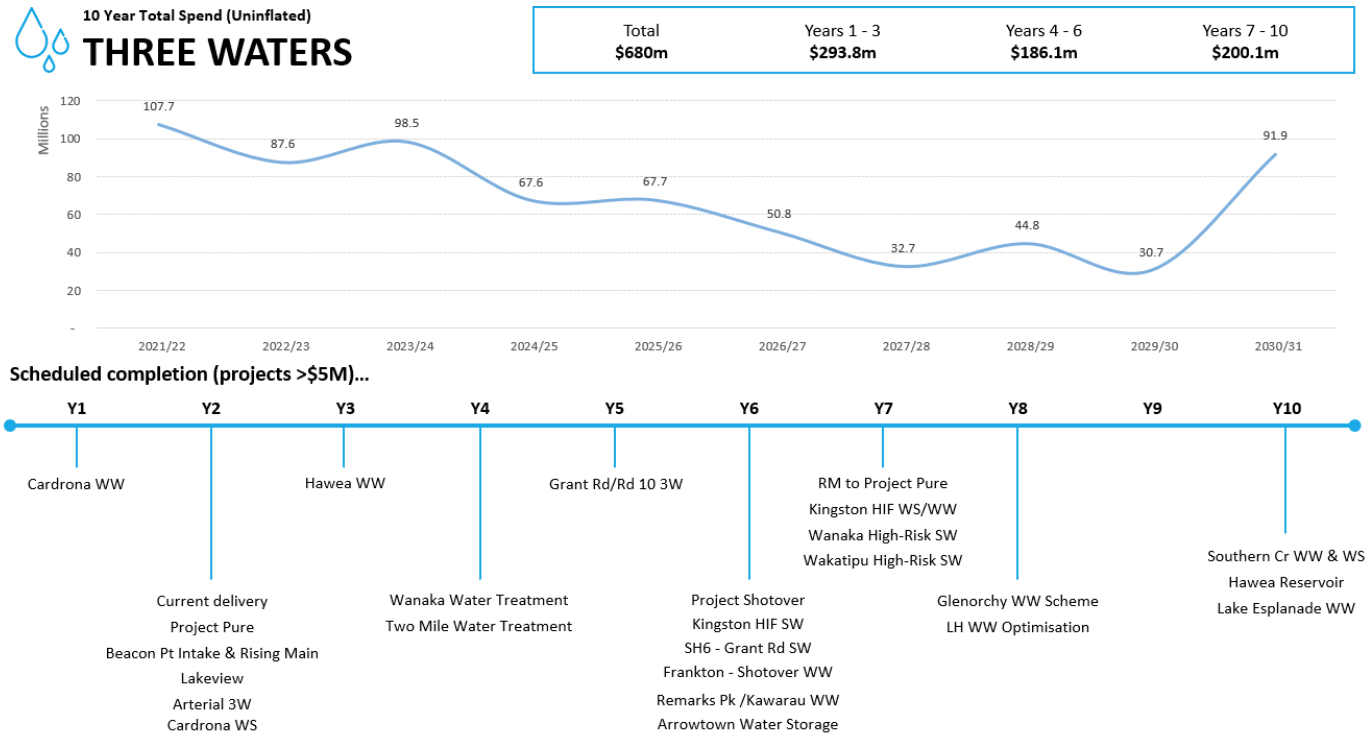
1.5 WHAT IT WILL COST

Figure 1 Capital and Operational Expenditure Three Waters 2021/22 – 2030/31



The figure below demonstrates the improvement projects and their timings over the next ten years.

Figure 2 Three Waters Improvement Projects and Timings



1.6 CONTINUOUS IMPROVEMENT

QLDC have focused investment in processes, data collection, condition, and demand monitoring, modelling and analysis. As our programme moves into a large delivery stage, attention is moving to network and benefits realisation. Our AMP Improvement Plan captures key actions, and these are tracked and updated regularly.

We are confident that the programmes presented will benefit our Community and deliver the expected outcomes.

2. INTRODUCTION

2.1 PLAN PURPOSE AND FRAMEWORK

This activity management plan (AMP) details QLDC's approach for delivering Three Waters services, cost-effectively to achieve long-term strategic goals and delivering the level of service desired by the community.

The scope of the AMP demonstrates QLDC's role in supporting the Three Waters system to meet the community's wellbeing's.

The principal outputs from this AMP are:

- A description of Three Waters assets, activities and intended outcomes.
- Strategic assessment of service levels.
- Discussion on demand and operational changes.
- A proposed investment programme for the next 10 years.
- Identification of opportunities to improve business processes and asset management maturity.
- Continuous improvement and a prioritised performance plan.

The AMP has been prepared internally based on the principles of maintaining, renewing and improving our Three Waters system whilst considering a cost effective 'whole of life' approach. Any changes in funding levels required by the community through the Long Term Plan (LTP) process, will be captured in the LTP and used to inform subsequent annual revisions of the AMP.

Changes to the planned investment programmes will be documented and described in alignment with QLDCs Risk Management Framework. This process will ensure the implications of changes in funding (increases or decreases) are clearly understood and captured in a consistent method, each year.

2.2 PLANNING HORIZON

QLDC's vision and community outcomes are set through consultation with the community. This informs future planning and future decision making. The development of the 30 Year Infrastructure Strategy along with the Spatial Plan draws a high level picture of potential investment requirements. The activity management plans then take the 10 year view and delves into more detail to provide intervention programmes for improvements and continuous (maintenance, operations and renewals) programmes. These are refreshed through the 3 yearly review cycle supported by the annual planning and reporting processes. The review cycle considers the entire governing, operational and asset management framework. Below shows the target of the 30 year planning horizon with the review cycles wrapping around that target.

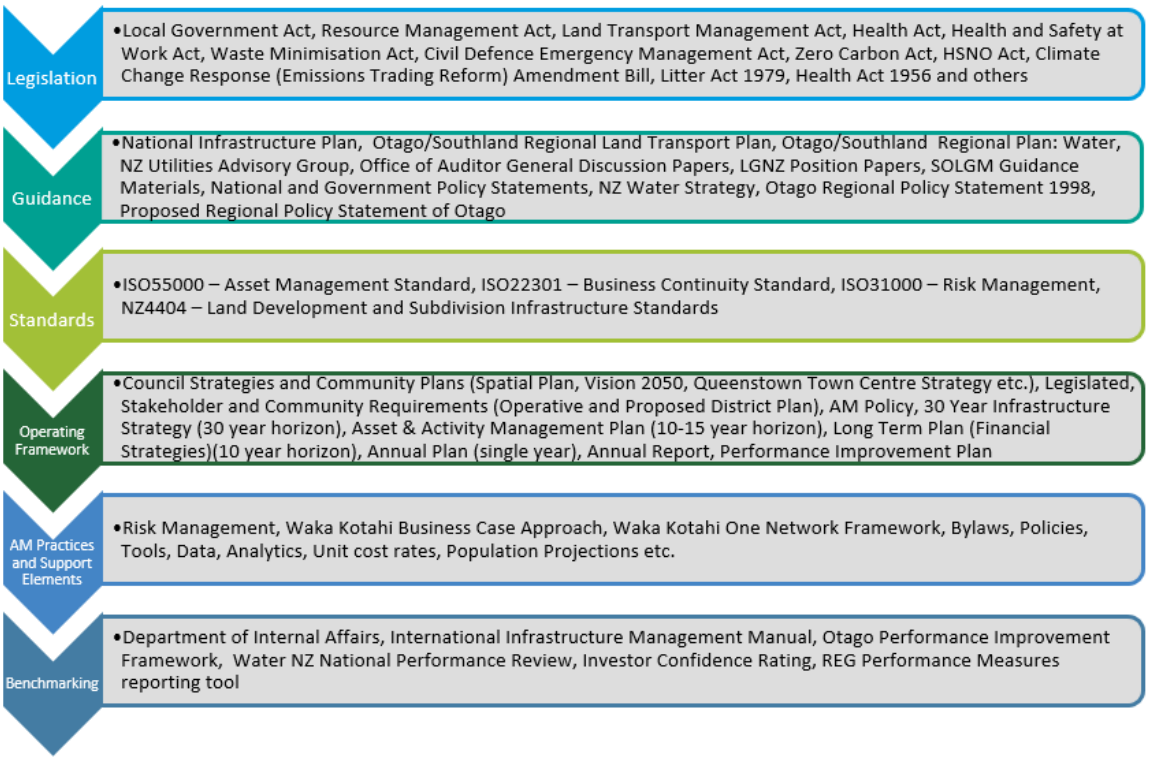
Figure 3 Planning Horizon

Annual Plan	The first year of the LTP programme is revised immediately prior to the planned year of implementation through an annual public consultation process to become the Implementation Plan (Annual Plan) for delivery
Annual Report	QLDC reports on the progress and success of its investment and service delivery annually in its Evaluation Plan (Annual Report), which is published late in each calendar year
Performance Plan	Improvement opportunities identified through all aspects of this process are captured in the Performance Improvement Plan and are used to inform the programmed continuous improvement actions within the AM Activities
Review Cycle	The 3 year review cycle resets the 10 and 30 year forward planning
Master Planning, Business Case & Strategies	Strategies, masterplans and business cases continuously review the long and medium term approach
Long Term Plan	Sets out how QLDC and the community intend to balance competing priorities while delivering desired community benefits. The LTP outlines the strategic direction and responses (investments plans) for 10 years. The LTP is reviewed on a three year cycle
Activity Management Plan	Sets out the ten year programme
30 Year Infrastructure Strategy	Identifies emerging issues for service delivery over the longer term
Spatial Plan	Establishes an integrated, long-term, collaborative strategy that will guide new approaches and central government support to help address the demand challenges in the Queenstown Lakes

2.3 GOVERNING AND OPERATIONAL FRAMEWORK

A fundamental aspect of asset management is that it must align with the legislation and central government guidance of the day.

Figure 4 Governing Framework



2.4 SIGNIFICANCE AND ENGAGEMENT POLICY

QLDC considers the Three Waters network to be significant strategic assets in terms of the Local Government Act 2002 Section 90(2). Strategic assets are those assets that are important to the long-term goals of Council, a failure of one of those assets will be detrimental to realising those goals. QLDC lists its strategic assets in the Significance & Engagement Policy.

The following will trigger the Special Consultation Process:

- Any decision that transfers or changes ownership or control of strategic assets to or from the Council is a significant matter.
- The sale or transfer of shareholding of any of the listed assets will trigger the Special Consultation Process.
- Long-term lease of strategic assets (other than land).

QLDC is currently reviewing its Significance and Engagement Policy for inclusion in the 2021/31 LTP, this review is expected to be completed by first quarter 2021.

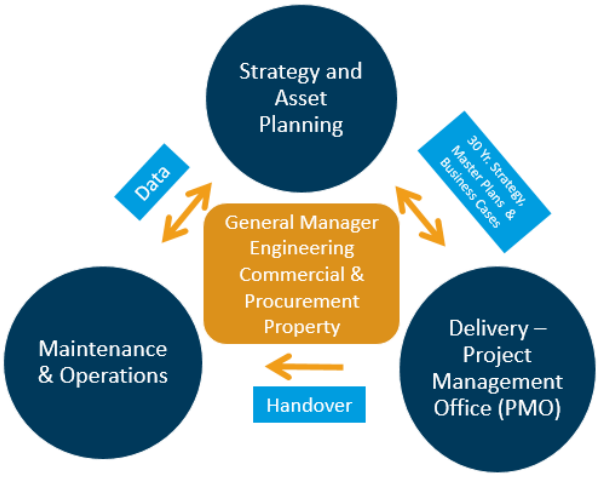
2.5 QLDC ORGANISATIONAL STRUCTURE

In 2014 QLDC introduced an activity based matrix approach, partly in response to a 2013 Office of the Auditor General Report, in which QLDC were cited as an example of bad asset management. It identified that planning and asset management need to improve, and this led to a restructure within Property and Infrastructure, which brought together staff who undertook similar roles across different disciplines.

Over the ensuing years, this approach has enabled cross-pollination and sharing of ideas and skills between disciplines, with a key focus in removing planning staff away from operational and reactive works. This has freed up staff to spend time focusing on forward thinking and planning.

Contract management is another key area where this has seen benefits; there has been a move to using a standardised contract form NZS3917 across all contracts, which assists better contract management across all portfolios as staff can build better understanding and skills around the contract form.

Figure 5 QLDC Property & Infrastructure Structure



2.6 ASSET MANAGEMENT ENABLERS

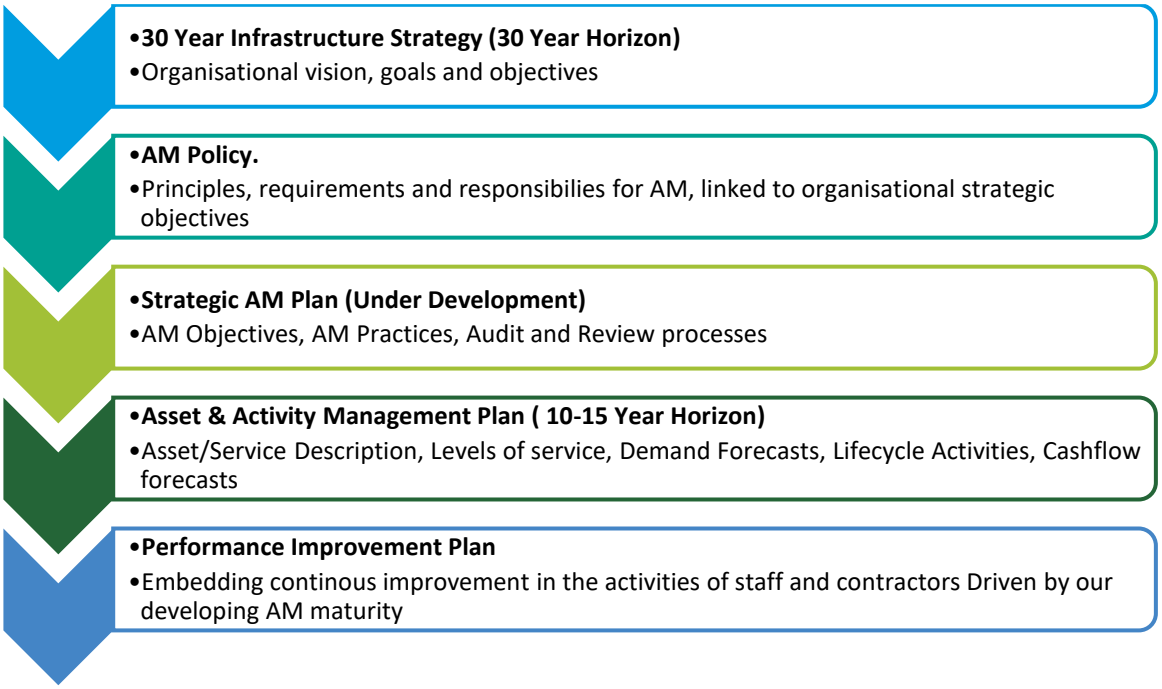
The AMP will be presented to the Property & Infrastructure Management Team, including the Property and Infrastructure General Manager, the Chief Engineer, the Manager of Maintenance and Operations, and the Strategy and Asset Planning Manager. As key stakeholders, these managers have been engaged through the development of the AMP.

A key element in obtaining the approval for the AMP has been the early engagement with key internal and external stakeholders. Rather than a document that sits on a shelf, the AMP has been driven as a working document to support the case for funding, delivering real investment in QLDC Three Waters activities.

2.7 ASSET MANAGEMENT FRAMEWORK

QLDC's Asset Management (AM) approach has been developed to meet key legislative and business requirements and support robust AM practices. Along with the International Infrastructure Management Manual (IIMM) principles, QLDC incorporate its AM practices and supporting elements (tools, systems and procedures) to deliver effective and efficient AM.

Figure 6 Asset Management Framework



2.7.1 ASSET MANAGEMENT POLICY

QLDC's Asset Management Policy provides the overall direction to guide the sustainable management of QLDC's asset portfolio. A copy of the policy is appended.

2.7.2 ASSET MANAGEMENT SYSTEMS

Critical to the management of assets, and therefore service delivery to consumers, is the need to capture and update data on the network. Information is fundamental for establishing systems models, their calibration and planning future options.

Primary responsibility for maintaining and updating the asset register lies with QLDC. The authority for maintaining and updating assets has been delegated to the maintenance contractor. The contractor can update asset data, expired assets, relocate assets and add new assets.

2.8 ASSET MANAGEMENT OBJECTIVES

QLDC's vision for Asset Management is:

"To deliver best practice asset management that supports the wellbeing of an evolving community, whilst balancing levels of service and cost efficiency."

QLDC is currently developing its Strategic Asset Management Plan (SAMP), which will demonstrate integration of the asset management objectives with Community Outcomes and key strategies:

Figure 7 Asset Management Objectives

Asset Management Objective
To deliver more efficient use and maintenance of existing infrastructure assets
To best manage demand for new assets with better integration with the district plan, urban design and other non- infrastructure approaches
To regularly measure and advance the maturing of our asset management practices
To continuously develop the capacity and capability of our staff in asset management and risk management
To progressively improve the transparency and robustness (effectiveness) of investment decision making through evidence based investment (better business case approach)

The following summarises particular objectives and philosophies as to how QLDC manages its infrastructure assets:

2.5.1 **Replacement of existing assets**: With the exception of critical assets (as identified under the QLDC Risk Management Framework) all assets will be operated under a run to fail model as they can likely be replaced with generic or off the shelf replacement parts with only minor disruption to customer services.

2.5.2 **Response to change in demand:** QLDC will measure, update and confirm demand for services on an annual basis to ensure future projections for services are based on best available information, and is able to take into account effectiveness of demand management programmes.

2.5.3 **Allowance for planned increases (or decreases) in service levels:** QLDC will research, test and engage on the setting of service levels to best balance service efficiency and effectiveness, customer expectations, legal requirements and community affordability. Any significant service level change will be consulted on through the provisions of the Local Government Act (LGA).

2.5.4 **Provision of resilience of infrastructure assets by identifying and managing risks:** As outlined in the NIP, QLDC has completed a natural hazard assessment across the district. This has been combined with latest generation asset criticality assessments. QLDC has a balanced programme of asset reinforcement, relocation and de-risking supporting its insurance and other financial provisions for risk management.

2.5.5 **Optimisation:** As much as practicable, optimise and extend the effective life / capacity of existing infrastructure to reduce investment in new infrastructure. (I.e. make best use of what is already in place).

2.9 COLLABORATION

Closer relationships are being developed between QLDC and its contractors. Regular liaison meetings and early engagement have been fundamental to building our AMP and Maintenance & Renewals Programme

- QLDC is coordinating joint workshops and training for utility operators.
- QLDC are developing relationship with the Office of the Auditor General to improve the 30 Year Strategy.
- Internally within Property and Infrastructure, QLDC are working closer with Transport and Solid Waste, particularly around work programmes, monitoring of reinstatements and undertaking asset criticality/vulnerability assessments.
- Across departments, QLDC are working much closer with our Planning and Development team to address the requirements of the National Policy Statement for Urban Development as well as the spatial plan.
- QLDC are approaching the local supply chain early in the procurement process to find the most appropriate method to get the best value for projects. I.e. packages of works and timings.
- Lifelines – this is a collaboration of infrastructure companies within Otago to make sure people keep moving when there is a significant event. The group covers members from Local Authorities (3 Waters, Roading and Transport), Electricity Companies, and Telecommunications, Emergency Services (St John, Fire, and Police) who meet regulatory. There is also a dedicated Queenstown group - Queenstown Lakes Utilities & Lifelines (QUELL) which includes air and water access.
- QLDC have worked with the Civil Defence team to review AF8 preparedness and input this into risk planning.
- Internally within Property and Infrastructure, QLDC are working closer with Transport and Waste Management, particularly around coordination of timelines for renewals monitoring of reinstatements and undertaking asset criticality/vulnerability assessments.
- QLDC has created a Forward Works Viewer, this allows Council to map the districts projects and in future will combination with Private Development projects. This will provide oversite of what is going on within the district, and have an impact on Utilities, Events etc. A time slider/play button allows for an interactive visual representation.
- Across Council collaboration has focus on reviewing the Land and Subdivision code of practice and this has resulted in tangible improvements to the vesting process.

2.10 ASSET MANAGEMENT MATURITY – IIMM2020

Benchmarking is a method by where local authorities can compare their performance to industry-accepted practice, standards or other guidelines. This helps gain context of how well a particular local authority is performing relative to its peers or the wider industry. Having a performance measurement process such as benchmarking for the operational performance of Council services is a fundamental part of public accountability.

As part of the continuous improvements in AM practices, QLDC again undertook an Asset Management Maturity Assessment – based on the NAMS IIMM guidelines. The review includes the activities of

Transport, Three Waters, and Waste Management. This was completed in September 2020, with the previous assessment held in November 2018. A further review is scheduled for May 2022.

The 2020 review included achievements and key areas of strength and opportunities for improvement for each activity.

It is recommended that Council:

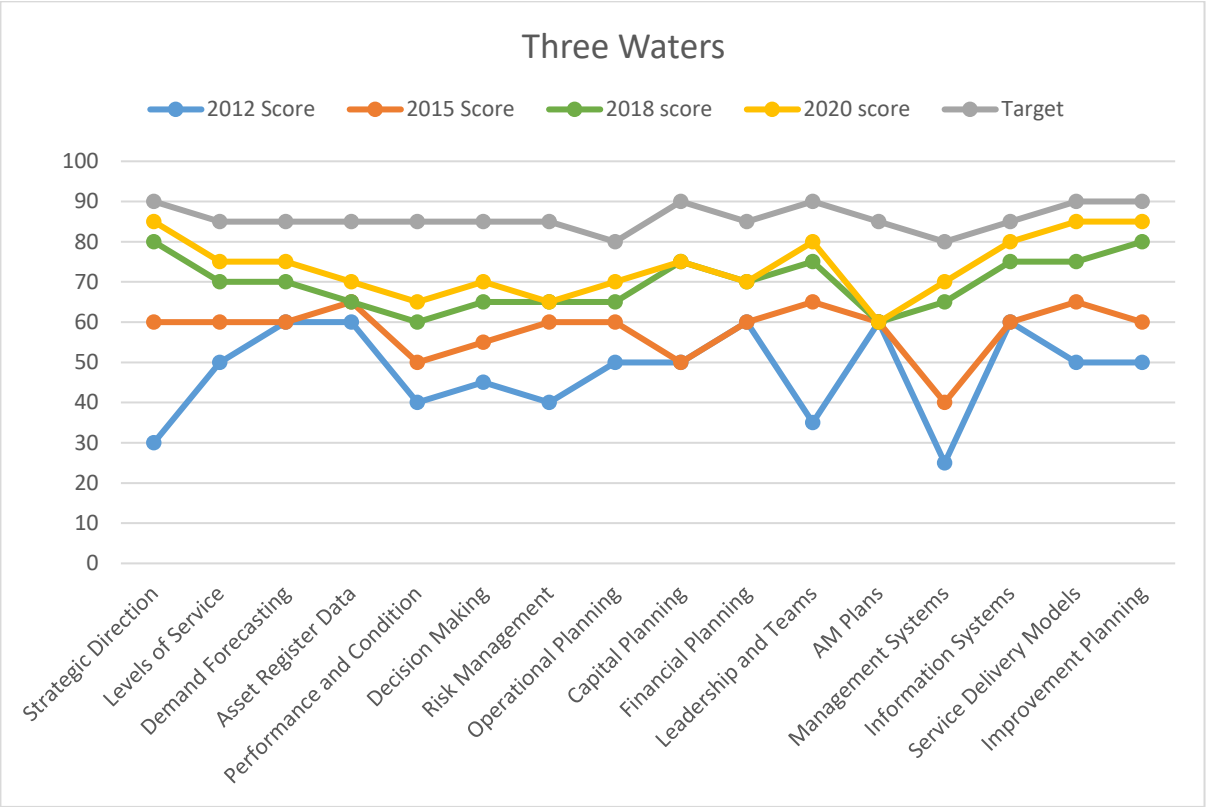
- Review the AM Improvement Plan (Performance Plan) to check it includes all tasks identified to address maturity gaps and to review timeframes and priorities for improvement projects with consideration of allocated funding in the 2020 Long Term Plan budgets.
- Expand the scope of the AM Improvement Plan monitoring to post-project completion, to monitor the transition of new processes into business-as-usual.
- Establish measures to demonstrate the effectiveness of AM maturity development and optimisation of lifecycle processes alongside this overall maturity assessment process3.
- Establish a formal monitoring and reporting process to the appropriate Council Committee for the implementation of the AM Improvement Plan and these supporting measures.
- Review the overall timing of outcomes and strategic reviews, growth strategies and Asset Management Planning / Infrastructure Strategy development over the next three years (with a view to earlier completion of strategic planning work to information asset management plans).
- Establish a Council-wide AM Group that supports and coordinates an integrated and consistent approach to AM planning and improvement across all asset-based activities.

Recommendations for 3W:

The water activity has a well-established improvement plan and there have been incremental improvements across most areas. The completion of an asset register in TechOne with asset valuation data has been a key milestone, however, the implementation of TechOne has taken a lot more time and resource than expected. This has delayed progress for associated AM functions (it is understood there are issues with the level of support being provided by TechOne).

A key priority is to review and confirm priorities for further TechOne implementation (renewal modelling, condition / performance analysis, KPI monitoring, etc.). It is recommended that a revised implementation plan be established with consideration of required resourcing and support.

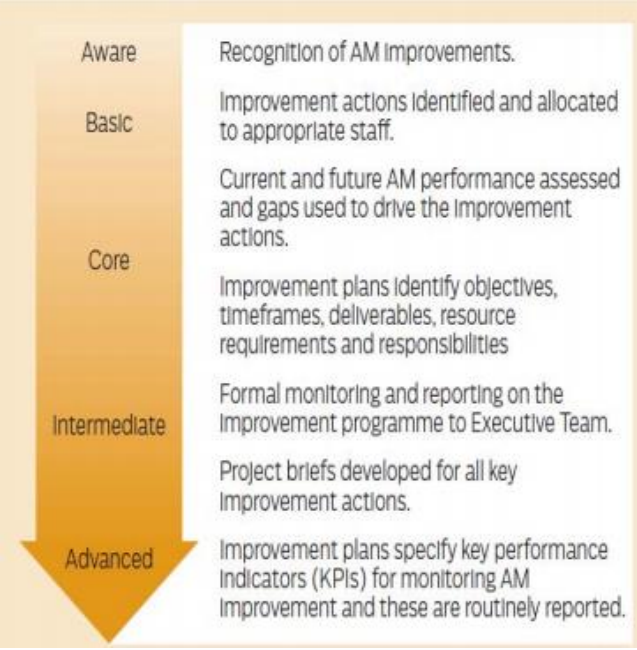
Figure 8: Illustrates the historical trends since 2012 to date for each AM function in Three Waters:



2.11 ASSET MANAGEMENT IMPROVEMENT PLAN

QLDC's Asset Management Improvement Plan is a detailed plan of the improvement actions identified to enhance the asset management planning process within QLDC. Implementing this Improvement Plan will align QLDC's Three Waters AM practices to the higher end of the "Intermediate" level as represented in the IIMM 2015 guidelines.

Figure 9: International Infrastructure Management Manual (IIMM) AM Maturity Index (2015)



Aware	Basic	Core	Intermediate	Advanced
0-20	21-40	41-60	61-80	81-100

QLDC's Performance Improvement Plan is monitored and updated on a six-weekly cycle, and regularly reported on to the Property and Infrastructure Management Team. The Improvement Plan is available on request from QLDC.

2.12 ISO 55000

A high level assessment of QLDC's compliance with the requirements of the International Standard, ISO 55000, was carried out during the 2020 AM Maturity Assessment.

Working towards ISO 55000 is being considered as a medium to long term goal, however, seeking full accreditation is likely to be resource intensive and unwarranted unless legislation or regulation imposes the requirement.

QLDC is, however, seeking to align AM practices with ISO 55000 requirements. To achieve this alignment, significant focus to is being given to the following areas:

- Documentation of processes and 'system interactions'
- Internal audit, review and improvement processes to be incorporated as 'business as usual' activities
- More detailed understanding of the asset management context and external and internal drivers, and how these translate into AM objectives ('line of sight' from corporate objectives to operational activities)

2.13 INVESTOR CONFIDENCE RATING (ICR)

The Treasury is committed to robust and transparent stewardship of public funds. Owning the right assets, managing them well, funding them sustainably, and managing risks to the Crown balance sheet are all critical to public services being cost effective and high quality. The ICR is a two-yearly assessment of the performance of investment-intensive agencies in managing investments and assets that are critical to the delivery of NZ government services. The ICR provides an indication of the level of confidence that investors can have in an agency's ability to realise a promised investment result if funding was committed.

Following consultation with Treasury QLDC undertook an ICR self-assessment for 3-Waters and Transport and obtained a Confidence Rating of C. This indicates that QLDC is a maturing investor, but still needs to further develop some processes. QLDC are in discussions with Treasury to investigate how Local Government could formalise benchmarking through this scheme in the future.

QLDC are on 3 year review cycle for the ICR. The next review is expected to take place in 2021/2.

2.14 NATIONAL PERFORMANCE REVIEW

Queenstown Lakes District Council has again taken part in Water NZ's National Performance Review. This annual review provides a benchmarking tool for local authorities and other organisations providing public drinking water, wastewater and stormwater services. Water New Zealand has undertaken this review since 2007 and it provides annual and trending information since then.

2.15 AUDITS

2.15.1 LONG TERM PLAN AND ANNUAL REPORT

QLDC uses external auditors (Deloitte on behalf of the Office of the Auditor General) to evaluate the quality and reliability of financial information reported in the Long Term Plan and Annual Reports. The next audit for the draft LTP is scheduled for early 2021.

2.15.2 WATER SAFETY

Water safety plans are drafted for each water supply scheme and formally approved by the Ministry of Health. Implementation of these plans is assessed during a site visit by the Drinking Water Assessor, which is a form of audit that occurs within 12 months of approval of the water safety plan. Reviews/updates occur every 5 years or upon any significant change to the operation of the scheme.

2.16 METADATA STANDARDS

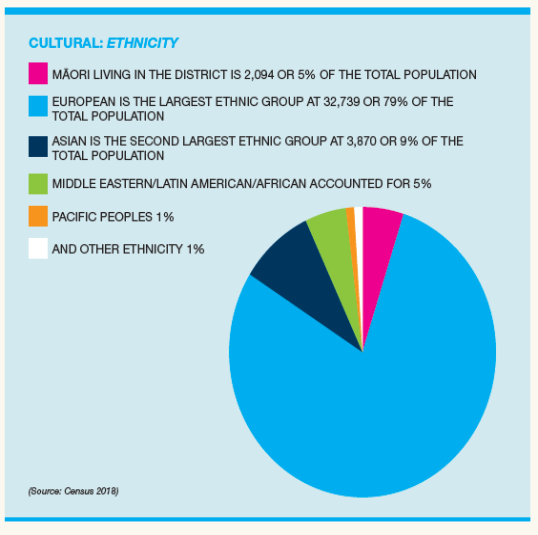
It was the intention to model QLDC's data structure according to volume 1 of the New Zealand Metadata Standards for Three Waters with the upgrade to using Technology One (T1) Enterprise Asset Management module in 2018/19. However, the decision was made, to use the existing structure within the T1 module for improved technical support and service by T1. Since this implementation, an effort by the Canterbury Quake Centre to develop a standard Code of Practice for local authorities based on the NZMS for as-built submissions is driving further interest in adopting a national standard for Three Waters data.

3. STRATEGIC CONTEXT

3.1 OUR PEOPLE – KA TAKATA

Queenstown Lakes District is part of Ngāi Tahu Iwi, which straddles both the Murihiku and Ōtākou Rūnanga. Our relationship with Murihiku has been traditionally strong, but our relationship with Ōtākou was less developed. However, at the beginning of 2017, the Mayor, Chief Executive and executive team undertook a hīkoi to Dunedin. The visit symbolically expressed the Council's desire and intention to develop our relationship with the rūnanga of Ōtākou further. Subsequently, in August 2017 Mayor Boult signed a Memorandum of Understanding with Ōtākou to join Te Rōpū Taiao Otago. This was a key milestone and a significant step forward.

Figure 10 Ref: Queenstown Lakes District COVID-19 Recovery Intelligence Report



3.1.1 DEMAND AND GROWTH

Monitoring demand and growth forecasts is a key response to the challenges that QLDC face and is explored further in our Strategic Assessment (Section 5). This section identifies key areas of growth and demand, the impact of these changes in demand on the Three Waters network, and how Council proposes to deal with these.

Factors that influence customer demand on the Three Waters network include:

- Population growth and decline
- Economic growth and decline
- Dwelling growth
- Demographic change
- Visitor numbers
- Changes in land use
- Development of recreational areas
- Future customer expectations

Figure 11 Ref: Queenstown Lakes District COVID-19 Recovery Intelligent Report

The extent and speed of this growth means the community is facing numerous opportunities but is also faced with challenges. Prior to COVID-19, the district was experiencing its third population growth spurt of over 7% per annum, with predictions of 7+% per annum for the next 7 to 10 years. An increase in productivity meant a thriving economy however; this also leads to lack of affordable housing, education and health facilities at capacity.

While the pandemic has created uncertainty about the future, the underlying drivers of demand to live or visit the Queenstown Lakes remain and growth is likely to return in the future.

Growth has had benefits and caused some challenges. The economy has performed very strongly, with GDP growth over double the NZ average and there has been very low unemployment. Residents enjoy access to more and better services, supported by a larger population and more visitors. However, investment in infrastructure and housing has not been able to keep up with the rate of growth, there are problems with housing affordability and congestion is worsening. The number of visitors before the COVID-19 pandemic was putting pressure on both the environment and community.

Following the pandemic, demand to live in or visit the Queenstown Lakes is likely to return in the future. Current forecasts estimate the number of residents, visitors and jobs will approximately double over the next 30 years.

The consequences of changes in demand and growth are one of our biggest challenges and summarised below in specific areas. Further analysis can be seen in our Strategic Assessments in Section 5.

3.1.2 POPULATION/DEMOGRAPHIC

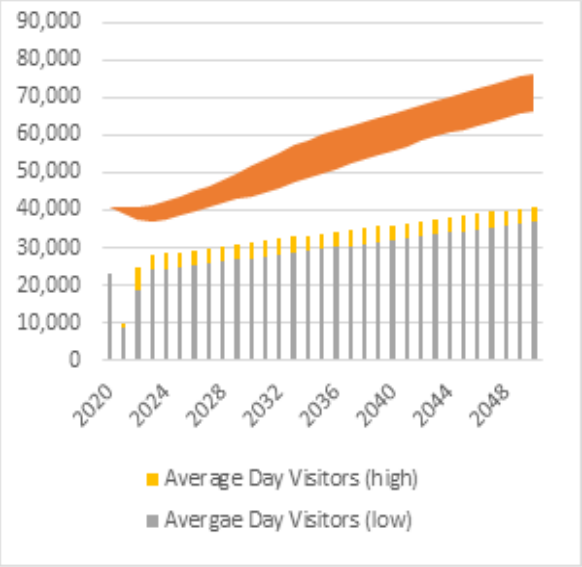


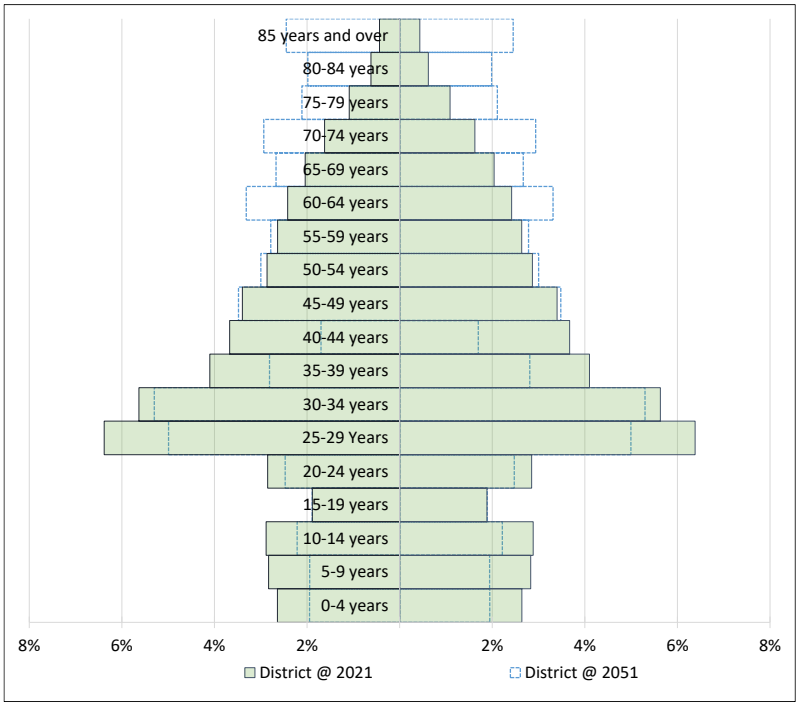
Figure 12: QLDC estimated resident population and visitors 2020-2050

Huge increases in residential growth, alongside large visitor numbers had led to pressures on our Three Waters system. With a relatively small number of ratepayers supporting ever increasing visitor numbers. QLDC strives to address the issues stemming from rapid growth whilst protecting the liveability of our district.

The consequences of changes in demand and growth are one of our biggest challenges and summarised below in specific areas. Further analysis can be seen in our strategic assessments.

Over the past 30 years, the Queenstown Lakes has grown steadily from 15,000 residents to its current population of 42,000, alongside significant growth in visitors to the area. Migration, both from overseas and within New Zealand, has been the key driver of population growth. Auckland, Southland and other parts of Otago were the key sources of internal migrants. This growth has been driven by the attractive scenery and climate, clean environment, outdoor lifestyle, strong economic opportunities and improved national and international connectivity.

Figure 13: Queenstown Lakes age pyramid and number of residents



3.1.3 POST COVID-19 DEMAND AND GROWTH

The Queenstown Lakes has been amongst the hardest-hit areas of New Zealand due to the economic impacts of COVID-19**.** While the impacts are uncertain, the underlying drivers of demand to live or visit the Queenstown Lakes remain and growth is likely to return in the future.

Following the COVID-19 pandemic it has being assumed there will be a slowdown in international / national migration in the first ten years but long-term growth by 2051 will remain the same as predicted in the previous 2018-48 Infrastructure Strategy, which is the district would nearly double in size over the next 30 years. To put that into context, it would see the total population grow from a city the size of Napier to a city the size of Lower Hutt or Dunedin.

The QLDC 2020 Demand Projections has highlighted the scenario of "sticking to our 2018 projections – change the path" as the approach. That by 2050 QLDC will have the same growth as indicated by 2018 projections.

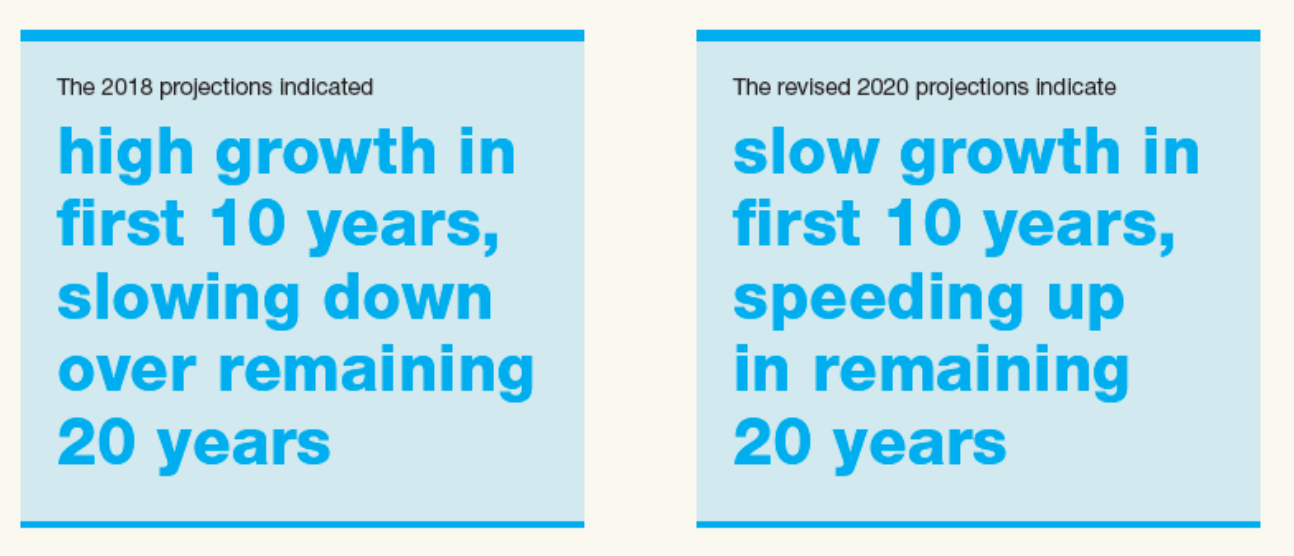


Figure 14 Ref: QLDC 2020 Demand Projections

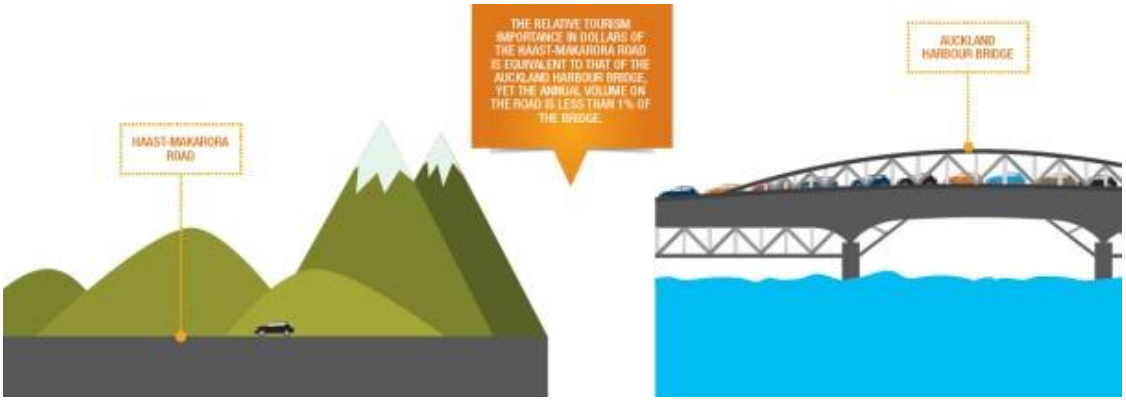
Table 1: Summary of assumptions 2020 QLDC Demand Projections

Short-term assumptions	Medium/long-term assumptions	The story
Oct-2018		
Residents migration = +17,000 over 10 years *Migration at 1,600 - 1,000 p.a.* Visitors = +6,000 over 10 years Houses = +8,000 over 10 years	Residents migration = +18,000 over 20 years *Migration at 600 p.a.* Visitors = +7,000 over 20 years Houses = +9,000 over 20 years	High growth for first 10 years. Slowdown in international/national migration = long term slow down over later 20 years.
Recommended – scenario sticking to our 2018 projections – change the path		
Residents migration = +9,500 over 10 years *Migration; lose 2,000 and then grow at 1,000 – 1,600 p.a.* Visitors = +3,000 over 10 years – drop off in numbers followed by steady recovery Houses = +4,000 over 10 years	Residents migration = +18,750 over 20 years *Migration at 1,600 (5 yrs.) - 1,000 (15 yrs.) p.a.* Visitors = +9,000 over 20 years Houses = +13,500 over 20 years	Next 10 years is COVID-19 recovery. Longer-term migration and visitor view is more optimistic, e.g., NZ and Queenstown Lakes District are more attractive places to live, work, and play.

The key changes from the previous 2018 projections are:

- Strong resident population growth, increasing to nearly 77,500 people by 2051. This is near doubling of the projected 2021 starting point.
- Continued growth in the number of houses, increasing to over 39,300 houses by 2051. The overall increase of nearly 17,000 houses is similar to the previous projections.
- The increase in visitor numbers takes the average day total population to nearly 120,000 people.

While the demand projections are indicative of what QLDC's strategic decision making is based on, it is with awareness that the projected change may take shorter or longer than 30 years. The projections are reviewed regularly and adjusted if required. More details of population growth, projections and demand for services are given in https://www.qldc.govt.nz/community/population-and-demand

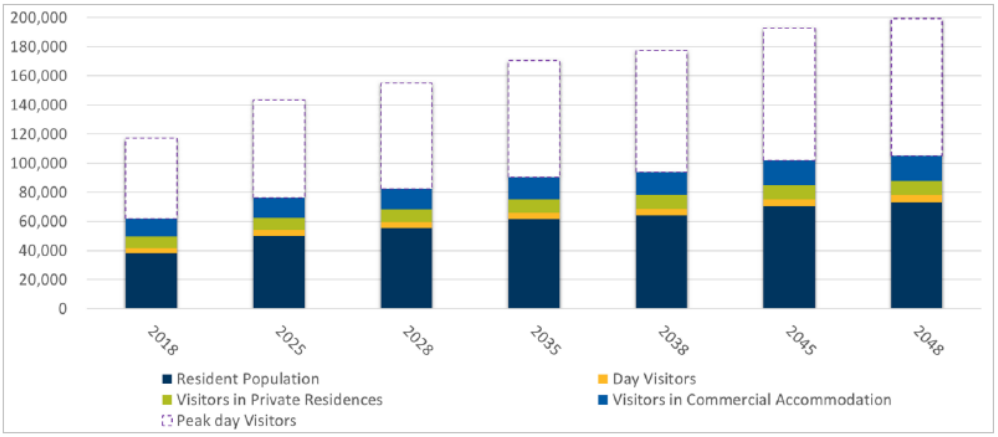


3.1.4 VISITOR DEMAND

Queenstown's economy is heavily dependent on the tourism market, within which there has been significant recent growth. This growth has stimulated an increase in resident population, which is forecast to continue growing at a rate of 3.6% to 2028, then 2.1% to 2048 (pre COVID-19).

In recent times, infrastructure has struggled to keep up with this surge in demand. The difference between peak demand and resident population highlights the scale of financial pressure on the ratepayer base to subsidise visitors' use of infrastructure.

Figure 15: Queenstown Resident Population and Visitor Forecast shows forecast growth in residents and visitors.



3.1.5 POST COVID-19 VISITOR DEMAND

Airport passenger movements are often used as a proxy for the health of the tourism industry in Queenstown, and airport numbers clearly show the impacts of COVID-19. Despite a busy school holiday period, movements in June 2020 were down 75% from the previous year, including a complete cessation of international travel. It is unlikely that international visitors will return in the short term, and the domestic market is largely restricted to school holidays.

Comparison for pre and post lock down shows that during school holidays, domestic visitors were 30% higher than in 2019; however, these were on par with 2019 when Auckland was in Alert Level 3.

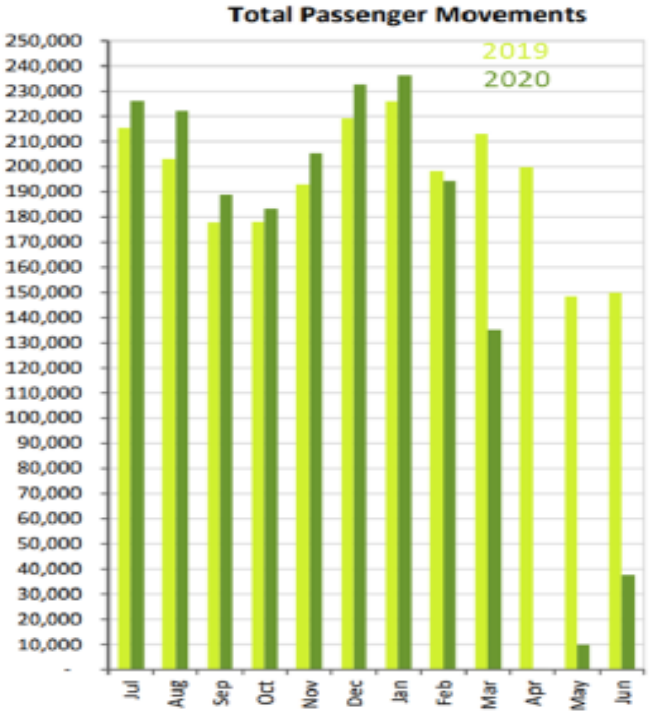
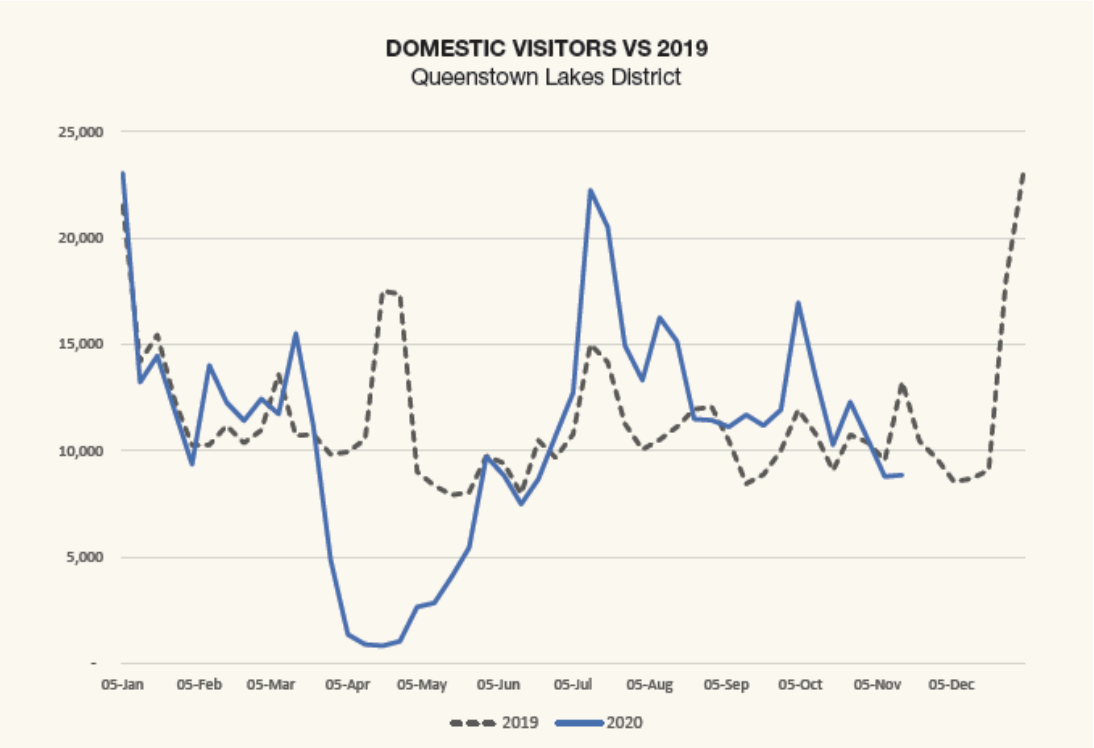


Figure 6: Queenstown Airport Passenger Movements Year to July 2020

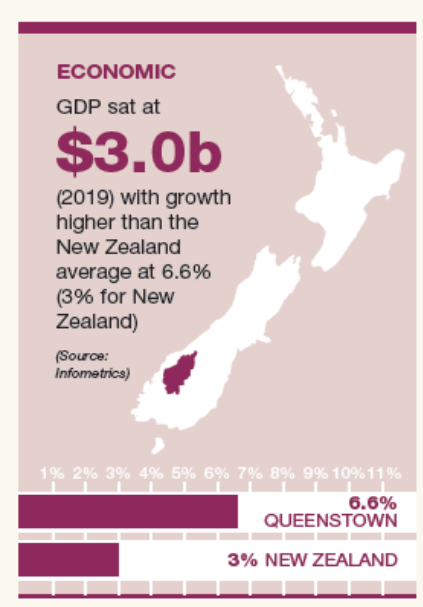
Figure 16 Ref: Queenstown Lakes District COVID-19 Recovery Intelligence Report



3.1.6 ECONOMIC DEMAND

Queenstown Lakes has been the fastest growing part of the country over recent years, both from a population and employment growth perspective. Pre-COVID-19, QLDC's contribution to the National GDP at 6.6%.

Figure 17 Ref: Queenstown Lakes District COVID-19 Recovery Intelligence Report



Tourism contributed $1.7b out of a total $3.062b in 2019, more than half our district's GDP and 63.5% of jobs (seven times higher than the NZ average of 9%). However, it does highlight our lack of diversification.

Figure 3 Ref: Queenstown Lakes District COVID-19 Recovery Intelligence Report

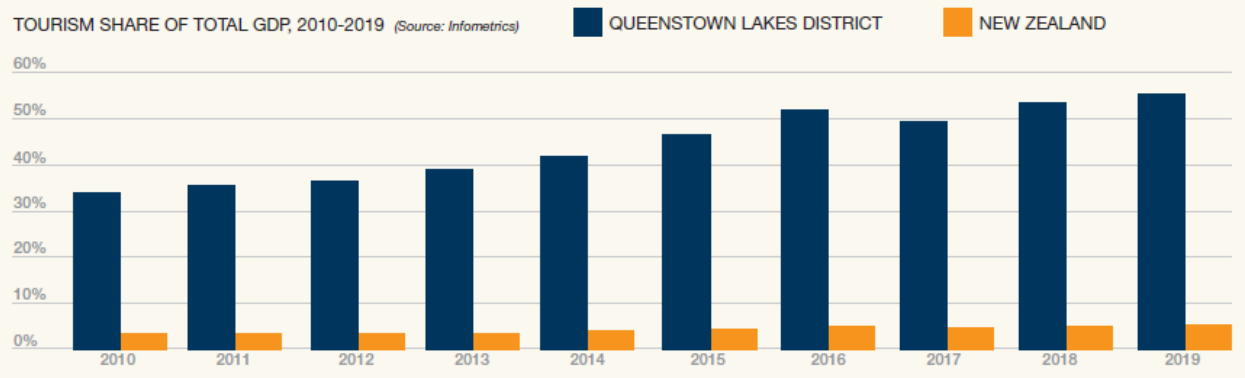
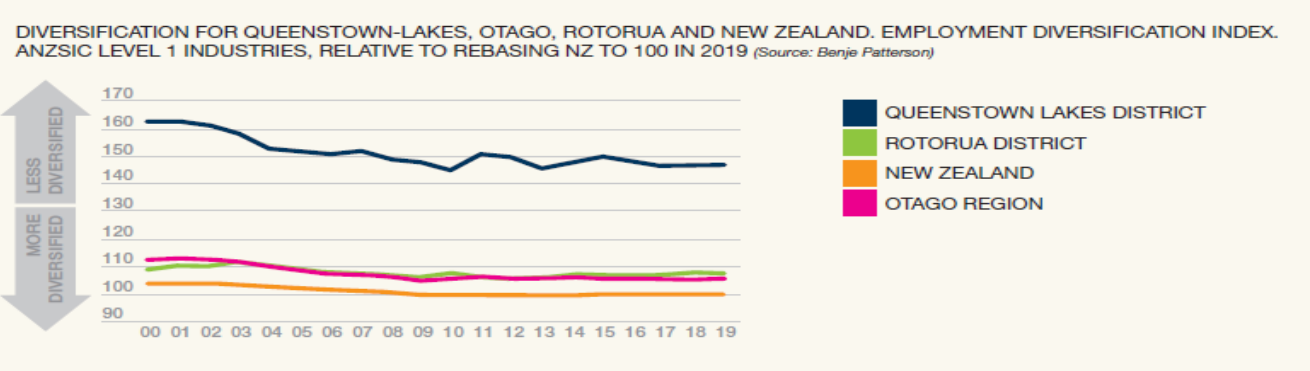


Figure 4 Ref: Queenstown Lakes District COVID-19 Recovery Intelligence Report



Productivity has been held down by tourism's large share of the local economy. This lower productivity is reflected in poor wages, but household incomes sit higher than national averages due to more multi-income households, and earnings from investments and self-employment.

The concentration of economic activity on the international visitor market left Queenstown Lakes more exposed to the economic fallout from COVID-19 than the rest of New Zealand.

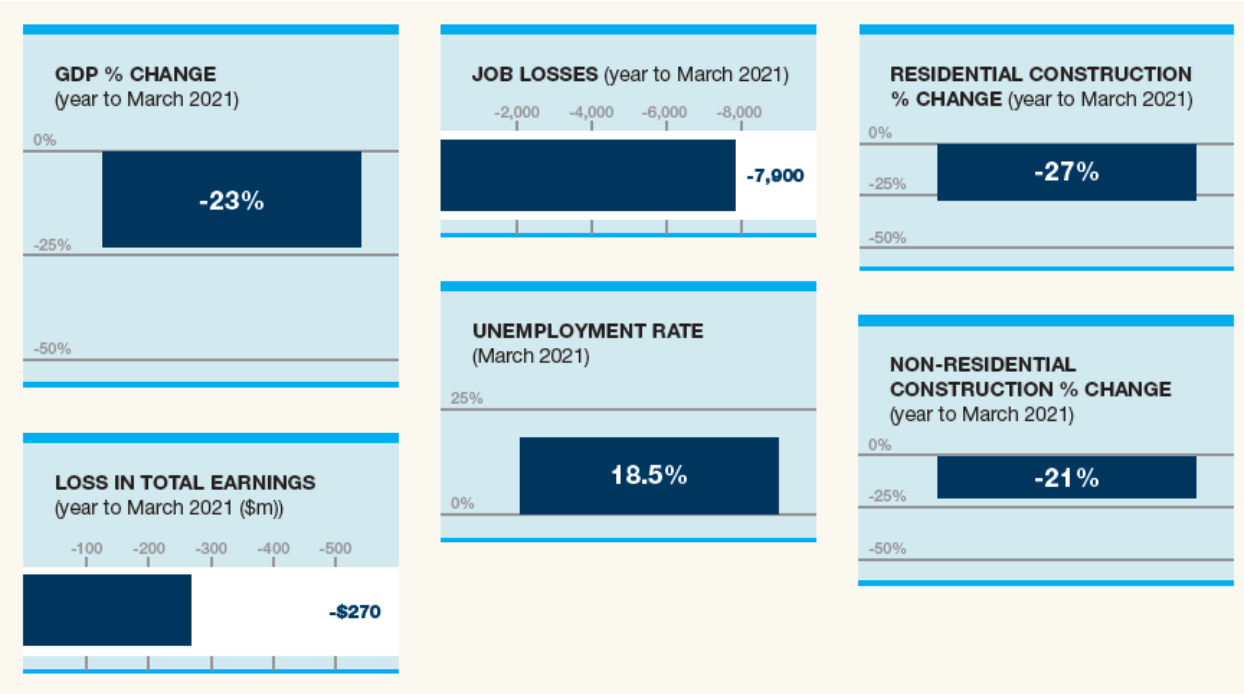
3.1.7 POST COVID-19 ECONOMIC DEMAND

The local economy has been severely impacted by the COVID-19 pandemic. QLDC estimates that over 60% of the district's population is directly or indirectly employed by the tourism industry, which has been decimated by the drop in visitor numbers caused by travel restrictions. This has seen unemployment rise to 11% with almost 20,000 welfare requests received by 12 June 2020.

Early assessments of the effects of COVID-19 on the Queenstown Lakes economy make for sobering reading. Infometrics June 2020 Quarterly Economic Monitor confirmed that the district suffered the country's sharpest decline in economic activity. Provisional estimates pointed to a 26% decline in June 2020 quarter GDP from a year ago, compared to an estimated 12.6%pa quarterly decline nationally.

The following summarises the Infometrics report, 'Economic Impacts of COVID-19 on the Queenstown Lakes Economy – Early Estimates' May 2020. These numbers demonstrate a 'do nothing' scenario and can be adjusted to capture the impact of a trans-tasman bubble, as well as a greater share of domestic tourism.

Figure 20 Ref: Queenstown Lakes District COVID-19 Recovery Intelligence Report



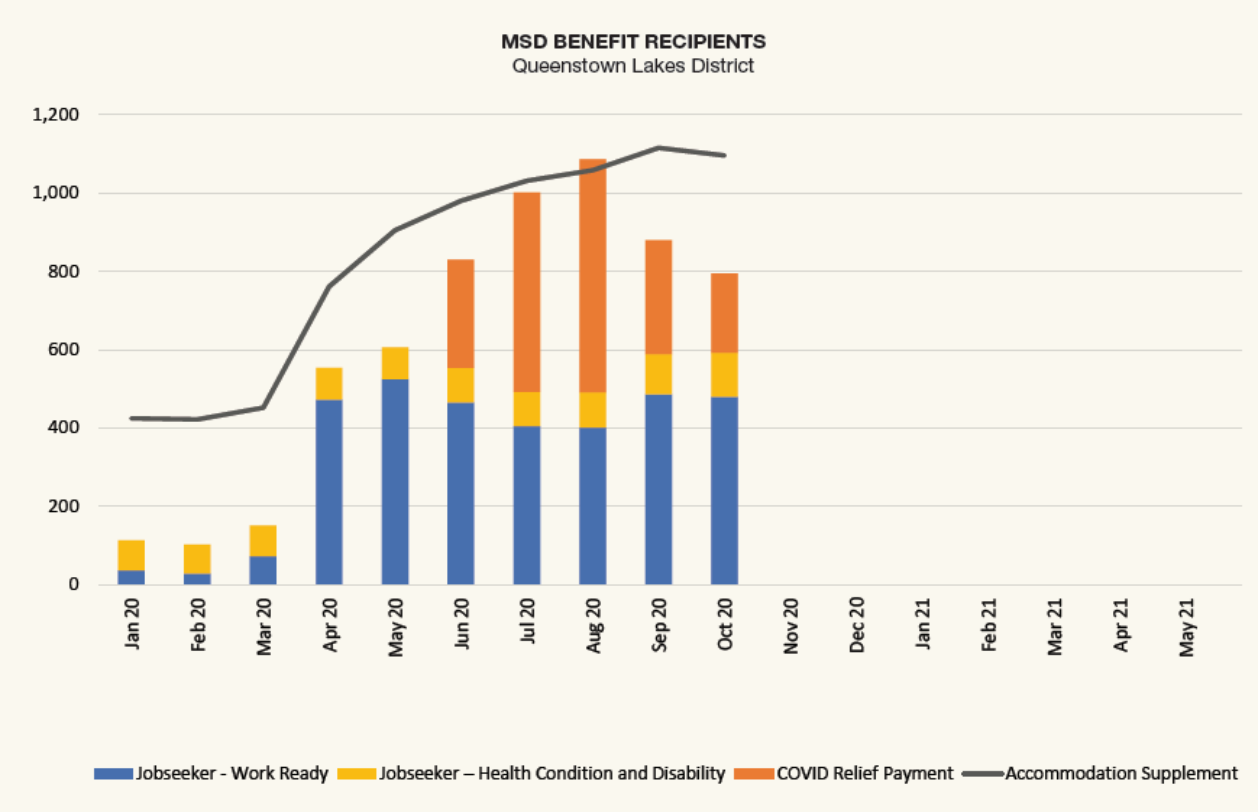
The socioeconomic consequences of this decline have been stark, with 1,001 people in the district receiving Jobseeker Support and COVID-19 Income Relief Payments from the Ministry of Social Development (MSD) in July 2020, compared to just 151 people on such support in March 2020. But things could have been worse had it not been for a sharp lift in domestic visitation and resilient levels of building consents. Although these two factors are likely to carry less strength over the year ahead as New Zealand's ongoing economic malaise weighs on demand, they at least point to the ongoing appeal of Queenstown as a great place to live, work and visit.

Further analysis on the economy on the Three Waters network can be seen in our Strategic Assessments in Section 5.

Pre-COVID-19, unemployment sat at 1% and is based upon job seeker numbers from the MSD. Using the figures presented for September 2020, unemployment now sits at 3%. This figure does not take into account job seekers who are migrant workers. Following a survey of migrant workers who applied for welfare during the Alert Level 4 Lock-down period, we estimate the total unemployment rate to be around 6%.

The graph shows a continued reduction in people receiving COVID-19 Income Relief Payments and Job Seeker Work Ready. However, there was a slight increase of ten extra recipients for Jobs Seeker - Health Condition and Disability.

Figure 21 Ref: Queenstown Lakes District COVID-19 Recovery Intelligence Report



3.1.8 QLDC COVID-19 EMERGENCY MANAGEMENT RECOVERY

QLDC Emergency Management was activated as part of the National response to COVID-19. QLDC's response included early formulation of a Recovery Team, which was tasked to focus on social and economic wellbeing and recovery. The team collated and monitored data metrics, lobbied central government in regard to community support and economic stimulus packages.

The below summarises the key areas of focus for the Response team as their projects move into Business as Usual.

- **Workforce** – The District's workforce has a high reliance on people who enter the country on a work visa of some sort. COVID-19 highlighted that those on work visas have no (government-funded) social safety net, and thus introduces a certain fragility into the workforce that is exposed in times of economic volatility. While the highest concentration of (low paid) migrant workers are in the hospitality industry, the infrastructure industry also has a component of its workforce that is visa-tied. We need to be careful that central government desire to transition to a lower dependency on migrant labour does not restrict our ability to attract and retain moderate-highly skilled people from other countries into positions in infrastructure.
- **Diversification**: More broadly than workforce, COVID-19 highlighted the economy's significant exposure to the tourism industry - 55% of GDP and 63% of jobs are tied somewhat directly to tourism. As a result, Queenstown Lakes is the most undiversified economy in New Zealand. While the Council had a program of diversification initiatives pre-COVID-19, the need to diversify in order to create economic stability is now ever more palpable. The significant investment in infrastructure signaled in QLDC's 2018 LTP has already created a degree of diversification through the growth in engineering and construction firms in the district. It is important that this is recognised, and actions taken to preserve and increase this diversification of the economy. Further, opportunities to expand up the infrastructure value chain to "smart" infrastructure should be done, as much as possible, in a way that goes beyond procurement of

products and services to encouraging investment by firms in building smart tech capability in the district.

- **International reputation**: Notwithstanding the need to increase the diversification of the economy, the reality is that the outstanding natural beauty and entrepreneurial spirit of the district will always attract a significant number of international visitors and thus be a central component of Brand NZ Inc. The reputation of Queenstown is thus synonymous with the reputation of the country. This places a high expectation on the quality of local infrastructure insofar as it impacts the core values of that brand, especially environmental performance.

The following summarises the short to medium term goals for COVID-19 recovery in the district. The initiatives to support these goals are listed below.

Figure 22 Ref: Queenstown Lakes District COVID-19 Recovery Intelligence Report

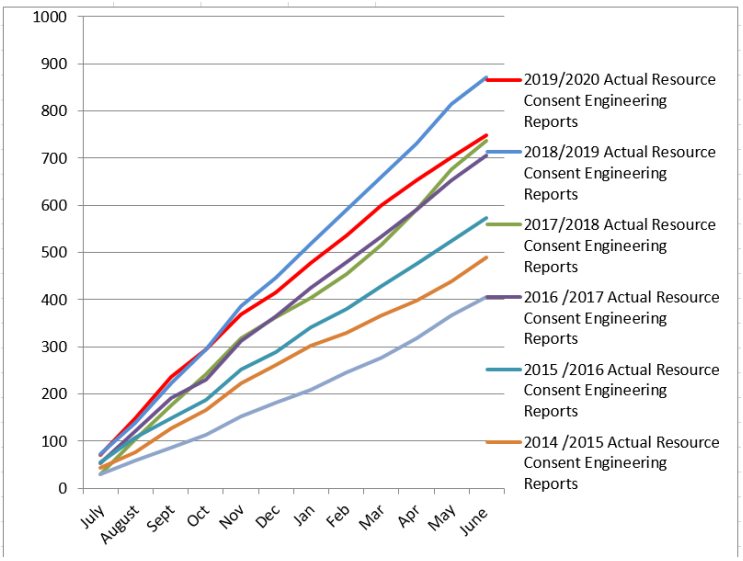
With a pre-COVID-19 programme that was focused on addressing the large gaps in level of service left by growth, QLDC has had to review the current appropriateness of that programme and how it would be funded.

3.1.9 NETWORK DEMAND

The increase in population and visitor numbers has resulted in an increase in demand on our three water networks. The creation of new subdivisions in many towns required extensions to the existing network and planning to ensure they can be integrated into the existing network. In some of our smaller township it has resulted in new schemes being created to service existing population and the new developments increasing our asset inventory.

The impact of COVID-19 on the direction of development in our district is still not understood. QLDC are tracking the metrics they can, to monitor the situation. There is an assumption that NZ will probably look quite attractive for Development investors (both domestic and foreign) over the next 10-20 years, but what this will look like is unknown.

Figure 23: Resource Consent Engineering Reports by financial year

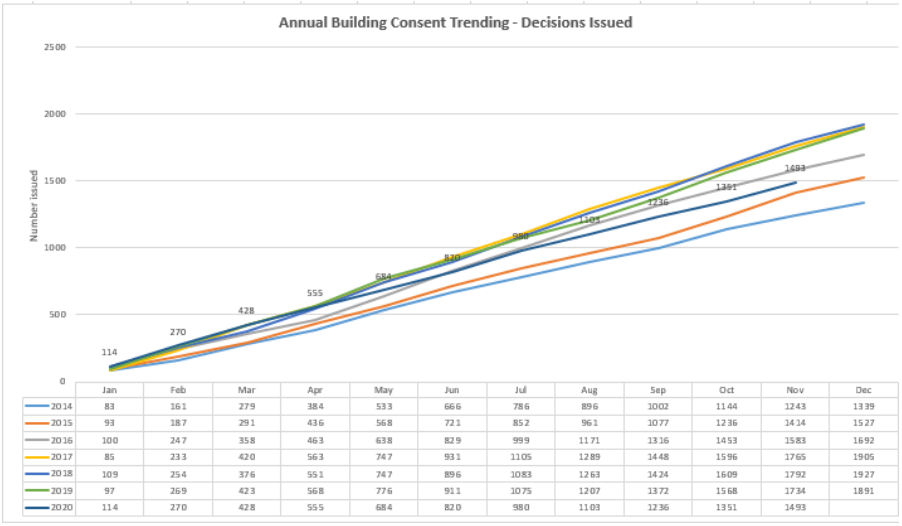


Numbers of Resource Consent Engineering reports has increased in the 19/20 year, and QLDC has seen peak monthly numbers coming in. See highlighted peak in ***Figure 24 below.***

Figure 24: Peak numbers of resource consents 2019-20 (peaks in yellow)

Month	Calendar Year - Graph below on Month by Month basis												
	January	February	March	April	May	June	July	August	September	October	November	December	
2012	21	19	33	27	25	22	43	28	33	38	43	28	360
2013	22	31	25	37	33	41	29	30	27	28	38	30	371
2014	27	37	32	41	48	39	43	33	51	40	56	38	485
2015	42	26	37	31	42	51	55	52	42	39	63	38	518
2016	53	39	49	45	50	48	53	69	69	56	65	52	648
2017	62	53	56	56	63	52	50	53	71	68	76	44	704
2018	40	52	61	**74**	**86**	**61**	**73**	65	85	**71**	**93**	**59**	820
2019	**73**	**71**	**71**	70	84	57	71	**77**	**89**	57	75	46	841
2020	62	60	64	52	48	47	58	55	61	50	53		610

Figure 5 Building Consent by financial year



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	83	161	279	384	533	666	786	896	1002	1144	1243	1339
2015	93	187	291	436	568	721	852	961	1077	1236	1414	1527
2016	100	247	358	463	638	829	999	1171	1316	1453	1583	1692
2017	85	233	420	563	747	931	1105	1289	1448	1596	1765	1905
2018	109	254	376	551	747	896	1083	1263	1424	1609	1792	1927
2019	97	269	423	568	776	911	1075	1207	1372	1568	1734	1891
2020	114	270	428	555	684	820	980	1103	1236	1351	1493	

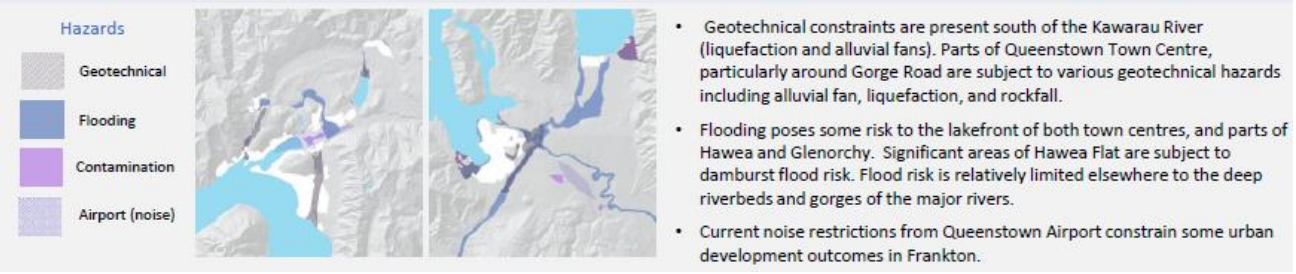
There has been a slowdown in the numbers of building consents issues, and the numbers are similar to those from 2015.

3.2 OUR LAND – OUR NATURAL ENVIRONMENT

The dramatic landscape and environment that draws people to the District, provides challenges in delivering Three Waters services. The risk and consequences of natural disasters hugely impacts our resilience and ability to respond.

Geopolitics is about how our environment influences our decision-making and in QLDC many of the issues facing our 3 Waters network are exacerbated by the form of our natural environmental and have been explored further in our Strategic Assessments. Acknowledging the impact of geopolitics on our strategic responses and as we developed both our maintenance & renewals programme With the increasing risk of climate change, QLDC have made a bold commitment to the QLDC Climate Action Plan to seek to understand how this will impact our community and our infrastructure, with the three waters system playing a key part.

- **Topography**: The Queenstown Lakes District covers a total area of 9,357 km² and includes a number of significant lakes (Lake Hāwea, Lake Wakatipu, and Lake Wānaka). The District is world-renown for its unspoiled natural environment and commerce-oriented tourism, especially adventure and ski tourism and has New Zealand's highest public sealed alpine pass. The natural environment of the Lakes District consists of a variety of systems including rivers, lakes, basins, wetlands, bush remnants, uplands and shorelines. The hilly nature of parts of the district and urbanisation is leading to much more asset density.
- **Settlements**: Wānaka and Queenstown. Other towns in the district include Arrowtown, Kingston, Glenorchy, Lake Hawea, Cardrona, Makarora and Luggate.
- **Geology:** Queenstown Lakes District is a geologically unstable area given the proximity to the Alpine Fault and various other (moderate) faults through the District situated within the Southern Alps, part of the Pacific Ring of Fire. Uplift has been most rapid during the last 5 million years, and the mountains continue to be raised today by tectonic pressure, causing earthquakes on the Alpine Fault and other nearby faults.
- **Climate:** The climate is cold with snow and ice year-round at the highest points, as one of the coldest places in New Zealand with an average temperature of 10.7°C ranging from - 10°C to 35°C with ground frosts over 130 days per year. The clear winter days have a low average rainfall of 636mm per year and create a unique climate within New Zealand. It is expected the climate will become less predictable, winters and summers may become colder and warmer. Average temperatures have increased by 0.7°C over the past 50 years and are expected to increase by 0.9°C within the next 30 years. It is expected that soils will dry out and irrigation will be less effective. The District is a semiarid climate (all day sun, good drainage and little traffic) to lake side/swamp (damp, poor drainage, little sun, heavy frosts, heavy traffic).



4. STRATEGIC DIRECTION

QLDC's Vision Beyond 2050 was developed in partnership with our community, providing eight defining principles for how we live, work, and play. Further community engagement delivered the resulting community vision - titled 'A Unique Place. An Inspiring Future | He Wāhi Tūhāhā. He Āmua Whakaohooho'. In March 2019, the Council unanimously agreed to commit to the vision as a guiding document to inform future planning and decision-making.

The Infrastructure Strategic Outcomes Framework was developed to understand and align infrastructure's contribution to the community's vision. In defining our strategic outcomes the key challenges and their contributing factors were identified which defined the following four outcomes:

- All people can live healthy lives
- The economy is stable and out people prosper
- Communities are resilient to sudden natural events
- The natural environment's Mauri is respected and protected

Further information of our strategic outcome, goals and objectives can be found in the QLDC Infrastructure Strategy.

Figure 26: Vision 2050 Defining Principles

4.1 LEGISLATION AND INDUSTRY GUIDANCE

In providing Three Waters services, QLDC has responsibility to ensure:

- The community is consulted on all significant decisions as required by the Local Government Act 2002;
- The methods used to fund Three Waters comply with the Local Government (Rating) Act 2002;
- To provide adequate firefighting capability in urban areas supplied with water; and
- Structures and sanitary services comply with the Building Act 2004.

4.1.1 LEGISLATION, STANDARDS AND INDUSTRY GUIDELINES THAT INFLUENCE HOW QLDC DELIVERS THE THREE WATERS SERVICES INCLUDE:

HEALTH & SAFETY AT WORK ACT

This is a new Act, which came into force in 2015 to provide for a balanced framework to secure the health and safety of workers and workplaces by protecting workers and other persons against harm to their health, safety, and welfare by eliminating or minimising risks arising from work or from prescribed high-risk plant.

WASTE MINIMISATION ACT

The Waste Minimisation Act 2008 encourages a reduction in the amount of waste we generate and dispose of. The aim is to reduce the environmental harm of waste and provide economic, social and cultural benefits.

HAZARDOUS SUBSTANCES & NEW ORGANISMS ACT

The purpose of this Act is to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms.

CIVIL DEFENCE EMERGENCY MANAGEMENT ACT

The Civil Defence Emergency Management Act 2002 creates a framework within which New Zealand can prepare for, deal with, and recover from local, regional and national emergencies.

HEALTH ACT

The Health Act 1956 seeks to improve and protect public health and ensure all proper steps are taken to secure the abatement of any nuisance or removal of any conditions likely to be injurious to health or offensive.

DRINKING WATER STANDARDS

As the primary water supplier to the district, QLDC are required to provide a supply of water to homes and businesses that is safe for human consumption. Safe and reliable drinking water supplies are recognised as being crucial to the wellbeing and prosperity of our district.

Due to the geography of our district, our smaller townships have their own distinct schemes, which are supplied from local bores takes. Our larger towns, Queenstown and Wanaka, are predominately serviced by lakes intakes from 2-Mile, Kelvin Heights, Beacon Pt and Western. The Shotover Country supply is from a bore field.

Significant investment is required to upgrade our water treatment facilities to ensure that we are compliant with New Zealand Drinking Water Standards (NZDWS). This includes investment to address the problem of lake algae found in the networks where we have direct lake intakes, Wanaka and Queenstown.

Further investment is required for several of our smaller schemes, mainly Luggate, Glenorchy, Kingston, and Cardrona where the investment is a combination of upgrades to existing schemes and new schemes.

Our long-term strategy provides for the following significant investments:

Wanaka – The provision of new water treatment plants (WTP) and supporting reticulation upgrades to distribute compliant water across Wanaka and to remove algae from the network.

Queenstown – The provision of new and upgraded water treatment plants (WTP) and supporting reticulation upgrades to distribute compliant water across Queenstown and to remove algae from the network.

Private Water Supply Schemes – As part of Central Government's proposed changes to drinking water regulation private suppliers will be required to comply to new or enhanced regulatory requirements. Territorial authorities will be expected to inform themselves of the nature of community drinking water supplies in their districts. Where problems are identified, Council will need to work with supply owners to reach a sustainable solution. It is possible that Councils will be required to take ownership of these drinking water supplies. Council has commenced work to understand the scale and nature of private water supply networks in the district; to understand the risks and investment cost of the requirement.

The new drinking water regulator (Taumata Arowai) will come into effect during 2021. Non-compliance risk mitigation activities will continue to be prioritised, implemented and monitored through our Water Safety Plans, until full compliance is achieved throughout the district.

WATER SERVICES BILL

The bill is expected to become law during 2021. The main purpose is to ensure that drinking water suppliers - provide safe drinking water to consumers by:

- providing a drinking water regulatory framework that is consistent with internationally accepted best practice, including a duty on drinking water suppliers to:
- have a drinking water safety plan; and
- comply with legislative requirements (such as drinking water standards) on a consistent basis; and
- providing a source water risk management framework that, together with the Resource Management Act 1991, regulations made under that Act, and the National Policy Statement for Freshwater Management, enables risks to source water to be properly identified, managed, and monitored; and
- providing mechanisms that enable the regulation of drinking water to be proportionate to the scale, complexity, and risk profile of each drinking water supply; and
- providing mechanisms that build and maintain capability among drinking water suppliers and across the wider water services sector; and
- providing a framework for the continuous and progressive improvement of the quality of water services in New Zealand.

NATIONAL INFRASTRUCTURE PLAN

Updated in late 2015, the National Infrastructure Plan set out to progressively ensure our infrastructure is resilient and coordinated and contributes to strong economic growth and high living standards. Specifically, it requires that New Zealand will have modern, integrated and efficient infrastructure supported by mature asset management practices, through the consideration of both demand and supply side solutions and systems benchmarking.

NATIONAL LIFELINES

Recognises the essential infrastructure and services that support our community (i.e. water, wastewater and stormwater, electricity, telecommunications and transportation networks including roads). Representatives of these 'lifelines' collaborate regionally with scientists, engineers and

emergency managers to reduce vulnerabilities to regional scale emergencies with an emphasis on pre-event planning.

4.2 NATIONAL DRIVERS

4.2.1 THREE WATERS REFORMS

The Government has indicated an intention to establish public multi-regional entities for water service delivery to realise the benefits of scale. The design of the proposed new arrangements will be informed by discussion with the local government sector, QLDC staff will play a proactive role in this work.

In July 2020, the Government announced a funding package of $761 million to support the reform of local government water delivery. The reform funding is split into a local allocation to each Council and a regional allocation. The regional allocation is to encourage territorial authorities to have collaborative 3Waters investment conversations with their neighbouring councils, and to advance collective participation by councils in the reform programme.

There is a compelling argument that Territorial Authorities (TA's) are unlikely to sway the government to abandon the move to regional water service delivery. Instead, the opportunity lies in the ability for Otago and Southland TA's to influence the scope and commercial design of the entity, the role TAs will play in its future, and a managed transition to the new model.

To this end the Otago and Southland Mayoral Forums have agreed to invest $2 million of the allocated funds from Central Government to Otago and Southland TA's to be used to set up a Lower South Island Water Secretariat. This demonstrates serious commitment from Otago and Southland TAs and puts Council in the best possible position to influence the future of the water industry both regionally and nationally.

4.2.2 NATIONAL POLICY STATEMENT ON URBAN DEVELOPMENT 2020 (NPS)

The NPS enables central government to prescribe objectives and policies for matters of national significance, which are relevant to achieving the sustainable management purpose of the Resource Management Act 1991 (RMA). In particular; ensuring urban environments can meet demand and provide choices to meet the needs of people, communities and future generations for a range of dwelling types, locations, working environments and places to locate businesses; robust evidence processes to inform planning decisions; and urban environments that can respond to the changing needs of people, communities and future generations. This NPS stipulates that closer working relationships between planning and infrastructure providers occur. To this end QLDC, has formulated the QLDC NPS Project Team across the organisation, including Planning and Development, Property and Infrastructure, Corporate Services and Finance to ensure that requirements are met.

Central Government's response to address the need for urbanisation and land use was to introduce spatial planning to all high growth Councils.

QLDC has been named as a Tier 2 Authority (Gazetted August 2020) which has detailed requirements for Council in the preparation of the Future Development Strategy. This Future Development Strategy is required to inform the 2024 LTP and 30 Year Infrastructure Strategy and must also be jointly prepared with the Otago Regional Council, as they are also a Tier 2 Authority that share jurisdiction over the urban environment of Queenstown.

Within QLDC, understanding the importance of the transport system on the ability to effect land use change The QLDC transport system is a key piece of infrastructure essential to driving infrastructure led development.

4.2.3 NATIONAL POLICY STATEMENT FOR FRESHWATER MANAGEMENT (NPS)

The NPS for Freshwater Management provides direction on how local authorities should carry out their responsibilities under the RMA for managing fresh water. The Government has announced a plan to improve New Zealand's waterways so that 90% are 'swimmable' by 2040. At the moment, 72% are considered safe to swim in, most of the time. Improving our lakes and rivers will take time and there is more we need to do in the years ahead to make it happen. The Clean Water package is an important step in achieving our goal of better water quality for New Zealanders. Transport has a role to play in ensuring that any run off does not impact the quality of our lakes and rivers.

4.2.4 THE RESOURCE MANAGEMENT REVIEW - 2019

The New Directions for Resource Management in New Zealand is the most significant, broad ranging and inclusive review to take place within the system since the (RMA) came into force in 1991.

The reform of the resource management system is critical to the continued well-being of New Zealand. It addresses significant pressures on both the natural and built environments. Urban areas are struggling to keep pace with population growth, water quality is deteriorating, biodiversity is diminishing and there is an urgent need to reduce carbon emissions and adapt to climate change.

The review process was an opportunity to design a new system for resource management in New Zealand that delivers better outcomes for our environment, society, economy, and culture. The Panel has come up with a large number of recommendations that will reorient the system to focus on delivery of specified outcomes, targets and limits in the natural and built environments.

The key recommendations are to replace the RMA with two major new pieces of interrelated legislation:

- The repeal of the RMA Act 1991 and its replacement with new legislation we have suggested be named the Natural and Built Environments Act (NBEA). This would have a substantially different approach but would incorporate some of the key principles of the RMA that remain appropriate
- New legislation which we have called a Strategic Planning Act

4.3 REGIONAL DRIVERS

4.3.1 OTAGO/SOUTHLAND REGIONAL PLAN: WATER

This plan promotes the sustainable management of Otago's water resources. To achieve this, the plan has policies and methods (which include rules) to address issues of use, development and protection of Otago's freshwater resources, including the beds and margins of water bodies.

4.4 LOCAL DRIVERS

4.4.1 DISTRICT PLAN

The new transport chapter of the District Plan was notified in November 2017 and the new rules came into legal effect with the release of decisions on submissions in March 2019 following the 2018 hearings. A number of appeals to these decisions are before the Environment Court seeking to amend the provisions relating to high traffic generating activities and public transport. Mediation has concluded and although negotiations between the parties is ongoing, a number of matters are unresolved, and a hearing is timetabled for early 2021. The timing of final decisions will depend on the Court.

4.4.2 30 YEAR INFRASTRUCTURE STRATEGY

The purpose of the 30-year Infrastructure Strategy is to identify significant infrastructure challenges for QLDC over the next 30 years, and to identify the principal options for managing those challenges and the implications of those options. The Strategy gives effect to Council's Asset Management Policy. This document is designed to meet the requirements of section 101B of the Local Government Act 2002.

To deliver the community vision and outcomes, the Council needs to focus its infrastructure investments wisely. The following four challenges and contributing factors are the most significant matters driving infrastructure matters for the Council to address. From the key challenges we have defined four outcomes, five goals and twelve strategic objectives.

There are some key external factors coming out of the 30 year strategy that will directly impact our Three Waters system these have been drawn out in detail in our strategic assessments.

Figure 27: Infrastructure Strategic Framework 2020

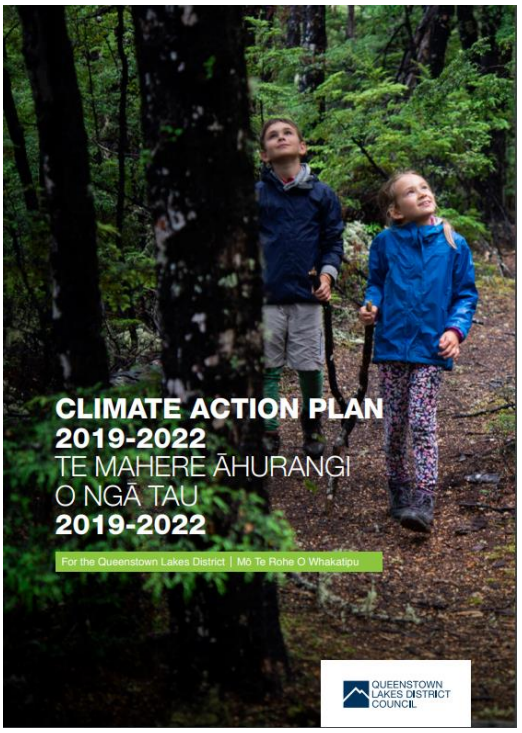
OUTCOMES	GOALS	OBJECTIVES
ALL PEOPLE CAN LIVE HEALTHY LIVES	Harness our position as a service provider to promote health	> Services reliably protect people from harm > Services create opportunities for people to increase activity, recreation, and social connection
THE ECONOMY IS STABLE AND OUR PEOPLE PROSPER	Provide high-quality, affordable services	> Respond to demand for services in a way that meets customer quality and affordability expectations > Sustain the affordability of services through efficiency, effectiveness, and funding opportunities
	Support a stable district economy	> *Sustain annual market spend to support and strengthen the district's economy* > *Build the diversity and capability of the district's businesses*
COMMUNITIES ARE RESILIENT TO SUDDEN NATURAL EVENTS	Support the social and economic recovery of our district following a natural event	> Ensure the continuity of essential services following natural hazard events > *Optimise the recovery of all services following a natural hazard events*
THE NATURAL ENVIRONMENT'S MAURI IS RESPECTED AND PROTECTED	Protect and regenerate the natural environment	> Contaminants from our services are prevented from entering the natural environment > Services reduce impact on global emissions and resource extraction > Identify and prioritise opportunities for environmental regeneration

4.4.3 LONG TERM PLAN

The LTP aligns to our Community Outcomes – Vison Beyond 2050 and sets out how QLDC and the community intend to balance competing priorities while delivering desired community benefits. The LTP outlines the strategic direction and responses (investments plans) for 10 years and is reviewed on a three-year cycle.

These outcomes influence QLDC's short, medium and long-term priorities, along with the measures set to assess the performance of QLDC. QLDC issues its Annual Report in October each year; this is where QLDC and the community can monitor progress towards achieving Community Outcomes.

4.4.4 CLIMATE ACTION PLAN



QLDC released the first draft of our Climate Action Plan (CAP) in June 2019, the first of many for our District. It starts to identify ways in which we can reduce emissions and sets a strategic direction for addressing climate change impacts.

Its purpose is to help QLDC rise to meet the challenge of the climate change emergency and to:

- Invigorate a network of partners and working groups who will collaborate to deliver the CAP
- Ensure our community understands and is prepared for the variety of different climate change impacts
- Build momentum and demonstrate leadership locally, regionally and nationally
- Measure success through effective monitoring and evaluation
- Change the way we work, across all activities
- Underpin the integrity of New Zealand's global climate change action reputation.

The Emissions Master-plan will identify pathways to achieving our target of net-zero carbon by 2050, with the Sequestration Plan outlining how we capture carbon through activities such as tree planting.

> "Let's be aspirational in our thinking and in our doing. 'The benchmark for sustainable tourism' and 'Aotearoa New Zealand's hub of public transport innovation' are sentiments that would look good on our district. They would attract values-driven newcomers and visitors whilst

Ongoing community engagement on the Climate Action Plan will take place in 20/21.

4.4.5 SPATIAL PLAN

The Spatial Plan is being based around the phrase 'Grow Well' or 'Whaiora' in Te Reo Māori which translates to "in the pursuit of wellness". The first-ever joint Crown-District Council-Iwi Spatial Plan for the Queenstown Lakes establishes an integrated, long-term, collaborative strategy that improves community wellbeing, protects the environment and maintains a world-class visitor experience. The Spatial Plan will guide new approaches and central government support to help address the challenges in the Queenstown Lakes.

The Queenstown Lakes Spatial Plan will:

- Provide one picture of where the Queenstown Lakes is heading and highlighting significant areas of growth and change;
- Guide and align investment decisions at local, regional and central government level;
- Identify key issues facing the area and the priorities that need to be advanced to address these.

Both Council and the Partnership will adopt this plan in June 2021.

Three principles and five spatial outcomes guide the direction of the Spatial Plan and address the challenges and opportunities facing the Queenstown Lakes District. The Spatial Plan also identifies strategies and key initiatives to achieve the outcomes; these were developed and tested in collaboration with the community.

Figure 28: Whaiora Goals, Outcomes & Principles

4.4.6 LAND DEVELOPMENT AND SUBDIVISION CODE OF PRACTICE

As a high growth district, the level of development has expanded and changed our infrastructure, including the Three Waters system. QLDC understand the importance of providing clear expectations around infrastructure that will be funded by Council. QLDC have adopted and superseded NZS 4404 Land and Subdivision Code of Practice with a number of district specific amendments. Stages 1 and 2 were adopted by Council in 2020, with the 3rd stage entering the review process early 2021. This next stage will consider bigger changes in light of climate change, stormwater and technology changes.

4.5 QUEENSTOWN AND WANAKA AIRPORT

Queenstown Airport is one of the main gateways into the District. There are a number of considerations going forward around the future of both Queenstown Airport and Wānaka Airport QLDC has entered into a long-term lease and management arrangement with QAC, which is a council controlled trading organisation. QAC is in the process of developing a Master Plan and Strategy to meet the rapidly developing needs of the community, tourism operators, scheduled airlines and the Wānaka Warbirds air show and museum.

The magnitude of COVID-19's impact on the aviation industry is not yet known. International services at Queenstown Airport are now suspended and it is not yet known when these services will resume. This represents a major challenge for QAC and the other businesses represented at Queenstown and Wānaka airports. QAC's overarching mission during this pandemic is to safeguard the core capability to operate airports in the Southern Lakes region. The immediate focus is to understand the impact of COVID-19, stabilise the business, operate in the new "normal" environment and plan for recovery.

QAC will not complete its long-term development planning for either Queenstown or Wānaka airports in FY21. Nor will it undertake any spending on capital projects until it has revised its business strategy.

The recent announcement by Christchurch Airport of their investment into a land purchase in Tarras for a potential airport raises further questions on the future transport system in the region.

5. STRATEGIC ASSESSMENT

5.1 KEY STRATEGIC ISSUES AND RESPONSES

The programmes that QLDC invests in are based on understanding our strategic context and addressing any gaps in levels of service.

It is QLDC's responsibility to manage the community infrastructure assets in an efficient and effective way to best support a resilient community where environmental sustainability and low impact living is highly valued. Good custodianship of these assets requires that QLDC monitors and understands the implications of changes in its business environment.

The Strategic Assessments that follow focus on key factors and challenges that have been identified through our AMP and 30 Year Infrastructure Strategy. These focus on the factors that directly impact our Three Waters system and capture the problems, benefits, consequences as well as our strategic responses and programmes to addressing our gaps in level of service.

Addressing these issues requires a strategic approach and QLDC have identified some overarching strategic responses which then lead to our specific programmes:

- Master Planning Business Cases approach
- Network Operating Frameworks and Plans
- Spatial planning alongside central government

5.1.1 DEMAND CHANGES

Understanding demand and usage is a key challenge for QLDC; fluctuations, whether increases or declines impacts on many parts of QLDC's assets and activities. Demand drives a huge number of our responses and programmes, many of which were developed to address gaps in level of service arising from our recent rapid growth. The key strategic response for QLDC is monitoring and understand demand and usage of our assets and being agile to the impacts.

5.1.2 CLIMATE CHANGE

Climate change is the biggest environmental challenge of our time. It is already affecting our communities, businesses, native ecosystems, infrastructure, health, and biosecurity, and if left unchecked, will have broad and ongoing implications for all New Zealand. The most recent Intergovernmental Panel on Climate Change (IPCC) special report SR15 (2018) confirms we must target 1.5°C with 'no or limited overshoot', and underscores the need for urgent and transformative climate action as climate impacts increase in scale, frequency, and intensity.

The Climate Change Response (Zero Carbon) Act 2019 was recently adopted in New Zealand. The purpose of this Act is to provide a framework by which New Zealand can develop and implement clear and stable climate change policies that limit the global average temperature increase to 1.5°C. The

Climate Change Commission (CCC) was also established and has the role of providing the government with independent advice from experts on achieving targets set in the Zero Carbon Act, as well as monitoring them.

The CCC will recommend the first three, 5-yearly carbon budgets, out to 2035, by mid-2021, and this will highly likely require steep reductions across all sectors. QLDC have declared a Climate Emergency and adopted our own Climate Action Plan in response.

As a result of climate change, it is predicted that the frequency of intense rainfall in our district will increase, as well as prolonged periods with less rainfall. This will have a significant effect on how we manage our stormwater networks. To ensure that we are considering this in our planning climate change scenarios are being incorporated into our stormwater hydraulic models and catchment management plans (CMPs).

The increased rainfall will also affect our wastewater network through inflow and infiltration (I&I) of stormwater into our wastewater pipes, reducing the capacity of our pipelines, pump stations and treatment plants. Therefore, like stormwater, we have included a climate change scenario in the hydraulic model. It is also important to have regular flow surveys to detect areas of high I&I.

The dry periods with limited rainfall could also have an effect on our district. Global studies have shown that agricultural/irrigation demand could increase by as much as 40% by 2080, although this figure is much less for domestic water, the importance of water conservation will become more apparent and it is important that we fully understand our districts water consumption and water demand.

5.1.3 GEO-POLITICS

Geopolitics is how our physical landscape influences our decisions making. The unique setting of QLDC in an extreme geological and climatic landscape, its attraction as a tourist and residential location and the implications of a remote market has huge impacts on how we operate our decision-making and our costs. These are all important elements that we respond to in both our improvement and continuous programmes.

The physical topographical constraints of our district can restrict the feasibility and viability of providing additional, alternative pipeline routes and limits the resilience of the network to incidents or events that may impact on the network such as weather events and natural disasters. Due to this, along with the Geohazards of the district, it has highlighted the importance of resilience planning to QLDC,

Due to the geography of our district, our smaller townships have their own distinct water schemes which are supplied from local bores takes. Our larger towns, Wanaka and Queenstown, are predominately serviced by lakes intakes from 2-Mile, Kelvin Heights, Beacon Pt and Western. The Shotover Country supply is from a bore field. Consideration of extending and merging schemes is being considering, predominantly of Arrowtown and Arthur's Pt with Queenstown.

Queenstown has a centralised wastewater treatment plant, Shotover WWTP, which services Queenstown, Arthur's Pt and Arrowtown. The Project Pure wastewater treatment plant currently services Wanaka, Albert Town and Luggate with the proposed extension to Hawea. Due to the remoteness of Kingston and Cardrona they have distinct wastewater schemes.

5.1.4 TECHNOLOGY

Technology will play an increasing role in the management of Three Waters from an operational level through to understanding the increasing demands on our networks.

QLDC have commenced a trial of smart water metering in the townships of Luggate and Glenorchy. The smart meters monitor and transmit real-time flow and pressure data in order to improve understanding of our demand. Both customers and Council will be able to access real-time data on water flows to allow better education of water use, and for Council to quickly respond to issues and improve planning. The meters are also able to 'listen' to vibrations typically from leaks in the network. This data, combined with

software algorithms allows us to efficiently pin-point water leaks in the system. The benefits sought by the trial are to understand cost-effective means to better manage high water consumption and existing network capacity.

Technology plays a key role in the operational management of our network and QLDC is seeking to be better understand how we can maximise the systems available.

5.1.5 ECONOMIC

QLDC's pre-COVID-19 thriving economy brought many opportunities for our District, however the high growth also highlighted and exacerbated many challenges. With a large pre-COVID-19 programme that was focused on addressing the large gaps in level of service left by growth, QLDC has had to review the current appropriateness of that programme and its affordability. With an economy and many livelihoods founded heavily in tourism, the impact of border closures is unprecedented. QLDC's ability to fund our programmes has been reduced through the loss of tourist related revenue streams, QAC dividends, and development contributions, alongside a decision to acknowledge the community struggles by limiting rates increases. This highlights how our economy drives many of the behaviours, activities and opportunities, and indicates the strategic importance of our economy to achieving our outcomes.

The post COVID-19 economic situation has highlighted the vulnerability of the economy in our district, although a previously known risk; the reality of COVID-19 has caused the district to make significant changes and strategies. The QLDC Emergency Management Recovery Team purpose has been to address the fallout from social-economic situation and to drive Community led initiatives for a more resilient economy.

5.2 DEVELOPMENT OF THREE WATERS MASTERPLANS

The primary output from the completion of the strategic / programme business cases completed for the Three Waters schemes across the district has been the development of new master plans. These masterplans are to respond to complex issues and opportunities that will affect the way we deliver services. They will demonstrate how we plan to develop our three water networks to interact with other long-term planning for the district. The masterplans are to be reviewed on a continual base's to ensure that they are always relevant. Our existing three water masterplans have been developed by service (i.e. water supply, wastewater, stormwater) and area that has been defined by geographical areas. There is an aspiration to combine masterplans to realise further benefits and synergies.

At a minimum, our masterplans will capture the following within current day, +10 year, +30 year and ultimate planning horizons:

- **Evidence-based problems:** The quantum of the problem we need to address (e.g. how much projected flow exceeds pipe capacity), and when the problem will trigger a need for investment.
- **Network Strategy:** Ultimate / maximum probable development should be used to understand the long term strategy in terms of capacity, layout and functionality in order to service customers and guide how this infrastructure can be staged.
- **Network opportunities:** How investment will respond to problems and/or could improve operational efficiencies, network resilience, levels of service etc.
- **Strategic dependencies and opportunities:** How planned development of our networks can be aligned to, or is constrained by/dependent on, other long-term planning for the district (including potential plan changes).
- **High-level investment response:** An overview of how we can group and sequence our corresponding investment programmes.

- **Masterplanning tolerances:** What factors will trigger a review of the masterplan (e.g. changes to regulation or demand projections, programme and project business cases determining the planned way forward isn't feasible).

Generally, our problems relate to maintaining compliant and acceptable levels of service for a rapidly growing population in a challenging natural environment whilst ensuring our services are compliant.

6. DEFINING AND MEASURING LEVELS OF SERVICE

The levels of service framework for 3-waters is undergoing significant review ahead of the 2024 LTP planning period. The key changes are aimed at improving the comprehension and utilisation of levels of service within decision-making. The actual levels of service, in terms of intervention points remains largely unchanged however, this change is focussed on improving comprehension and consistent application.

The key changes are:

- Simplified and condensed into a single document – The previous version was split into two documents of Levels of Service and System Performance.
- Less discussion and definitions more principles and measures – Removed much of the discussion on definitions and intervention strategies. These relate more to "how' we deliver services which can be contained in an AMP. This framework emphasises the "why" we make decisions.
- Renamed as a framework to recognise that levels of service must enable decision making and good practice as opposed to defining minimum standards.
- Written with end-users in mind to ensure the purpose of why we do work remains front of mind.
- Included much more emphasis on affordability of service levels as the key tensioning tool in planning.

The critical advancement within this framework from previous versions, is the need for a much greater focus on costs and affordability. Providing a world-class service level within a rapidly growing community creates large fiscal pressure on Council. We must be enabled to undertake large strategic investments in service delivery that serve to improve our cost-of-service delivery. At present, much of our 3-Waters network is delivered in a piecemeal manner.

6.1 INTRODUCTION

In light of the LGA changes, QLDC's key outcomes are based on core functions: infrastructure; community facilities and services; regulatory services; the environment; the economy; local democracy; and financial support and services.

These outcomes influence QLDC's short, medium and long term priorities, along with the measures set to assess the performance of QLDC towards those outcomes. QLDC issues its Annual Report in October each year; this is where QLDC and the community can monitor progress towards achieving community outcomes.

QLDC has reviewed its current performance measurement framework by referencing a range of measures used across New Zealand so that a more direct comparison of our performance with that of other local authorities can be made. We have been working with other Otago local authorities to adopt a standard set of performance measures for the region from 2016/17.

Local authorities are required to incorporate mandatory performance measures developed by the Department of Internal Affairs (DIA) in the development of their 2018–2028 LTP. QLDC have adopted these measures for infrastructure and have been reporting against them in Annual Reports since 2015/16.

Targets for all performance measures will be set for the first three years, and are based upon current or 'baseline' performance. The QLDC LTP will be confirmed early 2018 for inclusion in the 2018-21 LTP. The table below provides details of the measures.

6.1.1 LEVELS OF SERVICE REVIEW

QLDC have developed a Minimum Service Level methodology that translates the performance indicators as adopted in the LTP to measures that can be assessed utilising network models. This methodology is underpinning the Long Term Plan programme. In developing target service levels, there is a continuum which ranges from the minimum levels described, through a range of levels which are increasingly desirable, up to an upper level or maximum level of service. The "optimal" service level balances risk, benefits, cost and affordability (appetite and ability to pay).

At this point in time the levels of service in the Minimum Service Level Standard document have been developed from a review of other territorial authority's Levels of Service within New Zealand. The resulting level of service has been tested at a high level through the use of the computer models as a part of the water network strategy development.

Ideally different service level options can be modelled and evaluated for risk, costs and benefits at a finer level however this was not deemed to be suitable at this point as the models require to be upgraded to complete an exercise of this type in an effective manner. All Three Waters hydraulic and hydrological Models will continue to be upgraded to this level prior to assist in further reviews of these LOS.

Future reviews will include community consultation, allowing for a more rigorous and informed setting of service levels. It should be noted that Council could be placed in a difficult position with regulators and the community when they set a service level only to find out later that it is unaffordable. Regularly testing different service levels and their risks and costs is good-practice asset management. It is important to recognise that there may be varying "optimal" levels of service across the district, due to the fact that smaller communities are relatively more costly to serve.

WATER SUPPLY FOR ON DEMAND SUPPLIES ONLY (AS DEFINED BY THE QLDC WATER SUPPLY BYLAW)

Council will provide safe and reliable reticulated water, as demonstrated by no drinking water related illnesses, through the provision of the following Levels of Service in climatic condition up to a 50 year drought event.

Corporate Level of Service Statement

The council provides reliable drinking water that is safe to drink as defined by the Drinking-water Standards for New Zealand[2].

Minimum Levels of Service

- Provide a minimum of 25 litres per minute of safe drinking water to the property boundary.
- No breach of resource consent resulting in successful prosecution by the Otago Regional Council.
- Compliance with NZ Drinking Water Standards.
- Ensure safe and sufficient water pressures at the property boundary.
    - A minimum water pressure to each residential property of 200 kPa;
    - A target water pressure range between 200 and 600 kPa where practical given topographic constraints;
    - A maximum limit of 1000 kPa.
- Ensure firefighting supplies at 60% of annual peak demand to Council approved residential, commercial and industrial on a zone by zone basis:
    - FW2 for residential areas including single family dwellings and multi-unit dwellings, but excluding multi-storey (residential or accommodation) apartment blocks
    - FW3 for commercial and multi-storey (residential or accommodation) apartment blocks
    - FW4 for industrial areas
- No interruptions of service due to planned or unplanned maintenance or power outages at water supply pump stations under the following conditions:

- In a situation of unplanned maintenance on a single pump the remaining pumps are required to be able to supply peak day demand utilising a maximum of 22 hours pump run time per day (92% utilisation) for up to 3 days.
- Power outages of less than 6 hours on an average day.

Please note:

- *Details of the minimum available firefighting supply to each district plan zone can be found in LOS Methodology Document.*
- *The fire flows for each category will be defined as per SNZ PAS 4509:2008 and are the total minimum provision (sprinkler plus hydrant flow) available at the main at a residual pressure of 100 kPa. Council do not commit to providing pressure suitable to supply sprinkler systems.*
- *Where the required firefighting category for a specific building is in excess of those stated above, the developer will provide an on-site solution to supplement the service provided by council to achieve the required levels of firefighting capacity.*

WATER SUPPLY FOR RESTRICTED SCHEMES, AS DEFINED BY THE QLDC WATER SUPPLY BYLAW

Council will provide safe and reliable reticulated water, as demonstrated by no drinking water related illnesses, through the provision of the following Levels of Service in climatic condition up to a 50 year drought event.

Corporate Level of Service Statement

The Council provides reliable drinking water that is safe to drink as defined by the Drinking-water Standards for New Zealand.

Levels of Service

The LOS for restricted schemes is defined on a scheme by scheme basis. Please refer to each scheme's separate agreement.

WASTEWATER

Corporate Levels of Service Statements

Council will provide safe and reliable reticulated wastewater services demonstrated by no wastewater related illnesses attributed to QLDCs wastewater infrastructure and no breach of resource consent resulting in successful prosecution.

Minimum Levels of Service

- No breach of resource consent resulting in successful prosecution by the Otago Regional Council.
- Wastewater networks are designed to convey a 1 in 5 year storm without surcharging manholes.
- No interruptions of service due to planned unplanned maintenance or power outages at wastewater pump stations under the following conditions:

  - Critical pump stations (criticality greater than 3):
    - at least 4 hours of dry weather flow (DWF) storage AND a minimum of 60% redundancy of duty/assist pump capacity including generator power backup.

    OR

    - 100% pump capacity redundancy (under duty/assist pump failure), duplicate rising mains and full generator power backup.

  - Other pump stations (criticality 3 or less):
    - At least 8 hours of dry weather flow (DWF) storage

    OR

    - A minimum of 60% redundancy of duty/assist pump capacity including generator power backup.
- Safety designed lids will be installed on all manholes that have either a history of surcharging and dislodging the manhole cover or are within the 100 year ARI flood area. This can include

either:

- A stainless steel safety grille capable of carrying a 100 kg point load

OR

- A permanently bolted manhole lid

Please note:

- *Simulated storm to be defined by the Chicago Storm methodology. Data used to define the storm is to be from the latest version of NIWA HIRDS at the time of analysis*
- *Off-line network storage and pump station storage upstream of the pump station in question is deemed to contribute to the available assessed storage.*
- *Criticality is defined by the QLDC Three Waters Criticality Framework[3].*

STORMWATER

Corporate Levels of Service Statements

Council will provide safe and reliable stormwater drainage services demonstrated by no stormwater related health issues and no flooding of consented building platforms.

[1] Water Supply Bylaw, Queenstown Lakes District Council, 2015

[2] Drinking-water Standards for New Zealand, Ministry of Health, MoH Drinking Water Standards

Minimum Target Levels of Service

- Stormwater networks are designed to convey a 1 in 10 year storm without property flooding or erosion. Safety designed lids will be installed on all manholes that have either a history of surcharging and dislodging the manhole cover or are within the 100 year ARI flood area. This can include either:

    - A stainless steel safety grille capable of carrying a 100 kg point load

  OR

    - A permanently bolted manhole lid

Please note:

- *Simulated to storm will be defined by the Chicago Storm methodology. Data used to define the storm is to be from the latest version of NIWA HIRDS at the time of analysis.*
- *QLDC will not be formalising requirements for stormwater treatment quality until ORC finalise the regional after plan / Plan Change 6A. It is expected that this will be included in the next revision. However, all upgrades until that time will consider water quality treatment to industry best practice to ensure efficient and effective infrastructure.*

6.2 NATIONAL LOS / PERFORMANCE MONITORING

6.2.1 DIA MEASURES

In 2010, the Local Government Act 2002 was amended to require the Secretary for Local Government to make rules specifying non-financial performance measures for local authorities to use when reporting to their communities. The aim was to help the public to contribute to discussions on future levels of service for their communities and to participate more easily in their local authority's decision-making processes. The Department of Internal Affairs (DIA) was tasked with developing these measures.

KPI: Percentage of water lost from each municipal water reticulation network

Year	Result	Target	Commentary
2019-20	33%	<30%	Estimated water loss has increased in comparison to 2019, and exceeds the target set. The annual night flow survey has highlighted a small number of network areas which have seen significant increases, and these areas will be targeted for planned leak-detection work.
2018-19	15%		
2017-18	19%		

[3] QLDC Criticality Framework, 2017

KPI: Compliance of each municipal water supply with the NZ Drinking Water Standards for protecting public health, specifically: a) bacteriological compliance (Part 4 of Drinking Water Standards); and b) protozoal compliance (Part 5 of Drinking Water Standards).

Year		Result	Target	Commentary
2019-20	a) bacteriological compliance	93%	>80%	QLDC monitors for compliance within our treatment plants and distribution systems. Treatment plants include the water sources (lakes, aquifers) and the treatment plants to remove any pathogens from these sources. Distribution systems include the reservoirs and pipes that store and move the water around the network once treated. Due to the timing of the compliance reports which are received in October each year, results are reported one year behind. Of the 28 treatment plants and distribution systems, 26 were compliant with the bacterial requirements of the Drinking Water Standards New Zealand (DWSNZ). The Arthurs Point and Wānaka Airport plants did not meet the requirements due to sample scheduling discrepancies. Of the 14 treatment plants, two were compliant with the protozoal requirements of the Drinking Water Standards New Zealand (DWSNZ). The results remain the same as the previous year. The non-compliant treatment plants were: > Two Mile– capital investment is required to comply > Kelvin Heights – high turbidity events lead to periods of non-compliance > Arrowtown – high turbidity events lead to periods of non-compliance > Arthurs Point- high turbidity events lead to periods of non-compliance > Corbridge Downs - capital investment is required to comply > Glenorchy - capital investment is required for additional treatment barriers > Glendhu – high turbidity events lead to periods of non-compliance > Hāwea– high turbidity events lead to periods of non-compliance > Luggate- capital investment is required for additional treatment barriers > Wānaka Airport - capital investment required to comply > Wānaka Western– long term plan is to decommission this intake > Wānaka Beacon - capital investment is required for additional treatment barriers. Transmittance refers to the amount of UV light passing through the water at the water treatment plant. Turbidity is the measure of the suspended particles in a sample that cause loss of clarity by scattering light. If the water is more turbid, the UV transmittance would be less because the suspended particles would stop some of the UV light getting through the water and this affects the treatment effectiveness. This is the same level of compliance as previous years. Capital investment in treatment upgrades or turbidity control is required at most sites to meet the protozoal requirements of the DWSNZ. These upgrades are budgeted across the timeframe of the QLDC Ten Year Plan, 2018-28.
	b) protozoal compliance	14%	>20%	

KPI: Median response time to attend to urgent and non-urgent issues resulting from municipal water reticulation network faults and unplanned interruptions:

a) between the time of notification and the time when service personnel reach the site.

b) between the time of notification and resolution of the blockage or other fault.

Category		2018-19 Result	2019-20 Result	Target	Commentary
a) between the time of notification and the time when service personnel reach the site	Urgent	22 mins	26 mins	<60 mins	The median response time to attend to site for urgent issues was 26 minutes for 2019-20. There were 73 urgent issues lodged for 2019-20. The median response time to attend to site for non- urgent issues was 1101 minutes for 2019- 20. There were 910 non-urgent issues lodged for 2019-20. This achieved the target set. The median response time for resolution for urgent issues was 407 minutes for 2019-20. This is well within the target set. The median response time for resolution for non-urgent issues was 3,185 minutes for 2019-20. This is well within the target set.
	Non-urgent	963.5 mins	1101 mins	<1440 mins	
b) between the time of notification and resolution of the blockage or other fault	Urgent	355 mins	407 mins	<1440 mins	
	Non-urgent	2882 mins	3185 mins	<10080 mins	

KPI: Number of complaints per 1,000 connections to a public water reticulation network about:

a) the clarity of drinking water.

b) the taste of drinking water.

c) the odour of drinking water

d) the pressure or flow of drinking water.

e) the continuity of supply of drinking water.

f) the way in which a local government organisation responds to issues with a water supply.

Category	2018 -19 Result	2019 -20 Result	Target	Commentary
a) clarity	0.04	0	<4	All categories met the annual target. This is an improvement on the previous year's results.
b) taste	0.04	0		
c) odour	0.04	0.04		
d) pressure/flow	5.6	2.06		
e) continuity of supply	3.7	2.22		
f) response to issues	0.04	0	<2	

KPI: Average consumption of water per day per resident.

Year	Result	Target	Commentary
2019-20	515L	<500 litres per person per day	515 litres of water was consumed on average per person per day for the 2019-20 year. This did not achieve the 'sinking lid' annual target to be below 500 litres/person/day. Currently the Council has limited mechanisms beyond education to drive water efficiency and this may limit the ability to achieve reductions in the short term.
2018-19	510L	<530L/person/day	
2017-18	577L	<590L/person/day	

KPI: Median response time to attend to sewerage overflows resulting from blockages or other faults of a municipal sewerage system

a) between the time of notification and the time when service personnel reach the site.

Year	Result	Target	Commentary
2019-20	17.5 mins	<60 mins	The median response time to attend site for wastewater overflows was 17.5 minutes for 2019-20 and achieved the target set.
2018-19	17 mins		

b) between the time of notification and resolution of the blockage or other fault.

Year	Result	Target	Commentary
2019-20	121 mins	<240 mins	The median response time to resolve the wastewater overflows was 121 minutes for 2019-20 and achieved the target set. There were 46 wastewater overflows recorded.
2018-19	151.5 mins		

KPI: Annual number of dry weather overflows from a municipal sewerage system per 1,000 sewerage connections.

Year	Result	Target	Commentary
2019-20	1.66	<3	There were 1.66 dry weather overflows per 1,000 sewerage connections for the 2019-20 period. This achieved the target set.
2018-19	3.2		

KPI: Compliance with resource consents for discharge to air, land, or water from a municipal sewerage system, measured by the number of: a) abatement notices b) infringement notices c) enforcement orders d) successful prosecutions.

Year	Result	Target	Commentary
2019-20	87%	100%	QLDC broadly complied with resource consents this year but had two incidents that did not. An infringement notice was received for an unauthorised discharge (ie. no consent) of wastewater into Lake Wakatipu near Park Street as a result of a wastewater overflow from the reticulated network. An abatement notice was received for the Cardrona wastewater treatment plant due to breach of resource consent conditions. An interim upgrade to this plant is underway to resolve the non-compliances, and flows are expected to be directed to a new wastewater treatment plant in 2021.
2018-19	94%		

KPI: Number of complaints per 1,000 properties connected to a municipal sewerage system about:

a) odour.

b) faults.

c) blockages.

d) the territorial authority's response to issues with its sewerage system.

	2018-19 Result	2019-20 Result	Target	Commentary
a) odour	0.04	0.04	<5	All categories met the annual target. This is an improvement on the previous year.
b) faults	5.54	3.16		
c) blockages	2.55	2.25		
d) response to issues	0	0	<2	

KPI: a) Number of flooding events that occur in a territorial authority district b) For each flooding event, the number of habitable floors affected (expressed per 1000 properties connected to the territorial authorities stormwater system)

Year	Result	Target	Commentary
2019-20	a) 0	<7	There were no stormwater flooding events this year and as such, no flooding events to habitable floors recorded.
	b) 0	<2	
2018-19	a) 0		
	b) 0		

KPI: Compliance with resource consents for discharge from a municipal stormwater system, measured by the number of: a) abatement notices b) infringement notices c) enforcement orders d) successful prosecutions.

Year	Result	Target	Commentary
2019-20	100%	100%	The district meets the benchmark set, demonstrating good monitoring and enforcement practice.
2018-19	100%		

KPI: Median response time between the time of notification and the time when service personnel reach the site when habitable floors are affected by flooding resulting from faults in a municipal stormwater system.

Year	Result	Target	Commentary
2019-20	0 hours	<3 hours	There were no flooding events to habitable floors this year.
2018-19	0 hours		

KPI: The number of complaints received by a territorial authority about the performance of its stormwater system, expressed per 1000 properties connected to the territorial authority's stormwater system.

Year	Result	Target	Commentary
2019-20	5.13	<5 per 1,000 properties	There were 5.13 complaints per 1000 properties for 2019-20. This just exceeds the target set. Preventative clearing of road side sumps continues to be a focus to improve performance in this area, along with an increased presence in the education and regulation of sediment control from building sites which are a key contributor to sump blockages.
2018-19	10.65		

6.3 LOCAL LOS / PERFORMANCE MONITORING

6.3.1 LTP MEASURES

QLDC has reviewed its current performance measurement framework by referencing a range of measures used across New Zealand so that a more direct comparison of our performance with that of other local authorities can be made.

Local authorities are required to incorporate mandatory performance measures developed by the Department of Internal Affairs (DIA) (see Section 6.11) in the development of their LTP's. QLDC have adopted the DIA measures for infrastructure and have developed additional measures QLDC specific (below).

Targets for all performance measures are be set for the first three years, and are based upon current or 'baseline' performance. The QLDC measures will be confirmed late 2020 for inclusion in the 2021-31 LTP. The table below provides details of the measures.

Community Outcome Theme	Old Level of Service	Proposed Level of Service	Sub - activity	KPIs	Baseline performance at 30 June 2020	Target Yr 1-3 and 10	DIA	Frequency	Source
Deafening dawn chorus Disaster-defying resilience		Our Council provides reliable drinking water that is safe to drink	Water Supply	Average consumption of water per person per day	515 litres on avg per person per day	Yr 1 <510L, Yr 2 <505 L, Yr 3 <500L, Yr 10 <300L		monthly	TechOne
			Water Supply	Compliance of each municipal water supply with the NZ Drinking Water Standards for protecting public health, specifically: a) bacteriological compliance; and b) protozoal compliance.	a) 93% b) 14%	a) 100% (Yr 1 - 3 & 10) b) Yr 1 >35%, Yr 2 >50%, Yr 3 >70%, Yr 10 100%	**DIA**	annual	TechOne
			Water Supply	Percentage of water lost from each municipal water reticulation network	33%	<30% overall	**DIA**	annual	TechOne
			Water Supply	Median response time to attend to **urgent and non urgent issues** resulting from municpal water reticulation network faults and unplanned interruptions **a) between the time of notification and the time when service personnel reach the site;**	Urgent - 26 mins Non-urgent - 1101 mins	Urgent <60 mins Non-urgent <1,440 mins (1 day)	**DIA**	monthly	TechOne
			Water Supply	Median response time to attend to **urgent and non urgent issues** resulting from municpal water reticulation network faults and unplanned interruptions **b) Between the time of notification and resolution of the blockage or other fault.**	Urgent - 407 mins Non-urgent - 3185 mins	Urgent <1,440 mins (1 day) Non-urgent <10,080 mins (7 days)	**DIA**	monthly	TechOne
			Water Supply	Number of complaints per 1000 connections to a public water reticulation network about a) the clarity of drinking water b) the taste of drinking water c) the odour of drinking water d) the pressure or flow of drinking water e) the continuity of supply of drinking water f) the way in which a local government organisation responds to issues with a water supply	a) 0 b) 0 c) 0.04 d) 2.06 e) 2.22 f) 0	Clarity <4 Taste <4 Odour <4 Pressure/flow <4 Continuity of supply <4 QLDC response <2	**DIA**	monthly	TechOne
Deafening dawn chorus Disaster-defying resilience		Our Council provides wastewater collection and treatment services that protect public health and the environment	Wastewater	Median response time to attend to sewerage overflows resulting from blockages or other faults of a municipal sewerage system **a) between the time of notification and the time when service personnel reach the site;**	17.5 mins	<60 mins	**DIA**	monthly	TechOne
			Wastewater	Median response time to attend to sewerage overflows resulting from blockages or other faults of a municipal sewerage system **b) between the time of notification and resolution of the blockage or other fault.**	121 mins	<240 Mins	**DIA**	monthly	TechOne
			Wastewater	Annual number of dry weather overflows from a municipal sewerage system per 1000 sewerage connections	1.66	<3	**DIA**	annual	TechOne
			Wastewater	Compliance with resource consents for discharge to air, land, or water from a municipal sewerage system, measured by the number of: a) abatement notices b) infringement notices c) enforcement orders d) successful prosecutions	87%	100%	**DIA**	annual	TechOne
			Wastewater	Number of complaints per 1000 properties connected to a municipal sewerage system about: a) odour b) faults c) blockages d) the territorial authority's response to issues with its sewerage system.	a) 0.04 b) 3.16 c) 2.25 d) 0	Odour <5 Faults <5 Blockages <5 QLDC Response <2	**DIA**	monthly	TechOne
Deafening dawn chorus Disaster-defying resilience		Our Council provides stormwater drainage services that protect public health and private properties	Stormwater	a) Number of flooding events that occur in a territorial authority district b) For each flooding event, the number of habitable floors affected. (expressed per 1000 properties connected to the territorial authorities stormwater system)	a) 0 b) 0	a) <7 b) <2	**DIA**	monthly	TechOne
			Stormwater	Compliance with resource consents for discharge from a municipal stormwater system, measured by the number of: a) abatement notices b) infringement notices c) enforcement orders d) successful prosecutions	100%	100%	**DIA**	annual	TechOne
			Stormwater	Median response time between the time of notification and the time when service personnel reach the site when habitable floors are affected by flooding resulting from faults in a municipal stormwater system.	0 hours	<3 hours	**DIA**	monthly	TechOne
			Stormwater	Number of complaints per 1000 properties connected to a municipal sewerage system about: a) faults (including blockages) with a municipal stormwater system.	5.13 per 1000 properties	<5 per 1,000 properties	**DIA**	monthly	TechOne

6.3.2 QLDC BENEFITS REALISATION (BENEFITS AND MEASURES)

QLDC are developing a Benefits Realisation Framework.

QLDC will be selecting some achievable measures to track our performance and how we monitor the benefits of our investment. The QLDC benefits framework will cover both capital and operational areas of investment and will clearly align with QLDC's Long Term Plan measures.

6.3.3 CLIMATE ACTION PLAN MEASURES

The Climate Action Plan measures a number of Three Waters related inputs and these related to the Keystone Action 1: the community looks to QLDC for leadership and action.

Keystone action: Measure the district's GHG emissions and develop an emissions reduction master-plan with science-based targets, and an emissions reduction toolkit. Include sequestration plan. As a keystone action, the development of the masterplan will be of the highest priority. The masterplan will establish clear milestones for emissions reduction alongside specific, measurable, achievable, realistic and time-bound targets. It will include a carbon sequestration plan, establish an approach to offsetting and create a toolkit for delivery

https://www.qldc.govt.nz/media/yftlhq5z/4a-climate-action-plan.pdf

6.3.4 QLDC CUSTOMER FOCUS – LOS

QLDC is becoming a more customer-focused organisation, to this end we are striving to understand the requirements of the Community to provide robust evidence in decision-making. This is achieved through better consultation with the community, and engagement with ratepayers and customers.

6.3.5 ENGAGEMENT AND CONSULTATION

QLDC's stakeholders are 'any party having an interest in anything at all that QLDC is or isn't doing relating to the provision and management of an effective and efficient Three Waters network, and the provision of sufficient public Three Waters works for, the Queenstown Lakes District.

Table 2: Key Stakeholders

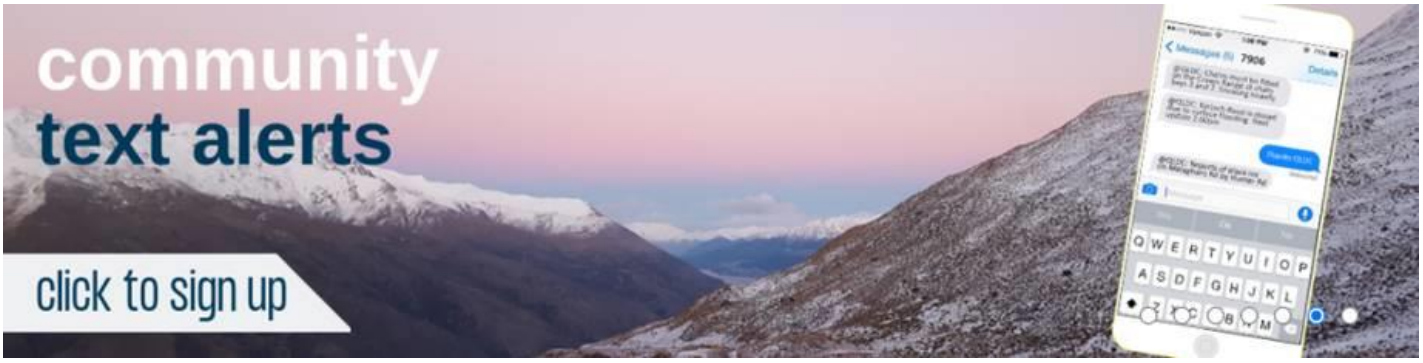
Stakeholder	Philosophy of Engagement
Ministry of Health and Otago Regional Council	QLDC collaborates with both the Ministry of Health and Otago Regional Council to ensure compliance with drinking water standards and resource consents.
Senior Management and Elected Members	Working to ensure QLDC has accurate data for evidence based decision making as well as leading a committed and co-ordinated effort across all sections of an organisation in terms of asset management.
Internal Staff	QLDCs approach is to co-ordinate the education, communication, and awareness of asset management processes in the three waters sector.
Supply Partners and Service Providers	Strong relationships are formed on a shared philosophy of delivering value for money for our customers. Specifically, professional services that are focused on developing investment programmes that increase productivity for our customer. Physical works providers that are delivering fit for purpose service levels and are innovating. Continuing to build awareness and understanding of AM processes across QLDC's external partners.
Customers	Engage with customers to communicate the cost to deliver services and where they think focus of spending should be and how can achieve required outcomes including a safe, resilient, reliable, and environmentally aesthetic network. Customers include: All residents and visitors All adjoining property owners Local ratepayers and residents associations Local businesses

Collaborative Partners	Partnership with delivering services such as neighbouring, regional and local Councils, emergency (NZ Police/Fire/Ambulance) and civil defence authorities, and Department of Conservation. Working with other network providers that utilise three waters for service provision such as electricity, gas, telecommunications and water.

6.3.6 COMMUNICATIONING WITH STAKEHOLDERS

QLDC has adopted a combination of email, social media, radio messaging and websites to inform the public about changing conditions which may disrupt their plans. Disruptions include snow and ice in winter; flooding; burst pipes; contamination warnings; storm damage; road works; crashes and police operations. QLDC has also relaunched its text alert system. Specific channels are:

- Road report email list (5,801 recipients, sent daily 6.30am in winter and as required at any time);
- QLDC Facebook page (28,513 followers);
- QLDC Twitter feed (3,514 followers);
- Community text alerts (list of 29,000);
- Community Facebook pages, chosen to match the location of the disruption);
- Breakfast radio – The Hits, More FM, Radio Wānaka, Radio Glenorchy;
- QLDC website;
- Queenstown traffic web cameras (link to Stanley St and Ballarat St signals via Waka Kotahi website);
- Crown Range weather station and webcam.



6.3.7 QLDC ANNUAL QUALITY OF LIFE REPORT

QLDC strives to deliver an affordable LTP with a strong focus on efficiency and value. QLDC demonstrates accountability by seeking annual feedback from residents about their performance over that year. Since 1995, QLDC has been conducting annual satisfaction surveys as a way to assess residents' needs and satisfaction with Council services.

In 2018, QLDC opted to base their research around determining how residents in the district view their quality of life. To this, QLDC wants to draw relevant data which will help them and other community partners to improve the quality of life throughout the district.

This is the second year that the Quality of Life Survey has been completed. The primary objectives guiding this were to:

- Understand the impact of the increasing population and tourist numbers in the district
- Determine measures of overall quality of life within the district
- Understand what role QLDC and their partners could play in helping to improve residents quality of life within the district

Findings from the 2019 survey:

The overarching concerns highlighted throughout the 2019 survey can be categorised into three interrelated themes:

- The financial pressures of living in the district
- The growth and subsequent development in the district
- The effects of the increase in tourist numbers on the district's communities

6.3.8 CUSTOMER REQUESTS FOR SERVICE (RFS)

Customer interaction is largely recorded through our Customer Management System (TechOne). Request for Service are recorded, actioned and monitored at a corporate level and a councilor level.

QLDC have worked to integrate the Customer Service System with our VAMS asset management system, which enables the Three Waters contractors to receive almost immediate notification of requests and to be able to provide response and action back to the customer service team.

7. ASSETS AND ACTIVITIES – LIFECYCLE MANAGEMENT

Lifecycle asset management is about considering all activity management options and strategies to deliver the agreed level of service and to inform decision-making for asset renewal, replacement, upgrades and disposal. With a move to activity management rather than just asset management this now includes focusing on the outcomes and benefits achieved through this planning. Effective lifecycle planning is about making the right investment at the right time to ensure that the asset delivers the desired level of service over its full-expected life, at the minimum total cost.

This section explains QLDC's approach for:

- Providing new or upgraded assets to improve service levels, providing for growth and demand;
- Operating and maintaining assets;
- Renewing or replacing assets; and
- Disposing of assets at the end of their useful life.

All asset data has been extracted / reported as at January 2020

7.1 ASSET REGISTER AND STATISTICS

7.1.1 NETWORK STATISTICS

QLDC maintains assets across the Three Waters networks, a summary of which can be found below in Table 3. A programme of asset data improvements and updates is constantly being undertaken to improve the network understanding and to ensure the collection of quality data for new assets generated by the rapid growth in the district.

Table 3: Asset Details as at 30 June 2020

Activity	Asset Type	Units	Total
Water	Mains	km	597
	Mains Average Age	Years	18
	Demand Units	Units	26,607
	Water Production	m^3/Year	11,901,168
	Treatment Plants	No	12
	Pump Stations	No	33
Wastewater	Mains	km	488
	Mains Average Age	Years	24
	Demand Units	Units	26,107
	Wastewater Generation	m^3/Year	5,277,230
	Treatment Plants	No	7
	Pump Stations	No	65
Stormwater	Mains/Culverts	km	325
	Mains Average Age	Years	23
	Pump Stations	No	0

7.1.2 SCHEME SUMMARIES

QLDC has developed a single page fact sheet for each water supply and wastewater scheme. All financial data is as at 30th June 2020.

Key Strategic Drivers

"Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the district's tourist based economy." and;
To comply with DWSNZ 2005/08 under the Health (Drinking Water) Amendment Act 2007.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	10,368	20,958
Residents	14,367	33,363
Total Visitors (Peak Day)	33,415	60,903

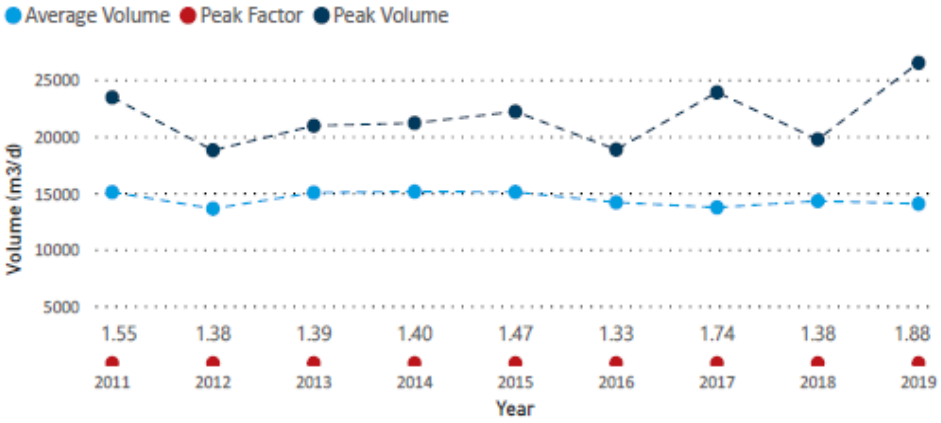
Water Sources/Intakes: Lake Wakatipu – 2 intakes at Kelvin Heights and Fernhill (Two Mile intake)

Treatment: Disinfection - See Water Safety Plan

Resource Consents:

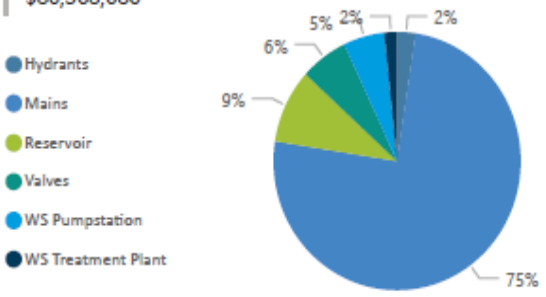
Kelvin Heights - Exp. 01/04/2040
Current Limits:
350 L/s; 15,000 m3/day
Two Mile - Exp. 01/02/2042
Current Limits:
365 L/s; 30,000 m3/day

Production Volume



Network Asset Value

$86,368,686



Network Asset Counts

WS Treatment Plant	2
Reservoir	12
WS Pumpstation	16
Backflow Device	17
Meters	657
Hydrants	946
Fittings Nodes	2503
Valves	6014

Network Asset Lengths (m)

SUPPLY	117,297
TRUNK	34,449
SERVICE	25,299
RIDER	15,845
RISING	6,003
NA	3,337
RISEFALL	2,371

Total Capital Expenditure 2021/22 to 2030/31: $102,162,595

Major Projects:

Two Mile Water Treatment Plant; Coneburn Scheme Investigation;
Ladie's Mile New Scheme, Reservoir and Trunk Main;
Shotover Country Water Treatment Plant;
Southern Corridor Water Treatment

Key Strategic Drivers

"Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the district's tourist based economy." and;
To comply with DWSNZ 2005/08 under the Health (Drinking Water) Amendment Act 2007.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

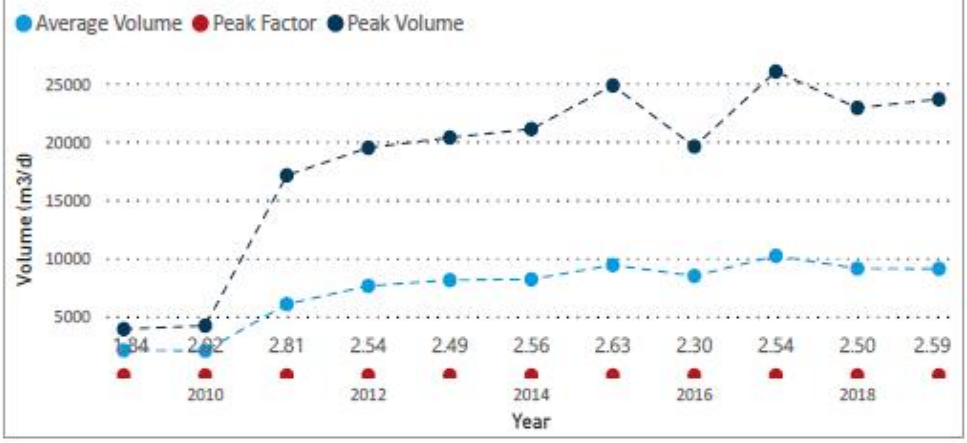
Demand variable	2020	2050
Total Rating Units	7,639	13,525
Residents	10,450	21,110
Total Visitors (Peak Day)	18,529	33,122

Water Sources/Intakes: Lake Wanaka – 2 intakes at Beacon Point and Western Intake

Treatment: Chlorine dosing only

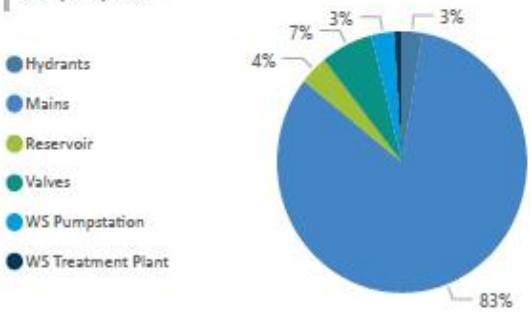
Resource Consents:
Beacon Point - Exp. 05/11/2043
Current Limits:
400 L/s; 27,216 m3/day;
680,400 m3/month
Western Intake - Exp. 05/11/2043
Current Limits:
200 L/s; 12,960 m3/day;
324,000 m3/month

Production Volume



Network Asset Value

$87,213,600



Network Asset Counts

WS Treatment Plant	3
WS Pumpstation	8
Reservoir	9
Backflow Device	36
Meters	57
Hydrants	1004
Fittings Nodes	2341
Valves	8369

Network Asset Lengths (m)

SUPPLY	161,854
RIDER	43,092
SERVICE	32,570
TRUNK	11,188
NA	5,795
RISING	3,462
RISEFALL	177

Total Capital Expenditure 2021/22 to 2030/31: $80,635,501

Major Projects:
Wanaka Water Treatment; Demand Management;
Western Wanaka Levels of Service Upgrades;
Beacon Point Intake and Rising Main;
Albert Town Reticulation Improvements

Key Strategic Drivers

"Providing safe drinking water is important to maintaining public health compliance with legislation, as well as protecting the district's tourist ba economy." and;
To comply with DWSNZ 2005/08 under the Health (Drinking Water) Amendment Act 2007.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	565	788
Residents	1,183	1,538
Total Visitors (Peak Day)	1,877	2,655

Water Sources/Intakes:

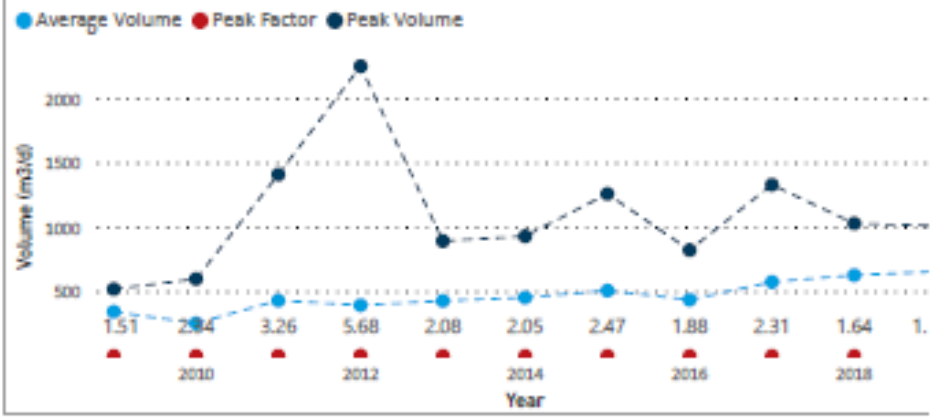
Groundwater, 2 bores along the Shotover River

Treatment: **UV and emergency chlorination**

Resource Consents:

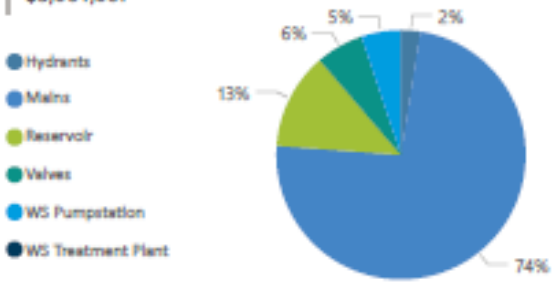
Exp. 01/12/2042
Current Limits:
49 L/s;
3,385 m3/day;
105,000 m3/month;
823,200 m3/year

Production Volume



Network Asset Value

$5,661,067



Network Asset Counts

WS Pumpstation	1
WS Treatment Plant	1
Reservoir	2
Backflow Device	3
Meters	10
Hydrants	61
Fittings Nodes	163
Valves	410

Network Asset Lengths (m)

SUPPLY	8,377
RIDER	1,730
SERVICE	1,328
RISING	946
NA	5

Total Capital Expenditure 2021/22 to 2030/31: $1,882,737

Major Projects:
Demand Management;
Water Supply Renewals;
Masterplanning and Hydraulic Modeling;
Telemetry Upgrades

Arrowtown Water Supply

Key Strategic Drivers

"Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the district's tourist based economy." and;

The Regional Plan for Water:

To provide for the water needs of Otago's primary and secondary industries and community domestic water supplies

ORC's water allocation in the Arrow Catchments

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	1,536	1,677
Residents	2,872	3,112
Total Visitors (Peak Day)	3,463	3,780

Water Sources/Intakes:

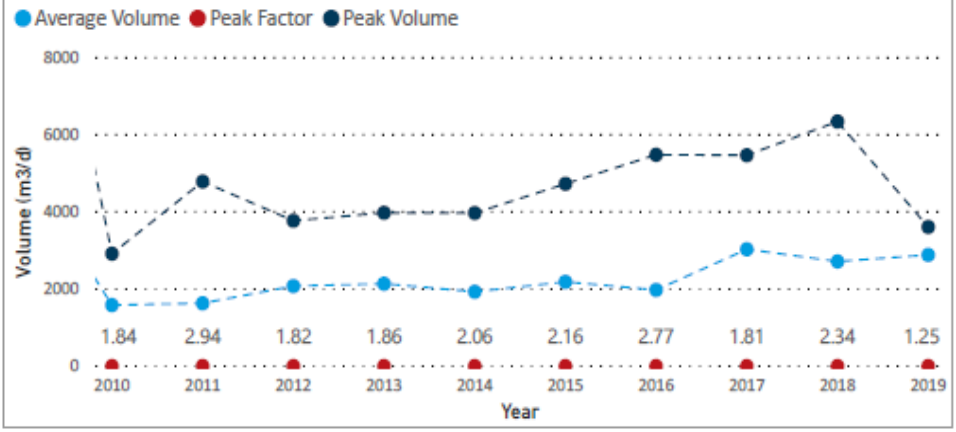
Groundwater, 3 bores (1 well decommissioned in 2019) along the Arrow River

Treatment: UV and chlorination

Resource Consents:

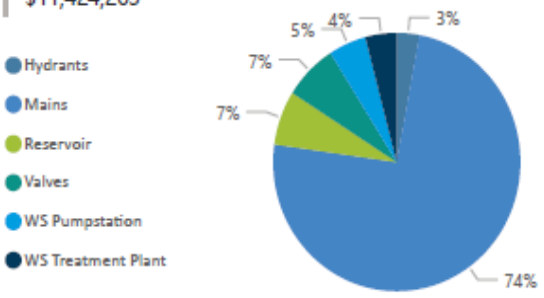
Exp. 01/10/2021
Current Limits:
108 L/s;
7,800 m3/day;
234,000 m3/month;
1,105,200 m3/year

Production Volume



Network Asset Value

$11,424,265



Network Asset Counts

Reservoir	1
WS Treatment Plant	1
WS Pumpstation	2
Backflow Device	6
Meters	33
Hydrants	187
Fittings Nodes	451
Valves	1366

Network Asset Lengths (m)

SUPPLY	25,447
SERVICE	5,945
RIDER	5,197
FALL	1,637
TRUNK	1,464
RISING	1,047
NA	19

Total Capital Expenditure 2021/22 to 2030/31: $11,817,535

Major Projects:

Arrowtown Water Storage Capacity;
Water Supply Renewals;
Reticulation Improvements;
Demand Management

Lake Hayes and Shotover Country Water Supply

Key Strategic Drivers

"Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the district's tourist based economy." and;

The Regional Plan for Water:

To provide for the water needs of Otago's primary and secondary industries and community domestic water supplies

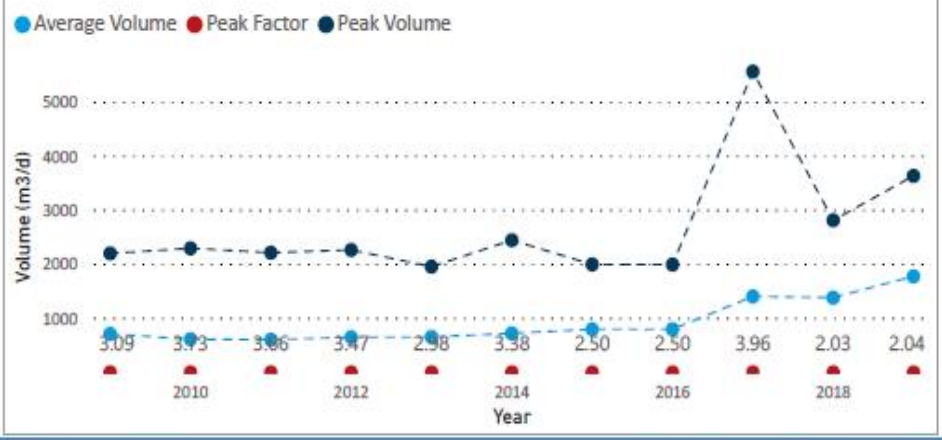
ORC's water allocation in the Arrow Catchments

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	2,003	2,039
Total Visitors (Peak Day)	4,117	4,196
Residents	4,910	4,959

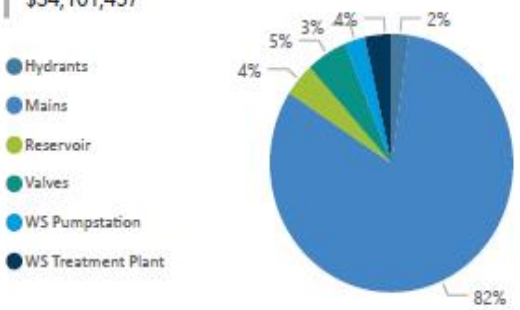
Water Sources/Intakes: Lake Hayes - 2 bores
Lake Hayes Estate - 1 bore (not currently used)
Shotover Country - 1 bore
Treatment: UV, chlorination, pH correction (Lake Hayes), and cartridge filtration (Shotover Country)
Resource Consents:
Lake Hayes - Exp. 20/05/2027
Current Limits: 40 L/s; 2,200 m3/day; 15,400 m3/week
Lake Hayes Est - Exp. 23/04/2039
Current Limits: 2.2 L/s; 690 m3/day; 21,390 m3/month; 251,850 m3/year
Shotover - Exp. 01/10/2048
Current Limits: 395 L/s; 28,250m3/day; 6,223,1654 m3/year

Production Volume



Network Asset Value

$34,101,457



Network Asset Counts

WS Treatment Plant	2
Reservoir	3
WS Pumpstation	4
Backflow Device	8
Meters	268
Hydrants	324
Fittings Nodes	1521
Valves	2503

Network Asset Lengths (m)

SUPPLY	48,692
RIDER	17,400
SERVICE	6,750
RISING	5,766
TRUNK	5,293
NA	290

Total Capital Expenditure 2021/22 to 2030/31: $4,471,909

Major Projects:

Demand Management;
Water Supply Renewals;
Masterplanning and Hydraulic Modeling

Key Strategic Drivers

"Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the district's tourist based economy." and;

To provide for the water needs of Otago's primary and secondary industries and community domestic water supplies for the Regional Plan for Water

MoH advice to "reconsider reliance on secure bore water status" and "consider implementing appropriate and effective treatment" for untreated supplies (Director General Statement under Health Act 1956 s69ZZZC, 20 December 2017)

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Residents	460	641
Total Rating Units	465	577
Total Visitors (Peak Day)	1,206	1,582

Water Sources/Intakes:

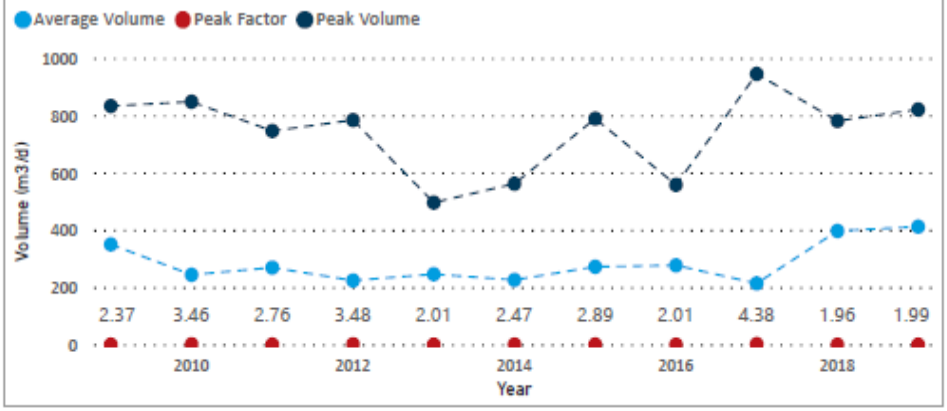
Groundwater, 2 bores

Treatment: No treatment

Resource Consents:

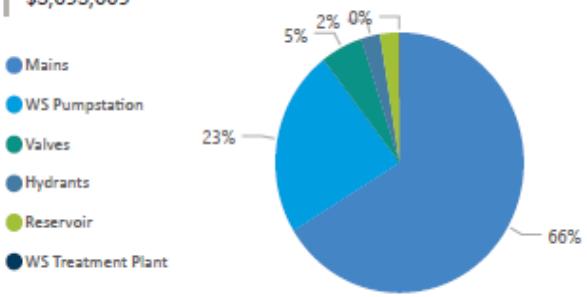
Exp. 02/12/2044
Current Limits:
62.7 L/s; 5,400 m3/day;
49,248 m3/month;
599,184 m3/year

Production Volume



Network Asset Value

$3,693,609



Network Asset Counts

Reservoir	1
WS Pumpstation	1
Meters	6
Hydrants	39
Fittings Nodes	115
Valves	266

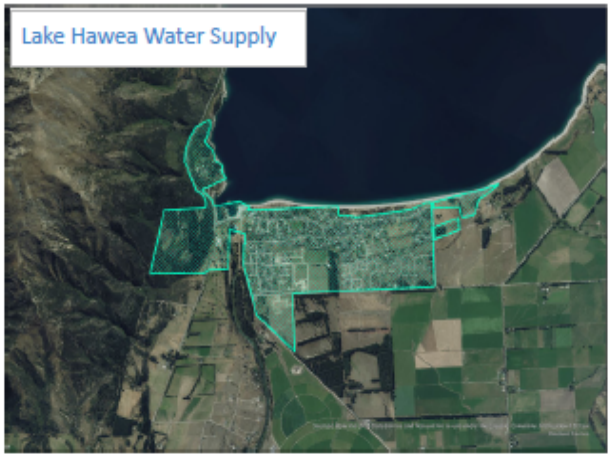
Network Asset Lengths (m)

SUPPLY	7,914
RISING	1,206
SERVICE	944
NA	678
RIDER	668

Total Capital Expenditure 2021/22 to 2030/31: $2,190,803

Major Projects:

Glenorchy Bore and WTP Upgrades;
Demand Management;
Water Supply Renewals;
Masterplanning and Hydraulic Modeling



Key Strategic Drivers

"Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the district's tourist based economy." and;

The Regional Plan for Water:

To provide for the water needs of Otago's primary and secondary industries and community domestic water supplies

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	1,030	1,979
Residents	1,265	3,221
Total Visitors (Peak Day)	1,802	3,994

Water Sources/Intakes:

Groundwater, 4 bores

Lake Hawea - emergency source only

Treatment: Disinfection - see Water Safety Plan

Resource Consents:

Exp. 19/01/2050

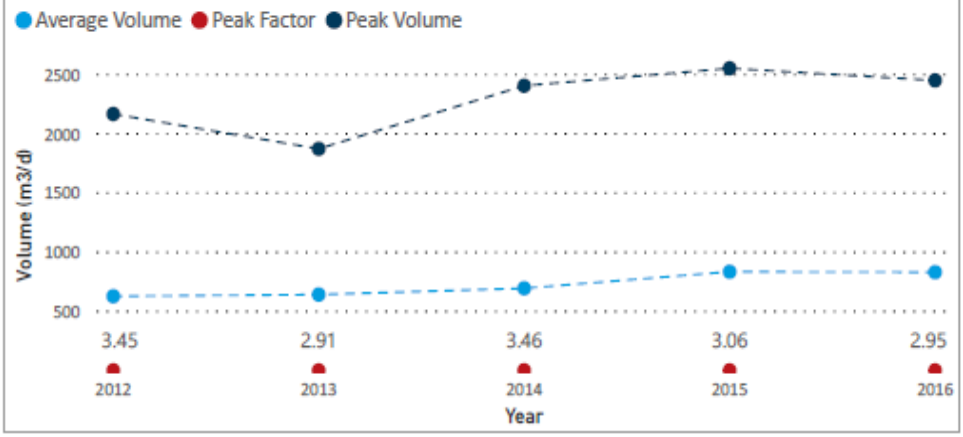
Current Limits:

180 L/s; 13,500 m3/day;

100,175 m3/month;

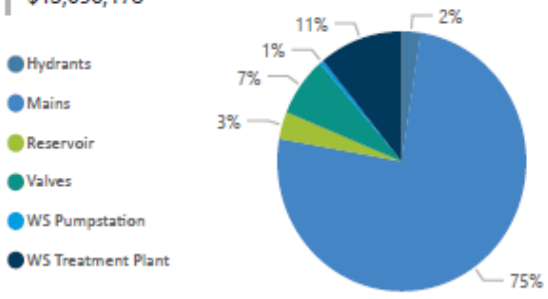
1,202,100 m3/year

Production Volume



Network Asset Value

$13,096,178



Network Asset Counts

Reservoir	1
WS Treatment Plant	2
Backflow Device	4
Meters	36
Hydrants	135
Fittings Nodes	310
Valves	1266

Network Asset Lengths (m)

SUPPLY	18,779
SERVICE	7,082
RIDER	4,848
NA	2,035
TRUNK	1,063
RISEFALL	427
RISING	181

Total Capital Expenditure 2021/22 to 2030/31: $10,353,799

Major Projects:

Hawea Reservoir and Borefield Capacity;
Capell Ave Watermain Extension;
Demand Management; Water Supply Renewals;
Masterplanning and Hydraulic Modeling

Key Strategic Drivers

"Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the district's tourist based economy." and;

The Regional Plan for Water:

To provide for the water needs of Otago's primary and secondary industries and community domestic water supplies

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	271	589
Residents	507	1,142
Total Visitors (Peak Day)	520	1,267

Water Sources/Intakes:

Groundwater, 2 bores

Treatment: pH correction

Resource Consents:

Exp. 20/12/2044

Current Limits:

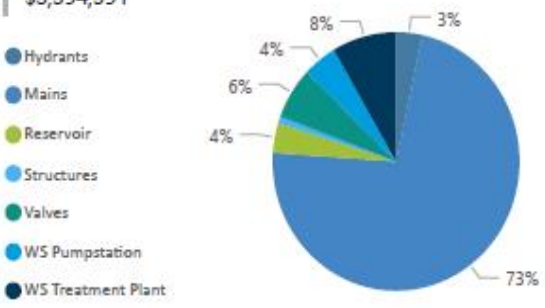
40 L/s; 1,550 m3/day;

187,307 m3/year

Production Volume

Network Asset Value

$3,394,591



Network Asset Counts

Reservoir	1
WS Pumpstation	1
WS Treatment Plant	1
Backflow Device	2
Hydrants	50
Meters	68
Fittings Nodes	103
Valves	278

Network Asset Lengths (m)

SUPPLY	6,822
SERVICE	991
RIDER	983
RISING	441

Total Capital Expenditure 2021/22 to 2030/31: $6,384,593

Major Projects:

Reservoir Capacity;
Water Supply Scheme Improvements;
Demand Management; Water Supply Renewals;
Masterplanning and Hydraulic Modeling

Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater treatment;

Providing capacity for growth in the wastewater service area.

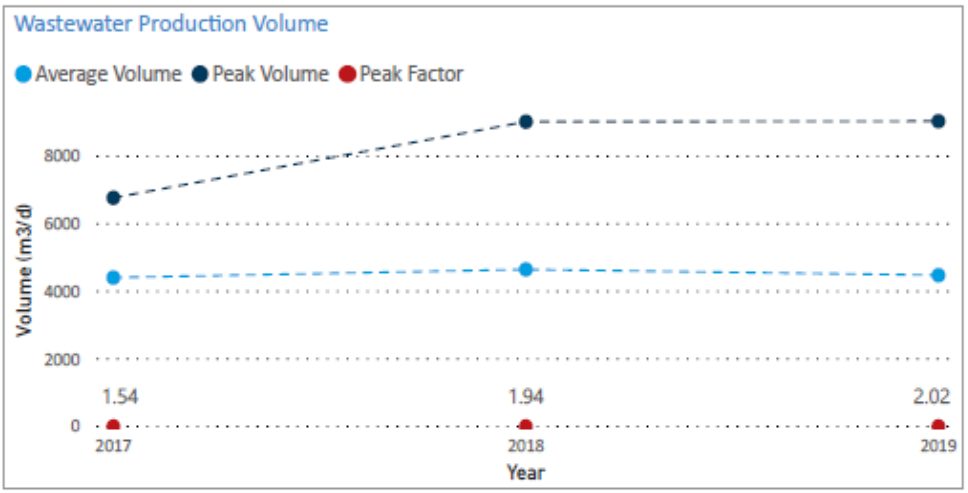
Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	13,883	24,778
Residents	22,735	42,201
Total Visitors (Peak Day)	41,706	70,123

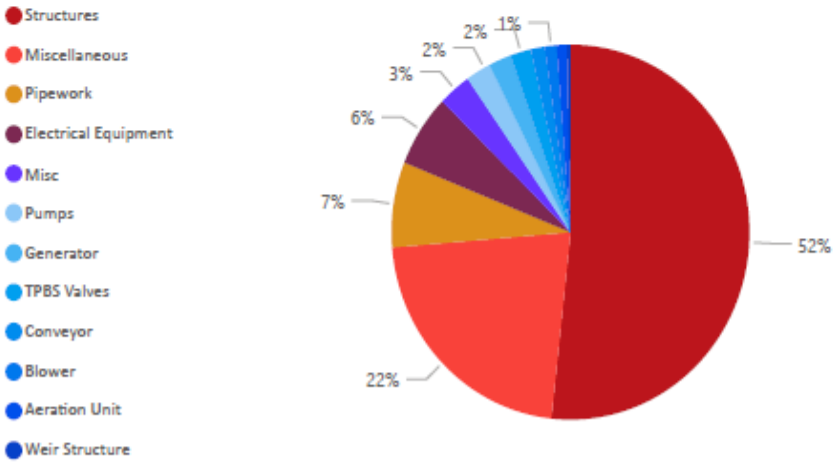
Schemes Serviced: Queenstown, Arrowtown, Arthur's Point, Lake Hayes (including Lake Hayes Estate) and Shotover Country

Treatment: Combined MLE plant and Pond system with UV disinfection and disposal field.

Resource Consents:
Exp. 31/12/2031
Current Volume Limits:
11,238 m3/day



Treatment Plant Asset Value | $28,988,549



Total Capital Expenditure 2021/22 to 2030/31: $34,828,342

Major Projects:

Duplicate MLE Plant;
Decommission legacy oxidation ponds;
Upgrade inlet works

Project Pure Wastewater Treatment Plant

Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater treatment;

Providing capacity for growth in the wastewater service area.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

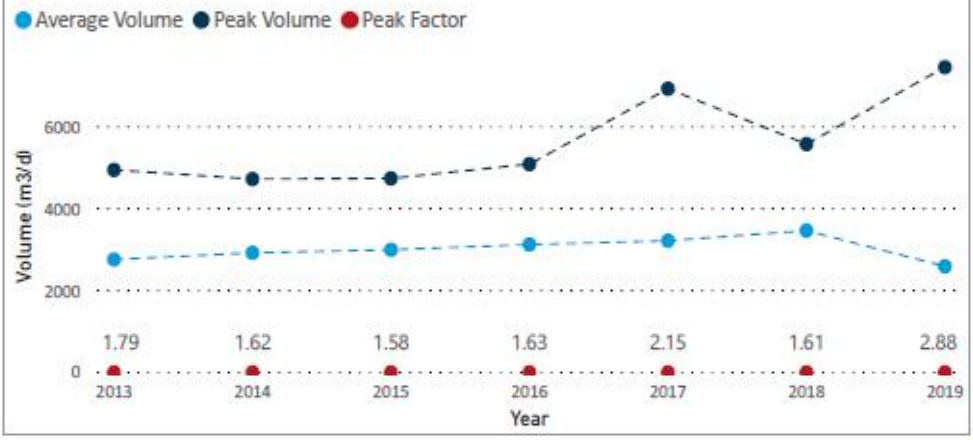
Demand variable	2020	2050
Total Rating Units	13,883	24,778
Residents	22,735	42,201
Total Visitors (Peak Day)	41,706	70,123

Schemes Serviced: Wanaka and Luggate (redirected in 2019)

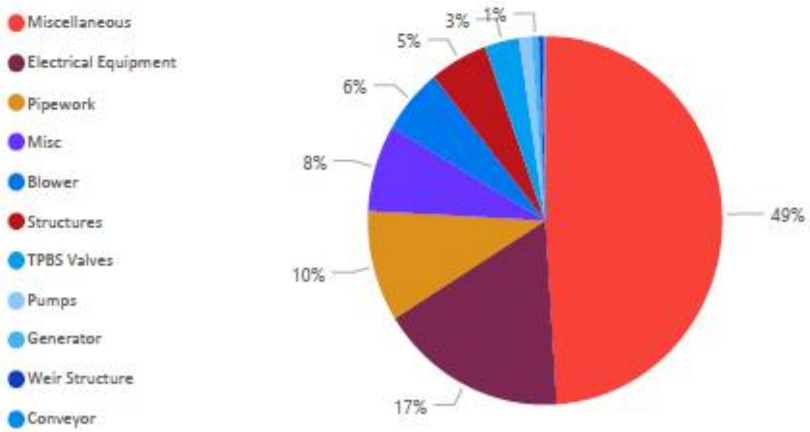
Treatment: SBR Plant with UV Disinfection.

Resource Consents:
Exp. 30/09/2041
Current Volume Limits:
26,400 m3/day

Wastewater Production Volume



Treatment Plant Asset Value | $6,315,881



Total Capital Expenditure 2021/22 to 2030/31: $10,712,568

Major Projects:

Upgrade of treatment plant capacity;
Development of plant redundancy

Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater conveyance and storage;

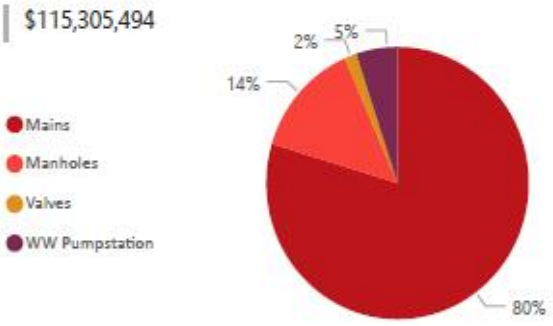
Providing capacity for growth in the wastewater service area.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	10,368	20,958
Residents	14,367	33,363
Total Visitors (Peak Day)	33,415	60,903

Network Asset Value

$115,305,494



Network Asset Counts

WW Pumpstation	16
Valves	186
Manholes	3025

Network Asset Lengths (m)

GRAV	110,985
LATGRAV	25,020
RISING	20,093
TRUNK	18,350
OUTFALL	843
VENT	298
LATPRES	181

Total Capital Expenditure 2021/22 to 2030/31: $127,942,625

Major Projects:

Southern Corridor Wastewater Conveyance;
CBD to Frankton Wastewater Conveyance;
Wastewater Renewals;
Pumpstation Emergency Storage and Capacity Upgrades;
Frankton Beach to Project Shotover Conveyance;
Lake Esplanade Catchment Diversion;

Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater conveyance and storage;

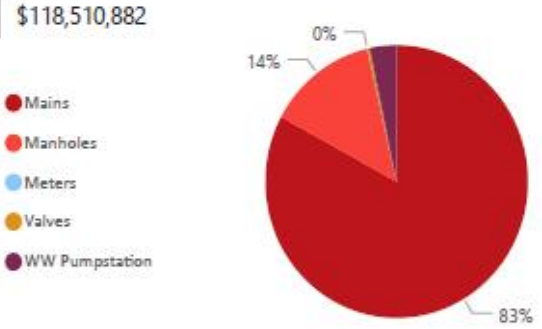
Providing capacity for growth in the wastewater service area.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	7,639	13,525
Residents	10,450	21,110
Total Visitors (Peak Day)	18,529	33,122

Network Asset Value

$118,510,882



Network Asset Counts

WW Pumpstation
19
Valves
164
Manholes
2894

Network Asset Lengths (m)

GRAV
129,315
LATGRAV
40,441
RISING
31,043
TRUNK
14,746
VENT
5,074
OUTFALL
35
LATPRES
26

Total Capital Expenditure 2021/22 to 2030/31: $50,113,301

Major Projects:

Rising Main to Project Pure Capacity;
North Wanaka Conveyance;
Pumpstation Emergency Storage
Wastewater Renewals;
Pumpstation Capacity Upgrades;

Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater conveyance and storage;

Providing capacity for growth in the wastewater service area.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

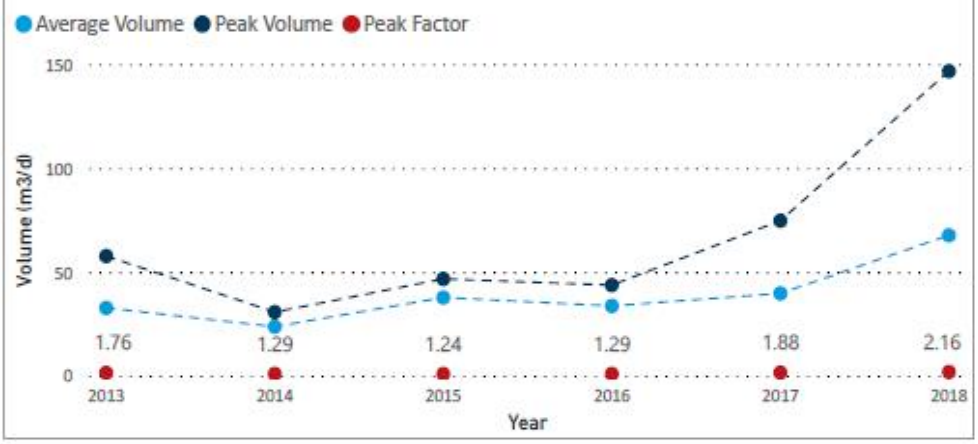
Demand variable	2020	2050
Total Rating Units	271	589
Residents	507	1,142
Total Visitors (Peak Day)	520	1,267

Schemes Serviced: Luggate

Treatment: Rotating Biological Contactor (RBC). Vested in 2018 and flows redirected to Project Pure in 2019.

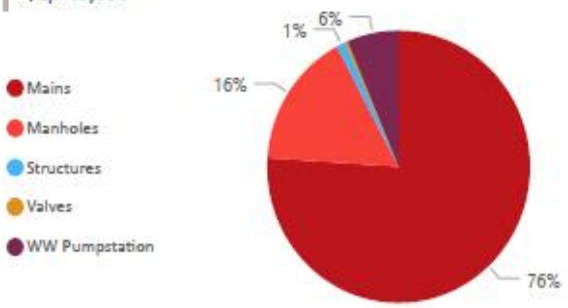
Resource Consents: Surrendered in 2019

Wastewater Production Volume



Network Asset Value

$2,743,097



Network Asset Counts

WW Pumpstation	Valves	Manholes
7	13	71

Network Asset Lengths (m)

GRAV	RISING	LATGRAV
4,331	1,972	1,364

Total Capital Expenditure 2021/22 to 2030/31: $2,163,628

Major Projects:

Pumpstation Emergency Storage

Wastewater Renewals;

Masterplanning and Hydraulic Modeling

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Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater conveyance and storage;

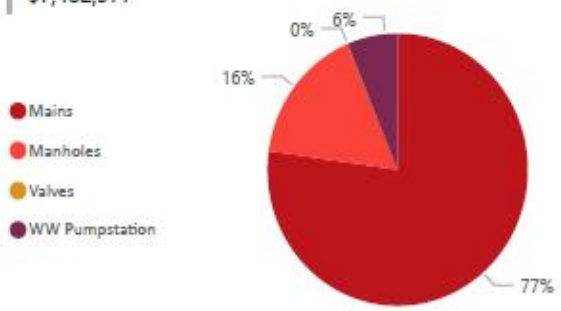
Providing capacity for growth in the wastewater service area.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	565	788
Residents	1,183	1,538
Total Visitors (Peak Day)	1,877	2,655

Network Asset Value

$7,482,577



Network Asset Counts

WW Pumpstation	Valves	Manholes
2	6	210

Network Asset Lengths (m)

GRAV	RISING	LATGRAV
9,494	2,242	1,377

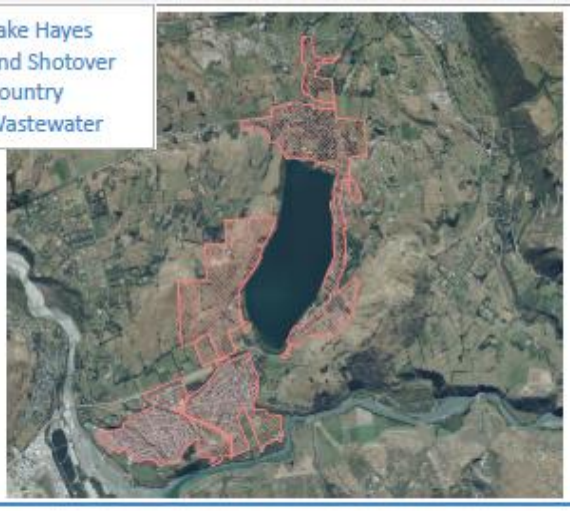
Total Capital Expenditure 2021/22 to 2030/31: $1,464,122

Major Projects:

Wastewater Renewals;

Pumpstation Capacity Upgrades;

Lake Hayes and Shotover Country Wastewater



Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater conveyance and storage;

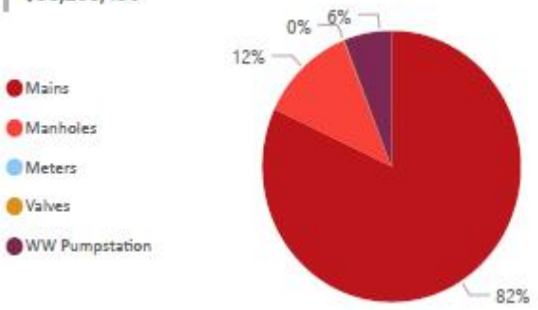
Providing capacity for growth in the wastewater service area.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	2,003	2,039
Total Visitors (Peak Day)	4,117	4,196
Residents	4,910	4,959

Network Asset Value

$38,208,490



Network Asset Counts

WW Pumpstation
11
Valves
30
Manholes
820

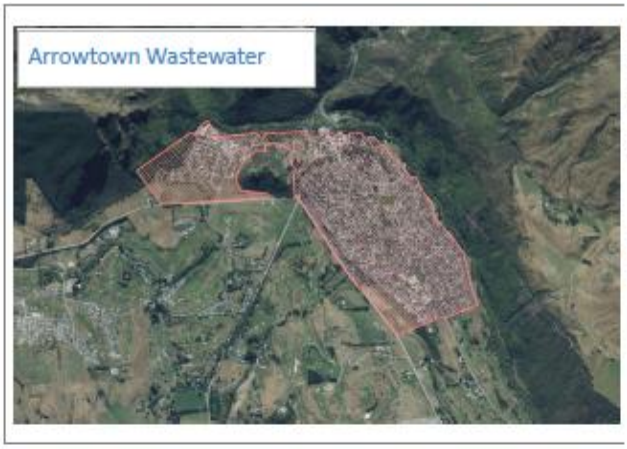
Network Asset Lengths (m)

GRAV
39,153
LATGRAV
15,742
RISING
13,526
TRUNK
3,776

Total Capital Expenditure 2021/22 to 2030/31: $7,947,795

Major Projects:

Network Optimisation;
Ladies Mile Wastewater Scheme;
Wastewater Renewals;
Masterplanning and Hydraulic Modeling



Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater conveyance and storage;

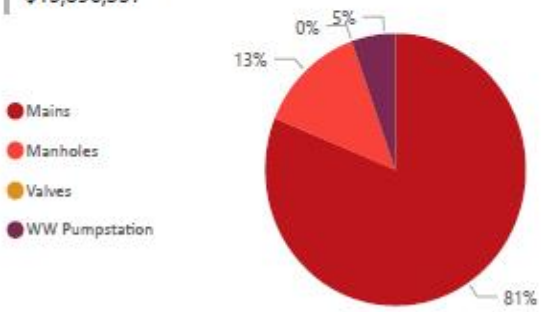
Providing capacity for growth in the wastewater service area.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	1,536	1,677
Residents	2,872	3,112
Total Visitors (Peak Day)	3,463	3,780

Network Asset Value

$15,896,357



Network Asset Counts

Valves
2
WW Pumpstation
4
Manholes
521

Network Asset Lengths (m)

GRAV
26,011
LATGRAV
5,241
RISING
4,245
TRUNK
656
VENT
31

Total Capital Expenditure 2021/22 to 2030/31: $6,733,341

Major Projects:

Network Optimisation;
Wastewater Renewals;
Masterplanning and Hydraulic Modeling

Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater conveyance, storage and treatment;

Providing capacity for growth in the wastewater service area.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

Demand variable	2020	2050
Total Rating Units	1,030	1,979
Residents	1,265	3,221
Total Visitors (Peak Day)	1,802	3,994

Schemes Serviced: Lake Hawea

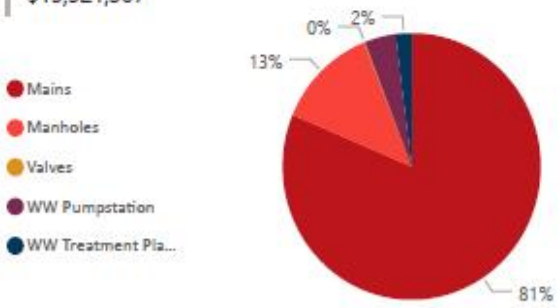
Treatment: Natural aerobic digestion enhanced with aerators prior to filtration through stone media in soakage trench.

Resource Consents:
Exp. 12/11/2022
Current Volume Limits:
775 m3/day

Wastewater Production Volume

Network Asset Value

$15,521,307



Network Asset Counts

WW Treatment Plant	1
WW Pumpstation	4
Valves	10
Manholes	376

Network Asset Lengths (m)

GRAV	20,602
LATGRAV	5,756
RISING	2,661
TRUNK	761
OUTFALL	49
LATPRES	27

Total Capital Expenditure 2021/22 to 2030/31: $27,461,217

Major Projects:

Wastewater Treatment Options;
Wastewater Renewals;
Pumpstation Capacity and Emergency Storage;
Masterplanning and Hydraulic Modeling

Key Strategic Drivers

Protecting the natural environment and public health through effective wastewater conveyance, storage and treatment;

Providing capacity for growth in the wastewater service area.

Properties Serviced, Resident, and Visitor Population Growth From 2020 to 2050

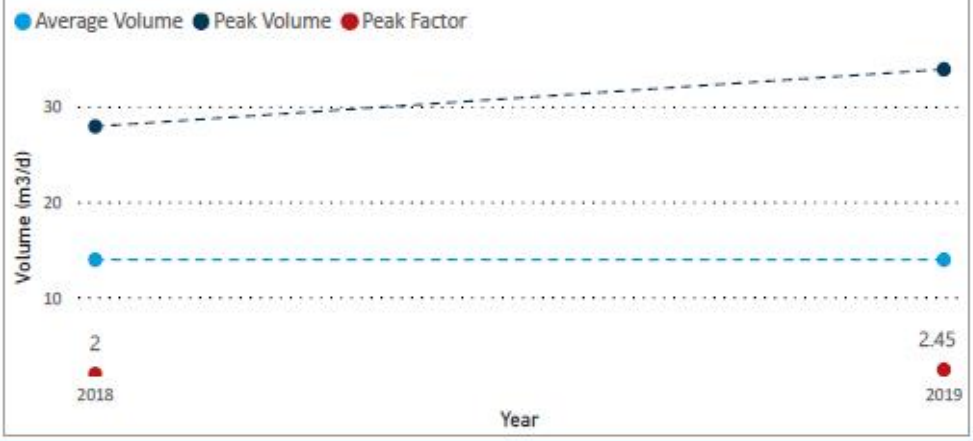
Demand variable	2020	2050
Total Rating Units	519	1,092
Residents	655	1,419
Total Visitors (Peak Day)	1,453	4,106

Schemes Serviced: Cardrona

Treatment: Fixed Active Sludge treatment system

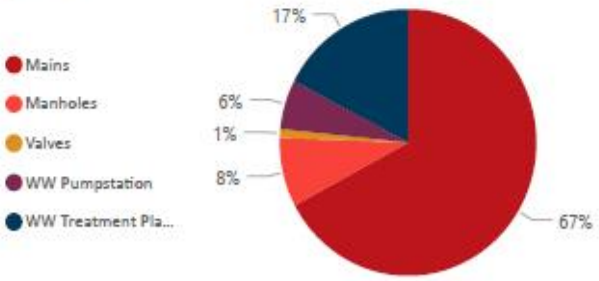
Resource Consents:
Exp. 01/06/2021
Current Volume Limits:
34 m3/day

Wastewater Production Volume



Network Asset Value

$2,069,683



Network Asset Counts

WW Pumpstation	1
WW Treatment Plant	1
Manholes	17
Valves	17

Network Asset Lengths (m)

RISING	1,129
LATGRAV	1,000
GRAV	933

Total Capital Expenditure 2021/22 to 2030/31: $15,167,209

Major Projects:

Wastewater Treatment Options;
Service scheme extension;
Masterplanning and Hydraulic Modeling

7.1.3 URBAN BOUNDARIES

"Urban environment" is defined in the National Policy Statement - Urban Development Capacity as:

"*Means an area of land containing, or intended to contain, a concentrated settlement of 10,000 people or more and any associated business land, irrespective of local authority or statistical boundaries*".

In Council's view, there are two 'urban environments' in the District that are made up of the following sub-areas:

Queenstown Urban Environment: Sunshine Bay, Queenstown Bay, Queenstown Hill, Frankton, Frankton East, Arthurs Point, Kelvin Heights, Lake Hayes South, Arrowtown, Hanley's Farm and Jacks Point; and

Wānaka Urban Environment: Wānaka, Albert Town, Luggate and Hāwea.

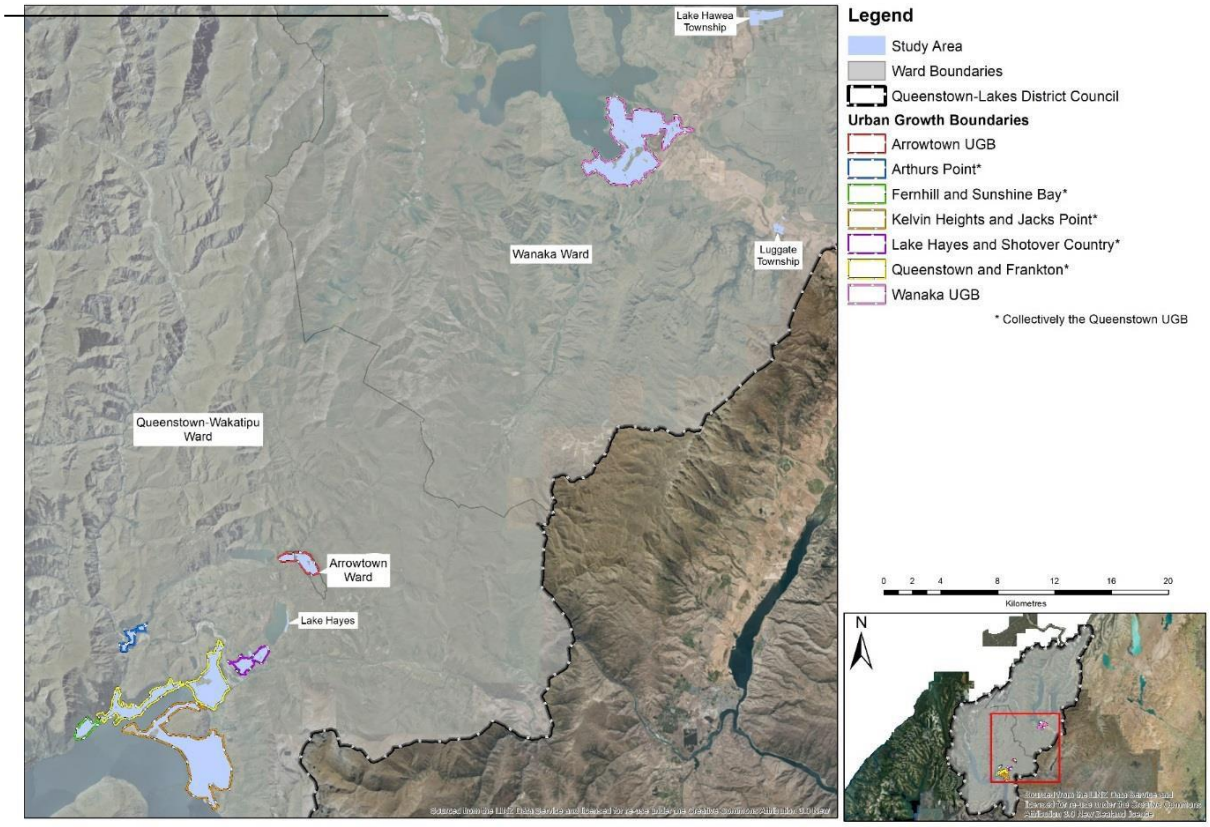
In the Wakatipu Basin the pattern of urban settlement is dominated by large mountains, lakes and rivers with significant landscape values, making it complex to apply the NPS-UDC. Although not a 'concentrated settlement' in the phrase's ordinary dictionary meaning, the urban environment of Queenstown is grouped around and interrupted by these natural features. Council considers that the most practical approach to the anomaly presented by how Queenstown has developed in its particular physical geography and landscape, is to treat the collection of areas that together function as a single urban environment as a 'concentrated settlement' for the purposes of the NPS-UDC definition of 'urban environment'. This includes Arrowtown given its location within the Wakatipu Basin and that practically it functions as part of this same Queenstown 'urban environment'. This urban environment falls within the extent of the Queenstown-Wakatipu and Arrowtown Wards (SNZ), which are collectively referred to as the Wakatipu Ward for this report.

To a lesser extent compared to Queenstown, the pattern of urban settlement in the Upper Clutha Basin is also dominated by large mountains, lakes and rivers, again making the application of the NPS-UDC to the local geography, difficult. The urban area at the southern extent of Lake Hāwea and in Luggate function as part of Wānaka, and in the Council's view form part of the Wānaka urban environment. However, Makarora does not function as part of Wānaka and is excluded.

The above approach helps define the urban environment for the purpose of the BDCA (and HDCA). The first principal for defining the urban environment was the land within the Urban Growth Boundaries (UGB) defined in the PDP. Zones outside these boundaries were then included on the basis of their economic and social relationships with the UGB areas; whether they contained urban-like densities; their proximity to existing urban areas; or levels of existing or planned servicing. These zones include the non-rural zones in Hawea (but excluding Hawea Flat), Luggate and also the Low Density Residential (LDR) zone adjacent to Lake Hayes.

The geographic scope of the detailed modelling and analysis of business demand and capacity in QLD, identified in this report, is limited to this urban environment[4]. Other areas that have not been modelled, but are reported on at a high-level in terms of business land capacity, include the Kingston and Glenorchy Township Zones, Kingston Special Zones within the Operative District Plan, Cardrona' s Operative and Special Zone and commercial capacities within the approved Special Housing Areas (SHAs): Bridesdale, Queenstown Country Club and Arrowtown Retirement Village. These are discussed further in sections 2.4 and 2.5. Council acknowledge that although not technically falling within the definition of "urban environment" these areas have a zoning which is anticipated to result in development of an urban nature.

Figure 30: QLDC NPS-UDC Urban Environment Study Area



3 Capacity outside of the urban environment has not been modelled in any detail but is discussed at a high level.

7.2 CONSENTS

Further to the legislation discussed in section 2, the primary driver of Three Waters statutory requirements is driven by compliance with the Resource Management Act 1991 (RMA), which requires;

Resource consents for **water supplies** are required for the abstraction of natural water that is used for public supplies. These stipulate the volume of the water that can be taken on a daily or weekly basis and a maximum rate of extraction (litres per second).

Resource consents for **wastewater** are required for the discharge of treated wastewater, into or onto land, into the air or into water.

Resource consents for **stormwater** relate to discharge structures and river/stream diversions as a means to mitigate flooding risks. QLDC is not currently required to have resource consents for most discharges of stormwater to the environment as these discharges are considered to be permitted by the Regional Plan: Water for Otago. Impending updates to the Otago Regional Council Water Quality Strategy are likely to result in changes to the Regional Plan, potentially requiring QLDC stormwater discharges to be consented.

Under the Three Waters Contract consent compliance is maintained as follows:

- The Council shall fully comply with the RMA and the conditions of resource consents that apply to each scheme.
- The Council is responsible for applying for new resource consents that are due to expire. In some instances a new resource consent may be applied for well in advance of the expiry date where current and projected demands require an increase in the rate of abstraction and/or an alteration to an existing designation.
- The Council shall gather and collect data required by the resource consent conditions and complete reports as required.
- The Council shall report the monitoring results to Otago Regional Council to demonstrate compliance with resource consent conditions.

As mentioned earlier, the Department of Internal Affairs has introduced mandatory non-financial performance measures. These measures are reported in QLDCs Annual Report, the latest beginning in 2019/20. Two of these measures are in direct correlation to resource consents:

7.2.1 WASTEWATER PERFORMANCE MEASURE 2

Compliance with the territorial authority's resource consents for discharge from its sewerage system measured by the number of:

- Abatement notices;
- Infringement notices;
- Enforcement orders; and
- Convictions, received by the territorial authority in relation those resource consents.

This performance measure indicates how well Council is managing the environmental impacts of its sewerage system. Non-compliance may indicate that it is not managing its processes adequately or that the infrastructure is inadequate. Council has to report on only formal actions taken against them as these represent activities that may have the greatest adverse impact on the environment. Minor breaches or technical non-compliances would not be reported against this measure.

7.2.2 STORMWATER PERFORMANCE MEASURE 2

Compliance with the territorial authority's resource consents for discharge from its stormwater system, measured by the number of:

- Abatement notices; and
- Infringement notices; and
- Enforcement orders; and
- Successful prosecutions, received by the territorial authority in relation those resource consents.

The performance measure indicates the extent to which Council is meeting resource consent requirements to prevent harm to the environment. This means how well Council is managing the environmental impacts of its stormwater system. Non-compliance with consent conditions may indicate that Council is not managing its processes adequately or that the infrastructure is no longer adequate. Council would have to report on only formal actions taken against them as these represent actions that may have the greatest adverse impacts on the environment.

Tables 4 through 7: Report all current QLDC consents in relation to the Three Waters activities:

Table 4: Current QLDC Water Take Consents

RM14.278.01	19/01/2050	HAWEA, APPROXIMATELY 130 METRES NORTH EAST FLORA DORA PARADE AND CAPELL AVENUE	TO TAKE AND USE GROUNDWATER FROM THE HAWEA BASIN AQUIFER FOR THE PURPOSE OF HAWEA COMMUNITY WATER SUPPLY
2008.235	1/11/2043	LAKE HAWEA, APPROXIMATELY 240 METRES NORTH WEST OF THE INTERSECTION OF ACCESSWAY ROAD AND DOMAIN ROAD, HAWEA.	TO TAKE AND USE WATER AS PRIMARY ALLOCATION FOR THE PURPOSE OF COMMUNITY SUPPLY.
RM17.290.01		GLENDHU BAY	TO TAKE 8 LITRES PER SECOND FROM LAKE WĀNAKA FOR THE PURPOSE OF SUPPLYING GLENDHU BAY MOTOR CAMP WITH DOMESTIC WATER.
2008.459	5/11/2043	LAKE WĀNAKA, IMMEDIATELY TO THE SOUTH EAST OF THE WATERFALL CREEK RECREATION RESERVE, APPROXIMATELY 680 METRES NORTH WEST OF THE INTERSECTION OF SARGOOD DRIVE AND SUNRISE BAY DRIVE, WĀNAKA.	TO TAKE AND USE WATER AS PRIMARY ALLOCATION FROM LAKE WĀNAKA FOR THE PURPOSE OF COMMUNITY SUPPLY.
2008.460	5/11/2043	LAKE WĀNAKA, AT BEACON POINT, APPROXIMATELY 1.2 KILOMETRES NORTH EAST OF THE INTERSECTION OF MT GOLD PLACE AND MINARET RIDGE, WĀNAKA.	TO TAKE AND USE WATER AS PRIMARY ALLOCATION FROM LAKE WĀNAKA FOR THE PURPOSE OF COMMUNITY SUPPLY.
95632	1/09/2025	ROYS BAY, WĀNAKA.	TO TAKE 13,515 CUBIC METRES OF WATER PER DAY FROM LAKE WĀNAKA FOR THE PURPOSE OF A COMMUNITY SUPPLY FOR WĀNAKA AND ALBERT TOWN COMMUNITIES.
RM19.097.01	01/06/2041	BORE ON WESTERN CORNER OF WĀNAKA AIRPORT PROPERTY. (WELL NO. G400103)	TO TAKE 240,000 LITRES OF GROUNDWATER PER DAY AT A MAXIMUM RATE OF 2.8 LITRES PER SECOND FOR THE PURPOSE OF IRRIGATION, PUBLIC AMENITY SUPPLY AND DOMESTIC SUPPLY TO LEASEHOLD SITES WITHIN THE WĀNAKA AIRPORT PROPERTY.

RM11.177.01	30/08/2036	WĀNAKA, APPROXIMATELY 900 METRES NORTH WEST OF THE INTERSECTION OF BALLANTYNE ROAD AND THE WĀNAKA-LUGGATE HIGHWAY (STATE HIGHWAY 6).	TO TAKE AND USE GROUNDWATER FROM THE WĀNAKA BASIN CARDRONA GRAVEL AQUIFER FOR THE PURPOSE OF COMMUNAL DOMESTIC SUPPLY, COMMERCIAL AND INDUSTRIAL USE.
2009.158	2/12/2044	LOCATION OF POINT OF ABSTRACTIONS: 2 BORES, APPROXIMATELY 410 METRES SOUTHEAST OF THE INTERSECTION OF MULL STREET AND INVINCIBLE DRIVE, GLENORCHY.	TO TAKE AND USE GROUNDWATER FOR THE PURPOSE OF COMMUNITY SUPPLY.
2008.464	14/11/2043	APPROXIMATELY 160 METRES NORTH EAST OF THE INTERSECTION OF LUGGATE-CROMWELL ROAD (STATE HIGHWAY 6) AND PISA ROAD, LUGGATE.	TO TAKE AND USE GROUNDWATER FOR THE PURPOSE OF COMMUNITY SUPPLY.
2001.822	20/05/2027	RUTHERFORD ROAD, LAKE HAYES	FOR THE PURPOSE OF A COMMUNITY WATER SUPPLY
RM14.077	23/04/2039	LAKE HAYES, APPROXIMATELY 445 METRES SOUTH EAST OF THE INTERSECTION OF WIDGEON PLACE, ONSLOW ROAD, QUILL STREET AND RERE ROAD, QUEENSTOWN	TO TAKE AND USE GROUNDWATER FOR THE PURPOSE OF COMMUNITY WATER SUPPLY

RM16.142.01	01/10/2048	QUEENSTOWN, APPROXIMATELY 540 METRES SOUTH SOUTHEAST OF THE INTERSECTION OF OLD SCHOOL ROAD AND FRANKTON-LADIES MILE HIGHWAY (STATE HIGHWAY 6)	TO TAKE AND USE GROUND WATER FOR THE PURPOSE OF COMMUNITY SUPPLY
2007.665	1/02/2042	APPROXIMATELY 500 METRES SOUTH WEST OF THE INTERSECTION OF FERNHILL ROAD AND GLENORCHY-QUEENSTOWN ROAD, QUEENSTOWN	TO TAKE AND USE WATER AS PRIMARY ALLOCATION FROM LAKE WAKATIPU FOR THE PURPOSE OF COMMUNITY SUPPLY.
2004.552	1/04/2040	LAKE WAKATIPU, KELVIN HEIGHTS INTAKE STRUCTURE, PENINSULA ROAD QUEENSTOWN	TO TAKE AND USE SURFACE WATER FOR THE PURPOSE OF A COMMUNITY WATER SUPPLY
2005.762	1/12/2042	ADJACENT TO THE SHOTOVER RIVER, APPROXIMATELY 500 METRES UPSTREAM OF THE EDITH CAVELL BRIDGE, ARTHURS POINT, QUEENSTOWN.	TO TAKE AND USE GROUNDWATER FOR THE PURPOSE OF A COMMUNITY WATER SUPPLY.
2007.049	1/10/2021	ARROWTOWN	TO TAKE AND USE SURFACE WATER AS PRIMARY ALLOCATION FROM THE CONFLUENCE OF BUSH CREEK AND THE ARROW RIVER.

Table 5: Current QLDC Bore Consents

RM16.143.01	NO EXPIRY	SITE 1: CARDRONA, APPROXIMATELY 280 METRES SOUTH OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PROSPECTORS LANESITE 2: CARDRONA, APPROXIMATELY 430 METRES SOUTH OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PROSPECTORS LANESITE 3: CARDRONA, APPROXIMATELY 350 METRES SOUTH SOUTHEAST OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PROSPECTORS LANESITE 4: CARDRONA, APPROXIMATELY 670 METRES SOUTH SOUTHEAST OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PROSPECTORS LANESITE 5: CARDRONA, APPROXIMATELY 750 METRES SOUTH SOUTHWEST OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PROSPECTORS LANESITE 6: CARDRONA, APPROXIMATELY 840 METRES SOUTH SOUTHEAST OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PROSPECTORS LANESITE 7: CARDRONA, APPROXIMATELY 770 METRES SOUTH SOUTHWEST OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PROSPECTORS LANESITE 8: CARDRONA, APPROXIMATELY 1 KILOMETRE SOUTH SOUTHWEST OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PROSPECTORS LANESITE 9: CARDRONA, APPROXIMATELY 200 Refer to CSVUE for full text	TO DRILL UP TO NINE DRILL HOLES AND TO CONSTRUCT UP TO THREE BORES FOR THE PURPOSE OF ACCESSING GROUNDWATER
RM14.224.01		QUEENSTOWN, APPROXIMATELY 92 METRES NORTH EAST OF THE INTERSECTION OF THE TUCKER BEACH ROAD AND SHOTOVER DELTA ROAD	TO CONSTRUCT UP TO SIX BORES FOR THE PURPOSE OF ACCESSING GROUNDWATER

RM14.254.01		QUEENSTOWN, APPROXIMATELY 520 METRES SOUTH EAST OF THE INTERSECTION OF OLD SCHOOL ROAD AND FRANKTON-LADIES MILE HIGHWAY (STATE HIGHWAY 6)	TO CONSTRUCT UP TO 6 BORES FOR THE PURPOSE OF ACCESSING GROUNDWATER
RM14.223.01		QUEENSTOWN, APPROXIMATELY 500 METRES SOUTH EAST OF THE INTERSECTION OF ONSLOW ROAD AND QUILL STREET	TO CONSTRUCT UP TO SIX BORES FOR THE PURPOSE OF ACCESSING GROUNDWATER FOR A UNLIMITED TERM
RM13.072.01		ARTHURS POINT, APPROXIMATELY 370 METRES NORTH WEST OF THE INTERSECTION OF OXENBRIDGE TUNNEL ROAD AND ARTHURS POINT ROAD, QUEENSTOWN	TO CONSTRUCT A BORE FOR THE PURPOSE OF ACCESSING GROUNDWATER
RM11.141.01		QUEENSTOWN, APPROXIMATELY 200 METRES WEST OF THE INTERSECTION OF LAKE AVENUE AND BIRSE STREET	QUEENSTOWN, APPROXIMATELY 200 METRES WEST OF THE INTERSECTION OF LAKE AVENUE AND BIRSE STREET
RM11.140.01		WĀNAKA, APPROXIMATELY 895 METRES NORTHWEST FROM THE INTERSECTION OF RUBY ISLAND ROAD AND MOUNT ASPIRING ROAD	TO CONSTRUCT UP TO 2 BORES FOR THE PURPOSE OF ACCESSING GROUNDWATER
RM11.140.02		WĀNAKA, APPROXIMATELY 70 METRES WEST FROM THE INTERSECTION OF LAKESIDE ROAD AND TRAMORE STREET	TO CONSTRUCT UP TO 2 BORES FOR THE PURPOSE OF ACCESSING GROUNDWATER
RM11.027.01		BEACON POINT WĀNAKA, APPROXIMATELY 2.3 KILOMETRES NORTH WEST OF THE INTERSECTION OF OUTLET ROAD AND AUBREY ROADPEMBROKE PARK WĀNAKA, APPROXIMATELY 160 METRES SOUTH WEST OF THE INTERSECTION OF DUNGARVON STREET AND ARDMORE STREETSCOTTS BEACH, LAKE HAWEA, APPROXIMATELY 150 METRES SOUTH EAST OF THE INTERSECTION OF CAPELL AVENUE AND FLORADORA PARADE	TO CONSTRUCT UP TO 10 BORES FOR THE PURPOSE OF GROUND WATER INVESTIGATION
2010.246		WĀNAKA, APPROXIMATELY 945 METRES EAST SOUTHEAST OF THE INTESECTION OF WĀNAKA- MOUNT ASPIRING ROAD AND MOTATAPU ROAD, WĀNAKA	TO CONSTRUCT A BORE FOR A WET WELL PUMP STATION AT THE GLENDHU BAY WATER SUPPLY INTAKE PIPELINE
2010.115		APPROXIMATELY 120 METRES NORTHEAST OF THE INTERSECTION OF HAWEA CONTROL STRUCTURE ROAD AND DOMAIN ROAD, LAKE HAWEA	TO CONSTRUCT A BORE FOR THE PURPOSE OF ACCESSING GROUNDWATER FOR AN UNLIMITED TERM
2010.116		APPROXIMATELY 460 METRES EAST NORTHEAST OF THE INTERSECTION OF MUIR ROAD AND CHARLES COURT, LAKE HAWEA	TO CONSTRUCT A BORE FOR THE PURPOSE OF ACCESSING GROUNDWATER FOR AN UNLIMITED TERM

2010.117		APPROXIMATELY 130 METRES EAST OF THE INTERSECTION OF FLORA DORA PARADE AND SCOTTS BEACH ROAD, LAKE HAWEA	TO CONSTRUCT A BORE FOR THE PURPOSE OF ACCESSING GROUNDWATER FOR AN UNLIMITED TERM
2008.462		APPROXIMATELY 212 METRES NORTHEAST OF THE INTERSECTION OF WILLOW PLACE AND PENINSULA ROAD, QUEENSTOWN.	TO CONSTRUCT A BORE FOR THE PURPOSE OF CONSTRUCTING A WET WELL FOR AN UNLIMITED TERM.

2008.219		IMMEDIATELY WEST OF THE INTERSECTION OF LAKESIDE ROAD AND AUBREY ROAD, WĀNAKA.	TO CONSTRUCT A BORE FOR THE PURPOSE OF DEWATERING A CONSTRUCTION SITE.
2008.142		JUBILEE PARK, APPROXIMATELY 180 METRES SOUTH EAST OF THE INTERSECTION OF VEINT CRESCENT AND PARK STREET, QUEENSTOWN.	FOR THE PURPOSE OF GEOTECHNICAL INVESTIGATION FOR AN UNLIMITED TERM.
2007.649		AT FOUR SITES AROUND THE INTERSECTION OF COAL-PIT ROAD AND GIBBSTON BACK ROAD INTERSECTION, GIBBSTON.	TO CONSTRUCT UP TO FOUR BORES FOR THE PURPOSE OF MONITORING GROUNDWATER.
2007.647		THE CONFLUENCE OF THE KAWARAU RIVER AND THE SHOTOVER RIVER APPROXIMATELY 1.8 KILOMETRES SOUTH EAST OF THE INTERSECTION OF GLENDA DRIVE AND MARGARET PLACE, LOWER SHOTOVER, QUEENSTOWN	TO CONSTRUCT A BORE FOR THE PURPOSE OF INVESTIGATING AND MONITORING A RIVER DELTA.
2007.136		APPROXIMATELY 90 METRES SOUTH-EAST OF THE INTERSECTION OF KENT STREET AND GLOUCESTER STREET, KINGSTON	TO CONSTRUCT A BORE FOR THE PURPOSE OF TAKING GROUNDWATER
2007.144		WATER SUPPLY BORE: APPROXIMATELY 100 METRES EAST OF THE INTERSECTION OF LUGGATE ROAD AND BALLANTYNE ROAD, ALBERT TOWN, WĀNAKA.	TO CONSTRUCT A BORE FOR THE PURPOSE OF TAKING GROUNDWATER TO CONSTRUCT TWO BORES FOR THE PURPOSE OF GROUNDWATER MONITORING, FOR AN UNLIMITED TERM.
2004.981		APPROXIMATELY 750 METRES WEST OF THE CLUTHA RIVER AND 1250 METRES NORTH OF STATE HIGHWAY 6, WĀNAKA AERODROME, WĀNAKA	TO CONSTRUCT A BORE FOR THE PURPOSE OF GROUNDWATER MONITORING
2004.982		APPROXIMATELY 750 METRES WEST OF THE CLUTHA RIVER AND 1250 METRES NORTH OF STATE HIGHWAY 6, WĀNAKA AERODROME, WĀNAKA	TO CONSTRUCT A BORE FOR THE PURPOSE OF GROUNDWATER MONITORING FOR AN UNLIMITED TERM
2007.328		APPROXIMATELY 170 METRES SOUTH OF THE INTERSECTION OF STATE HIGHWAY 6 AND VICTORIA FLATS ROAD, GIBBSTON.	TO CONSTRUCT A BORE FOR THE PURPOSE OF TAKING GROUNDWATER.
RM17.280.01		WĀNAKA, APPROXIMATELY 200 METRES NORTH WEST OF THE INTERSECTION OF MARINA ACCESS AND LAKESIDE ROAD	TO CONSTRUCT 3 PIEZOMETER/MONITORING WELLS FOR THE PURPOSE OF GEOTECHNICAL INVESTIGATION

Table 6: Current QLDC Wastewater Consents

RM13.215.01	18/03/2044	QUEENSTOWN, APPROXIMATELY 1.2 KILOMETRES SOUTH SOUTHEAST OF THE INTERSECTION OF SHOTOVER DELTA ROAD AND FRANKTON-LADIES MILE HIGHWAY (STATE HIGHWAY 6)	TO DISCHARGE CONTAMINANTS TO AIR FOR THE PURPOSE OF OPERATING THE QUEENSTOWN WASTE WATER TREATMENT PLANT
RM13.215.03	31/12/2031	QUEENSTOWN, APPROXIMATELY 1.2 KILOMETRES SOUTH SOUTHEAST OF THE INTERSECTION OF SHOTOVER DELTA ROAD AND FRANKTON-LADIES MILE HIGHWAY (STATE HIGHWAY 6)	TO DISCHARGE TREATED WASTEWATER TO LAND

2008.238	18/03/2044	QUEENSTOWN, APPROXIMATELY 1.2 KILOMETRES SOUTH SOUTHEAST OF THE INTERSECTION OF SHOTOVER DELTA ROAD AND FRANKTON-LADIES MILE HIGHWAY (STATE HIGHWAY 6)	TO DISCHARGE TREATED WASTEWATER TO LAND
RM13.073.01	12/03/2043	AREA A: WĀNAKA AIRPORT, APPROXIMATELY 650 METRES EAST OF THE INTERSECTION OF WĀNAKA-LUGGATE HIGHWAY (STATE HIGHWAY 6) AND MOUNT BARKER ROADAREA B: WĀNAKA AIRPORT, APPROXIMATELY 540 METRES NORTHEAST OF THE INTERSECTION OF WĀNAKA-LUGGATE HIGHWAY (STATE HIGHWAY 6) AND MOUNT BARKER ROADAREA C: WĀNAKA AIRPORT, APPROXIMATELY 655 METRES NORTHEAST OF THE INTERSECTION OF WĀNAKA-LUGGATE HIGHWAY (STATE HIGHWAY 6) AND MOUNT BARKER ROAD	TO DISCHARGE CONTAMINANTS TO AIR, NAMELY ODOUR AND AEROSOLS, FOR THE PURPOSE OF DISPOSAL OF WASTEWATER FROM THE WĀNAKA WASTEWATER TREATMENT PLANT BY SPRINKLER IRRIGATION AT WĀNAKA AIRPORT
RM13.073.02	12/03/2043	AREA A: WĀNAKA AIRPORT, APPROXIMATELY 650 METRES EAST OF THE INTERSECTION OF WĀNAKA-LUGGATE HIGHWAY (STATE HIGHWAY 6) AND MOUNT BARKER ROADAREA B: WĀNAKA AIRPORT, APPROXIMATELY 540 METRES NORTHEAST OF THE INTERSECTION OF WĀNAKA-LUGGATE HIGHWAY (STATE HIGHWAY 6) AND MOUNT BARKER ROADAREA C: WĀNAKA AIRPORT, APPROXIMATELY 655 METRES NORTHEAST OF THE INTERSECTION OF WĀNAKA-LUGGATE HIGHWAY (STATE HIGHWAY 6) AND MOUNT BARKER ROAD	TO DISCHARGE TREATED WASTEWATER TO LAND FOR THE PURPOSE OF DISPOSAL OF WASTEWATER FROM THE WĀNAKA WASTEWATER TREATMENT PLANT
RM16.064.01	1/06/2021	CARDRONA, APPROXIMATELY 140 METRES SOUTH OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PROSPECTORS LANE	TO DISCHARGE TREATED DOMESTIC AND COMMERCIAL WASTEWATER TO LAND FOR THE PURPOSE OF DISPOSAL OF WASTEWATER FROM THE CARDRONA WASTEWATER TREATMENT PLANT
RM10.308.01	12/11/2022	LAKE HAWEA, APPROXIMATELY 600 METRES SOUTH OF THE INTERSECTION OF DOMAIN ROAD AND CEMETERY ROAD	TO DISCHARGE CONTAMINANTS TO AIR FOR THE PURPOSE OF DISCHARGING TREATED WASTEWATER.

RM10.308.02	12/11/2022	LAKE HAWEA, APPROXIMATELY 600 METRES SOUTH OF THE INTERSECTION OF DOMAIN ROAD AND CEMETERY ROAD	TO DISCHARGE CONTAMINANTS TO LAND FOR THE PURPOSE OF DISCHARGING TREATED WASTEWATER.
2010.24	30/10/2045	GLENDHU BAY CAMPING GROUND, APPROXIMATELY 780 METRES EAST SOUTHEAST OF THE INTERSECTION OF WĀNAKA-MOUNT ASPIRING ROAD AND MOTATAPU ROAD, WĀNAKA	TO DISCHARGE ODOUR TO AIR FOR THE PURPOSE OF OPERATING WASTEWATER DISPOSAL SYSTEM.
2010.239	30/10/2045	GLENDHU BAY CAMPING GROUND, APPROXIMATELY 780 METRES EAST SOUTHEAST OF THE INTERSECTION OF WĀNAKA-MOUNT ASPIRING ROAD AND MOTATAPU ROAD, WĀNAKA	TO DISCHARGE TREATED WASTEWATER TO LAND FOR THE PURPOSE OF DISPOSAL OF WASTEWATER FROM GLENDHU BAY CAMPING GROUND.
2005.485	30/09/2041	NORTH-NORTH-WEST OF THE EXISTING WĀNAKA AIRPORT BUILDING, APPROXIMATELY 1,600 METRES SOUTH-WEST OF THE CLUTHA RIVER/MATA-AU AND 800 METRES NORTH OF STATE HIGHWAY 6, APPROXIMATELY 8 KILOMETRES SOUTH-EAST OF WĀNAKA AND ALBERT TOWN AND 4 KILOMETRES NORTH-WEST OF LUGGATE.	TO DISCHARGE CONTAMINANTS INTO AIR FROM WASTEWATER TREATMENT, FOR THE PURPOSE OF OPERATING THE WĀNAKA BASIN WASTEWATER TREATMENT AND DISPOSAL SYSTEM.
2005.484	30/09/2041	NORTH-NORTH-WEST OF THE EXISTING WĀNAKA AIRPORT BUILDING, APPROXIMATELY 1,600 METRES SOUTH-WEST OF THE CLUTHA RIVER/MATA-AU AND 800 METRES NORTH OF STATE HIGHWAY 6, APPROXIMATELY 8 KILOMETRES SOUTH-EAST OF WĀNAKA AND ALBERT TOWN AND 4 KILOMETRES NORTH-WEST OF LUGGATE.	TO DISCHARGE TREATED WASTEWATER TO LAND FOR THE PURPOSE OF DISPOSAL OF WASTEWATER FROM THE WĀNAKA BASIN WASTEWATER TREATMENT AND DISPOSAL SYSTEM.

2002.578	1/12/2022	ALBERT TOWN RECREATIONAL RESERVE. APPROXIMATELY 1.38 KILOMETRES SOUTH WEST OF THE INTERSECTION OF LAKE HAWEA-ALBERT TOWN ROAD AND DUBLIN BAY ROAD.	TO DISCHARGE UP TO 5 CUBIC METRES PER DAY OF TREATED SEWAGE TO LAND. FOR THE PURPOSE OF DISPOSING OF SEPTIC TANK EFFLUENT.
94228	1/10/2020	ARROWTOWN-FRANKTON	TO VENT THE ARROWTOWN-FRANKTON SEWER AT FOUR POINTS THROUGH BIOFILTERS AND AT THE FRANKTON SEWAGE TREATMENT PLAN MILLISCREEN GREASE TRAP.
RM20.109.01	13/05/20	WĀNAKA, APPROXIMATELY 110 METRES NORTH WEST OF THE INTERSECTION OF LAKESIDE ROAD AND EELY POINT ROAD.	TO DISCHARGE CONTAMINANTS TO AIR FOR THE PURPOSE OF OPERATING A STANDBY GENERATOR AT A SEWAGE PUMP STATION.

Table7: Current QLDC Other Consents – watercourse Diversion, Stream Work etc.

RM17.019.01	1/09/2047	UNNAMED TRIBUTARY OF LAKE WAKATIPU, APPROXIMATELY 110 METRES NORTH NORTHWEST OF THE INTERSECTION OF KENT STREET AND GLOUCESTER STREET, KINGSTON	To disturb the bed of an unnamed tributary of Lake Wakatipu for the purpose of stream maintenance
RM11.163	1/07/2046	MATUKITUKI RIVER	TO DIVERT FLOOD WATER WITHIN THE MATUKITUKI RIVER FOR THE PURPOSE OF PROTECTING AN EXISTING ROAD
RM11.005.02	28/02/2036	VON RIVER AND STATION BURN, MT NICHOLAS STATION, VON ROAD APPROXIMATELY 6.5KM SOUTH WEST FROM INTERSECTION WITH MT NICHOLAS-BEACH BAY ROAD, MT NICHOLAS	TO DISCHARGE SEDIMENT TO THE VON RIVER AND STATION BURN FOR THE PURPOSE OF INSTREAM WORKS ASSOCIATED WITH FLOOD PROTECTION WORKS
RM11.005.01	28/02/2036	VON RIVER, MT NICHOLAS STATION, VON ROAD APPROXIMATELY 6.5KM SOUTH WEST FROM INTERSECTION WITH MT NICHOLAS-BEACH BAY ROAD, MT NICHOLAS	TO TEMPORARILY DIVERT THE VON RIVER FOR THE PURPOSE OF FLOOD PROTECTION WORKS.
RM11.005.03	28/02/2036	VON RIVER, MT NICHOLAS STATION, VON ROAD APPROXIMATELY 6.5KM SOUTH WEST FROM INTERSECTION WITH MT NICHOLAS-BEACH BAY ROAD, MT NICHOLAS	TO TEMPORARILY DIVERT THE VON RIVER FOR THE PURPOSE OF FLOOD PROTECTION WORKS.
RM16.110.01	26/08/2041	PT SEC 13 BLK XX SHOTOVER SD	TO DISTURB THE BED OF AN UNNAMED TRIBUTARY OF HORNE CREEK FOR THE PURPOSE OF MAINTAINING OF THE WATER COURSE
RM16.152	4/07/2051	FRANKTON, APPROXIMATELY 325 METRES NORTH WEST OF THE INTERSECTION OF JOE O'CONNELL DRIVE, FRANKTON-LADIES MILE HIGHWAY (STATE HIGHWAY 6) AND HANSEN ROAD	TO DISCHARGE CONTAMINANTS TO AIR FOR THE PURPOSE OF OPERATING A BACK UP GENERATOR
RM11.361	7/02/2027	AN UNNAMED TRIBUTARY OF LAKE WĀNAKA, GLENDHU BAY, 70 METRES NORTH WEST OF THE INTERSECTION OF THE MOTATAPU AND WĀNAKA-MOUNT ASPIRING ROADS WĀNAKA	TO DISTURB THE BED OF AN UNNAMED TRIBUTARY OF LAKE WĀNAKA FOR THE PURPOSE OF CARRYING OUT MAINTENANCE WORKS. TO DISTURB THE BED OF AN UNNAMED TRIBUTARY OF LAKE WĀNAKA FOR THE PURPOSE OF CARRYING OUT MAINTENANCE WORKS.

RM11.327.02	12/12/2036	UNNAMED TRIBUTARY OF CARDRONA RIVER, APPROXIMATELY 50 METRES EAST OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PRINGLES CREEK ROAD, CARDRONA	TO DISCHARGE CONTAMINANTS, NAMELY SEDIMENT, TO AN UNNAMED TRIBUTARY OF CARDRONA RIVER FOR THE PURPOSE OF DRAINAGE WORKS AND CHANNEL CLEARANCE
2007.638	25/01/2043	AN UNNAMED TRIBUTARY OF THE CLUTHA RIVER/MATA-AU, APPROXIMATELY 1 KILOMETRE NORTH OF THE INTERSECTION OF AUBREY ROAD AND STATE HIGHWAY 6, ALBERT TOWN, WĀNAKA	TO DAM AN UNNAMED TRIBUTARY OF THE CLUTHA RIVER/MATA-AU FOR THE PURPOSE OF ESTABLISHING A STORMWATER MANAGEMENT SYSTEM
RM14.311.01	1/12/2024	LAKE WAKATIPU, APPROXIMATELY 150 METRES SOUTH WEST OF THE INTERSECTION OF BEACH STREET AND PARK STREET, QUEENSTOWN	TO DISTURB AND PLACE A STRUCTURE ON THE BED OF LAKE WAKATIPU FOR THE PURPOSE OF EROSION PROTECTION WORKS
RM11.327.01	12/12/2036	UNNAMED TRIBUTARY OF CARDRONA RIVER, APPROXIMATELY 50 METRES EAST NORTH EAST OF THE INTERSECTION OF CARDRONA VALLEY ROAD AND PRINGLES CREEK ROAD	TO CONSTRUCT TWO NEW CULVERTS, TO ALTER EXTEND AND REPLACE EXISTING CULVERTS AND TO DISTURB THE BED OF AN UNNAMED TRIBUTARY OF CARDRONA RIVER FOR THE PURPOSE OF DRAINAGE WORKS AND CHANNEL CLEARANCE.
2000.548B		QUEENSTOWN GARDENS, FROM THE BEACON ON THE SOUTH SIDE OF GARDENS FOR DISTANCE OF APPROXIMATELY 270 METRES TOWARDS PARK STREET, QUEENSTOWN	TO RECLAIM THE BED OF LAKE WAKATIPU FOR THE PURPOSE OF FORESHORE PROTECTION
2003.836	8/06/2039	BULLOCK CREEK, BETWEEN DUNMORE AND BROWNSTON STREETS, WĀNAKA	TO DISTURB THE BED, PLACE ROCK AND REPLACE A BRIDGE OVER BULLOCK CREEK FOR THE PURPOSE OF BANK STABILISATION AND ACCESS OVER THE CREEK.
2004.062	31/03/2039	OLEARYS PADDOCK, SUNSHINE BAY, QUEENSTOWN	TO DIVERT A WATERCOURSE THROUGH A PIPE FOR THE PURPOSE OF REDUCING FLOODING OF PROPERTIES
2002.267	1/06/2032	UNNAMED WATERCOURSE THROUGH LOWER STEWART STREET AND LOCAL PURPOSE RESERVE AT FRANKTON MOTOR CAMP, LAKE AVENUE, FRANKTON	TO DIVERT A SECTION OF A WATERCOURSE FOR THE PURPOSE OF EROSION PREVENTION.
2002.164	26/04/2037	BENDEMEER BAY RESERVE	TO DISTURB THE CREEKBED OF AN EPHEMERAL CREEK AND TO BURY A PIPE UNDER THE BED FOR THE PURPOSE OF TRANSPORTING SEWAGE.
2001.998	9/04/2038	EAST CREEK, LAKE HAYES	TO DISTURB THE CREEKBED OF EAST CREEK IN THE CONSTRUCTION OF A PIPE BRIDGE . FOR THE PURPOSE OF TRANSPORTING SEWAGE.
2001.999	9/04/2038	MILL CREEK, LAKE HAYES	TO DISTURB THE CREEKBED OF MILL CREEK & TO BURY TWO PIPES UNDER THE BED. FOR THE PURPOSE OF TRANSPORTING SEWAGE AND WATER.

2002.130	9/04/2038	NORTH CREEK, LAKE HAYES	TO DISTURB THE CREEKBED OF NORTH CREEK AND TO BURY TWO PIPES UNDER THE BED. FOR THE PURPOSE OF TRANSPORTING SEWAGE AND WATER.
2001.960	15/02/2022	BEACON POINT, LAKE WĀNAKA, APPROXIMATELY 0.8 KILOMETRES WEST OF THE LAKE OUTLET	FOR THE PURPOSE OF COMMUNITY WATER SUPPLY
2000.420	1/10/2020	BUSH CREEK, BUSH CREEK RECREATION RESERVE, ARROWTOWN	TO DISTURB A CREEK BED FOR THE PURPOSE OF WATER SUPPLY PROTECTION
99406	1/04/2025	TRUE RIGHT BANK OF THE SHOTOVER RIVER, TUCKER BEACH, WAKATIPU BASIN	TO PLACE ROCK PROTECTION WORK FOR THE PURPOSE OF PROTECTING THE CLOSED TUCKER BEACH LANDFILL.
95003	1/01/2029	HOME CREEK, SITUATED TO THE EAST OF GORGE ROAD.	TO DIVERT HOME CREEK FOR THE PURPOSE OF MAINTAINING THE FLOOD PROTECTION SCHEME.
95006	1/01/2029	HOME CREEK, SITUATED TO THE EAST OF GORGE ROAD.	TO CARRY OUT EXCAVATION WORK ON THE BED OF HOME CREEK FOR THE PURPOSE OF MAINTAINING THE FLOOD PROTECTION SCHEME.
LUR019	1/06/2027	ONE MILE CREEK	TO EXTEND THE EXISTING CULVERT AT ONE MILE CREEK BY 12 METRES INCLUDING THE INSTALLATION OF A FISH REFUGE SYSTEM.
RM18.448.01	08/04/2029	KINGSTON CREEK, APPROXIMATELY 100 METRES NORTHEAST OF THE INTERSECTION OF KENT STREET AND OXFORD STREET, KINGSTON	TO DISTURB THE BED OF KINGSTON CREEK FOR THE PURPOSE OF STREAM CLEARANCE AND MAINTENANCE
RM19.031.01	04/06/2044	VARIOUS LOCATIONS THROUGHOUT THE QUEENSTOWN LAKES DISTRICT	To DISTURB THE BED OF VARIOUS WATERCOURSES WITHIN THE QUEENSTOWN LAKES DISTRICT FOR THE PURPOSE OF STREAM CLEARANCE AND CHANNEL MAINTENANCE

7.3 CRITICAL ASSETS AND RESILIENCE

7.3.1 QLDC RISK MANAGEMENT FRAMEWORK

QLDC has reviewed and updated its Corporate Risk Management Framework (RMF) in accordance with ISO 31000. The RMF has been rolled out across QLDC at a corporate level and is in the process of being embedded at an operational level.

The RMF provides guidance on the process that QLDC has adopted for the effective identification, analysis, evaluation and treatment of risk. The RMF also details the responsibilities that are associated with risk management governance, risk ownership and risk treatment.

QLDC's Audit and Risk Committee provides governance over the effectiveness of the QLDC's RMF, internal controls, legislative and regulatory compliance, external audits and financial reporting.

QLDC has developed a risk register containing a set of strategic and operational risks, each of which have been assessed for their likelihood and consequences both before and after the mitigations and controls in place are considered. This list provides guidance to the organisation as to the materiality of key risks and the importance of mitigations and controls.

QLDC is moving to better integrate formal risk assessments into its asset decision making. The end result of this integration will be each investment decision being based on a consistent, robust and quantitative assessment of risk.

To mitigate risk, QLDC will:

- Establish and deliver maintenance and renewal service standards that preserve critical assets, mitigate risk and meet the desired service outcomes based on this RMF;
- Not accept the transfer of third party assets, unless minimum acceptable quality standards are met as set out in the QLDC Land Development and Subdivision Code of Practice;
- Prioritise and proactively inspect and protect its assets and their performance;
- Insure all critical assets for loss, damage and public indemnity;
- In the event that an asset can no longer be maintained in a safe condition, it shall be retired from service and any foreseeable hazards to the community are mitigated;
- Perform hazard loss modelling.

7.3.2 CRITICALITY FRAMEWORK

Critical assets can be defined as those that "are especially significant to societal wellbeing and therefore merit priority attention by utilities in emergency response and recovery" they are also defined as those which have a "high consequences of failure" for example, a transport route may be critical because it carries high volume of traffic, or if it is the only route to a hospital.

While there are a variety of frameworks for assessing criticality in different asset classes and industries, it is generally understood that a critical asset is one whose consequences of failure, or interruption of service, are very high. While a focus on assets is important, we also need to consider the events that lead to interruption of service (which may occur across a group of assets). QLDC's Criticality Framework (CF) uses the IIMM basic approach, importantly for QLDC's criticality assessment, the RMF contains guidance on how to assess the consequence of a particular event.

In the Three Waters context, criticality is an important component of a key level of service: resilience. While resilience is the ability of the network to recover following an event, the criticality of the assets in question will drive the level of desired resilience.

QLDC's CF has two stages:

- Stage One is the consideration of different potential failures for each asset category (e.g. water pumps). This stage provides guidance as to which categories of assets, and types of events, are the most critical, which is useful for asset strategy, broad capital allocation and education.
- Stage Two takes the PESTLE scores form Stage One and amends these to suit specific assets (i.e. location, size etc.). The purpose is to specifically prioritises assets for condition monitoring, risk assessments and other aspects of asset management.

This process is intended to be a first generation, inevitably, there will be endless opportunities for future refinements, but our near-term objective is to apply a credible framework and obtain some experience in using it for decision making, rather than perfecting the framework. Next steps include validating the result from the above two stages, communicating and embedding the data into asset management decisions and investigating GIS analysis.

7.3.3 EARTHQUAKE ASSESSMENT LOSS

Treasury has indicated that natural hazard loss modelling (risk quantification) for earthquake, flood, volcano and tsunami will be a requirement going forward for councils exposed to these natural hazards.

QLCDC's first assessment was completed in September 2016, the aim being to provide estimates of damage/loss that might be experienced from a significant natural hazard disaster such as an earthquake to infrastructure (water, wastewater and storm water reticulation). The total replacement value of QLDCs infrastructure assets assessed were to be $1,488m excluding wastewater and water supply treatment plants.

The Queenstown region is susceptible to a range of possible natural hazards however, the scope of this assessment focuses on earthquakes, with the other possible natural hazards remaining out of scope. When comparing earthquakes to the other types of natural hazards, earthquakes typically have the largest consequence on council assets, hence the focus of this assessment. The other possible hazards such as flooding and volcanic eruption are deemed less likely to cause damage to the same extent in the QLDC region.

Two earthquake-shaking scenarios were assessed for loss estimation. These have a target level of shaking in Queenstown equivalent to 1 in 500 and 1 in 1,000 year average recurrence intervals (ARI). The epicentre used for both of the scenarios is a rupture on the Moonlight North Fault, located approximately 9 km west of Queenstown and running in a north-south direction.

The assets included in the analysis include both above ground and below ground infrastructure assets in the Three Waters pipe network. The reviewed infrastructure includes assets such as pump stations, reservoirs and reticulation systems. To make a spatial assessment of loss, the liquefaction vulnerability, earthquake shaking and asset values were attributed to the asset in the geospatial database. The majority of the assets are typically concentrated in the main urban centres.

Table 8: Summary of QLDC Infrastructure Assets and Values

Utility	Type of Assets	Value ($m)	% of total asset values
Water Supply	Pipe Infrastructure	199.0	13%
	Pump Stations	69.9	5%
	Reservoirs	30.6	2%
Wastewater	Pipe Infrastructure	533.5	36%
	Pump Stations	177.5	12%
Stormwater	Pipe Infrastructure	477.5	32%
	Pump Stations	NA	NA
TOTAL		1,488	100%

Records of historical earthquakes show that Queenstown and Wānaka have been subjected to earthquake shaking up to Modified Mercalli Intensity (MM) MM7 'damaging' since records began circa 1840. Notably, the Wānaka Earthquake of 1943 was centred very close to Wānaka and categorised as MM7 'damaging' in Wānaka. The recent earthquake of May 2015, centred 30 km northeast of Wānaka, generated ground shaking classified as MM4 to MM6 in Wānaka.

Two fault rupture scenarios have been developed to represent target shaking levels of 1 in 500 and 1 in 1,000 year ARI in central Queenstown. Both scenarios are based on a rupture on the Moonlight North fault, which is located approximately 9 km west of Queenstown and runs in a North-South direction. The two scenarios are:

- Scenario One – A magnitude (Mw) 7.1 rupture on the Moonlight North Fault targeting a shaking intensity with a 1 in 500 year ARI in central Queenstown.
- Scenario Two – A Mw 7.6 rupture on the Moonlight North Fault targeting a shaking intensity with a 1 in 1,000 year ARI in central Queenstown.

Figure 31: Earthquake Scenario 1

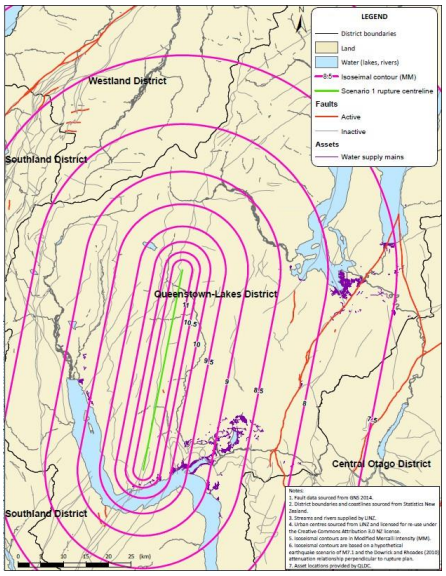
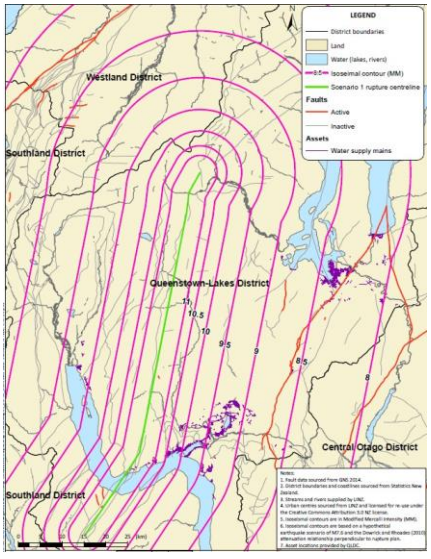


Figure 32: Earthquake Scenario 2



The following table provides a summary of aggregated damage levels ($) for each asset type for the scenarios modelled. Damage from an earthquake will be caused by a number of different factors. The majority of damage is expected to be caused by the effects of shaking (cracking/deformation) and liquefaction (especially lateral spread and differential settlement).

The earthquake loss scenarios considered are severe events but more extreme events can always occur. Considering this the two scenarios modelled have a target ARI of 1 in 500 years and 1 in 1,000 years.

Table 9: QLDC Probable Maximum Loss and Foreseeable Maximum Loss

Scenario	Utility	Asset Type	Damage Estimate ($m)		
			10th Percentile	Mean	90th Percentile
Scenario 1	Water Supply	Pipe Infrastructure	$15.4	$21.8	$28.8
		Pump Stations	$27.3	$34.0	$40.9
		Reservoirs	$11.6	$15.1	$18.1
	Wastewater	Pipe Infrastructure	$33.6	$51.3	$70.6
		Pump Stations	$59.6	$73.0	$86.1
	Stormwater	Pipe Infrastructure	$15.1	$23.2	$32.2
		Pump Stations	NA	NA	NA
	TOTAL		$182.4	$218.4	$256.5
Scenario 2	Water Supply	Pipe Infrastructure	$18.5	$25.9	$34.0
		Pump Stations	$36.8	$43.6	$50.2
		Reservoirs	$17.0	$19.6	$22.1
	Wastewater	Pipe Infrastructure	$43.4	$63.7	$85.3
		Pump Stations	$81.6	$95.0	$107.9
	Stormwater	Pipe Infrastructure	$20.1	$30.2	$41.5
		Pump Stations	NA	NA	NA
	TOTAL		$237.0	$278.1	$321.8

8. EFFICIENTLY AND EFFECTIVELY PROCURE AND MANAGE

8.1 PROCUREMENT STRATEGY

Council has an approved Strategy for the Procurement of Three Waters Infrastructure, which is attached in the appendices. The strategy outlines the QLDC's intentions for the procurement of Three Waters infrastructure services and works. A strategic approach to procurement enables Council to better increase its chances of obtaining value for money. Council's primary infrastructure procurement objective is to deliver the right infrastructure, to the right standard, at the right time, at best value.

The Council delivers Three Waters services through third party contracts for professional services, maintenance & operations, renewals and capital projects.

Where appropriate Council generally utilizes the following supplier selection methods, (more detail can be found in the appended Strategy):

- Direct appointments for low value, low risk projects
- Closed tenders
- Open tenders

All procurement is supported by a Procurement Plan that addresses the entire project or service. It is intended that a short-form procurement plan be developed for simple procurements (low cost/low value) and a more detailed plan for complex procurements with higher costs, risk and/or high customer or community profile.

Council intends to utilize a variety of supplier selection methods as defined in each specific procurement plan. These may include direct appointment, lowest price conforming, price quality and quality based. Council has identified the use of advanced components being contemplated in multiple scenarios, including Supplier Panel –Engineering & Specialist Support Services Panel, Supplier Panel – Minor Works, and Way to Go – Quality Based and Shared Risk.

Contractors are QLDC workers too - to fulfil our duties under the Health and Safety at Work Act when engaging contractors WorkSafe expects that at minimum, we will:

- Be a health and safety leader;
- Set clear health and safety expectations and incorporate these into contracts with contractors;
- Work with designers to eliminate risks so far as is reasonably practicable, or minimise risks if they cannot be eliminated;
- Choose the best contractors for the job using pre-qualification, not simply choosing them based on cost;
- Check health and safety records of potential contractors;
- Put clear and effective reporting procedures in place so they can be confident all duties are being met;
- Set up a clear framework for information sharing for the duration of the project.

Contractors are classified based on the frequency of engagement and the risk profile of the work ahead. They are either Low, Medium or High risk contractors and each requires a different level of tender assessment, induction, and monitoring and post contract evaluation.

To help in engaging contractors for or on behalf of QLDC and to ensure that the contractor has suitable safety systems and appropriate training in place QLDC requires contractors to undergo pre-qualification before being engaged to perform work. At QLDC our recommended supplier to do this is SiteWise. Contractors must attain SiteWise Green Status. SiteWise is a pre-qualification system that grades a contractor's health and

safety capability and publishes that grade in a database that can be viewed by main contractors and principal organisations. We can also accept other pre-qualification systems that are of an equivalent or higher standard, but you must involve the HS Manager in this process to ensure that the system meets QLDC requirements.

Council's Procurement Policy sets out how goods and services should be purchased. It is based on two complementary principles – value for money, and open and effective competition. It is applied to all purchases made by the Council including all goods, services, plant and equipment, civil construction and real property.

The Council will undertake regular reviews of the quality and quantity of information to enable it to monitor progress against its own procurement goals. The performance of Council's maintenance contracts is tracked through monthly and quarterly KPI reporting, and the application of this strategy will be monitored annually by reviewing the past year's procurement processes.

Secondary Procurement

Secondary procurement is used by Three Waters Programme and well as in other tender processes. Below is a description of secondary procurement of Three Waters tenders only:

QLDC has determined that the most appropriate mechanism to deliver the 3W Programme is to establish supplier panels: Design Services and Capital Works Delivery panels.

Once the Panel members have been selected and the Panel established, through a RFP process, up to three (more or less if this will be best for project) Panel members will be asked to provide a quotation for delivering that Services Bundle under a secondary procurement process.

This secondary procurement process is intended to save significant time and cost in the sourcing process for both QLDC and the Panel members.

The benefits to both parties of using a panel arrangement are summarised below.

Advantages to QLDC of the panel process:

- Programme and delivery advantage - Significantly reduced time to market –the process will optimise timeframes to deliver the programme within the required three year period.
- Significantly reduced volume of internal transactional documents to process.

Advantages to Consultants of the panel process:

- Significantly reduced transactional tendering costs and time investment in bidding.
- Increased probability of success due to optimised number of Panel members bidding for each Consultancy Services Bundle.

The combination of the above factors will provide procurement efficiency to the market and is intended to help maintain interest and value for money tendering throughout the 3W Programme.

8.2 SERVICE DELIVERY

8.2.1 CONTRACTING ARRANGEMENT

Contract management is a key area where QLDC has focused on improving over the last six years. With a team dedicated to managing operational and maintenance contracts across all disciplines (Transport, 3-Waters, Solid Waste), contract and knowledge and skills have increased. Contract form is now

standardised (NZS390/7) across all contracts, which assists better contract management as staff can build better understanding of the contract form.

The majority of the continuous programme is delivered under a traditional contract framework, however there is a collaborative intent and relationship with suppliers and partners which is key to delivering the desired outcomes.

8.2.2 IMPROVEMENT PROGRAMME DELIVERY MECHANISMS

• Contract	Summary
Project Management Office	The Majority of QLDC projects are delivered through the Property and Infrastructure, Project Management Office

9. PROGRAMME BUSINESS CASE

9.1 INTRODUCTION

This AMP Programme Business Case provides context for the QLDC Three Waters Programme, and consists of the Continuous Programme, indicating how we will Maintain, Operate and Renew our network, as well as our Improvement Programme, which addresses some of the key gaps in level of service on our network.

9.2 CONTEXT OF 2021-31 PROGRAMME

The QLDC Three Waters Programme for the 2021-31 LTP has been developed to maximise delivery of benefits clearly aligned with legislation within a constrained funding environment. The financial impact of the post-COVID-19 environment on our District cannot be underestimated. QLDC have lost a number of non-rate related revenue streams and are very cognitive that we must minimise the impact on our ratepayers and as such have limited rates increase to under 6%. This has resulted in a rethink on the priorities within our corporate investment programme. QLDC's LTP process has undergone rigorous review across our organisation and takes into account the needs across all investment portfolios (i.e. transport, three waters, waste management and community services). There are a number of non-Three Waters major projects that QLDC deems crucial to the District's well-being and this has resulted in a Three Waters investment programme that looks different to our original plans. Given the environmental pressures QLDC's network face, priority has been given to protect our current network investment, so maintenance and renewals local investment has been sustained.

QLDC have had a major review of the timing of the programme, a number of improvement projects have been pushed beyond years 1-3, whilst others have been pushed later into the 21-31 investment cycle or beyond.

Whilst the reduction on capital spend is a necessary hiatus, project and programme planning will continue as funds and resources allow. This will ensure that projects can be advanced quickly, should funding opportunities re-emerge. Essential background work on monitoring programmes and data collection will also continue to ensure that QLDC remain in an informed position to identify trigger points for new projects.

Table 10: Overview of Investment Programme (Uninflated)

Description	$ Proposed 2021/22 – 2030/31 (Uninflated)
A. 3 Waters Operational Expenditure (Excl Depreciation)	**$590.1M**
B. 3 Waters Capital Expenditure	**$680.0M**
Total	**1.269 BN**

9.3 CONTINUOUS PROGRAMME

A vital component of any asset management system is ensuring that processes and procedures are in place to maximise the value from the asset throughout its useful life. To this end, QLDC has partnered with its delivery contractors to provide a robust programme of preventative maintenance, coupled with the resource pool and expertise to promptly address reactive works as they arise. Into the future QLDC must continue to build on the available data and technology systems to achieve a better understanding of the existing asset base, to enable informed and targeted capital investments. This approach will provide true value to the ratepayers, whilst providing a sound infrastructure platform from which to support the growing district.

9.4 WHAT ARE THE PROBLEMS FOR MAINTENANCE, OPERATIONS AND RENEWALS?

QLDC faces a number of challenges associated with the operation and maintenance of its three waters network. The key challenges are below:

- Aging infrastructure – as the network ages the frequency of failures will increase, shifting the balance away from planned maintenance, towards reactive action.
- Limited asset condition data (network risk profile) – Understanding the condition and nature of the network assets is paramount to enabling sound renewals planning. Without this information, it is difficult to be certain that full value is realised from the assets prior to replacement, and that the assets in service are operating as expected.
- Private infrastructure within the public network – A number of legacy privately run water infrastructure schemes remain within the district. The scope and complexity of these private schemes vary from reticulation pipes within a private lane, to pump stations, through to treatment facilities. These present a range of challenges including; inconsistent construction standards, poor quality, and insufficient capacity for growth.
- Noncompliant treatment facilities (potable and wastewater) – the district's rapid growth has put significant strain on both the water and wastewater treatment facilities. Significant steps have been taken, and are planned to bring all treatment plants into compliance within the next 10 years (both drinking water and wastewater).
- Network resilience – a lack of redundancy/storage at critical pieces of infrastructure create areas of vulnerability.
- Rapid development – creates challenges around quality control through the construction lifecycle.
- Ambiguity in the level of service we provide – no published level of service to help guide community expectations

Significant advances have been made over recent years to improve the quality of the data held by the council, particularly concerning its buried assets and their condition. Collecting asset data is not a one off exercise, and continual investment will be required to preserve a high quality data set.

QLDC have identified the key responses to our issues must be driven by improving data and analysis to enable sound planning.

9.5 IMPROVEMENT PROGRAMME

Over the next 10 years and beyond, QLDC will undertake its largest infrastructure capital works investment plan to date. The issues described in this AMP are relevant across the infrastructure investment portfolio and includes:

- $262.3M on Water Supply
- $324.1M on Wastewater;
- $93.5M on Stormwater;
- Of which $92.2M is for 3 Water renewals

(Uninflated dollars)

9.5.1 WATER

As the primary water supplier to the District, QLDC are required to provide a supply of water to homes and businesses that is safe for human consumption. Safe and reliable drinking water supplies are recognised as being crucial to the wellbeing and prosperity of our district.

Due to the geography of our district, our smaller townships have their own distinct schemes, which are supplied from local bores takes. Our larger towns, Wanaka and Queenstown, are predominately serviced by lakes intakes from 2-Mile, Kelvin Heights, Beacon Pt and Western. The Shotover Country supply is from a bore field.

Significant investment is required to ensure existing facilities meet the New Zealand Drinking Water Standards (NZDWS). Some of these projects build on existing strategies with previous LTP funding allowing for early commencement of enabling works.

Investment is required for treatment from our lake intakes to address the problem of lake algae in the Wanaka and Queenstown water supply networks. Further investment is required for several of our smaller schemes, mainly Luggate, Glenorchy, Kingston, and Cardrona where the investment is a combination of upgrades to existing schemes and new schemes.

The new drinking water regulator (Taumata Arowai) will come into effect during 2021. Non-compliance risk mitigation activities will continue to be implemented and monitored through our Water Safety Plans, until full compliance is achieved throughout the district.

From a water supply perspective, the first three years of the LTP includes the installation and construction of some major infrastructure that includes new water pump stations, reservoirs and trunk mains. Some of these projects build on existing strategies with previous LTP funding allowing for early commencement of enabling works. The delivery of the master plan component projects across the district will also be aided by the development of concept designs that will increase the certainty of pipeline alignments, network operation and supply, pressure and flow metered zones.

9.5.2 WASTEWATER

The wastewater programme includes new pumping stations to service growth but also includes plans for expenditure to upgrade our existing facilities. Some of the major projects in this area will work to achieve our strategic goal of centralizing wastewater management. The connection of both Luggate and Hawea to the Project Pure Wastewater Treatment Plant are examples of how we intend to utilize the benefit of an existing high performance treatment plant whilst, at the same time, working to decommission those plants that have historically struggled to achieve environmental compliance.

9.5.3 STORMWATER

Investment in new and improved stormwater systems is spread more evenly across the 10-year LTP period. The projects allocated funding have emanated from a review of stormwater catchment management plans coupled with hydraulic modelling and include a combination of 'easy wins' as well as larger more complex projects such as the Frankton flats stormwater conveyance system.

9.5.4 IMPROVEMENT PROGRAMME OVERVIEW

Queenstown Water Master Plan
QLDC Infrastructure Strategy 2015-2045 states "Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the districts tourist based economy." Under the Health (Drinking Water) Amendment Act 2007, the Queenstown Water Supply is a large water supply and therefore the legal requirement to take all practical steps to comply with DWSNZ 2005/08 applied on 1 July 2012.

Problem	Key Problems: ➢ An unprotected and uncontrolled water source is leading to unknown risks to public health - 40%. ➢ Limited data, evidence and justification means we may be making poor investment decisions - 20%. ➢ Public perceptions, poor communication and limited understanding of risks/values leads to a reluctance to invest or value water - 40%.
Benefit	Key Benefits: ➢ Resilience – to reduce the impact of pressure/flow disruptions - 10%. ➢ Safety/Public Health – to ensure no illness attributed to inadequate public water supply – 60%. ➢ Reliability – to reduce the frequency of water service pressure/flow disruptions - 30%.

Queenstown Water Master Plan	
Recommended Programme	Here is a brief summary of what the preferred programme can deliver: Membranes at Two Mile + SOC Bores: ➢ Stage 1: Involves installing new bores at SOC and piping to Frankton Flats. Interim chlorine dosing to be installed until WTP operational. ➢ Stage 2: Involves constructing a 14 MLD membrane WTP at Two Mile and a 12 MLD membrane WTP at SOC. ➢ Stage 3: Involves adding another 15 MLD capacity to the SOC WTP. ➢ Advantages: existing takes are utilised; limited network upgrades are required; water is delivered quickly into rapidly developing Frankton Flats area; problematic Kelvin Heights intake is abandoned. ➢ Disadvantages are: Two treatment plants to maintain and operate; high risk crossing of Shotover River
Management Case	In the initial years, QLDC will complete investigations, finalise preferred options and develop a final concept. In parallel complete investigations with regards ownership / procurement / operational models. A key advantage of a Design, Build & Operate type arrangement is the contractual obligation does not sit on council's balance sheet as debt. Therefore, council will have greater ability to deliver these projects within QLDC's liability management policy. Frankton Flats supply requirements are critical and are budgeted in 17/18 Annual Plan, QLDC will utilise a traditional design and installation methodology to complete the additional trunk main, supplied from SoC Bores (upgraded) and crossing the Shotover Bridge to Glenda Drive. The Management Case has been prepared based on traditional delivery model, procured, owned and operated by Council.

Combining Queenstown and Wānaka treatment plants (and potentially networks) can produce economies of scale that lends procurement and ownership towards a PPP solution. This initial approach will provide QLDC with the opportunity to develop intellectual property for a preferred solution and performance criteria, allowing QLDC to effectively negotiate with any third party if required; in addition, this allows time for the market to position and support the opportunity.

Wānaka Water Master Plan
QLDC Infrastructure Strategy 2015-2045 states "Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the districts tourist based economy." Under the Health (Drinking Water) Amendment Act 2007, the Wānaka Water Supply is a large water supply and therefore the legal requirement to take all practical steps to comply with DWSNZ 2005/08 applied on 1 July 2012.

Problem	Key Problems: ➢ An unprotected and uncontrolled water source is leading to unknown risks to public health - 40%. ➢ Limited data, evidence and justification means we may be making poor investment decisions - 20%. ➢ Public perceptions, poor communication and limited understanding of risks/values leads to a reluctance to invest or value water - 40%.
Benefit	Key Benefits: ➢ Resilience – to reduce the impact of pressure/flow disruptions - 10%. ➢ Safety/Public Health – to ensure no illness attributed to inadequate public water supply – 60%. ➢ Reliability – to reduce the frequency of water service pressure/flow disruptions - 30%.

Recommended Programme	Here is a brief summary of what the preferred programme can deliver: Membranes at one site (Network Option 3E). ➢ Stage 1: Involves constructing a 26 MLD membrane WTP at Beacon Point with 6,000m3 of additional storage and new network trunk infrastructure. ➢ Stage 2: Involves constructing a new 5,000m3 reservoir at Hawthenden and new high level trunk infrastructure. ➢ Stage 3: Pipeline along Studholme Road for ultimate. ➢ Advantages: Delivers well on the benefits being sought (a positive NPV) at an acceptable level of risk; efficiencies in building and operating one WTP; existing consent has sufficient capacity for full township; higher elevation than Western; services the majority of Wānaka already; greater residual value in the existing assets than Western; storage is dispersed across the township; network upgrades can be staged, providing greater flexibility to adapt to demand. ➢ Disadvantages: Algae may blind membranes; significant network upgrades required across town. ➢ Based on the cost estimates, considering staging, and resilience in the network, the recommended option is a combination of Option 3A and Option 3C, and will be referred to as Option 3E. This option is the implementation of Option 3A with the inclusion of the new pump station and new reservoir (Hawthenden), abandoning the Western Reservoir.
Management Case	In the initial years, QLDC will complete investigations, finalise preferred options and develop a final concept. In parallel complete investigations with regards ownership / procurement / operational models. A key advantage of a Public-Private Partnership type arrangement is the contractual obligation does not sit on council's balance sheet as debt. Therefore, council will have greater ability to deliver these projects within QLDC's liability management policy. The Management Case has been prepared based on traditional delivery model, procured, owned and operated by Council.

Luggate Water Supply Strategic Business Case	
QLDC Infrastructure Strategy 2015-2045 states: ➢ The Council will provide reliable drinking water that is safe to drink ➢ Manage water needs of district to acceptable level ➢ Key service levels (affecting public health) are maintained ➢ Core infrastructure meets current and future needs, are fit for purpose, efficient to run and cost effective **Health Act 1956 - Amended 2007:** ➢ 69V - Compliance with Drinking Water Standards **Regional Plan for Water:** ➢ To provide for the water needs of Otago's primary and secondary industries, and community domestic water supplies ➢ To maintain long term groundwater levels and water storage in Otago's aquifers	
Problem	Key Problems: ➢ Public Health Risk; The existing bores at Luggate, Wānaka Airport and Corbridge Downs are unsecured and no treatment is provided (4 log credits required, 0 achieved). Luggate bores also have high turbidity events ➢ Reliability; Current demand at Luggate is exceeding capacity of bores. The level in bore 1 drops below the low bore probe at peak demand. Residents have removed many of the water restrictors installed by QLDC. (Average daily consumption is 50% higher than Council benchmark; o 43 properties >2,000l/d; o 5 properties >5,000l/d). There is 200m3 of reservoir storage at Luggate (200m3 = <24hrs of average demand, 12hrs peak demand = ~300m3). ➢ Accessibility; Luggate Park subdivision will increase the number of service connections- the latest demand forecast indicates an increase from 172 to 452 over the next 40 years. Wānaka Airport is expecting significant growth
Recommended Programme	The preferred option is a new deep borehole source located in close proximity to Wānaka Airport. This would be a secure borehole source and therefore require 3-log treatment (UV assumed). A new reservoir located at Wānaka Airport will provide security of supply to Luggate while also providing for firefighting requirements at the airport. A new 4km pipeline will run between the new borehole source and Luggate. The Corbridge wellhead will be upgraded and point of entry treatment installed on all potable supplies. The Corbridge source would be reclassified as a Rural drinking water supply. ➢ There is some risk in locating a suitable source that provides the required amount of water, therefore an allowance has been made for a groundwater investigation, and the drilling of a test bore. ➢ Due to the immediate risk associated with water quality it is recommended that chlorine dosing be implemented at the Luggate and Airport bores in the short term to minimise the risk associated with pathogens. A number of upgrades to the Airport and Luggate wellheads should also be implemented to minimise the risk of contamination (identified as immediate upgrades in the borehole security report) ➢ Due to the immediate risk associated with water supply at Luggate, the reinstallation of flow restriction devices should be implemented in the short term. There may be other demand management opportunities that can be implemented in the medium term to reduce operational costs and infrastructure sizing requirements. Demand management would also reduce the risk of supply shortfalls if the new water source is deferred.

<table>
<tr><th colspan="2">Glenorchy Water Supply Strategic Business Case</th></tr>
<tr><td colspan="2">QLDC Infrastructure Strategy 2015-2045 states:
➢ The Council will provide reliable drinking water that is safe to drink
➢ Manage water needs of district to acceptable level
➢ Key service levels (affecting public health) are maintained
➢ Core infrastructure meets current and future needs, are fit for purpose, efficient to run and cost effective
Health Act 1956 - Amended 2007:
➢ 69V - Compliance with Drinking Water Standards
Regional Plan for Water:
➢ To provide for the water needs of Otago's primary and secondary industries, and community domestic water supplies
➢ To maintain long term groundwater levels and water storage in Otago’s aquifers</td></tr>
<tr><td>Problem</td><td>Key Problems:
➢ Current demand (frequently >75l/s in summer, peak 83l/s) exceeds capacity of existing pumps (60l/s). This results in low reservoir (firefighting reserve) levels and excessive run hours on both pumps.
o Well unprotected and high risk of contamination
o No protection in network for bacteria.
o A history of E.coli events.
➢ Water monitoring data indicates leaks in the network
➢ Growth is occurring in Millbrook and there are pressures from developments outside of the scheme boundary for connection (e.g. Arrowtown Lifestyle Retirement Village on McDonnelll Road - 120 villas, 75 apartments, 100 bed care home)
➢ Bores not compliant with DWS criteria (Bore Security Report - Beca - April '17)</td></tr>
<tr><td>Recommended Programme</td><td>The preferred option is to keep the existing bore, decommission well and upgrade pump capacity at existing bore.
➢ Add one new bore (same size as duty pump) plus a spare boxed pump (upgrade of wellhead at existing bore also required so that all bores have secure wellheads).
➢ Undertake cryptosporidium sampling to prove that 3-log credits will be sufficient (i.e. no upgrade required now to existing UV treatment and residual chlorination).
➢ Storage 1 - Retain existing reservoirs and construct new 2200m3 reservoir at one new site. Infrastructure required includes construction of new booster PS at existing WTP & pumping main pipework, falling main pipework from new reservoir to reticulation and access road.
➢ One new UV reactor required by year 8 for redundancy/resilience (including under Supply options).
➢ Demand status quo due to low benefit cost ratio for the more ambitious demand management options (due to infrastructure already being at capacity). Status quo investments included for existing bore and cryptosporidium sampling.
The preferred option provides a supply scheme that will cater for current demand projections in 2048 (ie a 30 year lifespan - subject to ongoing demand forecast updates).</td></tr>
</table>

QLDC Infrastructure Strategy 2015-2045 states:

- The Council will provide reliable drinking water that is safe to drink
- Manage water needs of district to acceptable level
- Key service levels (affecting public health) are maintained
- Core infrastructure meets current and future needs, are fit for purpose, efficient to run and cost effective

Health Act 1956 - Amended 2007:

- 69V - Compliance with Drinking Water Standards

Regional Plan for Water:

- To provide for the water needs of Otago's primary and secondary industries, and community domestic water supplies
- To maintain long term groundwater levels and water storage in Otago's aquifers

Problem	Key Problems: ➢ Existing tanks have extensive visible cracking and need replacing. ➢ The minimum storage for existing use = 350m³ (fire fighting requirements + operational). The existing reservoir storage is 90m³. ADF = 245m³/day (1.5m3/connection/day). PDF = 800m³/day ➢ Bore supply is currently untreated; Log credits required = 4, log credits achieved = 0 ➢ Bores not compliant with DWS criteria (Bore Security Report - Beca - April '17)
Recommended Programme	The preferred option is to replace the old reservoir tanks with a new larger reservoir that meets full LoS target levels and fire fighting and operational requirements. The construction of this new reservoir is anticipated to be on higher ground (Bible Terrace) that will serve to increase network pressures. The business case also recommends the following approach to supply and treatment; ➢ Retain the existing position of the Glenorchy bore PS as the primary site for supply and water treatment in Glenorchy. ➢ Undertake a condition assessment of the bores to determine anticipated end of life time. ➢ Allow for the drilling of two new bores at the same site should the condition assessment deem that the existing bores require renewal. ➢ Allow for the installation of new bore pumps if and when the new bores are drilled. ➢ Assess the findings of the cryptosporidium sampling in order to determine whether 3-log credit treatment will be sufficient. ➢ Retain the chlorine disinfection system recently installed and improve to make this permanent so that treatment protection in the network exists for bacteria compliance against DWSNZ. The preferred option provides a supply scheme that will cater for current demand projections out until 2048 (ie a 30 year lifespan - subject to ongoing demand forecast updates).

The tables below represents the Three Waters submission made to the 2018/28 QLDC TYP as of November 2017. The tables highlight all major capital projects by scheme and by sequence and also includes HIF. These were designed to assist with various procurement strategies we are presently working on to aid delivery of this roughly

$40million/year programme. This will be updated when the programme has been adopted. The attached document is the first version I used to compile

Legend:

- Preliminary works, feasibility and investigation
- Detailed design
- Construction
- System and facility commissioning

	WANAKA WATER		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
		YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
ITEM	TITLE	NARRATION															
1.0	BEACON POINT RESERVOIR	New (second) 6000m3 reservoir adjacent to existing one.		$ 1,240,000	$ 4,650,000												
2.0	BEACON POINT WTP	New water treatment plant		$ 2,530,000	$ 1,990,000	$ 8,310,000	$ 8,310,000										
3.0	TRANMISSION PIPELINE	Large dia cross town watermain to convey from Beacon pt res to south wanaka.															
3.1	SECTION 1: ALPHA SERIES SECTION	Faulks Terrace and Stone St to edge of Alpha series subdivision then through Meadowstone subdivision.		$ 800,000	$ 730,000												
3.2	SECTION 2: MACPHERSON & GOLFCOURSE RD	2000m of large dia watermain down MacPherson & Golfcourse Rd to service south Wanaka.		$ 160,000	$ 1,900,000												
3.3	SECTION 3: STUDHOLME RD SECTION	1000-1200m length on Studholme Rd to Mt Aspiring Rd.				$ 170,000	$ 800,000										
3.4	SECTION 4: ANDERSON RD SECTION	1330m of 500mm dia watermain down Anderson Road					$ 100,000	$ 1,720,000									
4.0	CONSTRUCT NEW BOOSTER PS	New water pump station required for for Far Horizon / western pressure zone.							$ 70,000	$ 450,000							
5.0	PRESSURE ZONE RECONFIGURATION.	PRVs and network upgrades as part of pressure zone reconfiguration.								$ 220,000							
6.0	DECOMMISSION WESTERN INTAKE.	Final task only once new supply scheme is fully commissioned & operational.									$ 450,000						
7.0	BEACON POINT CAPACITY UPGRADES																
	BEACON POINT INTAKE PUMP STATION	Major upgrade to increase supply capacity								$ 200,000	$ 620,000	$ 1,980,000					
	BEACON PT FALLING MAIN UPSIZING	Increase pipeline dia of 525mm falling main to 630mm											$1,600,000				
8.0	NEW HAWTHENDEN RESERVOIR	Intended to service south Wanaka												$ 15,000	$ 1,760,000	$5,485,000	$5,485,000

	QUEENSTOWN WATER		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
			0	1	2	3	4	5	6	7	8	9	10	11	12
ITEM	TITLE	NARRATION													
1.0	SHOTOVER BORES PUMP STATION & WTP														
1.1	SHOTOVER COUNTRY BORE PS & WTP	Construction of bore PS & pumping main over Shotover bridge into Frankton.	$ 2,351,537												
1.2	SHOTOVER COUNTRY BORE PS & WTP	Construction of WTP & building		$ 1,790,000											
2.0	QUAIL RISE RESERVOIR														
2.1	STAGE 1: QUAIL RISE RESERVOIR	Construction of filling main to new Quail Rise reservoir.		$ 500,000	$ 3,900,000										
2.2	STAGE 2: QUAIL RISE RESERVOIR	Design and construct 1 x new 5,000m3 reservoir			$ 700,000	$ 4,800,000									
2.3	STAGE 1: QUAIL RISE RESERVOIR	Falling main from new reservoir to frankton flats				$ 390,000	$ 2,450,000								
3.0	FRANKTON FLATS SUPPLY														
3.1	SECTION 1: KAWARAU BRIDGE TO FRANKTON FLATS RING MAIN	Frankton ring main up robertson st to ear.		$ 848,820											
3.2	SECTION 2: FRANKTON FLATS SUPPLY MAIN SECTION 3	Large dia watermain from bp frankton roundabout to kawarau bridge.		$ 400,000	$ 2,520,000										
3.3	SECTION 3: FRANKTON FLATS SUPPLY MAIN	Large dia watermain along SH6 from Glenda Dr to BP Frankton roundabout.				$ 450,000	$ 2,800,000								
4.0	HANLEY FARMS WATER SUPPLY														
4.1	HANLEY'S FARM RESERVOIR 1	New 4000m3 storage reservoir, supply mains and pipework		$ 500,000		$ 703,000	$ 4,471,000								
5.0	NEW WATER TREATMENT PLANTS														
5.1	TWO MILE WTP	High spec upgrade to shotover country bore wtp		$ 500,000		$ 480,000	$ 1,430,000	$ 5,960,000	$ 5,960,000						
5.2	SHOTOVER COUNTRY WTP	High spec upgrade to shotover country bore wtp									$ 430,000	$ 1,210,000	$5,070,000	$ 5,000,000	
6.0	NETWORK OPTIMISATION														
6.1	PRVS FOR FRANKTON	PRVs installs across Frankton flats										$ 40,000	$ 320,000		
6.2	DECOMMISSION KELVIN HTS WTP	Decommission kelvin hts intake											$ 200,000		
7.0	CAPACITY UPGRADES														
7.1	SHOTOVER COUNTRY BORE PS & WTP	Pump upgrade									$ 70,000	$ 440,000			
7.2	HANLEY'S FARM RESERVOIR 2	Design and construction of second storage reservoir											$ 490,000	$3,070,000	
7.3	QUAIL RISE RESERVOIR 2	Design and construction of second new 5,000m3 reservoir												$ 700,000	$ 4,870,000

	GLENORCHY WATER SUPPLY		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
			0	1	2	3	4	5
ITEM	TITLE	NARRATION						
1.0	NEW RESERVOIR							
	DESIGN & ENABLING WORKS	Land acquisition	$ 100,215					
	CONSTRUCTION	Construction of new 500m3 plus storage reservoir		$ 800,000				
2.0	BORES PUMP STATION							
	DESIGN & ENABLING WORKS	Consents and planning		$ 300,000				
	CONSTRUCTION	Drill 2 x new production bores at existing site			$ 600,000			
3.0	TREATMENT PLANT							
	DESIGN & CONSTRUCTION	New WTP building				$ 750,000		

	ARROWTOWN WATER SUPPLY		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1.0	BORE PUMP STATION UPGRADE							
	UPGRADE OF EXISTING BORE	New bore pump & switchgear to increase pump capacity.		$ 412,500				
	INSTALLATION OF NEW BORE	Drill & commission new production bore. Convert existing pump house to electrical PS		$ 732,000				
2.0	NEW RESERVOIR							
	CONSTRUCTION OF NEW RESERVOIR	Capacity TBC.		$ 400,000	$ 1,215,000	$1,660,000		
	NEW BOOSTER (RESERVOIR FILLING) PUMP STATION	Water PS required to convey water to new reservoir				$ 796,000		

	LUGGATE WATER SUPPLY		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1.0	NEW BORE PUMP STATION							
	FEASIBILITY & INVESTIGATI	Test bores, ground water investigations	$ 40,000					
	DESIGN	New WTP & Pump station design		$ 108,000				
	CONSTRUCTION	New WTP & Pump station			$ 1,448,000			
2.0	LUGGATE - WANAKA AIRPORT WATERMAIN							
	DESIGN	Water pipeline design	$ 55,000					
	CONSTRUCTION	New watermain along SH6		$ 1,650,000				
3.0	RESERVOIR							
	CONSTRUCTION	New storage reservoir			$ 413,000			
	COMMISSIONING	New supply system up and running				$ 49,000		

WANAKA WASTEWATER		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
TASK	DESCRIPTION						
DESIGN UPGRADE AT GORDON RD WWPS	New pumps, rising main and manifold req. Increase storage						
CONSTRUCTION UPGRADE AT GORDON RD WW	Construction of capacity upgrade						
CONSTRUCTION	Construct new rising main from Wanaka Airport to P Pure						
NEW RATA STREET WWPS	Construction of new PS and trunk main to reconfig ww system						
PROJECT DEADLINE	Existing Hawea WWTP consent expires 2023						

QUEENSTOWN WASTEWATER		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
TASK	DESCRIPTION						
FRANKTON TRACK TRUNK MAIN RENEWAL	6km sewer main between QTN and Frankton Beach WWPS						
RECONFIG KAWARAU PLACE WWPS	New gravity sewer main						
DUPLICATE FRANKTN FLATS GRAVITY MAIN TO R	Construct new large dia gravity main						
NEW REC GROUND WASTEWATER PUMP STN	Construction of new WWPS & rising main						
PROJECT SHOTOVER WWTP UPGRADE	Capacity upgrade (new MLE tank, decommission ponds)						
FOG TREATMENT FACILITY AT SHOTOVER WWTP	Design and construction						
QUAIL RISE SOUTH SEWER MAIN	Sewer main down SH6 to Shotover WWTP						
SEWER RISING MAIN UP ROBERTSON ST	Extend rising main from Kawarau Bridge (Frankton side) to terminal manhole off Mountain Ash Dr						
WILLOW PLACE RISING MAIN UPGRADE	Renewal of rising main as part of Robertson St new sewer						

LUGGATE WASTEWATER SERVICING		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
TASK	DESCRIPTION						
FEASIBILITY & INVESTIGATIONS	Concept design. Pipeline route, PS location						
DESIGN	Pipeline & pump station design						
CONSTRUCTION	New pipeline and pump station						
COMMISSIONING	New supply system up and running						
EXTEND LUGGATE WW RETIC	Extend sewer system in Luggate, remove septic tanks						
DECOMMISSION LUGGATE WWTP	Current consent expires 2021						

PROJECT PURE UPGRADES & DEVELOPMENT		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
SCREEN UPGRADES	New duty / standby screening system to increase screen capacity						
CENTRIFUGE UPGRADE	New duty / standby centrifuge system						
LUGGATE CONNECTION	P Pure starts to receive Luggate sewerage						
PPURE CAPACITY UPGRADE DESIGN	Design for new third SBR tank installation						
PPURE CAPACITY UPGRADE	Construction and commissioning						
INSTALL FOG TREATMENT FACILITY AT P PURE	Design and construction						
HAWEA CONNECTION	12km pipeline from Hawea to P Pure (inc over River Clutha)						

HAWEA WASTEWATER SERVICING		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
ENABLING WORKS: PLANNING & CONSENTS	River Clutha pipe bridge						
DESIGN	Full pumping system design (WWPS & pipeline)						
CONSTRUCTION	12km pipeline from Hawea to P Pure (inc over River Clutha)						
SYSTEM COMMISSIONING							
PROJECT DEADLINE	Existing Hawea WWTP consent expires 2023						

CARDRONA WASTEWATER		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
TREATMENT PLANT UPGRADE	Improvements works in order to achieve consent compliance								
SCHEME EXTENTION WITH MAJOR UPGRADE TO	Capacity & treatment upgrade to WWTP. Extend retic scheme								

GLENORCHY WASTEWATER		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
NONE	New treatment plant outside of 10 yr LTP								

	QUEENSTOWN STORMWATER		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
ITEM	TASK	DESCRIPTION						
1.0	FRANKTON FLATS							
	NORTH EAST FRANKTON FLATS STORMWATER	Swale & large dia pipeline from Frankton flats (Fivemile) to lake Wakatipu.		$7,000,000				
2.0	FRANKTON							
	KAWARAU PLACE STORMWATER	Duplication of the existing pipe to allow pipe containment in a 50 year event.		$ 100,664				
	MAGNOLIA PLACE STORMWATER	Duplication of the existing pipe to allow pipe containment in a 50 year event.		$ 78,699				
3.0	QUEENSTOWN HILL & CBD							
	QUEENSTOWN MINOR WORKS	Upgrades of existing piped network to 10 year pipe containments		$ 78,352				
	UPPER BELFAST RD (QUEENSTOWN)	Construction of a new pipe system from an existing stream system to new pipe on Belfast terrace.		$ 58,000				
	BELFAST TERRACE (QUEENSTOWN)	Construction of a new pipe system from Belfast terrace to Horne Creek				$ 20,000	$ 250,000	$1,668,890
	RECREATIONAL GROUND & CBD (QUEENSTOWN)	Major conveyance system for CBD [unlikely to proceed. investigations for Horne Creek will determine what is required]		$ 20,000	$ 450,000	$1,941,371	$1,941,371	
	INVESTIGATIONS HORNE CREEK (QUEENSTOWN)	Investigations to establish Horn Creek forecast flows		$ 30,000				
	ANDERSON HEIGHTS (QUEENSTOWN)	Construction of a new pipe system from Killarney way along Anderson Heights connecting to the new rec ground system.			$ 20,000	$ 85,000	$ 832,901	
	WINDSOR PLACE TO EDINBURGH DRIVE (QUEENSTOWN)	Construction of a new supplementary pipe from Windsor Place to the open channel on Edinburgh Drive.						$ 120,669
4.0	LAKEVIEW DEVELOPMENT, QUEENSTO							
	LAKEVIEW LAKEVIEW DEVELOPMENT (QUEENSTOWN)	Two stormwater mains required to run with new outlet into lake.		$1,128,205	$ 483,516			

	WANAKA STORMWATER		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1.0	AUBREY RD	Prelim investigations to determine requirement of a detention pond at Kelleys flat recreation reserve.		$ 30,000				
2.0	BULLOCK CREEK INVESTIGATIONS	Investigations to establish forecast flows		$ 30,000				
3.0	THREE PARKS STORMWATER OUTLET (CROSSING RIVERBANK RD TO CARD	Stormwater culvert to convey overland flow from Three Parks catchment.		$ 214,047				
4.0	BREMNER PARK RD/BEACON POINT RD	Interim solution to divert stormwater to lake from Bremner park. 300mm dia pipe plus new manhole.		$ 60,999				
5.0	WILEY RD/BEAMONT/BEACON PT	New discharge outlet from intersection Beaumont rd / Wiley Rd to the lake to divert overland flow.				$ 200,000	$1,206,707	
6.0	MT ASPIRING COLLEGE	Upgrade drainage discharge in the vicinity of high school.					$ 25,000	$ 350,000
7.0	BILLS WAY	Replace existing 450mm dia pipe with 900mm dia pipe along Bills way and the lake.					$ 25,000	$ 200,000

10. FINANCIAL MANAGEMENT

10.1 INTRODUCTION

At point of submission (Dec 2020) the Capital Investment Programme is subject to the complexities of multi-agency and multi-programme overlaps. Due to the economic impacts of COVID-19 and potential funding constraints it brings, there are delays in finalising QLDC's Long Term Plan investment programme. Expected agreement from Council on the LTP financials is expected after the 18th December 2020. A further update to this section of the AMP will be submitted after this point. QLDC's NLTP submission has been made based on the assumption that QLDC, through its LTP 2021 will approve all local share.

Over the next 10 years and beyond, QLDC continues to face its largest and compounding complex infrastructure capital works programme. In addition to the Three Waters programme, QLDC is reacting to growth pressures across multiple services, and the issues described in this AMP are relevant across all of council's infrastructure portfolios and include:

- $120m million to bring water supply quality up to standard over the next 10 years;
- $93 million for increased wastewater treatment capacity and increase level of service;
- Stormwater treatment and Network upgrades $32 million;
- Waste minimisation and management;
- Property e.g. Performing Arts Centre - $45m;
- Delivery of HIF projects in Quail Rise and Kingston;
- Internal projects such as Project Manawa (One Council building);
- Crown Infrastructure Projects (CIP);
- NZ Upgrade Programme (NZUP)

The enormity of the programme places immense pressure on QLDC from a financial perspective and a capacity to deliver, as well as coordinating with external agencies and stakeholders, e.g. ORC and QAC.

Pressure on market capacity and the supply chain constrains the regional ability to deliver not just the QLDC programmes, but a carry on impact in neighbouring areas. This has led to substantial cost escalation, which in turn limits ability to deliver the programme to budget and on time.

QLDC are exploring options and mechanisms to address the risk around the capacity of the market to deliver our intended programmes.

- Approaching the supply chain early in the procurement process to find the most appropriate method to get the best value for projects. I.e. packages of works and timings;
- Grouping similar projects together to incentivise the supply chain by increasing potential value. i.e. a programme around multiple 3-waters reservoirs;
- Reviewing the Build, Operate, Manage, Transfer models;
- Maximising good rates by having longer contract periods and potential extensions.

10.2 FINANCIAL IMPACT OF COVID-19

COVID-19 has had a significant reduction on QLDC's financial health, which in turn impacts the affordability of our programme:

- There was a total revenue budget reduction of $17.9m in the 20/21 financial year with 42.5% of this figure directly impacting Rates;
- Tourism Related revenues down by at least 50% - $4.7m;
- The previously forecast QAC Dividend $5.8m will not be paid (used 100% to repay debt);
- Other user fees down by 20% $2.9m;
- Development Contribution income down $4.5m;
- For noting QLDC borrowing's capacity is largely restricted by its Total Revenue;
- Debt repayments were also suspended to keep the current financial years rates increase down to an acceptable level which was acknowledge at the time as a one-off temporary position.

QLDC is currently working through its draft 2021 LTP and is mindful of the District's continuing difficult economic conditions and is attempting to keep the future rates increases to a reasonable level. Indicative average rates increases across the 10 year period is 5.2% (after growth).

10.3 FUNDING SOURCES

10.3.1 FUNDING OPERATIONAL EXPENDITURE

Water - This activity is largely private good in nature and QLDC recognises that the best way of recovering cost would be via volumetric charges and water meters.

Wastewater - This activity is largely private good, and the operational costs will therefore be funded by a Targeted Uniform Sewerage Charge which is charged out on the basis of the number of connected pans / urinals within the property. A rating unit used primarily as a residence for one household shall be deemed to have not more than one pan / urinal in accordance with the Local Government (Rating) Act 2002. Remission policies have been developed in relation to the application of this rate to businesses with multiple connections and to various non-profit organisations.

Stormwater – This activity is largely public good in nature and will therefore be funded 100% from a Targeted Stormwater Rate based on Capital Value and applied on a ward basis to all urban properties.

10.3.2 FUNDING CAPITAL EXPENDITURE

Funding for new assets will come from a mix of borrowing, development or financial contributions, grants, subsidies, capital revenue, reserves and asset sales. Generally, the costs of new assets will not be met from rates; however a portion of the costs of servicing loans will be met from rates.

Funding for new capital works will depend on the nature of the work in particular the reasons (cost drivers) which have made the work necessary. There are three main cost drivers recognised by QLDC:

(1) Growth: QLDC intends to entirely fund the portion of capital expenditure (capex) that is attributable to growth by either Financial or Development Contributions wherever it is legally, fairly, reasonably and practically possible to do so.

QLDC considers that Development and Financial Contributions are the best mechanism available to ensure the cost of growth sits with those who have created the need for that cost. QLDC considers it inappropriate to burden the community as a whole, by way of rating or other payment means, to meet the cost of existing growth. Historically, QLDC has sought a contribution towards the expansion of the District's reserves, community facilities and infrastructure from those developments, which place additional demands on these services. In order to levy these contributions QLDC has used:

- Financial Contributions imposed as a condition of a resource consent (Resource Management Act 1991) - applies to consents received prior to 8 May 2004.
- Development Contributions as defined by the provisions of the Local Government Act 2002 (LGA 2002)
  - applies to consents received after to 8 May 2004.

(2) Level of Service: The cost driver for a significant portion of capital works relates to increasing of levels of service for the community for example, due to changes to legislation or resource consent conditions, which means that there is often little discretion with regard to the decision. An example of this is the requirement to provide additional water treatment facilities as a result of the introduction of new Water Treatment Standards. Funding sources in order of priority (1) Capital Grants and subsidies, (2) Capital Revenues and Asset Sale Proceeds, (3) Capital Reserves, (4) Borrowing, (5) Rates.

(3) Renewal: Renewal capital works are those capex costs that are incurred in restoring an asset to previous service levels, usually reflected in the amount that an asset has depreciated. Therefore, by using those depreciation funds QLDC is attempting to maintain infrastructural networks to at least their existing service level. Funding sources in order of priority: (1) Depreciation Reserves (2) Borrowing and (3) Rates. Note that depreciation is not funded where a community has funded a water or sewerage scheme via lump sum contribution or loan charges.

10.4 REVENUE AND FINANCING POLICY

Section 102(4) (a) of the Local Government Act 2002 requires each council to adopt a Revenue and Financing Policy. This Policy states QLDC's policies in respect of the funding of both capital and operational expenditure. Further information can be found in QLDC's Revenue and Financing Policy

10.5 FUNDING RISKS

QLDC has identified several financial challenges that are explained in and managed in its Risk Register. The significant risks are:

- Changing central government priorities;
- Availability of revenue (rates and NLTF) due to events such as COVID-19;
- Insufficient QLDC funding to meet levels of service;
- Funding sources for the repair of damage caused to Three Waters by natural hazard events (including climate change).

Other financial risks that QLDC is managing (or may potentially need to manage in future) are:

- Fraud and corruption;
- Inadequate management of contract retentions and of potential claims for cost escalation or other contract variations;
- Excessive tender prices (or no tenders submitted);
- Contractor non-performance (or company failure);
- A 'sensitive expenditure ' issue occurs;
- Poor project cost estimation;
- Poor forward financial forecasting/budget formulation;
- Poor general financial management;

10.6 AMP FINANCIAL ASSUMPTIONS

The following general assumptions have been made in preparing the AMP forecast:

- Subdividers and developers will contribute towards QLDC's costs by paying development contributions at the levels and times forecasted;
- The depreciation provision will be as forecasted;
- An extraordinary major event such as a natural hazard will not occur;
- Government legislative, regulatory, or policy changes will not cause higher QLDC costs;
- Actual project costs will be as forecasted on a cumulative basis;
- Minimal costs will be carried forward from year to year – all projects will be paid for in the year in which they are programmed;
- No unforeseen significant asset failures will occur (or other unexpected costs be incurred);
- QLDC will be able to acquire all necessary properties, and all required resource consents, in a timely manner;
- The extent to which new Three Waters assets will be vested in QLDC will be as forecasted;
- Low maintenance and construction cost escalation.

10.7 ASSET VALUATION

QLDC's valuation of water, wastewater and stormwater infrastructure assets was based on depreciated replacement cost in accordance with Accounting Standards for Public Sector Public Benefit Entities (PBE IPSAS17) and in accordance with the New Zealand Infrastructure Asset Valuation and Depreciation Guidelines Manual Edition 1.0, 2006 (NZIAV). Straight-line depreciation has been applied in all instances except in the case where assets are non-depreciable. Each asset is depreciated over its total useful life.

Reconciliation to the 2016 revaluation data was undertaken in July 2019 to understand the changes to the valuation results. Figure 34 summarises the assets as valued by Rationale as at 1 July 2016 and reconciliation by AON as at 1 July 2019.

Figure 34: Asset Values ($000s) by Scheme

		QLDC 3Waters Asset Valuation 1 July 2016			30 June 2019 Valuation		
Activity	**Scheme**	**GRC**	**DRC**	**AD**	**GRC**	**DRC**	**AD**
WASTEWATER		220,200	157,800	3,600	425,500	303,800	6,940
	UNKNOWN	100	100	0	0	0	0
	ARROWTOWN	14,800	9,800	200	23,510	13,990	340
	ARTHURS PT	4,600	3,700	100	8,850	6,740	130
	CARDRONA	0	0	0	1,580	1,340	30
	FRNAKTON	8,700	6,400	200	0	0	0
	LAKE HAWEA	17,500	14,600	200	17,870	13,410	280
	LAKE HAYES	1,600	1,200	0	33,910	26,580	510
	LUGGATE	0	0	0	3,890	2,920	80
	QUEENSTOWN	84,900	53,400	1,400	174,740	116,630	3,000

	SHOTVR CTY	4,100	3,900	100	9,780	8,980	120
	WĀNAKA	83,900	64,700	1,400	151,370	113,210	2,450
STORMWATER		150,000	119,900	1,800	314,650	246,230	4,070
	UNKNOWN	100	100	0	0	0	0
	ALBERT TN	7,200	6,300	100	12,720	10,640	160
	ARROWTOWN	9,200	7,500	100	15,820	12,190	200
	ARTHURS PT	3,200	2,800	0	6,030	5,020	80
	FRKN FLATS	0	0	0	12,410	11,970	160
	GLENORCHY	700	600	0	1,470	1,190	20
	LAKE HAWEA	2,500	2,100	0	6,520	5,320	90
	LAKE HAYES	10,300	8,800	100	21,730	18,070	280
	LUGGATE	1,700	1,500	0	3,220	2,630	40
	QUEENSTOWN	53,400	40,100	700	104,460	75,360	1,330
	SHOTVR CTY	8,200	8,000	100	17,440	16,440	240
	WĀNAKA	53,500	42,100	700	112,830	87,400	1,470
WATERSUPPLY		186,200	139,000	3,000	302,880	220,410	4,860
	UNKNOWN	500	400	0	0	0	0
	ARROWTOWN	11,900	8,000	200	18,140	11,190	290
	ARTHURS PT	4,700	3,800	100	7,220	5,610	120
	GLENORCHY	3,100	2,300	100	5,610	3,680	120
	LAKE HAWEA	8,200	6,500	100	14,350	10,960	230
	LAKE HAYES	14,700	12,100	300	28,300	22,520	450
	LUGGATE	2,300	1,800	0	4,270	3,320	80
	QUEENSTOWN	72,900	50,100	1,200	106,750	71,250	1,750
	SHOTVR CTY	5,000	4,900	100	11,720	10,800	190
	WĀNAKA	63,900	49,100	900	106,520	81,080	1,630
Grand Total		**556,400**	**416,700**	**8,400**	**1,043,030**	**770,440**	**15,870**

10.7.1 EXCLUSIONS

The following asset groups have been excluded from the valuation:

- The effect of the relevant provisions of the RMA or other legislation on any asset replacement.
- Land value i.e. under pipes, and pond
- Natural features such as streams, rivers and overland flow paths
- Intellectual property related to the Three Waters Infrastructure activity
- Work in Progress as at 30 June 2019
- Costs associated with resource consents (applications and renewals)

10.8 DEPRECIATION (LOSS OF SERVICE POTENTIAL)

Depreciation is the extent to which QLDC's assets decrease in value each year - due to their use, age, obsolescence through technological and market changes, change in use, or neglect.

10.9 DEPRECIATION PROVISION

Operational assets with the exception of land are depreciated on a straight-line basis to write off the asset to its estimated residual value over its estimated useful life.

Infrastructural assets, with the exception of land under roads, are depreciated on a straight-line basis to write off the fair value of the asset to its estimated residual values over its estimated useful life.

On revaluation Infrastructural, assets, other than land under roads, are stated at fair value less accumulated depreciation and any impairment losses recognised after the date of revaluation.

The useful lives and associated depreciation rates of the various classes of assets have been estimated generally based upon the New Zealand Infrastructure Asset Valuation & Depreciation Guidelines – Version 2. In specific cases these have been modified for reasons explained in the valuation report.

The depreciation rates are applied at the component level and the depreciation sum is calculated on the remaining useful life of each component. Where the age or condition is unknown, it is assumed the asset is half way through its useful life.

The residual value and useful life of an asset is reviewed, and adjusted if applicable, each financial year end.

10.10 DATA CONFIDENCE

The depreciation confidence is as recorded for the revaluation. QLDC uses the International Infrastructure Management Manual (IIMM) rating system for data integrity and confidence.

10.10.1 WATER SUPPLY & WASTEWATER

With the exception of asset data for service connections, data completeness is generally highly reliable. An ongoing data improvement process will continue to make improvements over time, with a current focus on service connections. Asset performance has been improved significantly in recent years by a programme of hydraulic modelling as well as desktop analysis.

Recent improvements and integrations in QLDC's asset management system allows for more advanced analytics and confidence related to asset condition, however, more condition assessments are required for water supply assets. Technology trials for water supply condition assessment is planned for 2021/2022.

10.10.2 STORMWATER

The distributed nature of stormwater infrastructure has resulted in some uncertainty in the data completeness and an ongoing data improvement process will continue to make improvements over time, with a current focus on stormwater mudtanks and associated assets. Asset performance has become out of date in recent years but a programme of hydraulic modelling is planned for 2018/19. Recent improvements and integrations in QLDC's asset management system allows for more advanced analytics and confidence related to asset condition.

The overall confidence rating for the 2020 valuation is B. Internal confidence assessments are provided in the following table:

Figure 35: Overall Confidence of asset data

	Asset Condition	Asset Performance	Data Completeness	Overall Confidence of Asset data
Water Supply				
Wastewater				
Stormwater				

A	Highly Reliable Data based on sound records, procedures, investigations and analysis, which is documented properly and recognised as the best method of assessment.
B	Reliable Data based on sound records, procedures, investigations and analysis, which is documented properly but has minor shortcomings, for example the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation.
C	Uncertain Data based on sound records, procedures, investigations and analysis, which is incomplete or unsupported, or extrapolation from a limited sample for which grade A or B data is available
D	Very Uncertain Data based on unconfirmed verbal reports and/or cursory inspection and analysis. Dataset may not be fully complete and most data is estimated or extrapolated.

10.11 BACKLOG (DEFERRED MAINTENANCE AND DEFERRED RENEWALS)

Backlog is the value of maintenance and renewal work that has not been done when it should have been – in order to meet the prescribed levels of service.

If maintenance and renewal work is not carried out at the optimum time in the asset lifecycle:

- The assets will deteriorate further
- The repair, renewal or replacement work that will have to be done later may be more extensive than it would have been if it had been carried out at the optimum time
- The cost of doing the work later may be more expensive (in real terms) than it would

have been if the work had been carried out at the optimum time.

- (Until it is done) the annual cost of maintaining the asset may be more expensive than it would have been if the work had been done at the optimum time (e.g. the higher cost of repairing breakages and/or blockages as the pipe further deteriorates)
- The asset may not be able to continue to perform to its original design capacity or performance standard, or to deliver the specified levels of service, and, if the work continues to be delayed, may ultimately be unable to provide the required service altogether (e.g. complete electrical failure of a pumping station, meaning it is unable to convey sewage)

10.12 MONITORING THE BACKLOG TRENDS

Data is critical to determining if maintenance and renewal effort is being deployed efficiently. QLDC gauge the residual life of its buried assets through a number of different approaches, depending on the nature of the asset. For gravity sewers a programme of closed circuit television (CCTV) inspections allow the internal condition of the pipe to be assessed. For pressurized pipes the remaining useful life of the asset is determined from the pipe material and age. This information is then considered in conjunction with other problem indicators such as the number of reported breakages.

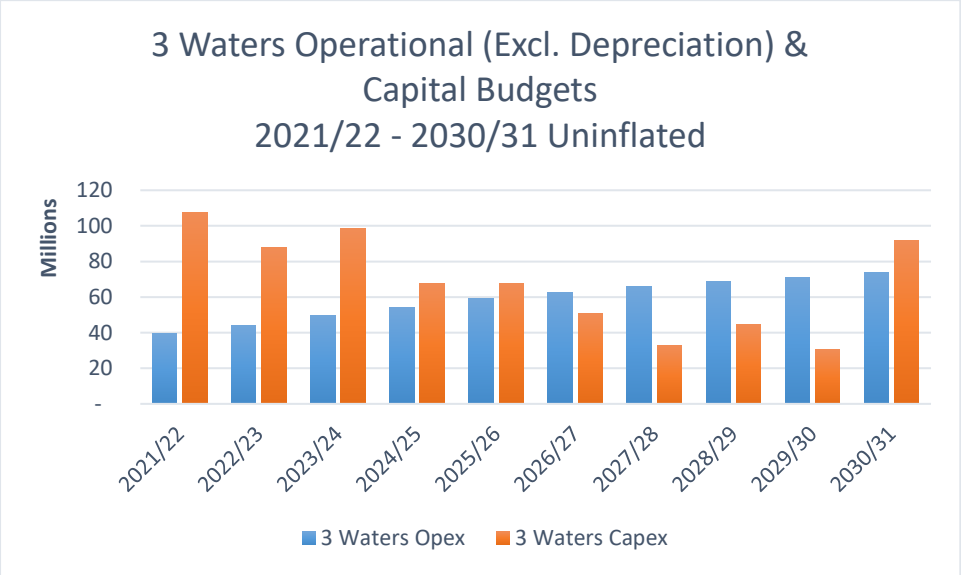
Due to the aging nature of the water infrastructure in the district, and the quantum of non-ideal materials used historically, QLDC is faced with a relatively significant backlog of deferred renewals to address in order to achieve the desired level of service and reliability universally.

10.13 TOTAL EXPENDITURE

The graphs below provide a high level overview of the QLDC Capital and Operational Investment Programme, all financials have been drawn from Tech One, QLDC's Enterprise Financial system. All capital and operational expenditure in this document is uninflated to funding year.

In addressing the key strategic issues, QLDC has a multi-million dollar Investment Programme on new and replacement infrastructure between 2021/22 and 2031/32.

Figure 36: Three Waters Capital & Operational Expenditure (Excl. Depreciation) Uninflated



10.14 CAPITAL EXPENDITURE

Figure 37 shows the total expected expenditure uninflated, year-on-year up to 2030/31. It is important to note, due to the size of the programme the years 1 to 3 is being developed in detail and years 4 to 10 has limited detail.

Figure 37 Infrastructure Capital Expenditure Projections

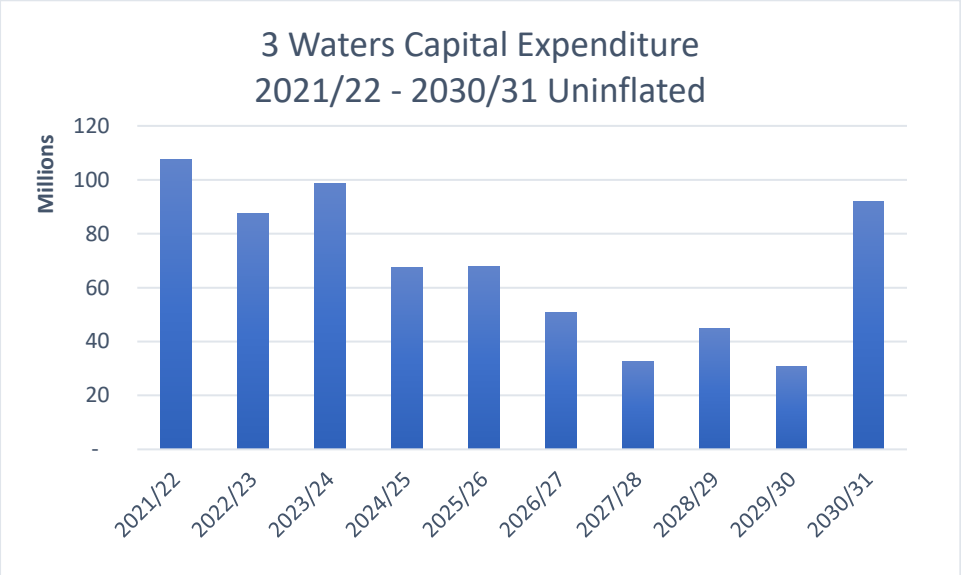


Figure 38. Below shows the total capital expenditure projections for 3 Waters by programme: water supply, storm water and waste water. Years 1 to 3 show our capital spend is mainly focused on water supply followed closely by waste water this is due to projects such as Wanaka Water Treatment (WS), Southern Conveyance Network (WW) and Project Shotover Upgrade (WW).

Figure 38: Infrastructure Capital Expenditure Projections by programme

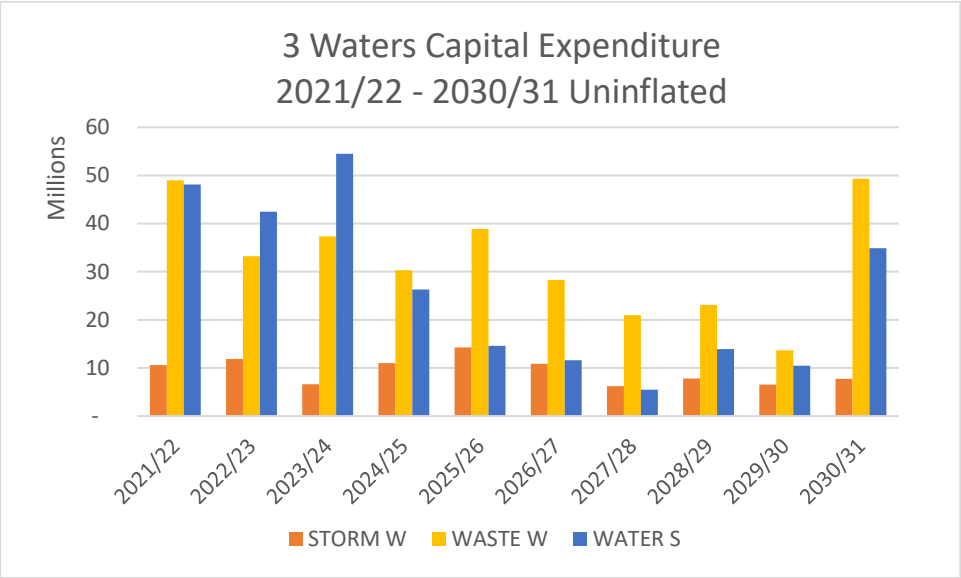


Figure 39. Shows the expected expenditure year-on-year up to 2030/31, by driver (growth, asset renewal or level of service). Spend in the first ten years is primarily driven by growth and delivering levels of service to the District, as highlighted below:

Figure 39 Infrastructure Capital Expenditure Drivers

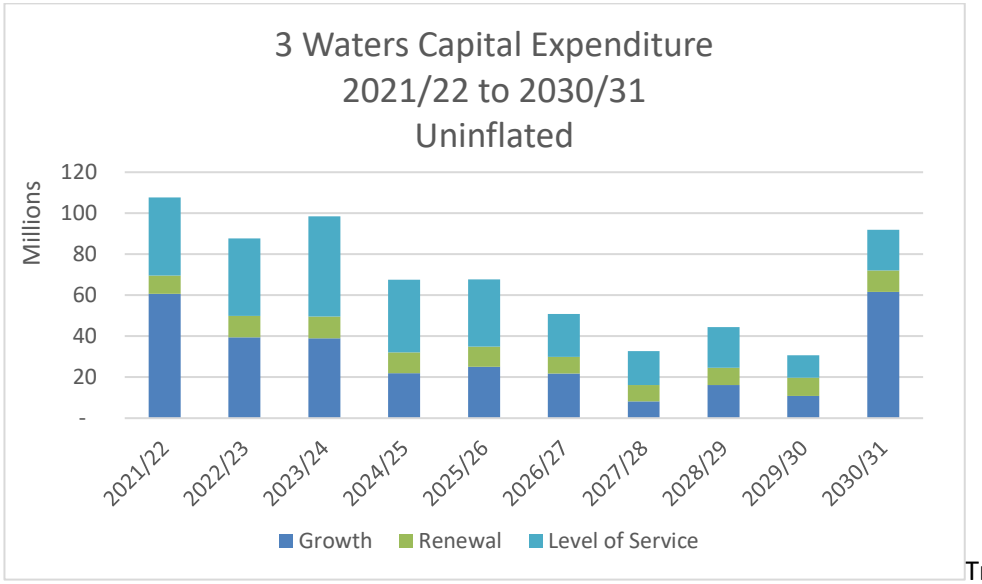


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Table 11 below shows the current capital investment programme for the next 10 years for key Three Waters projects.

Table 11: Key Three Waters Projects 2021/22 – 2030/31

CAPITAL EXPENDITURE ('000)

DESCRIPTION	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Total
Significant Projects - Gross Cost (Uninflated)											
Water Supply											
Wanaka Water Treatment (WS)	3,960	5,940	30,000	200	-	-	-	-	-	-	49,500
Two Mile Water Treatment Plant (WS)	1,000	2,000	20,000	7,000	-	-	-	-	-	-	30,000
Coneburn Scheme (WS)	-	-	-	-	-	-	-	155	1,546	13,916	15,617
Beacon Point Intake & Rising Main (WS)	4,152	6,228	-	-	-	-	-	-	-	-	10,380
Kingston Housing Infrastructure Fund New Scheme (WS)	5,392	1,624	-	-	10	2,850	56	-	-	-	9,932
Ladies Mile Storage & Mains (WS) Housing Infrastructure Fund	-	-	-	60	594	-	-	65	289	6,198	7,205
Hawea Reservoir Capacity (WS)	50	1,450	-	-	-	-	52	1,020	2,100	2,100	6,772
Cardrona Water Supply Scheme (WS)	1,400	6,448	-	-	-	-	-	-	-	-	7,848
Demand Management - Wanaka	114	145	-	-	2,363	2,363	2,025	-	-	-	7,011
Water Supply - Renewals - Queenstown (WS)	349	388	468	554	568	664	723	684	668	1,593	6,659
Demand Management - Queenstown (WS)	163	130	-	-	-	-	-	1,938	1,938	1,661	5,830
Southern Corridor Water Treatment (WS)	-	-	-	-	-	-	-	66	120	5,400	5,586
Ladies Mile New Scheme (WS) Housing Infrastructure Fund	-	-	-	-	-	-	484	5,700	74	-	6,258
Arrowtown Water Storage (WS)	-	-	60	1,200	2,400	2,400	-	-	-	-	6,060
Western Wanaka Level of Service (WS)	5,406	1,352	-	-	-	-	-	-	-	-	6,758
Shotover Country New Water Treatment Plant (WS)	4,961	1,240	-	-	-	-	-	-	-	-	6,202
Water Supply - Renewals - Wanaka (WS)	331	339	393	461	482	451	620	526	656	516	4,774
Luggate Water Supply Scheme (WS)	4,000	-	-	-	-	-	10	1,000	-	-	5,010
Balance of projects less than $5m	16,838	15,211	3,562	7,433	8,195	2,846	1,496	2,759	3,098	3,491	64,930

CAPITAL EXPENDITURE ('000)

DESCRIPTION	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Total
Significant Projects - Gross Cost (Uninflated)											
Wastewater											
Southern Conveyance Network (WW)	200	-	-	-	-	-	-	350	3,500	31,300	35,350
Project Shotover Plant Upgrade (WW)	-	-	732	16,625	8,622	750	-	-	-	-	26,729
Central Business District to Frankton Conveyance (WW)	1,819	8,000	14,000	1,000	-	-	-	-	-	-	24,819
Hawea Wastewater Management (WW)	2,500	10,000	12,500	-	-	-	-	-	-	-	25,000
Wastewater - Renewals - Queenstown (WW)	1,490	2,213	2,125	2,621	2,264	2,426	2,516	1,820	1,975	2,176	21,627
Glenorchy Wastewater Scheme (WW)	-	-	-	-	180	600	9,000	8,400	-	-	18,180
Kingston Housing Infrastructure Fund New Scheme (WW)	7,896	2,325	4,599	-	-	4,507	91	-	-	-	19,418
Pump Station Emergency Storage - Wanaka (WW)	-	-	14	1,404	1,440	5,014	1,404	1,404	1,404	1,404	13,487
Wastewater - Renewals - Wanaka (WW)	747	833	838	930	905	884	973	991	2,888	2,907	12,898
Rising Main to Project Pure (WW)	-	-	-	126	2,400	7,800	2,400	-	-	-	12,726
Pump Station Emergency Storage - Queenstown (WW)	-	-	8	1,288	4,508	846	846	846	846	846	10,034
Cardrona Wastewater Scheme (WW)	11,000	-	-	-	-	-	-	-	-	-	11,000
Project Pure Upgrade (WW)	6,480	4,233	-	-	-	-	-	-	-	-	10,713
Frankton Beach to Shotover Conveyance (WW)	-	-	93	930	7,452	930	-	-	-	-	9,405
Lake Esplanade Catchment Diversion (WW)	-	-	-	-	-	-	-	63	621	5,714	6,398
Remarkables Park & Kawarau Place Pump Station (WW)	-	-	67	1,200	4,320	1,200	-	-	-	-	6,787
North Wanaka Conveyance (WW)	5,800	1,450	-	-	-	-	-	-	-	-	7,250
Balance of projects less than $5m	11,061	4,183	2,387	4,179	6,763	3,365	3,781	9,208	2,398	4,966	52,291

CAPITAL EXPENDITURE ('000)

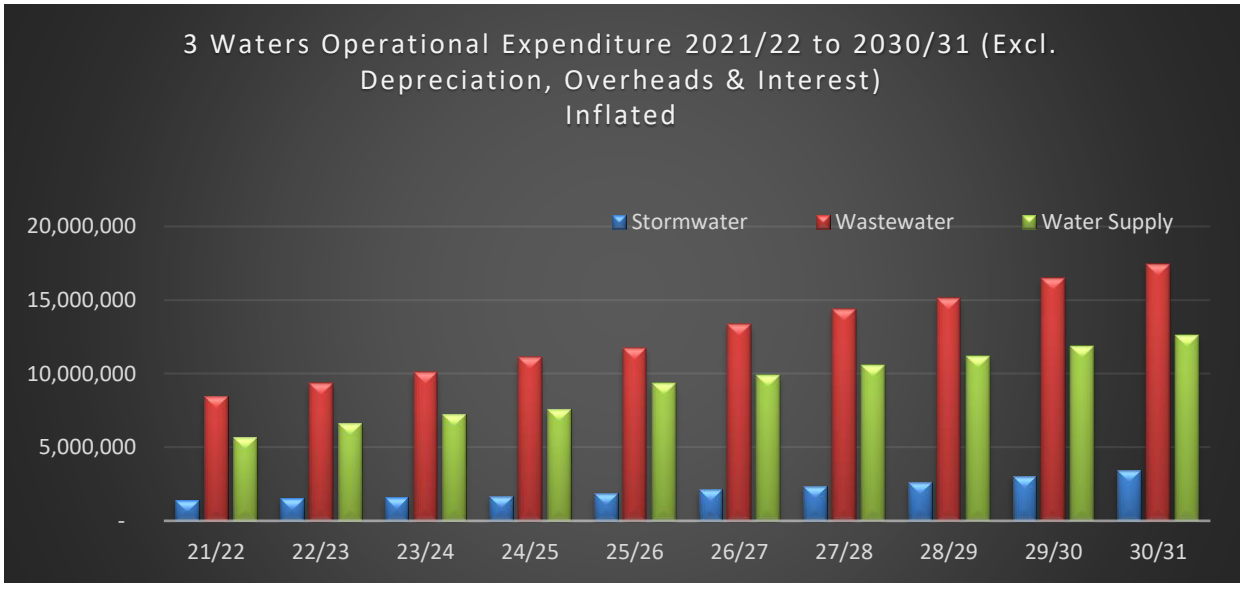
DESCRIPTION	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Total
Significant Projects - Gross Cost (Uninflated)											
Stormwater											
Treatment - Wakatipu (SW)	-	-	-	607	758	948	1,184	1,479	1,850	2,312	9,138
State Highway 6 - Glenda Dr Extension (SW)	-	-	-	3,360	3,360	2,880	-	-	-	-	9,600
Stormwater - Renewals - Wakatipu (SW)	713	962	880	871	529	1,134	1,094	1,193	505	685	8,566
Wanaka Improvements - High Risk (SW)	-	72	2,245	2,245	2,698	25	21	-	-	-	7,305
Kingston Housing Infrastructure Fund New Scheme (SW)	1,902	1,662	1,308	-	-	1,308	-	-	-	-	6,179
Treatment - Wanaka (SW)	-	-	-	318	397	497	621	776	970	1,213	4,792
Conveyance - Wakatipu (SW)	-	-	-	302	377	472	590	741	925	1,155	4,562
Stormwater - Renewals - Wanaka (SW)	334	327	328	384	330	805	781	711	318	316	4,633
Investigations - Wakatipu (SW)	151	190	236	295	371	462	577	722	722	722	4,448
Wakatipu Improvements - High Risk (SW)	-	46	529	1,138	1,521	981	393	-	-	-	4,606
Lakeview Development Servicing (SW)	3,829	1,641	-	-	-	-	-	-	-	-	5,470
Balance of projects less than $5m	3,642	6,993	1,121	1,486	3,898	1,359	959	2,161	1,273	1,349	24,243

10.15 OPERATIONAL EXPENDITURE

Operational expenditure for the 10-year period is shown in Figure 40 and 41. Wastewater operational costs continue to increase over the period due Project Shotover and the building of new wastewater scheme at Glenorchy. Water operational costs continue to increase over the period due to the building of new water schemes at Kingston and the new HIF projects.

Figure 40: Three Waters Operational Expenditure

Figure 41: Three Waters Operational Expenditure By Programme



10.16 KEY ASSUMPTIONS, CONFIDENCE AND RELIABILITY

Parts of the natural environment will deteriorate with increased urbanisation and population growth. Raw water quality will become more polluted, both naturally (lake snow/algae/turbidity) and with an increase in development and/or changes in urban run-off and other contaminant's (metals – zinc, copper and hydrocarbons).

QLDC will need to increase its monitoring of the natural environment. The ability to predict and respond as to when a water treatment solution is no longer appropriate and public health maybe compromised is imperative.

Lake level and valleys are prone to flooding and alluvial re-direction i.e. Kinloch.

There is an increasing issue with discharge and contaminants resulting from road runoff into stormwater and potentially water supplies.

QLDC will continue to work with Central Government and Otago Regional Council to address the issues around Climate Change and will commit to implementing Water Standards, lifting the quality of freshwater resources and improving our drinking, waste and stormwater.