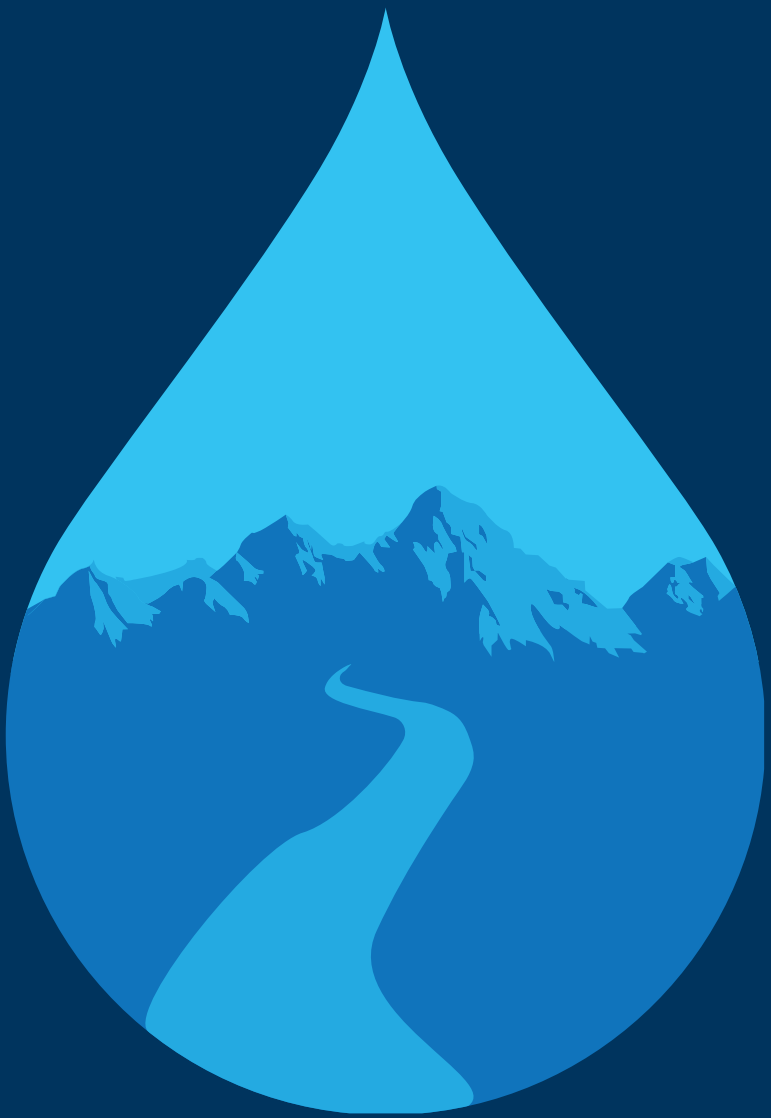
PROPOSED INTEGRATED THREE WATERS BYLAW

COVER REPORT



QUEENSTOWN LAKES DISTRICT COUNCIL

QUEENSTOWN LAKES DISTRICT COUNCIL

OUR ENVIRONMENT IS PRECIOUS

IT'S UP TO ALL OF US TO PROTECT IT FOR FUTURE GENERATIONS.

Help us develop a bylaw to take a holistic approach to providing safe drinking water, keeping our lakes, rivers and environment clean and looking after our infrastructure.

Not just for our people but everyone living and playing downstream from us.

QLDC Proposed Three Waters Bylaw

Providing safe drinking water and a clean, sustainable environment through high quality infrastructure.

QUEENSTOWN LAKES DISTRICT COUNCIL

CONTENTS

1. PROPOSED INTEGRATED THREE WATERS BYLAW

This report investigates the opportunity to improve management of the council's three waters responsibilities. The Three Waters Services are core infrastructure managed by the council, comprising of:

- The *Water Supply Network*: provides the supply of water on demand to the communities and businesses within the reticulation network.
- The *Stormwater System*: provides for the collection and discharge, treatment (in some cases) and discharge of stormwater to the receiving environment.
- The *Wastewater Network*: provides for the collection, treatment and discharge of wastewater. Wastewater includes domestic sewage and the industrial wastewater from trade premises is known as trade waste.

The stormwater network of pipes, roads and other devices also utilises the natural and built environment for the conveyance of stormwater. Therefore the term system has been adopted to describe the infrastructure that the council uses to manage stormwater. This captures the management of the natural and built environment beyond the council's reticulated network.

The wastewater and water supply assets across the district are made up of a number of discreet unconnected networks. However the policies and standards in place to manage these networks is the same. For ease of understanding this report describes these networks in the singular.

1.1. Background

Under the LGA, the council is able to make bylaws for the purposes of managing and protecting the three waters networks and the natural environment from which water is abstracted and into which wastewater and stormwater are discharged. There are a number of additional reasons why council should consider making these bylaws, these include:

- protecting the public from nuisance
- protecting, promoting, and maintaining public health and safety, and
- minimising the potential for offensive behaviour in public places.

Currently the council has an existing water supply bylaw that is due to be reviewed in 2025 and a trade waste bylaw, due for review in 2019 (if not reviewed the existing bylaw will be revoked). The water supply bylaw was reviewed in 2015 and the trade waste bylaw was a new bylaw adopted by the council in 2014.

The need for improved outcomes for the management of stormwater and wastewater has become evident with the increase in population, large scale business operations and the need to protect the natural receiving environment and council's infrastructure from harm.

One option being considered is an *Integrated Three Waters Bylaw* and an associated *Administrative Manual*. These are to be considered alongside the following four reports that have been prepared consistent with the requirements of the Local Government Act 2002 (**LGA**):

1. Findings from the Review of the Queenstown Lakes District Council *Trade Waste Bylaw 2014*
2. Findings from the review of the Queenstown Lakes District Council *Water Supply Bylaw 2015*

3. A determination report investigating the appropriateness of a *stormwater bylaw*
4. A determination report investigating the appropriateness of a *wastewater bylaw*

The findings reports are reviews of council's existing trade waste and water supply bylaws and the determination reports make recommendations about the use of a bylaw to manage stormwater and wastewater. All these reports include an option to use an *Integrated Three Waters Bylaw*.

Incorporating the wastewater and stormwater bylaws together with the water supply and trade waste bylaw (given that trade waste is discharged into the wastewater system) into one comprehensive document will allow council to take an integrated and consistent approach to the management of its three waters services and the associated networks. The networks include water abstraction and treatment, wastewater treatment and discharge and stormwater discharges as well as the water supply, distribution systems and wastewater and stormwater collection and conveyance systems.

1.2. Te Tiriti o Waitangi

Water management is critical to Māori as kaitiaki who are responsible for the wellbeing of tangata whenua and protecting, enhancing and restoring the mauri of freshwater bodies. The council recognises these kaitiaki responsibilities and wants to ensure an outcome where kaitiaki concerns are appropriately addressed where possible in the management of public systems and in relation to council policy and monitoring the performance of private systems.

Areas of concern to Māori as kaitiaki include water quality monitoring and treatment, pest control, waste disposal and water abstraction.

From previous work, the council recognises the developed principles for urban water quality management. These are listed in Appendix B of this report and serve as over-arching principles for urban water management.

Further consultation with Ngāi Tahu is expected to occur in the next phase when any proposed bylaw is developed and presented during the special consultation procedure as is consistent with Section 81 of the LGA.

1.3. Community Views on Water Management

In October 2019 (Issue 133 of Scuttlebutt) the council introduced the concept of a proposed *Integrated Three Waters Bylaw* that would cover all three water service networks to the public. This article is included in Appendix A of this report.

As part of introducing the concept of the *Integrated Three Waters Bylaw* to the community the council undertook a survey to understand how the community felt about water management in the district. 92 per cent of respondents surveyed supported the council taking more regulatory action to protect waterways (i.e. introducing an integrated bylaw, enforcing breaches and fining those responsible for causing pollution). Figure 1.1 shows that the majority of people surveyed in 2019 were very concerned about water quality in the district. Hence the reason that some of the community recently submitted against the council's proposal for a network discharge consent.

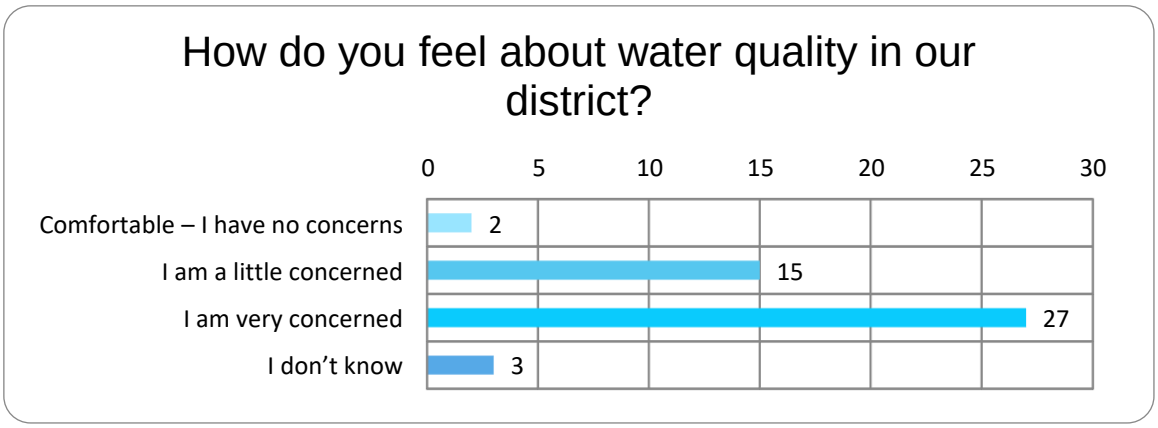


Figure 1.1 *Survey results about water quality across the district (2019) showed that the majority of those completing the survey were very concerned about water quality in the district.*

Consultation with the Minister (via the Ministry) of Health needs to occur in the next phase with respect to legislative requirements for adopting a trade waste bylaw.

1.4. Challenges

The challenge for the council to effectively manage three waters is becoming increasingly complex, due to:

- increased population growth associates with an increase in wastewater contamination loads; and
- a reduction in permeable land surfaces to support ground-soakage and ground-water recharge because of development pressures.

Climate change is expected to increase the intensity and frequency of heavy rainfall events, even in areas where mean annual rainfall is predicted to decrease.[1] A key challenge for councils is to be adaptive and responsive to new threats.

1.5. Objectives and advantages of an Integrated Three Waters Bylaw

The objective of an *Integrated Three Waters Bylaw* is to give effect to:

- the The Queenstown Lakes District Council Infrastructure Strategy 2015-2045, which states *"Providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the district's tourism-based economy"*

- Protect the Queenstown Lakes District Council's investments in existing and future water supply, wastewater and stormwater infrastructure, treatment plants and discharge facilities

- Ensure the protection, safety and health of Queenstown Lakes District Council personnel and the general public.

[1] Source: Queenstown Lakes District Council's Land Development and Subdivision Code of Practice April 2018.

- Promote water stewardship and cleaner production strategies that will give effect to Te Mana o Te Wai – Te Mana o Te Wai refers to the first right to water under the National Policy Statement for Freshwater Management.

This can be achieved by taking a holistic approach to infrastructure services in the district that is:

- Integrated;
- Effective;
- Efficient;
- Functional;
- Safe; and
- Sustainable.

There are a wide range of advantages of taking an integrated approach. These include:

- Protection of the built environment in an integrated, sustainable and planned manner will provide for positive environmental, social, cultural and economic outcomes that will follow through to future generations
- Provides a common framework that enables the council to control discharges which ultimately protects the receiving environment, public health and those people working on the networks
- Provides clear regulatory direction for council's role in decision making on what is discharged into the environment, regardless of the network/system
- Allows for a consistent approach across the district that will improve organisational efficiency that is effective and easily understood
- Future bylaw reviews will take an overall holistic approach to any issues that must be addressed in the district
- Ensures a consistent and holistic approach to the promotion of sustainable behaviours and activities including, water conservation, waste minimisation, cleaner production and on-site pre-treatment
- Fosters education focused on the integration to the three waters and their interaction with the natural water cycle and the receiving environment

1.6. Administrative Manual

It is proposed that the *Integrated Three Waters Bylaw* will be accompanied by an *Administration Manual*. The purpose of the *Administration Manual* is to provide material complementary to each of the three waters by bringing together those aspects which are of a more administrative nature and which may need regular review and updating. For example, a schedule referenced in the bylaw outlining methods for the control of contaminants that is likely to need updating regularly or public guidance documents. In taking this approach, it will simplify the administration of the bylaw, allow for administrative and technical processes to be kept up to date, and assist in interpretation of the bylaw.

Management of the *Administration Manual* would be conducted under delegated authority of the Bylaw, and will govern the implementation and operation of the bylaw. The *Administration Manual* will be a public document and available on the council's website alongside the bylaw.

In addition to making the bylaw simpler and more streamlined, the inclusion of an *Administration*

Manual is intended to make amendments simpler and more responsive to change. Amendments to the *Administration Manual* can be made by council resolution, with appropriate community engagement, and would not require the use of the Special Consultative Procedure, making decision-making more cost-effective and timely.

A legal opinion confirms the appropriateness of using an *Administrative Manual* approach and that such an approach would be beneficial to the council when implementing *the Integrated Three Waters Bylaw.*

1.7. New Zealand Bill of Rights Act 1990

In broad terms there is nothing about having an integrated bylaw that raises concerns in this regard. However an evaluation of consistency can only be made properly once the specific provisions of the bylaw are proposed.

This assessment will need to be reviewed when the draft bylaw is prepared, to ensure that there are no matters that are unreasonable, inappropriate or are a disproportionate response to the perceived problem.

2. FEES AND CHARGES

The costs associated with adopting an *Integrated Three Waters Bylaw* and *Administration Manual* are expected to include:

- Further development of the Trade Waste Management System (stage 1 complete) and the development of other internal and customer-facing channels, such as the council's website
- Administration Manual document management
- Staff training
- Public notices and other awareness raising activities

The nature of the costs associated with the development of an Integrated Bylaw have been provided for through the Annual Plan 20/21.

The prescribing of fees and charges by the bylaw are provided for in section 150 of the LGA. Fees and charges will be set by council resolution. This is done through the Long-term Plan, Annual Plan or other suitable process in accordance with the LGA.

In determining all fees and charges, s.150 (4) of the LGA requires that the council not recover more than the reasonable costs that it incurs for the matter for which the fee is charged.

3. RISKS

The risks associated with adopting an *Integrated Three Waters Bylaw* and *Administration Manual* are expected to include:

- Legal challenge
- Cultural issues
- Community resistance to increased levels of regulatory management.

The nature and scale of risks will be assessed in later stages of the project as the draft bylaw is prepared and stakeholders are given an opportunity to assess impacts and risks.

4. RECOMMENDATIONS

It is recommended that the council:

(a) make a bylaw which manages its three waters services (Integrated Three Waters Bylaw);

(b) revoke the water supply and trade waste bylaws once the Integrated Three Waters Bylaw comes into force; and

(c) make an Administrative Manual to accompany the Integrated Three Waters Bylaw which deals with matters of an administrative nature and which may need regular review and updating.

4.1. Stormwater Management

Stormwater discharges are best managed through the use of a bylaw to protect the development and maintenance of stormwater systems and to control stormwater discharges on private and public lands in a manner which delivers on the council's commitments and aligns with council strategies and legislation.

The form of the bylaw will be developed further in the next phase, with general controls to apply across the district, with a risk-based approach to specific activities and behaviours.

To give effect to the overall objectives of the Integrated Three Waters Bylaw the following five core functional objectives have been identified to facilitate the provision of effective and efficient stormwater discharge in the region. These are to:

1. Control the discharge of contaminants into the public stormwater network.
2. Enable the council to meet relevant objectives, policies and standards for discharges from public stormwater systems.
3. Protect the land, structures and natural features that make up the public stormwater systems.
4. Prevent the unauthorised discharge of stormwater into public stormwater systems and ensure that private stormwater systems are not causing a nuisance or harm to the public system.
5. Define the obligations of the council, installers, owners and the public in matters related to the discharge of stormwater and management of stormwater systems.

For the full Stormwater Determination Report - see **Attachment F** of the Agenda Report.

4.2. Wastewater Management

The following wastewater bylaw objectives have been developed to give effect to the overall objectives of the Integrated Three Waters Bylaw and to align the council with its business strategy and key legislative requirements, i.e. to meet its functional objective, which is to facilitate the provision of an effective, efficient and safe wastewater network:

1. To protect the wastewater network from damage, misuse and interference

2. To enable the council to meet relevant objectives, policies, standards and resource consents for discharges from the wastewater network
3. To protect the land, structures and infrastructure of the wastewater network
4. To protect public health and safety
5. To prohibit a range of specified substances/contaminants being discharged to the wastewater network, consistent with the schedule of prohibited trade wastes.

The bylaw should be complimented with an education programme that raises awareness of the contaminants in the trade waste schedule and other matters pertaining to the efficient and effective operation of the wastewater network.

Key components of the wastewater treatment plant are discussed in Appendix D of this report.

For the full Wastewater Determination Report - see **Attachment G** of the Agenda Report.

4.3. Trade Waste Management

In the next phase of the *Integrated Three Waters Bylaw* and *Administration Manual*, investigate the appropriate form for the bylaw in response to the following recommendations:

1. Adjust the current trade waste discharge parameters to ensure they align with current legislation and promote cleaner production.
2. Produce a set of guidelines and/or controls (as appropriate) that will incentivise and support industry to source products that are environmentally preferable or readily biodegradable and enhance the performance of the wastewater network.
3. Investigate a waste tracking system to assist with pre-treatment cleaning schedules and to ensure waste streams are dealt with appropriately.
4. Develop controls for the use of trade waste agreements instead of trade waste consents for those industries that financially contribute to the wastewater network rather that investing in a water recycling system, i.e. high water users.
5. Amend the bylaw to ensure all trade premises are captured to ensure a fair and comprehensive management approach, this will include amending the categories and schedules of the bylaw to capture all trading premises (as defined in the bylaw).
6. Staff develop a plan to report on trade waste discharges relevant to compliance requirements as well as benchmarking the quality of wastewater entering the wastewater network.

For the full Trade Waste Findings Report - see **Attachment D** of the Agenda Report.

4.4. Water Supply Management

The report finds that a bylaw is still the most appropriate way to address perceived problems and provide safe drinking water that maintains public health and is compliant with the following objectives:

1. To deliver the council's infrastructure strategy, that states "providing safe drinking water is important to maintaining public health and compliance with legislation, as well as protecting the district's tourism-based economy"; and
2. To effectively manage and regulate water supply in the district.

Staff recommend that the bylaw be incorporated into the new *Integrated Three Waters Bylaw*, with the following amendments:

1. New requirements for connections and disconnections
2. Rules for managing water meter issues
3. Controlling activities that cause water pressure to reduce
4. Improve backflow prevention procedures
5. Ensure standard definitions across the three waters.

Although a review of the water supply bylaw is technically not required until 2025, the need for some updating of the water supply bylaw coupled with the proposal for council to implement an *Integrated Three Waters Bylaw* further confirms the appropriateness of updating the water supply bylaw now.

For the full Water Supply Findings Report - see **Attachment E** of the Agenda Report.

Note: A full list of the legislative and policy drivers that have informed this review are attached as Appendix C to the cover report.

QUEENSTOWN LAKES DISTRICT COUNCIL

Appendix A: Scuttlebutt Article

WE ALL HAVE A PART TO PLAY

Wastewater flows easily through the pipes when only human waste and toilet paper is flushed, and when only soapy water is put down the drain. You can take steps to help reduce wastewater overflows in our district.

SO WHAT HAPPENS WHEN OUR WASTEWATER DOESN'T FLOW EASILY?

When blockages and breaks occur, the flow of wastewater is restricted. This can result in a build-up of pressure in our pipes and can cause wastewater to back up. Sometimes this wastewater back up results in an overflow into our environment, typically out of manholes or at our pump stations.

If these overflows can't happen at a pump station or from a manhole there is a risk that wastewater will release back up through our toilets, showers and sinks. This expoeure to wastewater could affect our health and wellbeing.

WHAT'S SAFE TO PUT DOWN THE SINK, OR TOILET?

Flushing anything other than pee, poo and paper can cause pipe blockages, so does putting fats and oils down the sink. If you're not sure, here's a simple checklist of what's safe to put down the sink or toilet:

- ✓ Water
- ✓ Human waste
- ✓ Toilet paper
- ✓ Soaps
- ⊘ Food
- ⊘ Fats
- ⊘ Sanitary items
- ⊘ Wet wipes
- ⊘ Building materials
- ⊘ Hazardous liquids (including garden chemicals)
- ⊘ Unused medication

WHAT ELSE CONTRIBUTES TO BLOCKAGES AND BREAKS?

Blockages can also be caused when cafes and restaurants pour fats down the sink. We're working with businesses on ways to better manage the way that fat and other trade wastes are disposed of to reduce the likelihood of blockages occurring.

Breaks in our wastewater pipes are also caused by tree roots. Before planting large tree varieties, you can ask us for information about the location of pipes to help to avoid this.

WHAT ABOUT STORMWATER DRAINS?

We've all heard stories of people who wash out their paintbrushes or construction waste into a stormwater drain. Cigarette butts and hazardous liquids like motor oil and radiator fluid are a big no no.

The only thing that should go down stormwater drains is rainwater.

INTEGRATED THREE WATER BYLAW

High growth in our district means more water is being used, more sewerage needs catered for and more education is required to ensure businesses, residents and visitors know how to do the right thing to protect our environment.

Currently we have an existing Water Supply Bylaw 2015 (due to be reviewed in 2020) and a Trade Waste Bylaw 2014 (due to be reviewed this year). We've also recently identified the need to introduce a stormwater and wastewater bylaw to cater for increased demand on infrastructure.

Integrating these bylaws would allow us to take a more holistic approach to providing safe drinking water, keeping our lakes, rivers and environment clean and looking after our infrastructure.

Over the past month we asked for your ideas to feed into a proposed integrated Three Waters Bylaw. We're working through this feedback now and will share more about next steps in the December Scuttlebutt.

To read more head to **letstalk.qldc.govt.nz/proposed-3-waters-bylaw**

Appendix B: Urban Water Principles

These urban water principles were designed to mitigate the adverse effects, the design, management and use of urban areas are having on water ecosystems and resources.

The principles are to be used as a guide by decision-makers at all levels to promote the creation of water sensitive urban spaces by drawing on mātauranga, the lessons of the past and international best practice, the needs of our present communities and a vision of a sustainable, resilient future.

Protect and enhance ecosystem health of all receiving environments. Use integrated planning to ensure that decisions made upstream protect downstream receiving environments, such as streams, lakes, wetlands and terrestrial ecosystems, groundwater, estuaries, and the ocean.

Co-design with nature an integrated and regenerative approach to urban development. Use nature-based or green infrastructure engineering solutions where possible to mimic or work with processes found in the natural environment. Retain, restore and enhance existing elements of the natural drainage system, and integrate these elements into the urban landscape.

Address pressures on waterbodies close to source. Urban water ecosystems are under increased pressure from a wide range of contaminants, modified flow characteristics and altered channel form. These pressures can be either acute (such as a spill or pollution incident) or chronic, created by the cumulative effects of these pressures over time. Mitigating these pressures at or close to their source prevents degradation downstream.

Recognise and respect mana motuhake – the whakapapa and relationship that mana whenua have with water ecosystems in their rohe. Mana motuhake means the authority (mana) gained through self-determination and control over one's own destiny. Mana whenua communities have this authority in their customary 'rohe' or territory and have special cultural relationships with ecosystems in these areas. It is important to proactively engage mana whenua in designing urban environments within their rohe so that they can have a meaningful role in shaping the outcome.

Identify and consider the community values for urban water and reflect them in decision-making. Communities often have strong aspirations and values for their urban spaces, including values for environmental sustainability, sense of place, and general amenity and liveability. Urban planning and design processes should create opportunities for communities to express their values and for decision-makers to reflect these goals in their decisions.

Optimise environmental, social and cultural benefits when investing in buildings and infrastructure. When considering options for investment, prioritise options that provide multiple benefits. Investment decisions should take lifecycle costs of buildings and infrastructure into account and generate an enduring well-being gain.

Uphold and foster kaitiakitanga and custodianship of urban water ecosystems. Everyone has a responsibility to care for the health of our urban water bodies. Because of this, it is important that all community members can connect with these water bodies and are encouraged and empowered to take direct action to maintain and restore ecosystem health.

Collect and share information to promote common understanding of urban water issues, solutions and values. Meaningful and transparent data and information is necessary to improve both the design and use of our urban environments. Improving access to quality information can

support integrated catchment planning and water sensitive design, while information for urban residents and businesses on current and emerging issues and solutions can foster positive behaviour change and the acceptance of new policy and technology.

Increase resilience to natural hazards and climate change. To improve the resilience of urban communities, we need to design water sensitive systems and landscapes which reflect the environmental characteristics of the area and are resilient to natural disasters and change.

Conserve and reuse water resources. Drinking water, wastewater and stormwater are each valuable resources and we should reduce their consumption and/or production and maximise their reuse. This includes increasing water-use efficiency by reducing potable water demand and maximising the use of greywater and stormwater[2]

[2] Urban Water Principles Recommendations of the Urban Water Working Group, Phase 1 (2018), Retrieved from Then Ministry for the Environment https://www.mfe.govt.nz/sites/default/files/media/Fresh%20water/Phase-I-Report-Urban-Water-Working-Group-Urban-Water-Principles-final.pdf

Appendix C: Legislation Framework and Policy Alignment

Key legislative instruments, policies and principles that inform and align with the investigations carried out as part of the *Integrated Three Waters Bylaw* and *Administration Manual*.

Legislation

Building Act 2004 and Building Code 2002: The Building Act regulates plumbing and drainage. G14 directs local authorities to the requirements for oil and water interceptors discharging to council infrastructure.

The Building Act also empowers councils to issue Notices to Fix where drainage is not performing. Determinations under the act continue to provide national guidance to licensed building practitioners and drainage engineers.

Local Government Act 2002: Section 145 of the Local Government Act (LGA) 2002 (LGA, 2002) allows territorial authorities to make bylaws for the purposes of protecting the public from nuisance, and protecting, promoting, and maintaining public health and safety.

Section 142 of the LGA, 2002 allows local authorities to prosecute for offences against the bylaw, however there are no powers for the council to issue infringement notices with a financial penalties currently.

Health Act 1956: The Council recognises its responsibilities and obligations set out under the Health Act, which enables local authorities to make bylaws for the protection of public health. Every person who contravenes or fails to comply with any bylaw made under the Health Act commits an offence and is liable to a fine and, in the case of a continuing offence, to a further fine for every day on which the offence has continued.

A local authority may, after the conviction of any person for a continuing offence against any bylaw, apply to the court for an injunction to restrain the action.

Health and Safety at Work Act 2015: Is enforced by WorkSafe New Zealand. The Act protects workers and other persons against harm to their health, safety and welfare by eliminating or minimising risks arising from work.

Resource Management Act 1991: The purpose of the Resource Management Act 1991 (RMA) is to ensure the continued protection and enhancement of the environment, and the sustainable management of natural physical resources. The RMA is the overarching legislation that deals with the discharge of contaminants and s15 of the RMA prohibits unauthorised discharges of contaminants to water and land.

Hazardous Substances and New Organisms Act 1996: Regulates hazardous substances that may be present in stormwater discharges.

Waste Minimisation Act 2008: *The enactment of the Waste Minimisation Act (WMA) in 2008 represented a fundamental change in the Government's approach to managing and minimising waste. The WMA recognises the need to focus efforts higher on the waste hierarchy in terms of reducing and recovering waste earlier in its life cycle, shifting the focus away from treatment and disposal.*

The purpose of the WMA (section 3) is to *"encourage waste minimisation and a decrease in waste disposal in order to protect the environment from harm and to provide environmental, social,*

economic and cultural benefits". Waste management in New Zealand is underpinned by the Government's core policy document in this area, *The New Zealand Waste Strategy* (NZWS). The NZWS has two goals:

- Reducing the harmful effects of waste, and
- Improving the efficiency of resource use.

Section 44 of the WMA requires that councils "have regard to" the NZWS, or other such policy that is subsequently developed, when developing waste management initiatives. The NZWS's approach seeks to ensure that waste management initiatives are appropriate to local situations and desired community outcomes.

Proposed Wastewater National Environmental Standard and Proposed Water Services Act: The Governments Essential Freshwater National Programme proposes a National Environmental Standard on Wastewater Discharges and the use of risk management requirements for stormwater. Topics covered in the recent publication[3] include nationally consistent measures for stormwater, national guidance on stormwater policy and network management. Water sensitive design and green infrastructure are topics that will be included.

The Government's Three Waters Review: The Three Waters Review is a cross-government initiative led by the Minister of Local Government to review how to improve the regulation and supply arrangements of three waters nationwide. One outcome of the review has been the introduction to Parliament of the Taumata Arowai – Water Services Regulator Bill, which establishes a new regulatory body responsible for administering and enforcing a new drinking water regulatory system (including the management of risks to sources of drinking water).

Regulations and National Guidelines

National Policy Statement for Freshwater Management 2017 (NPS-FM) and the proposed strengthened version 2019: Central Government[4] through the Ministry for the Environment are currently strengthening and clarifying the requirements to manage freshwater in a way that gives effect to the Te Mana o te Wai. This refers to the integrated and holistic health and wellbeing of waters from the mountains to the sea. Urgency is being given to this as set out in the proposed NPS-FM 2019 as part of Government's Essential Freshwater National Direction Programme. The overall aim of the new NPS-FM 2019 is that the health and wellbeing of the water will be put first in decision making as part of a holistic approach. The NPS-FM drives the Otago Regional Water Plan as is discussed below.

The Governments Essential Freshwater National Programme proposes a National Environmental Standard on Wastewater Discharges and the use of risk management requirements for stormwater.

[3] Essential Freshwater action for healthy waterways – New Zealand Government September 2019

[4] Essential Freshwater action for healthy waterways – New Zealand Government September 2019

These and other requirements will all have an input and bearing on the need for and implementation of any proposed wastewater bylaw.

Otago Regional Water Plan - Plan Change 6A (water quality): The Otago Regional Water Plan has been developed under the Resource Management Act 1991 (RMA, 1991). The RMA, 1991 allows for specific policy statements to be developed which have an impact on the management of water and water bodies. Plan change 6A (water quality) was deemed operative on the 1st of May 2014.

The discharge of stormwater, Rule 12.4 of the Otago Region Water Plan (plan change 6A), is a permitted activity, providing the stormwater discharged, after reasonable mixing, does not give rise to all or any of the following effects in the receiving water:

- The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or
- Any conspicuous change in the colour or visual clarity; or
- Any emission of objectionable odour; or
- The rendering of fresh water unsuitable for consumption by farm animals;
- Any significant adverse effects on aquatic life.

One of the objectives of the plan is to "maintain or enhance the quality of water in Otago's lakes and rivers so that it is suitable to support their natural and human use values and people's use of water".

The plans objectives can be achieved by encouraging and supporting voluntary initiatives, i.e. implementing codes of practice, management guidelines and systems developed by local authorities, industry, resource users and other interest groups as appropriate; and practical mechanisms that influence the protection of waterways.

These and other requirements will all have an input and bearing on the need for and implementation of the proposed stormwater bylaw.

Compliance with regional consents in relation to current and future discharges to land or water: Resource consents usually include conditions to protect the environment. Consented activities are monitored by Otago Regional Council to make sure that the conditions are being met.

Guidelines for the Safe Application of Biosolids to Land in New Zealand: Traditionally, sewage sludge has been regarded as a waste product, and most commonly managed by disposal to landfill. However, disposal to landfill is becoming increasingly expensive and the production of methane gas from sludge in landfills is inconsistent with our *Kyoto Protocol* commitments. The conversion of sewage sludge into biosolids and the controlled application of biosolids to land provide an opportunity to take advantage of the fertilising and soil conditioning properties of this resource whilst avoiding the disposal issues. The draft document, Good Practice for the Beneficial Use of Organic Waste Products on Land, once approved, will supersede the 2003 biosolids guidelines. These guidelines have the potential to actively contribute to waste minimisation and minimise carbon emissions. Using biosolids appropriately for these purposes reduces the reliance of mining virgin material and other carbon-intensive activities, as well as finding sustainable and environmentally beneficial outcomes for organic materials that are currently viewed as waste.

Other Local and Regional Policies

The Otago Urban Water Quality Strategy

The strategy was adopted by Otago Regional Council on the 27th September 2017, and the focus now is to shift towards implementing activities to deliver on the goals set out in the strategy.

The strategy is part of a wider vision, led by Otago Regional Council, to better manage Otago's water quality and achieve our regional vision: "Caring for Otago's environment: enabling communities to thrive"

A key issue identified in the strategy is the degradation of our water bodies caused by the cumulative effect of development around our waterbodies. This risk threatens what we value about our water and could become a problem if not addressed.

Otago Regional Council is seeking to work together with our district and city councils to deliver activities and programmes that will achieve the desired water quality outcomes to maintain and improve the quality of our water bodies for the generations to come. Councils are expected to improve how stormwater and wastewater are regulated [5]

Queenstown Lakes – Environmental Management Plans **(EMPs)**: The ultimate objective of this guideline is to ensure that the Queenstown Lakes District's environmental values are appropriately protected from land development activities through the following:

Ensure that the capability of environmental managers is commensurate with the inherent environmental risks encountered.

Outline the environmental elements that must be managed on land development projects within the district.

Provide a clear set of expectations of the information that must be included in EMPs for acceptance by QLDC so that EMPs are clear to follow and capable of appropriately and comprehensively protecting environmental values present at specific sites and beyond.

Ensure that all land development sites have nominated environmental representatives that can oversee day-to-day environmental management, associated with land development sites within the district.

Provide consent holders and their contractors and consultants with a record keeping system that demonstrates that environmental management is undertaken efficiently and effectively.

Queenstown Lakes District Council's Land Development and Subdivision Code of Practice April 2018.

Queenstown Lakes District Council's Catchment Management Plans (in progress): These include catchment objectives for water quantity, quality and operational requirements.

QLDC Asset Management Policy: The Asset Management Policy sets out QLDC's commitment and direction for asset management and defines the key principles that underpin infrastructure asset management practices at QLDC. QLDC's asset management objectives are:

[5] Urban Water Quality Strategy 2017. Retrieved from, Otago Regional Council: https://www.orc.govt.nz/plans-policies-reports/strategies/urban-water-quality-strategy-2017

- 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 and other non-infrastructure approaches
- To progressively improve the transparency and robustness (effectiveness) of investment decision making through evidence based investment (better business case approach)
- To continuously develop the capacity and capability of our staff in asset management and risk management
- To regularly measure and advance the maturing of our asset management practices

QLDC Infrastructure Asset Management Strategy: The Infrastructure Asset Management Strategy gives effect to QLDC's Asset Management Policy and outlines the strategic issues facing Queenstown Lakes District Council (QLDC) as they relate to core infrastructure over the next thirty years. The strategic objectives for three waters management identified in the Strategy are:

- to ensure no contamination of public water supply attributed to three waters infrastructure;
- adverse effects on the environment from three waters infrastructure are managed/mitigated; and
- ensure compliance with resource consents.

QLDC Three Waters Asset Management Plan 2018/19 to 2027/28: This plan sets detailed performance targets for key outcomes in relation to three waters service delivery.

Queenstown's Strategic Direction: The strategy sets out the over-arching strategic direction for the management of growth, land use and development in a manner that ensures sustainable management of the Queenstown Lakes District's special qualities. To enable our community outcomes the strategic direction is to ensure efficient and effective infrastructure.

Vision beyond 2050: A series of defining principles (or vision statements), intended to be carried into the future and brought to life through additional outcomes that define what we hope for, hear or experience in day-to-day life in the Lakes District.

Economic Development Strategy: The economic development strategy focuses on delivering key and supporting economic development priorities, namely,

- Enhance the quality of our natural, business and living environments
- Facilitate the growth of knowledge-based sector
- Encourage higher contribution visitor activity
- Future proof infrastructure

Appendix D Key parts of the wastewater network

This section discusses council's two largest wastewater treatment plants in the district.
Once at the treatment plant the wastewater is treated using a biological treatment process. The treatment process requires the wastewater to be treated to a standard that complies with our discharge consent limits as set out by Otago Regional Council. Project Shotover in Queenstown and Project Pure in Wanaka are the districts major wastewater treatment facilities.

Project Shotover Wastewater Treatment Plant includes two secondary treatment processes which are blended prior to tertiary treatment and discharge. The newly constructed activated sludge plant is designed to treat approximately 63% of the flows (up to 215 L/s), with the original pond-based treatment system treating the balance.

- The Modified Ludzack-Ettinger (MLE) process has been developed to simultaneously remove BOD, ammonia, and nitrate/nitrite. The process uses a combination of an anoxic and aerobic zone. Nitrification (ammonia removal) occurs in the aerobic zone. The mixed liquor, high in nitrate from nitrification, is recycled to the anoxic zone (by the internal recycle) for denitrification.

The MLE process can achieve a 6 to 8 mg/l Total Nitrogen discharge, depending on the characteristic of wastewater influent quality.

- The Oxidation Pond process consists of 2 Primary Oxidation (Facultative) Ponds with Aeration and a Maturation Pond (Pond 3).

The combined tertiary treatment process comprises UV disinfection and the final discharge of treated effluent to the sub-surface land disposal field adjacent to the Shotover River.

Figure 1: Phot of the Shotover Wastewater Treatment Plant in Queenstown. Sourced from http://www.eis.co.nz/projects/shotover-waste-water-treatment-plant-queenstown-nz

In Wanaka, Project Pure Wastewater Treatment Plant consists of an influent grit and a screening system that is followed by two Sequential Biological Reactors (SBRs). The SBRs alternate between fill, aerobic, anoxic, and settling and decanting cycles to ensure the tank is always accepting effluent. Treated (denitrified) effluent is decanted off the top of the SBRs into the decant tank while settled sludge is removed off the bottom of the tank and stored in the waste activated sludge tank. The sludge is centrifuged to a dry solids content greater than 20%. Treated effluent is pumped from the decant tank, through UV disinfection and discharges to a sub-surface land disposal system.