

INFRASTRUCTURE STRATEGY



YOUR COMMUNITY YOUR COUNCIL YOUR FUTURE 2018/28

MANAGING OUR INFRASTRUCTURE

Council is charged with planning for and managing a billion dollars worth of infrastructure on behalf of the Clutha District residents and ratepayers.

This Infrastructure Strategy outlines Council's approach to maintaining and improving core infrastructure during the 30-year period 2018 to 2048. It includes information about how we are going to manage it; the main challenges we face; and based on the information we have right now, how we propose to address these challenges. This strategy covers in detail roads and footpaths, urban water supply, rural water schemes, sewerage and the treatment and disposal of sewage and stormwater drainage. Our district is also facing longer-term infrastructure issues with waste management and community facilities and these are discussed at a high level.

The strategy has a 30-year outlook so that Council can plan for the effect of long-term trends (such as changes in the population and age profile of the district), and the replacement of key assets so this can be done within budget, and at the most appropriate time. Council's infrastructure assets provide important services to the community. Following a major disaster, restoration of these services is critical to a community's ability to recover

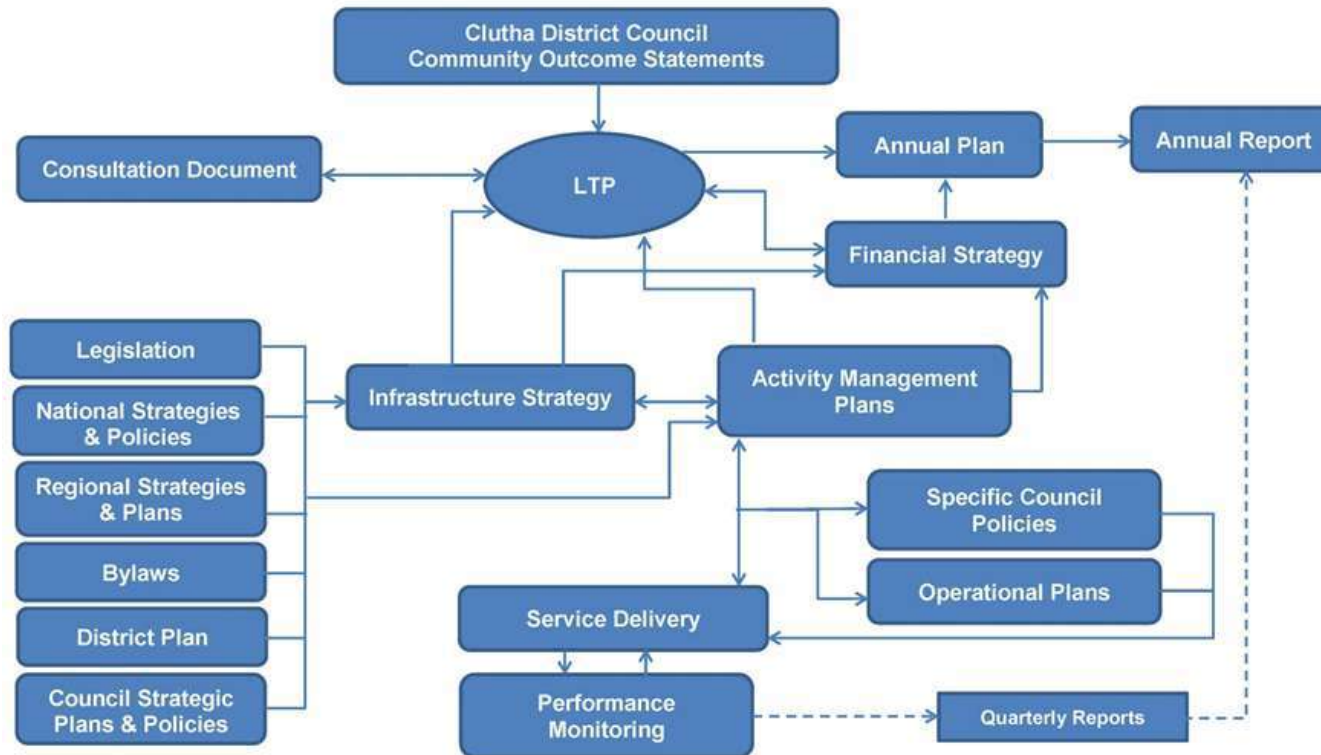
from the event. The anticipated effects of climate change are also likely to put additional stress on infrastructure. Ongoing infrastructure investment is therefore essential to maintain an appropriate level of service, and to improve the resilience of these assets.

OUR INFRASTRUCTURE STRATEGY PRINCIPLES ARE TO:

- Focus on maintaining the assets we already have, with funding targeted to where we get the most benefit.
- Continue to fund infrastructure in a way that residents and ratepayers will benefit from, both now and into the future.
- Keep rates affordability at the forefront of our actions and decisions, and work to keep rates increases at a low level.
- Take an adaptive approach: ensure that infrastructure decisions allow for future growth patterns that may differ from historical trends.
- Use our solid financial position and existing infrastructure as a platform to provide for the impacts of medium to long term growth in our rating base.

LINKAGE WITH OTHER DOCUMENTS

Infrastructure Strategy Linkages with other Documents



WHERE WE WANT TO BE

In developing our 2018/48 Infrastructure Strategy, Council has taken the opportunity to examine the current and future needs of the district. It's important to look ahead and consider what our organisation can do to help future-proof our district.

We want to continue to consolidate and build on our existing asset base, while we sustainably manage and maintain key infrastructure for residents and future generations throughout our district. In some instances, we will increase levels of service to meet compulsory requirements, such as increasing standards for sewage discharges and drinking water.

Importantly, Council will also look at facilitating growth where there is potential for this to help achieve our goal of growing the population and the rating base. We acknowledge this is a medium to longer-term goal

WHERE WE HAVE COME FROM

Clutha District Council formed in 1989 with the merging of a number of boroughs and counties with assets of varying ages and condition.

In recent years there has been substantial investment in infrastructure, and our communities are experiencing the benefits of these works. Our roading network is generally in good condition when compared with other similar networks and NZTA benchmarks, and this has reduced capital works for sealed roads compared to 10 to 15 years ago. Significant investment in new footpaths has also resulted in an overall improvement to our footpath network, with improved customer satisfaction. There has also been a focus on

providing improved drinking water for the majority of our towns, along with sewage treatment upgrades. We have also considered community facilities on a case-by-case basis and adapted, and in some instances, divested facilities if this is the most sustainable longer-term option.

The majority of improvements referred to above have increased Council's costs during recent years. In developing both this Infrastructure Strategy, and the related 10-year Financial Strategy 2018/28, Council has carefully considered the impact of increasing rates on ratepayers' ability to pay. Rates affordability and the sustainability of service levels and expenditure are key considerations for both the Infrastructure and Financial Strategies.

WHERE WE ARE NOW

GENERALLY OUR CORE INFRASTRUCTURE IS IN GOOD CONDITION, AND OVERALL IT HAS PLENTY OF LIFE LEFT IN IT.

We have an extensive network of infrastructure to maintain, particularly for roading and water supply. A substantial portion of roading and rural water infrastructure exists to support our crucial primary sector. Urban water, sewerage and stormwater infrastructure supports our various townships. A substantial proportion of our infrastructure was constructed in the 1970s and 1980s (e.g. rural water schemes and many of our sewerage schemes), and many of these assets may need to be replaced or upgraded within the time frame of this strategy.

OUR CHALLENGES AND OPPORTUNITIES

Council faces the challenges of balancing the known with the unknown- increasingly we are likely to face added pressure financially, geographically and politically. Fortunately, Council is in a strong position to meet challenges and opportunities. We have developed this strategy against this backdrop. These challenges and opportunities are also described in the Financial Strategy. In this Infrastructure Strategy we focus on the coming 30 years, acknowledging the interrelated nature of our finances and infrastructure.

GENERAL CHALLENGES

Our changing communities

Like other rural areas in New Zealand we have a relatively small, static and aging population. Modelling of three different growth scenarios (high, medium, low) has been undertaken to estimate how the number of people in the district will change. Council has adopted the medium growth scenario for the purposes of this strategy - however it is possible that external influences (e.g. housing prices, employment opportunities) may influence the actual level of growth. The medium scenario shows Clutha's population remaining relatively static until 2028, and

then a gradual population decline through to 2048.

The average age of the population of the district will continue to increase over the long-term, and this is expected to affect the way Council delivers its services. In 2013 people aged 65 and over made up around 16% of the population; this is expected to increase to 33% in 2048. An increase in the proportion of older people is likely to change the type of services Council provides, and the community's ability to pay for those services. This is unlikely to result in new activities, but may change the types of services provided, and how they are delivered. For example, the specifications of services such as footpaths and library services may change, but overall it is unlikely to result in significantly higher costs. Similarly, there is expected to be increased demand for activities such as walking and cycling, as identified through the development of community plans for the district's main towns, where further investment in walking and cycling has been identified.

Projected age changes indicate that the proportion of people aged between 15 and 64 years of age will decline from more than 63% to less than 50% by 2048. This will result in a net decrease in the number of

people in this age group under all scenarios. This may have a flow-on effect to the make-up of the district's work force.

Initiatives such Council's Economic Development and Living and Working in Clutha strategies aim to attract younger residents in the 15 to 64 age group so that the proportion of people over 65 does not increase as quickly as forecast, and to meet work force needs.

Land use changes

Changes to the District Plan are proposed to free up additional residential and industrial opportunities in and around Balclutha, Stirling and Milton. Most of this can be serviced by extending the existing infrastructure network, which is normally done at the developer's cost. The capacity of infrastructure is generally adequate to meet future demand, other than for wet industries that would require greater water usage.

It has been assumed that conversions to dairying and increases in dairy herd sizes will continue. Conversion and intensification are expected to be subject to water availability and being able to meet increasing standards for environmental discharges. Many recent conversions have sourced their own water supply, and as such provision of Council water is not expected to be a barrier to future conversion in many areas. Maturation of forestry blocks and subsequent harvesting and processing throughout the district may impact on roading infrastructure. However, our current regulatory framework provides for any impacts to be dealt with directly with forestry owners as the demand for this infrastructure arises.

USUALLY RESIDENT POPULATION

	2013	2018	2028	2038	2048
High scenario	17,250	18,020	18,870	19,450	19,691
Medium scenario	17,250	17,575	17,490	16,950	16,113
Low scenario	17,250	17,185	16,210	14,280	13,008

Tourist and visitor growth

As for New Zealand as a whole, the number of visitors to the Clutha District is projected to increase. The 'average day' and 'peak day' visitor numbers are projected to increase annually by 2.4% and 1.7% respectively by 2048, under the medium scenario. Visitors to all eight wards of the district are expected to increase. Balclutha, Milton, Lawrence, Owaka and Kaka Point currently have the highest number of visitors in the district and this is expected to continue.

Visitor numbers may increase demand on infrastructure and services such as water supply, sewerage, solid waste, parking, public toilets and roading. While improvements to the level of service for public toilets is budgeted in this plan for Balclutha and Milton, very little additional expenditure for increasing visitor numbers has been included at this point. Further work is required in this area to fully assess what additional levels of service are needed and how this can be funded with the least cost to ratepayers. Our primary focus for improvements to cater for increasing tourism volumes is roading and making our roads safer for visitors to travel on and navigate.

VISITOR NUMBERS

	2013	2018	2028	2038	2048	Average annual growth rate
Total visitors (Average day)	2,358	3,366	4,267	4,818	5,138	2.4%
Total visitors (Peak day)	6,616	8,148	9,793	10,852	11,824	1.7%

Natural disasters and planning for the unknown

Although the timing and scope of natural disasters is unpredictable, there have been a number of disasters, including major earthquakes and floods in New Zealand during the past decade. While the Clutha District is reasonably familiar with the effects of large flood events, there is limited specific information about our exposure to seismic risk,¹ mainly due to a lack of recent recorded events. The overall risk is reduced somewhat in the Clutha District because of its small population and its widely distributed communities, which reduces the likelihood of extensive damage across all critical infrastructure at the same time. However, any major event would impact on Council through the need for immediate funding, and depending on the scale, duration and location of the event, there could be unforeseen costs in terms of damage to Council assets.

In order to be prepared for a significant unexpected event, Council has taken out insurance for above ground assets covering \$153M material damage and has a separate self-insurance fund for underground assets that currently stands at \$176K. Council also

1. ORC, 2016. Natural Hazards on the Clutha Delta

has an Emergency Fund of \$4.2 million to draw against should it be necessary. For immediate cash funds Council has a committed bank facility of \$3M (multi-option credit line or bank overdraft facility) to meet shortfalls.

Adapting to the effects of climate change

The Clutha District has a varied and complex natural hazard setting, due to a combination of natural landscape-forming processes, and current land-use practices. The range of natural hazards which can be experienced includes flooding, alluvial fan (debris flow) hazard, seismic activity, and coastal processes such as erosion, storm surge and tsunami. The level of risk associated with these hazards varies across the district, depending on the scale and type of each hazard and the nature and vulnerability of the features exposed to it. It is noted that the Clutha Delta and Milton areas are particularly vulnerable, given their low-lying topography and larger population centres.

Existing natural hazards may well be exacerbated by predicted changes in climate and sea-level rise. The effects of coastal erosion and inundation are increasingly likely to pose a threat to existing infrastructure and land-use. Where there is a reliance on natural or man-made features for protection, there will generally be a residual risk to residents and Council infrastructure, should the integrity or performance of those features be compromised in the future.

However, the strategy assumes that the effects of climate change will be felt gradually throughout the period of this Infrastructure Strategy, allowing Council time to plan and prepare its response options around services and infrastructure. The specific impacts of long-term climate change on

Council infrastructure may include:

- Increased risk of flooding, landslides and erosion: the capacity of stormwater systems may be exceeded more frequently due to heavy rainfall events which could lead to surface flooding, damage to infrastructure and road closures.
- Water availability: water security is more likely to be an issue. Droughts are likely to increase in both intensity and duration over time.
- Coastal hazards: there is likely to be increased risk to coastal roads and infrastructure from coastal erosion and inundation, increased storm surge and sea-level rise.

If the impacts of climate change are felt sooner than expected there may be demands on Council's budgets. Council's ability to deliver the level of service to the community may be impacted if climate change occurs faster than expected or to a greater extent. If this occurs it may require unbudgeted emergency work to be carried out and/or create additional costs to mitigate impacts, such as improving protection of critical infrastructure or increasing maintenance.

Council's financial position allows flexibility to respond to any unexpected events or trends, through borrowing for emergency works if required. In addition, Council self-insures for underground assets to help provide for emergency work if required.

To ensure that our infrastructure is resilient, Council will ensure that new assets are of sufficient standard to cater for the predicted effects of climate change, including increased rainfall intensity/duration, and sea-level rise. The full range of consequences that may arise from climate change and sea-level rise needs to be considered, along with possible interactions between multiple risk sources, and

any uncertainty in terms of how people or systems will behave. Council is planning to carry out more detailed modelling around climate change impacts over the next three years and will continue to monitor climate change science and the response of central government, and adapt its response where required. In addition, Council will continue to support civil defence and emergency management preparations, so that communities in the Clutha District are well prepared for the effects of natural hazards.

Changes in legislation and regulations

Council is bound by various regulations and legislation with its responsibilities prescribed by various acts, including the Local Government Act 2002, Reserve Management Act 1991 and Building Act 2004. The change of government in 2017 may also increase the likelihood of legislative and policy shifts that may have an effect on Council's finances and levels of service. Requirements to comply with higher standards for the quality of drinking water and sewage discharges have previously added to the cost of delivery of these services to ratepayers.

This strategy assumes that Council will meet consent conditions and that conditions of resource consents currently held will not be significantly altered. It is assumed that updates to attain consent renewals will progress as programmed, and that they can be achieved within allocated budgets.

It is anticipated that there will be heightened level of controls on stormwater discharges relating to Otago Regional Water Plan Change 6B. No additional capital budgets have been included at this stage until more is known, so that Council is in a position to assess potential financial impact in the 2021/31 Long Term Plan. Council is deliberately taking a wait-and-see approach, until it is able to estimate the costs and the possible impact on rates.

Changes in technology

The Clutha District is characterised by a relatively small, predominantly rural, and distributed population. This means the risks associated with implementing new and advanced technology is reduced, as it can be trialled on a small scale and then expanded if it is found to be sustainable and cost-effective. An example of this is Council's early adoption of the 'Bio-shell', with the first New Zealand installation of this technology occurring in the Clutha District. This is an example of a cost-effective solution for reducing nutrients being used where appropriate for small sewerage treatment systems. Some assumptions that have been made about the impact of new technology on Council's infrastructure networks include:

- Council will continue to prioritise the use of energy efficient technology.
- Changes in technology and environmental legislation, along with improved understanding of the expected life and performance of assets, will change greatly over time, and different renewal strategies may be adopted compared to those employed today.
- Driver-less technology will have a minimal impact on our roading network until it develops to a point where it can cope with unsealed, local roads.
- Library provision will remain relevant despite the increasing access of individuals to technology.

Widespread infrastructure needs

We are a widespread district covering an area of over 6,000 km² with a number of towns and smaller settlements that all have their own infrastructure needs. Council maintains just under 3,000km of local roads and 362 bridges. There are 22 water schemes that deliver water to 15 urban areas and more than 2,000 rural properties throughout the district. We protect the environment and public health by collecting, treating and disposing of treated sewage from 14 townships via 11 sewerage schemes. Stormwater drainage helps protect people and properties across 13 of the district's communities. Maintaining and replacing this widely distributed infrastructure over time is a key challenge for this Infrastructure Strategy to address. Further information about the financial aspects of delivering Council's infrastructure can be found in the 2018/28 Financial Strategy that sits alongside this strategy.

Accurate information about our infrastructure

To be able to best manage our infrastructure, we need to have accurate information about the various components, including their age and condition, and their expected remaining life. This is needed to plan maintenance and renewals, and to calculate the annual use of the asset by residents and ratepayers, and calculate depreciation accordingly. Council has an ongoing programme to improve the quality of the information we have about our assets, to ensure we have accurate estimates of asset value and lifespan and to fund depreciation accordingly.

Cost-effective delivery of services

Maximising the value of Council's investment in infrastructure is important, and alternative service-delivery methods are considered as part of the decision-making process. Options that may be considered available to achieve more cost-effective

service delivery include:

- Shared services partnerships / agreements with neighbouring territorial authorities.
- Amalgamating small schemes to reduce costs and increase resilience.
- Allowing for greater flexibility in servicing options.
- Using competitively tested market processes for capital expenditure and procurement.

ROADING

Co-funding for local roads

Our local roading network is our biggest and most expensive asset, and maintaining it is essential to our economy. A major source of funding for roading comes from the NZ Transport Agency (NZTA). A baseline level of funding (59%) is received for the operation, maintenance and renewal of the existing roading network, as well as for new projects meeting the NZTA requirements. While NZTA approved work makes up a significant proportion of Council's overall roading programme, the co-funding is conditional on the planned roading activities meeting NZTA criteria. Changes in such criteria and/or the level of co-funding will result in ratepayers having to contribute more towards the overall financial cost of roads, or potentially could result in reductions in the roading programme, which will affect the quality of local roads and the associated level of service.

Aligning to nationally consistent levels of service

The One Network Road Classification (ONRC) is a joint initiative of Local Government New Zealand and NZTA's Roading Efficiency Group (REG) to provide a nationally consistent framework to inform activity management planning including choices about roading investments, maintenance and operations. The initiative aims to standardise the road user experience nationally, to support

consistent asset management across the country. It also aims to facilitate collaboration and prioritisation between organisations responsible for planning and service delivery for the national road network. The classification aims to promote a customer focus and investment decisions will be based on whether the roads are fit for purpose and meeting the needs of users. According to the information at hand there are some aspects of our network, particularly for the rural sealed part of our network, that are above the ONRC standards. The next three years is a transition period for the ONRC and NZTA has indicated that it should be fully implemented by 2021. This is consistent with the adjustment of levels of service of the network to match user needs and problems identified in the Transportation Activity Management Plan.

Renewing our network of bridges

Bridges are a key part of the network and an extensive forward works programme to renew and upgrade them has been identified. Trucks are now permitted to be longer and heavier as High Productivity Motor Vehicles (HPMVs), with the low end HPMVs with a maximum load of 50 tonne referred to as 50MAX vehicles, becoming the norm. Currently 11% of our bridges (41) are not capable of carrying 50MAX vehicles. Without targeted investment on the network bridges, sections of the network would be inaccessible to these 50MAX vehicles.

Our 10-year bridge upgrade programme includes the replacement of 50MAX vehicle restricted bridges. This will support both the Government Policy Statement and NZTA directives to open the network for greater use by HPMVs and Council's own strategic priority to promote economic growth in the district. It is also a key aspect towards making the network safer. The cost of the bridge upgrades will be co-funded by the NZTA, with Council's share to be met from bridge depreciation reserves, so there would be no direct rates impact. There are also several key bridges identified for major expenditure during the life of this strategy. These are explained further in the capital works section later in this strategy.

WATER

Improving water and compliance with drinking water standards

Council is required by legislation to 'take all practicable steps' to meet national drinking water standards (DWS). To meet these standards Council is undertaking treatment plant upgrades across all urban and rural water schemes. Council expects to achieve higher levels of compliance with this increased focus on water treatment upgrades and operational effectiveness. Council will seek central government funding assistance for upgrades to meet DWS whenever this is available and individual schemes meet the funding criteria. Work is currently underway for these upgrades and construction is expected in the next few years, once the impact of the potential changes arising from the Havelock North Drinking Water Inquiry are known. It is assumed Council will continue working towards compliance for all schemes where this makes economic sense.

Increasing environmental standards for discharges to the environment

Under the Resource Management Act 1991, Council is required to have various resource consents in place for its sewerage discharges. Many of these consents require renewal over the next ten years. In some cases, this will mean Council will need to consider costly upgrade options to meet increasingly stringent conditions. Treatment upgrades are planned for Waihola, Clinton and Balclutha to meet requirements of new discharge consents and Council is aiming for 35-year discharge consents to provide long-term certainty where major upgrades are required.

In many places around New Zealand treatment

of stormwater is required before it is discharged to streams and rivers. Some settling of sludge is achieved in street sumps in most places across our district at present. However, the Otago Regional

Council has indicated that this issue is part of their review of the 'Regional Plan: Water', and it is expected that increased catchment management and possibly further treatment of stormwater may be required in the future. There is also the Freshwater National Policy Statement to consider. Council will monitor and make submissions on any proposed changes to the 'Regional Plan: Water', as well as consider the best way to implement any required changes to the way we manage stormwater in the future.

Renewal of water, sewerage and stormwater infrastructure

Rural water scheme reservoir renewals— many of the rural water schemes reservoir tank farms are approaching the end of their economic lives over the next 10 or so years.

Priority pipeline renewals (rural and urban)— work has been undertaken to identify pipelines that need to be replaced. A programme of renewals has been set based on the criticality of these various pipelines. At this stage, we are not expecting widespread renewal projects for the next 10 to 20 years. However, there may be older mains in some urban areas and critical rising mains and AC mains that require replacement within this timeframe.

Asbestos concrete (AC) water main renewals— there is considerable uncertainty regarding the useful life of the AC water mains around our district and particularly for our rural supplies. Recent assessment work has indicated that some pipes are lasting about 75% to 85% of the typical useful life compared to the

NZ average. This is interesting as other parts of NZ have found that these pipes are lasting longer than expected and this may be due to the specific ground conditions, water type and usage of pipes in our district. This is identified as one of the key long-term risks and challenges for our water supplies in the next 20 to 30 years, as a shorter than anticipated lifespan for these pipes would have a significant impact on funding and rates requirements. Further work is underway to use statistical analysis methods of pipe break data to predict future failures, and this provides an additional tool to determine the risk of failure of particular pipelines. These tools will be used to adjust forward works programmes from 2021 onwards.

Other infrastructure challenges and opportunities we face

While not technically considered 'core infrastructure' our solid waste and community infrastructure are important, and there are some future challenges worthy of mention in this strategy below.

Mt Cooee Landfill and future options for the district's solid waste

Mount Cooee Landfill plays an important role in the management of solid waste for the Clutha District. However, the current resource consent for the landfill expires in 2023. Council plans to work towards renewing the resource consent for Mt Cooee. To this end we have budgeted for a number of improvements at the landfill. These include the installation of additional groundwater monitoring bores, increased collection of water quality / quality data, and the remediation of the stormwater culvert that runs under the landfill to reduce leachate contamination into ground water.

There are a number of important considerations when deciding how to better manage solid waste into the future:

- How to divert more waste away from Mt Cooee, in order to reduce waste levy and Emissions Trading Scheme (ETS) costs. Over the past few years, the cost of carbon credits has increased from \$2 to more than \$20 (Feb 2018); and Council now has to pay 100% of the cost to offset greenhouse gas emissions from the landfill.
- Ways to provide a better level of service and safety for people who use the landfill e.g. no more public access to the tip face.
- Better monitoring so we stop the prohibited waste that sometimes gets dumped at Mt Cooee.
- Future proofing our options by creating a transfer station, in case the resource consent to operate Mt Cooee cannot be extended beyond 2023.

After considering several options Council intends to build a purpose-built recovery centre and transfer station that would be able to take a much broader range of items e.g. furniture, IT equipment. This has an estimated cost of \$700K.

Earthquake strengthening and future options for the district's community facilities

Changes to the Building Act 2004 as a consequence of the Canterbury earthquakes means there will be requirements to strengthen buildings to at least 33% of the Building Code, or to demolish them. During the life of this strategy, Council expects to need to make decisions about future capital works and funding for a number of buildings that are either Council-owned or funded. Detailed structural analyses of these buildings will be carried out to help provide the information Council will need to make longer term decisions about these buildings. Decisions will be made in conjunction with local communities and Council has identified community planning as the appropriate mechanism to address this. Council assumes that budgets will not be significantly affected by the work required following structural assessments of Council's service centres, libraries halls and community centres. There is a high level of risk attached to this assumption.

WHAT WE PLAN TO DO

Council will incorporate the following key elements into its infrastructure programme, to achieve positive outcomes for our community:

- Ongoing work to target where and how we should invest in our roading network and confirm that our proposed approach is sustainable and the 'best bang for our buck'.
- More investigative work to give us better quality information about our underground assets. This will help us refine and target renewal work to make sure it gets done at the best time.
- Assess network performance across all infrastructure types, to enable specific capacity issues to be addressed.
- Look for greater efficiencies and effectiveness in our biggest areas of spending.
- Implement economic development actions and investigate other actions (e.g. the Living and Working in Clutha Strategy) to generate growth in the medium to long term.
- Carry out a comprehensive range of activity reviews to generate efficiencies and economic benefit.

How these key elements will be implemented for each of the asset categories is outlined below:

Roading

Forecasts of traffic volumes indicate the infrastructure in place at present is generally adequate to cater for expected traffic volumes during the life of this strategy, based on current knowledge. There are some exceptions where we propose to do more work in certain areas. These include:

1. An accelerated bridge renewal and upgrade programme so that most bridges meet HPMV (50MAX) standards within the next ten years (rather than the existing 30-year programme).
2. A targeted programme of seal extensions in areas that have experienced growth in terms of visitors, residential development or heavy traffic. No longer-term programme has been established but this is an area Council will continue to monitor.
3. More detailed safety investigations and continuing to develop targeted works programmes to make our roads safer. We want to reduce the number of motor vehicle crashes on access and low volume rural roads, by working to improve the road environment and driver behaviour. An opportunity to improve the road environment along tourist routes has also been highlighted as an area of focus which will have benefits, both for safety and visitor experiences.
4. Improving crossings and safety for pedestrians and cyclists in our towns. As the proportion of our older residents grows in coming years this will become more important. This also links with proposed improvements to Milton's main street.
5. More maintenance and/or replacement where heavy vehicles cause damage to certain parts of the network, to ensure levels of service are achieved and the asset is protected.

In the previous Infrastructure Strategy (2015-2045), Council agreed to target roads with the greatest economic benefit to the district and that align with the ONRC hierarchy. In order for Council to be able

to target investment on these roads, an 'Economic Network Plan' approach is being taken, which also means a greater risk of some low volume roads deteriorating badly. We're planning to continue this approach during the life of this strategy. Unsealed roads have been highlighted as an area for improvement and works programmes, so operational expenditure on regrading and re-metalling has been revised to reflect this.

WATER SERVICES

Treatment upgrades

A comprehensive programme of treatment upgrades has been approved by Council previously and is included in the first few years of this strategy. Further detail on this work is provided in the Council Activities section.

Stormwater priority programme

How we collect and dispose of stormwater run-off affects all of our urban communities, and stormwater networks are key strategic assets. The 2015-2025 Long Term Plan identified a number of issues in some of our smaller communities, so for the 2018 Long Term Plan we are proposing a programme that prioritises 21 upgrade projects during the next 10 years. The projects are in Milton, Owaka, Lawrence, Tapanui, Heriot, Clinton, Waiholo and Pounaweia. The proposed projects will mean a higher level of protection for communities during heavy rainfall events.

Renewals

An assessment programme is planned to confirm the condition and renewal requirements for rural water reservoirs and a budget has been included to replace or upgrade these reservoirs five years later. The exact timing of this work will be determined as part of the assessment and the budget may be moved forward or backwards depending on this. Maintenance and repair records will be assessed to consider the best economic time for minor renewals around schemes, as is carried out at present.

AC pipelines– a budget to enable further detailed assessment of AC (Asbestos Concrete) pipelines has been included in this strategy, to enable Council to better predict the renewal requirements for the pipes and future funding requirements. These extensive renewals are currently projected to be in the final 10 years of this strategy, and as such there is time to do this work. Decisions on renewals will take a risk-based approach that will include economic and criticality aspects which have already been used to assess current renewals.

Council intends undertaking a statistical analysis of observed faults within its water services infrastructure. When combined with condition assessment data, this will help us to understand the remaining lifetime of these assets, and inform decisions on when they will need to be replaced.

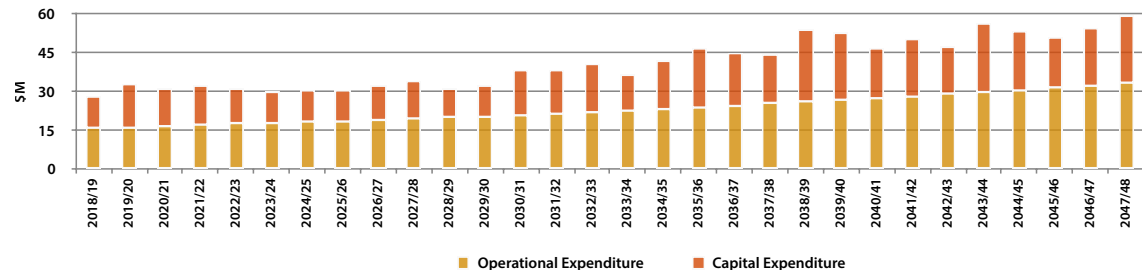


THE 30 YEAR HORIZON

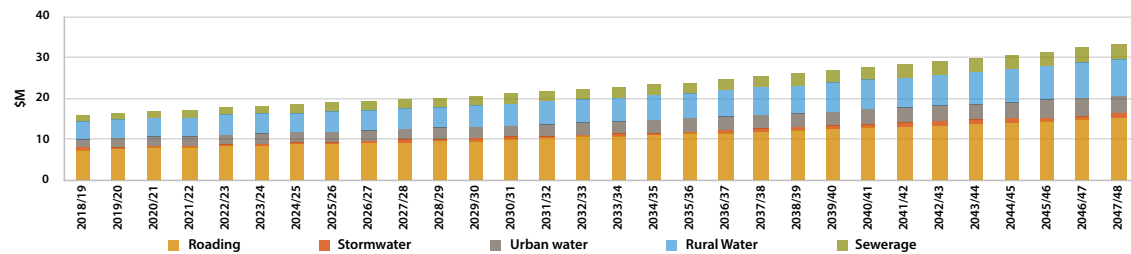
This section describes the expenditure which is planned throughout the next 30 years, based on the principles, assumptions and challenges identified in this strategy. A series of graphs are included, to help illustrate how much and when Council proposes to invest in infrastructure over this period. It is noted that the budgeted amounts include the effects of inflation (inflation rates are explained further in the accompanying Financial Strategy). The first graph summarises our 30-year horizon for both capital and operating expenditure for 2018-2048. Again, note that some of the increase in overall expenditure shown in this graph is due to inflation.

The next two graphs show total operational and capital expenditure, within each of the five core infrastructure activities undertaken by Council. Although operational expenditure remains relatively constant (when adjusted for inflation), there are spikes and dips in terms of planned capital expenditure. One of the main reasons for these is the need to renew asbestos cement (AC) pipes across the district's extensive network of rural water schemes. These schemes were built during the 1970s and 1980s and the proposed renewals reflect the estimated 60-year life of these pipes. In addition, Clydevale Bridge is one of our district's most important bridges. Work was done to strengthen it in 2013/14 which is expected to extend its life by 25 years. At this stage, Council is planning for its replacement in 2038/39. More detail on planned expenditure within each of Council's core activities is provided over the page.

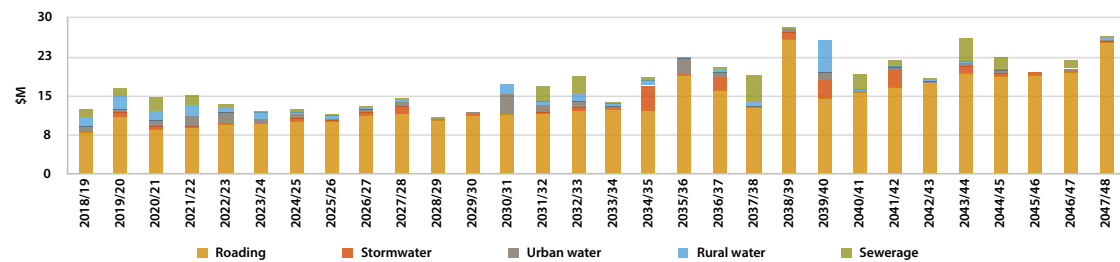
30-year horizon for both capital and operating expenditure 2018/48 - \$M



Total Operational Expenditure for each core infrastructure activity 2018/48 - \$M



Total Capital Expenditure for each core infrastructure activity 2018/48 - \$M



ROADING

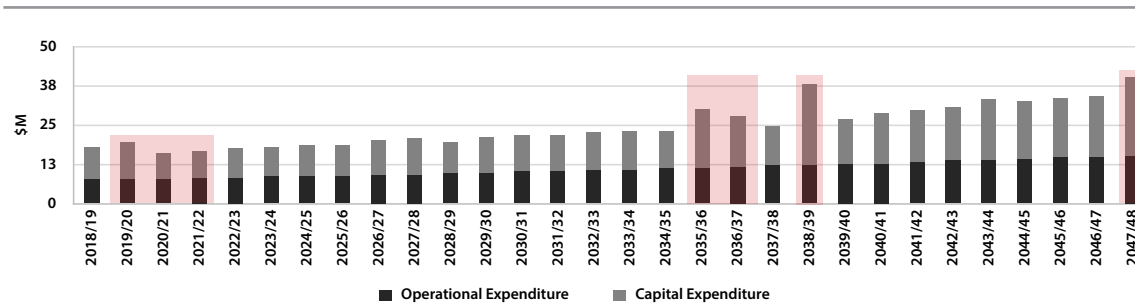
Major Roothing Capital Expenditure items highlighted

Period	Item	Value \$	Category
2019/2022	Milton Main Street Upgrade	2M	Level of Service
2019/20	Hina Hina Bridge	2.6M	Renewal
2035/36	Papatowai Bridge	6.4M	Renewal
2036/37	Maclennan Bridge	3.4M	Renewal
2038/39	Clydevale Bridge	11.1M	Renewal
2047/48	Akatore Creek Bridge	3.4M	Renewal

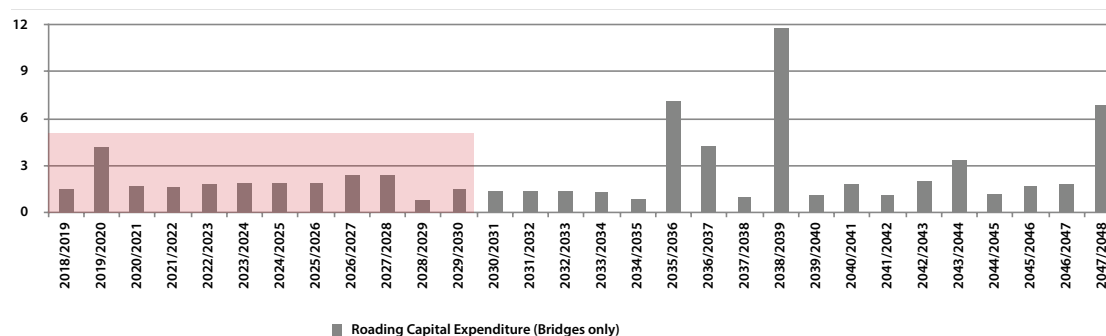
THE MAJOR CAPITAL EXPENDITURE ITEMS ARE EXPLAINED FOR EACH ACTIVITY IN THE FOLLOWING SECTIONS.



Major Roothing Capital Expenditure items 2018/48 - \$M



Bridge Renewal & Upgrade Programme for Heavy Vehicles 2018/48 - \$M



A major component of the capital expenditure on roading is for bridges, and the graph here shows planned spending on just this part of the network, over the next 30 years. This shows the effects of the accelerated bridge renewal and upgrade programme over the next 10 years, with higher than normal spending up until the 2028/29 year.

RURAL WATER

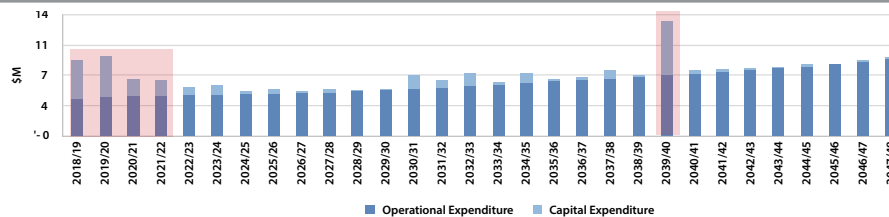
Major Rural Water Capital Expenditure items highlighted

Period	Item	Value \$	Category
2018/19	Clydevale Pomahaka Water Treatment Plant Upgrade	0.3M	Level of service
2018/19	North Bruce Water Treatment Plant Upgrade	0.6M	Level of service
2018/19	Stirling Water Treatment Plant - New Intake Structure	0.85M	Level of service
2018/20	Glenkenich Water Treatment Plant Renewal	1.7M	Level of service
2018/20	Moa Flat Water Treatment Plant Upgrade	0.7M	Level of service
2018/20	Tuapeka Evans Flat Water Treatment Plant Upgrade	1M	Level of service
2018/20	Waitahuna Water Treatment Plant Upgrades	0.35M	Level of service
2020/21	Tuapeka East and West Priority Pipeline Renewals	0.4M	Renewal
2020/21	Moa Flat Water Treatment Plant, Pump Station, Pipelines	0.7M	Renewal
2021/22	Moa Flat Water Treatment Plant, Pump Station, Pipelines	0.7M	Renewal
2039/40	Pipeline and point renewals: Glenkenich	1.9M	Renewal

Treatment Upgrades

Following the Havelock North inquiry there are clear signals that an increased focus on drinking water compliance and improving water quality will be required. As such Council has discussed a number of water treatment upgrades with rural water scheme committees across the district. Key upgrades have been identified during the next two to three years for Glenkenich, Richardson North, Evans Flat, Moa Flat, North Bruce and Waitahuna Water treatment plants. There are also significant upgrades planned for the Stirling and Kaitangata water treatment plants

Rural Water Expenditure 2018/48 - \$M

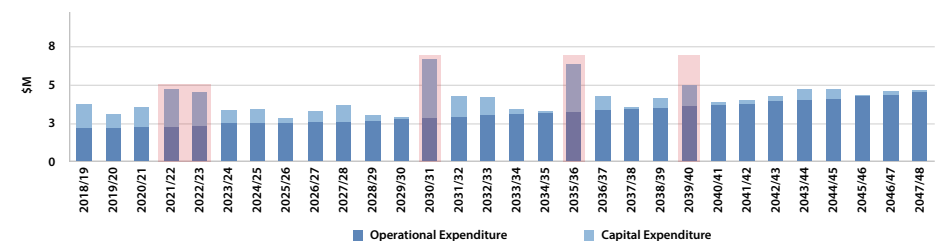


URBAN WATER

Major Urban Water Capital Expenditure items highlighted

Period	Item	Value \$	Category
2021/23	Milton to Waiholo pipeline	3.5M over 2 years	Growth
2030/31	Pipeline and point renewals: Tapanui, Kaitangata & Balclutha	3.3M across 3 major projects	Renewal
2035/36	Pipeline and point renewals: Stirling & Balclutha	1.7M across 2 major projects	Renewal
2039/40	Pipeline and point renewals: Milton	0.7M	Renewal

Urban Water Expenditure 2018/48 - \$M

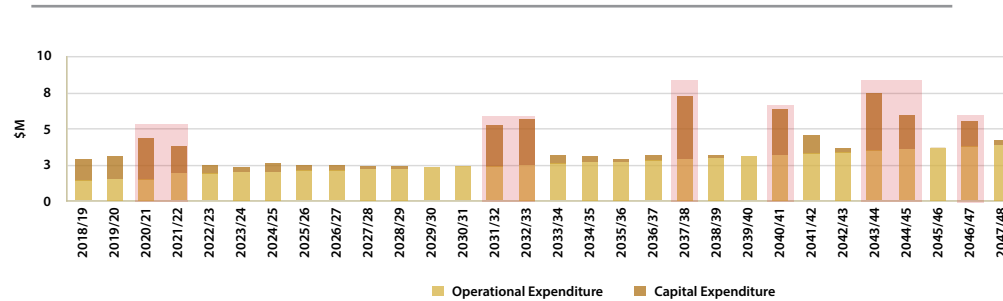


SEWERAGE

Major Sewerage Capital Expenditure items highlighted

Period	Item	Value \$	Category
2020/21	Waihola Sewerage Treatment Plant Upgrade	1M	Level of service
2020/22	Balclutha Sewerage Treatment Plant Upgrade	2.9M over 2 years	Level of service
2018/22	Oxidation Pond Desludging & Removal	1.9M over 4 years	Renewal
2031/32	Clinton Pipeline and Point Renewals	1.7M	Renewal
2032/33	Owaka Pipeline and Point Renewals	2.1M	Renewal
2037/38	Balclutha Pipeline and Point Renewals	3.0M	Renewal
2040/41	Balclutha Pipeline and Point Renewals	1.7M	Renewal
2043/44	Milton Pipeline and Point Renewals	2.2M	Renewal
2044/45	Milton Treatment Plant Renewals	0.5M	Renewal
2046/47	Milton Pipeline and Point Renewals	0.3M	Renewal
2046/47	Kaka Point Plant Renewals	0.2M	Renewal

Sewerage Expenditure 2018/48 - \$M



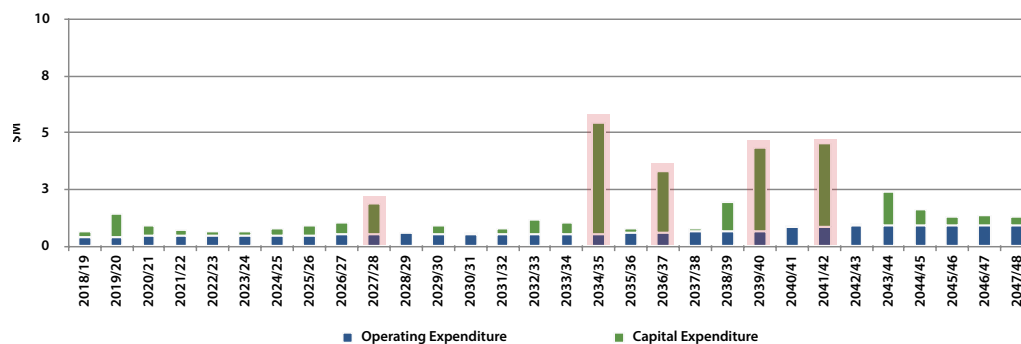
Note: the timing of the pipeline/point renewals is assumed, based on information held in Council's asset register. The majority of the network comprises AC pipes which, according to their anticipated lifespans, will be due for renewal in the 2030s and 40s (based on when they were installed). However, Council will undertake condition assessment work beforehand (e.g. CCTV inspections) to determine when asset replacement is actually required.

STORMWATER

Major Stormwater Capital Expenditure items highlighted

Period	Item	Value \$	Category
2027/28	Milton New Ajax Street Pump Station	0.8M	
2034/35	Milton Pipeline Renewals	2.7M	Renewal
2036/37	East Milton Catchment - Abercrombie Diversion	1.7M	Level of service
2039/40	East Milton Catchment Improvement - Abercrombie Diversion- Eden Street Alignment	1.96M	Level of service
2041/42	East Milton Catchment Improvement-Parallel Relief Pipes - Johnson Street By Pass	1.95M	Level of service

Stormwater Expenditure 2018/48 - \$M



There are two components to the stormwater improvements planned for Milton. The first is to undertake physical works to divert excess stormwater away from the town (2036/37 year). If this is found to be sufficient, then the second stage (increasing the capacity of stormwater pipes within the town – 2039 to 2042) may not be necessary.

TIMING FOR MAJOR DECISIONS

Major decision points for core infrastructure during this strategy's timeline are summarised in the table below. Decision-making points will include a business case approach (where applicable) and determining an appropriate level and extent of investment that takes into account both the current and future needs of the area.

Major Decisions	
Resuming unsubsidised seal extensions	2018 onwards
Hina Hina Bridge	2018 onwards
Milton main street improvements	2018 onwards
Stormwater priority programme and timing of works	2018 onwards
Milton-Waihola water priority pipeline upgrade	2018 onwards
Glenkenich water treatment plant renewal	2018 onwards
Mt Cooee Resource Recovery Park	2018 onwards
Waihola sewerage treatment plant upgrade	2019 onwards
Mt Cooee consent renewal	2019 onwards
Balclutha sewerage treatment plant upgrade	2019 onwards
Meeting possible increases in the costs associated with additional treatment for stormwater discharges	2020 onwards
Level of investment in the roading network beyond 2021	2020 onwards
Milton Ajax Street pump station	2025/26 onwards
Major water pipeline renewals in Balclutha, Kaitangata, Milton, Stirling & Tapanui	2028/29 onwards
Major sewerage pipeline renewals in Clinton & Owaka	2029/30 onwards
Significant pipeline renewals for Milton's stormwater system	2032/33 onwards
Clydevale, Maclennan and Papatowai bridges	2032/33 onwards
Major sewerage pipeline renewals in Balclutha	2034/35 onwards
Determining need for Abercrombie Diversion and Johnson Street Bypass stormwater works in Milton	2035/36 onwards
Major renewals on the Glenkenich & Richardson water schemes	2037/38 onwards
Major sewerage pipeline renewals in Milton	2040/41 onwards
Akatore Creek Bridge	2042/43 onwards