WAITAKI DISTRICT COUNCIL INFRASTRUCTURE STRATEGY

2018 – 2048

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STRATEGY LAYOUT

The Strategy document sections and corresponding Local Government Act (LGA 2002) sections are tabled below:

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3	Identifies the purpose of the Infrastructure Strategy and the core infrastructure included in this strategy Discuss Council's response to key issues and the significant decisions to be made during the term of this strategy Identifies the response options for the significant issues and documents the benefits, cost, when and funding source	2(a), 2(b); 3(a) to (e) & 4(a) to (c) and 6
4	Describe the core infrastructure, its condition and performance while recording the significant assumptions, risks and mitigation	2, 3(e), 4 (c) & (d)
5	Discuss the emerging issues that will impact on the core infrastructure assets, and Council's response to these issues	3 (b) to 3(e)
6	Identifies the costs associated with the actions proposed	4(a)

1.0 EXECUTIVE SUMMARY

This document outlines the Infrastructure Strategy for Waitaki District Council for the period of 2018 – 2048 and is aligned to the Council's vision for the Waitaki District of growing Waitaki and making it the best place to live, work and play, and the supporting outcomes that will help Council achieve this vision.

In summary, the strategy continues the theme of focusing on high quality infrastructure services that meets the needs of the Community. This aligns well with the direction of the Financial Strategy which is to concentrate on delivering good quality services that meet the changing needs of the community while ensuring rates affordability and financial flexibility through efficiency and effectiveness, maximising value and repaying debt.

This is the second Infrastructure Strategy, with a continued focus on maintaining core services and infrastructure for roads and footpaths as well as the three waters. Eight strategic issues have been determined as priorities, being Climate Changes, Water Quality, Roading Resilience, Demographic Changes, Tourism Growth, Community Growth, New Technologies and Affordability.

A list of actions has been created from these issues as well as supporting programmes and projects. It is intended that these are assessed and prioritised for implementation before the strategy is updated with an Action Plan. This effectively marks the strategy as a transition document, and as such it will be worked on more extensively once the Council's Long Term Plan has been adopted, with a view to having the updated and revised strategy ready well in advance of the next Long Term Plan.

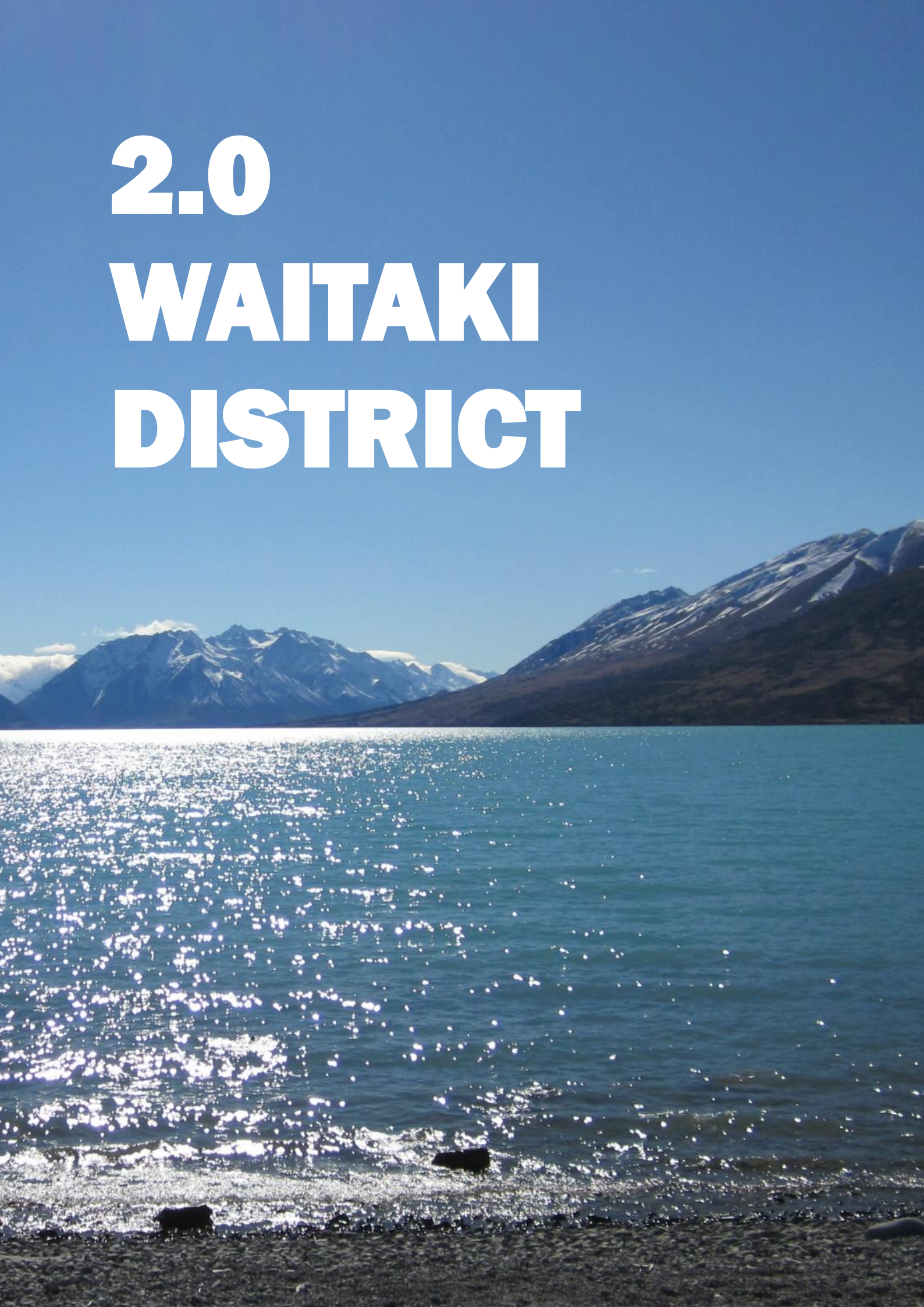
There are options to increase the speed of delivery of existing projects and the actions identified to address the strategic issues and challenges. This includes increasing resourcing or reprioritising works. These options and others identified, will likely be explored further when the action plan is developed. The action plan will also be informed by feedback from the consultation feedback.

The strategy also investigates and outlines the Council's details of its core infrastructure, including its condition and performance while recording the significant assumptions, risks and mitigation. Emerging issues that will impact on the core infrastructure assets, and Council's response to these issues and the significant decisions to be made during the term of this strategy are outlined. The benefits, cost, timing and funding sources are documented.

Parks and Recreation, Community buildings and other Property assets are outside the scope of the Strategy due to resourcing constraints. However, it is intended to include both these groups in future Strategies as resourcing allows.

The strategy shows that Council's Roading and Water infrastructure is being fully funded for replacement and Council is managing the maintenance and operation of the assets with its current level of resourcing. However, there are several challenges that the Strategy identifies as needing to be addressed moving forward into the future.

2.0 WAITAKI DISTRICT



2.1 WAITAKI DISTRICT

The Waitaki District reaches inland from the Waitaki River mouth, up the Waitaki River Valley, through Ohau to the top of the Ahuriri River Valley to Lindis Pass. It extends south down the east coast beyond Palmerston to Flag Swamp, across to Macraes and covers 714,805 hectares (7,148km2).

The main centre is Oamaru located on the east coast of the district. Other urban centres in the district include Kurow, Omarama, Otematata and Palmerston. Popular holiday spots include Hampden, Kakanui, Moeraki, Lake Ohau and the Waitaki Valley. As at June 2017, Waitaki District's population is 22,200, of which 13,900 (63%) live in Oamaru.

Traditionally a rural and farming district, Waitaki's tourism market is growing rapidly. There are many attractions and activities, including beautiful lakes ideal for all sorts of water activities, ski fields, tramping, fishing and hunting, and beaches with great surf and brilliant white sand. In 2014 Lonely Planet named Oamaru NZs Coolest Town and it is, offering some pretty special things – the historic Victorian precinct (including Victorian Heritage Week), little blue penguins and Steampunk HQ. Further afield we have award-winning restaurants, wineries, craft breweries and special archaeological sites.

Waitaki is the only district in the South Island that lies within two regions. A major reason for this split was the governance of the Waitaki River, which forms a political boundary between Canterbury and Otago. Therefore, the district has two regional authorities – the Otago Regional Council and the Canterbury Regional Council (ECan).

2.2 WAITAKI DISTRICT COUNCIL

Waitaki District Council was established in 1989 when it replaced the Oamaru Borough, Waitaki County and Waihemo County Councils.

The purpose of Council is to enable democratic local decision-making and action and to meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses.

With this background the Council vision for the future is:

Growing Waitaki, the Best Place to Live, Work and Play

The following outcomes will contribute to achieving this vision:

1. We enable opportunities for new and existing businesses
2. We provide and enable services and facilities, so that people want to stay, and move here
3. We keep our District affordable
4. We understand the diverse needs of our community
5. We maintain the safest community we can
6. Waitaki's distinctive environment is valued and protected

3.0 STRATEGY

3.1 STRATEGY PURPOSE

This is Waitaki District Council's second Infrastructure Strategy. The strategy has been informed by Council's Asset Management Plans (AMPs) and a series of assumptions. The Strategy should be considered in conjunction with the Financial Strategy which is also informed by Council's vision, based on similar assumptions and issues for the District. The Strategy sits over existing Activity AMPs and does not alter the details of such plans.

The issues discussed within the Strategy reflect the current legislative environment and requirements on Council as well as the communities' priorities across the District.

The financial forecasts are estimates. As with all estimates, the reliability of the forecasts decreases beyond ten years and towards the thirty year planning horizon.

3.1.1 COUNCIL'S INFRASTRUCTURE PRIORITIES

At a high level, Council's priorities are:

- Providing fit for purpose infrastructure that meets the current and future needs of users and the Community
- Affordability of services
- Managing risks, including natural events like flooding.
- Reflecting inter-generational benefit in the funding of large projects
- Legislative compliance
- Governance aspirations

3.2 STRATEGY OVERVIEW

The following one-page strategy overview was developed in conjunction with key asset managers and then workshopped with councillors. This document identified the strategic issues and challenges, for Infrastructure, aligned to the Council's Vision and District Outcomes. The emerging issues formed a key background context to the strategic issues highlighted in the strategy overview. The overview does not cover all emerging issues, but in the views of Council, covers the most significant. Section 5 of this document provide a complete list of Emerging Issues.

At this stage, Council's Infrastructure Activities are operating in a business as usual model, with scarce resourcing available for additional projects. This document has recognised that the strategy moving forward is to develop more thinking around how these actions can be completed, and thus adequately address the key strategic issues that have been identified.

This strategy overview has also helped identify that the options available to Council are to either resource up, to complete the projects required in a timely manner, or take a longer-term view to achieving the actions at the current resource level.

Vision	Waitaki is the best place to live, work and play	District Outcomes	1. District Affordability. 2. Business Opportunities. 3. Attractive Facilities & Services. 4. Meeting Diverse Needs. 5. Valued & Protected Environment. 6. Safe Communities					
Strategic Issues	**Climate Changes** Ensuring long and short-term infrastructure planning anticipates the scale and speed of climate changes.	**Water Quality** Ensuring 3-Water networks meet public demands for cleaner rivers, lakes etc	**Roading Resilience** Managing the costs of increased traffic volumes and service level and safety expectations on rural roads and changing uses on urban streets and footpaths.	**Demographic Changes** Delivering infrastructure that responds to the changing needs of an ageing population and accounts for social affordability issues.	**Tourism Growth** Ensuring infrastructure meets growing tourism numbers and higher service expectations.	**Community Growth** Developing infrastructure, particularly community assets, to support community and economic development goals.	**New Technologies** Responding to rapidly changing technology when making long-term infrastructure investment decisions.	**Affordability** Maximising alternative funding sources, while ensuring that services and service levels match the community's ability to pay.
Goals & Outcomes Supported	Infrastructure is resilient and adapting to climate changes before having materially adverse impacts. **Outcomes 5 & 6**	Network discharges meet both public expectations and legislative requirements. **Outcomes 5 & 6**	Waitaki roads are responsive and resilient to changing public needs and expectations. **Outcomes 3, 4 & 6.**	Waitaki has a balanced population and caters for the changing needs of current and future residents. **Outcomes 2,3 & 4**	Infrastructure meets demands and enables opportunities for new and existing businesses. **Outcomes 2 & 3**	Infrastructure is retaining and attracting residents. **Outcomes 3, 4 & 6**	Use of technology enables Council to deliver better and more cost-effective infrastructure **Outcomes 1 & 3.**	Revenue sources can financially sustain current and future infrastructure needs and expectations. **Outcomes 1 & 4**
Actions	• Develop and improve network understanding, especially points of critical failure. • Improve and prioritise development of greater network redundancy and failover points	• Improve understanding of the state of 3W network • Develop knowledge of cost implications of options for better discharge standards • Understand affordable options	• Better understand likely traffic volumes and patterns of use. • Continue to review the scale of investment required and options available. • Continue to review other funding options	• Modify the capex investment to addresses emerging needs of retirement community. • Better understand community infrastructure needed to attract new workers and families.	• Better understand the likely changes to the volume, nature and requirements of future tourism demands on the District because of initiatives (outside of this strategy) to increase tourism.	• Better understand community infrastructure needs and to supply services to attract new workers and families. • Improved 30+ year understanding of cost of community infrastructure. • Add community structure assets into Infrastructure Strategy	• Improve data quality, volume and analysis. • Deepen understanding of the technology opportunities for managing infrastructure. • Develop longer-term (100 year) and more adaptable capex programme	• Increase integration of Financial and Infrastructure Strategies. • Improve financial modelling of 30+ years capital & operational costs • Understand whole of life asset costs • Review asset management levels
Supporting Programmes & Projects	• Enhanced standards for infrastructure resilience • Updated AMPs to reflect climate change priorities • Lifelines plan to ensure power supply continuity to infrastructure network • Business continuity planning	• Engagement programme with community and key stakeholders (Otago Regional Council; iwi; MfE etc) • Establish baseline assessments of current network.	• Improve network model • Improve roading database • Increase investment in rural network • Road safety programmes	• Develop 30-year population/demography model for District • Revise 2021 – 2031 AMPs to reflect demography changes as a result of interventions	• Improve town centres • Improve roading amenities (e.g. laybys for photos) • Cycleways development • Improved signage for facilities and attractions • Better public toilet facilities	• Revised Park, Reserves, Recreation AMP • Economic development strategy. • District Plan review inputs	• Develop a technology strategy in partnership with other TLAs, IPWEA etc. • Enhance current business case methodology to consideration of technology implications	• Council's Finance Strategy • Asset audit to confirm confidence in information quality. • Review DCs Policy • Work with LGNZ on LG Funding Review • Review Funding Policy
KPIs	• Business continuity planning	• National standards • Customer satisfaction	• One Network Road Classification benchmarks • Customer satisfaction	• Out of District population growth • Ratepayer satisfaction	• Tourism volumes • Economic growth Ratepayer surveys • Tourism surveys	• Out of District population growth • Community well-being and health statistics • Residents satisfaction	• Value for money measure	• Industry benchmarks • Value for money measure
Infrastructure Impacted	Roading, Water, Wastewater, Stormwater	Roading, Water, Wastewater, Stormwater	Roading	Roading, Water, Wastewater, Stormwater	Roading, Water, Wastewater	Roading, Water, Wastewater, Stormwater	Roading, Water, Wastewater, Stormwater	Roading, Water, Wastewater, Stormwater
Options	Continue to manage infrastructure without undertaking these actions. The implication is that infrastructure could fail unexpectedly affecting level of service and budgets. Financial impact is variable.	Not participate in engagement with the Community and stakeholders. The implication is that standards are not able to be met with the expected timeframes. Financial impact has not been assessed.	Maintain level of funding instead of investing more into Council roads. The implication is that levels of service would deteriorate, and the ratepayers remain unsatisfied with Council roads. Financial impact, $1m each year (including NZTA)	Continue to use existing demographic figures. The implication is that Council may invest in the wrong infrastructure. Financial impact is unknown but could be high.	Continue to use existing tourism statistics. The implication is that part of Council's infrastructure is overwhelmed, and reactive decision making is required, and customer satisfaction is decreased. Financial impact is unknown but could be high.	Retain community infrastructure at current levels. The implication is that customers become increasingly dissatisfied with the infrastructure provided. Financial impact is unknown.	Not invest in new technologies. The implications are that new efficiencies are not able to be utilised. Financial impact is unknown but likely to be cumulative.	Lower levels of service to decrease maintenance response times. The implications are that customers become dissatisfied with the level of service offered. Financial impact is unassessed.

3.3 STRATEGY SCOPE

Section 101B of the LGA 2002 notes:

(1) A local authority must prepare and adopt, as part of its LTP, an infrastructure strategy for a period of at least 30 consecutive financial years; and

(6) Infrastructure assets include:

a. Existing or proposed assets to be used to provide services by or on behalf of the local authority in relation to the following groups of activities:
   i. Water supply:
   ii. Sewerage and the treatment and disposal of sewage:
   iii. Stormwater drainage:
   iv. Flood protection and control works:
   v. The provision of roads and footpaths; and

b. Any other assets the local authority, in its discretion, wishes to include in the strategy.

Parks and Recreation, Community buildings and other Property assets are outside the scope of the Strategy. It is recognised that these are assets owned by Council, however the focus of these activities has been on the service delivery aspect. Ideally their contribution to the asset portfolio would be recognised by the strategy, however due to the resourcing availability constraints it has not been possible to include them. It is also recognised that the NZTA managed State Highway and Rail Networks, as well as Utilities such as power and communication are all important aspects of Waitaki's infrastructure. It is intended to include these groups in future Strategies.

3.4 STRATEGIC STATEMENTS

Under the LGA, Section 10, Council is required to meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses.

In this Act, good-quality means infrastructure, services, and performance that are: efficient, effective, and appropriate to present and anticipated future circumstances.

Four Strategic Statements have been developed to sit underneath the purpose of the LGA and to guide the 30 Year Infrastructure Strategy.

We earlier outlined the strategic issues on the Strategy Overview Table (P.12), these strategic statements underpin the existing business as usual practices, which inform the Infrastructure Asset Management Plans.

WE WILL SUPPLY INFRASTRUCTURE THAT SATISFIES THE NEEDS OF THE COMMUNITY

- Fit for purpose infrastructure services that are affordable, and meet the requirements of relevant New Zealand legislation, best practice and statutory requirements.
- We will measure using Residents' surveys, annual customer requests

WE WILL IDENTIFY OUR DIFFERENT COMMUNITIES AND CONSIDER THEIR NEEDS AND IMPACTS ON OUR INFRASTRUCTURE SERVICES

- Monitor demographic changes in our community to consider the impacts on service delivery
- Consider changes in technology to ensure our service delivery is fit for purpose

- Strive to ensure that core infrastructure services and land use are planned to cope with the expected changes over the 30-year period.
- Consider the impacts of climate change on demand and availability as it affects the district
- We will measure using Residents' surveys, annual customer requests and benchmarking

WE WILL CONSIDER RISK IN THE CONTEXT OF AFFORDABILITY, PRACTICALITY AND LEGALITY

- Improve infrastructure resilience to ensure our infrastructure can deal with disruptions and changing circumstances
- Use design and construction standards and operational practices to minimise the risk of failing to deliver a safe continuous service to communities
- Identify and manage cross-sector dependencies, such as power supply for communications infrastructure, etc.
- Review charging mechanisms to ensure that our charges fund the annual operating costs and contribute to the depreciation or renewal costs of the service.
- Participate in Lifelines processes
- We will measure using Industry benchmarks

WE WILL RESPOND TO DEMAND CHANGES

- Ensure infrastructure planning and district planning proceed in an effective integrated manner and that core infrastructure and land use are planned to cope with the expected changes in demand over the 30-year period
- Regularly review funding mechanisms (including user-pays, development contributions, metering, trade waste bylaw and charging)
- Review charging mechanisms to ensure that our charges fund the annual operating costs and contribute to the depreciation or renewal costs of the service.
- Consider sustainability when making any significant decision that affects changes to the installation, renewal, management and operation of the infrastructure assets
- Consider planning across territorial boundaries to maximize infrastructure and investment
- Monitor and analyse demand over time to identify trends and ensure environmental and statutory compliance
- Collaborate with stakeholders to target appropriate levels of response
- We will measure using Residents' surveys

3.5 ASSET MANAGEMENT STRATEGY

Council's management strategy is to provide safe, affordable, sustainable core infrastructural systems to resident and visitors that fully meet the environmental, economic and social needs of the District and wider world. Managing and maintaining these assets to ensure consistent and reliable service delivery to the community requires good asset management practices and strategic thinking. By developing a thirty-year infrastructure strategy, Council demonstrates a long term strategic view and can make prudent decisions regarding the funding of any further development of networks, and maintenance and renewal of the existing assets.

Council has a governance role in the management of asset infrastructure services, and as such, may need to alter an existing asset expenditure programme to meet changing community expectations outside the agreed Asset Management Plan. We recognise the need for this flexibility in our plans and programmes.

3.5.1 COST EFFECTIVE DELIVERY OF SERVICES

To demonstrate that the delivery of services is efficient, effective and appropriate, Council has developed a suite of Activity Management Plans (AMP) for its Core Infrastructure Services as part of the 2018-28 Long Term Plan. The AMPs assist Council to meet its obligations under Section 10 of the LGA and requirement to meet the current and future needs of communities for good-quality local infrastructure and local public services in a way that is most cost-effective for households and businesses. In the case of roading, their AMP's are subject to regular audit by NZTA and contain performance measures that determine overall effectiveness and efficiency of delivery.

3.5.2 ADDRESSING RESILIENCE

Council is aware that physical and system resilience is crucial. Resilience takes account of:

- **Design and Construction Standards**:
  Cost effective changes to service levels to help infrastructure reasonably withstand natural hazards and long-term changes such as the impacts of climate change.
- **Identification of Hazards**:
  Sharing information, assessing vulnerabilities and planning for and responding to emergencies with other organisations.
- **Adaptability and Redundancy**:
  In the network to improve business confidence.
- **Identification and Management:**
  Of inputs into our infrastructure such as power supply.

To address resilience, Council's approach will be to:

1. Develop and maintain Business Continuity Plans
   Current State: Project created to develop BCP's as per Strategy Overview (P.12)
2. Investigate options for alternative service provision and system redundancy.
   Current State: These are considered when any upgrades are completed.
3. Identify critical assets and ensure mitigation methods are developed
   Current State: Critical assets have been identified, this ensures they have a higher focus from the team, with robust maintenance interventions, however more work is required to more formally document renewal strategies.
4. Obtain insurance where this is deemed to be the most cost-effective approach
   Current State: Insurance is reviewed annually.

3.5.3 EVIDENCE BASE

Council acknowledges there may be limitations with its data that affect decision-making. One of the action items is to improve data collection and analysis.

Current State: Both Waters and Roading have been assessed as having Level B Asset Data, which is reliable. More information is available in the Asset Management Plans for the respective activities. This gives Council confidence that it's budgets are appropriate to maintain and renew its assets. However, there is the opportunity to reassess the overall budgets on an annual basis should it be shown that the asset data is not as reliable as forecast.

It is intended to complete an asset audit under the International Infrastructure Management Manual guidelines before reviewing Council's Asset Management Strategy (which says the level of asset management for each activity) to review and confirm what level of data collection is appropriate for Council. The Infrastructure Strategy will then be updated accordingly. It is intended to do this work over the twelve to twenty four months. The AMP's contain more detail on the current approach to data collection and management which relates to information contained in this version of the Infrastructure Strategy.

This is in addition, for roading, to separate and independent audit by NZTA.

3.6 MOST LIKELY SCENARIO

Taking a long-term view to the management of infrastructural Assets, Waitaki District Council needs to deliver a work programme in a timely manner.

The tables below show the most likely scenario for delivery of this programme. The majority of this work is required to meet legislative requirements; therefore, they are not decisions to be made as such, but are key deliverables that address Community needs and priorities.

These tables shows two types of projects. The first is a physical project and is shown by a dollar figure and is explained in Section 6 – Financial Estimates. However, there are also a number of other deliverables which are bodies of work that then assist decision making. These require time allocation from staff, who are funded from existing budgets - the indicative timeframe is the more important piece of information.

3.6.1 WATER KEY DELIVERABLES

Key Deliverable	Indicative Cost/Funding	Indicative Timeframe
WTP Upgrades: Upgrade water treatment plants at Awamoko, Kauru Hill, Bushy Creek, Stoneburn, Tokarahi and Windsor. Undertake improvements at Lower Waitaki to supply water which meets the Health (Drinking Water) Amendment Act 2007.	$7,400,000	2018– 2021
Other options: Council is required to upgrade water supplies to meet drinking water standards and does not believe there are other options available to it. There are options on how each upgrade is carried out, these are discussed in the section looking at other scenarios considered.		
Oamaru Water Renewals (per annum) This is an ongoing programme to replace water assets in Oamaru, in line with the Asset Management Plan.	$1,000,000 $500,000 Annum	2018 – 2024 2024 – 2048
Other options: Council continues to provide water services; other options have not been considered.		
Improve asset information quality to ensure effective and efficient maintenance and development to meet future demand	Existing Budget	2018 – 2024

Key Deliverable	Indicative Cost/Funding	Indicative Timeframe
Other options: Reduce input into asset management and focus staff resources on maintaining the physical asset. It is likely asset knowledge and efficiencies with better data, would be lost over time.		
Develop an improved renewal plan to better consolidate the asset set. Take all practicable steps to comply with NZ legislation and standards.	Existing Budget	2020 – 2026
Other options: Renew the asset on a failure only basis. This would lead to a more reactive maintenance approach and would greatly increase the risk of unexpected failure and therefore inhibit the ability to meet the levels of service required.		
Develop and document risk management/BCP procedures	Existing Budget	2018 - 2021
Other options: Keep resources doing other work, the implication is that there is a greater risk of unexpected failure and therefore inhibit the ability to meet the levels of service required.		

3.6.2 STORMWATER KEY DELIVERABLES

Key Deliverable	Indicative Cost/Funding	Indicative Timeframe
Capacity reinstatement within the Oamaru Stormwater network to remove gravel build up, totalling $2.0M over the next ten years	$200,000 Annum	2018 - 2028
Other options: Reduce scope of work - likely to increase surface flooding over time due to rain events.		
Develop and implement a Stormwater Management Plan for reticulated systems within Canterbury. This will also be required in the future in Otago.	$20,000	2018
Other options: Not considered, this work is required.		
Plan for climate change and investigate system adaption. This will help to consider the impacts of more frequent heavier rainstorms on public and private property in urban areas.	Existing Budget	2021
Other options: Not complete the work and free up resourcing for other priorities. The implication is that Stormwater issues are not able to be identified and addressed.		
Develop an improved renewal plan to better consolidate the asset set. Take all practicable steps to comply with NZ legislation and standards.	Existing Budget	2021
Other options: Renew the asset on a failure only basis. This would lead to a more reactive maintenance approach and would greatly increase the risk of unexpected failure and therefore inhibit the ability to meet the levels of service required.		
Continue to gather information on the state of the network, as there is some uncertainty regarding the expected life of the pipes	Existing Budget	2018 – 2028
Other options: Reduce input into asset management and focus staff resources on maintaining the physical asset. It is likely asset knowledge and efficiencies with better data, would be lost over time.		

3.6.3 WASTEWATER KEY DELIVERABLES

Key Deliverable	Indicative Cost/Funding	Indicative Timeframe
Identify and implement methods to make wastewater collection and treatment services more efficient and sustainable	Existing Budget	2018 - 2019
Other options: Retain existing operating practices and divert more resourcing to other activities. The implication is that improvements with cumulative effects would be reduced.		

Key Deliverable	Indicative Cost/Funding	Indicative Timeframe
Investigate overflow mitigation and overall network capacity (particularly during storm events) and implement appropriate measures. Continue works and maintenance to improve the capacity and operation of the wastewater systems (Omarama treatment plant capacity upgrade and Oamaru treatment plant capacity upgrade).	$1,000,000	2018 - 2022
Other options: Not invest in this work. The implications are that discharges do not meet required standards and that some Economic Growth is stalled due to insufficient treatment capacity.		
Upgrade treatment facilities to comply with resource consent conditions	$1,000,000	2018 - 2026
Other options: Not considered, this work is required.		
Review implications of Council taking ownership of sewer laterals to improve control over works in the road corridor (currently owned by private individual properties). It is anticipated that it would cost an additional $200k per annum should Council agree to take ownership. It is not yet known when a decision would be implemented should Council agree to proceed.	Existing Budget	2018 – 2019
Other options: Council does not take ownership of sewer laterals, the implication is that $200k per annum is saved if ownership is agreed by Council, however liability for sewer lateral repair remains with the individual property.		
Develop an improved renewal plan to better consolidate the asset set. Take all practicable steps to comply with NZ legislation and standards.	Existing Budget	2021 - 2027
Other options: Renew assets on a failure only basis, leading to a more reactive maintenance approach, greatly increasing the risk of unexpected failure and inhibiting the ability to meet the levels of service required.		
Plan for climate change and investigating system adaption. This is in response to more frequent and heavier rain events.	Existing Budget	2021
Other options: Not complete the work and free up resourcing for other priorities. Implication is that wastewater overflow issues are more frequent and that discharge standards are not able to be met.		

3.6.4 ROADS AND FOOTPATHS KEY DELIVERABLES

Key Deliverable	Indicative Cost/Funding	Indicative Timeframe
Pavement Rehabilitation & Seal Replacement	$3,365,000 Annum	2018 - 2048
Other options: Not considered as this work is required to meet levels of service set by Council.		
Kakanui Point Bridge Replacement	$7,000,000	2020 / 2021
Other options: Replace the bridge with a two-lane bridge. This would increase the cost to around $14m and it is likely that NZTA co-investment is not be available for the increased level of service. Council could choose not to replace the bridge meaning it would be left with weight restrictions and will eventually effectively separate the Kakanui community.		
Widening of high risk sealed roads, more metal on high priority rural roads, smoothing of rural and urban roads. Improve response levels, undertake improvements to safety, resilience, efficiency, accessibility, amenity and travel time.	$2.9M Over 3 years	2018 – 2021
Other options: Fund a lesser amount or do not fund this level of service increase. Increased expenditure is in response to Community dissatisfaction with Council roads. Reducing or removing the project will save Council' share of the cost (45%) but is unlikely to improve dissatisfaction levels.		
Maintenance, operations and renewals: Council's roading maintenance contract reflecting the current market value.	$4,135,777 Annum	2018 – 2048

Key Deliverable	Indicative Cost/Funding	Indicative Timeframe
Other options: Increase or reduce the levels of service provided for the in the Contract. A reduced level of service is likely to increase community dissatisfaction with Council roads.		
Road Safety programme: Programmes to reverse the increasing trend of fatalities on all roads.	$170,200 Annum	2018 – 2048
Other options: Reduce expenditure - This is likely to impact on road safety in Waitaki.		
Walking and cycling projects: Enable cyclists to safely commute from the Penguin Colony in Oamaru to the north end of Oamaru	$550,000 Over 3 years	2018 – 2021
Other options: Not fund the cycleway projects, saving Council's share of the cost of the work (45%) however this would reduce the effectiveness of Council's cycle network and require the return of investment to NZTA for the Oamaru Creek bridge.		
LED Street Lights - Reduction in costs due to efficiencies of LED, allowing for renewals of infrastructure e.g. poles and brackets.	$300,000 Over 3 years	2018 – 2021
Other options: Not considered, this renewal work is needed to maintain levels of service and provide significant maintenance and electricity savings.		

3.6.5 OTHER OPTIONS DISCUSSION

This Infrastructure Strategy shows that the Waitaki District is well provisioned with core infrastructure and there are few genuine options for discussion. Many of the decisions are due to legislative requirements and the decisions around how projects are delivered are assessed at the time the project is delivered. The HamNak water upgrade is a good example of this. The original LTP proposal showed that individual water treatment plants as the preferred option. However, once the detailed options analysis and community consultation were completed, it was clear than amalgamating with Oamaru was the best option. In the same way, this Strategy shows where work is required, but the detailed options work has not yet been completed for every project.

However, there are some genuine options for discussion:

Resourcing: Council could provide more resourcing than currently allowed for in the Strategy. This would enable work to progress faster as well as allow better communication with the Community and stakeholders. It is estimated that an additional $200,000 per annum over and above existing budgets would make a significant improvement in progress.

Havelock North: The impacts of Havelock North on Council's drinking water supplies have not been integrated into this strategy. Work could be fast tracked to complete the final drinking water upgrades sooner than forecast. It is estimated that an additional $250,000 per annum for two years would fast track this work.

Roading: Options are summarised in the key deliverables table above. The main choice is around investing a further $2.9m in road improvements and $550,000 in cycleway projects. These both attract co-investment by NZTA to a level of 55%. It is expected that the $2.9m investment will improve Council roads and increase community satisfaction towards an acceptable level. The amount of investment could be reduced, or the projects removed which would reduce the equivalent rate requirement for those years.

3.6.6 OTHER SCENARIOS CONSIDERED

These alternative scenarios have also been considered as part of the Infrastructure Strategy. These scenarios are considered when developing the projects on a case by case basis, for example when looking at options for a treatment plant upgrade for a water supply, both amalgamation and standalone solutions are assessed at the time of treatment plant design and budget confirmation. These are then discussed with the Community (refer the recent Hampden / Moeraki and Herbert / Wainakarua water supply

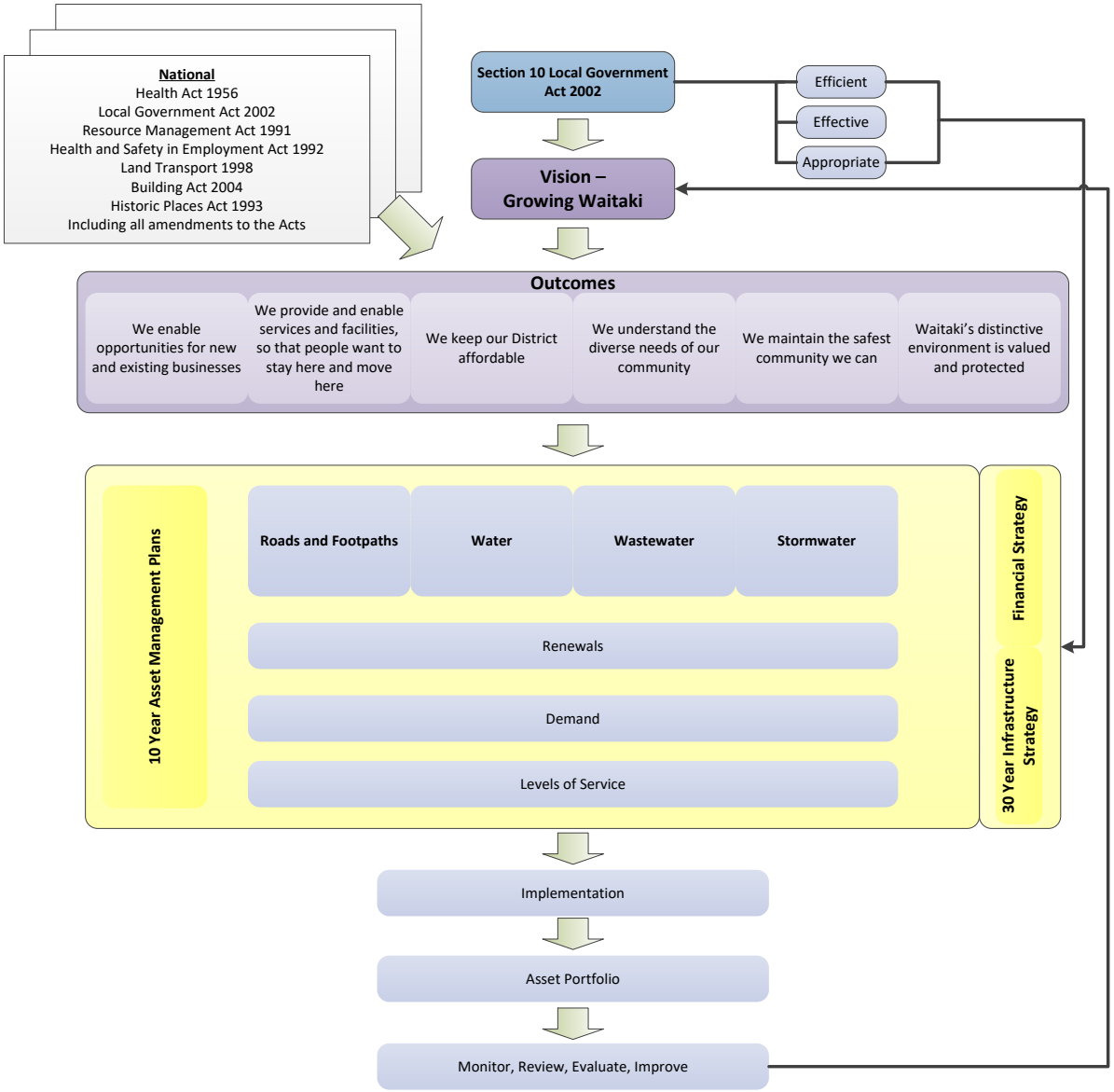
consultation). The actual solution chosen is reflected in the most likely scenario. The renewal programme is based on overall condition data on asset life of that type of asset. This reconfirmed on a case by case basis when the actual pipe renewal project is due for construction.

Activity	Scenarios considered when making decisions
Water	Standalone WTP upgrades or amalgamation of water supplies Condition assessments prior to renewal
Wastewater	Standalone WWTP upgrades or amalgamation of wastewater systems Overflow mitigation – pump capacity increase or emergency storage
Roads and Footpaths	Develop routes to address demand, growth, amenity value, resilience and expenditure patterns by using tools such as ONRC and Roading Network Plan

3.7 STRATEGY LINKS

To deliver the Council's vision, there must be clear 'line of sight' connectivity between the high-level organisation policy, strategic plan and objectives, and the daily activities of managing our assets. This document forms part of that by setting out the asset management strategy in support of our asset management policy.

Figure 3.1 Infrastructure Strategy- Linkages with other Documents



4.0 CORE INFRASTRUCTURE

4.1 CORE INFRASTRUCTURE ASSETS

The core Waitaki District Council Infrastructure Assets are tabled below with 2015 replacement values for water, sewerage and stormwater assets. A current revaluation is underway, but there have been no significant changes since 2015. Roads and footpath assets were revalued in 2017.

Table 4.1 Waitaki District Infrastructure Assets

Asset	Description	Replacement Value	% of total
Water (2015)	Water extraction, treatment and distribution	$100.8M	11%
Sewerage (2015)	Wastewater collection, treatment and discharge	$74.5M	8%
Stormwater (2015)	Stormwater collection and discharge	$26.3M	3%
Roads and footpaths (2017)	Roads (arterial, collectors, local; curbs and gutters), bridges, footpaths	$710.7M	78%
TOTAL		**$912.3M**	**100%**

4.2 CORE ASSETS DESCRIPTION

In general, the condition and performance of Council's core infrastructure can be described as fit for purpose. Given this condition we expect to be able to continue to deliver an appropriate and affordable level of service for the community

While it is considered that the performance of the core infrastructure is sound there are several issues that need to be considered:

- Council expects ongoing increases in the cost of roading. Increased truck movements – particularly from dairy conversions and future forestry harvesting - will result in increased roading maintenance and upgrades. The challenge will be continuing to provide satisfactory levels of service with constrained funding and increased pressure on roads.
- Compliance with Drinking Water Standards mandated by Government is still expected to remain challenging for Council and water consumers over the next few years.
- Compliance with existing and new regional waste water and stormwater rules and standards that place greater emphasis on protecting the environment.

4.3 WATER

4.3.1 WATER 30 YEAR GOALS

Protect public health and property by providing a reliable, sustainable and cost-effective supply of water to meet the needs of the consumer.

4.3.2 WATER ASSETS

Council supplies water to over 95% of the district's population through 17 water intakes, 41 Storage facilities and 34 Pump Stations. Total length of reticulation is 1,641km varying from 15mm to 900mm in diameter. Total operating costs are estimated to be $6.2M, gradually increasing to $7.6M in 2028. Replacement value of treatment plants, pump stations and reticulation is approximately $100.8M as at July 2015, and has not changed significantly.

Table 4.2 Waitaki Public Water Supplies Summary

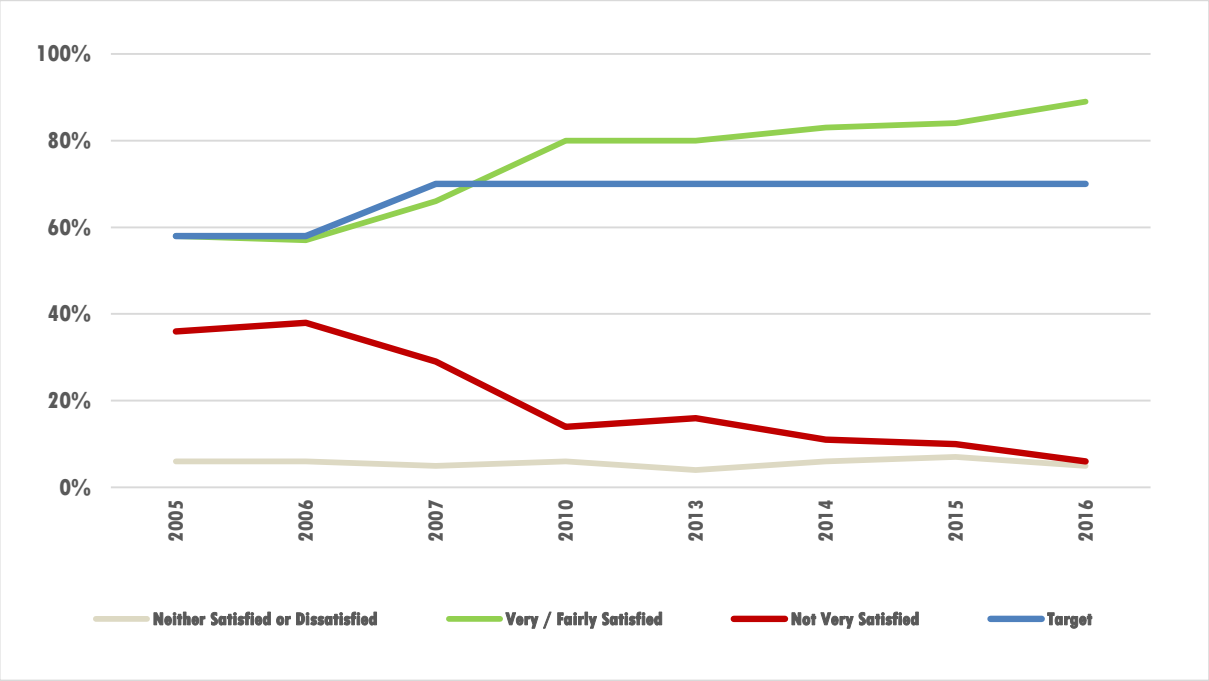
	Pop. (WINZ)	Type of Supply	Source	Treatment	Storage (m3)	Pump Stations	Retic. (km)	Valves	Hydrants	Replace. Value
Oamaru	14,390	U & R	WR	F, Cl2, O3	11,738	7	466	1,036	929	$65,012,054
Waihemo	1,357	U & R	B	F, Cl2, UV	1,750	2	208	201	77	$8,193,528
Kurow	330	U	B	UV	360	1	15	54	49	$2,332,134
Lake Ohau	36	U	G	N	180	-	4	8	14	$719,967
Omarama	270	U	G	Cl2	940	1	14	81	41	$2,827,954
Otematata	195	U	G	N	20,000 (u)	1	14	112	74	$3,859,733
Awahokomo	21	R	G	N	97	-	9	-	-	$218,152
Awamoko	399	R	WR	F, Cl2	97	4	70	8	-	$1,572,570
Duntroon	81	R	B	N	90	1	7	8	8	$375,313
Hampden/Moeraki	501	R	C	Cl2	270	5	62	51	9	$2,165,705
Herbert/Wainakarua	670	R	R	Cl2	240	3	165	71	4	$2,697,168
Kauru Hill	197	R	G	Cl2	180	1	76	26	1	$1,213,433
Lower Waitaki	778	R	B	Cl2, UV	180	2	94	99	2	$1,762,308
Bushy Creek	29	R	C	N	13	-	27	6	-	$317,430
Stoneburn	86	R	G	F	180	2	87	26	1	$1,675,011
Tokarahi	573	R	G	Cl2	430	3	272	182	4	$4,860,589
Windsor	137	R	R	Cl2	180	1	51	21	1	$993,958
Water Total	**20,050**				**36,925**	**34**	**1,641**	**1,990**	**1,214**	**$100,797,007**

Type of Supply: U = Urban (on demand). R = Restricted. **Source:** B = Bore. C = Creek. G = Gallery. R = River. WR = Water Race. **Treatment:** Cl2 = Chlorine. F = Filtration. N = No treatment/disinfection. O3 = Ozone. UV = Ultra Violet Irradiation

Section 6, Schedule 10 of the LGA requires Council to identify any variations between the Water and Sanitary Assessments (WSSA) and the Long Term Plan 2015-25, thus requiring a review of the WSSA

aligned with the three yearly Community Plan frequency. Within the services supplied by Council there have been significant changes and improvements to the infrastructure and consequently a reduction in risks for the community.

Figure 4.1 Waitaki Resident Satisfaction with the District Water Supply



From the Water Satisfaction Survey, it is clear there is a significant increase in satisfaction from 2005, with this high level of satisfaction being maintained. It also shows how Council is continually raising the bar with respect to targets and maintaining high satisfaction levels.

4.3.3 WATER KEY ISSUES

- Compliance with the Health Act and DWSNZ - Water Treatment Plant Upgrades
- Treatment Plant Upgrades totalling $3.2M over the next three years
- Increased operation and maintenance costs associated with new Treatment Plants
- Increased maintenance & monitoring due to the Havelock North Inquiry
- Extending the Oamaru Water Supply to provide a least cost/risk option to meet compliance
- Capital and renewal works totalling $17.8M over the next ten years
- Developing an improved renewal plan to better consolidate the asset set
- Investigating and implementing improved efficiencies
- Developing and documenting risk management procedures
- Ongoing affordability of the water supply.

4.3.4 WATER KEY ASSUMPTIONS

Key Assumption	Uncertainty	Impact	Our Response / Options
Sustainability Agenda: Central government will continue its increased focus on water quantity and the sustainable management of these resources, and there will be an increased environmental awareness around the importance and value of our waterways.	Low	These increases in focus means that achieving more with less resource consumption will become more important as well as protecting water sources from contamination.	• Be responsive to changing community and central and regional government expectations around environmental standards and awareness. • Council may need to consider adding for resources to meet increasing expectations.
Climate Change: That more extreme weather patterns will impact on the District in ways similar to that noted in the Ministry for the Environment guidance.	Med	There is uncertainty around the rate of climate change and the impact it will have on our water supplies.	• Consider the impact that climate change may have on the security of supplies when additional information is available and there is greater certainty on the impact this may have locally. • Council may need to invest sooner in gathering more information around what effect climate change may have on water supplies
Asset Information: That our asset information is reliable and sufficient.	Low	Poor asset information quality may impede effective and efficient maintenance, renewals and future development of the water network e.g. projections currently age based not on condition or performance.	• Asset information has been assessed as reliable. • Council could increase asset information resourcing.
Skills: That there will be a shortage of technically skilled people to design, construct and manage water assets.	High	With less technically skilled resources available, projects and maintenance may not be able to be appropriate planned and managed.	• Council is considering the impact of this issue when planning. • Council could intervene sooner and divert resourcing to planning for a skill shortage.
Meeting legislative requirements: That council continues to meet requirements for drinking water quality under the Health (Drinking Water) Amendment Act 2007 and NZDWS 20058. The Havelock North Water Inquiry recommendations will mean significant legislative changes relating to potable water.	Med	The impacts from the Havelock North Water Inquiry are potentially significant and wide ranging, including the way the water service is delivered, managed, operated, maintained, monitored and reported on.	• Plan to meet higher water quality standards as legislated, but not quantified at present.
Affordability: That there will be increased expectations around affordable services i.e. realistic funding now and in the future.	Med	Council may deem water supplies to be unaffordable.	• Better understand our assets so that renewal and maintenance costs can be well planned and communicated with the

Key Assumption	Uncertainty	Impact	Our Response / Options
			Community to control expectations. • Remain prudent when considering rises in fees and charge
Health and safety: That there will be ongoing changes to health and safety requirements that Council is required to meet.	Low	Increasing health and safety requirements will put more pressure on existing resources.	• Maintain sustainable workloads for current staff and be responsive to increased work demands. • Any increase in health and safety requirements would be incorporated into ongoing budgets.
Managing growth and increased demand: That growth and changes in demographic composition will occur faster or slower than expected.	Med	More demand for water connections in Oamaru and smaller community water supplies may result in development being hindered by maintenance and upgrade work. Significant changes in service levels could result in significant rates increases. Reduction in population and household size could put pressure on the collection of the funding required for the activity.	• Ensure that we have infrastructure with growth forecast able to adapt to positive population changes. • Continue to monitor demographic changes.

4.4 STORMWATER

4.4.1 STORMWATER 30 YEAR GOALS

- Provide for collection and disposal of stormwater to acceptable environmental standards.

4.4.2 STORMWATER ASSETS

Reticulation varies from 100mm to 1,350mm in diameter.

Total operating costs are estimated to be $0.6m gradually increasing to $0.7m in 2028. Replacement value of treatment plants, pump stations and reticulation is approximately $26.3M as at July 2015, and has not changed significantly

It is estimated that 65% of the Districts population have access to a public reticulated stormwater system with the remainder being served by individual soak pits and associated disposal systems.

In accordance with Section 6, Schedule 10 of the LGA, Council is currently reviewing the Water and Sanitary Services Assessment aligned with the three yearly Community Plan frequency.

Table 4.3 Public Stormwater Systems in the Waitaki District

Supply	Population	Length of Reticulation (m)	Manholes	Replacement Value
Oamaru	11,421	47,610	783	$22,629,875
Kurow	312	144	1	$37,690
Lake Ohau	20	55	2	$23,610
Moeraki	117	23	1	$11,028
Omarama	267	78	9	$58,400
Otematata	186	5,094	94	$1,797,764
Palmerston	795	967	22	$713,318
Weston	807	2,342	38	$1,051,837
Total	**13,925**	**55,839**	**932**	**$26,323,522**

4.4.3 STORMWATER KEY ISSUES

- Compliance with existing and increased resource consent requirements
- Health and environmental compliance
- Development of an improved renewal plan to better consolidate the asset set
- Maintaining a weather eye on the effects of climate change
- Capacity reinstatement within the Oamaru Stormwater network to remove gravel build up, totalling $2.0M over the next ten years

4.4.4 STORMWATER KEY ASSUMPTIONS

Key Assumption	Uncertainty	Impact	Our Response/Options
Regional council obligations: Council will continue to comply with resource consent requirements, including The Canterbury Land and Water Regional Plan requiring development of Stormwater Management Plans and resource consent for discharge.	Low	Changes to regional rules and standards will increase emphasis on protecting the environment including the requirement for stormwater to be treated. Capital works may be required which would impose significant additional costs.	• Retain some flexibility to respond to regional council requirements. • Stormwater treatment allowed for in LTP budgets. • Ongoing monitoring of resource consent conditions.
Climate change: That there will be an increase in frequency of extreme rainfall events in the future	Med	Increased frequency and severity of flooding and inundation.	• Monitor the impact of climate change and be responsive to the implications this may have locally.
Skills: That there will be a shortage of technically skilled people to design, construct and manage stormwater assets.	High	With less technically skilled resources available, projects and maintenance may not be able to be appropriate planned and managed.	• Council is considering the impact of this issue when planning. • Council could intervene sooner and divert resourcing to planning for a skill shortage.
Affordability That there are increased expectations around affordable services i.e. realistic funding now and in the future.	Low	Service levels are perceived as unaffordable for the Community and service level changes are driven by affordability and/or expectation.	• Remain prudent when considering rises in fees and charge.

4.5 WASTEWATER

4.5.1 WASTEWATER 30 YEAR GOALS

- Ensure the health of the community where urban housing exists, by eliminating the need for individuals to provide their own wastewater system (much higher health risks)
- Provide cost-effective trade waste disposal systems for commercial and some industrial users, eliminating the need for individually provided wastewater systems
- Provide acceptable collection, treatment and disposal systems for community use.

4.5.2 WASTEWATER ASSET SUMMARY

Reticulation varies from 100mm to 600mmm in diameter. Total operating costs are estimated to be $2.9m, gradually increasing to $3.7m in 2028. Replacement value of treatment plants, pump stations and reticulation is approximately $74.5M as at June 2015, and has not changed significantly.

Approximately 80% of the District's population have access to a reticulated wastewater system with the remainder served by individual septic tanks and associated disposal systems. In accordance with Section 6, Schedule 10 of the LGA, Council reviews the Water and Sanitary Services Assessment in alignment with the three yearly Community Plan frequency.

Table 4.4 Waitaki Public Wastewater Systems Summary

Supply: Treatment Facilities	Pop.	Length of Reticulation (m)	Manholes	Pump Stations	Replacement Value
Oamaru: Aeration lagoon. Multiple oxidation ponds. Land disposal	12,228	140,352	1,519	17	$55,837,326
Otematata: Primary & Secondary Treatment	186	10,528	166		$4,431,059
Palmerston: Oxidation pond	795	15,980	163	2	$5,319,469
Omarama: Oxidation pond. Wetlands	267	7,308	90	2	$2,767,395
Kurow: Oxidation pond	312	8,083	42	-	$2,589,514
Moeraki: Oxidation pond. Wetlands	117	9,987	47	8	$2,475,273
Lake Ohau: Oxidation pond	20	2,865	35	-	$1,022,573
Duntroon: Septic tank	90	338	7	-	$117,313
Wastewater Total	**14,015**	**195,441**	**2,069**	**29**	**$74,559,922**

4.5.3 WASTEWATER KEY ISSUES:

- Compliance with existing and increased resource consent requirements
- Capital and renewal works requiring $8.3M over the next ten years
- Ongoing affordability of the wastewater services

- Development of an improved renewal plan to better consolidate the asset set
- Staying alert to the effects of climate change on wastewater systems

4.5.4 WASTEWATER KEY ASSUMPTIONS

Key Assumption	Uncertainty	Impact	Our Response/Options
Managing environmental effects and nuisance: That council appropriately manages odour and sludge disposal from treatment plants, and network overflows and spills.	Low	Odour and sludge disposal from treatment plants, and overflows and spills from the network.	• Sludge disposal options to be investigated for treatment plant sludge.
Regional council obligations: Council will continue to comply with resource consent conditions and meeting new requirements of regional rules and standards that place greater emphasis on protecting the environment.	Low	Changes to regional rules and standards will increase emphasis on protecting the environment. Capital works may be required which would impose significant additional costs.	• Identifying and implementing methods of making wastewater collection and treatment services more efficient and sustainable. • Continue to monitor resource consent conditions
Asset Information: That our asset information is reliable and sufficient.	Low	Poor asset information quality may impede effective and efficient maintenance, renewals and future development of the water network	• Asset information has been assessed as reliable. • Council could increase asset information resourcing.
Climate Change: That our district will be exposed to more frequent extreme rainfall events in the future.	Med	Increased rainfall events will overwhelm and inundate the wastewater network, resulting in overflows	• Monitor the impact of climate change and be responsive to changes required to assets (including mitigation & adaptation)
Affordability That there are increased expectations in the Community around affordable services i.e. realistic funding now and in the future.	Low	Service levels are perceived as unaffordable, and changes are driven by affordability and/or expectation.	• Remain prudent when considering rises in fees and charge.
Skills: That there will be a shortage of technically skilled people to design, construct and manage wastewater assets.	High	Projects and maintenance may not be able to be appropriate planned and managed.	• Consider the impact of this issue when planning. • Intervene sooner and divert resourcing to planning for a skill shortage.

4.6 ROADS & FOOTPATHS

4.6.1 ROADS & FOOTPATHS 30 YEAR GOALS

- To provide a safe, effective, efficient and affordable service to customers which is fit for purpose.

4.6.2 ROADS & FOOTPATHS ASSETS

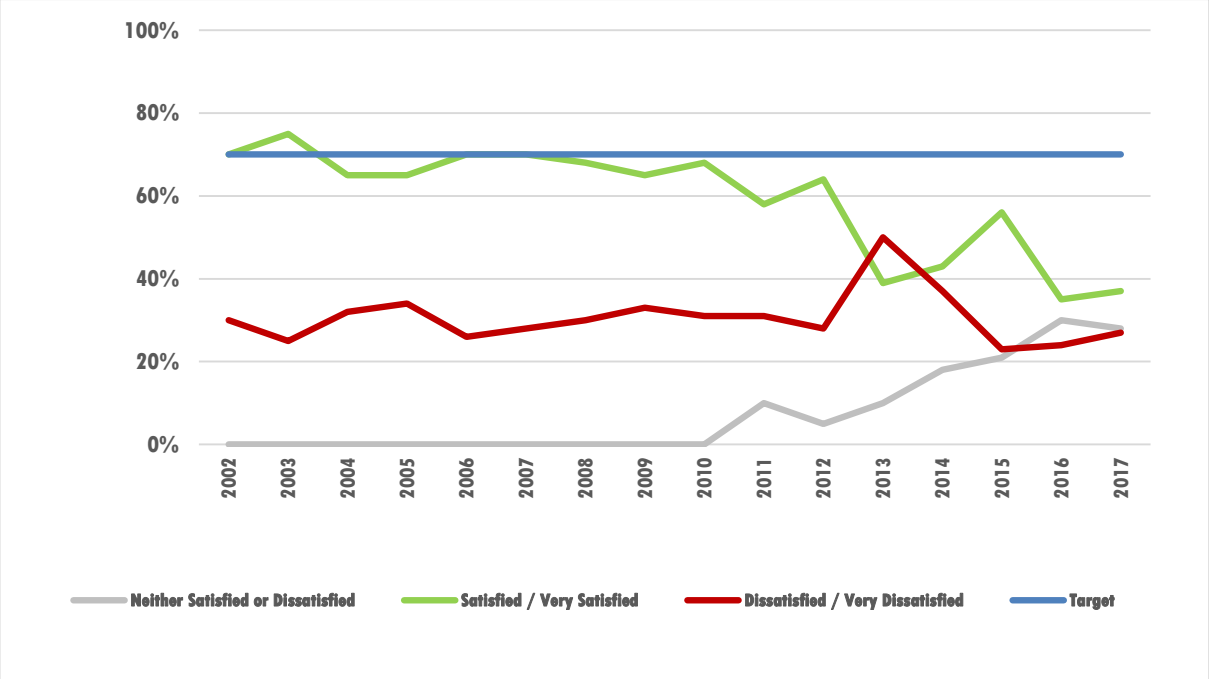
The Waitaki District covers 7,152 km2 with a network characterised as a rural, low volume network comprised predominantly of unsealed roads that provide effective access to properties and people. 90% of roads are rural (i.e. have a speed limit of more than 70 km/h). 59% of roads are unsealed. 94% of roads have traffic volumes of less than 500 vehicles per day. Over 85% of the roads within the District are owned and operated by Council, with the NZTA operating the remaining 15% on state highways. Walking and cycling are comparatively low but are increasingly important parts of the urban transport network, especially as our population ages.

The level of investment in our Roading assets is over $710.7m (Gross Replacement Cost of July 2017 valuation). The annual economic activity benefits generated by these physical assets, is more than 1 billion dollars per annum, while the social benefit is immense and immeasurable. These assets require ongoing annual maintenance and in some cases replacement, to sustain the benefits generated.

Table 4.5 Waitaki Roading Assets

Waitaki Roading Assets	
Length of local roads managed and maintained by WDC (km)	1,812
Length of state highway managed and maintained by NZ Transport Agency (km)	306
Length of footpath (km)	164
Kerb and Channel (km)	185
Retaining Structures (km)	13
Bridges and major culverts (number)	160
Street lights (total number including State Highways)	2,505
Car parking areas (number)	11
Signs (number)	5045
Walking & Cycling Assets (number)	22

Figure 4.2 Waitaki Resident Satisfaction with the Standard of Local Roads in Waitaki District



Annual customer satisfaction surveys for Roading show satisfaction has been low for the past 7 years following significant flooding events from 2010 to 2013 with a sharp decline and no significant improvement since. Council has since invested a significant amount of additional funding in roading to address some of the key issues as highlighted below and increase customer satisfaction. The results of this survey have helped solidify why roading resilience is a key issue for Council. It is intended that this work will re-establish an upward trend in satisfaction.

4.6.3 ROADING AND FOOTPATH KEY ISSUES:

- Transport network exposed to regular and increasingly severe weather events.
- Coastal erosion affecting parts of the district through the loss of roads.
- Commercial land use change altering the rural traffic composition, with heavier and wider vehicles, greater wear and tear on existing assets and road user safety concerns.
- Tourism within New Zealand has increased exponentially, including the Waitaki region.
- Forestry and logging activities are impacting the roading network.
- An ageing population greater than the national average has different needs including good footpaths, cycleways and car parking in urban and peri-urban areas.
- Mining activities in the Waihemo ward will continue for 10 plus years. Withdrawal from the district will significantly impact Council's rates component revenue.
- Meridian Energy, as a result of roads inundated by man-made lakes within the Waitaki River catchment, also contributes significantly to Council's rates component revenue; but offset by the vestment of 14km of sealed road.
- 50% of 2015/16 Survey respondents stated that WDC roads are not safe to travel on.
- Customers are at higher risk due to changing demand on the network.
- The trend of several communities-at-risk categories, such as rural roads and intersections are worsening
- Emergency reinstatement works are moving from 1-in-10-year events to 1-in-40-year events or greater. Investment requirements are that the reinstated works be more than $100,000 per event for financial assistance or greater than 10% of the annual programme for escalated financial assistance rate.
- Examining network demands to provide a flexible environment to address change using the Roading Network Plan.

- Low customer satisfaction and raised expectations of stakeholders and customers.

4.6.4 ROADING AND FOOTPATH KEY ASSUMPTIONS

Key Assumption	Uncertainty	Impact	Our Response/Options
Climate Change: That the resilience of our transport network will be exposed to regular and increasingly severe weather events; that the effects of coastal erosion that are being seen in parts of the district through the loss of roads, will continue to worsen.	Med	That these effects may reduce resilience and accessibility of the network and an increase in travel time resulting in lost economic productivity and growth in the district.	• Monitor the impact of climate change and be responsive to changes by building resilience required to Council's assets (including mitigation and adaptation). • NIWA are currently mapping the 100-year coast line. Council can then make more informed decisions regarding coastal erosion and investment, and the Council's Coastal Erosion Strategy will be consistent with this new information.
Demographic Changes: That the district will experience a change in land use - larger rural vehicles; larger tourist vehicles with drivers unused to the conditions; an ageing population greater than the national average requiring good quality footpaths for pedestrians and mobility scooters, walking and cycling tracks, footpaths and improved accessibility for the elderly, car parking in our town centres.	Low	That these factors will test the resilience of our roading network, and lead to deterioration of the district's roads.	• Maintain a resilient roading network, including funding drainage maintenance, renewals and improvements, and responding to coastal erosion threats. • Ongoing monitoring around signs of deterioration of the district's roads. • Regular reviews of levels of service to ensure they are appropriate and achievable.
Asset Information: That our asset information is reliable and sufficient.	Low	Poor asset information quality may impede effective and efficient maintenance, renewals and future development of the water network e.g. projections currently age based not on condition or performance.	• Asset information has been assessed as reliable. • Council could increase asset information resourcing.
Under-investment in roads – investments in local roading infrastructure compared to other peer councils is low (the focus of roading spend has been in the rural areas for a number of years - this is unsustainable).	Low	Roads cannot be maintained to the agreed Level of Service stated.	• Plan for changing demands. • Continue to monitor road condition
Skills: That there will be a shortage of technically skilled people to design, construct and manage roading and footpath assets.	High	With less technically skilled resources available, projects and maintenance may not be able to be appropriate planned and managed.	• Council is considering the impact of this issue when planning. • Council could intervene sooner and divert resourcing to planning for a skill shortage.

4.7 FURTHER ASSUMPTION AND RISK INFORMATION

The risk events that might impact on assets include but are not limited to:

- Natural events: Where there is no control over the timing or the extent of the event
- External impacts: Such as material supply failures or power supply failures
- Physical failures: Condition or performance of the asset leads to failure
- Operational risks: management or operational activities impact adversely on assets

This Strategy has identified the following risks that could impact on the performance of our infrastructure and services, these have been categorised under the following two headings and some are covered under the emerging issues section of this strategy:

4.7.1 ADVERSE/CATASTROPHIC EVENTS

- Earthquake
- Tsunami
- Floods and severe storms
- Climate change impacts such as coastal erosion and intensification of localised rainfall
- Pandemic
- Contamination
- Unexpected increase in energy costs
- Unplanned growth
- Dam failure, Asset failure (arising from design/materials/usage deficiencies)
- Resourcing (constraints on employing engineers/consultants/general availability)

4.7.2 FUNDING

- Central Government
- Revaluations
- Insurance
- Development Contributions changes
- Accounting practice changes (depreciation)

With the increase of the value of built assets and levels of service (LOS) expectations, and cultural and environmental impact thresholds tighten, more formal risk management practices are required to be implemented. Mitigation strategies need to be applied and reviewed continuously to achieve improvement to levels of service.

If legislative compliance is achieved, in tandem with levels of service, plus prudent investment and good financial management, then minimisation of exposure to public and general liability and risks derived from operation of assets, should happen.

Risks could also arise from infrastructure service management, from the use of physical assets (e.g. pump or pipe failure) and management of the services provided (e.g. failure to formalise procedures and reporting of incidents). It is important to note that risk management is not just the downside of events such as financial loss or legal proceedings. It also refers to the upside and opportunities that exist for the Council to do things more innovatively, sustainably, and effectively.

NZTA reviewed its financial assistance rate four years ago which resulted in a 1% reduction in NZTA funding. The shortfall was made up through additional rates. This Strategy is based around the existing 55% FAR being retained.

5.0 EMERGING ISSUES

Council faces many issues and challenges (as well as opportunities) over the next 30 years in achieving its vision of Growing Waitaki and making it the best place to live, work and play. Council has recognised emerging issues in the development of the Strategy Overview (refer Strategy Overview, P.12), however the following sections covers all the identified emerging issues that could be included in a more exhaustive work programme should Council choose to make the resources available.

These include changes in population and demographics, our economy as well as other social and environmental factors. A number of these issues and challenges are common to other local authorities in New Zealand while others are specific to Waitaki. We have identified and summarised the following issues which could affect how we build, operate and maintain our infrastructure in an affordable way over the 30 Year life of the Strategy:

- Land use changes
- Climate changes
- Demographics
- Information management
- New technologies
- Changing legislative environment (Central & Regional Government)
- Infrastructure resilience
- Aging of infrastructure
- Increase in public expectations of Levels of Service
- Challenges to local network reliability (resilience)

5.1 LAND USE CHANGES

5.1.1 AGRICULTURE

Agriculture forms a significant part of the Waitaki economy. Over the last decade farming practices have increasingly shifted from traditional dryland sheep and beef to dairying through irrigation schemes like NOIC. This development has resulted in significant benefits to the local and national economy through the creation of more jobs, increase in young people, higher and more regular incomes and growth in our smaller townships and countryside. The roading network is fundamental to servicing this growth and transporting wealth requires more and larger heavy vehicles travelling into the hinterland.

The increasing demand on the network and the introduction of "just in time" delivery practices requires a higher level of network reliability and safety. This development shapes the future investment profiles to meet land use change and is being addressed through transitioning into the One Network Road Classification.

Another emerging issue is potential greater stress on water sources from 'up stream' agriculture activities. This is being experienced in other areas and may happen here during the life of the Strategy. Council will consider this issue and work with Otago Regional Council and Environment Canterbury. The Havelock North enquiry signals potential change in this area.

RESPONSE: More funding included for Roading and Urban Stormwater improvements. No allowance has been made for changes to drinking water delivery as a result of Havelock North.

5.1.2 BUSINESS

Council faces several choices in the alignment of the District Plan and Infrastructure Strategy. Choices made as part of the District Plan (particularly in relation to residential and businesses) are likely to inform the location, affordability and performance of the infrastructure network. Hydroelectric generation and mineral extraction are also key activities within the district. However, indications are that mining may

decrease in the early years of this strategy. Both sectors are major contributors to the general rates which in turn help fund infrastructure across the District.

Response: Council is currently reviewing the District Plan and is considering changes to the rating policy to minimise any impact in mining.

5.1.3 LIFESTYLE

The demand for lifestyle development still exists but is less now for hobby farms than has been the case. The preference now is for large executive housing set in expansive grounds around the fringes of the main urban centres, mainly Oamaru. The result is customers expect a level of service for roads and water equal to urban standards in a rural environment.

RESPONSE: Council is investing more money in roading and continues to upgrade water supplies.

5.2 CLIMATE CHANGES

5.2.1 WATER QUALITY

Changes in climate and rainfall patterns may result in water becoming scarcer in quantity and quality, with increased frequency of flooding and droughts. Many factors contribute towards the scarcity of drinking water: consumption and run-off; an increase in water-intensive industrial activities; a lack of adequate pre-treatment arrangements; leaks and losses from inefficient water distribution; and inadequate wastewater collection systems. Increased rainfall may contribute to additional inflow/infiltration into the wastewater collection system, with increased overflows and contamination of the natural environment.

RESPONSE: This is identified as a key strategic issue. Council has included improvements to mitigate this risk as part of the work programme. (Refer Strategy Overview P. 12)

5.2.2 ROADING RESILIENCE

The predicted increase in intensity and frequency of severe weather events could have a significant impact on the resilience of our roads. These impacts could be far reaching with increased coastal erosion and flooding being major concerns. As yet there is no agreement with the community or New Zealand Transport Agency (NZTA) regarding the choices (including large scale protection works) to keep vulnerable routes in service.

RESPONSE: This is identified as a key strategic issue. Council has taken a Business as Usual approach and continues to improve resilience to flooding and coastal erosion within existing budgets. (Refer Strategy Overview P. 12)

5.3 DEMOGRAPHIC CHANGES

5.3.1 POPULATION

Waitaki has a growing elderly population with 22% of the population aged over 65 - higher than the national average of 14% - and this trend is projected to continue to over 35% by 2030. People are generally healthier, active and more likely to travel than 40 years ago, which may create further demand on and raise expectations of levels of service. This could increase the cost of the services and infrastructure we provide.

Growth projections suggest the population is projected to grow moderately over the next 30 years. Much of this growth is expected in rural areas (and areas surrounding Oamaru) predominately driven off irrigation. The population is projected to decline in both the townships and in Oamaru.

RESPONSE: This is identified as a key strategic issue, and an action plan is to be developed. (Refer Strategy Overview P. 12)

5.3.2 TOURISM GROWTH

Total visitor population is also projected to increase, with approximately half of the dwelling growth projected to occur in the rural areas. Both factors are likely to create additional demand for infrastructure and services in some areas and underutilisation in other parts of the District.

RESPONSE: This is identified as a key strategic issue, and an action plan is to be developed. (Refer Strategy Overview P. 12)

5.4 COMMUNITY GROWTH

With the changes in demographics, we also expect increased expectations around economic and development and community goals, and need to ensure our infrastructure retains and attracts residents. The community is a lot more involved in wanting to understand and participate in the delivery of services. We anticipate that the community's expectations for communication on infrastructure issues will increase over the life of the strategy, requiring Council to engage more often with the community on complex issues, choices and proposed solutions.

RESPONSE: This is identified as a key strategic issue, and an action plan is to be developed. Property and Parks & Reserves will be added into this strategy so these issues can be given more visibility. (Refer Strategy Overview P. 12)

5.5 AFFORDABILITY

Waitaki District must carefully manage its investment in infrastructure to ensure it gets value for every dollar and provide infrastructure in a lawful, functional and affordable manner. Council must also balance maximising alternative funding sources, while ensuring that services and service levels match the community's ability to pay.

RESPONSE: This is identified as a key strategic issue, and an action plan is to be developed. (Refer Strategy Overview P. 12)

5.6 NEW TECHNOLOGIES

Technology is constantly changing and improving and is likely to have a significant effect especially in terms of providing and managing more efficient and effective infrastructure and services over the life of the strategy. For example, waterless toilets can decrease both water use and discharges to the wastewater system, thus impacting on water demand and wastewater treatment and discharge. Other changes could include on-farm removal of the water content in milk products, reducing the need for large trucks to cart large volumes of milk on our roads. The implications of future technological change need to be considered given the long term and ongoing nature of infrastructure investment.

RESPONSE: This is identified as a key strategic issue, and an action plan is to be developed. (Refer Strategy Overview P. 12)

5.7 GOVERNMENT PRIORITIES AND LEGISLATIVE ENVIRONMENT

The Government's focus on growth and the economy as detailed in the Business Growth Agenda is a key influence on investment prioritisation. The Government's focus is moving on from drinking water quality

as this has been addressed through the Health Act (Drinking Water) Amendment Act 2007 and the Drinking Water Standards for New Zealand and the focus is now changing to water quantity and the sensible, sustainable management thereof.

Environmental Compliance and progress is reflected through national policy statements and promulgated through regional and district plans.

The government's objective is that, by 2045, New Zealand's infrastructure should be resilient and coordinated and contribute to growth and increased quality of life. This will be achieved through better use of existing assets and better allocation of new investment, as set out in the New Zealand Infrastructure Plan 2015 (NIP 2015). The NIP provides a Vision for New Zealand's Infrastructure that: "By 2045 New Zealand's infrastructure is resilient and coordinated and contributes to a strong economy and high living standards."

RESPONSE: Council will continue to monitor and assess impacts on operation.

5.8 INFRASTRUCTURE RESILIENCE

Customers have a high expectation of continuing functionality and service delivery. Resilience is based on a design philosophy which acknowledges that failure will occur. Resilience requires early detection and recovery, but not necessarily through re-establishing the failed system. We must consider managing and mitigating the risks to, and the resilience of, our infrastructure assets from natural disasters.

Adverse events and the related impacts cannot be avoided, and Council must factor this into long term planning and civil defence planning, as well as determining the infrastructure requirements to ensure community's expectations are met regarding safe and reliable services and general wellbeing. The importance of resilience in the transportation sector forms an important part to the Government Policy Statement on Land Transport (2015-25 and draft Government Policy Statement - GPS 2018-2028) and many of the programmes will be measured with resilience as an outcome.

Some infrastructure was constructed contemporaneously and is therefore likely to fail at the same time.

RESPONSE: Council will continue to include resilience as a key factor in its decision-making process.

5.9 AGING INFRASTRUCTURE

Council is not expecting any infrastructure replacement surprises. Decisions will need to be taken on a number of water and roading assets over the life of the Strategy. While there may be limited choices regarding the replacement of certain assets (especially those associated with legislative requirements – such as drinking water) there may be greater options with others i.e. roading and footpaths. These choices are likely to be informed by changing demographic patterns across the District, retention of levels of service and issues of affordability for the community. Greater knowledge of asset life cycles will provide Council with more certainty over its replacement programme over the life of the strategy.

RESPONSE: Council will continue to monitor and assess impacts on operation.

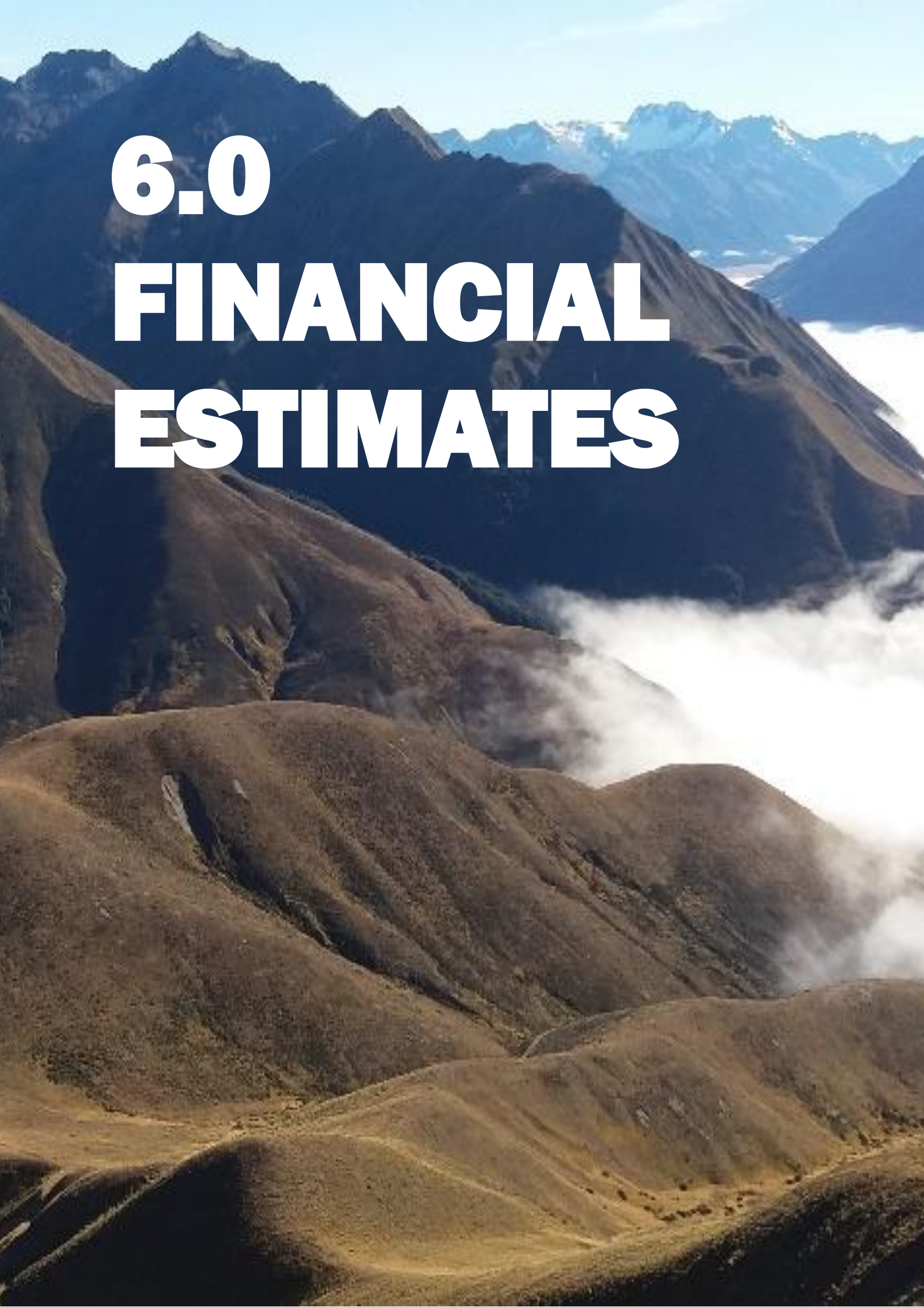
5.10 RESOURCING

Currently Council is focusing on business as usual due to resourcing constraints. Business as usual means providing the core services of Water, Waste Water and Stormwater, and Roading and Footpaths.

The decision will need to be made whether business as usual is acceptable, or whether more resources should be obtained to help council complete additional projects as requested by the community. This decision will also be influenced by other emerging issues such as changing demographics, e.g. if the

predicted population growth or tourism number rises occur, then so too will the pressure on Council increase to deliver increased expectations of levels of service.

RESPONSE: Continue to monitor and review resourcing levels.



6.0 FINANCIAL ESTIMATES

6.1 FINANCIAL IMPACTS

The Local Government Act 2002 Amendment Act Section 101B – Infrastructure Strategy states:

(4) The infrastructure strategy must outline the most likely scenario for the management of the local authority's infrastructure assets over the period of the strategy and, in that context, must—

"(a) show indicative estimates of the projected capital and operating expenditure associated with the management of those assets—

"(i) in each of the first 10 years covered by the strategy; and

"(ii) in each subsequent period of 5 years covered by the strategy

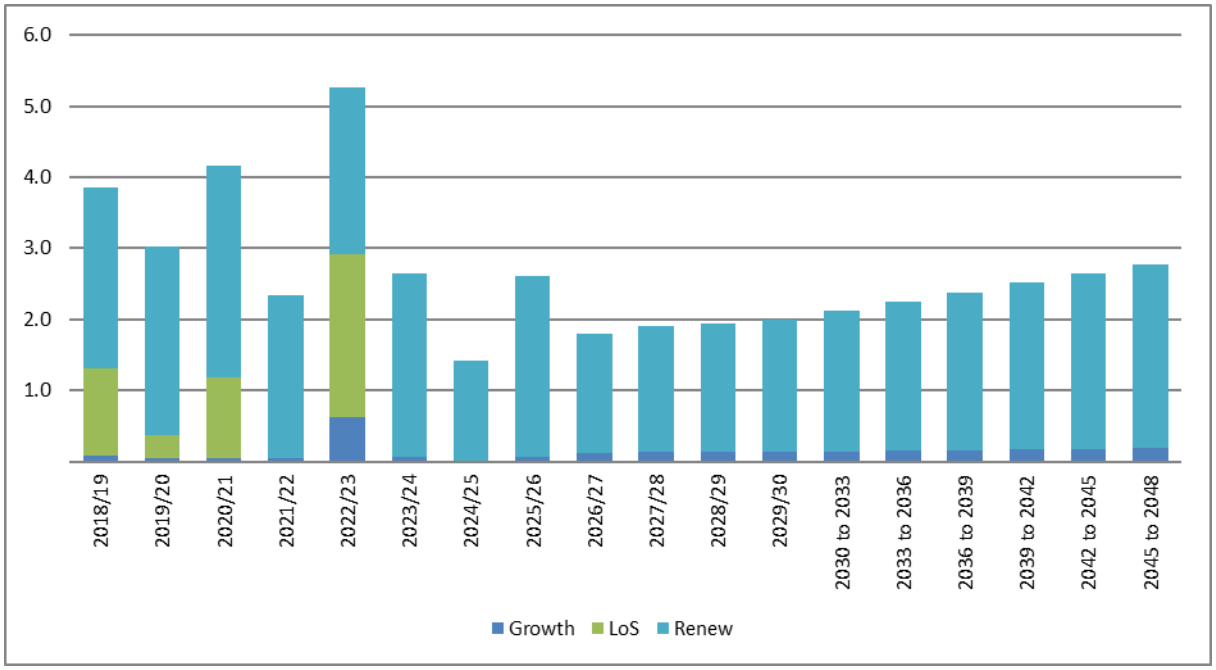
Therefore, it is important to note that each year is shown for the first ten years and then the average for each three-year period within the graphs below.

6.2 PROJECTED CAPITAL EXPENDITURE

The projected capital expenditure associated with the significant infrastructure assets are graphically represented as follows:

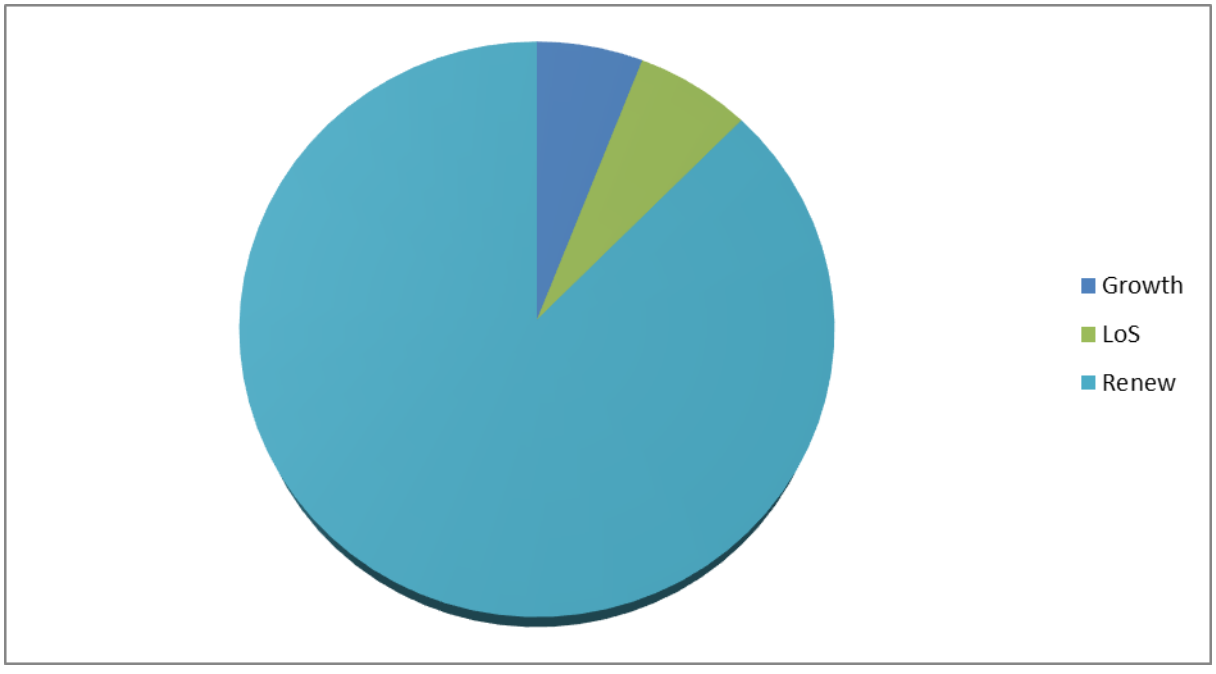
6.2.1 WATER

Figure 6.1 Projected Forecast – Water (Inflated)



Note: 2018/23 Level of Service (LoS) work includes the remaining drinking water upgrades on Council's smaller water supplies. It is planned to increase the capacity of the Oamaru water treatment plant in 2022/23 by purchasing additional membrane capacity as part of the renewal of the membranes occurring at this time.

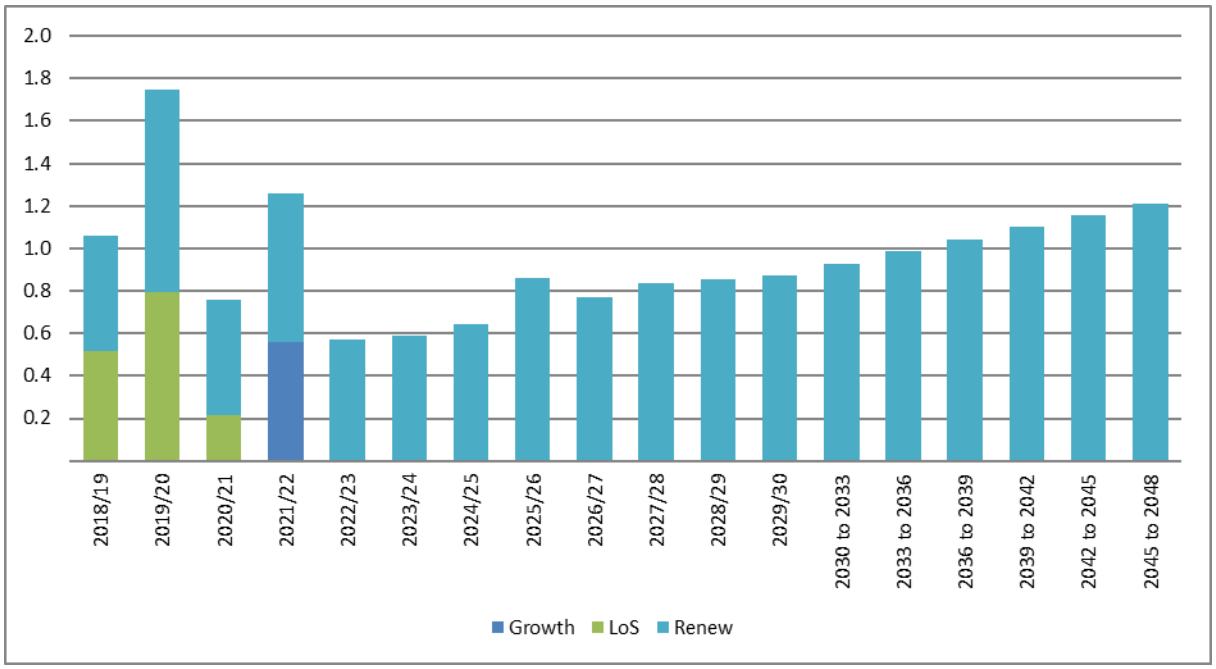
Figure 6.2 Projected Capital Expenditure – Water (Inflated)



This figure (and similar ones for Sewerage and Stormwater) show the portion of overall capital expenditure on the three areas of growth, level of service and renewals. The bulk of capital expenditure is on renewal work for the assets already in place over the life of the plan with much of the growth and level of service work impacts when treatment plants are being upgraded.

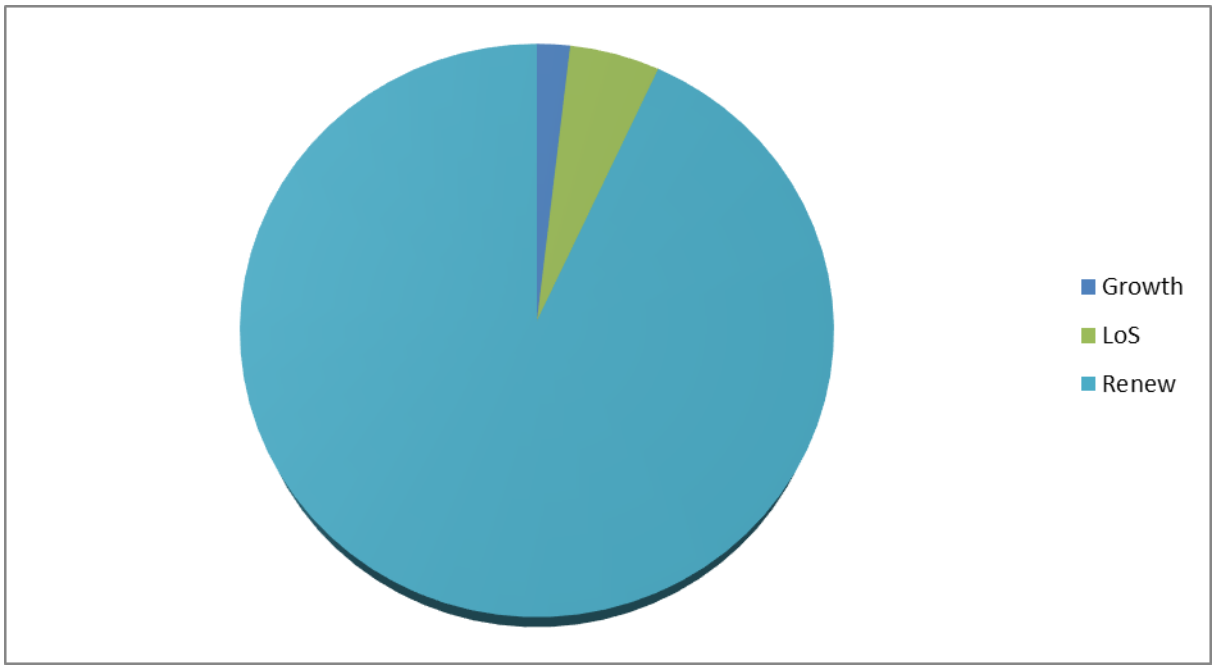
6.2.2 SEWERAGE

Figure 6.3 Projected Forecast – Sewerage (Inflated)



Note: 2018/21 Level of Service (LoS) work includes overflow mitigation in Oamaru and converting sewer laterals into public ownership and looking at disposal options in Duntroon. The project relating to growth is increasing the capacity to treat waste at the Oamaru wastewater treatment plant.

Figure 6.4 Projected Capital Expenditure – Sewerage (Inflated)



6.2.3 STORMWATER

Figure 6.5 Projected Forecast– Stormwater (Inflated)

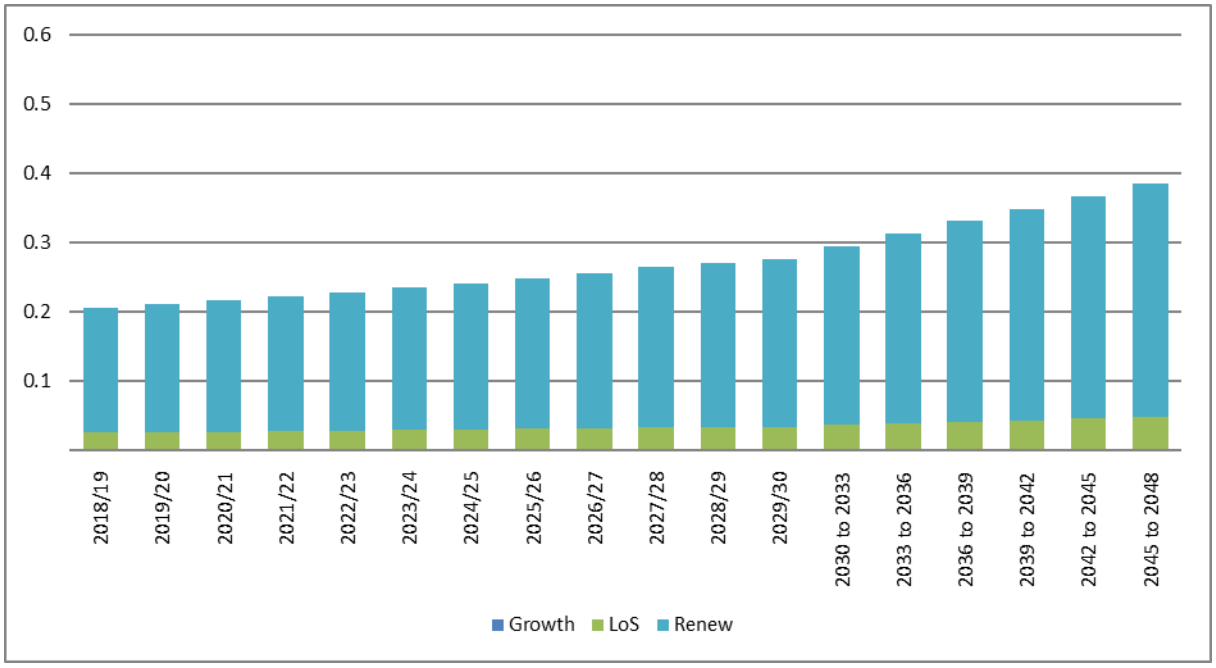
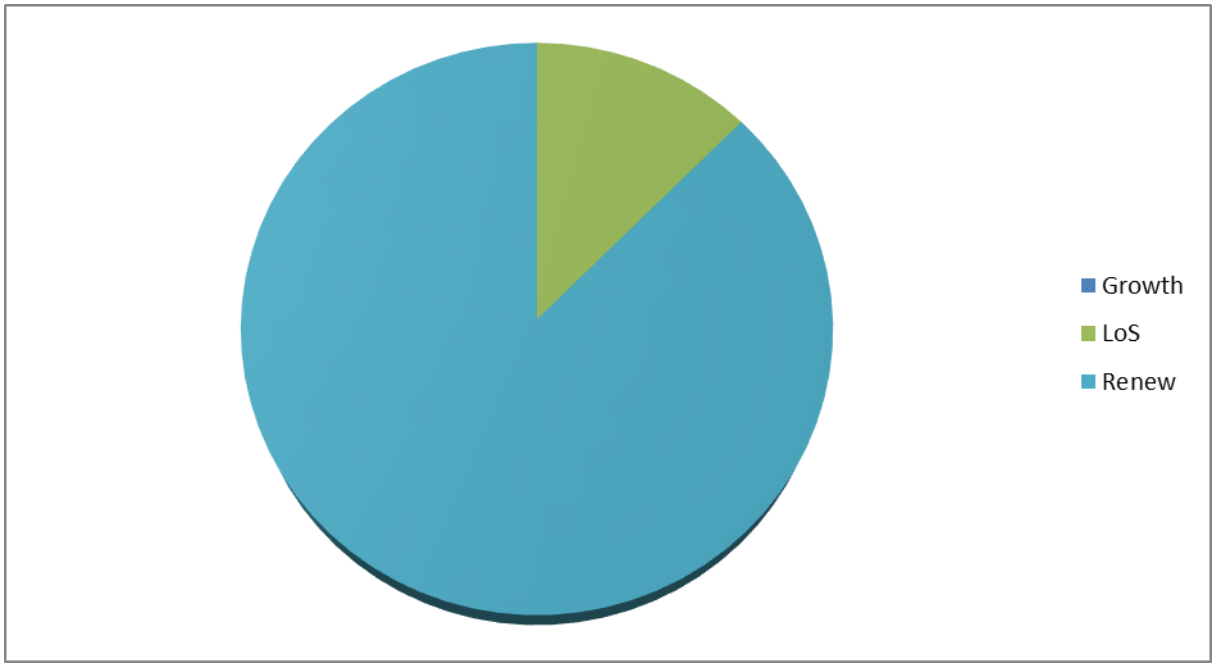
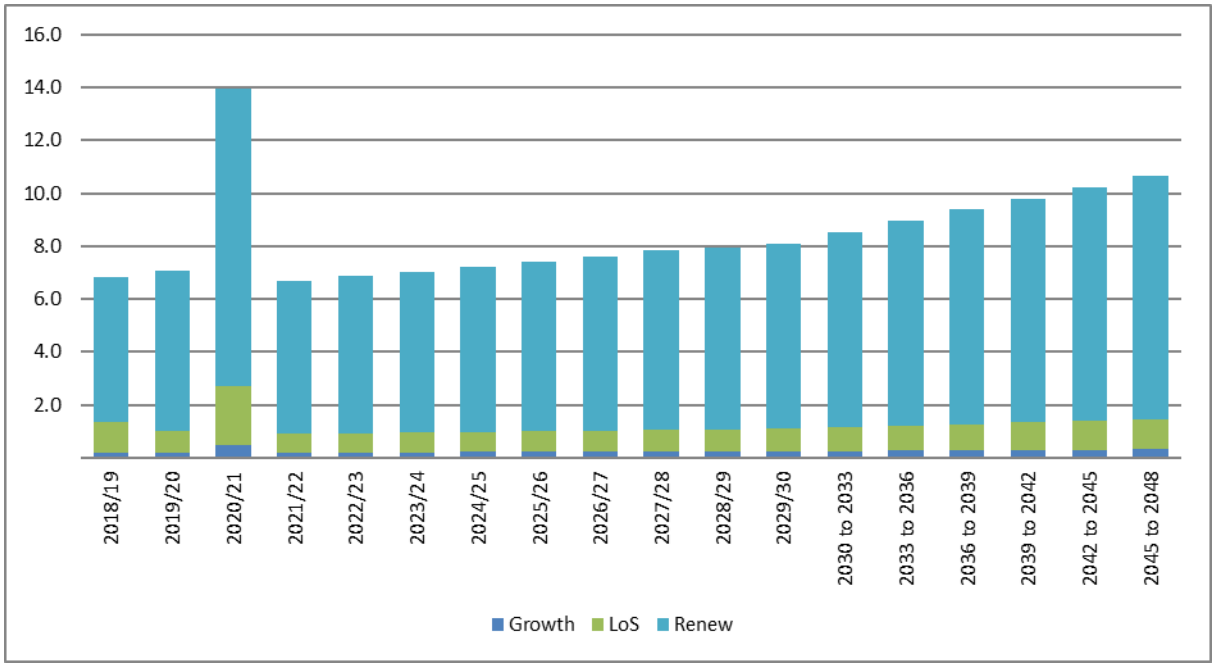


Figure 6.6 Projected Capital Expenditure – Stormwater (Inflated)



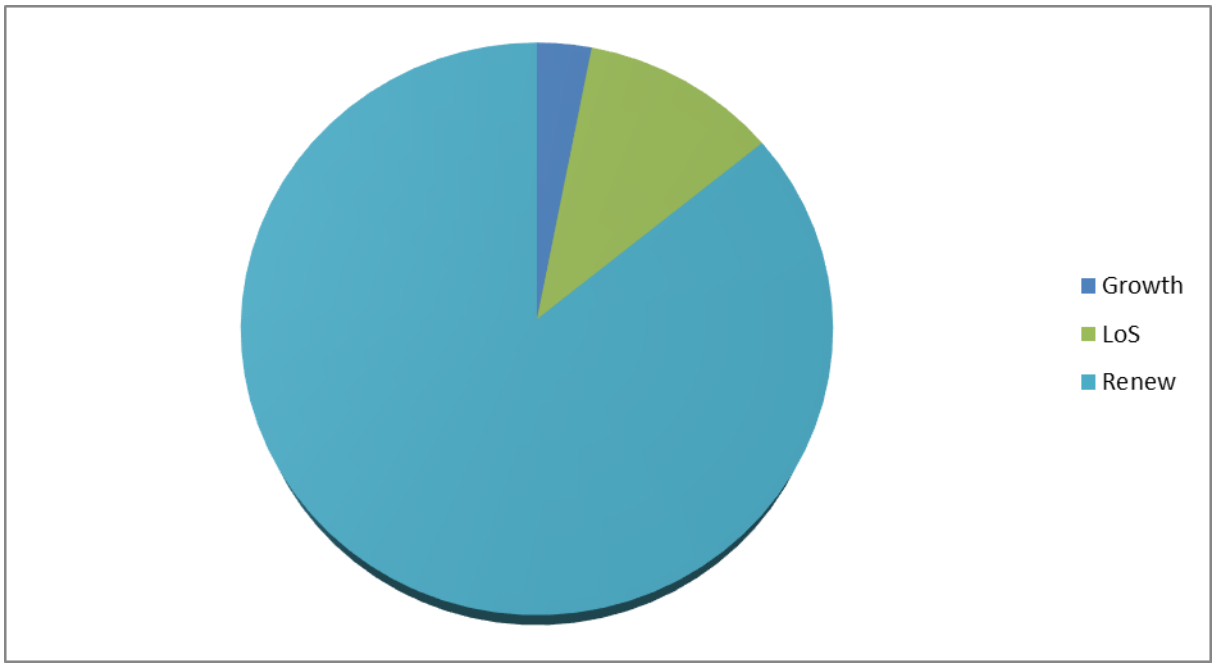
6.2.4 ROADS AND FOOTPATHS

Figure 6.7 Projected Forecast – Roads and Footpaths (Inflated)



Note: 2020/21 is the replacement of the Kakanui Bridge.

Figure 6.8 Projected Capital Expenditure – Roads and Footpaths (Inflated)



6.2.5 COMBINED INFRASTRUCTURE EXPENDITURE

Figure 6.9 Combined Infrastructure Forecast– Capital (Inflated)

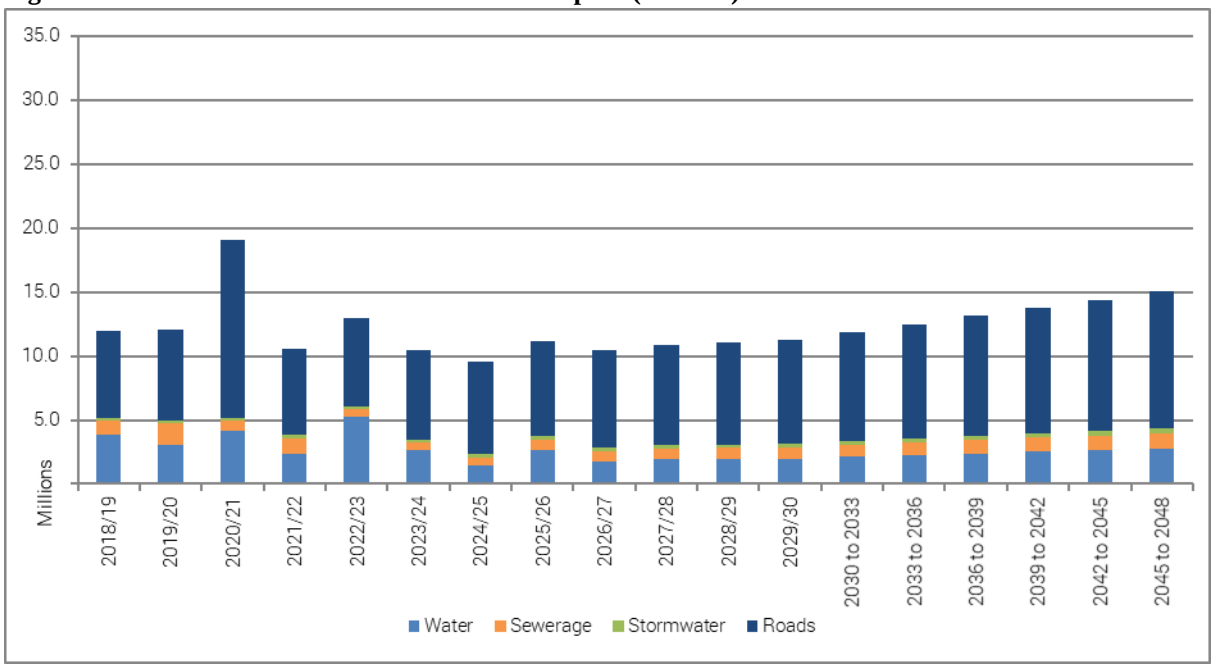
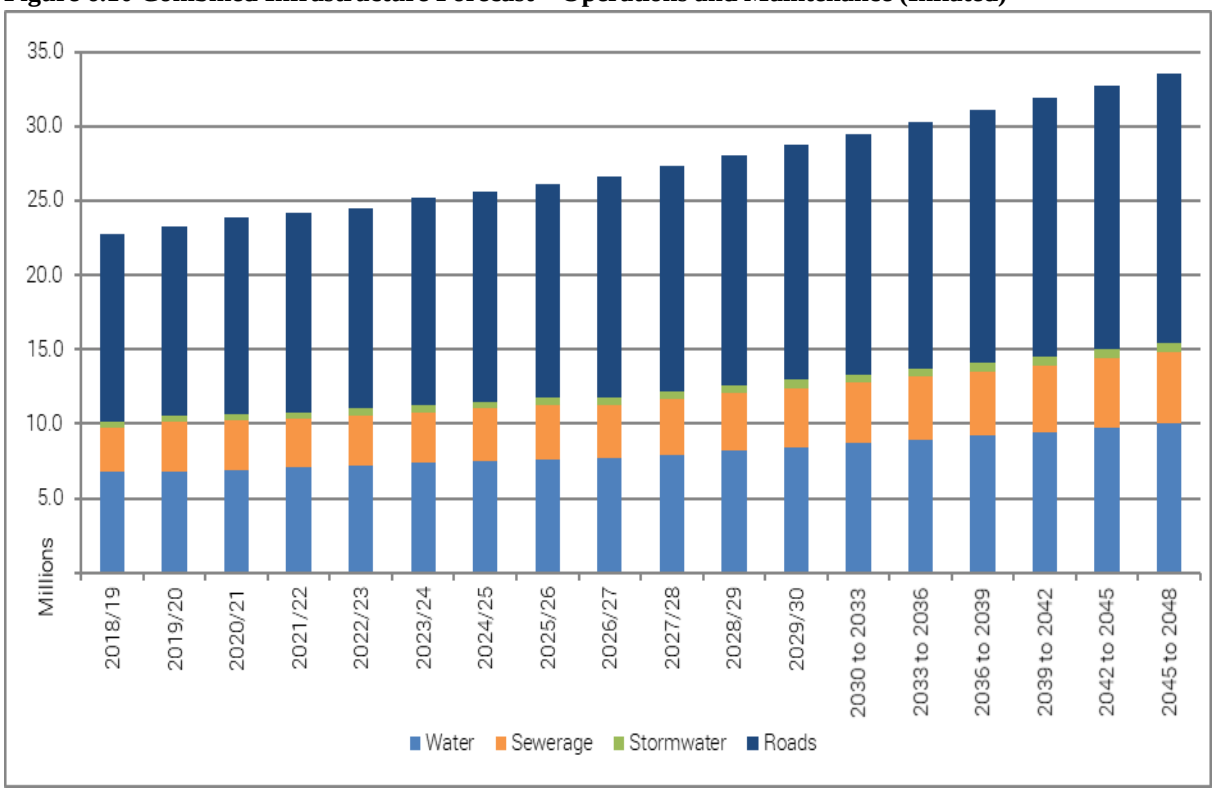


Figure 6.10 Combined Infrastructure Forecast – Operations and Maintenance (Inflated)



6.3 DEPRECIATION

The key way the use of assets is recognised is through depreciation. By recognising depreciation Council acknowledges an asset's use and that funding is needed for its future use. The purpose of depreciation funding is to provide for the maintenance of the level of service, nearly always through the replacement of the asset at the end of its life.

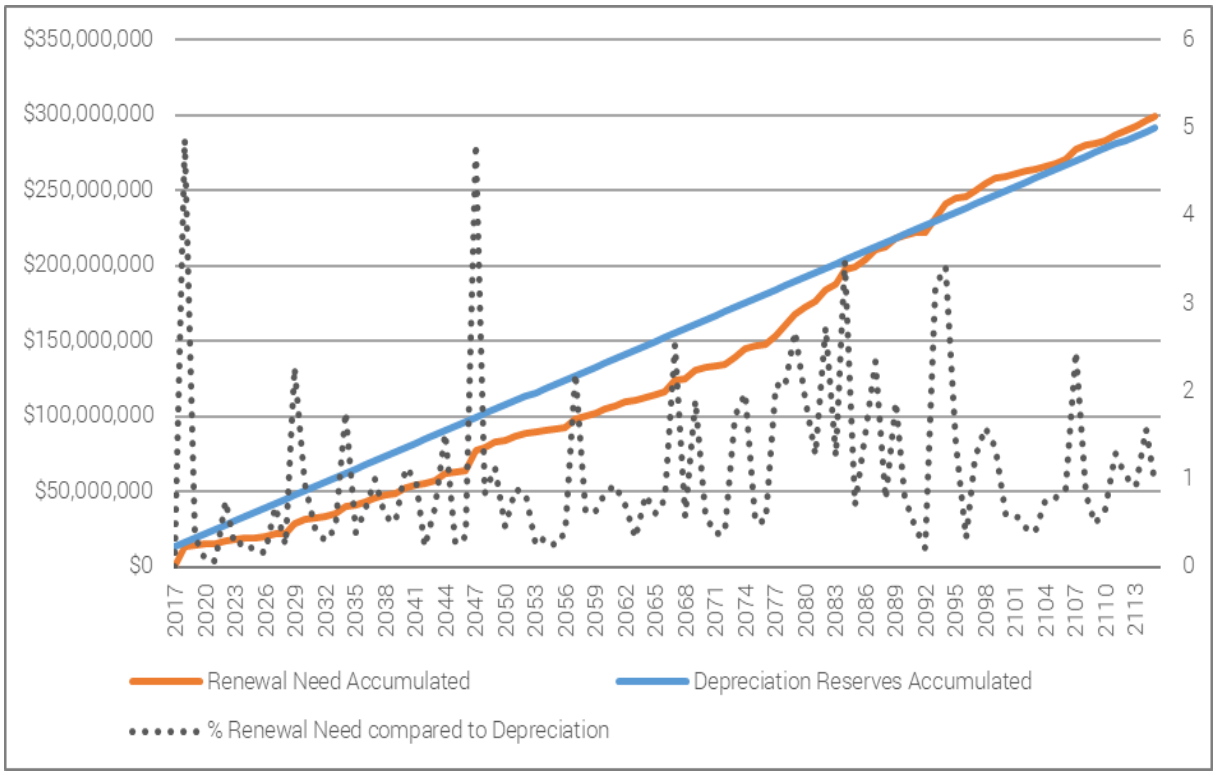
The intention of depreciation is to maintain the infrastructural assets as whole in a serviceable condition for the future and to achieve this, individual components need to be replaced from time to time.

The following graphs shows renewal need accumulated compared to the depreciation reserve accumulated for each of three Waters utilities. These graphs provides a graphical representation of where Council is in the very long life cycles of its infrastructural assets.

Water utilities are show in these graphs due to the very long life of the majority of the assets in these areas. A hundred year graph gives a better representation of what is actually required over the extended life of the asset class.

Similar graphs have not been prepared for the roading activity, primarily due to the much shorter nature of the asset life for the majority of roading asset.

Figure 6-2: Depreciation versus Renewals for Water Activity



The dotted line represents the percentage of forecast annual renewal expenditure related to the annual depreciation. This is measured against the scale on the right side of the graph where 1 represents 100% and 6, 600% of spend vs depreciation collected. The spike in 2018 is due to the water renewal component of drinking water upgrades. The renewal need does not quite utilise all depreciation reserves due to depreciation reserves collected prior to 2017. There are numerous other spikes e.g. in 2048 the forecasted renewal requirement is 445% of the annual depreciation. Annual accumulation of depreciation smooths these spikes to achieve affordable funding over extended periods.

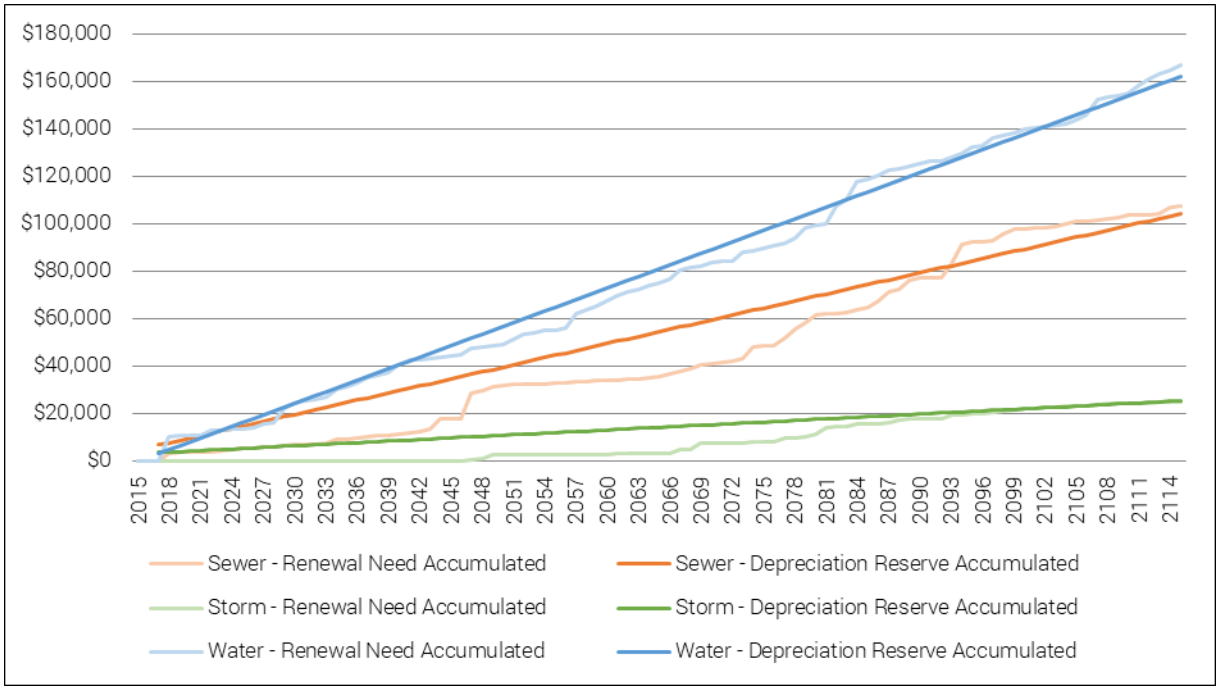
The depreciation reserves accumulated line shows what depreciation would be accumulated if no deprecation money was spent, whereas the Renewal Need Accumulated line shows the total money spent on renewals over the period. The difference between the two lines shows how much money is in depreciation reserves in any one period.

Council will continually review the information that supports this graph through regular asset valuations, auditing of asset registers and prudent asset management.

The graph shows that over the 30 year period of the strategy that the renewal need is able to be met within the depreciation reserves accumulated. Figure 6-8 shows each of the water activities in more detail. The water renewal cycle shows more depreciation being spent than collected over the next 6 years. This is due to drinking water upgrades using a portion of renewal funding. Renewal spend then roughly aligns with collection before the spend reducing near the end of the plan.

Sewerage has relatively few renewals near the start of the plan as many of the renewal work has been completed over the last 10 years. However activity starts to ramp up near the end of the plan due to the treatment plan renewals becoming due. Stormwater has little renewal activity over the life of the plan as it is a relatively new asset when compared to its overall asset life.

Figure 6-3: Depreciation versus Renewals for each Water Activity



6.4 INFRASTRUCTURE ACTIONS

In developing this 30 Year Strategy Council identified the anticipated infrastructure actions over the 30 years and considered each action and the benefits of the action. The infrastructure actions faced by the Waitaki District Council with the benefits and costs are tabled below. We have defined key infrastructure actions as either projects with $200,000 or more of capital expenditure or projects which are required due to legislative compliance. These projects give more detail to the projects required to deliver the programme shown in Section 3.6 Most Likely Scenario, with regard given to Section 5 Emerging Issues.

6.4.1 WATER

Action Benefit	**Assumptions**	**Cost**	**Timing**	**Growth**	**LoS**	**Renew**
WTP Upgrades Reduce the risk of drinking water being contaminated by cryptosporidium, giardia and other bugs.	The upgrades will include an increase in capacity as well as meet DWSNZ					
Awamoko		$390,000	2019/20			
Kauru Hill		$280,000	2019/20			
Stoneburn		$230,000	2021/21			
Tokarahi		$270,000	2019/20			
Windsor		$270,000	2019/20			
Augmentation – Hampden/Moeraki	This is the final part of the upgrade to connect to the Oamaru Water Supply	$600,000	2018/19			
Augmentation – Herbert/Wainakarua		$600,000	2018/19			
WTP Membrane Filter Replacements Replacement	The membrane filters will not deteriorate within ten years and affect levels of service or compliance standards.	$2,500,000	2022/23			
Water Treatment Plant – Oamaru – Additional Membrane Filters Growth	That growth will occur requiring this upgrade.	$610,000	2026 - 28			
Mains Renewals Replacement	The mains renewal programme will be refined based on performance, condition, criticality and levels of service					
Oamaru		$1,000,000 $500,000 / annum	2018 - 24 2024 - 48			
Tokarahi		$310,000	2019/20			

6.4.2 WASTEWATER

Action Benefit	Assumptions	Cost	Timing	Growth	LoS	Renew
Overflow Mitigation - Oamaru Improvement (environmental)	The overflow mitigation will be refined and solutions based on risk, criticality and levels of service	$1,000,000	2018 - 20			
BOD capacity upgrade - Oamaru Growth	The plant will operate satisfactorily, within capacity and environmental standards until 2021	$500,000	2021/22			
Mains Renewal - Oamaru Replace	The mains renewal programme will be refined based on performance, condition, criticality and levels of service	$400,000 / Annum	2018 - 25			
		$500,000 / Annum	2025 - 48			
Equipment renewal (switchboard) - Palmerston Replace	The plant will operate satisfactorily, within capacity and environmental standards until 2019/20	$200,000	2019/20			
Sludge Disposal - Palmerston	That the pond will continue to operate satisfactorily until this time.	$200,000	2019/20			
Duntroon Disposal Options	That the existing community septic tank will no longer be able to be consented.	$400,000	2019 - 21			

6.4.3 STORMWATER

Action Benefit	Assumptions	Cost	Timing	Growth	LoS	Renew
Capacity Reinstatement Renew	The capacity reinstatement programme will be refined based on performance, condition, criticality and levels of service	$200,000 / Annum	2019 - 28			

6.4.4 ROADING AND FOOTPATHS

Action Benefit	Assumptions	Cost	Timing	Growth	LoS	Renew
Pavement Rehabilitation Replace	Will perform satisfactorily until replaced, with increased maintenance as appropriate	$53,800,000	2018 - 48			
Unsealed Metaling Replace	Will perform satisfactorily until replaced, with increased maintenance as appropriate	$28,700,000	2018 - 48			
Seal Replace	Will perform satisfactorily until replaced, with increased maintenance as appropriate	$63,200,000	2018 - 48			
Bridge Culvert Road Replace	Will perform satisfactorily until replaced, with increased maintenance as appropriate	$21,000,000	2018 - 48			
Drainage Replace	Will perform satisfactorily until replaced, with increased maintenance as appropriate	$21,000,000	2018 - 48			
Signposts Replace	Will perform satisfactorily until replaced, with increased maintenance as appropriate	$3,000,000	2018 - 48			
Street lighting Replace	Will perform satisfactorily until replaced, with increased maintenance as appropriate	$3,900,000	2018 - 48			
Footpath Replace	Will perform satisfactorily until replaced, with increased maintenance as appropriate	$18,500,000	2018 - 48			
Carpark Replace 14 carparks	Will perform satisfactorily until replaced, with increased maintenance as appropriate	$1,800,000	2018 - 48			
Seal Widening Increased seal width	The seal width will be satisfactory when aligned with One Network Road Classification and WDC Standards Policy	$22,100,000	2018 - 48			
Rural Road Improvements	Improvements to network; traction seals, widening, gravel and improved safety.	$7,800,000	2018 - 48			
River Training Ensure flow paths are kept on-course for Kakanui & Kauru Rivers	The river training will ensure the flow paths stay on course to prevent damage to bridges	$1,800,000	2018 - 48			
Coastal Erosion Replace	Protection of coastal routes as long as possible before road closures require new coast road network.	$2,200,000	2018 - 48			