INFRASTRUCTURE STRATEGY 2048
2018–2028

WAIMAKARIRI ***Our District***

MAKING WAIMAKARIRI A GREAT PLACE TO BE

WAIMAKARIRI
DISTRICT COUNCIL

Infrastructure Strategy 2018-2048

1. Executive Summary

Overview

The Waimakariri District, located to the north of Christchurch on the Canterbury Plains, has a population of 59,200 with 99% of people living within a 30 minute drive from one another. More than 80% of the population is concentrated in the eastern part of the District with its largest towns being Rangiora, Kaiapoi and Woodend/Pegasus. Oxford is the largest town in the western part of the District.

The District also has a large number of people living on small holdings in the rural zone with approximately 3,500 households living on lots of between 0.5 and 4 hectares. Many of these properties have their own sewerage system and some have their own water supply systems.

The District's close proximity to Christchurch makes it an attractive location for those wanting to live near a city but enjoy the country environment.

The Waimakariri District has been one of the fastest growing Districts in the country over the past thirty years, more than doubling its population in that time. Accordingly, the average age of its infrastructural assets is relatively new. While wastewater systems in the larger settlements were laid from the 1930's onwards, the majority of the underground infrastructure has been laid within with the last thirty years. As a result, a significant increase in underground infrastructure replacement is not forecast until about 2070, with a steady rise from then until the peak in about 2120. Peak expenditure is forecast to be nearly 2.5 times current renewals expenditure.

The Council's main focus for the next 30 years is on catering for growth, ensuring the renewal of assets is supported by an appropriate funding strategy, and that the Council is addressing increasing community expectations of the standard of services provided.

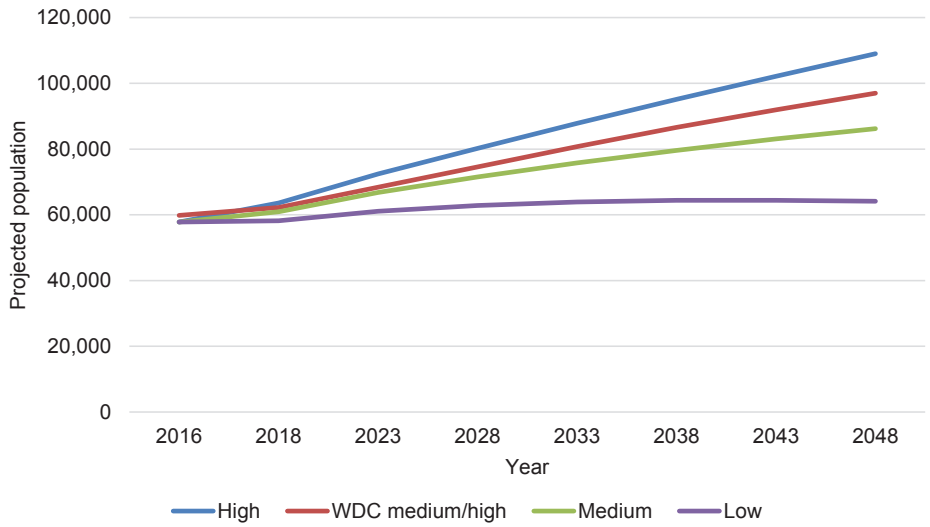
Planning for Growth

The population assumptions Council has used in the preparation of this Strategy are based on the Statistics New Zealand projections with the medium/high variant being assessed as the most appropriate scenario to base growth projections upon. The WDC medium/high variant projects a population for the year 2028 of 74,500 and 97,000 people in 2048.

Since the mid to late 1990s, the Council has signalled where the District should expand to cater for growth. For the next thirty years residential growth is expected to occur predominantly in Rangiora, Woodend/Pegasus, and to the north and west of Kaiapoi. Commercial development is expected in the town centres of Rangiora, Kaiapoi and Pegasus, along with new commercial areas developed in north Woodend and Kaiapoi adjacent to State Highway 1.

The areas proposed to grow have been identified and planned for collaboratively in conjunction with Environment Canterbury, Christchurch City, Selwyn District, Ngāi Tahu, the New Zealand Transport Agency and the Canterbury District Health Board through the Greater Christchurch Partnership. This has helped ensure there is a co-ordinated and equitable approach to providing for growth, and has provided more certainty to each local government council about their infrastructure investment decisions.

Figure 1.1 WDC 2016-2048 Population Projection Scenarios



For Waimakariri District, confirming where growth should occur, has given confidence for major infrastructure investment decisions. In the past 10 to 15 years two major infrastructure investment decisions have exemplified this:

- The construction of the $36 million Eastern Districts Sewerage Scheme that connects and treats wastewater from nine eastern towns and communities and disposes of the effluent through a 1.5 kilometre long ocean outfall discharge. The Eastern Districts Sewerage Scheme not only has capacity for future growth, but has also improved the environment by replacing discharges to lowland rivers and streams or disposal onto land
- A $16 million major upgrade of the Rangiora water supply which includes a new deep artesian water source and in-ground infrastructure that should provide sufficient capacity for a doubling in the size of Rangiora's population.

Co-ordinated Greater Christchurch growth planning has also supported the New Zealand Transport Agency's construction of the recently completed Western Belfast By-pass motorway and the under-construction Northern Arterial which is due for completion in 2020, ensuring the District remains well connected to Christchurch for the duration of this Infrastructure Strategy (IS).

A programme of work is also underway and will be completed within the next 10 years to increase the capacity of the District's arterial roads to cater for the increasing volume of traffic connecting to the State Highway network.

The Council's commitment over the past decade to major investment in infrastructure to cater for growth means that for the next thirty years the backbone of the major infrastructure is in place. Future work therefore focuses on 'plugging-in' new growth areas to the existing systems.

Due to strong growth and the need to rebuild and strengthen community infrastructure following the 2010-2011 Canterbury earthquakes, the District is now very well served with community facilities. With three major swimming pools all built, or rebuilt, within the last 10 years, there are very good aquatic facilities to serve the community.

Further, the $12 million Ruataniwha - Kaiapoi Civic Centre was completed in early 2015, the Rangiora Town Hall strengthened and extended in 2015 for $11 million and the Oxford Library rebuilt and extended in 2017 for $2.6 million, providing good capacity for their catchments over the next 30 years.

The Council has strengthened almost every community building to at least 67% of the current earthquake building code. As a result, the Council's community facilities have been upgraded to a good standard for the foreseeable needs of the community.

Changing Government Priorities, Legislative Environment and Community Expectations

The increase in expectations about the standard to which services are provided has accelerated in recent years. National standards and National Policy Statements require both national drinking water standards to be met, as well as higher standards for stormwater and sewage treatment and disposal.

Drinking Water

In respect of meeting national drinking water standards, over the past 10 years the Council has completed a programme of work that has seen the majority of upgrades completed or programmed. Of the remaining three, Oxford Rural No. 1 Scheme is expected to be compliant during the 2018/19 financial year, and the Poyntz's Road and Garrymere Schemes during the 2019/20 financial year.

However, the Havelock North Drinking Water Supply Inquiry Stage 2 report recommends that standards are further increased and, while decisions have yet to be made, the Council has provided a further $7.6 million in its 2018-28 LTP to provide ultra-violet treatment to all its drinking sources. Funding has also been provided to enable chlorination of all water supplies, should that be mandated.

Wastewater

The Council has a resource consent to discharge effluent from its Eastern District Sewerage Scheme ocean outfall to mid-2039. This IS assumes that when the consent for this discharge expires it will be renewed with similar conditions, as well as those for the land-based discharges for the Oxford, Fernside and Loburn Lea schemes, unless development activity sees the latter two schemes amalgamated into the Eastern Districts Sewerage Scheme. Other than providing additional treatment capacity within the Scheme to cater for growth, the IS has not made any provision for increased levels of treatment to effluent, although consideration of this will occur in the lead-up to the consent renewal.

Fresh Water Management

The National Policy Statement for Fresh Water Management and associated Land and Water Regional Plan requires the Council to upgrade its stormwater discharge in respect of its urban stormwater systems.

Essentially, the National Policy Statement is requiring all urban stormwater discharges to be treated before entering any waterway. This has major implications for the Council as all its urban stormwater discharges flow into streams and rivers. While more recently developed areas of the District have appropriate stormwater treatment and retention ponds in place, all of the areas developed before about 2000 will be subject to new standards.

The Council is working with other councils trying to assess the impact of the National Policy Statement and the Land and Water Regional Plan and how the requirements can be given effect to in a cost-effective manner. It will take a number of years to develop appropriate policies and practical treatment solutions and will involve working extensively with mana whenua. The Council has an excellent relationship with Ngāi Tūāhuriri Runanga and will work very closely with the Runanga to develop acceptable solutions.

The IS anticipates that meeting the appropriate standards and responses to national policy will be developed over the next 10 years, and a further $21.4 million (in 2018 dollars) has been provided in the Strategy between 2025 and 2036 to start implementing some of the physical works required to improve the quality of stormwater discharges from existing urban areas. Unless practical environmental solutions are developed at an affordable cost, potentially up to $100 million may need to be spent over time to meet these higher standards. The Council will continue to work closely with its partners on finding affordable solutions.

The Council is also responding to increased community expectations that lowland stream environments are improved and groundwater will be protected. The Council is working with Environment Canterbury through a joint committee that includes community representatives, as part of the Canterbury Water Management Strategy. The joint committee is developing standards and a programme of work to improve the efficient use of water and land management practices that will, over time, improve the quality of lowland stream and groundwater resources. In 2018 a plan will be prepared that outlines the proposed initiatives.

Flood Protection

The District, located predominantly on flood plain, is subject to significant flood events. Following community concerns about the effects of the 2014 flood event the Council allocated $20 million towards flood mitigation works across the District and implementation of these works is well advanced. Detailed flood modelling is also being undertaken to help inform where future development should occur and what the potential effects of large flood events are.

Planning for Natural Hazards and Climate Change

While the gently-sloping Canterbury Plains make infrastructure provision less challenging than in other parts of the country, the District is susceptible to flooding and tsunami in lower lying areas and to the threat from an alpine fault rupture or a local earthquake, especially in liquefaction-prone areas along the Canterbury coastline.

The Council's engineering practices ensure all new and replaced assets are built to standards that take account of known risk factors and are designed for resilience. Examples include:

- Adopting resilient infrastructure standards including the use of ductile materials
- Identifying critical components and links in the networks and prioritising their renewal and ensuring, where possible, the system has redundancy built-in so that it can continue operating even if part of the system is damaged
- Building key facilities on sound or improved ground
- Having sufficient generators in place to supply key infrastructure in the event of prolonged power outages.

The 2010/2011 Canterbury earthquake series provided a good insight into the damaging effects of earthquakes, and the Council now has a good understanding of how its assets will perform in a major earthquake event. The Council expects it will ultimately spend over $139 million recovering from the 2010 and 2011 earthquakes. Much of the Council's recovery spend has been invested into improving the resilience of its assets and strengthening buildings to higher standards.

Risk assessments have identified that a major earthquake, either an Alpine Fault rupture or a major local earthquake, would generate the greatest damage to the Council's assets. There is a 30% probability of a magnitude 8.0 Alpine Fault rupture occurring within the next 50 years. In the context of the Council's LTP and IS this is relevant.

The Council has developed and adopted a Risk Assessment and Financing Strategy to assess the financial effects of major natural disasters, based on the expected worst-case scenario of a major earthquake.

The Council estimates the loss or damage to Council assets, along with the costs to recover from a major earthquake, to be about $210 million. The Council will rely on several funding sources to recover from a major earthquake; namely continuing Crown and NZTA funding support, as well as having prudent insurance arrangements in place. The Council will also incur a share of the cost.

Any Council share of the recovery costs would need to be funded by borrowing as, in the short to medium term, the Council does not anticipate having any significant cash or investment assets available to realise and contribute to a recovery. Accordingly, the Council has resolved to provide borrowing 'headroom' in its LTP to cater for an event. The desired outcome is that after the borrowing 'headroom' has been allowed for, the Council will still live within its Treasury and Borrowing Policy limits.

The Risk Assessment and Financing Strategy considers the unlikely, but possible, scenario where because of another major natural disaster in the country, or

insurance region, insurance cover may not be in place when a major event occurs that seriously impacts the District. If there was a major earthquake elsewhere, before an event impacted this District and insurance cover was lost, the Council's share of recovery costs would be about $104 million.

The Council has provided $84 million of 'headroom' in its borrowing policy, and, in doing so, will need to undertake a prioritisation process for recovery. This would mean that the Council would restore the vast majority of its infrastructure assets and all its highest priority community facilities, such as town halls, libraries and aquatic facilities, but that the repair of some lower priority assets would be subject to an assessment of the funds available, desired levels of service, and the District's future needs.

Climate Change

The effects of climate change are likely to impact sea levels, ground water levels, rainfall and temperatures within the District, among other things.

The Council is factoring the effects of climate change into infrastructure sizing, particularly new stormwater pipes to take account of intense rainfall events. The Council is also undertaking flood modelling factoring in potential sea-level rises of about one metre. Future work will include modelling and understanding the impacts of increasing groundwater levels due to sea-level rise.

The models are helping guide where further development should occur and what level building platforms should be set to. The results will be reflected in future District Plan rules.

Embedding Sustainability into Decision Making

In 2012 the Council developed a draft Sustainability Policy. However, the Council needs to make more progress in considering the sustainability of the District's environment and also the practices adopted by the Council in its operations.

The Council proposes developing a sustainability strategy in 2018/19 and establishing base-line information to assess and improve performance.

Renewal of Assets and Increased Levels of Service over the next 30 Years

The Council has modelled its infrastructure and developed a renewal programme that stretches over the next 150 years. The renewal profile and funding strategies have been developed simultaneously to ensure planned asset renewal and its funding is carefully considered. The following summarises the asset renewals and service improvements planned over the next thirty years.

3 Waters Assets

The average age of the Council's underground network infrastructure is relatively young with wastewater, water and stormwater main reticulation assets having average ages of 23, 20 and 17 years respectively.

The programme of renewals shows that some earthenware sewer pipes laid in the 1930s and some asbestos cement water pipes laid between 1950 and 1970 are reaching the end of their useful lives, but the rate at which they are required to be replaced is not likely to place a burden on the District.

For the next 50 years there is not expected to be a significant change to the current expenditure of around $4.7 million per annum expenditure on renewals.

Between 2070 and 2120 expenditure on renewals of existing infrastructure will rise quite sharply. The planned steady funding regime over the next 50 years will see sufficient funds collected from rates, through depreciation funding, to ensure these future renewals can be funded without any significant loans needing to be raised for this work.

Infrastructure renewal work is usually co-ordinated with other works occurring in the same road corridor to limit disruption. This may mean bringing some pipe renewals forward but also some assets may not be replaced for up to 5 to 10 years after they are scheduled to be, provided the condition of the assets is such that they are still functioning adequately.

Expenditure increasing the level of services for 3 Water assets arises predominantly from changing government priorities, increasing legislative requirements and community expectations, as outlined earlier in this Executive Summary.

Roading and Town Centres

The Skew Bridge that crosses the Cust Main Drain near West Kaiapoi is programmed for a $7 million upgrade and realignment in 2019/20 to 2020//21, and the IS anticipates that the Old Waimakariri Bridge will need renewal in about 2045 with the Council's share of that being about $10 million. Other significant bridges in the District will not need replacing in the next 30 years.

The Council's other major roading improvements relate to improvements to the arterial links from the west of Rangiora and Southbrook to the State Highway and Kaiapoi via Fernside and Flaxton Roads.

The Council recognises that it needs to continually invest in roads, cycleways, pedestrian and amenity areas within the town centres. In this IS the Council has also provided a further $10 million (in 2018 dollars) in 2035 for further improvements as required, $6 million for the further provision of car-parking in the Rangiora town centre, and $4 million for park and ride facilities.

Recreation, Green Space and Community Facilities

There are no proposals for the major renewal of any community facilities in the next 30 years because of the major enhancement and earthquake strengthening work undertaken following the 2010/11 earthquakes, combined with the fact that most other major community facilities are less than 20 years old.

The main change in levels of service being considered is the provision of the Multi-Use Sports Facility that covers over 6,000 m² and includes 4 indoor courts with the potential to add 2 more in the future. There is also a preference to incorporate centralised space for a fitness gym along with associated exercise classes, sports administration, sports coaches, meeting and conference space for local clubs and community groups. The facility incorporates spectator seating around the perimeter of the indoor court spaces as well as retractable seating for around 500 people. The LTP 2018-28 includes a provision of $27.85 million in years 2018-20 for the facility to be built in Coldstream Road, Rangiora.

The Council has provided for an extension to the Rangiora Library to cater for growth with the proposed extension expanding the Library's area from 1,415 m² to 2,615 m² at a cost of $7.2 million in 2025. A new Library and community facility is also planned for the Woodend/Pegasus area in 2027/28 at an estimated cost of $4.8 million.

The Council has invested in artificial surfaces for sports practices and playing surfaces at Kendall Park and a hockey turf at Coldstream Road. Given the development of hockey turfs in Greater Christchurch no other artificial playing surfaces are planned in the next 10 years.

The other significant community infrastructure issue that this IS considers is the need for more Council office space. The Rangiora Service Centre needs to have its heating and ventilation systems upgraded and additional space is needed to accommodate an additional 30-40 people over the next 10 years. A provision of $3.99 million has been included in the 2018-28 LTP to enable this work to be carried out.

The Council also leases commercial office space to accommodate about 50 to 60 staff and that space is available until 2029. By about 2025 the Council will need to decide whether it wishes to extend its current Council offices or continue to lease commercial office space. For the purposes of this IS an $18 million provision has been included in 2029 for the extension of current Council offices, although a decision on what option is best would not need to be made until nearer 2025.

30 Year Capital Expenditure Forecast

Figure 1.2 shows that over the next 30 years the Council expects to spend between $50 and $55 million for the first 2 years. This includes the Multi-Use Sports Facility. Later years have a relatively consistent level of capital expenditure. This is on average between $25 million and $35 million per annum.

Renewal expenditure over the 30 year period averages approximately $10 million per annum in total (in 2018 $) and will be funded from accumulated depreciation reserves and NZTA roading subsidies.

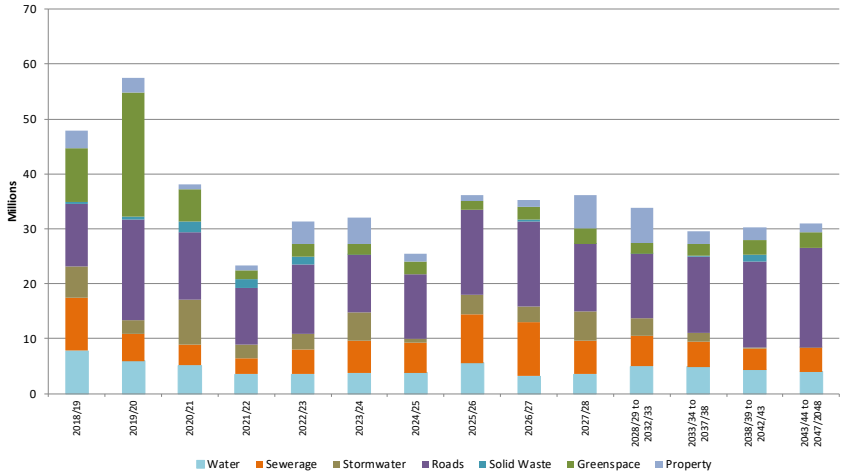
The balance of capital expenditure will be funded by development contributions, where it is growth-related, and the remainder by way of loans and rates.

Keeping it Affordable

The Council has developed the Financial Strategy (FS) as part of the development of its LTP 2018-28. This reflects the directions contained in the LTP and IS and models the financial effects on the Council and the District.

The FS is aimed at responding to the needs of the community in an affordable way, while funding long term projects in a way that future generations who benefit, pay their share. As the District's population grows, the demands for increased levels of service

Figure 1.2 2018 to 2048 Capital Forecast for Combined Assets (excluding earthquake repairs) (Inflation Adjusted)



grow, as do the requirements of national standards. These cost drivers are a constant pressure on increases in rates.

In addition, an ageing population means there is an increasing proportion of ratepayers who are on fixed incomes, placing greater pressure on the affordability of annual rates increases.

The key components of the Council's strategic direction are to:

- Reinstate the Council's community assets to pre-earthquake condition
- Restrict operating expenditure movements to the rate of Local Government Cost Inflation, excluding catering for population growth and improved levels of service
- Maintain debt within policy limits, while maintaining 'headroom' for significant natural disasters long term
- Maintain the current prudent financial management while still providing high quality levels of service for both current and future generations.

Funding Depreciation

Because the peak of asset renewals occur later in the 21st Century, the Council's policy for funding depreciation means it can comfortably fund renewals from accumulated depreciation funds.

The Council's policy is to ring-fence funding of depreciation into separate accounts so that the funds can only be applied to the renewal of infrastructure.

The Council has based the level of funding required on modelling that assumes the Council is able to continue to invest funds at a rate greater than inflation (without having to pay taxation on interest earned) and this means funds will be available when assets are due for renewal.

Conclusion

The Council's IS has been developed based on the best information available to it and any assumptions are based on what it reasonably considers could occur over the next 30 years. Undoubtedly, the actual outcomes will vary to those contained within this IS as better information comes to hand.

The Council will continue to monitor and review the information available to it and will refine and update its IS every three years to reflect any significant changes.

2. Introduction

This is the Waimakariri District Council's second IS. It has been prepared from the Council's suite of Activity Management Plans, which were presented to Council in December 2017 and are to be adopted in June 2018. It forms part of the 2018 – 2028 Long Term Plan.

The issues discussed reflect the current planning environment and the Council's and community priorities across the District.

The financial forecasts are estimates and the reliability of the forecasts decreases beyond 10 years and towards the 30 year planning horizon.

2.1. Strategy Layout

The Strategy document sections and corresponding LGA Amendment Act 2014 sections are shown in Table 2.1.

Table 2.1 Strategy Layout

Strategy Section		LGA 2002 as amended (Section 101B)
1	Provides a summary of the key issues addressed within the document	(1) and 2(a)
2	Identifies the purpose of the Strategy and the core infrastructure included within it	6(a) and 6(b)
3	Provides context by describing the District and the Council, and illustrating the linkage between strategic documents	
4	Identifies the external factors influencing the Council's IS management approach including demographic changes, changing government priorities and legislation, community expectations, natural hazards and climate change and sustainability	3(b) to 3(e)
5	Describes the core infrastructure provided by the Council, its current performance and community response to this, the way identified risks are managed, proposed levels of expenditure for renewals and capital works, and strategic issues and priorities	3(a) to 3(e), 6(a) and 6(b)
6	Describes the Council's 30 year management strategy	3(a) to 3(c) and 4(b)
7	Identifies significant issues and the response options to these, and documents benefits, assumptions, cost, timing and funding source	2(a) and 2(b), 4(b) and 4(c)
8	Identifies the costs associated with the actions proposed and the way these will be managed	4(a)

2.2. Purpose

Section 101B of the Local Government Act 2002 became law on 8 August 2014 via section 36 of the Local Government Act 2002 Amendment Act 2014. Section 101B – Infrastructure Strategy states:

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

The stated purpose of the IS is to;

(A) Identify significant infrastructure issues for the local authority over the period covered by the strategy; and

(B) Identify the principal options for managing those issues and the implications of those options.

Section (6) defines infrastructure assets as including:

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 that the local authority, in its discretion, wishes to include in the Strategy.

2.3. Waimakariri District Core Infrastructural Assets

In addition to the mandatory requirements, the Waimakariri District Council IS includes those activities that involve the provision of either a significant number of infrastructure assets, such as the Green Space activity, or a few very significant assets such as the Solid Waste and Property, Library and Aquatic Facilities activities. Without these inclusions the IS would be incomplete in its reflection of the Council's asset-based activities because the Green Space and Aquatics activities are currently a significant area of maintenance and operating expenditure, and some of the key infrastructure issues facing the Council relate to the Solid Waste activity. The Council also considers it to be a valuable exercise for the strategic planning of these discretionary activity areas to be extended to a 30 year time frame.

Major river flood control works and assets located within the District are managed by Environment Canterbury. The Council owns and manages localised stormwater mitigation assets.

The Waimakariri District Council's core infrastructure assets are shown in Table 2.2.

Table 2.2 Waimakariri District infrastructure assets

Asset	Description	Replacement Value	% of total	Net Book Value
Water supply	Water extraction, treatment and distribution	$142.6M	9.6%	$143M
Wastewater	Wastewater collection, treatment and discharge	$236.6M	15.9%	$236.6M
Stormwater drainage	Stormwater collection and discharge	$90.6M	6.1%	$90.6M
Roads and footpaths	Transport related infrastructure such as roads, footpaths roading drainage, streetlights and signs, and bridges *excludes land under roads	$938.6M	63.1%	$752M
Solid waste	Collection, transfer and disposal of household and business waste	$5.3M	0.3%	$4M
Recreation	Green space and community buildings (including aquatic centres, libraries and Council service centres)	$72M	4.8%	$57.7M
TOTAL		$1,485.9M	100%	$1,284.2M

** The replacement and net book values shown above for all of the asset groups is at 30 June 2017. These figures exclude land value.*

3. Context

3.1. Waimakariri District

The Waimakariri District lies to the north of the Waimakariri River and covers some 225,000 hectares, extending from Pegasus Bay in the east to the Puketeraki Range in the west. It is bounded to the north by Hurunui District. The major urban areas are Rangiora and Kaiapoi, which are located within commuting distance of Christchurch City. Smaller towns exist at Woodend, Oxford and Pegasus and there are beach settlements at Waikuku Beach, Woodend Beach and The Pines Beach and Kairaki. Despite rapid population growth, Waimakariri has retained its rural/small town character with just over one-third of ratepayers living in rural areas and rural villages located at Cust, Sefton, Ohoka, Ashley, Mandeville and Tuahiwi.

A large portion of the Waimakariri District has fertile flat land, or highly productive rolling downs. Much of the land to the east of Rangiora is reclaimed swamp, which is still subject to poor drainage and occasional flooding. The District's western landscape is hilly and dominated by Mt Oxford, Mt Richardson, Mt Thomas and Mt Grey.

It is anticipated that dairying will continue to play a significant role in the District's economy, although growth in dairying may be slower than in recent years.

Waimakariri has been one of the fastest growing Districts in New Zealand during most of the past 30 years. This growth was due to a consistently high rate of residential construction, stimulated by in-migration from Christchurch and further afield. Unprecedented levels of house building occurred in the 2013 calendar year, peaking at 1,278 new dwelling consents, due in part to the loss of housing in the District because of red zoning and in part to the impact of the earthquakes on Christchurch.

The District is expected to remain one of the top growth areas in the country even though consents started to ease back in the 2014 calendar year. Current growth (2015 - 2017) is tracking at 660 new dwelling consents per annum and is still above the long run average of 400 per annum.

3.2 The Council

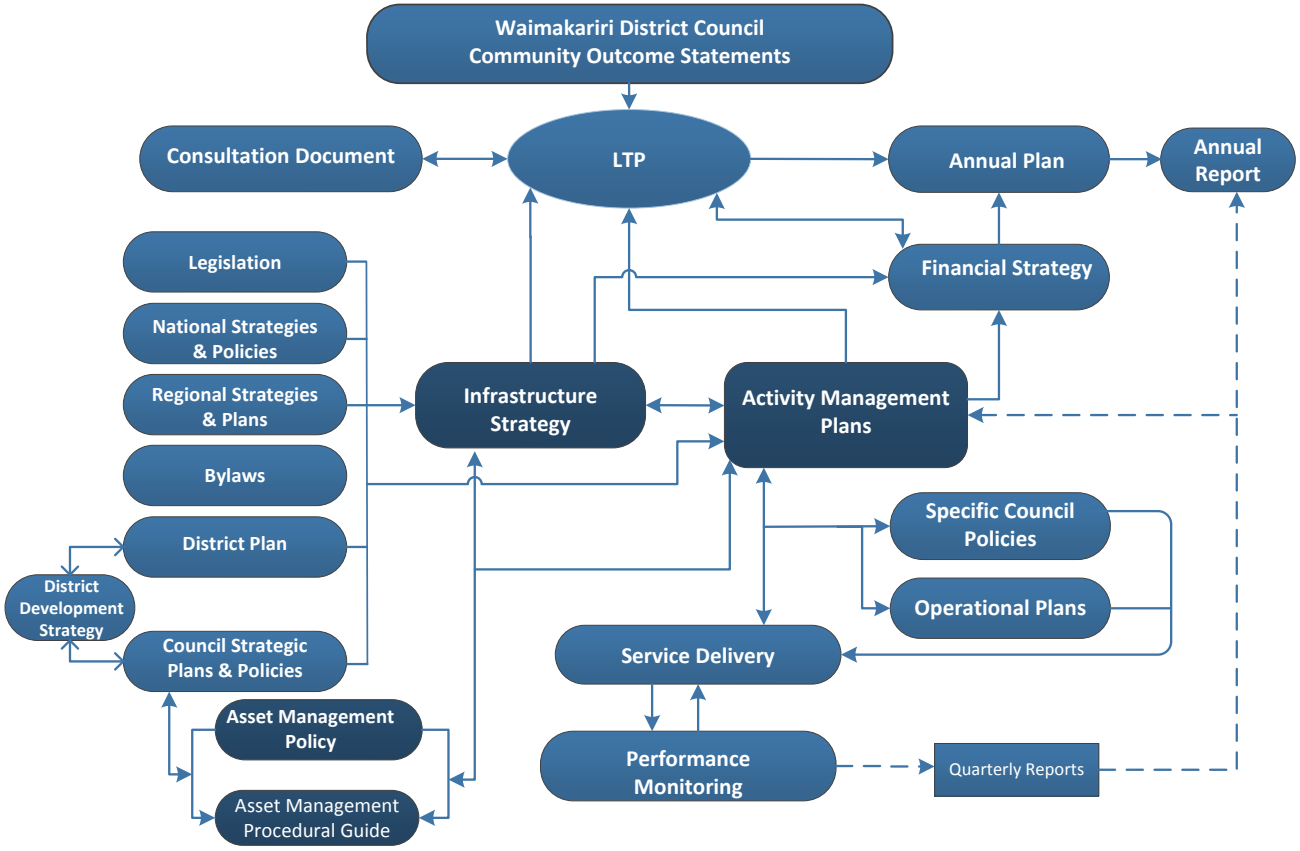
The Waimakariri District Council was established in 1989 as a territorial authority and replaced three former territorial authorities. Part of the Hurunui County area also came within the Council's jurisdiction due to boundary adjustments. The District is divided into three electoral wards represented by a mayor, ten Councillors and four Community Boards.

The Canterbury Earthquakes have had a significant impact on the population and functioning of some communities within the District, particularly Kaiapoi, The Pines Beach and Kairaki, and the Rangiora and Kaiapoi town centres. Infrastructure repair and development, carried out under the umbrella of the Council's Earthquake Recovery Programme, has been a key focus of Council business since 2010, however much of this work has now been completed.

In its role as Local Authority, the Waimakariri District Council will comply with any relevant New Zealand legislation. The Council's vision and community outcomes are strategic statements that guide its decision-making in implementing the 2018-28 Long Term Plan and 30 Year Infrastructure Strategy. The community outcomes are recorded in the 2018-28 Long Term Plan document.

3.3 Linkage with Other Documents

Figure 3.1 Infrastructure Strategy linkages with other documents



The Council's purpose is:

To make Waimakariri a great place to be, in partnership with our communities.

4. Challenges & Emerging Issues

The task of building, operating and maintaining infrastructure assets in an affordable manner is influenced by external factors; the most significant of these being population growth, community expectations for service, the legislative environment the Council operates within and mitigation of natural hazards, climate change and environmental degradation. Emerging technologies may have more of an impact in the future, particularly with regard to roading.

4.1. Providing Appropriately for Growth

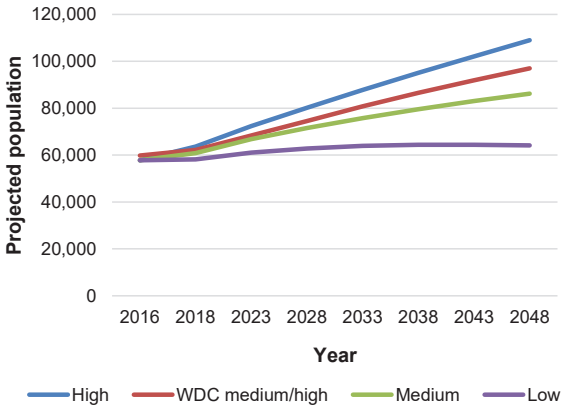
The District's rate of development and associated population growth affects the demand for infrastructure and services. Within the next 20 years demographic changes, such as the aging of the population, will also be likely to have a significant influence on the services provided.

Projected Population Growth

In just over 30 years the District's population has more than doubled, from 25,811 in 1986 to approximately 59,200 in 2017. Council has reviewed the population projections prepared by Statistics NZ in conjunction with recent and reasonably foreseeable growth based on development activity. This review tested what could happen if the level of building consents continued at approximately 450 per annum, decreasing over time to 350 to reflect demographic trends; steady internal/international migration; and a net decrease in natural population (deaths exceeding births) which is forecast to occur between 2043 to 2048. This modelling resulted in the WDC medium/high variant.

Due to uncertainty with population projections and the assumptions that Stats NZ use, it was thought prudent to use two scenarios to create lower and upper bounds to consider as part of the growth management and infrastructure strategies, these being Statistics NZ medium and WDC medium/high scenarios.

Figure 4.1 WDC 2016-2048 Population Projection Scenarios



Scenarios *(Source: Statistics New Zealand and WDC scenario projections. All data is for the five years ended 30 June. The projections have as a base the estimated resident population of the area at 30 June 2017.)*

The population assumptions Council has used in the preparation of this Strategy are based on the WDC medium/high variant. The WDC medium/high variant projects a population for the year 2028 of 74,500 and 2048 of 97,000 people.

Table 4.1 shows the forecast increase in population for the Waimakariri District comparing the Statistics NZ medium and the WDC medium/high variants from 2017 to 2048. The WDC variant shows a forecasted increase of 15,300 people over the 10 years of the LTP and 37,800 for the thirty year period covered by the IS.

Table 4.1 2017 to 2048 population projections

Waimakariri District Projected Population 2017 - 2048					
	30 June 2017 Stats NZ estimate	30 June 2028 projection	Forecast population increase to 2028	30 June 2048 projection	Forecast population increase to 2048
WDC medium/high variant	59,200	74,500	15,300	97,000	37,800
Stats NZ medium variant	59,200	71,500	12,300	86,200	27,000

The Council acknowledges changes in geopolitical landscapes and national migration policies may affect these growth estimates. Statistics New Zealand requires users to cite they have produced their projections according to a set of agreed assumptions and advise that extending the projections beyond 2031 may result in the population becoming unrealistically high or low by 2048. The Council intends to closely monitor its medium/high variant projections and revise these accordingly.

Population Distribution

Since the mid to late 1990s, the Council has signalled where the District should expand to cater for growth. In the past 20 years most growth has occurred in Rangiora, Kaiapoi and Woodend and with the building of the new town Pegasus. Recent land use changes include considerable rural residential development, an increase in the number of small holdings in the rural zone and increased dairying across the District.

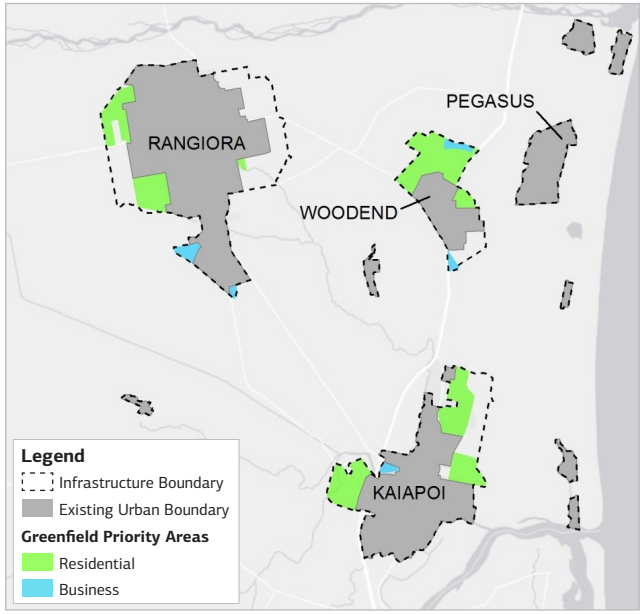
Planning has established infrastructure boundaries around the main towns, as shown in figure 4.2, which has effect until 2028.

Commercial growth is centred in Southbrook with about another 70 hectares of zoned land yet to be developed. Other commercial development is expected in the town centres of Rangiora, Kaiapoi and Pegasus along with new commercial areas developed in north Woodend and Kaiapoi adjacent to State Highway 1. This is also depicted in figure 4.2.

The priority areas within the boundary may be seen as the first to be 'filled up' but not all land within this boundary is easily serviceable and/or of market appeal and other areas may be more likely to develop before these.

The priority areas are shown in the District Plan. These, together with existing zoned undeveloped land, provide sufficient capacity to provide for the anticipated population increase over the 30 year planning period.

Figure 4.2 Priority areas for residential growth



During 2016/17 the Council embarked on a District Plan Review and District Development Strategy. The District Plan review replaces the rolling review that has been ongoing since the first generation District Plan was made operative in 2005.

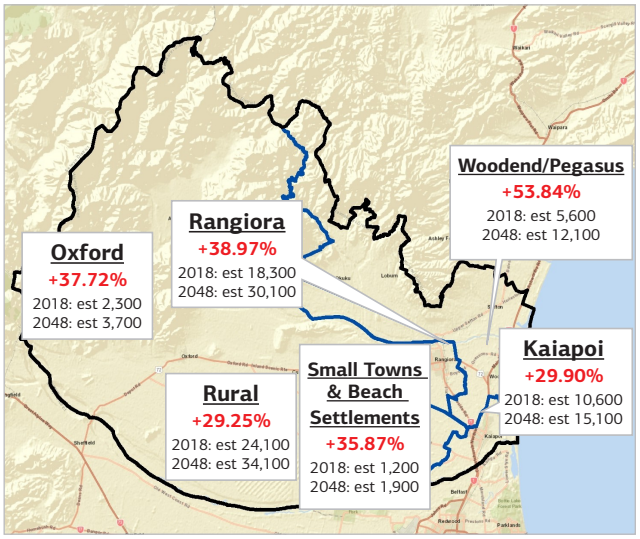
The '*Our District, Our Future - Waimakariri 2048, District Development Strategy*' provides a spatial framework to guide the anticipated growth in the District over the next 30 years, and was formally consulted on from mid-June to mid-July 2017. A summary of submissions and hearings for those wishing to speak to their submission was heard by a Council hearing panel during August 2017. A final Strategy was adopted by Council in April 2018.

Directions signalled in this Strategy were underpinned by environmental and cultural constraints and opportunities, community feedback, expert advice, and background reports.

The Strategy confirmed that residential growth is expected to continue to occur predominantly in Rangiora, Woodend/Pegasus, and to the north and west of Kaiapoi over the next 30 years. The proximity of the District to Christchurch City suggests that demand for some form of large block residential properties is likely to continue. The District Development Strategy considered ways to best meet that demand and identified a need to better manage small holdings.

Figure 4.3 shows the projected population increase for the District to 30 June 2048 divided into the areas where growth is anticipated. Infrastructure planning to accommodate future growth of the towns has been based on these projections.

Figure 4.3 Distribution by town of projected population increase



Demographic Changes

Figure 4.4 provides a broad indication of the pattern of age group change that has occurred recently and can be anticipated. The impact of population aging can be seen by the level of proportionate growth among older age groups. There is a projected increase in the percentage of people living in the District by 2028 aged 65 years and over by StatsNZ (24%) and WDC Scenario (24.5%). The median age is also projected to increase from 42 years in 2013 to 44 years in 2028. By 2048, StatsNZ project that approximately 30% of people in the District will be aged 65 years and over.

Figure 4.4 Demographics of projected population increase
(Source: Statistics New Zealand 2017)

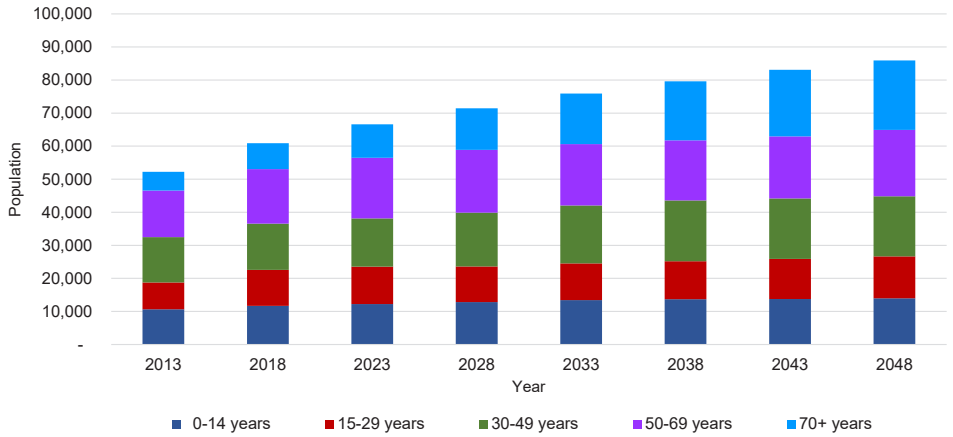
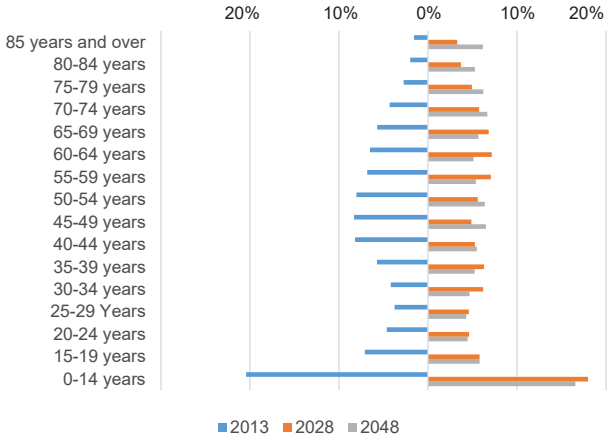


Figure 4.5 shows the distinctive characteristics of the Waimakariri population at the time of the 2013 Census and the projected (WDC Scenario) population in 2028 and 2048. The higher proportion of young children (0-14 years) is illustrated and the lower proportion of people in the 20–39 age groups.

Figure 4.5 Profile of age structure



The projected data shows the (possible) aging of people in the 40–59 age groups from 2013 through to 2028 and 2048. The biggest change expected in household family type projections is an increase in two and one person households.

The Council's adopted demographic profiles for age structure and household characteristics have been generally accurate over the last 20 years. These will continue to be monitored and assessed and planning for levels of service adjusted accordingly.

Council's Response to Growth

Over the past decade Council has invested heavily in both strategic planning and constructing core infrastructure assets to cater for the significant growth the District has experienced.

A lot of its 'macro' planning has been undertaken in conjunction with other councils in greater Christchurch. This has helped ensure there is a co-ordinated and equitable approach to providing for growth and has provided more certainty to each council about their infrastructure investment decisions.

At a district level Council has developed structure plans for most of the key development areas predicted around the existing towns. Council's current position is that it has a significant amount of core infrastructure in place to allow for growth.

This previous investment in core infrastructure means that for the next 30 years the 'backbone' of the major infrastructure is in place and the only work now required is to 'plug-in' new growth areas to the existing systems.

Summary of Council's Response

Issue	Council's Response
Predicting level and distribution of growth for infrastructure planning	Adopting a corporate growth prediction (WDC median/high variant) Developing a District Development Strategy that signals directions for growth over the next 30 years Modelling key 3 water's infrastructure networks to ensure sufficient capacity is available Assessments of community demand for community facilities and greenspaces to project future requirements
Meeting peak demands for water supply	Programmed work for providing additional wells and storage reservoirs
Ensuring capacity of the Eastern District Sewerage Scheme to provide for population growth until end of consent and beyond	Extensions of treatment ponds in Rangiora and Woodend completed in 2018 to provide additional treatment capacity Programme of other treatment capacity upgrades is in place to cater for further growth
Catering for increased volumes of solid waste	Proposing in the 2018-28 LTP additional kerbside collection services to minimise waste going to the landfill Expansion, including additional land purchase, planned for Southbrook Resource Recovery Park

Issue	Council's Response
Providing indoor court space to cater for increased population and changes in sporting demand	Proposing in the 2018-28 LTP to provide a new Multi-Use Sports Facility to be built at Coldstream Road, Rangiora
Providing sufficient sports grounds	Sufficient available land to build sports grounds to meet demand for the next 30 years. Grounds will be developed as demand requires
Increasing community facilities to match population projections	Proposing in the 2018-28 LTP to extend the Rangiora Library, and build a library/ community meeting space in Woodend/Pegasus
Reducing traffic congestion in/out south Rangiora	Completing the programme upgrades from State Highway 1 via West Kaiapoi to Skewbridge, Flaxton, and Fernside Roads Protecting land to enable a new eastern arterial in Rangiora
Shortfall in Council office space	Leased office space in the short term Exploring options to provide sufficient space, including extending the Rangiora Service Centre in the longer term (from 2029/30)

4.2 Changing Government Priorities, Legislative Environment and Community Expectations

Higher regulatory standards arising from new national standards and regional plans have resulted in the need to upgrade infrastructure, particularly in terms of water supply and stormwater discharges.

The current levels of service that Council provides for its infrastructure assets are also being put under pressure by increasing community expectations for an increase in the level of provision.

In some cases the Council will need to engage with specific communities to ascertain the acceptable balance between providing a higher level of service and the cost of doing so.

Summary of Council's Response

Issue	Council's Response
Achieving NZ Drinking Water Standards	Accelerating water supply upgrade programmes to ensure full compliance with the current standards by 2019/20
Increasing standards are likely following the Havelock North Drinking Water Supply Inquiry	Making provision in the 2018-28 LTP for Ultra Violet treatment for all drinking water supplies
Overflows from the wastewater network in wet weather events	Implementing a programme of works in Rangiora, Kaiapoi and Oxford to reduce the likelihood of overflows in wet weather
Meeting Land Water Regional Plan requirements for urban stormwater discharge standards by 2025	Working collaboratively with Canterbury Councils to develop affordable and viable solutions to meet the Plan's requirements Preparing global stormwater discharge consents for each urban area A programme of significant upgrades to existing stormwater discharges to achieve compliance is provided for in this IS
Expectations that lowland stream environments and groundwater will be protected and enhanced	Working in partnership with ECan and the community to develop Canterbury Water Management Plans to help improve water efficiency and environmental sustainability Programme of works proposed to enhance the Kaiapoi and Cam River catchments
Expectations that higher standards of flood protection will be provided in high rainfall events	Extensive flood modelling work completed to identify at-risk areas and influence where growth should occur

4.3 Planning for Natural Hazards and Climate Change

While the gently-sloping Canterbury Plains make infrastructure provision less challenging than in other parts of the country, the District is susceptible to flooding and tsunami in lower lying areas and to the threat from an alpine fault rupture or a local earthquake, especially in liquefaction-prone areas along the Canterbury coastline.

Risk assessments have identified that a major earthquake, either an Alpine Fault rupture or a major local earthquake, would generate the greatest damage to the Council's assets. There is a 30% probability of an 8.0 magnitude Alpine Fault rupture occurring within the next 50 years. In the context of the Council's Long Term Plan (LTP) and IS this is relevant.

There are legislative requirements under the Resource Management Act 1991 and the Local Government Act 2002 for territorial authorities to have particular regard to the effects of climate change, providing good-quality public services that are appropriate to anticipated future circumstances and adopting a precautionary approach.

Environment Canterbury's paper *'Canterbury's Weather and Climate'* highlights that the following climate changes are expected for Canterbury:

Coastal changes - sea level rise and associated ground water rises, increased frequency and intensity of storm surges and wave impacts, and changes in the dominant direction of waves.

Temperature - increased temperatures, particularly during winter, fewer frost days, increased frequency and intensity of heat waves, and extended periods of drought on the Canterbury Plains.

Rainfall, flooding and snow - more intense rain falling less frequently, more frequent very heavy rainfall events, significant decreases in seasonal snows, increased flows in the large alpine-fed rivers such as the Waimakariri River and more severe winter flooding

events, particularly in these rivers. Less rain will fall in the east affecting groundwater recharge and foothills-fed rivers such as the Ashley-Rakahuri River.

Winds – increased frequency of extreme winds in winter and dry westerly winds and greater frequency and intensity of storms.

Issue	Council's Response
Increasing the resilience of Council infrastructure to natural disasters	Adopting resilient infrastructure standards including the use of ductile materials Identifying critical components and links in the networks and prioritising their renewal and building in redundancy so that it can continue operating even if part of the system is damaged Building key facilities on sound or improved ground Having sufficient generators in place to supply key infrastructure in the event of prolonged power outages
Maintaining financial capacity to recover from a major natural disaster	Developed a Risk Assessment and Financing Strategy to estimate the financial impact of a major natural disaster and determine how recovery can be funded Maintaining comprehensive insurance arrangements Providing financial 'headroom' in the Council's borrowing policy so that the Council can fund recovery, even in the unlikely event insurance is not available, and still live within borrowing limits
Planning for the impact of climate change	Developing comprehensive flooding modelling to assess potential flood impacts and where further land development should occur Building in allowances for climate change effects to current flood modelling and new stormwater networks Allowing for the implications of sea level rise and changing weather patterns in asset management planning Making appropriate District Plan provisions in relation to known active faults, flooding and sea level rise

4.4. Moving Towards a Sustainable Future

In 2012 the Council developed a draft Sustainability Policy.

Sustainability is defined as the capacity to endure. In ecology, the word describes how biological systems remain diverse and productive over time. Long-lived and healthy forests or wetlands in their natural condition are examples of sustainable biological systems that are capable of retaining their natural condition without human intervention.

For humans, sustainability is the potential for long-term maintenance of wellbeing which has environmental, economic and social dimensions. Healthy ecosystems and natural environments provide vital goods and services to the community. However, people use natural resources to sustain life which impacts on the condition of the natural environment.

There are two major ways of reducing human impact and enhancing ecosystem services.

- Environmental management – this approach is based on information gained from science that informs decisions about protection and conservation of the natural environment.
- Management of human consumption of resources – this approach is largely based on information gained from economics.

Issue	Council's Response
Improving the Council's sustainability	Developing a sustainability strategy in 2018/19 Establishing base-line information to assess and improve performance

5. Core Infrastructure

5.1. 3 Waters Introduction

Asset Systems

The Council's asset management systems for recording and analysing Council assets are under development. All assets are recorded in the corporate Asset Management System (AMS) noting details of address, replacement costs, asset age, materials, condition and other relevant data as provided. Where appropriate relevant assets are also recorded in Council's Geographical Information System (GIS). Planned implementation of as yet unused modules within the AMS system that Council uses are expected to improve Council's ability to analyse asset data.

Asset Condition and Performance

Currently WDC asset lives are assumed to be the same as industry standard theoretical lives (Ref. NZ Infrastructure Asset Valuation and Depreciation Guidelines, Edition 2.0 2006), although some adjustments are made based on local experience. Further modifications to base lives will be made as more information on the behaviour of local pipes is collected.

Data confidence, as assessed under the methodology in the International Infrastructure Management Manual, varies by asset type but this is not considered to present high levels of risk, as the majority of 3 Waters assets are reasonably young.

Managing Risk and Increasing Resilience

A range of different types of risk assessments have been carried out for 3 Waters assets.

For water supply and wastewater assets, the vulnerability assessments and criticality assessments provide input data to the renewals programme. Renewals are therefore prioritised so that assets are replaced in accordance with highest risk and criticality. Following from this it is expected that all pipes at risk from earthquake in liquefiable ground will have been replaced by 2030.

The Disaster Resilience Assessment considers the risk to above ground assets from a broad range of potential natural disasters. Funding has been allocated in the 2018-2028 LTP to enable an improvement programme of work to be initiated, based on recommendations from the assessment.

Renewals

The average age of the Council's 3 Waters underground infrastructure is young with wastewater, water and stormwater reticulation mains having average ages of 23, 20 and 17 years respectively. Consequently, for the next 50 years, no significant increase in renewals expenditure is expected for the major underground assets of wastewater, water and stormwater.

From 2011 Council has started developing and utilising a risk-based programme to inform renewal investment decisions. The risk-based models incorporate the following criteria to establish a relative likelihood and consequence of failure:

- Condition rating (includes CCTV survey data)
- Burst and blockage history
- Seismic vulnerability to liquefaction
- Asset criticality.

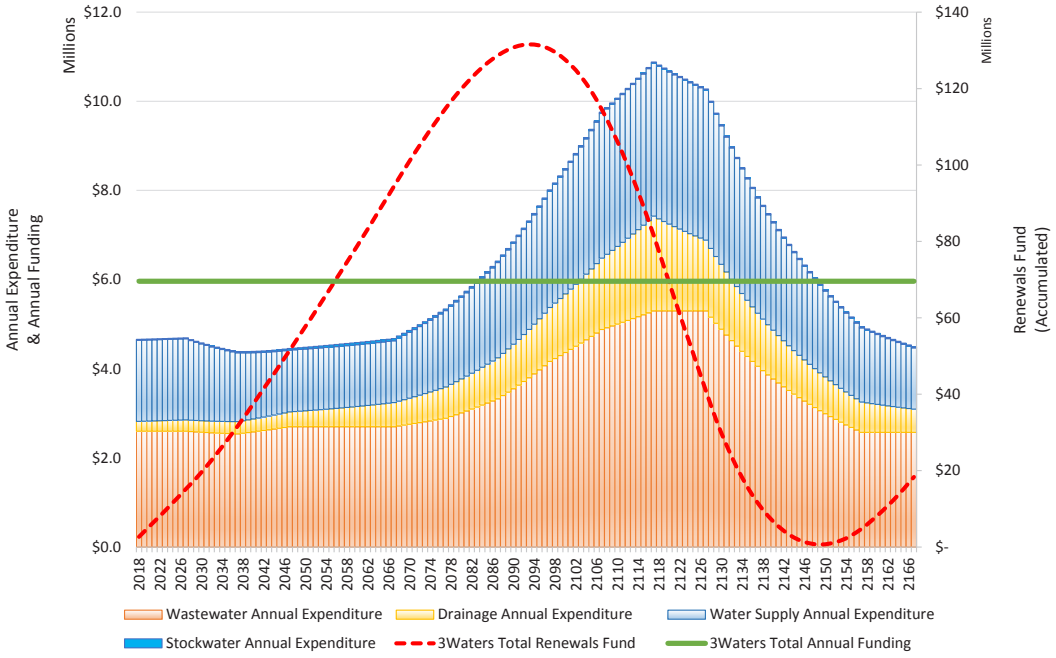
Pipes with a high criticality rating are assigned different risk profiles than lower criticality pipes. In practice this means that highly critical pipes will be planned for replacement before the end of their theoretical life, while less critical pipe assets will be left in place for some time beyond their theoretical life. It is expected that over the years, as more data is gathered on the actual life of different pipes classes and the surrounding ground conditions they exist in, this process will become increasingly accurate at optimising pipe renewals.

The model delivers to Asset Managers a prioritised list of candidates for pipe renewals for consideration. Budgets are then developed factoring in any operational benefits of renewal, and consideration of co-ordination with other works that may be planned in the same corridor, to limit disruption.

Linked to the renewals model is a funding model, and used together they provide a view of the annual budget necessary to ensure that long term funding for future asset replacement is available. Figure 5.1 shows that view for the combined water supply, wastewater, drainage and stockwater assets, over the expected lifecycle of the majority of those assets of 150 years. The value of stockwater assets is so small compared to the other three assets types the only effect is a slight thickening of the top blue line.

The vertical bars show the expected annual renewals expenditure through to 2166. There is a sharp rise in overall expenditure commencing in about 2070 through to a peak in about 2120. This reflects that most of the below ground assets in the District have been built over a relatively short space of time, and will therefore reach the end of their lives over a similarly short

Figure 5.1 150 year replacement cost forecast for 3 Waters (in 2018$)



space of time, in about 100 years' time. The amount of annual expenditure, which has been smoothed, can be read against the left hand axis of the graph. The green line is also read against the left hand axis. This represents the recommended average annual amount of funding that needs to be put away into a dedicated fund to ensure that money is available to meet the demands of the peak expenditure, without the fund going into debt. The red line is read against the right hand axis and shows the total value of the fund over the 150 year period.

The graph includes all asset class renewals, not just pipes. Reservoirs, pump stations, water supply headworks etc, some of which will go through a number of lifecycles over the 150 year period are all included, and, in part, account for the steady annual expenditure of approximately $4.7 million per annum for the first 50 years.

Legislative Environment

The *Mahaanui Iwi Management Plan* includes a number of objectives and policies for the 3 Waters activities, summarised as:

- Wastewater (seeking improved effluent treatment and aspiring to avoid discharging into the ocean)
- Stormwater (improved treatment of discharges to improve water quality, and aspiring to avoid contaminated stormwater entering natural waterways)
- Water supplies (management of abstraction quantities reflecting a desire to reduce unnecessary urban water consumption).

These aspirations are required to be considered in various planning activities under the Resource Management Act 1991. As such they could affect the future of the 3 Waters activities and will possibly, in the longer term, impact on Council's costs and the nature of services delivered.

5.2 Water Supply

The Service We Provide

The water supply activity involves the management, operation and maintenance of the District's water supplies in a way that protects and enhances the health and wellbeing of the community and minimises the effect on the environment.

Waimakariri District Council will own and operate 14 separate water supplies, once Pegasus and Woodend are joined, which provide water to approximately 79% of the population, or about 47,000 people. There are a total of about 18,800 connections.

Schemes are either 'on-demand' (no restriction is placed on supply), 'restricted' (a specific amount of water per day is made available to the customer), or 'semi-restricted' (connections are limited to a flow of 13 L per minute which is close to an on demand supply).

The Ashley Rural Water Supply, which supplies water to about 1500 properties within the WDC boundaries, north of the Ashley River, is owned managed and operated by the Hurunui District Council. This water supply services the Ashley, Sefton and Loburn residential village areas and a number of rural residential lifestyle blocks.

The physical assets consist of wells, pumps, pipelines, reservoirs, and treatment facilities.

The Council also provides stock water to enable livestock farming on dry land. The 831 kilometre long water race system is provided to a large portion of farmed land in the District, generally west of Rangiora, east of Oxford and between the Waimakariri and Ashley-Rakahuri rivers, comprising approximately 1,650 properties.

Managing Community Expectations

Council operated water supplies achieved a 92% satisfaction rating in the Council's 2016 Customer Satisfaction Survey. Satisfaction has notably improved since the Rangiora source was changed to the artesian Kaiapoi source, and chlorination was stopped.

There may be considerable push-back from the community should legislative changes require all urban supplies to be chlorinated. A comprehensive communications programme may be necessary to explain the background and reasons that have driven the possible reintroduction of chlorination in the face of clear community preference to have untreated drinking water at source.

Legislation and Regulation

The key pieces of legislation governing this activity are the *Health (Drinking Water) Amendment Act 2007*, the *Local Government Act 2002, and the Resource Management Act 1991*.

Changes are expected from the Havelock North Drinking Water Supply Inquiry, but no indication of the extent of acceptance by the Government of the Inquiries' recommendations is yet available.

Asset Condition and Performance

The overall condition of water supply assets is considered to be good with most not due for replacement until after 2070. At this stage the current level of replacements is appropriate to maintain the service performance levels. Asbestos cement and early PVC pipes, which are the most vulnerable to failure, are the primary focus for replacement.

Pipe performance is currently used as a proxy for a comprehensive pipe asset condition assessment, with pipe bursts being recorded and used as an input to the pipe renewals programme. However, it is proposed to

develop and start to implement a process for sampling and testing water mains for condition assessment during the period of the 2018-2028 LTP.

Confidence in the data that Council has about the condition of both water supply reticulation and facility assets has been graded as 'C'. Data is based on sound records, procedures and investigations, but is incomplete. Accuracy is estimated at +/- 25%.

Capacity and performance of water supply schemes is monitored through the use of hydraulic water models. These models are also used to establish what capital works may be needed to accommodate growth, and meet levels of service. A comprehensive 2014 study identified programmes of work necessary to meet these objectives, with construction of the works ongoing. Most models have been recently updated and re-run and any additional works are budgeted within the Council's LTP. This includes the provision of additional storage, where required to maintain levels of service, as well as reticulation or source upgrades.

The Kaiapoi wastewater model is currently being updated to reflect the post-earthquake infrastructure.

Managing Risk and Increasing Resilience

A range of different types of risk assessments has been carried out for the District's water supply schemes. Pipe vulnerability and criticality assessments and the Disaster Resilience Assessment are outlined in section 5.1. The operational risk assessment has previously generated a programme of work focussed primarily on improving security of supply and meeting the current Drinking Water Standards. The programme has recently been accelerated, under which Oxford Rural No1. Scheme is expected to be compliant during the 2018/19 financial year and the Poyntzs Road and Garrymere Schemes during the 2019/20 financial year. The delay for the latter two schemes centres on affordability issues.

The recent publication of the Havelock North Water Supply Inquiry Stage 2 report has prompted the inclusion of provisional budgets for installing UV treatment on all deep bore water supplies, where not already in place, and chlorination equipment for all supplies not currently chlorinated, to enable treatment of all supplies. This approach is precautionary as there is no indication yet of what legislation will follow from the Inquiry report.

Should legislation prove to require chlorination, implementation of a supply that is not currently chlorinated will not be undertaken without informing the community. Chlorination of a supply that is not currently chlorinated in the absence of legislation would be subject to consultation with the affected community, before any decision was made by Council.

The effect of climate change poses some risks to Council's water supplies, with potential effects near the coast from sea level rise, and away from the coast, from potentially lower levels of groundwater recharge. However, most of the water sources in the District are from deep wells that are unlikely to be significantly impacted by climate change in the short to medium term. The risk of rising groundwater on the pipe networks in the eastern parts of the District will need to be assessed.

Studies are planned for the effects of sea level rise on water and groundwater near the coast within the first three years of the LTP.

Figure 5.2 150 year replacement cost forecast for Water Supply (in 2018 $)

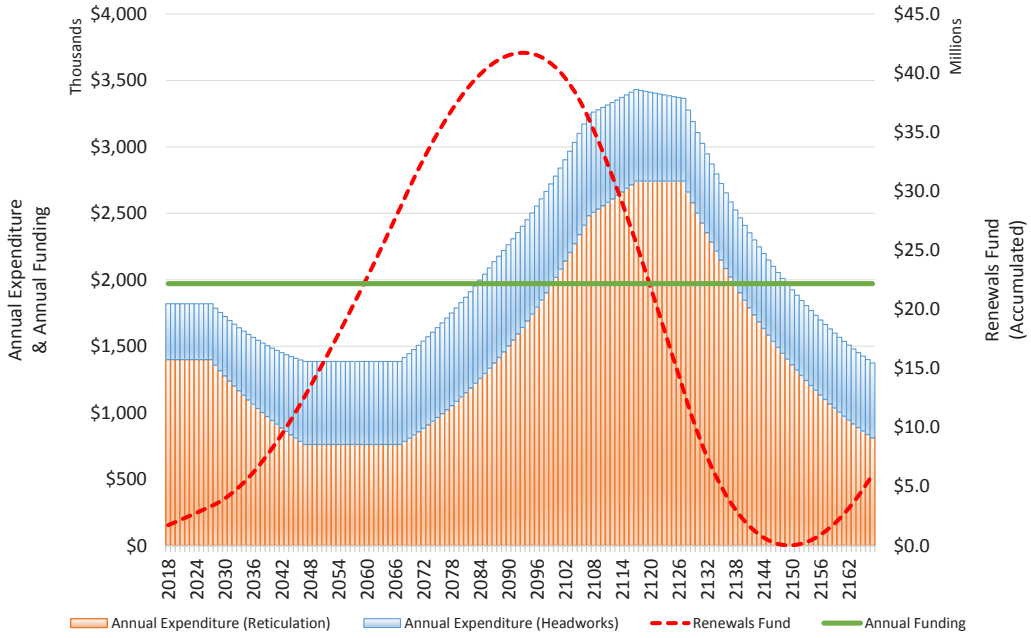
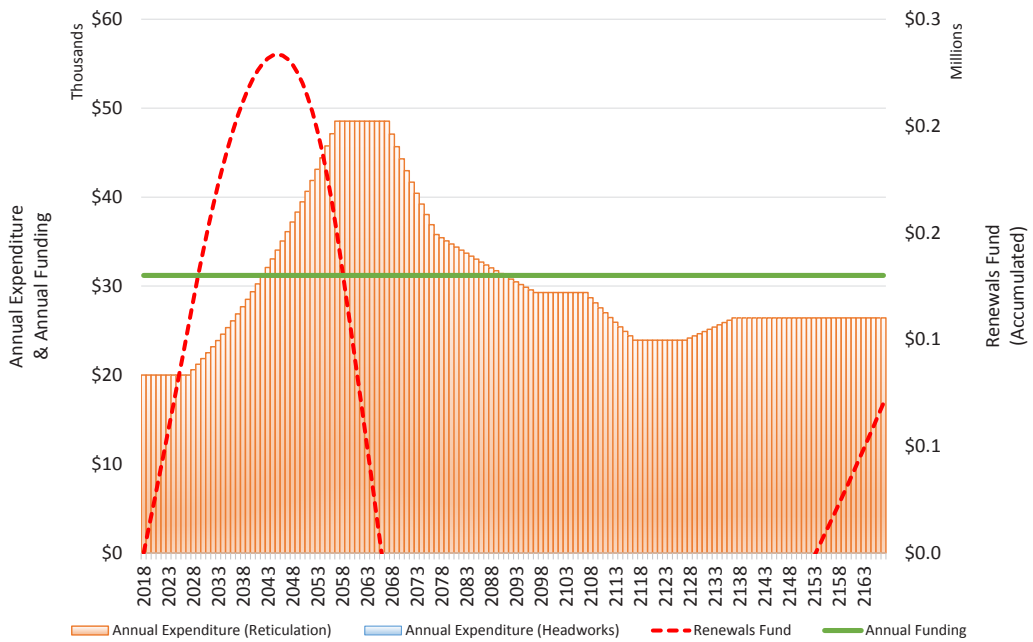


Figure 5.3 150 year replacement cost forecast for Stock Water (in 2018 $)



Renewing Infrastructure

The 150 year replacement forecast for water supply in figure 5.2 shows the required risk-based renewals expenditure across all the water supply schemes to ensure current levels of service continue to be met based on the outputs of the renewals model.

The outputs of the renewals model are not strictly adopted across all schemes for all services, but are used as a tool to inform required levels of funding when setting budgets for the LTP. Refer to section 5.1 for further information about the way the outputs from the renewals model are incorporated into Council's budgets.

The rise in expenditure forecast from 2070 to the peak in 2120 relates to the end of life of the assets constructed with the development of Pegasus, the Rangiora supply upgrade and development following the earthquakes.

The renewals expenditure prior to 2070 include replacement of asbestos cement pipe, installed between the 1950's and 1970's in Kaiapoi, Rangiora and Oxford, and early PVC pipe. PVC pipe has a shorter life than later generations of plastic pipe installed in rural schemes such as Oxford Rural No.'s 1 and 2.

Figure 5.3 shows the replacement forecast for stock water. The renewals fund for this activity has been treated differently than for other activities, with the level of funding set to allow the fund to accumulate some debt between 2066 and 2153. This avoids the fund accumulating excessive amounts around 2040. Since the annual expenditure and funding level for renewals is relatively small, as shown on the left hand axis, servicing the debt is not expected to be onerous.

Providing for Growth and Changes to Levels of Service

The water source supply for the coastal towns of Kaiapoi, Woodend and Pegasus is from ample and 'secure' artesian aquifers. The same source is used to supply Rangiora, via a pressure main from Kaiapoi. Finding additional water to cater for the growth of these communities is therefore not seen as a significant issue although additional infrastructure to deliver it will be needed from time to time. Should legislation remove the concept of a 'secure' water source, treatment may need to be applied to these water sources.

A new 'secure' source for the Oxford Rural No.1 scheme was commissioned in 2016 and an additional source is expected to be brought online in 2018/19. This will improve security of supply and provide some capacity for growth.

Recent headworks projects have increased capacity and security of supply for the Oxford Urban scheme, and this has also enabled the Oxford Rural No. 2 to be connected to this scheme, thereby meeting the Drinking Water Standards for the Oxford Rural No. 2 scheme.

Other small schemes in the District currently have sufficient source capacity, although the sources may change for Poyntzs Rd and Garrymere as a consequence of the drive to meet the Drinking Water Standards.

Proposed Total Capital Expenditure

The projected capital expenditure associated with the Water infrastructure assets is graphically represented in figure 5.4. The figures shown for each of the five year blocks between 2028/9 and 2047/48 are the average annual expenditure over that period.

Individual significant projects that contribute to the

relatively high spend in the 2018/19 and 2019/20 years are finalising the Woodend/Pegasus upgrade works, the Rangiora, Poyntzs Road and Oxford Rural No. 1 source upgrades, strengthening the Darnley and Peraki Street reservoirs, the Mandeville storage upgrade and commencing UV installation in plants that do not already have it. The higher expenditure shown in 2025/26 is attributed to the Oxford Rural No. 1 back up well, the Bay Road/Gammans Creek reservoir replacement and the Lehmans/Oxford Road link main.

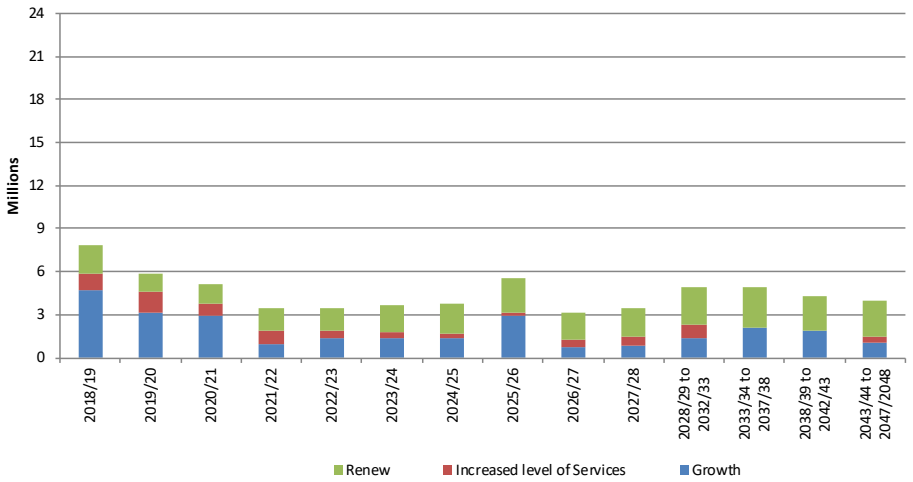
Current Strategic Issues and Priorities

- Completion of the works programme to meet the current New Zealand Drinking Water Standards in 2018/19.
- Responding to any legislative changes regarding the Drinking Water Standards that may require treatment to be carried out on all water supplies.
- Source protection improvements through collaborative engagement with Environment Canterbury and other stakeholders.

Future Challenges and Emerging Issues

- The effects of climate change on demand for water.
- Water supplies are not metered and unless there is a legislative requirement to do so, the Council considers that the costs currently exceed the benefits of doing so. This will need to be reviewed periodically.
- There are no disruptive technologies currently evident that would materially change the way that community drinking water supplies are managed in the District. However, Council staff are looking to work with the University of Canterbury to test new technology on non-disruptive water pipe condition assessments throughout the District to complement the intrusive testing that has been carried out previously.
- The regulatory authority to protect source water quality lies with Environment Canterbury, but the Council is expecting to take more interest in protecting the quality of the aquifers that supply water to the majority of the District's inhabitants.

Figure 5.4 Projected Capital Expenditure - Water (Inflation Adjusted)



5.3 Wastewater

The Service We Provide

The wastewater activity involves the management, operation and maintenance of the District's wastewater schemes, so that sewage is collected, conveyed, treated, and disposed of in a way that protects and enhances the health and wellbeing of the community and minimises the effect on the environment.

The Council provides four separate wastewater schemes that collectively enable the disposal of sewage from about 66% of the properties in the District. The remaining 20,000 people in the District are serviced by private wastewater schemes, or privately owned septic tanks on rural properties.

The schemes involve the conveyance of sewage from properties to the treatment plants, the management of those treatment facilities and discharge to meet environmental standards. The Eastern District Sewer Scheme (EDSS) connects nine towns and communities in the eastern part of the District and disposes of effluent via a 1.5 kilometre ocean outfall.

Oxford, Fernside and Loburn Lea communities each have their own treatment plant, and all three discharge to land.

The physical assets comprise gravity pipelines, manholes, pump stations, pumps, pressure mains, treatment facilities and buildings.

Managing Community Expectations

97% of the people who responded to the sewerage-related questions in the Council's 2016 Customer Satisfaction Survey were satisfied with Council operated sewerage schemes.

The issues most likely to cause community concern are wet weather overflows from the network and the quality of waterways. Overflow issues are already being improved in Rangiora, through the Rangiora Capacity Upgrade programme. The planned Kaiapoi Capacity

Upgrade programme will address overflow issues in Kaiapoi. Due to budget constraints and a desire to keep rate increases manageable, this program has been deferred until year 5 of the LTP. Three of the Council's four discharge consents are to land and therefore do not impact on receiving water quality. These issues are therefore not likely to become contentious.

In contrast, the Eastern District Sewerage Scheme ocean outfall discharge to sea may be an issue when the consent renewal is due, and Council will need to engage comprehensively with interested groups and particularly with Te Ngāi Tūāhuriri Rūnanga during the consenting renewal process.

Legislation and Regulation

The key pieces of legislation governing this activity are the *Local Government Act 2002* and the *Resource Management Act 1991*.

The previous government initiated a national three waters review in mid-2017 which is to be continued by the incoming government. This may impose some challenges on the Council, but it is too early in the process for any account to be taken of possible outcomes in this IS.

Council has not currently been required to obtain consent for wastewater overflows in wet weather events. Should this situation change, obtaining a consent is not considered to be a difficulty, as the levels of service that the Council is working towards achieving are slightly higher than the levels of service that Christchurch City is expected to achieve for its overflow discharge consents. It is extremely unlikely that any consent conditions imposed upon Waimakariri would be more onerous than what the Council is already aiming to achieve.

However, the Canterbury Land and Water Regional Plan has a policy that requires the implementation of contingency measures to minimise the risk of wastewater discharge to surface water. Council will be developing a plan for this within the term of this LTP.

Asset Condition and Performance

The sewerage pipe network is primarily assessed for condition via the 20 year cycle, rolling wastewater CCTV programme started in 2008. Assessment priority is based on criticality and operational issues and is also integrated with the road reconstruction programme. The CCTV condition information is complemented with maintenance activity records from the field recording wastewater mains blockage and overflow records.

Confidence in the data for the pipe network is a grade 'B'. Data set accuracy is estimated at +/- 10%. Confidence in the data for facility assets has been assessed as a grade 'C'. Data is based on sound records, procedures and investigations, but is incomplete. Accuracy is estimated at +/- 25%.

Council has two significant wastewater upgrade projects under construction and the third is planned in the near future. They are:

- Treatment plant upgrades at Rangiora
- Reticulation upgrades in Rangiora
- Reticulation upgrade in Kaiapoi (planned).

Further upgrades at the Woodend treatment plant were completed in 2017.

Completion of the above works will enable levels of service to be met, particularly with respect to overflow frequency in wet weather events, and capacity for growth to be available.

Managing Risk and Increasing Resilience

A range of different types of risk assessments has been carried out for the District's wastewater reticulation schemes. Pipe vulnerability and criticality assessments and the Disaster Resilience Assessment are outlined in section 5.1.

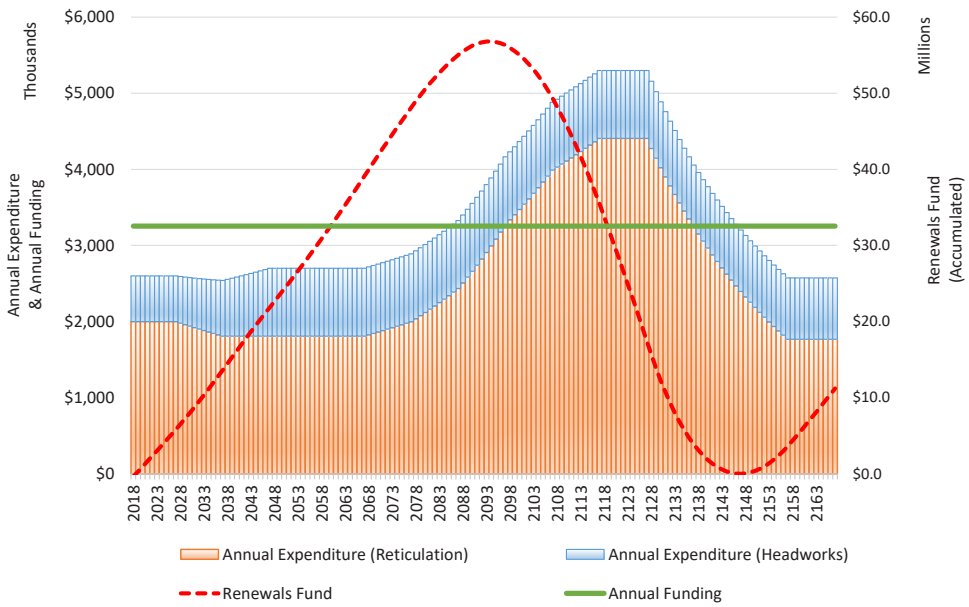
The Council's current level of service for the network is no overflows in a 2 year storm for existing areas developed before the year 2000 and none in a 5 year storm for new development areas. Part of the Central Rangiora Upgrade project provides for additional capacity to achieve this level of service. Modelling work is also planned for the Kaiapoi network to determine the upgrades required to achieve the levels of service. A $19 million 10 year budget is included in the LTP for this upgrade, starting in 2018/19, but with major expenditure planned to commence in 2023/24.

The Council's resource consent for effluent discharge from its ocean outfall will expire in 2039. This IS assumes that when consent renewal is required it will be renewed without any substantial change to the current treatment and disposal approach.

It is also assumed that the consent for the land-based discharge from the Oxford scheme will be renewed with similar conditions when it expires. The same assumption applies for the Mandeville and Loburn Lea schemes unless development activity occurs that results in the amalgamation of these schemes into the Eastern Districts Sewerage Scheme.

The treatment plant in Fernside is currently at risk of discharging untreated or partially treated effluent due to overloading in wet weather. Budget provision has been made in 2019 through to 2022 to resolve this situation.

Figure 5.5 150 year replacement cost forecast for Wastewater (in 2018 $)



Historically there have been problems at Oxford with overflows during larger rain events, and while a holding pond was constructed in 2014/15 to address this issue, further investigation of the high infiltration and inflow within the network is planned.

The effect of climate change poses some risks to Council wastewater schemes, with the long term potential for an increase in wastewater overflows from more severe wet weather events. Sea level rise, and associated potential groundwater rise, could also significantly increase infiltration into the reticulation network of coastal towns, lowering levels of service.

Preliminary sea level rise and coastal groundwater modelling is planned within the first three years of the LTP. These will provide an understanding of any emerging pipe network issues associated with changing groundwater levels for Kaiapoi and other coastal settlements.

Renewing Infrastructure

The 150 year replacement forecast for wastewater service in figure 5.5 shows the required risk-based renewals expenditure across all the wastewater supply schemes to ensure current levels of service continue to be met, based on the outputs from the renewals model. Refer to section 5.1 for further information about the way the outputs from the renewals model are incorporated into Council's budgets.

The rise in expenditure from 2070 to the peak in 2120 relates to the end of life of the assets constructed with the development of Pegasus Town, the Rangiora supply upgrade and development following the earthquakes.

Within the next 30 years the programme of renewals includes some earthenware sewer pipes laid in the 1930s which are reaching the end of their useful lives.

Additionally, a number of early wastewater mains were laid at the back of residential properties rather than in public roads. This will present some challenges when these assets are to be replaced, but technologies, such as putting linings into existing pipes, may extend the life of some pipes by 50 years or more.

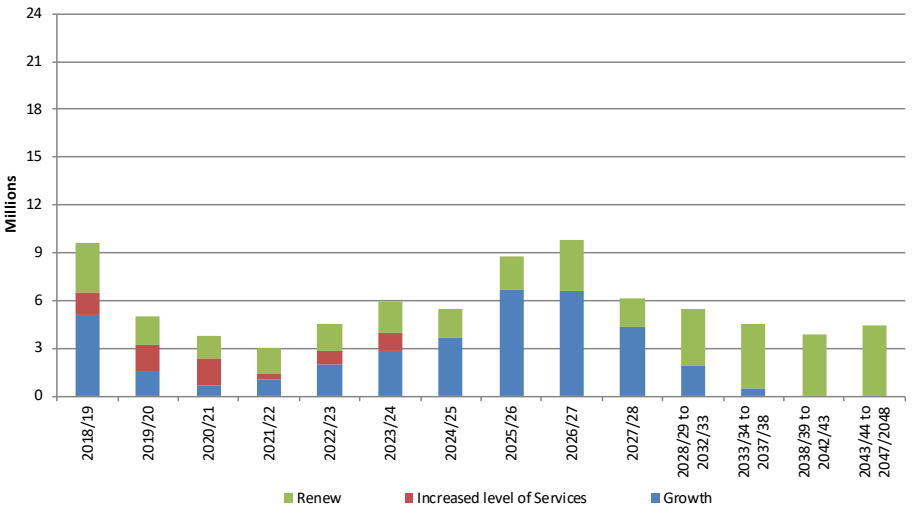
Providing for Growth and Changes to Levels of Service

Growth projections have been updated using the projections provided corporately as a baseline, with subsequent work carried out to identify new works or upgrades that will be required in the future to continue to meet the agreed levels of service.

The Eastern Districts Sewerage Scheme was previously expected to provide a trunk network to enable disposal via the ocean outfall and treatment capacity for the next 70-100 years, but growth has been significantly greater than anticipated since the original report was written. A review of the overall capacity of the Eastern Districts Sewer Scheme is to be undertaken to ensure there are no pressure points which may need addressing. This review will further inform the situation with regard to the discharge consent. Under the most recent growth scenario the discharge consent flow limit of 57,000 m^3 (approximately 20,500 households) per day could be reached as early as 2028. If the review confirms this, consideration will need to be given to consent renewal before the consent expiry date of 2039.

A key issue in the previous IS was to increase trunk sewer mains within the towns to connect new growth areas and to increase the capacity of the treatment ponds to cope with the extra volume of sewage needing to be treated. With upgrades either completed, underway or planned for the main towns of Rangiora, Kaiapoi and Woodend, sufficient capacity will be available in the reticulation and treatment plants for these towns until at least 2038.

Figure 5.6 Projected Capital Expenditure - Wastewater (Inflation Adjusted)



Recently completed upgrades to the Oxford Treatment Plant have improved its capacity to deal with wet weather but issues remain with respect to unacceptable volumes of Infiltration and Inflow (I and I) during rain events. This compromises the capacity of both the reticulation and treatment plant, and restricts the potential for growth. An investigative programme is planned to determine if I and I can be cost-effectively reduced.

The Fernside Wastewater Treatment Plant has no capacity for growth but the planned resolution of the consenting risk will also provide appropriate growth capacity.

The Loburn Lea system also has no capacity for growth. Any development proposals would be required to show how wastewater services would be provided.

Proposed Total Capital Expenditure

The projected capital expenditure associated with the wastewater infrastructure assets is graphically represented in figure 5.6. The figures shown for each of the five year blocks between 2028/9 and 2047/48 are the average annual expenditure over that period.

Individual significant projects contributing to the 2018/19 year spend are continuation of the Central Rangiora Capacity Upgrade and the Charles Street rising main in Kaiapoi.

The relatively high expenditure in the 2025/26 and 2026/27 financial years relates principally to the construction of new wetland cells at the Woodend treatment plant, and a new pump station and rising main in Rangiora to accommodate growth.

Current Strategic Issues and Priorities

- When the current upgrade programme in Rangiora and Kaiapoi is completed, the Council's wastewater systems will generally be able to provide the required levels of service and deal with planned growth, with relatively minor future expenditure.
- The future of the outfall consent has the potential to be a significant issue.
- The Infiltration and Inflow issue in Oxford creates some uncertainty about future costs which will not be resolved until further investigative work is carried out.
- The Fernside consenting issues will need to be addressed during the term of the 2018/28 LTP, although budget has been allowed for this.

Future Challenges and Emerging Issues

- The future of the outfall consent, and the effect of climate change on the network, particularly in Kaiapoi, are the main strategic issues.
- There are no disruptive technologies currently evident that would materially change the way that wastewater systems are managed within the District.
- Ensuring that consent conditions for wastewater infrastructure are always met, and continuing to investigate and explore ways to minimise stormwater Infiltration and Inflow into the wastewater system, is the most effective approach to sustainability for the wastewater activity.

5.4 Stormwater

The Service We Provide

The Council provides drainage systems to provide for public safety, protect property, drain excess water from roads, and minimise adverse effects on the receiving environment.

There are seven rural and five urban rated drainage areas within the District. Together the 12 drainage schemes cover approximately 10% of the District's land area but service approximately 90% of the population.

In the urban schemes, assets include piped stormwater networks, treatment devices, basins, stormwater pump stations and open drains. In the rural schemes Council maintains drains and waterways.

Managing Community Expectations

Of those who responded to the stormwater questions in the Council's 2016 Customer Satisfaction Survey, 78 % of respondents were satisfied with drainage services. This is less than the target of 90%.

This result will be in part the consequence of significant rain events in 2014 and 2017, but there are also increasing expectations from small holdings property owners wanting urban residential levels of service in the rural zone. The recent and ongoing works programme to reduce flooding following high rainfall events should assist in resolving expectations there. There may be still some communities of dissatisfied small holding property owners where engagement is required to consider options and costs for meeting their expectations about higher levels of service.

Legislation and Regulation

Stormwater activities have reference to a number of Acts but principally are concerned with the *Land Drainage Act 1908*, the *Local Government Act 2002* and the *Resource Management Act 1991*, and various Regional Council documents, particularly the Canterbury Regional Land and Water Plan.

The Land and Water Regional Plan (LWRP), which gives effect to the National Policy Statement for Fresh Water Management, requires the Council to apply for discharge consent for all of its urban stormwater systems by June 2018. Consents will, in effect, require all urban stormwater discharges to be treated before entering any waterway, and if applied as signalled in the LWRP will require discharge standards to be met by 2025.

While more recently developed areas of the District have appropriate stormwater treatment and retention ponds in place, all of the areas developed before about 2000 will be subject to new standards.

The cost of retro-fitting stormwater treatment to the Council's existing urban networks is likely to be high (crudely estimated at in excess of $100 million). The uncertainty arises, in part, from most of the worldwide work in this area still being experimental. Some improvements can only be effected by change that is led at a national level, for example, a national decision to phase out the use of copper brake pads.

Asset Condition and Performance

The stormwater pipe network now has a programme of CCTV inspections under way. The early results from this programme will indicate whether the rate of CCTV inspection should be increased.

Confidence in the pipe network data has been assessed as a grade 'D'. Data set accuracy is estimated at +/- 40%.

Confidence in the data for facility assets has been assessed as a grade 'C'. Data is based on sound records, procedures and investigations, but is incomplete. Accuracy is estimated at +/- 25%.

The 2014 floods within the District highlighted a number of capacity problems with the stormwater systems. The subsequent programme of works to resolve the issues is under way with completion planned for 2026, but the 2017 wet winter, with instances of heavy localised rainfalls in areas different to the 2014 storms, has identified additional capacity problems with parts of the network. It is expected that many of these issues can be resolved utilising existing drainage maintenance budgets. This will be confirmed when the assessment work is finalised. If necessary, budget for additional works will be sought through subsequent Annual Plans.

Design standards for stormwater works are based on preventing flooding above floor levels in a 50 year flood event and to prevent nuisance flooding in events up to a 1 in 5 year storm. Stormwater modelling incorporates 1 metre of sea level rise and a 16% increase in rainfall intensity from climate change. Where relevant, all new stormwater systems are sized to manage these increased flows and higher outlet levels.

The Land and Water Regional Plan requires Council to obtain consents for discharge of its urban stormwater. Under these consents Council will be required to improve the performance of its stormwater systems and raise the quality of the water it discharges into streams and rivers. This will be challenging as technologies to deal with the contaminants are not yet well developed.

The Council is working closely with Te Ngāi Tūāhuriri Rūnanga in assessing potential solutions. Testing of innovative stormwater treatment options will be coordinated through the Canterbury Regional Stormwater Forum, so that trials can be cost-effectively resourced and funded from amongst the various members and the results shared. Forum participants include Environment Canterbury, the University of Canterbury, Te Rūnanga o Ngāi Tahu and other Canterbury territorial local authorities.

Managing Risk and Increasing Resilience

A range of different types of risk assessment has been carried out for the District's drainage supply schemes. The 2014 operational risk assessment identified 27 high risk issues across the District's drainage schemes but no extreme risks.

Of the high risks identified, 15 relate to potential earthquake damage to assets, and need further evaluation to better define the actual degree of risk, four relate to flooding from malfunction of flap valves, for which an improvement programme has been implemented, one relates to Tsunami risk, and seven are flood risks related to asset failure, or insufficient capacity. Projects to resolve some of these flood risks have been identified and planned for, but the Kaiapoi network remains at some risk. Individual projects that have arisen from the 2014 flood event have improved the situation, but a network performance assessment for different return period events has not yet been carried out. This work is planned within the first three years of the 2018/28 LTP.

The risk of poor performance of the District's open drain network, because of blockages, is managed via the Drainage Maintenance Contract. This includes both a regular programme of drain cleaning and a prompt response to calls from landowners advising that drains on their land need cleaning.

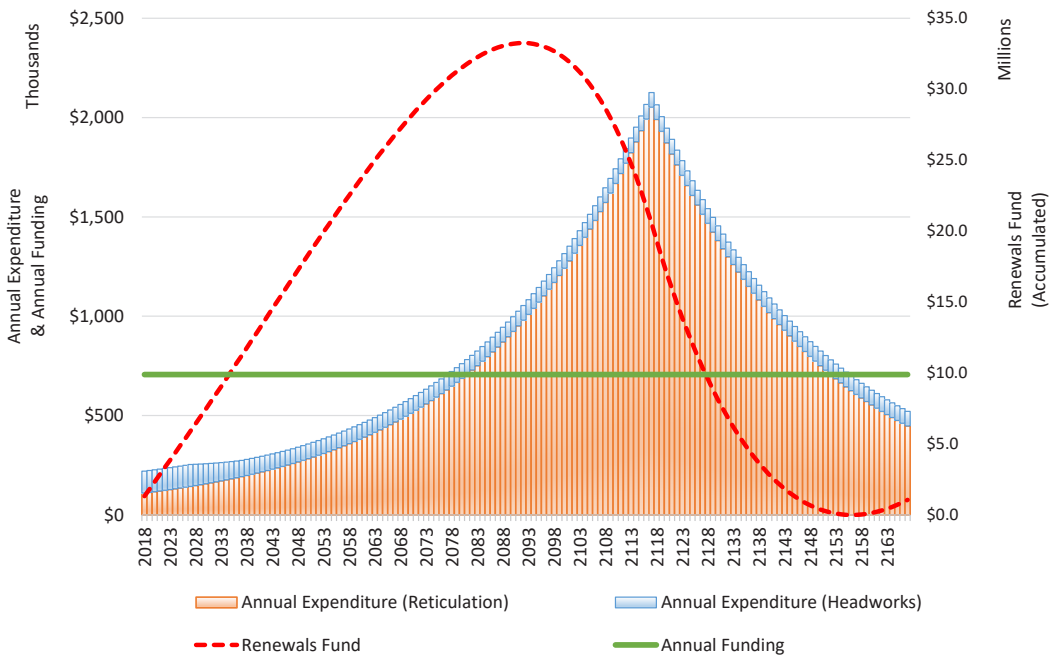
The risk, from new developments increasing runoff and adding to pollutant load, is managed by requiring developers to include stormwater attenuation and treatment facilities within development proposals, which meet the requirements of the Land and Water Regional Plan. Flood risk for new homes is dealt with by setting minimum floor levels based on 50 year flood levels.

A financial risk arises from the retro-fitting of urban stormwater networks with treatment facilities that will be required by the urban stormwater discharge consents. There is considerable uncertainty about the solutions that may need to be utilised, and while the current LTP includes a budget of $21.4 million, costs may possibly be in excess of $100 million. A further uncertainty arises from the proposal to apply for consents seeking to delay the implementation of improvement works. If the Regional Council rejects this approach, funding provided in the budget in 2026/27 would need to be brought forward.

Climate change poses risks to Council wastewater schemes as it has the potential over the long term to increase pressure on flood protection infrastructure and stormwater systems and damage coastal infrastructure. Drainage systems near the coast may become problematic.

Preliminary sea level rise and coastal groundwater modelling is planned within the first three years of the LTP. This will provide an initial understanding of any emerging issues associated with changing groundwater levels that may affect Kaiapoi and other coastal settlements' drainage infrastructure.

Figure 5.7 150 year replacement cost forecast for Stormwater (in 2018 $)



Renewing Infrastructure

The 150 year replacement forecast for drainage in figure 5.7 shows the required risk-based renewals expenditure across all drainage schemes to ensure current levels of service continue to be met, based on the renewals model. Refer to section 5.1 for further information about the way the outputs from the renewals model are incorporated into Council's budgets.

Stormwater assets are relatively young compared to water and wastewater. Generally it was not until the 1990's that full stormwater systems were installed with development.

The peak showing in 2120 relates to the end of life of recent development assets such as those in Pegasus Town.

As for wastewater, a number of early stormwater mains were laid at the back of residential properties, rather than in public roads and will present some challenges when they are to be replaced. Realignment into the road reserve, or the use of alternative technologies such as relining, which can extend the life of pipes by 50 years or more, may be required.

Providing for Growth and Changes to Levels of Service

Growth projections have been updated using the projections provided corporately as a baseline, and subsequent modelling carried out to identify new works or upgrades that will be required in the future to continue to meet the agreed levels of service.

New developments are required to include infrastructure that will ensure the discharge from the development is treated to the quality standards required by the Land and Water Regional Plan, and

that discharge does not occur at a rate greater than that which existed before the development. Stormwater treatment and attenuation ponds to achieve this are typically built or funded by each developer in the various development areas. This means nearly all the growth-related costs for capital works fall directly to the developer and minimal growth-related works are shown in the Council's stormwater activity management plans.

Proposed Capital Expenditure

The projected capital expenditure associated with the Stormwater infrastructure assets is graphically represented in figure 5.8. The figures shown for each of the five year blocks between 2028/9 to 2047/48 are the average annual expenditure over that period.

The high level of service expenditure showing in the first three years of the 2018-28 Long Term Plan relates to the ongoing flood mitigation and protection work triggered by the 2014 flood event and general improvements to levels of service. This includes Feldwick drain catchment improvements, Pentecost Road stormwater main and the North Brook improvements (Janelle to White). Parnhams Drain catchment improvements have been deferred to 2022-2024.

The 2025/26 increase is for planned long term flood response work at Rangiora's West Belt and at Dockey Creek, while in the following years the expenditure represents anticipated works required to meet the global stormwater consent conditions.

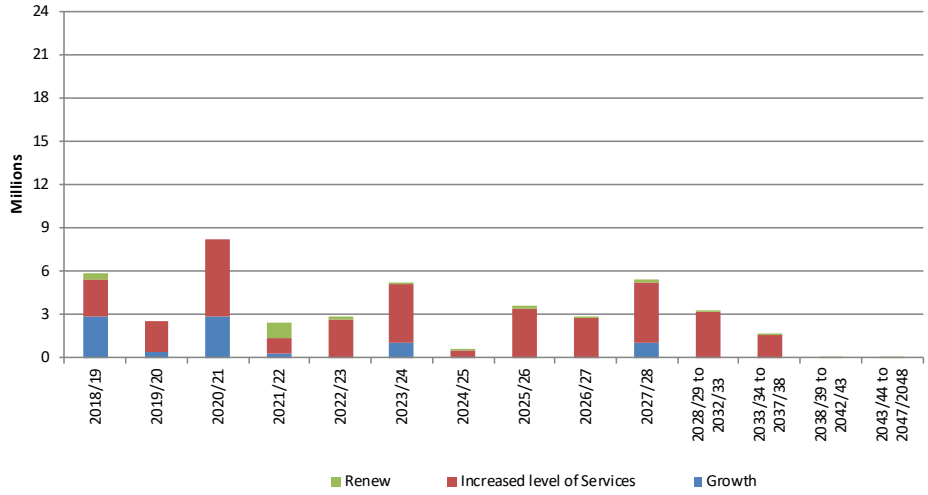
Current Strategic Issues and Priorities

- The key strategic issue is the potential cost and difficulty in meeting the expected consent conditions required by the LWRP for discharge of urban stormwater.
- The Council is working with other councils to develop and assess cost-effective methodologies that will deliver the required water quality. This work is expected to take a number of years to develop and will involve working extensively with Te Ngāi Tūāhuriri Runanga.
- Developing technologies may assist with this work.
- As methods are developed and field tested, the high level estimate of $100 million will be able to be refined. When the first of the consents has been obtained there will be more certainty about the timeframe required to achieve the standards.
- In the interim the IS anticipates that appropriate policy responses and implementation methodologies will be developed between now and 2025/26, when a budgetary provision of 21.4 million (in 2018 dollars) commences and is spread over the following 10 years.

Future Challenges and Emerging Issues

- The issue of improving existing urban stormwater quality is likely to remain a challenge for a considerable length of time, but the outcomes from the Land and Water Regional Plan requirements, will over time, ensure that water quality, in the streams and rivers that receive urban rainwater runoff, will improve.
- Managing expectations of small holdings owners with respect to levels of service for stormwater is also likely to be ongoing.

Figure 5.8 Projected Capital Expenditure - Stormwater (Inflation Adjusted)



5.5 Roads and Footpaths

The Service We Provide

The Council provides, maintains and renews sealed and unsealed roads, bridges and culverts, footpaths, on and off road cycleways, bus stops and seats and shelters, to enable people and businesses to move around for employment, recreation, shopping, social activities and business purposes. It also provides road signs, markings and street lighting, to ensure that travel is safe and convenient. The Council improves the road network to meet changing needs and develops plans to ensure the road network is able to cater for future growth.

As at 1 July 2017, the network included approximately 970 km of sealed roads, 575 km of unsealed roads, 292 bridges and 329 km of footpaths. Virtually all urban roads and 55% of rural roads are sealed and nearly all travel (97.2%) is on the sealed road network.

Managing Community Expectations

The Council's focus, for meeting future customer expectations, is on continuing to provide for growth in traffic numbers, for example, providing additional parking, working to improving travel time reliability and safety and providing for alternative transport modes.

Of those who responded to the roading-related questions in the Council's 2016 Customer Satisfaction Survey:

- 81% of respondents were satisfied with town footpaths and 59% with small settlement footpaths
- 84% were satisfied with town roads, 71% with small settlement roads, 77% with sealed rural roads and 60% with unsealed rural roads
- 34% were satisfied with the provision for cycling, which was the highest level of satisfaction recorded since 2001.

Dissatisfaction rates ranged between 12 and 16%, except for cycling provision and the Rangiora Town Traffic Flow System, which were both 29%.

Legislation and Regulation

The key pieces of legislation governing this activity are the *Local Government Act 2002*, the L*and Transport Management Act 2003*, the *Government Roading Powers Act 1989* and the *Resource Management Act 1991*. Key strategies driving the activity are the New Zealand Transport Strategy, the Government Policy Statement on Land Transport, Safer Journeys Strategy, the Regional Land Transport Strategy, and the Greater Christchurch Urban Development Strategy.

The Government Policy Statement (GPS) sets the framework for government transport directions. This policy is revised every three years and these revisions can substantially change the emphasis on roading and funding.

The 2018 GPS is currently under development and the incoming government has extended the time for public input to June 2018. The change in government following the 2017 election has meant that the incoming government's priorities may result in changes to the emphasis and priorities in the new GPS. It is too early to tell what those changes might be.

Asset Condition and Performance

Generally the roading asset is in good condition. The major pavement condition measure, smooth travel exposure, exceeds the Council targets of 75% greater than the target smoothness for urban roads and 95% for rural roads. The average footpath condition has also improved, due to a consistent ongoing replacement programme, with only 1.3 % of footpaths rated as being very poor and 6% poor. Just 3.3% of bridges are rated poor or very poor.

On the whole the roading network is performing well and generally meets accepted standards. In particular, road pavements rate well compared with the national average for roughness and condition. However, high population growth and conversions to dairying in the District, will continue to put pressure on the road network. This means some individual roads will show accelerated wear due to increased traffic growth, particularly those used by heavy vehicles. Funding levels will need to keep up with this growth to ensure the roading network continues to perform well.

Managing Risk and Increasing Resilience

The most significant potential risks to the roading network are likely to be as a result of a major natural disaster, such as an earthquake or major flooding event.

Other risks include political, economic and management. By maintaining a resilient network, short-term adverse changes can be managed. Adding robust monitoring processes and auditing these and their implementation regularly, helps to provide maximum information on the state of the network in real time, and the ability to respond appropriately and in a timely manner.

Risk to the operation of the roading network is managed through the development and ongoing review of the roading risk register, as well as through emergency response planning, seismic screening of bridges, lifeline disaster resilience assessment and detailed assessments of critical assets.

In general, the short term effect of emergency events on the road network can be mitigated by:

- Ensuring robust emergency management systems are in place
- Ensuring the network has alternative routes available wherever possible, particularly for arterial roads.

Council will continue to place emphasis on drainage maintenance and improvements to minimise impacts of major flooding events, while day to day management of bridge maintenance ensures flood events will cause no significant damage to infrastructure.

Renewing Infrastructure

The roading network has few large scale infrastructure items that would potentially impact on Council budgets, as most replacements are done in sections allowing the cost to be evenly spread year on year as depicted in Figure 5.9. The only exceptions to this are large bridges. The key structures in Waimakariri are the

Ashley Bridge which was replaced in 2014, the Old Waimakariri Bridge and the Waimakariri Gorge Bridge. The Waimakariri Gorge Bridge is shared with Selwyn District, and managed by them. There are no plans to replace the bridge within the next 30 years.

The Skew Bridge, is programmed for a $7 million upgrade/ realignment or replacement in 2018-2025, and following this work should not require renewal within the period of the IS. The Old Waimakariri Bridge, which links Christchurch and Waimakariri, is programmed for replacement between 2044 and 2046 at a cost of $20 million, half of which is to be funded by the Council.

Roading and footpath renewals are programmed with the objective of achieving:

- A net benefit to the national and/or local economy from the renewals
- The lowest life-cycle cost for the asset (where it is uneconomic to continue repairing the asset)
- An affordable medium-term cash flow
- Other savings by co-ordinating renewal works with other planned works within the road reserve or adjacent to it
- Reduced risk, including the risk of failure and associated financial and social impacts and increased risk of crashes or other health risk.

The steady increase in renewals, shown in figure 5.9, reflects the new assets the Council anticipates acquiring as subdivision occurs. The peak in expenditure in the three years from 2044 to 2046 relates to the Council's share of replacing the Old Waimakariri Bridge.

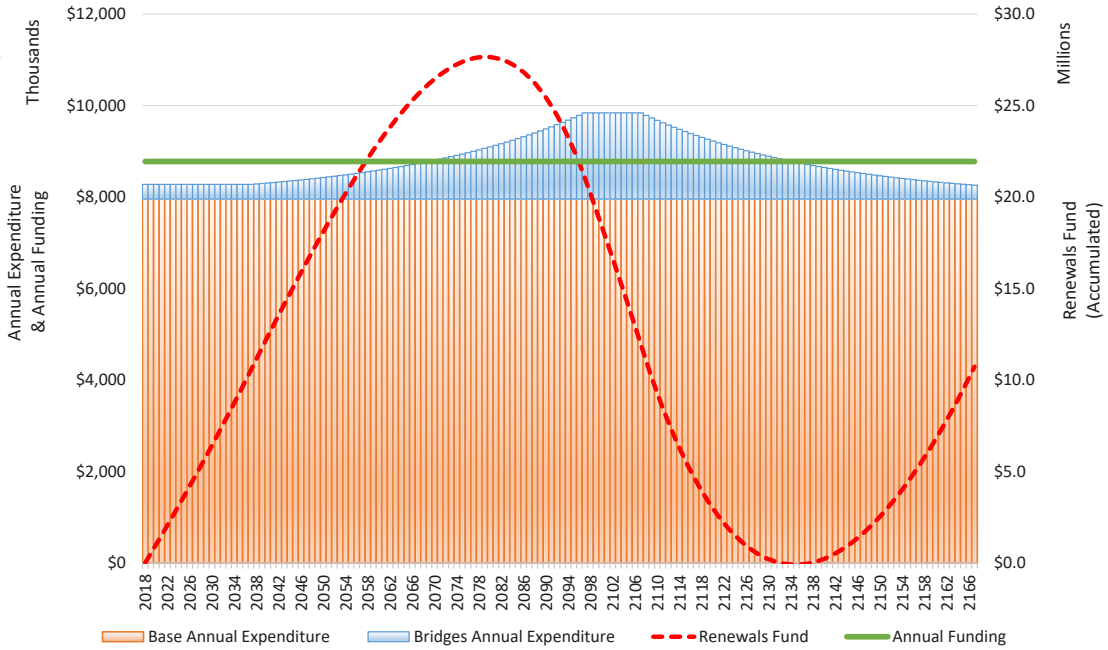
Providing for Growth and Changes to Levels of Service

The main roading performance issues relate to connecting the eastern part of the District with Christchurch and making sure local arterial roads have sufficient capacity to cope with the anticipated growth in traffic volumes. This includes ensuring safety considerations are taken into account particularly on key routes and at intersections. Land has been protected to provide for a north-west by-pass of Rangiora and possibly an eastern by-pass, however, the latter is not expected to be required before 2040.

Work is programmed over the next two to three years to improve the arterial link from the west of Rangiora and Southbrook commercial area to the State Highway and Kaiapoi via Fernside and Flaxton Roads. As population grows so does the likelihood and number of crashes. A number of safety projects have been planned, including the re-alignment of Skew Bridge, to allow for the increased volume and speed of traffic to and from the new arterial road at Silverstream.

Other projects reflect the move towards providing alternatives to increased road construction and more cars. Council is already providing for an increased demand in cycle facilities and is looking longer term into Park 'n' Ride in Rangiora and Kaiapoi to encourage increased public transport uptake. Ongoing improvement to cycle lane facilities, such as the Belfast to Kaiapoi route ($1million allocated in 2018/19-2020/21) will provide further opportunities for alternatives for commuters, particularly with the uptake of e-bikes. The Council also plans to have a Kaiapoi-Woodend cycleway link to complete the third part of the Kaiapoi, Rangiora, Woodend cycleway network although this project is contingent on the construction of the Woodend bypass by NZTA. Options for the link will be considered at that time.

Figure 5.9 150 year replacement cost forecast for Roading and Footpaths (in 2018 $)



A greater proportion of older people in the population in coming years could increase the demand for footpaths and other pedestrian facilities and see an increase the number of mobility scooters and other mobility devices being used on footpaths. There could be a proportionate reduction in peak-hour travel and increase in off-peak travel.

Transport infrastructure, including roading, pedestrian facilities and parking, is a key component of town centres. The Council recognises that in order to maintain an inviting urban landscape it needs to continually invest in upgrading these assets. As such, upgrades to the streetscapes in the Rangiora and Kaiapoi town centres have recently been completed.

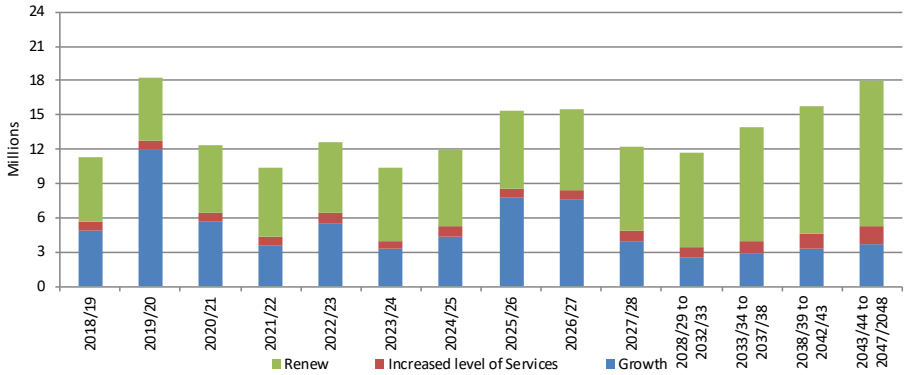
There has been increased pressure on parking in the Rangiora town centre. Land has been acquired to extend the existing Blake Street carpark and planning is currently underway for a $4 million parking building on this site. A further $2 million has been provided in 2022/23 for parking. Success with a transport mode shift or changes to shopping patterns may change the need for this.

The Kaiapoi Town Centre Plan is currently being reviewed. A number of projects are being considered to better align the retail and business areas with the river frontage and maximise this as a unique feature of the town. A similar review is planned this year for the Rangiora town centre.

Components of town centre infrastructure will almost certainly require renewing within the 30 year Infrastructure Strategy period. Upgrades for amenity purposes will be considered as part of future asset planning and a further $10 million (in 2018 dollars) has been provided in 2035 for further improvements as required.

One key project by the New Zealand Transport Agency is the State Highway 1 bypass of Woodend.

Figure 5.10 Projected Capital Expenditure - Roads and Footpaths (Inflation Adjusted)



It was intended that this alignment be built around 2025–2030 but this project is now in doubt due to the new Government Policy Statement. No specific inclusion has been made for this bypass in the IS as it would be funded by NZTA if it went ahead, however, Council has allowed for it in its strategic planning for Woodend. Safety improvements will still be required for local roads, which are planned between 2018/19 and 2020/21.

The One Network Road Classification (ONRC) system introduced in the 2015-18 planning period by NZ Transport Agency (NZTA) has the potential to impact on the subsidy received by the Council. The system aims to provide consistent customer levels of service throughout the country, but recognises that individual communities may have other expectations. Where the community desires a higher level of service than that defined through the ONRC, Council will have to decide whether or not to fund the additional cost of providing the desired service.

Proposed Total Capital Expenditure

The projected capital expenditure associated with the Roads and Footpaths infrastructure assets is graphically represented in figure 5.10. The figures shown for each of the five year blocks between 2028/9 to 2047/48 are the average annual expenditure over that period.

The highest proportion of capital expenditure is required up until around 2022/23 by which time most of the currently planned new capital projects should have been completed. Expenditure over the 30 years is at its lowest around 2024/26 after which time the focus will move onto renewal of existing assets. Level of service increases remain a consistently minor component of the work required throughout the period.

Current Strategic Issues and Priorities

The key strategic issues identified in the Activity Management Plan through the Business Case Approach, which are relevant to the IS, are increased growth, road safety and the effect of land use changes on network maintenance.

Key strategic priorities are those which address the key strategic issues. These include:

- Improvements to Southbrook Road and the eastern and western routes through Rangiora
- Connections to State Highway 1 projects
- Improved options for alternative transport modes
- Improved safety on key routes, and

- Ensuring maintenance of the network is not negatively impacted by land use change.

Future Challenges and Emerging Issues

Developments in digital connectivity could result in more online shopping and teams of workers dispersed nationally and internationally. This could result in substantial changes in the ways individuals travel to work and shop, and the ways in which goods are distributed and delivered. Changes to the banking industry, as a result of internet banking, is an example of digital disruption changing the way business is conducted, which impacts on demand for travel.

It also appears that major changes in the vehicles used for transport are likely to emerge over the next 30 years. Autonomous vehicles, electric vehicles and electric bikes are three examples of vehicle technologies which are currently emerging. Trials are planned for Autonomous Aerial Taxis (AATs) in Dubai in 2018, which is an example of a potentially emerging disruptive transport technology.

It is difficult to predict the impacts that these, or other, yet to be developed, technologies might have on the transport system. Transport planners have coined the term 'deep uncertainty' to describe the difficulty in predicting the impact of new technologies and systems. These will be influenced by a number of variables, centred around three major themes:

- How well technology lives up to, or exceeds, current expectations, or moves into as yet unexpected areas
- How willing society at large is to accept and adopt new technologies
- Any legislative changes which are enacted to enable, or restrict, the implementation of new technology.

The three fundamental strands to achieving a more sustainable transport future are reducing the demand for travel, using more sustainable modes and using more sustainable vehicles.

Demand for travel can be reduced by:

- Providing the facilities and activities that people want to attend and participate in close to where they live. This would involve encouraging the development of employment, recreation, and retail facilities within the District to reduce the need for residents to travel to Christchurch
- Encouraging 'digital connectivity' to replace physical connectivity where appropriate. This may involve on-line shopping, or working from home with good quality digital communication.

More sustainable modes can be encouraged by:

- Locating facilities close to where people live so that walking and cycling are viable modes
- Providing safe, well connected and pleasant infrastructure for walking and cycling, particularly to access key destinations
- Providing quality infrastructure for public transport, including bus stops, park 'n' ride facilities and public transport hubs
- Working with our Greater Christchurch Partnerships to provide a convenient, comfortable, and connected public transport system.

More sustainable vehicles can be encouraged by:

- Working with Mainpower and other providers to provide Electric Vehicle (EV) charging facilities in the main towns
- Investigating EV transport-as-a-service.

Over the longer term climate change could have an impact, although the actual impact on roading, both in terms of accessibility and in physical deterioration within the District, is unknown. Coastal ground water rise may reduce pavement strength. Rising sea levels can be mitigated by ensuring that transport infrastructure is built above predicted sea levels.

5.6 Solid Waste

The Service We Provide

The solid waste activity involves the collection, transport, treatment and disposal of solid and hazardous waste in a way that protects and enhances the health and wellbeing of the community and minimises the effect on the environment.

The Council provides domestic rubbish bag and recycling bin collections to 73% of the District's households and businesses in five towns, seven rural townships, and in some rural areas along the collection routes. A recycling-only collection service is provided to another 4% of the District's properties (rural residential households). The Council operates a resource recovery park in Rangiora, a transfer station in Oxford and a cleanfill site. Aftercare is provided for five closed landfill sites and groundwater quality is monitored at four of these. Council is a joint venture partner in the Kate Valley Landfill and the rubbish accepted at the Southbrook Resource Recovery Park is transported there. The Council also has a role in facilitating waste minimisation behaviours within communities. This includes funding waste minimisation and sustainability programmes in schools and businesses.

The assets comprise transfer stations, including kiosks and other buildings, refuse pits, hazardous waste storage facilities, access roads and hardstand areas, underground reticulation (water supply, waste water and stormwater), landscaping, fencing and gates, as well as fencing, gates and groundwater monitoring bores at the cleanfill sites and closed landfills, and resource consents for all sites.

Managing Community Expectations

Of those who responded to the solid waste questions in

the Council's 2016 Customer Satisfaction Survey:

- Almost 95% of respondents were satisfied with the kerbside recycling service
- 74% were satisfied with the kerbside refuse collection
- There was no marked change in satisfaction in recycling services from the 2013 survey and a slight decline in satisfaction with refuse collection services
- Between 95% and 98% of people were satisfied with the location and ease of use for refuse disposal, and the service provided by staff, at the Southbrook Resource Recovery Park and the Oxford Transfer Station
- On average, 94% of people were satisfied with the opening hours at the Southbrook Resource Recovery Park and 70% were satisfied with the opening hours at the Oxford Transfer Station.

There has been increasing demand for 3-bin services in urban areas and for urban services in more rural areas, such as bin collection services, from new residents moving into the District.

The Council has, after consulting in its draft 2018-2028 Long Term Plan, changed its current level of service for waste collection by introducing an optional multiple bin kerbside collection service to all properties within existing kerbside collection areas in 2019/20.

More environmental awareness may translate to lower demand for Council collection services, increased demand for education and in-home diversion solutions; or alternatively this could result in higher demand for Council to provide more in the way of diversion services at kerbside.

Legislation and Regulation

The key pieces of legislation governing this activity are the *Waste Minimisation Act 2008*, the *Local Government Act 2002,* and the *Resource Management Act 1991*.

The *Waste Minimisation Act 2008* requires councils to promote effective and efficient waste management and minimisation within their districts and to adopt, implement and fund Waste Management & Minimisation Plans (WMMP). The Act also gives powers to the Governor General to direct councils to alter provisions in their WMMPs and to the Minister for the Environment to set performance standards for councils. The Act allocates a proportion of the Waste Disposal Levy collected at municipal landfills to councils and requires councils to only spend their share of the levy monies on 'matters to promote or achieve waste minimisation; and in accordance with their WMMPs'. There are provisions in the Act for a Council's levy to be withheld in specific circumstances. Any of these provisions could impact on the solid waste activity and the services provided.

In preparing their WMMP's councils must have regard to the New Zealand Waste Strategy (NZWS), or any government policy on waste management and minimisation that replaces the Strategy. The previous government's focus in the NZWS has been on reducing the harmful effects of waste and improving the efficiency of resource use, although this could change in the future. The introduction of waste minimisation targets would, for example, require council's to give effect to those changes in their WMMP's at the next review deadline.

The *Climate Change Response Act 2002*, the Climate Change (Waste) Regulations 2010 and Amendments to the Climate Change (Unique Emissions Factors) Regulations are implemented through the Emissions Trading Scheme. The purpose of the Emissions Trading Scheme is to reduce the amount of greenhouse gases emitted in New Zealand. As a shareholder in the Kate Valley Landfill, the Council participates in the scheme, reports on and pays for landfill gas emissions.

Possible changes to National Environmental Standards and District Plan rules could also have implications for how waste is managed locally and nationally. Changes in land use can influence the quantity and type of waste generated, for example, changing large blocks of rural land to smaller residential blocks intensifies population, increases public expectations about accessibility to Council-provided recycling services and results in more waste being removed from properties rather than being buried in farm pits.

Asset Condition and Performance

The majority of both transfer stations original infrastructure is approximately 20 years old and is in reasonable condition, although some components now require higher levels of expenditure to maintain their condition. The Southbrook Resource Recovery Park is 5 years old and in good condition.

The capacity of the rubbish pit, the recycling area and the second-hand shop at the Southbrook Resource Recovery Park are the main pinch-points owing to the increase in waste, recyclable and re-usable materials coming into the site. Shortfalls in capacity will need to be addressed within the next 10 years.

Assumptions on rubbish pit capacity are based on both theoretical estimates and observed limitations. The assumptions on the recycling area and the second-hand shop capacity are based on observed limitations. Data confidence is high.

The proposed introduction of a multiple bin kerbside collection service in 2019/20 would change waste flows and volumes through the Southbrook RRP. Diversion of a portion of the organic component through this collection service would reduce landfill waste, however a rubbish pit upgrade is proposed to both increase diversion from landfill and address capacity issues.

Capacity limitations at the Sutherlands Pit cleanfill disposal site resulted in Council opening in 2017/18 a

second cleanfill disposal site adjacent to Garterys Pit gravel extraction site.

Managing Risk and Increasing Resilience

The primary risks to the solid waste activity are loss of or inability to access disposal sites, inability to access collection areas, insufficient containers to transport waste, extended power outages, fire, spillage of hazardous waste, limitations on facilities to manage waste from severe events, lack of land to expand waste handling & transfer sites, and changing recyclables markets/values. The local and on-site risks are being managed through operational planning and proposed capital works.

An inability to access Kate Valley landfill, for example, if the access road became impassable in the event of an earthquake or large snow event, would result in rubbish and recycling building up in the pit and insufficient empty containers in which to store these materials on-site.

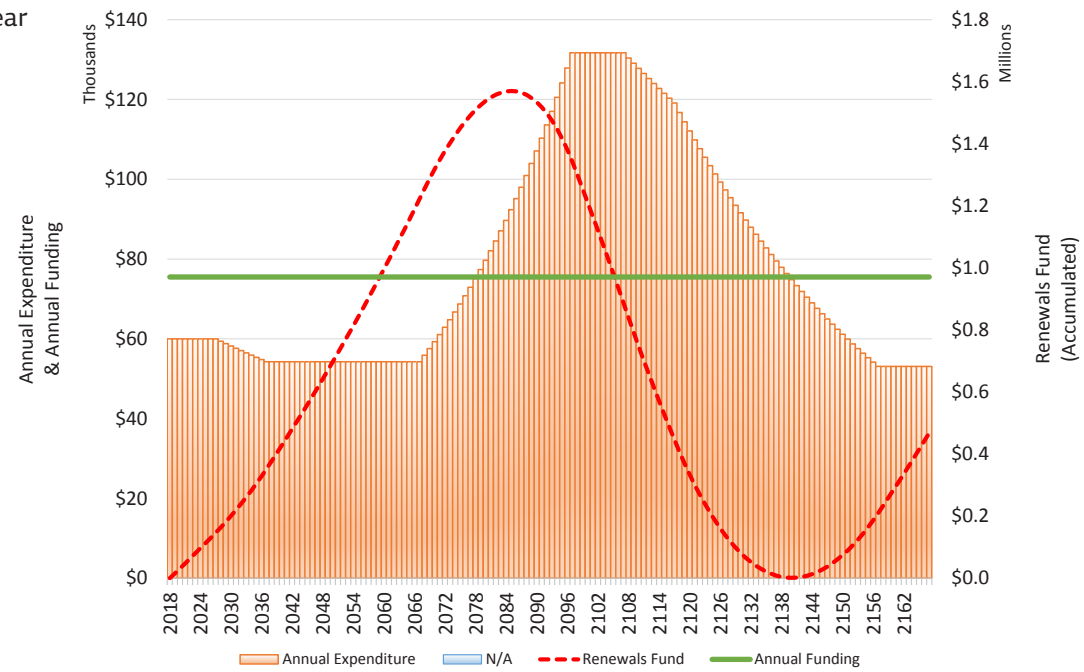
Climate change will not directly impact solid waste assets. Rising groundwater levels could increase the generation and spread of leachate from the Kaiapoi closed landfill. This would have to be mitigated to reduce the impact on groundwater quality.

The Rangiora closed landfill is adjacent to the Ashley-Rakahuri River and has stop banks on two of its three boundaries. An increase in severity and occurrence of flood events due to climate change increases the risk of floods undermining or washing out the stop banks and landfill site. The Council will need to work with Environment Canterbury to ensure the stop banks are maintained and adequate for use in the future.

Sufficient capacity exists in the cleanfill sites for 15 to 20 years with normal use. In the event of an emergency, such as an earthquake, the sites could reach capacity sooner than estimated. The Council does not own any additional land that would be suitable for this purpose and will need to develop an alternative strategy to deal with hard fill and clean fill. This could potentially include processing concrete for sale as hard fill to save air space.

The Council will continue to work with neighbouring Councils and organisations to develop a strategy to manage waste arising from severe events such as earthquakes and flooding.

Figure 5.11 150 year replacement cost forecast for Solid Waste (in 2018 $)



Renewing Infrastructure

The solid waste renewals work required over the next 30 years is relatively low given the overall condition of the major assets. The condition of the transfer stations is very good overall, being 20 years into a 100 year life.

As shown in figure 5.11, the annual renewals budget will be set at a rate necessary to build up the renewals fund in order to fund the large amount of renewals work due in later years. Consequently depreciation will exceed renewals expenditure resulting in a growing account balance until around 2085.

The peak occurring from 2097 to 2107 relates to the replacement of buildings, concrete structures and other major infrastructure at the Southbrook Resource Recovery Park and Oxford Transfer Station.

Providing for Growth and Changes to Levels of Service

Council is a joint venture partner in the Kate Valley Landfill and this facility has capacity to cater for the region's residual solid waste that cannot be recycled or

re-used for the next 20 years. The property owned by the joint venture partners has capacity for additional landfill sites once the original site reaches its capacity and/or the consent expires.

Some expansion of and upgrades to the Southbrook Resource Recovery Park are planned to cope with capacity issues driven by population growth. The Oxford Transfer Station site has some area available to extend services on its current footprint, but no major capital works have been factored in for expansion of the site.

Changing age demographics have varying effects. Aged residents and smaller housing units produce less waste but this could be offset by an increase in home-medical waste, such as dialysis bags/ tubing and adult incontinence products, and higher density housing. Aged care facilities and retirement complexes may manage their waste without subscribing to Council kerbside services, resulting in a decrease in Council's rating base and a change in waste flows through the Southbrook Resource Recovery Park.

Changes in demand will need to be carefully considered when planning future expansions of waste transfer stations and landfill sites, and their associated consenting requirements.

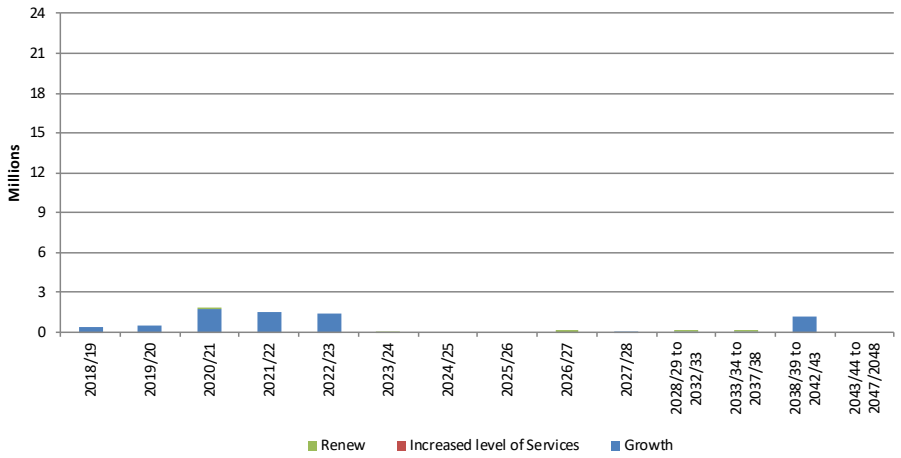
Proposed Total Capital Expenditure

The projected capital expenditure associated with the solid waste infrastructure assets is graphically represented in figure 5.12.

The capital expenditure in the first 10 years of the IS period relates to purchase of additional land and upgrade projects at the rubbish pit and the recycling and reuse area. These are driven by capacity issues caused by growth and by adopted diversion targets.

The figures shown for each of the five year blocks between 2028/29 and 2047/48 are the average annual expenditure over that period. The capital expenditure in the block from 2038/39 to 2042/43 is an allowance for construction of a waste sorting and processing facility.

Figure 5.12 Projected Capital Expenditure - Solid Waste (Inflation Adjusted)



Current Strategic Issues and Priorities

Availability of a landfill disposal site. There is a high level of certainty that the regional landfill will be available beyond the current consented life of the landfill and the IS period, because of its location, the airspace capacity it has to expand and the public/private partnership structure formed to manage the site.

Increasing per-capita diversion from landfill. A step-change is needed to achieve this and includes:

- The proposed multiple bin kerbside collection service which will divert food and garden waste from landfill for beneficial use as compost
- Upgrade of the refuse pit to resolve capacity issues and/or to increase diversion from landfill
- Upgrade of the recycling area and second-hand shop to increase capacity to cater for increased demand and expansion of diversion services.

Affordability of services and waste disposal. This is addressed by the optional nature of the proposed user-pays rubbish bag/rated multiple bin service.

Land availability and consenting for expansion of services, waste processing and cleanfill:

- Once existing cleanfill sites are filled Council may not be in a position to provide clean fill disposal for contractors, which could increase construction costs
- Once the total site capacity at the Southbrook Resource Recovery Park is reached, Council would have to find and consent an additional or alternative site to provide waste transfer services for the District.

Future Challenges and Emerging Issues

New technologies and systems could have a significant impact on solid waste services, diversion activities, assets and funding models. Examples of possible changes/impacts are as follows:

- Electric collection vehicles could replace diesel trucks. Self-driving collection vehicles could replace standard vehicles, although this would not necessarily result in fewer collectors as an

attendant would be needed to ensure all bins/bags are collected

- Radio Frequency Identification (RFID) technology improvements could enable pay-by-lift charges, and potentially pay-by-weight charges
- The ability to track GPS location and interrogate video coverage from collection vehicles in real-time will enable customer services staff to answer residents' concerns promptly, improving communication between Council, residents and the contractors
- New technologies could mean recyclable materials could be partially processed on-site at the Southbrook Resource Recovery Park to reduce transportation costs and increase the value of materials
- Changing market demands for recyclable materials may make it more cost-effective to divert more materials from landfill, and provide more opportunities for businesses to recycle or process waste such as plasterboard. Alternatively, falling values in the recyclables markets would result in the opposite drivers and may reduce diversion and increase waste to landfill.

If the Council wants to realise a more sustainable future it will have to encourage residents to change their habits and attitudes toward waste minimisation. Provision of a permanent education centre, and possibly a community garden-type area, will provide better opportunities for community education and will encourage the necessary change in attitudes.

There is an increasing trend for people to balance consumerism with environmental concerns, brought about by more environmental pressures and issues. This could possibly result in a future lower waste-per-capita generation as people move from recycling towards reducing their waste.

5.7 Green Space and Aquatic Facilities

The Service We Provide

Green Space - The Council provides a range of facilities and amenities to support community health, fitness and quality of life. These include community buildings, cemeteries, parks and reserves and streetscapes, which provide the community with opportunities for leisure and social interaction.

The Green Space activities currently include:

- The provision of extensive park and reserve space in the form of neighbourhood parks, sports parks, natural areas, public gardens, cultural heritage sites (including cemeteries), civic spaces and streetscapes
- 27 community buildings in the form of halls, community centres, pavilions and meeting rooms
- Four privately leased holiday parks (camping grounds) at Ashley Gorge and Waikuku, Woodend and Kairaki Beaches (managed by Property)
- Rangiora Airfield
- 62 public toilet facilities, of which 61 are maintained by the Council.

Aquatics - The pools are important venues providing for community health, fitness and quality of life. They also support educational activities such as teaching children and adults to swim.

The Aquatics activities currently include:

- Three 25 metre pools (Dudley, Oxford, Kaiapoi) and three learn to swim pools (two indoor and one outdoor), a leisure pool and spa at the Dudley Aquatic Centre and a seasonal paddling pool at Waikuku Beach.

Managing Community Expectations

In 2017 the Council prepared a Sports Facilities Strategy, Playground Strategy, Community Facilities Strategy and Public Toilet Strategy to provide strategic direction for these activities. Improvements to levels of service were identified in the strategies to ensure community expectations were able to continue being met, for example, a move towards improving the quality of some sports grounds to sand carpet sports fields, providing additional shade over selected playgrounds and additional funds for new public toilets.

The strategies also identified national trends of significance to key Green Space assets, such as the demand for higher quality public facilities for recreation, which are influencing the way in which assets are being built and maintained.

The most significant levels of service change being considered over the next 30 years relates to the provision of indoor court facilities. The recent Sports Facilities Strategy has identified the need for an additional four indoor courts to cater for participation in key sports such as basketball. The trend towards pay for play activities also means more people are interested in shorter versions of more traditional sports which are often played indoors. These include 3 on 3 basketball and futsal.

The Council has progressed with developed design and has included in the Long Term Plan 2018-28 $27.85 million for the construction of a Multi-Use Sports Facility alongside the Coldstream hockey turf in Rangiora. This amount is based on the current developed design and costing for a four court indoor facility with extra capacity to cater for a growing population.

Demand for walking and cycling facilities is growing in response to the aging population and technology improvements such as E-bikes. To cater for this, the Council is continuing to create new linkages by taking a network approach to land acquisition via subdivision.

Customer satisfaction with Green Space and Aquatic Facilities provision is measured in the Council's tri-annual

Customer Satisfaction Survey. The last survey completed in 2016 identified the following points:

- 84% of respondents to the questions were satisfied with parks and reserves, 67% with play equipment, 66% with public toilets, 62% with halls and pavilions, 55% with swimming pools and 47% with cemetery maintenance
- Dissatisfaction rates ranged between 2 and 6% except for public toilets which was 22%. This was largely due to dissatisfaction with Rangiora town centre toilets.

Green Space also undertakes annual user surveys of the three main community facilities and carries out targeted consultation when required to identify the needs and issues associated with specific projects.

Aquatics Facilities undertake customer satisfaction surveys every six months at each of the pools. These surveys continue to show very high satisfaction levels for pool users.

Legislation and Regulation

The key pieces of legislation governing this activity are the *Reserves Act 1977*, *Resource Management Act 1991, Local Government Act 2002* and the *Building Act 2004*.

There does not appear to be any significant legislative changes proposed or identified for the majority of the Green Space activities. Sustainability may be a major focus area for the new Government and Green Space has begun to implement sustainable practises where possible. Any changes to the Building Code and accessibility standards have the potential to impact on community buildings and Aquatic Facilities.

Asset Condition and Performance

A full condition assessment and validation of all recreation assets falling within the Green Space activity was undertaken in 2013. Staff have implemented an ongoing asset validation programme utilising mobile tablet technology which has allowed all assets, except for community facilities, to be reassessed every 18 to 24 months. This allows realistic capital replacement budgets to be set that ensure the overall condition of the assets remains at a high standard. Community facilities will now be included in the asset validation process.

A full revaluation of Green Space assets was undertaken in 2016.

The asset information currently available suggests that, on average, the condition of parks related assets is moderate to good. There are some areas where asset improvements can be made, for example, the condition of water features and irrigation systems.

The current condition of community facilities is generally very good, due in part to the considerable investment the Council has made to improve these assets since the Canterbury Earthquakes. The Earthquake Strengthening Program has brought almost all community buildings up to, and in many cases above, 67 percent of National Building Standards. A number of other building improvements have also been made in conjunction with this work.

Generally Green Space assets are performing well and meeting the identified levels of service, however, it is anticipated that the expected population growth throughout the District over the coming years will put pressure on existing community facilities and parks and reserves.

The Aquatic facilities have continued to perform well with continuing high levels of community use. Aquatics staff have identified that there is still capacity at the pools for additional users.

Managing Risk and Increasing Resilience

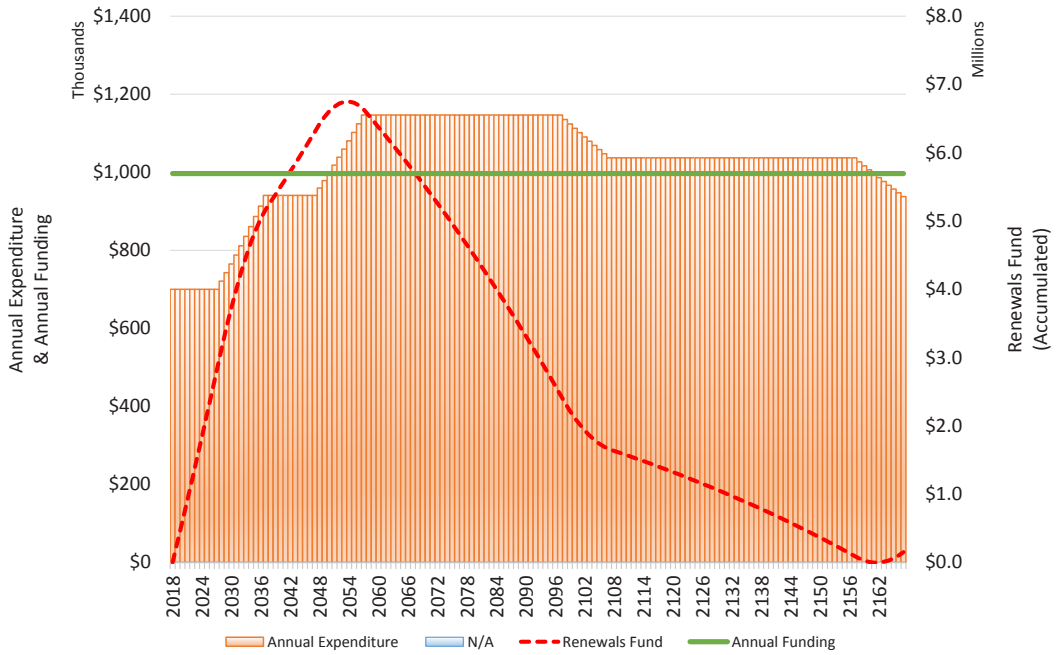
The four most significant risks to asset performance in the Recreation, Green Space and Community Facilities portfolios are earthquakes, climate change, population growth and demographic changes. These are identified below:

- The functionality of community facilities is more likely to be impaired by another significant earthquake, although the earthquake strengthening programme has mitigated this to a certain degree. The extent of any damage will ultimately depend on the size and nature of the earthquake event.
- Climate change has the potential to affect both the flora and fauna within parks, natural areas and streetscapes. Increased costs could arise from implementing strategies to mitigate the effects of climate change, in particular drought and storm events. Climate change is most likely to impact on open space areas over summer periods when dry conditions will affect the quality of grass cover, requiring more irrigation to maintain it. Sea level rise will, in time, impact on coastal reserve areas. Consideration is being given to the tree and shrub species and grass cultivars used, with more drought tolerant plants being chosen.
- The significant growth throughout the District over the last several years has increased the demand for Green Space and Aquatic Facilities. Green Space has focused on maintaining asset performance to ensure Levels of Service and resident demands continue to be met.
- Green Space and Aquatics are aware the needs and demands of the growing 65+ age group must be considered when designing and maintaining assets.

Renewing Infrastructure

Renewals of Green Space assets occur when they are no longer able to meet level of service requirements. The rate of asset renewal is intended to maintain the overall condition of the Green Space infrastructure at

Figure 5.13 150 year replacement cost forecast for Green Space (in 2018 $)



a standard which reflects its age profile and ensures the community's investment is maintained. The level of expenditure on asset renewals varies from year to year, reflecting the age and condition profiles of the assets, the on-going maintenance demand, customer service issues and the differing economic lives of individual assets comprising the overall asset.

There are no proposals for the major renewal of any community facilities in the next 30 years due to most major community facilities being less than twenty years old and the major enhancement and earthquake strengthening work undertaken following the Canterbury earthquakes.

Figure 5.13 shows the renewals budget which is allocated according to the expected life of the asset and the regular condition assessments undertaken by staff.

The growth in the District has resulted in a significant number of additional Green Space assets being installed over recent years, which have an average life expectancy of between 30 and 50 years. This is represented by the overall rise in expected replacement costs after 2046 when a number of the new assets will begin to require replacement. The small spikes in the replacement data are a reflection of the installation of similar assets in new subdivision areas within the same timeframe.

Providing for Growth and Changes to Levels of Service

The strategies for the four major Green Space asset groups; Sports Facilities, Public Toilets, Play Spaces and Community Facilities, have identified the likely future requirements across the District for these asset types. This information has been used to develop proposed levels of service and capital development programmes aimed at meeting the forecasted growth and demand.

In each new sub-division area land is set aside for community and neighbourhood recreation areas to meet the identified levels of service and the development of these spaces is an important aspect of Green Space work.

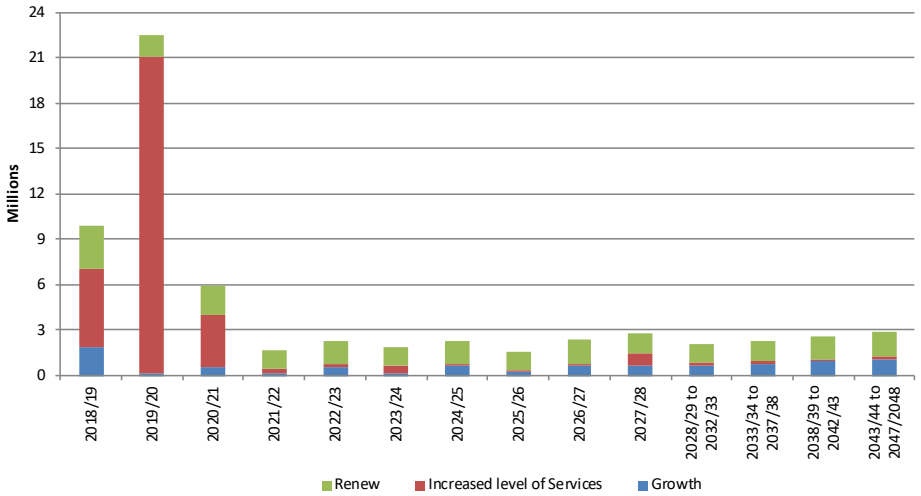
The District is well served with sport and recreation reserves and no further expansion of these is planned in the next 30 years, reflecting the trends for reduced participation in organised sport and an increased focus on pay for play activities in high quality facilities. These trends have been confirmed in the Sports Facilities Strategy, which has also indicated a need for an indoor court facility within the District.

The Council has invested in two artificial surfaces for sports practices and playing surfaces over recent years. The surfaces are located at Kendall Park and the hockey turf at Coldstream Rd. The recently completed Sports Facilities Strategy has identified that rather than provide a third artificial surface, which had been identified in the 2015-25 Long Term Plan, the community would be better served by upgrading existing grass surfaces throughout the District. This would include irrigation and drainage upgrades and the development of specific training parks and sand carpet fields.

Continuing to develop existing reserves is also a priority, especially the 550 hectare Te Kōhaka o Tūhaitara Reserve that borders the coast and the Silverstream Reserve, both of which have management plans in place for their progressive development.

Implementing the Council's 2017-22 Walking and Cycling Strategy is also important as the aging of

Figure 5.14 Projected Capital Expenditure - Green Space (Inflation Adjusted)



the population is expected to result in an increase in passive recreation activities such as walking and cycling.

Proposed Total Capital Expenditure

The projected capital expenditure associated with the Green Space infrastructure assets is graphically represented in figure 5.14. The figures shown for each of the five year blocks between 2028/9 and 2047/48 are the average annual expenditure over that period.

The following chart indicates the highest amount of capital expenditure is expected over the period 2018 to 2022. The majority of the capital expenditure is related to the provision of the Multi-Use Sports Facility. Once this project has been completed, the main focus for capital expenditure is on the renewal of existing assets.

Current Strategic Issues and Priorities

- Continuing to develop existing reserves, in particular Te Kōhaka o Tūhaitara, Silverstream and Taranaki Reserves
- Developing a Multi-Use Sports Facility
- Upgrading existing sports surfaces.

Future Challenges and Emerging Issues

Sport New Zealand has been active over recent years promoting effective sports and leisure planning practices nationally. This has led to best practice approaches, such as facility-hubbing (multi-sport), multi-use courts, active open space designs and holistic asset plans, being implemented at a regional and sub-regional level. These influences are likely to accelerate.

One of the most significant new technologies for Green Space is the use of E-bikes. These have become very popular and accessible and as the technology improves, people's demand for off-road and on-road connectivity within the District is likely to increase.

Addressing sustainability is important for Green Space. Significant issues are ensuring:

- Energy and water use is efficient
- Materials are reduced, reused and recycled, organic material is returned to the earth and planting matches climatic conditions
- Renewable energy sources are explored, reducing emissions and moving towards carbon neutrality
- Discharges to the environment are safe, and indigenous biodiversity is encouraged and protected.

Green Space has identified the following practises, at both operational and management levels, as contributing towards sustainable practice:

- Use of mulch created from tree matter removed as part of the Tree Maintenance Contract within the Park and Reserves Maintenance Contract
- Specified sprays and herbicides applied in accordance with a spraying policy, as part of the Park and Reserve Maintenance Contract, to ensure the correct product is being used and the impact on the surrounding environment is minimised
- Inclusion within Green Space contract tendering processes for consideration and weighting, where appropriate, to be given to the contractor's sustainability practices and initiatives
- Planting of trees, shrubs and other plants throughout the District that are able to cope with the predicted changes in climate.

5.8 Property

This section covers the two distinct asset/activity areas of Housing and Service Centre/administration activities.

5.8.1 Affordable & Elderly Persons' Housing

The Service We Provide

Council provides targeted low cost housing for the elderly at seven sites, comprising 112 one bedroom units in 45 buildings. Council policy states the service

is to be self-funding without direct ratepayer support. The application criteria targets super-annuitants over 65 years of age with low incomes and modest assets. This generally means tenants are eligible for the Accommodation Supplement to make housing costs more affordable.

The affordable housing portfolio comprises seven near new 3 bedroom houses and provides below market rentals for families on restricted incomes to enable them to save a deposit on their own house over a period of five years.

Council owns a number of other houses purchased for other purposes, generally associated with land acquisitions for infrastructure such as roads. The strategy around these properties is generally to hold them only as long as needed to complete the new infrastructure work, or until improvements are completed that enable their on-sale in an optimal way.

Managing Community Expectations

Occupancy rates are an indicator of performance and these have historically been maintained at approximately 98%. Current occupants typically have tenancy's lasting 6 years, commonly terminated by ill health or death. The longest tenancy is currently 18 years.

No formal customer surveys have been conducted but most anecdotal feedback from tenants is positive and no evidence of any significant issues exists.

Only limited anecdotal feedback has been obtained from affordable housing tenants. The Affordable Housing initiative needs further review to establish clearer criteria for targeting participants and for methods of delivering the benefits sought. This will involve some wide-ranging consultation with Councillors, staff and the community.

Legislation and Regulation

Key pieces of legislation governing this activity are the *Residential Tenancies Act 1986, Building Act 1992, Resource Management Act 1991, Local Government Act 2002* and the *Health & Safety at Work Act 2015*.

Likely influences on capital costs are:

- Increases in the mandatory insulation requirements
- General changes/ tightening of requirements of the Building code
- Increasing requirements for Green Star rated building performance
- Implementation of a Warrant of Fitness for rental accommodation
- Seismic performance criteria, especially if extended to housing.

In addition, the incoming Government is in the process of reviewing existing initiatives in relation to affordable housing and social housing, which includes pensioner housing. One of the key Government funding mechanisms to support people on low incomes is the Accommodation Support. Changes to this funding mechanism could have a significant impact on the affordability of pensioner housing.

The new Government may also review the role of Local Government, Community Housing Providers and the availability of Income Related Rents Subsidy (IRRS). This could significantly change the rationale around the ownership, funding and operation of targeted pensioner housing and affordable housing.

Asset Condition and Performance

A 2015 condition assessment rated the overall condition of the portfolio as following; 25% As New (Ranui Mews in Kaiapoi, built in 2014), 14% Excellent, 36% Good, 16% Average and 9% Poor or Very Poor.

Most of the 'poor' or 'very poor' elements or equipment have been addressed since the assessment.

Although there has not been a formal measure of asset performance, all the units are weather-tight and capable of being kept relatively warm, and complied with the building code when built or when significant works were last done.

Areas for improvement include better insulation and thermal performance, removal of asbestos when necessary, and addressing items of functional obsolescence and unit configuration.

The current rentals are below market rates and therefore more affordable for tenants in relative terms. However, lifecycle cost analysis shows that current rents do not cover the full cost of owning and operating the asset and activity over time, when the full replacement program of buildings is taken into account. This is discussed further under 'Key Strategic Issues and Priorities'.

With regard to affordable housing, the effectiveness of the scheme is under review with only a modest number of participants that have completed their 5 year tenure going on to buy their own home.

Managing Risk and Increasing Resilience

Following the Canterbury earthquakes properties were inspected and any significant safety risks were mitigated. The design of the building structures has demonstrated high levels of resilience to earthquakes, high winds and heavy precipitation. Detailed Engineering Evaluations (DEE's) have been completed and indicate a relatively low risk. This is largely due to most being single story with timber framing as the primary structural elements. Some minor recommendations were made and these will be implemented when other works are in progress.

The renewal/ refurbishment programme is focussed on making the units more energy efficient and removing health hazards such as asbestos.

Renewing Infrastructure

Following the 2010 and 2011 earthquakes, several complexes in Kaiapoi were Red Zoned and demolished. A new 26-unit complex was built to replace these however, this required the use of existing reserves and debt funding.

The bulk of the housing stock was built in the 1960's and 1970's. While the units are generally in good condition, they suffer from functional obsolescence and require upgrades to address specific issues such as asbestos and to meet current and anticipated compliance requirements.

Replacement units are not anticipated for three decades, however, once they are replaced, they are likely to be built with a greater emphasis on Environmentally Sustainable Design (ESD).

The average morbidity of housing in NZ is approximately 90 years of age, based on a 1990's study. Actual asset life varies considerably on a site-by-site basis but for planning purposes this provides a base assumption against which variations can be managed.

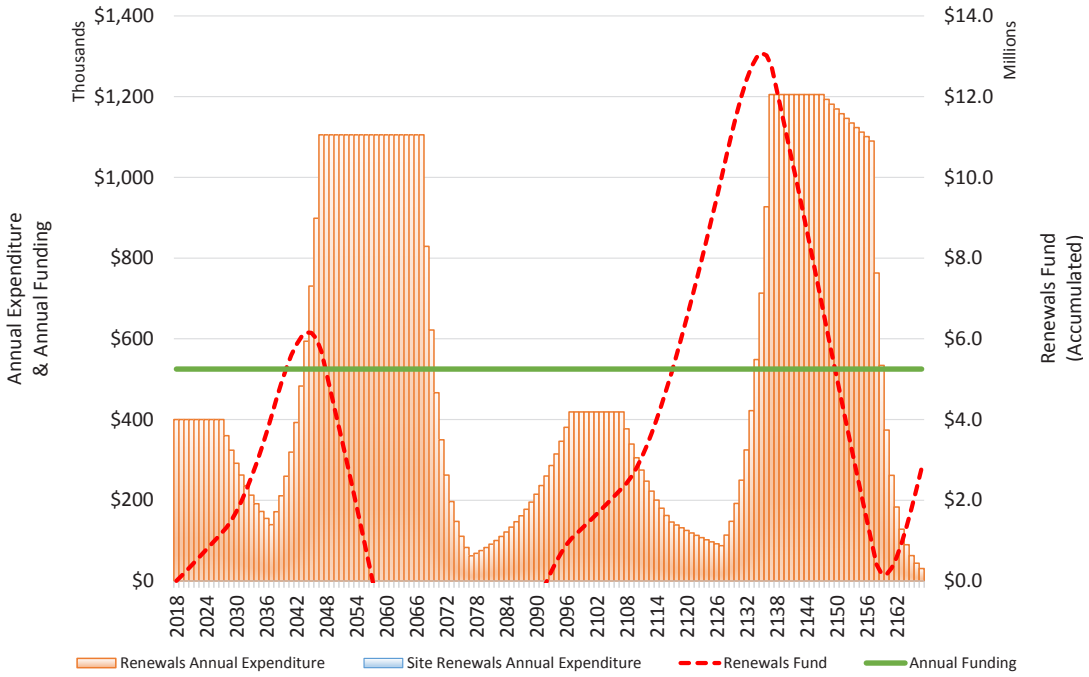
With most units half way through their anticipated life, a program of internal renewals and upgrades is planned over the next decade to make them fit-for-purpose. In addition, roof renewals, sewer and other site infrastructure all need substantial renewals over the upcoming decade to keep the units serviceable for another 40 to 50 years. The above work amounts to $400,000 per year shown as the initial elevated spend in figure 5.15.

Following the 'mid-life' programme of works it is anticipated that renewals expenditure will be modest and maintenance costs may be able to be reduced for a period.

Beyond 2048 significant expenditure is required to replace the units as they become uneconomic to repair. This is shown in the second larger spike.

The graph spreads the cost over a 20 to 30 year period, as a 90-year replacement date is a broad estimate. Actual site replacements create a much larger spike over single years rather than decades.

Figure 5.15 150 year replacement cost forecast for Pensioner Housing (2018 $)



Providing for Growth and Changes to Levels of Service

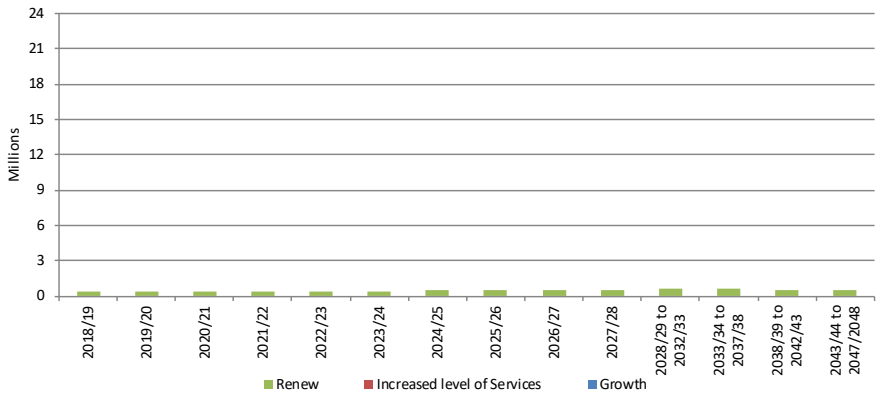
The Council service currently supplies about 10% of the rental demand demographic, however, the numbers of people aged 65+ are expected to treble from about 11,000 now to about 30,000 in 30 years' time.

With the projected expansion of the 65+ demographic it is reasonable to assume the demand for smaller homes or housing units is likely to increase.

Housing NZ has recently expanded its one bedroom housing stock in the District with 28 new units currently being built in Rangiora for people over 50 years of age.

The cost of debt servicing new units along with operational costs makes it uneconomic to build new units without funding from the government, ratepayers or other external agencies. The self-funding requirement for the pensioner housing service means that the cost of any increase in the level of service is passed on to the tenants.

Figure 5.16 Projected Capital Expenditure - Housing (Inflation Adjusted)



No substantive work has been done by Council to predict the likely future demand for pensioner or affordable housing. Currently there are no plans to expand the current asset base to cater for an older population.

Proposed Total Capital Expenditure

The capital expenditure forecast, shown in figure 5.16, comprises renewal and replacement work and does not include any allowances for changed levels of service.

Some aspects of the works could be considered enhancements but these are generally associated with changed regulatory requirements, the use of better materials and products, or design improvements which have the same level of expenditure as work done on a 'like for like' basis.

As no allowance has been made for growth the total number of units supplied will remain at 112.

With regard to the affordable housing portfolio, the relatively young age of these houses means significant renewals will not be required over the 30 year Infrastructure Strategy period. Existing rental income is adequate to cover the long-term costs of ownership including the replacement of the houses in about 80 years' time.

Current Strategic Issues and Priorities

The major challenge facing the service is its long-term financial viability. While the current portfolio debt is modest there are no funds available for the required renewals and refurbishment of units over the next 10 years, or for the eventual replacement of the portfolio.

Projections show the service will need alternate funding sources beyond 2052 to remain viable. Work is progressing with alternate strategies, however, significant rental increases are required to address the shortfall identified.

For most tenants 70% of the increase is covered by the Accommodation Supplement, however, there will still be a net impact on tenants. To soften the impact of this the proposed rent increase is staggered over 6 years.

Discussions are being held with Government agencies regarding potential shifts in policy by the new Government that might result in more direct support for pensioner housing. If this eventuates, the need for the rent increases may diminish.

Future Challenges and Emerging Issues

Changing government policy provides both opportunities and some risks that are as yet unclear. Some of these may impact current operations and decisions but are more likely to have an effect in the longer term.

5.8.2 Service Centres

The Service We Provide

The main Council Service Centre and administrative headquarters for Council is located in Rangiora. This includes three separate sites comprising the main Rangiora Service Centre at 215 High Street, the adjoining Ashley building and office space leased in the Farmers building. A small number of staff are located in Portacoms adjoining the Library.

Smaller Service Centres are located within the Library facilities at Kaiapoi and Oxford. These are covered in the following Libraries section.

Service Centres support administrative and governance functions. They provide office and service centre spaces to meet the accommodation needs of Council staff, customers and stakeholders and spaces for public meetings and official occasions.

Managing Community Expectations

In late 2016 a staff survey identified and confirmed a number of issues with the main Rangiora Service Centre building, in that building systems were performing poorly and failing, and that the office layout and general fit out contributed to varying levels of dissatisfaction.

Legislation and Regulation

The key pieces of legislation governing this activity are the *Building Act 1992, Resource Management Act 1991, Local Government Act 2002* and the *Health & Safety at Work Act 2015.*

Likely influences on capital costs are:

- General changes/ tightening of requirements of the Building code

- Increasing requirements for Green Star rated building performance
- Seismic performance criteria.

Asset Condition and Performance

The leased Farmers building of approximately 800 m² is new and in excellent condition, performing well and fit-for-purpose in terms of design and functionality.

The Ashley building was built in the 1980's and repurposed as office space in 2008/09. The building was recently strengthened following the Canterbury earthquakes, with both floors refurbished and asbestos encapsulated in the original ground floor shop plaster ceiling. Overall, the building is in good to excellent condition.

The Rangiora Service Centre was built in the early 1980's. The exterior is in good condition but the overall interior is poor, due to aging infrastructure and wear and tear. The performance of Heating, Ventilation & Air Conditioning (HVAC) systems is only fair to poor, especially over summer months. The electrical system is dated and other building systems and interior fit-out features are performing poorly. The building is at capacity, but spatial layout of offices is poor with relatively low utilisation of space on a per-metre squared basis.

The four separate Rangiora administration buildings duplicate administrative functions and secondary facilities such as toilets and staff rooms.

The economies of scale that could be achieved are not taken advantage of in relation to effective spatial and facilities management. The separate buildings also compromise, to some extent, the way the organisation operates, including the delivery of customer services.

Anticipated growth over the next 10 to 30 years puts immediate pressure on finding a solution for office accommodation in Rangiora. While the Portacoms are in good condition they struggle to maintain appropriate environmental conditions and are therefore only viewed as a temporary solution to space shortages.

Managing Risk and Increasing Resilience

A range of compliance and functional obsolescence issues exist in the Rangiora Service Centre, with some of these representing a high risk of failure.

Renewing Infrastructure

The renewal profile, as shown in figure 5.17 for the Rangiora Service Centre and Ashley building is based on a number of assumptions around long term accommodation strategies.

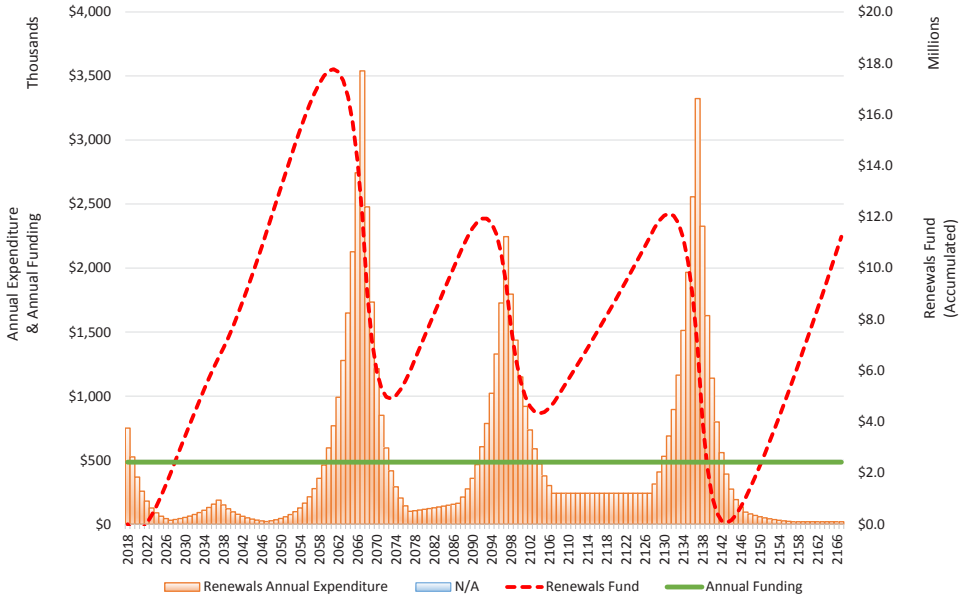
The LTP proposes $3.99 million be spent between 2018 and 2020 on addressing the identified building system deficiencies and improving the utilisation of the building, to allow an additional 30-40 staff to be accommodated to cater for the growth anticipated over the next 10 years.

The end result will be a building, with substantially new core infrastructure, only requiring modest renewal expenditure for several decades. Beyond this, it is assumed that a replacement program of around 70 years will apply. This will change if the substantial extension to the building currently proposed for 2029 goes ahead.

Providing for Growth and Changes to Levels of Service

The refurbishment project planned for the Rangiora Service Centre over the first two years of the LTP addresses both deferred renewals and capacity issues over the LTP period, with capacity extended from 145 to around 195 people.

Figure 5.17 150 year replacement cost forecast for Rangiora Service Centre (in 2018 $)



A key assumption is that Council will maximise the $500,000 investment in the fit-out of the Farmers Office space by continuing to occupy that space until the final lease expiry in 2029. This provides a critical decision point and means the Council has until 2025 to make a decision about how it will accommodate staff.

For the purposes of this Strategy it is assumed that all administration and customer service teams should be accommodated together in one building, along with allowances for growth through to 2048. The rationale for this is improved customer service, better economies of scale and improved organisational effectiveness. This assumption and a range of options will need to be robustly tested before 2025.

A further key assumption is that there is no material change to the structure or purposes of Local Government or the Council. Accommodation options would need to be reconsidered if there were major changes.

Options exist to build an entirely new facility in 2029 for all staff or an extension of the existing Rangiora Service Centre building to achieve the same capacity.

A lease option could be pursued but no commercial office space exists that is large enough to meet Council's requirements. A developer would need to build a purpose built facility significantly larger than any other commercial lease space currently provided in Rangiora. A variety of risks is associated with this approach.

It is unlikely that a private property owner could access capital at a lower cost than the Council and a return on the investment, above the cost of their capital, would be required to provide for profit and risk. While Council remains open to opportunities, it seems likely that the most cost-effective development and ownership structure will be for the asset to remain with Council.

For the purpose of this IS, it has been assumed that the best option is to extend the existing building and $18 million has been provided for this in 2029. This assumption requires further investigation prior to the development of the next LTP.

Proposed Total Capital Expenditure

Figure 5.18 shows the indicative forecast over 150 years. This picks up several cycles of replacements and includes allowances for various refurbishments that extend the life of existing buildings.

Ongoing renewals and refurbishments are proposed using a cycle of between 15 and 20 years. A larger mid-life spike indicates where more significant renewals are catered for at intervals of around 35 years.

Current Strategic Issues and Priorities

A key priority is the mitigation of anticipated asset failures in the Rangiora Service Centre building that could compromise service delivery, compliance and staff health and safety.

Closely associated with the above is the need for additional capacity for staff and addressing a cramped and poor quality work environment that may also be impacting on customer service.

Opportunities exist to significantly improve energy management and other operational functions with new infrastructure and better design.

Future Challenges and Emerging Issues

The plans to allow for future growth are challenging in that the economics around incremental expansion of a facility are generally poor.

The two strategies that can generally be applied are subletting the unused space until it is needed or paying a premium for both the initial build and subsequent extensions to allow for growth.

Council will need to consider the options available to it and carry out further investigations to validate assumptions and identify cost efficiencies.

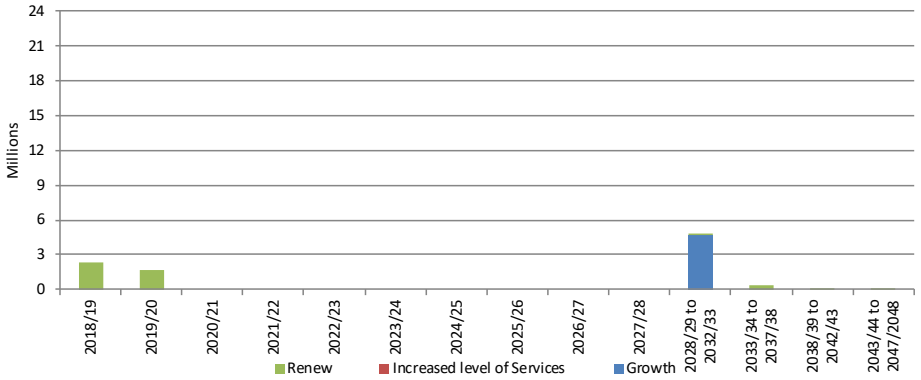
5.9. Libraries

The Service We Provide

The Library service is located at 3 main sites, Rangiora, Kaiapoi and Oxford.

Small Service Centres are co-located at Kaiapoi and Oxford and are covered within this part of the IS.

Figure 5.18 Projected Capital Expenditure - Service Centres (Inflation Adjusted)



Library services are provided to visitors and residents and include a variety of learning, information and recreation resources, in print and electronic format, available to the public in the libraries at Rangiora, Kaiapoi, and Oxford, and via the libraries website.

Qualified staff utilise quality resources and appropriate technologies to inform, inspire, empower, entertain and sometimes challenge library users. This helps to connect people to their community, their culture, their heritage, their futures and the world in which they live.

Managing Community Expectations

During the 2016/17 financial year there were over 460,000 visitors to the Rangiora and Kaiapoi Libraries with over 72,000 visiting the Library webpage.

Over 97% of respondents to the June 2017 Libraries' Customer Satisfaction Survey were satisfied or very satisfied with library services. More than 90% said they were satisfied or very satisfied with the quality of the building.

Legislation and Regulation

The key pieces of legislation governing this activity are the *Building Act 1992, Resource Management Act 1991, Local Government Act 2002* and the *Health & Safety at Work Act 2015.*

Likely influences on capital costs are;

- General changes / tightening of requirements of the Building code
- Increasing requirements for Green Star rated building performance
- Seismic performance criteria.

Asset Condition and Performance

TThe Ruataniwha-Kaipoi Civic Centre was rebuilt after the Canterbury Earthquakes and completed in 2015. The Oxford Library rebuild was completed in 2017.

Both of these buildings are in excellent condition, performing well and fit-for-purpose, in terms of design and functionality.

The Rangiora Library was mostly built in the 1990's. The new build was joined onto an existing building which is now used as an art gallery and meeting room. The exterior is in good condition and overall the interior is in good to fair condition. Some equipment, such as the boiler, is only in fair condition due to age and wear and tear.

Renewing Infrastructure

Figure 5.19 shows the indicative renewals forecast over 150 years.

The call on renewal expenditure for the new Oxford and Kaiapoi buildings is anticipated to be low through until 2048. Beyond this a 70-year cycle of building replacement is proposed.

A building extension is planned for the Rangiora Library in 2024/25. Any necessary renewal work will be included in this project.

Providing for Growth and Changes to Levels of Service

The Oxford and Kaiapoi buildings have good capacity to cope with growth over the next 30 years.

The Rangiora Library is nearing its capacity as the District's population increases. A community facilities assessment completed in 2017 recommended that the Rangiora Library's footprint of 1,415 m^2 be expanded by 1,200 m^2 to make a total capacity of 2,615 m^2 to accommodate growth through to 2048. The project has a budget of $7.2 million and is planned for the 2024/25 year.

A new Library and community facility is planned for the Woodend/ Pegasus area to cater for an anticipated

Figure 5.19 150 year replacement cost forecast for Libraries (in 2018 $)

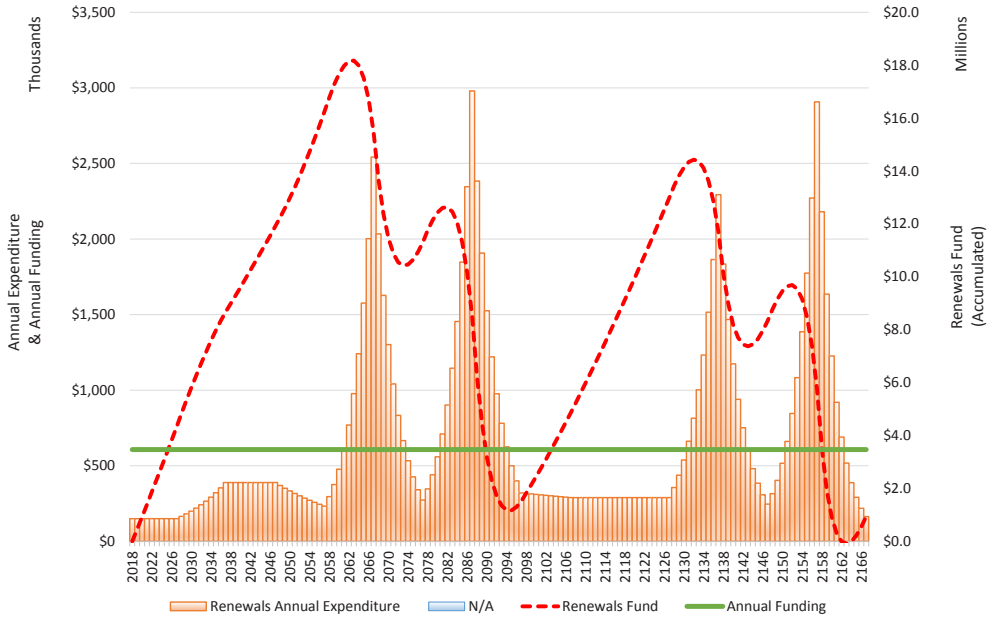
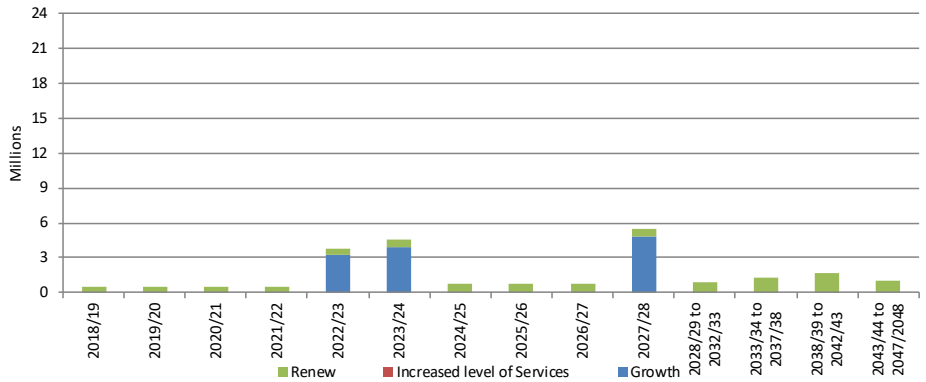


Figure 5.20 Projected Capital Expenditure - Libraries (Inflation Adjusted)



community of 12,000 people in 2048. It is proposed this facility be built in 2027/28 at an estimated cost of $4.8 million.

Proposed Total Capital Expenditure

The renewals planned for the Rangiora Library, as part of the refurbishment project, will in part extend the life of the existing building and the timing of ongoing renewals is heavily influenced by the substantial extension in 2024/25.

Ongoing renewals and refurbishments, shown in figure 5.20, are proposed on a cycle of between 15 and 20 years with a larger mid-life spike where more significant renewals are catered for at intervals of around 35 years.

Current Strategic Issues and Priorities

- The main strategic issue in the near future is ensuring facilities are sufficient to cater for the expected population growth over the next thirty years. The proposals to expand the Rangiora Library and build a new facility in Woodend/Pegasus are intended to provide for this.
- There is also a possibility that the proposed extension of the Rangiora Service Centre could, in some way, integrate with the Library extension and better utilise the connection through to Victoria Park. This will need to be assessed prior to detailed design commencing for the Rangiora Library.

Future Challenges and Emerging Issues

- Clear criteria will need to be established as part of the design process for new buildings and refurbishments to allow cost-benefit analysis of new technologies and design solutions. The environmental impacts of facilities over their life cycle also needs to be better understood.

6. Thirty Year Strategy

6.1 The Organisation's Priorities

The Council's overall priorities are to continue to:

- Provide appropriately for growth
- Achieve a balance between community expectations and affordability
- Plan for natural hazards and climate change
- Move towards a sustainable future.

Within this framework specific priorities, in no particular order, are to:

- Complete earthquake recovery and progress the regeneration programme
- Complete infrastructure expansion/ improvements required to cater for population growth
- Manage flooding risk
- Allow borrowing 'headroom' for natural disaster mitigation
- Progress applications for global stormwater consent
- Continue to provide a range of community and recreation spaces and facilities.

6.2 Asset and Service Management Strategy

In providing services to residents and visitors through the use of infrastructural assets, Council's management strategy is to:

- Maintain the current agreed levels of service and ensure targets are met
- Complete programed increases in levels of service for water, wastewater and drainage
- Maintain the assets in an acceptable condition
- Accommodate growth in the District by strategically aligning the provision of services to identified land use/availability
- Improve resilience
- Improve operational efficiencies
- Embed sustainability principles into Council practice.

This is achieved through developing and implementing a Sustainability Strategy, tracking progress with the implementation of the Asset Management Policy adopted by Council in 2016 and funding operations, maintenance, renewals and new works programmes.

Operation and maintenance expenditure incorporates the day to day running of the infrastructure networks and allows these systems to carry on functioning to deliver the agreed levels of service, as well as operational efficiency to be improved.

Renewal expenditure is work that restores the systems to their original state rather than increasing the capacity or standard of the existing assets and is funded from a budget generated by the depreciation component of the rates.

New works are funded through a capital works programme developed using some or all of the following sources:

- Capacity assessments. These provide details about any shortfalls and new works are prioritised to address these. This is primarily driven by growth
- Levels of Service. These highlight any deficiencies in the quality of service provided to customers
- Risk Assessments. These provide information about the highest risks to each scheme based on a range of different events and causes. Works are programmed to mitigate extreme or high risks
- Criticality assessments. These provide a measure of the importance of an asset to the overall scheme. Highly critical assets have a lower threshold for action, such as proactive inspection and rehabilitation, compared to low criticality assets
- The Disaster Resilience Assessment Action Plan. This provides a prioritised list of actions to improve resilience against a number of potential disasters. These are included in new works programmes where necessary.

The average age of Council's infrastructure is relatively new, with the vast majority of infrastructure not due for replacement until after 2050, and most of that renewal not due until late in the 21st century. The Council has introduced a Depreciation Policy that aims to provide for the replacement of the asset over its life and ensure sufficient funds are set aside to enable the long term renewal of assets.

The funding regime will see sufficient money collected from rates, through depreciation funding, to ensure renewals can be funded without any significant loans needing to be raised for this work.

Historically the Council has designed a renewals programme based on replacing assets nearing or at the end of their remaining useful life. As Council asset management planning becomes more sophisticated, the assessments and criteria informing renewal programmes are becoming more complex, moving the Council away from programmes predominantly based on theoretical design life assumptions to evidence-based performance programmes.

Like all other councils, the Waimakariri District Council 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. The Council is therefore moving away from a reactive replacement and maintenance approach by employing optimisation analysis and co-ordinating work programmes.

Combined Renewals Forecast

The combined renewals forecast shown without inflation in figure 6.1, shows that the average replacement cost is approximately $15 million per annum over the period of the 30 Year Infrastructure Strategy, and there is an expected peak of approximately $24.5 million in the 150 year forecast.

6.3. Cost Effective Delivery of Services

In terms of section 10 of the Local Government Act 2002 (Purpose of local government) there is a clear requirement:

(1)(b) 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.

(2)In this Act, good-quality, in relation to local infrastructure, local public services, and performance of regulatory functions, means infrastructure, services, and performance that are -

(a) efficient; and;

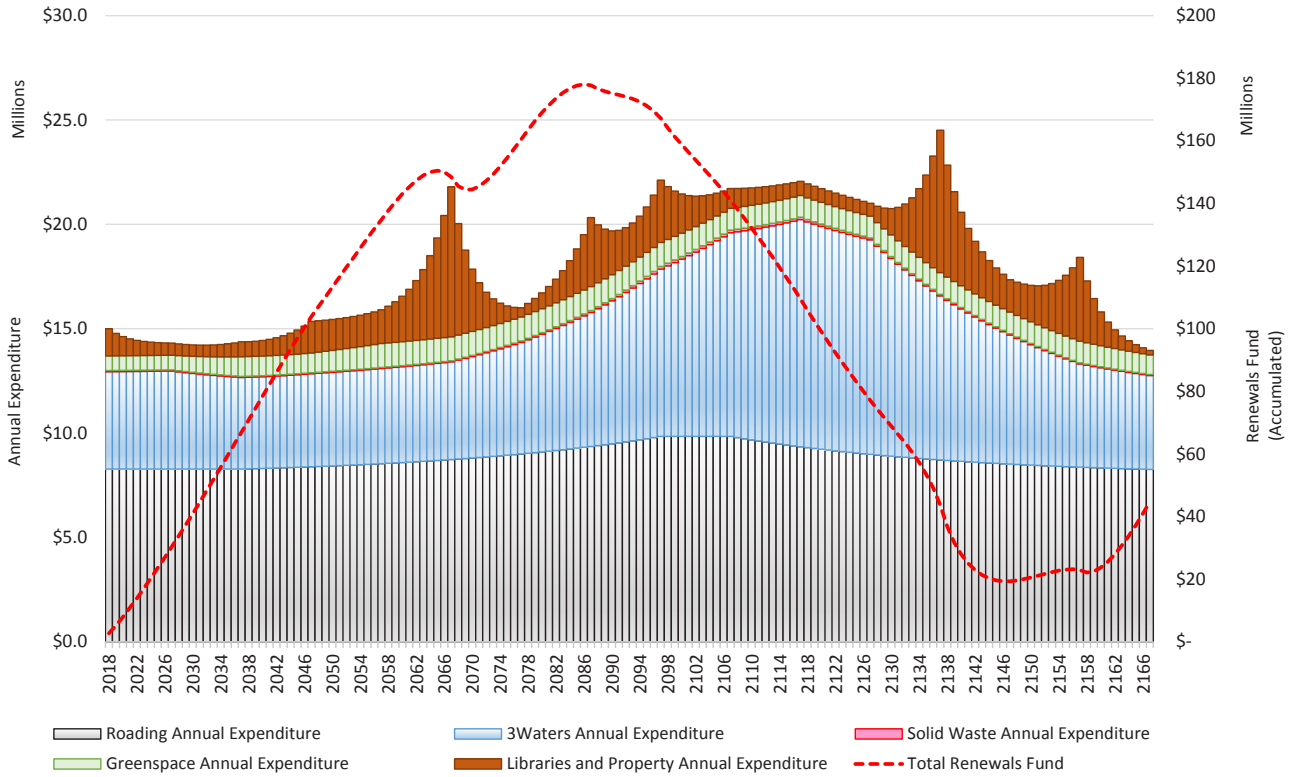
(b) effective; and;

(c) appropriate to present and anticipated future circumstances.

In order to ensure the delivery of services is efficient, effective and appropriate, the Waimakariri District Council has:

- Undertaken Section 17A service reviews for all of its core activities over the past two years
- Developed an asset management policy that requires all activity groups covered by the policy to prepare activity management plans that reflect the strategic directions outlined in the Council's Infrastructure and Financial Strategies
- Established an asset management steering group responsible for implementing the policy, including the development of a corporate asset management improvement programme and procedural guide
- Prepared independently peer reviewed asset management plans that reflect asset criticality and contain continuous improvement programmes for maintaining and improving asset-based levels of service
- Closely monitored growth and development demand and made financial provision for trunk infrastructure in its LTP to meet reasonably foreseeable servicing requirements in time

Figure 6.1 150 year replacement cost forecast for combined assets (in 2018 $)



- Adopted a Procurement Policy to ensure the capital expenditure programme is managed through competitively tested market processes.

Some changes the Council has made to provide more efficient cost-effective services are as follows:

- The Council has recently incorporated all the asset and financial information within one software system to provide more reliable recording and reporting. When fully implemented this new system will also provide for better monitoring and analysis of assets, and development of improved capital and operational maintenance programmes
- The Council is changing some of its renewal techniques, for example, pull through linings are being used to extend the lives of sewer assets
- A "mobility" project which equips field staff with tablets that enable the direct entry of data
- Astroturf technology has replaced some grass playing field surfaces to extend playing time and avoid the need for recovery time. When combined with the proposed sports fields upgrade programme the Council will be able to make more efficient use of these assets and therefore respond better to increasing demand from a growing population.

Other changes the Council is implementing or considering are:

- Shared services/collaborative approaches/strategic partnerships such as the Christchurch Transport Investment Story – July 2017, which provides an integrated approach to planning, prioritising, implementing and managing the transport system in Greater Christchurch
- Offering hydraulic modelling services to a neighbouring smaller local authority on a consultancy basis, that will enable enhancement of technical skills within the Project Delivery Unit
- Introduction of optional additional kerbside waste collections in the form of wheelie bin services for refuse and organics, to augment the existing recycling service
- Amalgamating small water and wastewater schemes to reduce costs, increase resilience and in some cases provide a higher level of service. For example, the Fernside water supply is being joined to the Mandeville scheme, and the Woodend/Pegasus schemes are to be connected
- Merging activities and supplies.

The Council has also benefited from changes to Government purchasing systems which have provided it with greater purchasing leverage and access to cheaper electricity supplies.

In terms of sustainability, the Council takes account of the current needs of people and communities, the reasonably foreseeable needs of future generations,

and the need to maintain and enhance the quality of the environment.

The value and life expectancy of all assets are determined and used to value annual depreciation. This ensures that current ratepayers fund their portion of the use of an asset.

The Council also uses optimised decision making for its assets with the objective of achieving agreed levels of service at least cost. The process considers the costs of buying and maintaining assets over their complete lifecycle, and also includes risk assessment.

The Council applies differing levels of optimisation to projects, depending on the relative value (or effect on ratepayers) of a project, the risks, the degree of public interest, and when the works are planned.

The timing of a project is an important factor in selecting an appropriate level of optimisation, if the length of time before the project is undertaken substantially increases the likelihood of something changing, such as the predicted growth, the project cost, or even the need for the solution.

6.4 Significant Decisions Required

Taking a long term view to the management of infrastructural assets, the Council consulted within the Draft LTP and made some key decisions. In addressing community desires and priorities, Table 6.1 shows the key decisions that were made from consultation.

Table 6.1 Indicative timeframe of key decisions

Key Decision	Indicative Timeframe
Provide $27.9M for a new Multi-Use Sports Facility in 2018/21	This year as part of LTP deliberations (2018)
Undertake a planned Rangiora Library extension	Within 4 years (2022)
Provision for long term Council accommodation	Within 7 years (2025)
Identifying site(s) for park n' ride	Within 7 years (2025)
Programme of work to enhance urban stormwater discharges	Within 7-17 years (2025-2035)
To build a new library community space to service Woodend/Pegasus	Within 9 years (2027)
To upgrade the transfer station at the Southbrook Resource Recovery Park	Within 19 years (2037)
Confirmation of the need for the eastern arterial route	Within 21 years (2039)
Old Waimakariri Bridge consideration	Within 26 years (2044)

7. Significant Infrastructure Projects

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

(2) The purpose of the IS is to -

(a) identify significant infrastructure issues for the local authority over the period covered by the strategy; and

(b) identify the principal options for managing those issues and the implications of those options.

In developing this 30 Year Strategy Council identified the anticipated significant infrastructure issues over the 30 years and considered each significant action and the benefits of the action. Projects that have been determined to be 'significant' generally have a value of $1million or more.

The significant infrastructure issues faced by Waimakariri District Council and the benefits and costs of these are outlined as follows.

7.1 Water Supply

The Council's principal goal for the Water activity is:

To provide community water supplies that are affordable, safe and reliable and that provide capacity for anticipated growth, and for improved drinking water quality.

While there is an identified ongoing programme of capital works for the water supply activity, only one of the individual projects meets the agreed threshold of 'significance' due to the value, and probable level of community interest in it. Planned capital works include providing connections to new growth/development areas, renewing facilities and renewing water mains in private properties.

Water Supply Capital Projects

Growth Increased level of Services Renew

Table 7.1 Key Water Supply Capital projects

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
Operational Limitations	Upgrades to link Woodend water supply to the Pegasus water supply.	Improve resilience and operational efficiencies. Offset capital upgrades required if schemes remain separate.	$1.0M	Completion 2019-2020		✓	
	Assumptions:	The successful pilot trial of converting the Pegasus headworks to a biological filter, is an indication that full scale conversion will be successful.					
	Alternative option/s:	Continue to operate Woodend and Pegasus water supplies as individual schemes.					
Operational Limitations	Including a provisional budget for the implementation of Ultra Violet treatment for all District water supplies currently without UV treatment. (In response to the Havelock North water supply inquiry recommendations)	The Council will be financially ready to meet any legislative requirements to improve treatment of drinking water. Council will also be in a position to decide to proceed with the UV implementation independently of legislation should it choose to do so.	$7.6M	2018/19 to 2021/22		✓	
	Assumptions:	That the outcome of the Havelock North water supply inquiry will be legislation requiring Councils to meet higher standards of treatment for drinking water supplies					
	Alternative option/s:	Alternative options that could be considered will depend on the Government's response to the inquiry recommendations					

7.2 Wastewater

The Council's principal goal for the Wastewater activity is:

To provide reliable and efficient wastewater treatment plants of sufficient capacity to cater for growth and to minimise harm to the environment from the discharge of contaminants to ground or water.

Waste Water Capital Projects

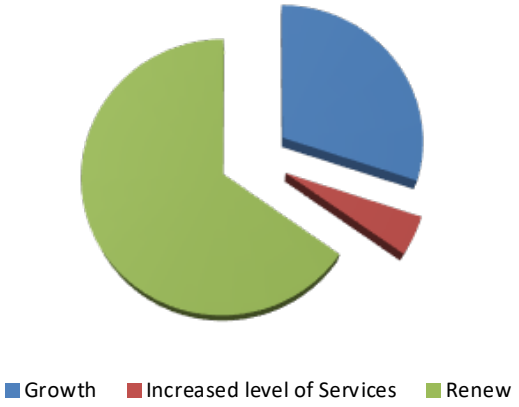


Table 7.2 Key Wastewater Capital Projects

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
Wastewater Network Capacity and Legal Compliance	Rangiora wastewater network upgrades.	Meet levels of service, provide capacity for growth, improve environmental outcomes by reducing wastewater overflows, and replace some aging pipework.	$10.2M to complete	Current upgrades 2018 to 2052 Future upgrades 2049 to 2052	✓		✓
	Assumptions:	Growth will continue as forecast and the programmed works are sufficient to achieve the level of service by 2025.					
	Alternative option/s:	Continue to operate Woodend and Pegasus water supplies as individual schemes.					
Legal Compliance	Rangiora and Woodend wastewater treatment plant upgrades.	Ensure consent compliance with additional loading on treatment plants.	$4.5M to complete (Rangiora) $2.5M to complete (Woodend)	Current programme 2020-2025 Next stage 2025-2027	✓		
	Assumptions:	Growth on the network will proceed as forecast.					
	Alternative option/s:	If growth in serviced properties is slower than projected, the upgrade may be deferred.					
Wastewater Network Capacity	Kaiapoi wastewater network upgrades.	Meet levels of service, provide capacity for growth, and improve environmental outcomes by reducing wastewater overflows.	$18.7M	2018-2032 Construction start 2023	✓	✓	✓
	Assumptions:	Modelling of network deficiencies confirms the estimated budget and indicative timeframe is appropriate.					
	Alternative option/s:	Will depend on the outcome of network modelling to be completed by 2018 and the extent of deficiencies to be addressed.					

7.3 Stormwater

The Council's principal goal for the Stormwater activity is:

To develop public drainage infrastructure that is effective and efficient in reducing risks of flooding to residential areas and business zones.

Stormwater Capital Projects

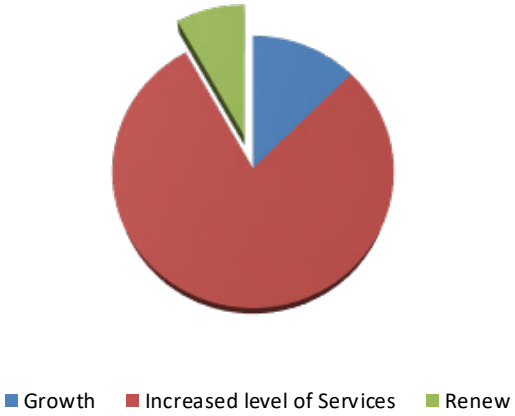


Table 7.3 Key Stormwater Capital Projects

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
Legal Compliance	Global stormwater consent applications (stage 1).	Meet requirements of the Land and Water Regional Plan.	$150K	2018-2019		✓	
	Assumptions:	The budget is sufficient to fully cover the application process and any investigations required to obtain the consents.					
	Alternative option/s:	Support the work of the Canterbury Stormwater Consent Steering Group in obtaining efficiencies and cost reductions to the consent process.					
	Global stormwater consent implementation (stage 2).	Meet requirements of the Land and Water Regional Plan, and improve environmental outcomes for waterways.	$21.4M provided (Could cost over $100M)	2025-2036		✓	
	Assumptions:	ECan accept affordability is sufficient reason to delay starting implementation until 2025, and that full implementation will be a long term process.					
	Alternative option/s:	Identify affordable approaches to stormwater management and treatment through on going negotiations with ECan, Ngāi Tahu and other industry and community stakeholders.					
Stormwater Network Capacity	Increased level of service including flood mitigation and protection programme of works.	Protection of public and private property and improved stormwater management.	$4.3M (Rangiora) $9M (Kaiapoi) $2.5M (rest of district)	2018-2023 2018-2024 2018-2026		✓	
	Assumptions:	The Flood Team investigations to date have determined and made provision for the most cost-effective and practicable option to address each issue.					
	Alternative option/s:	Further investigations reveal other options that could alleviate known flooding issues.					
		Maintain current levels of service including for flood mitigation and protection.					

7.4 Roads and Footpaths

The Council's principal goal for the Roads and Footpaths activity is:

To plan, develop, improve and maintain the District's roads, footpaths, cycleways and passenger transport facilities to provide an affordable, integrated, safe, responsive and sustainable transport network. The activity contributes to the attainment of high quality natural, living and productive environments within the District and assists development of a strong sense of community.

Roads and Footpaths Capital Projects

Table 7.4 Key Roads and Footpaths Capital Projects

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
Congestion and delays on the Northern Motorway approaching Christchurch	Park 'n' ride infrastructure.	Encourages use of public transport to travel to and from Christchurch, particularly at peak times.	$2M Rangiora $2M Kaiapoi	2025-2027	✓		
	Assumptions:	People will continue to travel to Christchurch for work and education and this trend will continue to grow in proportion to population growth. This project is part of a wider Travel Demand Management programme promoted by the Greater Christchurch partners.					
	Alternative option/s:	Alternative locations for park 'n' ride in Christchurch. Will not address future capacity issues on the Waimakariri River bridge. Continue to build road capacity for private vehicles. Likely to be prohibitively expensive. NZTA/Christchurch City Council provide this infrastructure instead of the Waimakariri District Council.					
Traffic safety - poor alignment with tight curves combined with narrow constrained bridge resulting in high crash history	Skew Bridge upgrade/ realignment, including associated road improvements.	Reduced crash/ injury risk.	$7M	2019-2021	✓		✓
	Assumptions:	Traffic volumes on the route will continue to grow.					
	Alternative option/s:	Provide signs to give warning and guidance to drivers but this will only partially mitigate the risk. Encourage use of alternative routes such as Southbrook and Lineside Roads. Will exacerbate existing capacity issues on this route.					
Heavy vehicles on West Belt result in loss of amenity and safety in residential areas **Congestion on existing Southbrook Road/Lineside Road route**	Connector road between Lehmans and River Roads.	Manage impacts of traffic growth on residential area. Provide alternative route between north-west Rangiora and Fernside Road/ Flaxton Road/ Skewbridge route.	$2M	2024-2026	✓	✓	

Table 7.4 Key Roads and Footpaths Capital Projects (cont.)

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
	Assumptions:	The land will be able to be acquired. Volumes of through traffic, including HPMVs, will continue to grow. Other improvements to Fernside Road/ Flaxton Road/ Skewbridge route proceed.					
	Alternative option/s:	Smooth existing road but this is not a long term solution as sealed surfaces degenerate. The sealing of River Road is also not a long term solution as it does not readily connect to the residential area in north-west Rangiora and has a narrow formation and number of tight curves. This road alignment is not suitable for large numbers of heavy vehicles.					
Aging Infrastructure - Poor level of service for pedestrians and cyclists	Share of replacing old Waimakariri bridge.	Ensure continuity of service.	$10M	2044-2046			✓
	Assumptions:	The bridge is planned for replacement about 2044. Pedestrian and cycleway on motorway bridge will proceed and therefore reduce the demand for walking and cycling on the old bridge. CCC and NZTA will approve funding for their share of the replacement.					
	Alternative option/s:	Extend the life of the bridge by carrying out more major maintenance and strengthening work although this option will only delay the need for replacement.					
Traffic Congestion on Southbrook Road	New eastern arterial in Rangiora.	Manage impacts of growth.	$10M	2039-2041	✓		
	Assumptions:	Significant growth to the north-east of Rangiora.					
	Alternative option/s:	Further optimise existing network eg: direct traffic to existing Woodend network. A significant proportion of traffic on Southbrook Road has an origin or destination within Southbrook, rather than travelling on SH71 (Lineside Road).					

7.5 Solid Waste

The Council's principal goal for the Solid Waste activity is:

To provide an effective and efficient service for households and businesses to dispose of waste and encourage practices that minimise waste generation.

Solid Waste Capital Projects

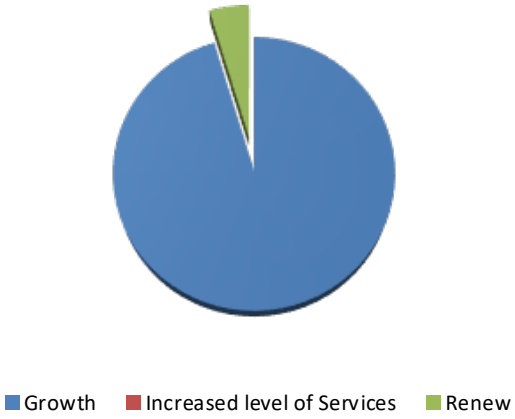


Table 7.5 Key Solid Waste Capital Projects

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
Capacity **Health and Safety**	Southbrook RRP reuse & recycling area expansion and education centre.	Improves LOS and waste minimisation. Reduces health & safety risks.	$1.7M	2018-2022	✓	✓	
	Assumptions:	Customer usage will increase in relation to population growth.					
	Alternative option/s:	Provide satellite recycling stations for rural customers but this increases the risk of illegal dumping, contamination, and transportation costs to bring recycling to SRRP for consolidation..					
Capacity **Levels of Service**	Purchasing land for future expansion and screening from adjacent site.	Reduces risk of wind-blown refuse, provides visual screening of site operations and caters for future growth.	$1.79M	2019-2023	✓	✓	
	Assumptions:	District growth will continue to generate waste growth and the need for greater processing capacity.					
	Alternative option/s:	Increase capacity within the current site footprint, or open an additional site within the District.					
Capacity	Southbrook RRP disposal area upgrade.	Maintains compliance. Improves LOS and waste minimisation. Reduces waste going to landfill.	$1.7M $3.5M	2018-2021 2037-2040	✓	✓	✓
	Assumptions:	Waste quantities will continue to increase in proportion to projected population increases and business development, despite changes to kerbside collection methodology, requiring an upgrade of the refuse pit by 2037. The first upgrade will include space/facilities for increased diversion of 'dry' waste, renewal of the rubbish pit floor and diverting the exit road away from the service vehicle working area. New technologies and markets will make diversion of more materials cost-effective. Facilities will be required to enable diversion and potentially the initial processing of those materials. Future facilities will include equipment to undertake automated sorting to replace the principally 'manual-mechanical' sorting planned for the first upgrade. This will enable more materials to be sorted and diverted from landfill.					

Table 7.5 Key Solid Waste Capital Projects (cont.)

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
	Alternative option/s:	The pit upgrade could be delayed until necessary for capacity. This is expected to be 2022 if there is no change to the collection methodology and 2042 with diversion and new collection methodology. Future works will come at a higher cost, the pit floor will need continual maintenance until it is upgraded which disrupts customers and transportation to landfill and there is no space in the current configuration of the pit to allow for diversion of materials. The shared service area currently presents Health and Safety risks to customers which are being managed through traffic control measures such as speed bumps & flexible bollards. There is potentially a need for stop/go control of customer vehicles. Not upgrading the facilities means a wider variety of materials will not be able to be separated. Building facilities at a separate site will involve costs for land purchase and consenting and there is the potential for additional transportation costs. A partnership could be formed to construct and operate facilities on a cost-share basis, either at the SRRP or another location.					

7.6 Green Space and Aquatic Facilities

The Council's principal goals for the Green Space and Aquatic Facilities activities are:

To provide sports grounds and reserves to enable many recreational opportunities for communities as well as protect and enhance areas of indigenous vegetation.

To provide buildings and halls as community focal points and meeting spaces for events, gatherings and recreational activities.

To provide aquatic facilities to enable recreational and educational opportunities for communities.

To connect people with information, encourage social interaction, empower individuals and promote recreational reading.

Green Spaces Capital Projects

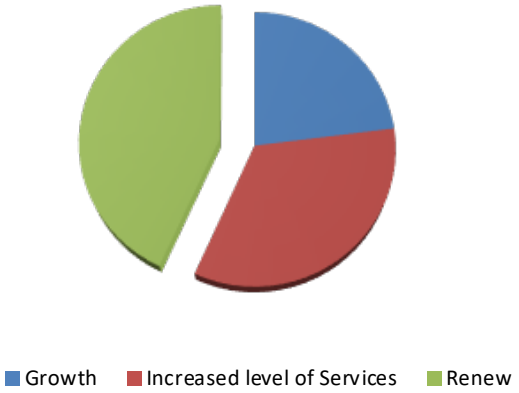


Table 7.6 Key Green Space Capital Projects

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
Sports Court Capacity	Multi-use sports facility.	Manage impacts of growth and levels of service shortfall.	$27.85M	2018-2021	✓	✓	
	Assumptions:	Trends regarding sports participation remain as predicted in the Indoor Court Feasibility Study. A Sports Facilities Strategy has also been completed in 2017 which has further supported the current and future need for indoor court provision.					
	Alternative option/s:	Not respond to the identified need which will lead to a reduction in levels of service.					

7.7 Property and Libraries

The Council's principal goals for the Property, Housing & Libraries Space activities are:

To provide safe, warm and affordable housing for targeted elderly citizens and support a small targeted group of families saving for home ownership.

To support efficient and effective administrative and governance functions by providing office and service centre spaces that appropriately meet the physical accommodation needs of Council staff, customers, governance and other stakeholders, as well as spaces for public meetings and official occasions.

To provide a variety of high quality learning, information and recreation resources, in print and electronic format, available to the public in the libraries at Rangiora, Kaiapoi, and Oxford, and via the libraries website.

To inform, inspire, empower, entertain and sometimes challenge library users, connecting them with their community, their culture, their heritage, their futures and the world in which they live.

Housing Capital Projects

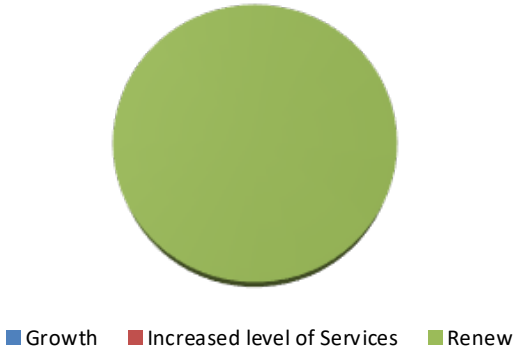
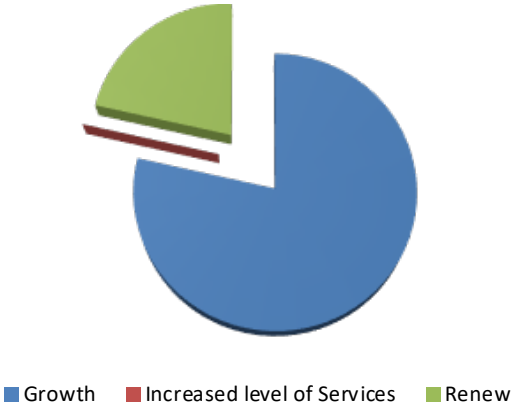


Table 7.7 Key Property & Libraries Projects

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
Library Capacity	New Library and community space Woodend / Pegasus.	Manage impacts of growth.	$3.9M	2027/2028	✓		
	Rangiora Library extension.	Manage impacts of growth.	$6.5M	2022/23 to 23/24	✓		✓
	Assumptions:	Current provision will be able to cater for population growth until 2028. The proposed mix of Library provision will remain relevant despite the increasing access of individuals to technology.					
	Alternative option/s:	Options exist to lease space in Ravenswood/ Pegasus but a new Council owned facility is a more cost-effective approach long term. Decisions about the future expansion of the Council's Rangiora Service Centre may also impact design options for Rangiora Library					
Council HQ Capacity	Rangiora Service Centre alterations.	Address functional obsolescence. Manage impacts of growth.	$2.3 M $1.6 m	2018/19 2019/20	✓		✓
	Rangiora Service Centre extension	Manage impacts of growth.	$18 M	2029/30	✓		
	Assumptions:	WDC as an entity continues with a similar a structure over the 30 years. The Farmers office space lease cannot be extended beyond 2029. Provision will be able to cater to demand drivers of population growth until 2029.					
	Alternative option/s:	Leasing additional accommodation, both short term & in relation to the proposed extension to the existing building, could alleviate pressure but is less cost-effective over the long term and compromises organisational performance and customer service. A completely new HQ / public space building is likely to be close to $40 million. If an extension to the HQ is approved, the option of developing this in conjunction with the library extension would be explored.					

Libraries Capital Projects:

Service Centres Capital Projects:



7.8 Other Significant Projects

Several multi-disciplinary infrastructure projects, such as the earthquake recovery and regeneration programmes and town centre revitalisation, have been identified as significant capital projects because of the impact they have on the overall financial picture, or their significance to the community. These have been included in the table below.

Table 7.8 Key Other Significant Capital Projects

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
Post-quake Infrastructure Recovery	General earthquake recovery (this includes roading, water, sewer, reinstatement of the Kaiapoi Riverbanks and wharf reconstruction).	Ensure continuity of service. Achieve stated LOS.	$7.2M (utilities) $5.3M (riverbanks & wharf)	2018– 2020		✓	
	Assumptions:	Marine precinct works progress in parallel with adjacent private development, as per current Wharf & Marine precinct masterplan.					
	Alternative option/s:	Elements of the masterplan are scaled down, for example, floating pontoons are not developed or there are reduced levels of service for berthing options. There is substantial revision or additional scope associated with the Kaiapoi Town Centre 2028 Plan Refresh and town centre masterplan.					
	Alternative option/s:	Red zoned land remains undeveloped or is used for another purpose.					
District Regeneration	Regeneration of former Red Zones.	Enhanced environment.	$10M 1.4M	2018/2019-2023-2024 2036/2037		✓	
	Assumptions:	All red zone land will be vested in the Council for maintenance and development as reserve land and other uses, as per the Recovery Plan.					
	Alternative option/s:	Red zone land remains undeveloped and maintained by Council.					

Table 7.8 Key Other Significant Capital Projects (cont.)

Issue	What are we doing?	What is the benefit?	How much will it cost? (in 2018 $)	When are we doing it	Growth	LoS	Renew
Town Centres Growth & Revitalisation	Town Centre Strategies implementation.	Manage impacts of growth. Enhanced environment.	$10M	2035	✓		✓
	Kaiapoi Town Centre Plan (KTC2028) refresh implementation.	Enhanced environment.	$1.8M	2018-2019			✓
	Rangiora Town Centre – public parking.	Manage impacts of growth. Encourage retail activity.	$4M (Rangiora parking building) $2M (public parking)	2019-2020 2022-2023	✓		✓
	Assumptions:	Town centres continue to have a role for local and District populations. Kaiapoi town centre will continue to recover. Rangiora will continue to be the main service town for the District.					
	Alternative option/s:	Restrain investment in town centre enhancement. Red zoned land remains undeveloped or is used for another purpose. Continue to regulate for private on-site parking to meet demand, expand time-limited street parking to encourage parking turnover, or provide car-parking further away from the Rangiora Town Centre.					

7.9 Summary of Significant Infrastructure Issues

The following table is a summary of the most significant Council infrastructure projects planned for the next 30 years.

Table 7.9 Summary of key capital projects 2018 to 2048

No	Significant Infrastructure Projects	Approximate Date Required	Estimated Cost (in 2018 $)	Reason
1	Earthquake recovery	2018/19 to 2019/20	$12.5M total ($7.2M utilities, $5.3M Kaiapoi Wharf & Riverbanks including Murphy Park/rowing precinct)	LOS
2	Town Centres growth and revitalisation	2018/19 (Kaiapoi Town Centre Plan Refresh (KTC2028) implementation) 2019/20 (Rangiora public parking building) 2022/23 (additional parking Rangiora) 2035 (town centres strategies implementation)	$17.8M total $1.8M $4M $2M $10M	Growth/Renewal
3	Increased level of service including flood mitigation and protection programme of works	2018/19 to 2023/24 (Kaiapoi) 2018/19 to 2022/23 (Rangiora) 2018/19 to 2025/26 (District Rural)	$15.8M total ($4.3M Rangiora, $9M Kaiapoi, $2.5M rest of District – rural)	LOS
4	Global stormwater consent applications (stage1) and implementation (stage 2)	2018/19 (stage 1) 2025/26 to 2035/36 (stage 2)	$150K $21.4M (could cost over $100M)	LOS (compliance)
5	Implementation of Ultra Violet treatment for all District water supplies currently without UV treatment.	2018/19 to 2022/23	$7.61M	LOS
6	Rangiora and Woodend wastewater treatment Plant upgrade (treatment pond extensions)	2018/19 to 2027/28 (Rangiora) 2025/26 to 2026/27 (Woodend)	$7M total ($4.5M Rangiora, $2.5M Woodend)	Growth
7	Infrastructure replacements	2018/19 to 2027/28 (all water supply asset renewals across the District) 2018/19 to 2027/28 (all wastewater renewals across the District) 2018/19 to 2027/28 (all drainage renewals across the District) 2018/19 to 2027/28 (all roading renewals)	$16M (water supply) $16.2M (wastewater) $2.9M (drainage) $57.3M (roading)	Renewal
8	Rangiora and Kaiapoi wastewater network upgrades	2018/19 to 2051/52 (Rangiora) 2018/19 to 2031/32 (Kaiapoi)	$28.9M total ($10.2M Rangiora, $18.7M Kaiapoi)	Growth/Renewal/LOS

Table 7.9 Summary of key capital projects 2018 to 2048 (cont.)

No	Significant Infrastructure Projects	Approximate Date Required	Estimated Cost (in 2018 $)	Reason
9	Rangiora Service Centre alterations	2018/20	$3.9M	Growth/Renewal
10	Southbrook Resource Recovery Park refuse pit extension	2018/21 (Southbrook RRP upgrade) 2037/40 (Transfer Station upgrade)	$5.2M total $1.7M (stage 1) $3.5M (stage 2)	Growth/Renewal/LOS
11	Multi-Use Sports Facility	2018/21	$27.85M	Growth/LOS
12	Southbrook Resource Recovery Park reuse & recycling area expansion and education centre	2018/22	$1.7M	Growth/LOS
13	District Regeneration	2018/24 and 2036/37	$11.4M	LOS
14	Upgrade to link the Woodend water supply to the Pegasus water supply	2019/20	$1M	LOS
15	Skew Bridge alignment/replacement	2018/25	$7M	Renewal Growth?
16	Southbrook Resource Recovery Park land purchase	2019/23	$1.79M	Growth/LOS
17	Rangiora Library extension	2022/24	$6.5M	Growth/Renewal
18	Connecting road between River and Lehmans Roads	2024/26	$2M	Growth/LOS
19	Northern motorway congestion – park 'n' ride infrastructure	2025/27	$4M total ($2M Rangiora, $2M Kaiapoi)	Growth
20	New Library and community space - Woodend/Pegasus	2027/28	$3.9M	Growth
21	Rangiora Service Centre extension	2029/30	$18M	Growth
22	New eastern arterial in Rangiora	2039 to 2041	$10M	Growth
23	Share of replacing old Waimakariri bridge	2044/46	$10M	Renewal

All of the above projects are geographically represented on the following map (figure 7.1) apart from those projects which involve numerous different locations, for example, global stormwater consent applications. The project numbers on the map are the same as the project numbers in the first column of the table. Some projects are shown separately on the map where more than one location is involved.

Figure 7.1 Distribution of key capital work projects 2018 to 2048 by location

8.0 Financial Estimates

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

(4)The IS 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.

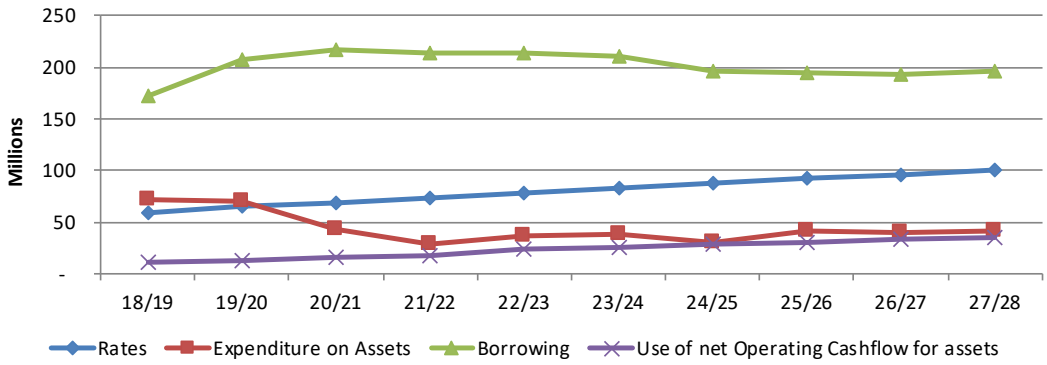
The Council has developed a FS in conjunction with the development of its' 2018-28 Long Term Plan.

The purpose of the FS is to reflect the directions contained in the LTP and IS and to model the financial effects on the Council and the District.

8.1 Funding Depreciation

As shown in figure 6.1, the Council has a significant asset renewal programme forecast to occur later in the 21st Century. The Council's policy for the funding of depreciation means renewals can be comfortably funded from accumulated depreciation funds. The Council's policy is to ring fence funding of depreciation into separate accounts so that the funds can only be applied to renewal of infrastructure. The modelling used to set the level of funding required reflects the Council's ability to invest funds at a rate greater than inflation, without having to pay taxation on interest earned and this means funds will be available when assets are due for renewal.

Figure 8.1 Rates, borrowing and capital expenditure 2018-2028 (including repair expenditure)



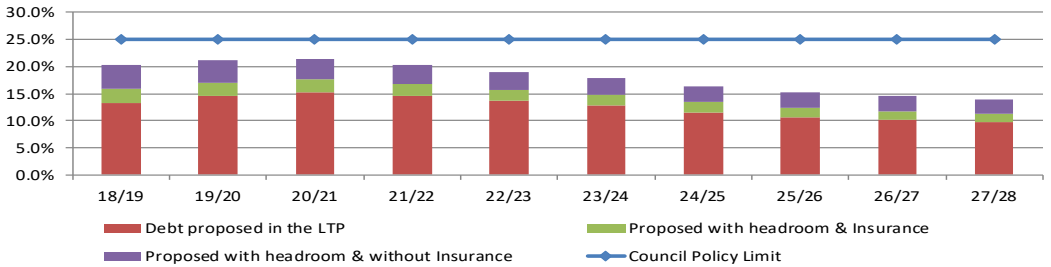
8.2 Rates, Borrowing and Capital Expenditure Trends

Figure 8.1 above shows the trends over the next 10 years for rates, borrowing and capital expenditure. Expenditure on assets includes the costs for renewals, new levels of service and growth as forecast in the IS and LTP.

8.3 Interest as a Percentage of Total Rates Revenue

Figure 8.2 shows interest expense as a percentage of total rates revenue. The Council's policy limit, which is the limit the Local Government Funding Agency recommends, is that interest expense should not exceed 25% of total rates revenue. The graph shows the Council is well within these policy limits even after providing the 'headroom' required to recover from a major natural event

Figure 8.2 Interest to Rates Revenue



8.4 Total Expenditure

The projected capital expenditure associated with the significant infrastructure assets is graphically represented in figure 8.3.

The projected operational and maintenance expenditure associated with the significant infrastructure assets is graphically represented in figure 8.4.

The figures shown in the graphs for each of the five year blocks between 2028/33 to 2043/48 are the average annual expenditure over that period.

8.5 Financial Impacts of the Infrastructure Strategy

The Council has developed its FS as part of the development of its LTP.

The purpose of the Financial Strategy is to reflect the directions contained in the LTP and IS and to model the financial effects on the Council and the District.

The FS is aimed at responding to the needs of the community in an affordable way, while funding long term projects so that future generations, who benefit from community infrastructure, pay their share.

As the District's population increases, the demands for increased levels of service grow, as do the requirements of national standards. There is a constant pressure on rates to fund the increase in levels of service and renewal of a growing infrastructure base. In addition, an ageing population means there is an increasing proportion of ratepayers who are on fixed incomes, placing greater pressure on the affordability of annual rates increases.

The key components of the Council's strategic direction are to:

- Continue to progressively fund the cost of reinstating the Council's community assets to pre-earthquake condition at levels that keep rate increases to a minimum and affordable
- Restrict operating expenditure movements to the rate of Local Government Cost Inflation (LGCI), excluding catering for population growth and improved levels of service
- Maintain debt within policy limits, while maintaining 'headroom' to recover from significant natural disasters
- Maintain the current prudent financial management while still providing high quality levels of service to both current and future generations.

Figure 8.3 Projected capital expenditure for combined infrastructure assets (Inflation Adjusted)

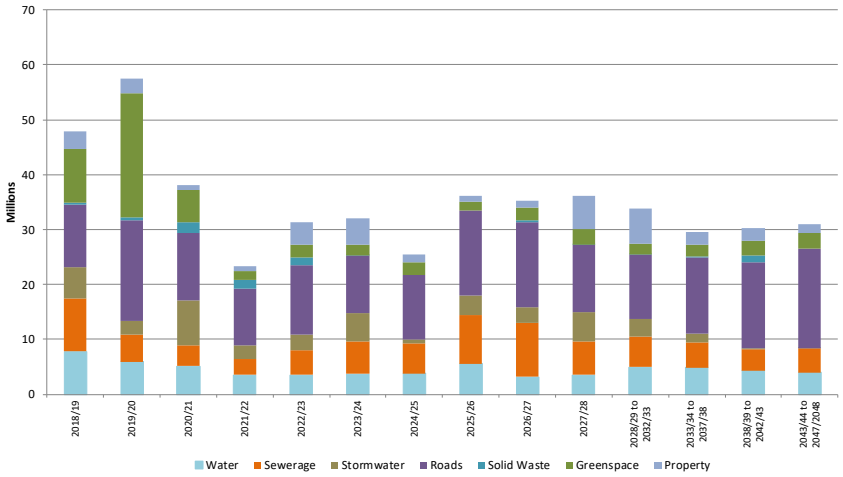
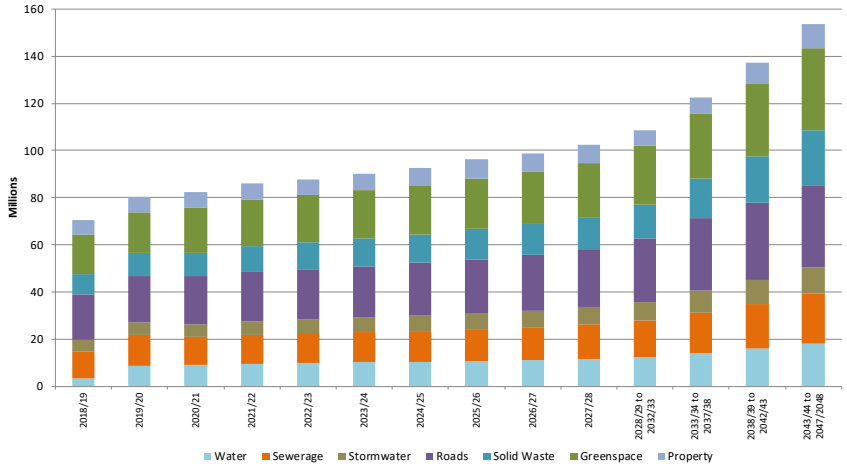


Figure 8.4 Projected operational and maintenance expenditure for combined infrastructure assets (Inflation Adjusted)



MAKING WAIMAKARIRI A GREAT PLACE TO BE

WAIMAKARIRI
DISTRICT COUNCIL