30 Year Infrastructure Strategy

2021-2051

Introduction

This is Timaru District Council's (Council) third Infrastructure Strategy. It has been prepared from Council's 2021 suite of Activity Management Plans and the 2021-31 Long Term Plan (LTP). The Infrastructure Strategy provides a 30 year outlook supporting the long term social, economic, environmental, and cultural well-being of the Timaru District community in the present and for the future.

The issues discussed in this document reflect the current legislative environment and the communities' priorities across the District.

The Timaru District Council Infrastructure Strategy outlines the specific design requirements and the Organisation's priorities in terms of:

- replacing ageing infrastructure;
- maintaining levels of service;
- managing the impacts of growth and land use change;
- compliance with legislative requirements;
- climate change impacts; and
- providing long term affordable services.

Long Term Plan (LTP)

The Council's LTP 2021-31 identified the following four priorities to ensure Resilient Infrastructure. Each of these priorities have been considered and the values incorporated into our 30 year planning:

Invest for Future

- We will invest in high quality infrastructure to meet the needs of our community.

Apply Best Practice

- We will use data and good practice to enable high quality infrastructure decision-making.

Responsive Planning

- We will prioritise resilience in our planning for future infrastructure.

Engage with People

- Council will engage with our community to develop solutions to future infrastructure challenges.

In addition, Council recognises that the 30 year timeframe of this strategy enables a two pronged approach that incorporates:

- Business as usual, and
- Enables a longer term more visionary consideration that supports the Districts desire for growth in demographic, environmental, social, and economic terms.

Our Vision

Where people, place and business prosper within a healthy, adaptable and regenerative environment.

This vision will be achieved by living our values and committing to the four key wellbeings.

Our Values

Inclusive Leadership

Cultural Caretakers

Transition Navigators

Wellbeing

Economic

Environmental

Social

Cultural

Council also acknowledges the requirement to navigate critical 21st century transitions such as:

- Low emissions living
- Living in a disrupted climate
- A low waste society
- Community interconnectedness
- Learning-empowered communities.

All this must be delivered at a time of uncertainty as councils transition the impact of COVID-19.

Strategy Layout

The Strategy document sections and corresponding Local Government Act sections are tabled below:

Table 1: Strategy Layout

Section		LGA 2002 (Section 101B)
1: Introduction	Identifies the purpose of the Infrastructure Strategy, what is included, and previous infrastructure achievements	2(a) and 6
2: Strategic Context	Describes the district, Council's strategic direction and links to other strategic documents	
3: Core Infrastructure and Assumptions	Describe the core infrastructure, its condition and performance while recording the significant assumptions, risks and mitigation	2, 3(e), 4 (c) & (d)
4: Challenges and Emerging Trends	Discuss the emerging issues and challenges that will impact on the core infrastructure assets	3 (b) to 3(e)
5: 30 Year Strategy	Discuss Council's strategy and response to the emerging issues and challenges	2(b), 4(b)
6: Significant Infrastructure Issues and Decisions	Discusses the significant decisions and response options to be made during the term of this strategy for the significant issues and documents the benefits, cost, when and funding sources	2(b); 3(a) to (e) & 4(a) to (c)
7: Financial Estimates	Identifies the costs associated with the actions proposed	4(a)

Infrastructure Strategy Purpose

Local Government Act 2002: Section 101B

This section states that:

(1) A local authority must, as part of its long-term plan, prepare and adopt an infrastructure strategy for a period of at least 30 consecutive financial years.

The stated purpose of the Infrastructure Strategy 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.

Timaru District Core Infrastructure Assets

To achieve our vision and Community Wellbeing Outcomes (CWOS), our District must meet core infrastructure deliverables and we must also provide infrastructure and assets that deliver on quality-of-life experiences. This includes infrastructure such as our library, green space and recreational facilities, our Port and our Airport. These assets make Timaru a great place to live and they enable economic growth and value add to our region. They make Timaru District more desirable as a destination, as a place to do business and as a place to live. These assets contribute to the richness of life in Timaru and make up a significant portion of Council's maintenance and operating expenditure. Our infrastructure is essential for enabling and contributing to the achievement of our five community wellbeing outcomes.

Finally, our Infrastructure Strategy must support our District Growth Strategy, Annual Plan and LTP that presents the Council's blueprint for the delivery of activities over the next 10 years.

The primary focus of this Infrastructure Strategy is on the core Infrastructure assets of Water, Sewer, Stormwater, Roads and Footpaths and Waste Minimisation. Due to the importance for Community wellbeing of other 'liveability' assets, it will also include reference to these where they involve significant cost and are significant to the community (e.g. Replacement of the Caroline Bay Trust Aoraki Centre (CBAY)).

The core Timaru District Infrastructure Assets are tabled with 2018/19 closing book values and in Table 2:

Table 2: Timaru District Infrastructure Assets

Asset	Description	Replacement Value	% of total
Water	Water extraction, treatment and distribution (excluding Downlands Rural Water Supply - $67M)	$252M	15.6%
Sewer	Wastewater collection, treatment and discharge	$303M	18.7%
Stormwater	Stormwater collection and discharge	$203M	12.6%
Roads and footpaths	Roads (arterial, collectors, local; curbs and gutters), bridges, footpaths	$839M	51.9%
Waste Minimisation	Waste Minimisation assets	$19M	1.2%
TOTAL		**$1,616M**	**100%**

TDC Infrastructure Achievements

The following detail improvements achieved over the last ten years:

Water

- Pareora Water Supply Pipeline development
- Downlands water scheme developments
- Water Supply assets upgrading and renewal
- Winchester water supply connection to Temuka scheme (2016-17)
- Temuka water supply trunkmain replacement (2018-19)

Sewer

- Timaru Main Trunk Sewer renewal (MTSR) completion (2004 - 2014)
- Timaru Wastewater Treatment upgrade (2012-2014)
- Queen Street, Timaru pump refurbishment (2014)
- Sewer assets upgrading and renewal

Stormwater

- Preparation of Stormwater Management Plans (2012-now)
- Stormwater upgrading and development (e.g. Geraldine)
- Gleniti stormwater bunds construction (2010-ongoing)

Roading & Footpaths

- Increased knowledge of asset and asset remaining life through increased data capture and analysis
- Collaboration with the Road Efficiency Group and Aoraki Road Collaboration
- Increased resurfacing of roads and renewal of carriageway pavements
- Resurfacing of footpaths and installation of new footpaths
- Renewal of bridges and culverts - Arundel Belfield Road, Arowhenua Road Bridge, Andrews Stream, Casey Ford, Power House Stream Ford, Lyon Road Ford
- Renewal of Kerb and Channel assets – Dunkirk Street
- Arowhenua Road Upgrade, strengthening and widening 2019-2021
- Increased seal widening on under width roads
- Factory Road bridge two-laning (2014-16)
- Route 72 Winchester Geraldine/Coach Tiplady Round About Construction Seal Extensions on – McNair Road, Richard Pearse access lanes and Thompsons Road
- Structural Asphalt upgrade on Marine Parade and other Port intersections
- Washdyke Flat Road Industrial Upgrade, upgraded intersections and other safety improvements Rolling Ridges Road/Basset Road, Spur Road/ Brockley Road
- LED streetlighting replacements completed 2015-2020
- Road reconstructions and improvements (e.g. Geraldine Winchester/Tiplady/Coach Roads intersection improvements)
- Development of on and off-road cycleways (e.g. Old North Road - Washdyke to Gould Road, Timaru)

Solid Waste

- New landfill cell development (Ongoing)
- Resource Recovery Park development (Redruth)
- Waste sorting development (Redruth) (2018-19)

Other Infrastructure

- Timaru District Holdings Limited-Port of Tauranga Joint venture and strategic partnership (2013-14)
- Airport Terminal building and carpark upgrade (2016-2018)

Strategic Context

Timaru District Council

Timaru District Council was formed in 1989 following the amalgamation of the Timaru City Council, Geraldine Borough Council, Strathallan County Council and the Temuka Borough Council.

Currently the Timaru District Council has an elected Mayor and 9 Councillors elected over 3 wards:

- Timaru Ward - 6 Councillors
- Pleasant Point-Temuka Ward - 2 Councillors
- Geraldine Ward - 1 Councillor

There are 3 Community Boards in Geraldine, Pleasant Point and Temuka with 16 elected board members.

Ngāi Tahu as Mana Whenua of Timaru District

Timaru District lies within the traditional boundaries of the Ngāi Tahu iwi. The Ngāi Tahu hapū who hold mana whenua in Timaru District are Kāti Huirapa, whose rohe extends over the area from the Rakaia River in the north to the Waitaki River in the south. Arowhenua is the site of the tipuna marae of Kāti Huirapa, and the Papatipu Runanga that represents the hapū is Te Runanga o Arowhenua. Mana whenua rights and obligations held by Kāti Huirapa include rangatiratanga and kaitiakitanga in relation to management of natural and physical resources.

Geography and climate

Timaru District covers 2,737 square kilometres of South Canterbury. Two rivers naturally define its northern and southern boundaries, the Rangitata and Pareora, with the district stretching along the South Canterbury coastline.

Timaru District is the fourth largest district by population and sixth largest by area in the Canterbury region. It has a population density of 16.5 persons per square kilometre.

The District enjoys a temperate climate, with Timaru enjoying an annual average of around 1,826 hours of sunshine and 573mm of rain.

Demographics

The population of the Timaru District was estimated at 48,400 in 2020. The population is concentrated around Timaru township (2018 population approximately 30,000 - including Fairview and Washdyke) and in the smaller townships of Temuka (4,330), Geraldine (2,700) and Pleasant Point (1,400). The District also has a number of villages including Pareora, Orari, Cave, Winchester and Woodbury.

Population growth is expected to grow more in the early years of the strategy (0.7% average annual change) than the later years (0.3% average annual change).

A strongly aging population continues to be a challenge the District will face. Based on projections between 2021-2051, those 65+ will nearly double (22.3% to 32.3%), while within this cohort, those 75+ will more than double (9.9% to 20.1%).

This demographic will impact infrastructure requirements such as roads and footpaths and recreational facilities and public areas.

The Timaru District continues to have a low unemployment rate, despite COVID-19.

Residential land use activities in the Timaru District have previously been centred in the urban centres, townships, and settlements. However, in recent years there has been an increase in the proportion of residential activities being undertaken on relatively small rural allotments, or 'lifestyle blocks', in rural areas. This has resulted in some dispersal of population across the District. While this dispersal

creates demand for additional council infrastructure, this is currently against Council policy.

In 2016, the Council published a Growth Management Strategy (GMS), the purpose of which was to outline a clear vision of how land use and growth will be managed between the date of publication and the year 2045. The GMS determined that future growth should be consolidated around the existing settlements of Timaru, Temuka, Geraldine and Pleasant Point, with well-integrated infrastructure. It also recommended encouraging increased density of residential activities in Timaru and Geraldine town centres, and surrounding Highfield Village Mall. The GMS informs the Proposed District Plan, scheduled for release in 2021.

Our Economy

The Timaru District economy is strongly influenced by its agricultural heritage. The District is acknowledged as New Zealand's "food bowl" with a focus on dairy, horticulture, intensive cropping, meat and wool.

Significant manufacturing, processing, engineering and distribution operations contribute to extensive export and domestic supply of a wide range of goods and services. Much of this manufacturing industry is linked to value add or servicing of the agricultural sector. This industry relies upon strong transport and distribution connections, such as that provided through roading, port and airport assets.

The wider South Canterbury region enjoys reliable and accessible water for irrigation and industry. This continues to provide the impetus for the development and growth of successful food processing and exporting operations. Large scale investment in water storage, quality and management is continuing, helping to ensure a robust, diverse economic future for the District.

Our Communities

Our communities are well serviced with education, health and recreational services along with a vast range of clubs and organisations. The South Canterbury District Health Board is the major health provider, with ARA Institute of Canterbury providing some tertiary education services. ARA will be part of the national NZ Institute of Skills and Technology.

Community and Open Space

The Timaru District has a network of parks, gardens, esplanade reserves, open space areas, and active recreation facilities to cater for the recreational requirements of its residents, as well as to contribute to the pleasant visual amenity of the area. In addition to sports grounds and public open areas, the Council also owns and/or operates the Caroline Bay Trust Aoraki Centre, public pools, dog exercise areas, and several walking and cycling tracks.

Other social or recreational facilities operated by the Council include: Aigantighe Art Gallery, South Canterbury Museum, district libraries, a number of town halls, Caroline Bay Hall, Washdyke Community Centre, Temuka Alpine Energy Stadium, and the Southern Trust Events Centre.

Cemeteries have previously been zoned for open space and recreation.

Business Zones and Centres

In Timaru, retail, professional and commercial operations are centred in the Central Business District, which is centred on Stafford Street and the surrounding area, and serves the wider District. The area known as Showgrounds Hill in northern Timaru is intended to be developed into a big box retail centre over the next few years. The smaller rural settlements such as Temuka and Pleasant Point are rural service towns that primarily support the needs of the surrounding rural area. They generally contain small-scale commercial activities, community facilities and education facilities that service the surrounding neighbourhood, such as convenience stores, churches, schools, and health centres.

Industrial areas in Timaru are located on the outskirts of the urban area, at Redruth to the south, Washdyke to the north, and in the area surrounding the port and railway to the east. In some cases, these industrial areas adjoin residential areas, which can result in conflicts arising between residential activities and industrial activities. Industrial areas have traditionally been separated between 'light' and 'heavy' activities.

Temuka has a reasonably sized industrial precinct on the town's southwest border. Geraldine has industrial areas to the southwest of Talbot Street and adjacent to the Village Green. In Pleasant Point, industrial operations tend to centre on Te Ngawai Road, with some near the commercial operations on State Highway 8. There are also industrial sites in more rural areas such as the Fonterra factory at Clandeboye, and the Barkers processing factories near Geraldine.

The Growth Management Strategy identified that existing industrial land is considered sufficient to cater to future industrial growth in Temuka or Pleasant Point and that there is no additional land required for business and commercial uses.

Natural Hazards and Climate Change

A large part of the plains within the Timaru District is subject to some degree of flooding risk, either because of river breakouts or overland flow from local sources. Low lying land near the coast, particularly from Washdyke Lagoon to north of the Ōrāri River, are at risk of seawater inundation. Much of the coastline, with the exception of Caroline Bay and South Beach, is subject to historic and ongoing coastal erosion and accretion. The effects of erosion may be seen at Patiti Point and Washdyke.

River and local runoff flooding events have had significant impact historically and are the most frequent hazard faced by the district. Managing coastal hazards is a growing area of concern as ongoing coastal erosion, forecast climate change and sea level rise will put developed coastal land and infrastructure at increasing risk.

The district is at risk from earthquake shaking from earthquake faults both within and beyond the district. There are several mapped earthquake faults along the base of the foothills and in the upper Rangitata Valley. In addition to potentially generating strong earthquake shaking, these faults also pose a fault rupture hazard – that is when the ground along the fault and a few metres either side of it is permanently ripped, warped, buckled and offset when the fault ruptures (moves). There are some low-lying coastal areas, such as around Washdyke, Waimataitai and Saltwater Creek, that could be susceptible to liquefaction during strong earthquake shaking.

While there are no known faults directly off the Timaru coast, the coastline of the district is vulnerable to tsunamis from offshore Fiordland and the North Island's east coast, as well as from across the Pacific Ocean.

Steep areas of the district, such as the Rangitata Valley and coastal cliffs around Timaru, are susceptible to landslides and rockfalls, and the steep fans coming out of the foothills, such as at Blandswood, are vulnerable to debris flows.

Climate change is expected to have the strongest effect on coastal land including at Washdyke, where the unique catchment conditions and low-lying nature of the land and flow outlets makes it vulnerable to sea level rise and increasing freshwater and seawater flooding issues. Climate change effects may also reduce the effectiveness of existing coastal and freshwater flooding defences. There may also be an increase in coastal erosion. Generally, higher rainfall is anticipated, with increased severity in resultant flood flows in rivers. The temperature is projected to increase, as is evaporation across the plains.

Strategic Direction

The Strategy aims to give effect to Council's strategic direction.

Timaru District – Thriving Together

Our Vision

Where people, place and business prosper within a healthy, adaptable and regenerative environment.

Our Values and Role

- Inclusive Leadership
- Cultural Caretakers
- Transition Navigators

Our Community Outcomes

The Council vision is aligned with our five community outcomes:

- Connected citizens
- Enhanced Lifestyle
- Sustainable Environment
- Diverse Economy
- Resilient Infrastructure

For full details refer to the front section of the Long Term Plan.

Financial Strategy

The Financial Strategy defines the financial direction of the Council over the 10-year period of a LTP. It provides direction, drawn from a balancing of ratepayer affordability against community needs and aspirations.

The relationship between the Infrastructure Strategy and Financial Strategy is two way. The Financial Strategy presents a balance between ratepayer affordability and the following matters that arise from the Infrastructure Strategy:

- the need to maintain, replace and renew core infrastructure;
- the obligation under law to build new infrastructure to meet new standards; and
- a desire to respond to the aspirations of the community for new and improved community infrastructure.

Infrastructure is critical to the development of communities with new infrastructure required to support future growth.

Growth Management Strategy 2045

The provision of infrastructure must be timed to coincide with land use development. Infrastructure should also be of a standard equitable to infrastructure elsewhere in the District to ensure the health and safety of the community.

Council has a duty to deliver and maintain infrastructure services in a sustainable manner. This is to involve the sequencing and staging of development based on the efficient integration of land use and infrastructure. The Council is not the only agency involved, so there is a need to ensure co-agency co-ordination for utility provision.

Council's 2045 Growth Management Strategy suggests there will be modest growth in the District resulting in little flexibility in the number of residents paying the ongoing costs of Council services. In addition, the ability to supply affordable infrastructure will be difficult if land use change occurs in a dispersed manner. Accordingly, Council needs to maintain its current prudence in terms of meeting infrastructure needs. It will be seeking to ensure the installation of resilient and efficient infrastructure to service demands, where those costs can be recouped through financial contributions. While rural residential zoned areas will be required to adjoin urban boundaries as required by the Canterbury Regional Policy Statement, there should not be any expectation that public funded service provision such as water and wastewater will be supplied, nor road infrastructure of a standard, form and function as provided in urban areas.

Infrastructure Strategy and Activity Management Planning

The Activity Management Plans (AMP) development process is used to identify the optimal life cycle management strategies and to provide details of the associated costs. The identification of future needs, management options, and cash flows, provide the ability to manage funding demands and account for asset depreciation loss of service potential.

AMPs provide a means through which Council can demonstrate its responsible management of the community assets. This then enables Council to determine the funding that is required to ensure that the assets continue to cater for the needs of the community, now and in future years.

Councils AMP's ensure that the creation, operation, maintenance, rehabilitation, and replacement of assets is managed in the most cost-effective and responsible manner and provides the appropriate level of service to meet the needs of present and future consumers.

Council asset lives are assumed to align with industry standard lives (Ref: NZ Infrastructure Asset Valuation and Depreciation Guidelines, Edition 2.0 2006) however minor adjustments are applied based on historical local experience.

The Council Activity Management Plan Policy defines the principles and responsibilities that Council applies when managing the infrastructure assets that Council is responsible for. It sets the strategic objectives for the management of assets and outlines the Council's commitment to continually improve the way it manages its infrastructure assets. The policy covers land transport, three waters, parks and recreation, and buildings. The AMP policy was updated in 2020 as part of the LTP process.

All assets are recorded in the corporate Asset Management System (AMS) including details of:

- Address/location
- Replacement cost
- Age
- Materials
- Condition
- Other relevant data

Infrastructure Strategy Links to Key Planning Documents

The Infrastructure Strategy is a key document providing the strategic (30-year) outlook capturing Councils strategic direction and informing shorter term planning documents. The Infrastructure Strategy links closely with Council's strategy, activity management plans and LTP. The AMPs and LTP provide the strategic and programme case for each asset/activity over a 10 year period. The AMPs and LTP identify the problems, benefits and consequences each asset/activity has identified in achieving Council's overall strategic direction and is an enabler of the Infrastructure Strategy. The strategy and planning process linkages can be seen in Figure 1, Figure 2, and Figure 3.

Figure 1: Strategy and planning linkages

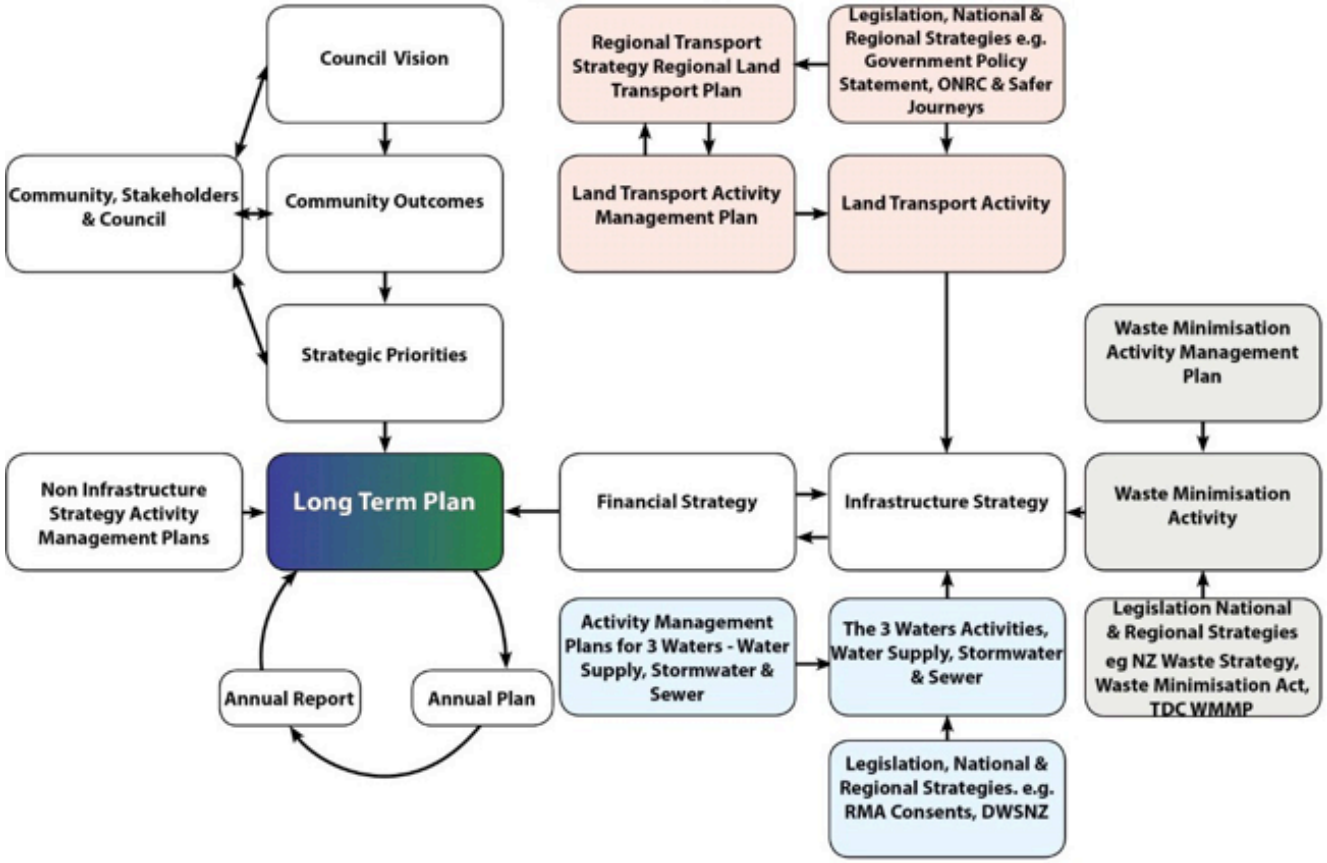


Figure 2: Infrastructure Strategy- Linkages with other Documents

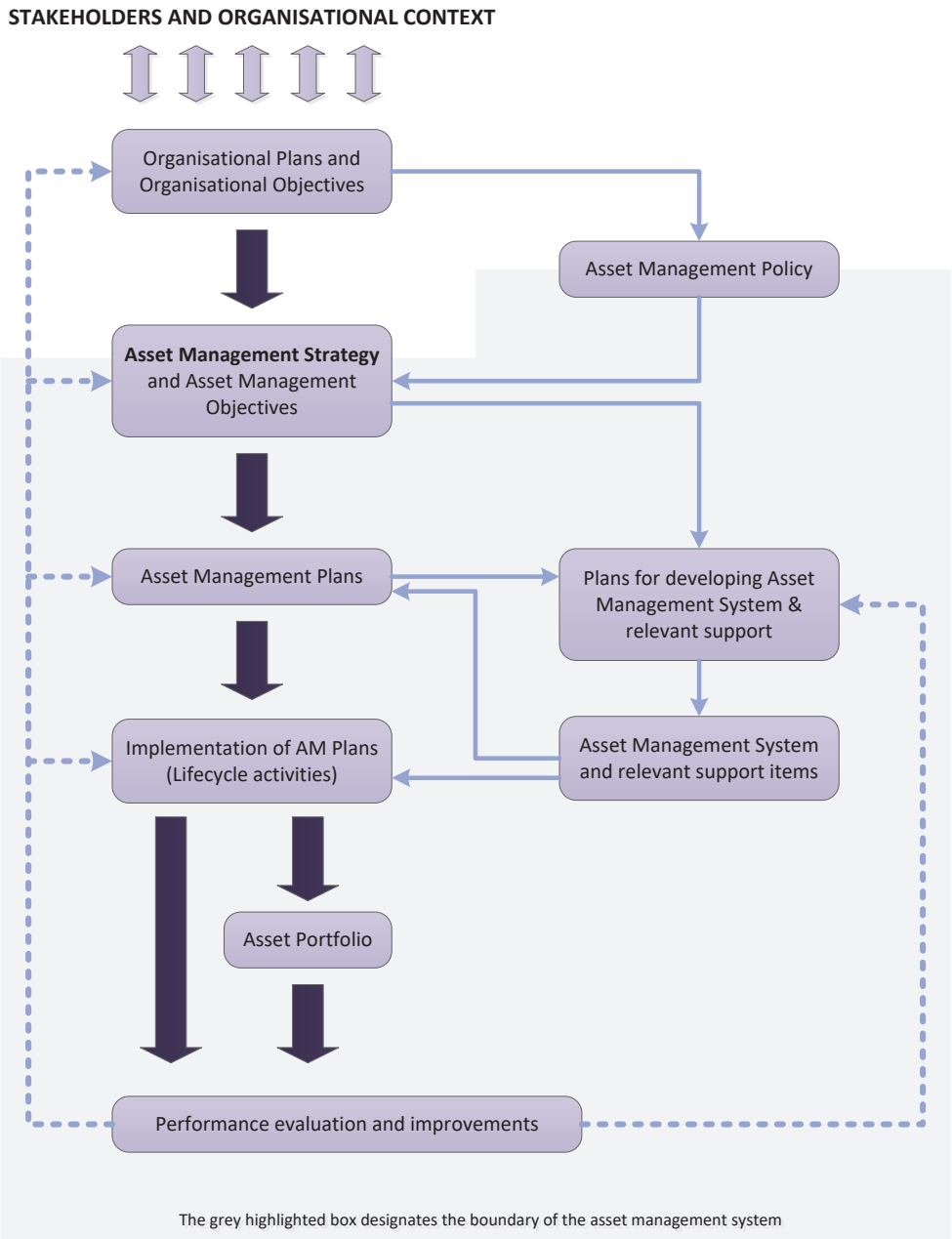
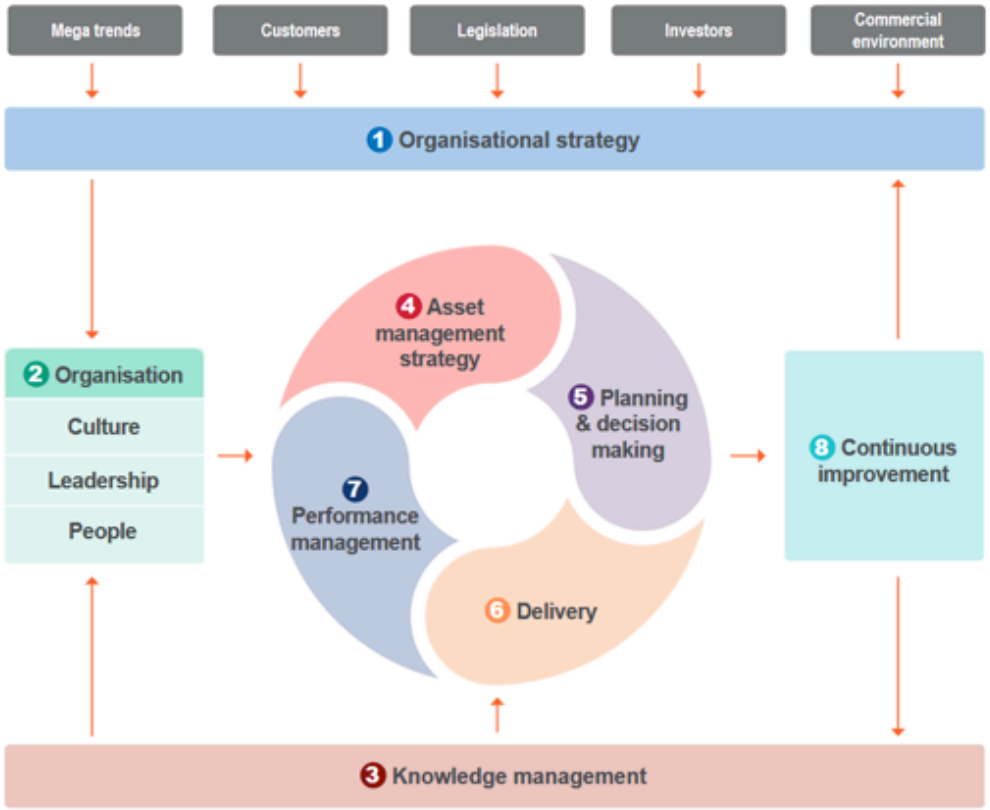


Figure 3: Asset management framework linkages (REG Asset Management Competency Framework)



Core Infrastructure

Asset Description

Water Services

Our three water services (water, sewer and stormwater) are essential for quality of life, public health and economic wellbeing.

The key pieces of legislation governing this activity are the Health (Drinking Water) Amendment Act 2007, the Local Government Act 2002, Taumata Arowai – the Water Services Regulator Act 2020 and the Resource Management Act 1991.

Taumata Arowai will become the dedicated regulator of three waters on enactment of the Water Services Bill, which is expected to be in the second half of 2021. Taumata Arowai is part of a broader government programme of reforms to three waters services. The Water Services Bill was introduced in Parliament in July 2020 and had its first reading in December 2020. The Bill outlines functions and powers of Taumata Arowai and sets forth the duties, obligations and functions of drinking water suppliers and local government.

This Infrastructure Strategy has been developed at a time when the national three waters reform is underway, resulting in a lack of clarity and direction around future developments until final decisions are made.

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 minimise environmental impacts.

The Infrastructure

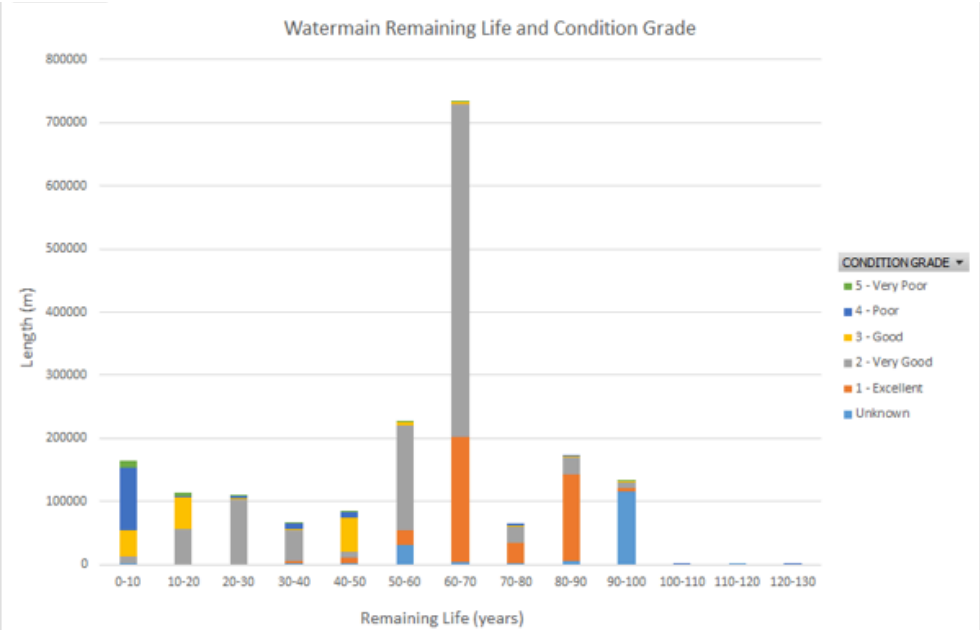
Council manages the source, treatment, storage and distribution of 10 drinking water supplies (Timaru, Temuka, Geraldine, Pleasant Point, Winchester, Peel Forest, Orari, Te Moana, Seadown and Downlands) and 2 stockwater only schemes (Beautiful Valley and Rangitata-Orari).

The District takes its drinking water supplies from rivers and bores or underground sources. The Opihi River and the Pareora River supply Timaru, which accounts for about 60% of the total water consumption. All water takes are subject to resource consents and some of these could be restricted during very dry periods when river flows are low.

The main asset base consists of 12 treatment plants, 25 pump stations, 36 reservoirs, and around 1,854 kilometres of water reticulation network. These assets have a current replacement value of around $319 million (including Downlands Water Supply).

In 2020, around 98% of the reticulation had been condition assessed via physical sampling, expected life based on installation dates and failure rates. Of these, about 92% were in good to excellent condition while 8% were in poor to very poor condition.

The following figure summarises the age and condition profile of the water supply network.



Poor condition assets are prioritised for renewal. The prioritisation criteria balances a mix of factors that impact on asset performance including the age of the asset, its condition, criticality, and its maintenance history or failure rate. Council tries to synchronize pipe renewal with the roading work programme where possible. Renewal priorities are reassessed annually taking account of additional information that becomes available. The ongoing pipe maintenance programme mitigates the risk of level of service failure.

Council's annual renewal programme of water mains averaged $1.5 million per year in the last 3 years.

The reservoirs and other building structures for water treatment and storage were assessed prior to the development of the 2021-2051 strategy. A number were identified as not meeting current seismic codes. A new control and office building has been constructed at the Claremont Water Treatment Plant, and strengthening and a new extension has been carried out at Pleasant Point.

In general, condition assessment of above-ground assets has been largely informal and a protocol to improve the practice will be developed. This is still under development.

Plant facilities are more accessible and are checked routinely, mitigating failure risks. As a result, we have confidence in our knowledge of the condition of these assets.

Currently, roughly 50% of supply is utilised for domestic and 50% for industry use. Council acknowledges that climate change is a risk on the security of the district's water supplies and accounts for this in asset planning and management to meet future demand.

Implementation of Taumata Arowai reforms is anticipated to cost around $500,000 additional budget in the next three years. Council has signed a Funding Agreement with the Crown to access the Crown investment package.

Sewer

The Service we Provide

Council's 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 wellbeing and health of our community with minimal impacts on the environment.

The Infrastructure

Council provides sewer services to the four main urban areas of the district including the township of Timaru and the inland towns of Geraldine, Pleasant Point and Temuka. Each area has a piped sewer network. Around 85% of the district population is served.

Residents located in rural areas manage their own effluent.

There are two significant industrial areas connected to the Timaru sewer network. These areas are in the Port area and at Washdyke.

The main infrastructure asset base consists of three oxidation ponds at the inland towns of Geraldine, Pleasant Point and Temuka, a domestic and an industrial wastewater treatment plant, 23 pump stations, a reception facility for tankered discharges, an ocean outfall, and around 354km of sewer pipe network. Pump stations and treatment plants have been upgraded at various periods with the implementation of the district wide wastewater strategy. These assets are generally in excellent condition. Renewals of the treatment plant facilities will occur at various periods within the next 30 years with a total estimated cost of around $13.5 million.

All assets have an assigned nominal life and are expected to perform for that time. Some 70km of the district's sewer pipe is estimated to reach the end of its economic life during the next 8 years.

The physical condition grade of sewer pipes is based from CCTV Condition Grading and from the Coarse Condition Grading for those pipes that have no CCTV data. In 2020, approximately 74% of the 418km sewer pipe network (including service lines) had been inspected via CCTV. The CCTV pipe condition assessment is an ongoing programme and is targeting aging, high flow and high criticality sewer mains to ensure the structure and serviceability of the pipes are able to deliver the LOS and not creating any detrimental impact to the environment, public health, and other infrastructure. When CCTV inspection is impossible, laser and sonar inspection or other available inspection technology is used to analyse and determine the condition of assets relative to its assumed remaining life. Overall, based on CCTV results and maintenance scores, around 85% of the sewer network is considered to be in good to excellent condition.

Some pipes still have significant remaining lives but have shown condition issues. As with the water supply network, poor condition sewer pipelines are prioritised for renewal. The pipe renewal prioritisation and forecast is based on an assessment of remaining life, criticality, condition, maintenance history, future capacity requirement and the option of repair, rather than renewal, if appropriate. The renewal programme is re-assessed annually taking account of additional information, particularly from physical sampling of pipes. Deferred renewals are not expected or are minimised as Council funds the renewals from depreciation. The ongoing reticulation maintenance programme mitigates risks to levels of service from pipe failure.

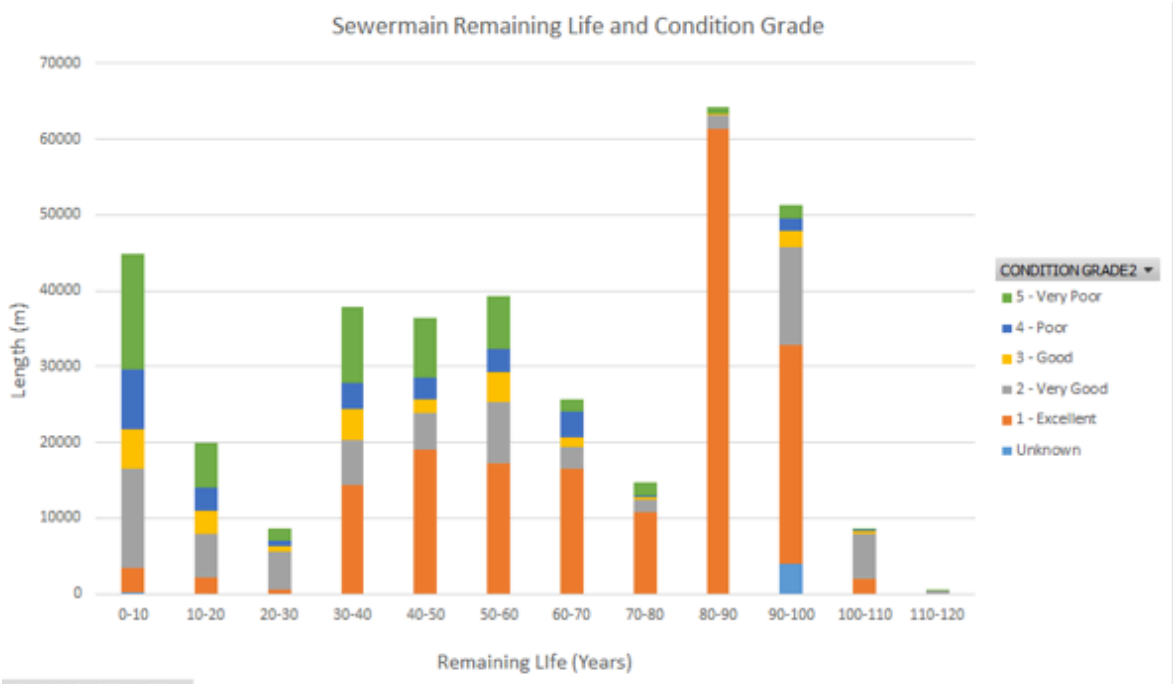
The annual pipe renewal programme prioritises work required to maintain the level of service, and averaged $1.7 million per year in the last 3 years. The estimated total replacement value of assets is around $303 million (2019 assessment).

Currently, domestic wastewater accounts for 40% of the wastewater flows while industry contributes 60%.

Due to the construction of a separate facility for domestic wastewater treatment, there is more plant capacity for industrial wastewater treatment in support of future industrial growth. Most of these industries are in the Washdyke and Port areas of Timaru.

Additional demand for domestic sewer lines may come from requests for extension of urban services at the periphery of residential zones.

Other than demand factors, there are inflow and infiltration issues associated with very old pipes in the network. The performance of the district's sewer infrastructure is also impacted by frequent intense or long duration wet weather which causes groundwater inflow and/or stormwater infiltrating into the defects of sewer pipes, thereby consuming some of the capacity of the sewer network with resultant network overflows.



Stormwater

The Service we provide

Council drainage systems provide for public safety, property protection, drain excess water from roads and minimise environmental impacts.

The Infrastructure

Council provides stormwater services in the urban townships of Timaru, Temuka, Geraldine and Pleasant Point. Rural stormwater is managed mainly through land drainage with minimal infrastructure provided in Winchester, Cave and Pareora. Around 70% of the district's population is served.

The stormwater assets consist of 145km piped network, open channels, manholes, soakage pits, detention dams and swales. The network is generally aged. There is limited information on the physical condition of the pipes. Only about 15% of the pipe network has been recorded using CCTV and there is high confidence in this data. CCTV inspection is an ongoing program for all of Council's piped networks. For the rest of the stormwater network that is unassessed, we rely on the age of the pipe and its repair and maintenance history to gauge the condition of the asset.

There is lower confidence in this data which is mainly based on desktop estimates. However, unlike sewer assets, which are subjected to daily flow, stormwater assets only operate during and after rain events. They lie dormant for a large portion of their lives and there have been minimal failure issues in the last 10 years.

Some pipes still have significant remaining theoretical lives but have shown condition issues. As with the water supply and sewer networks, poor condition stormwater pipelines are prioritised for renewal.

The renewal programme is reviewed yearly for any re-prioritisation required. The ongoing reticulation maintenance programme mitigates the risk of level of service failure arising from poor asset condition.

Pipe renewal expenditure averaged $180,000 per year in the last 3 years. Estimated replacement value of stormwater assets is around $203 million.

Stormwater Management Strategy

Council has adopted a district-wide Stormwater Management Strategy which provides the overall framework and direction to Council's decision-making on stormwater using an integrated management approach. It is driven by the policies and rules of the Canterbury Land and Water Regional Plan (CLWRP) which now requires that Council obtain a resource consent for its stormwater discharges, and comply with set standards and limits to the stormwater discharges from its reticulated network. There are a number of units within Council that are involved in stormwater regulation and management.

Council's Stormwater Strategy aims to streamline its approach by setting specific goals, directives and methods relating to stormwater planning and regulation, asset management, the receiving environment, and stakeholder engagement and education. The Asset Management component of the Stormwater Strategy is implemented through the Stormwater Activity Management Plan and the stormwater-related activities of the Land Transport Plan and the Waste Minimisation Plan.

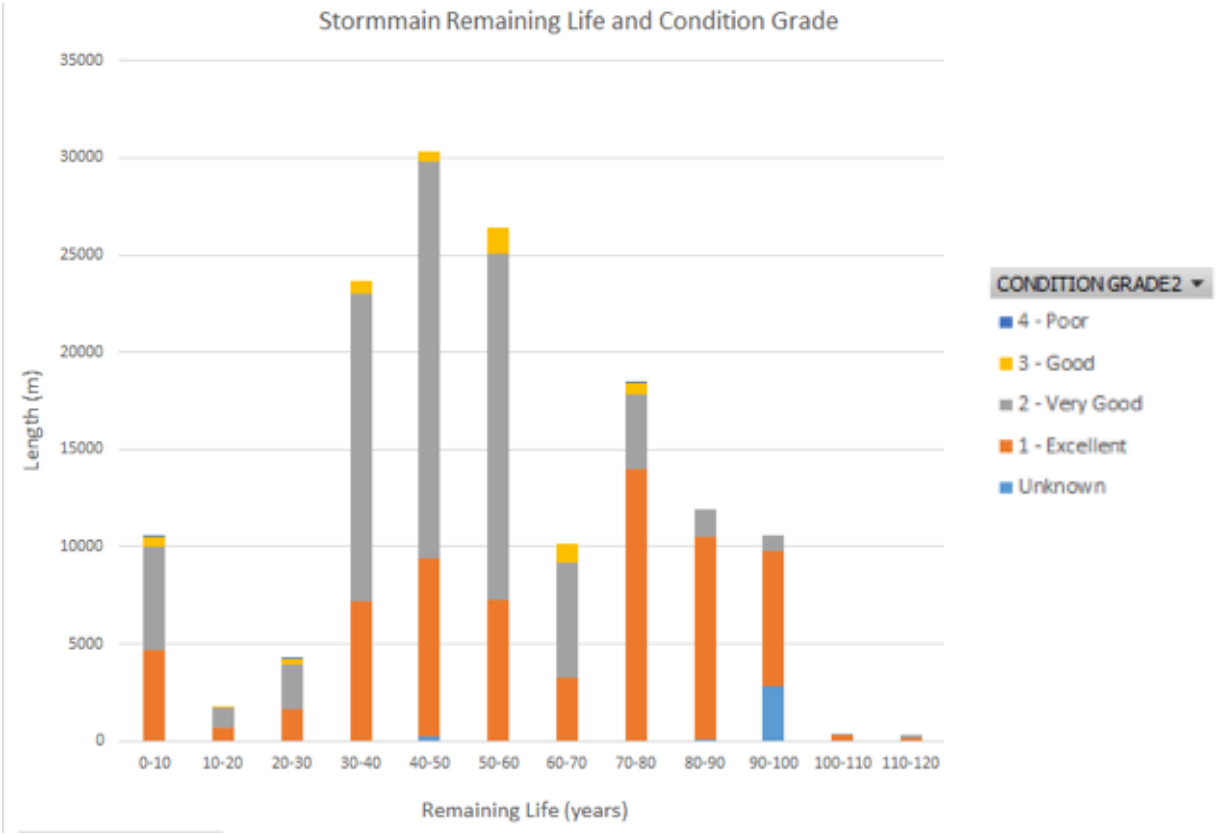
Overall, Council's approach to stormwater asset management is to acknowledge the requirements of the CLWRP. This includes progressively upgrading the network at the time of renewal to incorporate systems for attenuation and treatment of stormwater flows using low impact design or green infrastructure approaches where appropriate. The ongoing development of Stormwater Management Plans for urban catchments within the district will identify more specific infrastructure requirements. This will shape the asset renewal/development programme in the longer term and is expected to have significant cost and funding implications.

Although growth within the district is not projected to be at a high level, population and household number changes will still impact on stormwater services in the next 30 years. As more areas are built-up, or with increasing infill development, more impervious areas will be created with increased levels of contaminants and there is further potential for the natural paths for stormwater flows and soakage to be occupied. This puts greater pressure on the existing capacity of stormwater networks which increases the infrastructure requirement to manage stormwater flows.

To address these issues, it is necessary to provide treatment for the removal of contaminants and the attenuation of stormwater flows to better match the natural pre-development flows. The use of low impact options, such as first flush retention dams, swales and rain gardens provide appropriate solutions, and these are being built into new residential development areas.

Planned projects of note include a constructed wetland at Waitarakao/Washdyke Lagoon and stream work and maintenance in relation to all stormwater assets.

The figure on the following page summarises the age and condition profile of the network:



Roading 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 tops and seats and shelters, to enable people and businesses to move around the District. The Council also provides road signs, markings and street lighting to ensure that travel is safe and convenient.

The Infrastructure

Council is responsible for the management of the transport activity, excluding the state highways, within the District.

Quality transport infrastructure is critical for community wellbeing in the district. It allows communities to connect and receive services. Transport is a core function of Council and the activity aims to achieve the following vision:

"We will provide a Transport System that promotes Community Prosperity."

Transport activity outcomes have been developed to capture how the transport activity contributes to the community wellbeing's.

- Fit for purpose roads and structures that enable areas of economic strength to thrive and maximises local economic growth
- Resilient and affordable roading infrastructure that meets community needs
- Walking and cycling options across the district
- Safe roads, footpaths and street networks
- Sustainable transport options are facilitated and provided

Council manages over 1,700km of sealed and unsealed roads, 315 bridges (including single lane

bridges, weight restricted bridges, large culverts and footbridges), more than 300km of footpath, more than 10,000 drainage facilities like catchpits or culverts, more than 7,000 signs, more than 4,400 street lights and all the street furniture, bus stops, carparks, traffic signals, kerb and channel, cycleways, road marking and minor structures in the transport corridor.

The activity also includes managing the parking infrastructure (including parking meters and carparks). Monitoring parking compliance in the district is carried out by the Environmental Services Group.

Council provides many cycleways and walkways throughout the district. These range from cycleways in the road corridor, to combined walkways and cycleways that are off-road, such as beside urban and rural streams. Off road walkways and cycleways are often managed jointly between the Parks and Recreation Unit and the Land Transport Unit.

Provision and maintenance of these facilities promotes a safer physical and enhances quality of life in our local communities. It enables economic activity and growth by allowing for the efficient transport of goods and services and by promoting access into and across the transport network. It also provides access for utilities, supports facilitation of events and other activities, promotes road safety and encourages the use of sustainable forms of travel.

The land transport activity covers the traditional maintain, operate and renew roading assets. It also equally covers control and operational activities such as controlling road corridors, road safety action programmes and subsiding regional public transport. This Activity Management Plan (AMP) outlines how Council will deliver the transportation activity to provide the services road users need to go about everyday life.

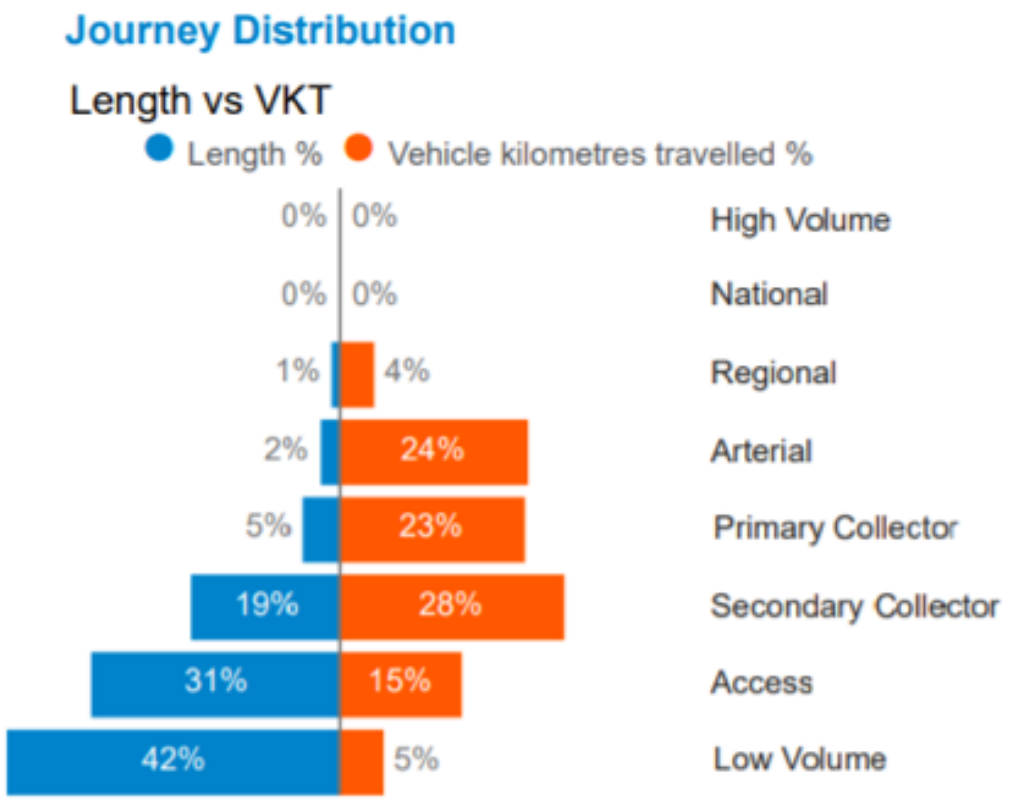
The Council transport network is divided up into the following One Network Road Classification (ONRC) categories.

On and around these roads are associated assets that make up a total replacement value of $839M (draft replacement value as of 1/02/2021 Valuation).

Roads

A summary of information on the district's road network is provided in RAMM, by network length (km) and journeys travelled (million vehicle km) based on ONRC performance measures reporting tools, and as showing in the graph.

The pavement surfacing on the Council network is mostly chipseal (96%). However, over a quarter of the highest class routes (Primary Collector and Arterial) are surfaced in asphalt, where demand or level of service is appropriate.



Source: REG ONRC Performance Measure Reporting

Condition data has been considerable improved over the last 4 years with the introduction on an annual sample of high speed data on the rural network, with now 200% of that network covered over the previous 4 year period. There is also a considerable amount of high speed, roughness and condition data collection together with deflectometer testing for the network as well as standard visual condition rating, historical maintenance cost and pavement age data. Therefore, data available is at high confidence.

Based on the latest high speed survey rutting is a growing problem across the entire rural network. On average rutting progression is at 1mm per annum on roads measured. This demonstrates advanced pavement consumption. Waka Kotahi NZ Transport Agency highway engineers have indicated that 1mm per annum on their network is considered a pavement in "terminal" state, however, this seems to be 3mm on the Timaru Local Road network.

Visual condition surveys are still highlighting cracking as the primary defect in the urban area. Where cracking is observed, over 40% occurs on asphalt-surfaced pavements. The asphalt-surfaced routes are in average condition, and further falling weight deflectometer testing shows that the cause of this cracking is due to weak underlaying pavement layers. This means that cracking is structural rather than in the surface. Council staff are preparing an asphalt strategy to review pavement strength on failed areas and progress with increased pavement rehabilitation on these cracked and failed asphalts.

The Amenity measure within NZTA's ONRC (One Network Road Classification) framework assesses user comfort over the network based on roughness values. The rural network has displayed very smooth travel and is performing well against expectation. However, the urban network is not meeting Amenity measures – specifically Peak Roughness with almost 10% of Urban length exceeding roughness thresholds (ONRC allows up to 5% exceedance). This is generally as a result of utilities providers excavating in the road carriageway. Council staff are working with providers to avoid trenching in the traffic lanes, and use of greenspace areas within the road reserve and trenchless technologies are highly recommended to all providers. Where this cannot be achieved staff are increasing inspection regimes to ascertain any defect issues before defects period is up. This is being met with some resistance by utilities providers and contractors alike.

Council has also undertaken a review of pavement construction ages using subdivision files, aerial photography and construction contracts to ascertain pavement ages of all roads in the network. This is proving to be valuable, and depth assumptions made on "best practice" at the time are being proven to be conservative through pavement log testing when any repairs are undertaken. i.e. the pavements on the network are found to be thinner than assumed in RAMM, they also tend to be constructed on weak subgrades, such as wet silts and clays or even topsoil.

For these reasons, a real focus of the current LTP and this infrastructure strategy is on rebuilding and strengthening the networks pavements to ensure ongoing access for road users to key primary and manufacturing industries.

Bridges

An assessment of bridges in Council was conducted in December 2020 to February 2021 to highlight the remaining useful life of bridges and major culverts in the District, based on current usage. This report is still being generated, however there are a number of structures that have been identified that need replacement earlier than previously anticipated. (South Street, Landsborough Road and Forest Creek Bridge to name three).

Drainage (Kerb and Channel)

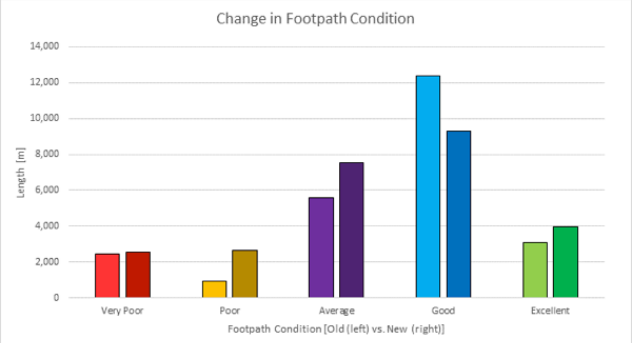
Council has completed an assessment of the condition of 100% of the kerb and channel asset.

This assessment found that the optimised replacement strategy is working well to address the short sections of poor condition kerbing. There is less of a need to undertake large scale renewals at this point in time and likely for the next 10-20 years.

Footpaths

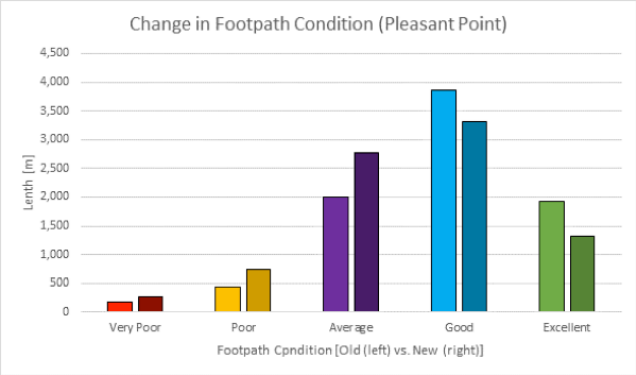
Council completed footpath condition data for the District in 2017 and is undergoing a further review in 2020/21. This assessment showed that the condition profile of our network is decreasing. This means that there are a growing number of footpaths that are at the end of their useful lives. See data analysis that has been completed to date in Geraldine and Pleasant Point. There is also a growing gap in level of service across each of the townships that needs to be addressed. This will be addressed in the first 10 years of the infrastructure strategy.

Geraldine Footpaths



The analysis of Geraldine Footpaths shows an increase in poor footpaths and an increase of footpaths going from good to average. In the above graph the first bar is before the latest condition Rating, the second is after the most recent rating in January 2021.

Pleasant Point Footpaths



Analysis of Pleasant Point's footpaths showed the same trend as Geraldine's footpaths. A decreasing length of excellent and good footpaths, with an increasing length of average, poor, and very poor footpaths.

The average end of life age for each condition was; excellent 6.9 years, good 16.2 years, average 14.5 years, and poor 34.8 years. The reason the footpaths went from average to poor at a lower age then from good to average was due to tree root or truck damage.

Information Sources

The Timaru District Council conducts multiple surveys, analysis, and studies to obtain data and information on our assets, including:

- Road User Surveys

  Conducted biannually through an independent consultant, Key Research Limited. The survey obtains the perceptions of a broad range of road users across the District, which is used to identify the expected transport levels of service and the current perceived asset performance. From the survey result, Council is able to determine the areas for possible improvements.

- Road Efficiency Group Reports

  Multiple condition and peer comparison reports are made available annually. Timaru is often seen as a high performer in data quality and asset management reports. Our peer comparison reports generally show that we provide a value for money service and our maintenance and construction costs are generally in the lower quartile.

- NZTA Investment Audits

  The objective of this audit is to provide assurance that the New Zealand Transport Agency's (NZTA's) investment in Timaru District Council's land transport programme is being well-managed and delivering value for money. NZTA also sought assurance that the Council is appropriately managing risk associated with the Transport Agency's investment. NZTA also recommends improvements where appropriate.

- Pavement Deterioration Modelling (dTIMs and Juno Viewer)

  dTIMS modelling is performed by WSP for the Council's sealed road network. The report provides evidence that can be used in support of the Long Term Programme request and Better Business Case Approach. The key objectives for undertaking this modelling were to determine the optimal maintenance expenditure/quantities in order to achieve the long-term standards for the network, aligned with the NZTA's ONRC requirements, and the consequences of various maintenance regimes on the long-term condition of the network.

  This is supplemented by JunoViewer reporting, which has models available that are more reflective of local road network – construction history, strength and demand profiles. Fulton Hogan assist Timaru district council with this analysis and provide insight from peer networks.

- Better Data Capture

  Visual condition rating is still undertaken, however the value of this pales in comparison to the data that can be obtained by High speed, multispeed, falling weight deflectometer testing Council are also undertaking now.

- Crash Data – CAS

  The NZTA manages the Crash Analysis System (CAS) – New Zealand's primary tool for capturing information on where, when, and how road crashes occur. The system provides tools to analyse and map crashes and enables users to identify high-risk locations and monitor trends and crash sites. This information helps inform transport policy, design and prioritise road safety improvements and monitor their effectiveness. The CAS database has been used to record details of road crashes since 1980. The system records all crashes whether fatal, injury, or non-injury, and is an important tool in the analysis of road, intersection, and road user groups safety. All road crashes have a standard crash report prepared by Police that records details about the driver, occupants, vehicle, crash factors, and crash events. A copy of the crash report is provided by Police to Council for information, and report is sent to NZTA for entering in the CAS database.

- Council General Bridge Inspection

  Timaru District Council commissions WSP to complete the three- yearly general inspections of all Council's bridge structures. This is in accordance with Waka Kotahi guidelines. Council bridge inventory information is then updated with new relevant information and updated maintenance and component replacement schedule, and bridge replacement programme is prepared.

- Traffic Counts

  Council has 10 traffic counters that are utilised to perform 7-day average daily traffic counts on the District roads. The count sites are determined by Council staff using RAMM. The frequency of traffic counts is generally based on road hierarchy although traffic counts on all roads should be a maximum of five yearly intervals. The traffic counter setup, installation, and retrieval and data download is performed by a contractor. The traffic count data is stored in RAMM and used by Council staff to assist with providing supporting information/evidence to other asset.

- Footpath, Kerb and Channel Usage and Condition Analysis

  Footpath, kerb and channel usage and condition data capture and analysis is done to provide stronger understandings of the Council's assets. With the information, better informed decisions can be made. Footpaths are condition rated every 3-6 years depending on age of footpaths and Kerb and Channel is not done on a regular basis but Council is looking at possibly capturing the information six yearly.

Waste Minimisation

The Service we Provide

Council's solid waste activity includes the collection, transport, treatment and disposal of solid and hazardous waste in a way that protects the health and well-being of our community and that minimises environmental impact.

The Infrastructure

Our strategic goal for waste minimisation is a sustainable community that is able to reuse, recycle and recover discarded resources and minimise residual waste to landfill, while ensuring protection of public health and the environment.

To that end, Council operates waste minimisation facilities at Redruth Resource Recovery Park which includes landfill, recycling, composting facilities, and transfer station facilities in Timaru, Temuka, Geraldine and Pleasant Point.

The current Redruth Landfill is projected to be full in 25-28 years and consideration needs to be given to future options for South Canterbury Waste Disposal. Accordingly, Council considers the provision of this Waste Minimisation Service to be a significant infrastructure activity and therefore is included in the Infrastructure Strategy.

Kerbside collection

The kerbside collection system assets comprise of approximately 90,000 wheelie bins, with new glass collection wheelie bins being rolled out at the commencement of the new contract from July 2021. Council receives comprehensive data from the contractor on bin numbers, bin repairs, and bin replacements. The original bin stock is now 15 years old and the budget allows for an increasing number of replacements until the number of replacements stabilises.

Transfer stations

Transfer stations, roads and buildings are in good condition and well maintained, with some roads needing upgrading within Redruth Landfill to accommodate new cell development in Years 1-3. All sites will need renewals of the compactors within 10-15 years, and all compactor bins will need renewals within Years 1-3.

Materials Recovery Facility (MRF)

The Materials Recovery Facility was built in 2005 and has a regular maintenance schedule. Council owns the building structure but the MRF plant inside is owned and operated by the waste contractor. The building structure is in good condition. The new contract commencing in 2021 will see the existing MRF plant be decommissioned and new plant and technology being installed. This will enable a higher level of service for the MRF to be able to sort and process recyclable goods for outside markets.

Compost Facility

The eight compost pads were built in 2005 and have been allocated a life of 20 years (2025). However, due to landfill subsidence the pads are in poor condition with cracking and displacement. With the commencement of the new contract, in Year One a new Organics Processing Facility will be built on Redruth that will reduce the stress on the existing concrete pads and they will only be used for maturation of compost rows. It is likely that the pads will need to be rebuilt within the time of this Infrastructure Strategy.

Redruth Landfill

The current landfill is operated by EnviroWaste Services Ltd on behalf of Council from the commencement of this Infrastructure Strategy. Significant work was completed on the landfill in 2019-21 including the installation of a new LFG capture system with modern flares for burnoff. This will enable Council to claim UEF credits that will offset the amount of carbon credits needing to be purchased over time. Additional work included the capping programme for Stage One landfill, and the closure of Cells 2.1 and 2.2 in Stage Two landfill. Due to increased volumes of waste coming into Redruth, the landfill cell development programme is accelerated to accommodate this increase, which has meant a reduced landfill life for Redruth. This will result in a new landfill to replace Redruth needing to be operational within 25 years.

Asset performance

Waste Minimisation assets are recorded in the Hansen database, with condition and lifecycle information allocated as per improvements identified in the WMMP Improvement Plan. In 2021 a full condition assessment will be undertaken to help determine the asset valuation and recalculate the lifecycle information within Hansen.

Other Infrastructure

The Service we Provide

Council owns, manages or governs significant other infrastructure including the council Headquarters, the Port of Timaru (Primeport) and Richard Pearse Airport. Council owns 50% of Primeport Timaru via Timaru District Holdings Limited, including a significant land portfolio.

This infrastructure is essential to Council achieving the economic and population growth desired by the Council. Both the port and the airport are essential infrastructure assets in achieving councils long term goals of attracting business and population to the district.

The Infrastructure

The Port of Timaru (Primeport Timaru)

The Port of Timaru is located at the bottom of Port Loop Road and is a major importing and exporting centre for the district. It is also New Zealand's second largest fishing port, behind Nelson.

Longer term enhancements could include the deepening of the Port to enable bigger ships to use the facility and position Timaru District as a central economic hub for the distribution of goods nationally and internationally.

Airport

Council manages the Richard Pearse airport located approximately 10 kilometres northwest of Timaru. The airport provides a key business and community link from the district to Wellington with daily return flights. Council owns and manages the asset – the main airport facility, including the terminal building and runway. Council is responsible for ensuring the airport is run to legislative and Civil Aviation rules and provides other services such as car parking and land for lease to commercial and private aircraft hangars and aviation orientated industry.

Longer term enhancements could include the lengthening of the runway to enable larger passenger and freight aircraft to land at the airport. This would facilitate the Districts growth strategy.

Assumptions and Risk

Assumptions are based on the Long Term Plan General and Financial Assumptions which reflect the issues that may impact on Council activities in the next 10 years and beyond.

These assumptions underpin Council's determination of the most likely scenarios for management of key assets, and the significant decisions on capital expenditure over the period of the strategy. The full description of assumptions can be found in the LTP document. Activity specific assumptions can be found in the Table below.

Table 3. Significant Assumptions (Activity Specific)

What	Assumption	Risk	Consequence	Mitigation
Roading and Footpaths				
Waka Kotahi (NZTA) Funding Assistance	There will be no further changes to the funding assistance approach for transport funding administered by the New Zealand Transport Agency (NZTA), including funding criteria and NZTA funding.	Changes in NZTA subsidy rates or to criteria for roading and footpath projects have a positive or negative effect on Council's transport budget.	Funding would need to be obtained from alternative sources or work programmes adjusted. Levels of service may need to be adjusted. If sufficient funding is not available, it may mean that projects are delayed or scrapped.	The Council and management will review the budget annually through the LTP/Annual Plan process and may adjust work programmes/ budget where necessary.
Maintenance of the State Highways	State highways to continue being maintained by NZTA.	Reduced levels of service	State Highways through District poorly maintained.	Potential Council funding contribution.
Legislation for Heavy Vehicle Mass	There will be no further changes to the legislation of permitted heavy vehicle mass limits on the roads.	Legislation permits increased mass limits. Roading assets (pavement and bridge) are not fit for purpose.	Greater deterioration of Council roads, assuming Council took control of the road. Roading assets unable to provide suitable level of service.	Testing and prioritising of decision and work. Rates and NZTA funding request increase to pay for the costs or service levels could reduce.
Collaboration	Collaboration continues to happen between the Mid-South Canterbury Councils.	Loss of commitment to collaboration and levels of service differ.	Loss of efficiency opportunities.	Implement suggested S17A review option.

What	Assumption	Risk	Consequence	Mitigation
Bitumen Availability	There will be bitumen available and within reasonable price to sustain the ability to lay future roads.	Availability of bitumen becomes limited due to multiple reasons, including changes in vehicle technology (electric vehicles), therefore bitumen is not "produced" as a by-product of the process of producing fuel. This therefore could cause the cost of bitumen to become too expensive, and causing the cost for laying pavements too high and not value for money.	Pavements are not value for money and becomes really expensive to create / renew / maintain.	Monitor technology changes and their effects.
Sewer				
Compliance by Industry	Industries comply with tradewaste discharge agreements.	Industries unable to comply with tradewaste discharge agreements.	Non-compliance may result in increased monitoring and compliance costs and ultimately industrial wastewater treatment upgrades.	Regular liaison with industry and close monitoring of industry compliance for early detection of issues.
Stormwater				
Stormwater Discharge Quality	Council will obtain resource consents from Environment Canterbury	Resource consents are not achieved by required deadlines. Consent conditions cannot be met.	Significant cost will be needed to implement stormwater treatment and comply with statutory environmental quality standards.	Regular liaison with ECan. Monitoring of legislative changes. Implement stormwater management projects over time. Monitor stormwater quality.

What	Assumption	Risk	Consequence	Mitigation
Waste Minimisation				
Waste Quantities	Waste quantities remain static or increase/decrease incrementally	That waste quantities vary unexpectedly.	Sudden increases in quantities mean landfill life is reduced. Sudden decreases in quantities mean income is reduced.	Communication with major commercial contractors. Management of landfill costs and charges.
Waste Legislation Changes, including Waste Levy Charges	Waste legislation increases the responsibility of councils to manage priority waste products, Waste Levy charges may or may not cover increased waste diversion costs	Council is under-resourced to manage priority products or waste diversion	Increased costs result in more waste going to landfill, or more fly-tipping within the district by customers not wanting to pay excess charges	Focused attention on state of waste legislation in Parliament, develop strategy to increase collaboration of waste diversion with key stakeholders such as CWJC, MfE, ECan and external organisations
Resource Consent Compliance	Council retains all resource consents over the strategy time period	That Redruth Landfill consent is not renewed in 2030	Closure of landfill with airspace remaining. Increased costs to community for waste disposal.	Continue active work in monitoring and environmental management. Regular liaison with ECan.
Landfill Aftercare	No significant restoration work is required on its closed landfills beyond what has been budgeted and provided for No material changes to the assessments for Redruth's post closure costs since last review	Landfill restoration work is required earlier than planned or higher than budgeted	Landfill restoration work being required earlier than planned could result in a higher funding requirement earlier than anticipated.	Council reviews the basis for the provision it makes for these costs on an annual basis. Active monitoring of landfill cells to enable ongoing landfill aftercare post closure. Review of possible impacts on closed landfills via climate change work in next three years.

What	Assumption	Risk	Consequence	Mitigation
Water Supply				
Fire Fighting Requirement	Fire Fighting Code of Practice (FF COP) SNZ PAS 4509:2008 remains voluntary.	FF COP becomes mandatory resulting in significant reticulation upgrades.	Increased infrastructure costs.	Consideration of progressive upgrades to meet FF COP requirements when renewals are programmed. Monitoring of legislative changes.
Drinking water standards and regulation compliance	All drinking water supplies will comply with the Drinking Water Standards for New Zealand and all requirements of Taumata Arowai are met	That drinking water supplies do not meet the standards or that the requirements of Taumata Arowai are not met	Increased costs to implement improvements to comply with standards and regulations.	Continue active work in monitoring changes to Drinking Water Standards and regulations and implement upgrades

Challenges and Emerging Trends

The development of the Infrastructure Strategy has considered emerging trends and how to manage identified challenges. This section explains the key trends, challenges and assumptions and risks that have been identified. The task of building, operating and maintaining these infrastructure assets in an affordable and sustainable manner is becoming increasingly challenging in view of the following emerging issues.

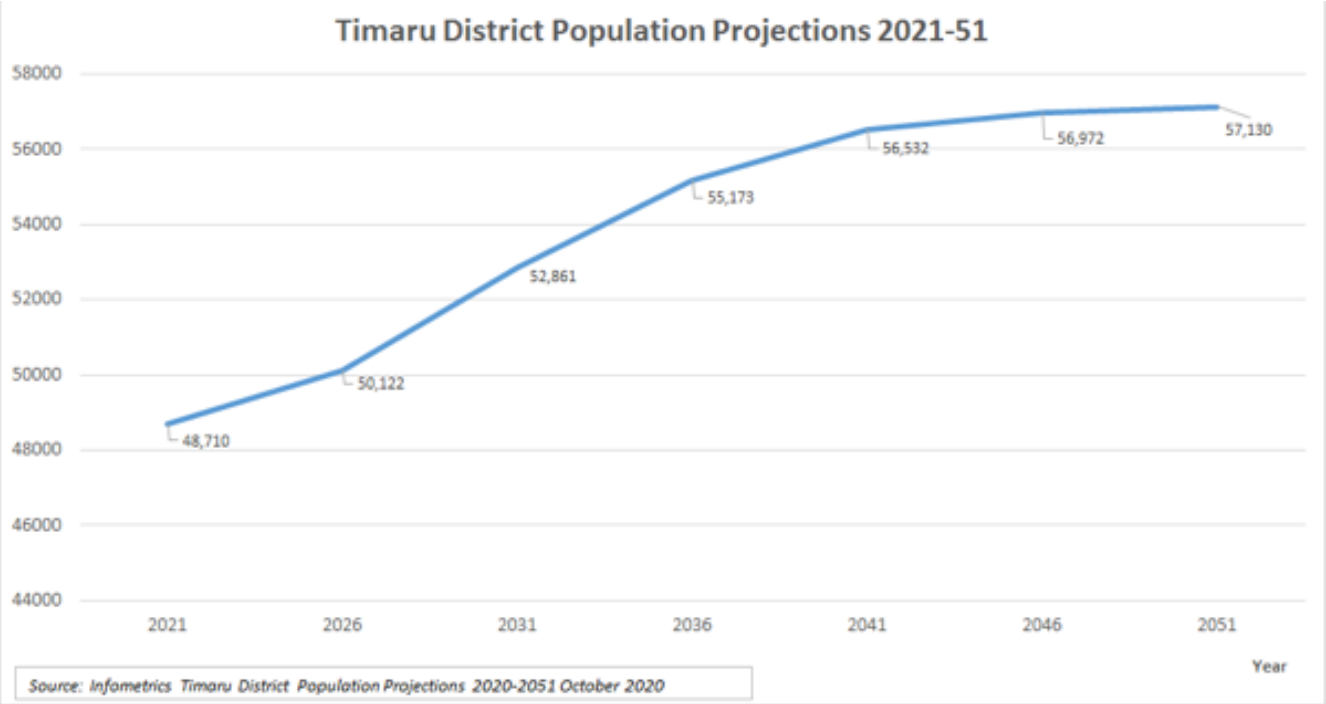
Population Change

The population of Timaru District has grown steadily over the past 15 years, and growth has been particularly strong in the past five years because of strong international net migration. This strength has seen Timaru's population grow to 48,400 in 2020.

Population growth is expected to slow down over 2021 and 2022 due to COVID-19. From 2023 onwards, population growth is projected to resume at a steady rate, and will continue growing steadily until the late 2030s. A lower rate of growth is projected in the 2040s as employment growth wanes, reaching a population of 57,130 in 2051.

The District's population is projected to increase to 52,861 by 2031 (0.7% average annual increase), reaching 57,130 in 2051 (0.3% average annual increase). The population is concentrated around Timaru township (2018 population approximately 30,000 - including Fairview and Washdyke) and in the smaller townships of Temuka (4,330), Geraldine (2,700) and Pleasant Point (1,400). The District also has a number of villages including Pareora, Orari, Cave, Winchester and Woodbury.

Population growth is expected to be higher in the earlier years of the strategy (around 0.7% annual average growth and then reduce to around 0.3% in the later years. Over the next few years, (2021-23) population growth is expected to slow due to COVID-19.



Demographic Changes

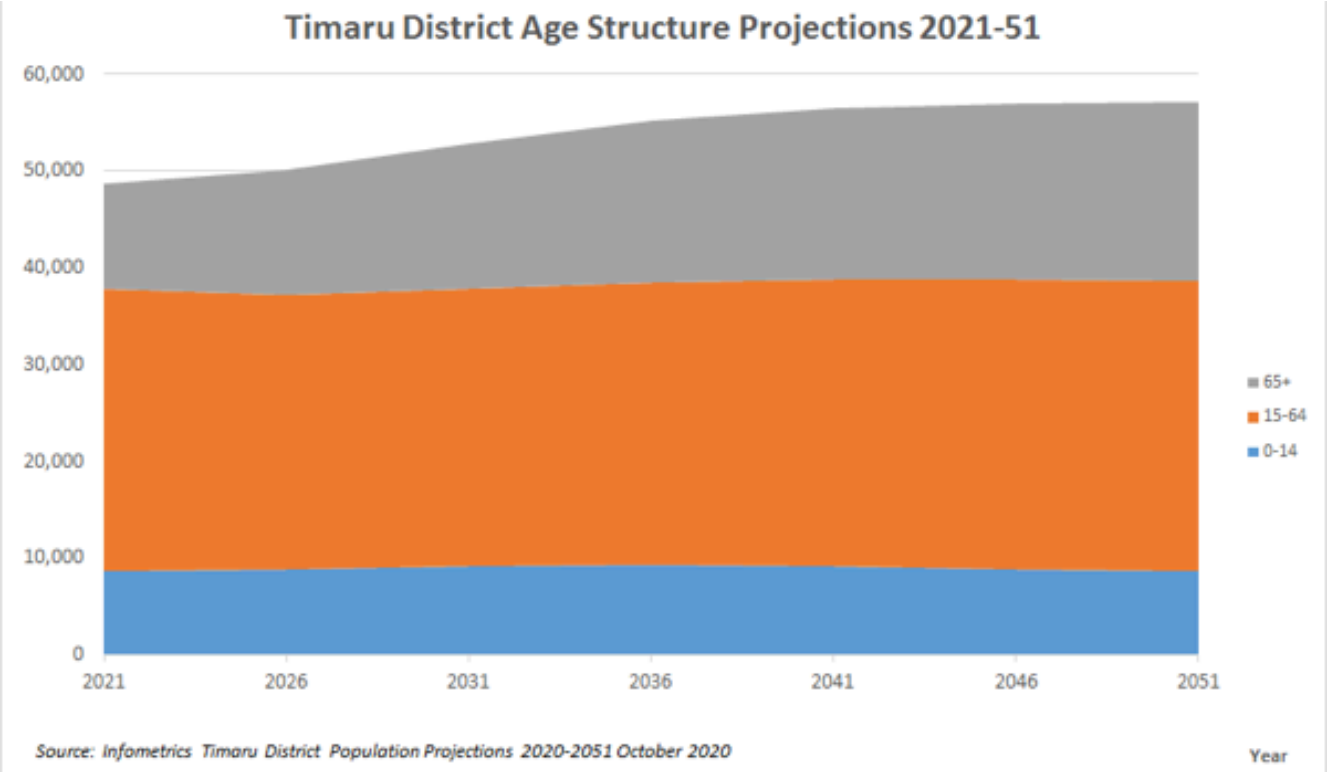
In demographic terms, population change consists of three principal components – births (fertility), deaths (mortality) and net migration. The difference between births and deaths is generally referred to as natural increase – in other words, the ability for a population to grow internally or 'naturally'. In recent years, steady birth numbers coupled with increasing deaths have tipped natural increase in Timaru slightly negative. This trend is expected to deteriorate further, as the number of deaths increases even further due to the ageing population. This means that the district becomes reliant on migration to maintain the population and to grow.

Net migration into the district has displayed a broadly upward trend over the past twenty years, however it is expected to ease in response to COVID-19 as international net migration drops sharply. Net migration is expected to recover to a relatively high level by 2022, then grow further to peak in 2032. Over the next 15 years, large numbers of workers born in the 1960s and 1970s are projected to retire, which is expected to draw in migrants to fill their jobs. Beyond this point, net migration will ease down to low, but still positive, levels.

Age Structure

As is the case for the most areas in New Zealand, the population of Timaru is projected to age significantly over the next 30 years. The number of youth (aged below 15 years), is projected to grow from 8,563 in 2020, peaking at 9,380 in 2033, before easing back to 8,712 in 2051. The working age population, of 15 to 64 years of age, is expected to grow slightly, from 29,436 in 2020 to 29,940 in 2051. The 65 years and older age group is the fastest growing age group, expanding from 10,401 in 2020 to 18,478 in 2051. Most of this growth takes place in the next twenty years as the relatively large 'baby boomer' cohort moves into the 65 years and older age group. This trend means that the average age of the population will grow from 43 years in 2020 to 48 years in 2051.

The district will continue to age over the next 30 years as the relatively large 'baby boomer' cohort moves into the 65+ age group. This means that by 2051, around 18,478 people will be in this age group or 32.3% of the district's population. Within this cohort, by 2051 the population at higher ages (i.e. 75+) will more than double compared to 2021 (9%). Other age groups (e.g. below 15, 15-64) will grow much more slowly in comparison.



Household Changes

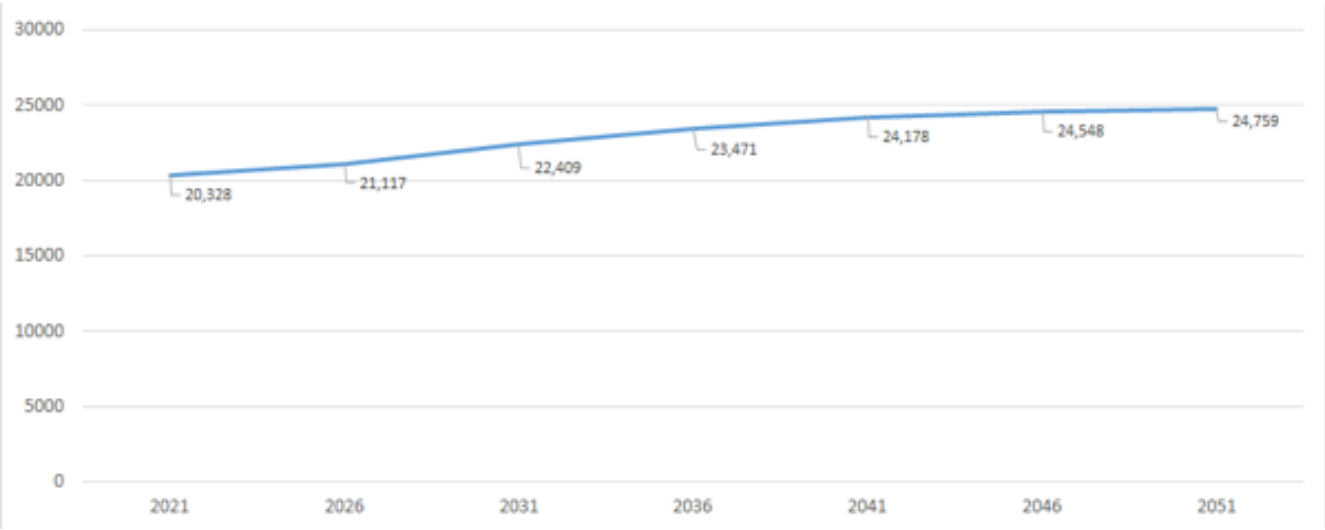
Timaru District household change has historically been characterised by steady growth of households, with pockets of stronger growth in some locations and communities. Household size is declining over time as the population ages. Household projections do not represent forecasts, but indicate what future households will be if the underlying assumptions prevail.

New Technologies

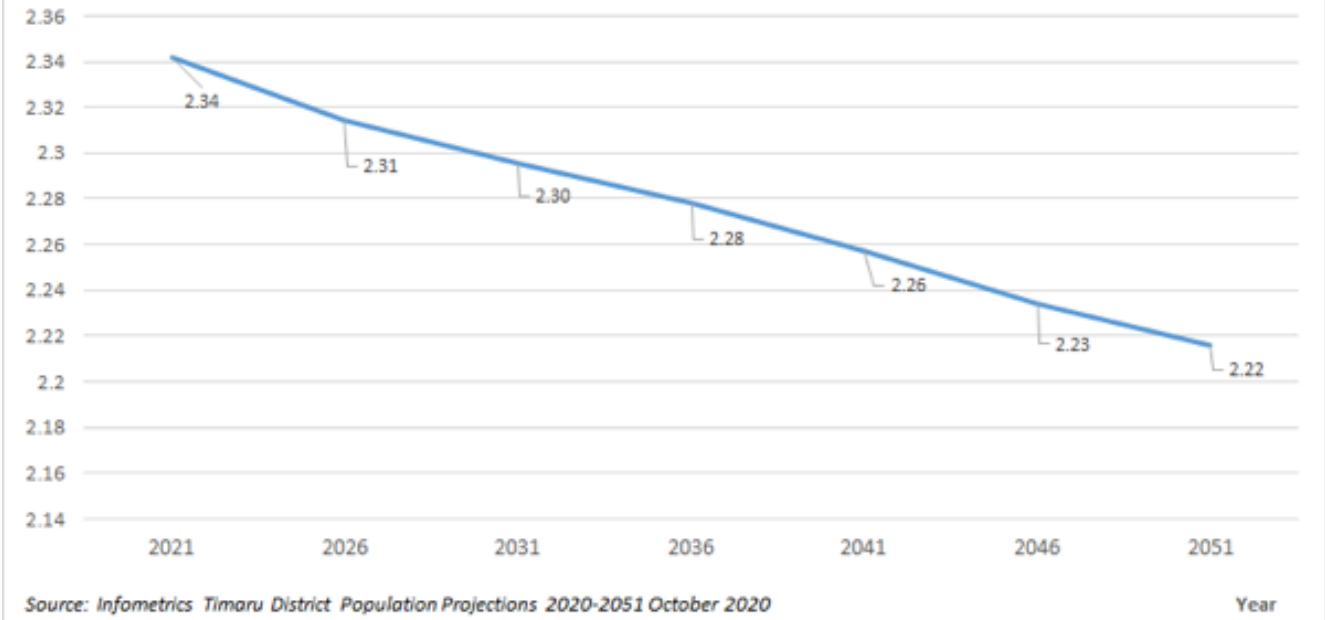
New technologies have significantly disrupted societal norms and placed pressure on investment in long term assets. As changes in technology occur traditional responses to infrastructure investment become more challenging and can potentially leave some assets stranded or obsolete. Technologies also provide significant opportunities to extend asset life and offer Councils the ability to provide alternative options and new responses to delivery of infrastructure services. Council activity managers and staff continually consider new and potential technologies and their impacts on current and future investments.

Industry practices are constantly evolving, and technological advancements are an ongoing improvement that Council aims to use in the roading, water services and waste minimisation activities. The impact of these is described below on the activities covered by this Infrastructure Strategy.

Timaru District Household Projections 2021-51



Timaru District Household Size Projections 2021-51



Source: Infometrics Timaru District Population Projections 2020-2051 October 2020

Roading and Footpaths

Technology in the transportation, roading, and road vehicle industry is growing rapidly. There are multiple areas that Council must monitor and consider. These technologies will potentially improve:

- Road and vehicle safety
- Automation
- Electric vehicle
- Alternative modes of transport
- Vehicle Emissions
- Traffic and vehicle efficiency
- Resilience
- Data
- Communication

According to the Ministry of Transport website, "The Ministry of Transport is taking an active interest in the use of the following transport technologies in New Zealand":

- Road vehicle technologies Autonomous (driverless) vehicles
  - Connected vehicles
  - Engine technologies (electric and hydrogen)
- Air navigation technologies
  - Unmanned Aerial Vehicles (UAVs) (also known as Remotely Piloted Aerial Systems (RPAS), Unmanned Aircraft System (UAS), or drones)
- Smartphones and tablets
- Positioning systems

In the Timaru District, electric vehicles are increasing in popularity and numbers. These include but are not limited to:

- E-cars / vans
  - Driver assisted
  - Autonomous (Driverless)
- E-bikes
- Mobility scooters
- Paxters

These sorts of vehicles have their benefits, but have multiple impacts on roading activity (e.g. Road safety – vehicular and pedestrians, charging stations – as demand increases, asset capability, cellular coverage).

Numerous software applications are emerging and in use. Some of these applications/software can assist with providing information to drivers (such as GPS mapping), and some assist organisations in gathering information.

Global Positioning System (GPS) are as good as the information available. If the software is not updated by the user or by the organisation, then the system can send users to unsuitable locations, all dependent of the options selected, such as "shortest routes". The road user may not have the right vehicle to handle the road conditions that the GPS has identified for them to travel.

With the younger generation more in-tune with the current technology, information such as Wi-Fi direct availability, charging points, online shopping, bus (real-time) location information, are becoming the standard expectation.

Water Services

(Water Supply, Sewer, Stormwater)

For water services, technological improvements continue to evolve and be promoted within the water services industry. Council acknowledges the utility and advantages of using more up to date materials and processes for operational efficiency. A process is embedded in the procurement of services where Council is provided a choice, for example, of the types of materials and methodologies to be used by contractors. In particular, Council's assessment of technology is around what could help increase asset performance, minimise life-cycle costs, and sustainably achieve community outcomes. These include, but are not limited to, the following:

- high performance pipe materials (e.g. crack/ pressure resistant PE pipes)
- non-destructive pipe condition assessments (e.g. ultrasonic testing, broadband electromagnetic testing)
- more effective and environmentally sustainable treatment processes (e.g. for wastewater odour control; for stormwater treatment)
- greater integration of Information and Communication Technology tools in business processes (e.g. electronic identification and tagging of buried assets; customised computers for field work management)

Looking at the 30-year horizon, Council will continue to pursue technological advancement that will bring about the greatest opportunities for efficiency and effectiveness in service delivery, taking into account the community's appetite for advancement or modernisation of public services given the associated costs.

Waste Minimisation

- For waste minimisation, the application of new technology will include: Electric trucks for kerbside collection are likely to be implemented in the next 15 years.
- New technologies and product stewardship schemes will emerge to deal with various waste streams.
- Customer service and tracking apps that allow for issues reporting and resolution.

Council can facilitate a wide range of projects recovering/recycling waste which correlates with the long-term vision for the Redruth site as a resource recovery hub. Technologies such as Waste-to-energy may provide an alternative option following the closure of the landfill, but will need central government support to help develop the infrastructure to make this a reality.

Changing Government Priorities and Legislative Environment

Local Government Purpose

A recent change to the Local Government Act 2002 has re-established the focus on the four wellbeings. Section 10 states:

The purpose of local government is—

(a) to enable democratic local decision-making and action by, and on behalf of, communities; and

(b) to promote the social, economic, environmental, and cultural well-being of communities in the present and for the future.

This change will have minimal impact on Council as it re-establishes a focus on the social, economic, environmental, and cultural wellbeing of the district that has been retained in Council strategy. It will further enable more appropriate long term delivery of infrastructure focused on community wellbeing.

National Infrastructure Plan

The government's objective is that, by 2045, New Zealand's infrastructure should be resilient and coordinated and contribute to growth and increased quality of life. This will be achieved through better use of existing assets and better allocation of new investment, as set out in the New Zealand Infrastructure Plan 2015.

The National Infrastructure Plan 2015 (NIP 2015) is the third National Infrastructure Plan to be released by the Government.

The NIP provides a Vision for New Zealand's Infrastructure that:

"By 2045 New Zealand's infrastructure is resilient and coordinated and contributes to a strong economy and high living standards."

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

Taumata Arowai – Water Services Regulator Act

The largest legislative change that will significantly impact on Council is the Governments passing of Taumata Arowai – the Water Services Regulator Act and the three waters reform.

The Taumata Arowai's statutory objectives, include:

- Protect and promote safe drinking water and related public health outcomes
- Effectively administer the drinking water regulatory system
- Build and maintain capability among drinking water suppliers and across the wider industry
- Give effect to Te Mana o te Wai, to the extent that Te Mana o te Wai applies to the functions and duties of Taumata Arowai
- Provide oversight of environmental performance of wastewater and stormwater networks
- Promote public understanding of the environmental performance of wastewater and storm-water networks.

Taumata Arowai will:

- oversee and administer, and enforce a new, expanded and strengthened drinking-water regulatory system, to ensure all New Zealand communities have access to safe drinking water, and if need be we will hold suppliers to account.
- provide oversight of the regulation, management, and environmental performance of wastewater and storm-water networks, including promoting public understanding of that performance.

The Act requires that all suppliers must be registered on the drinking water register by a year after the Water Services Bill is passed (ie approx. the second half of 2022).

Supplies serving 500 or more must have a drinking water safety plan that complies with new requirements by end of year one. All other supplies must have a drinking water safety plan that complies with new requirements by end of year five (2026).

Until the second half of 2021, drinking water suppliers are required to continue to comply with the Ministry of Health requirements that will continue to be the case, and all current requirements will remain in place.

Three Waters Reform Programme

In July 2020, the Government launched the Three Waters Reform Programme - a three-year programme to reform local government three waters service delivery arrangements. Timaru District Council has agreed to participate in the Three Waters Services Reform programme and has signed up to a Memorandum of Understanding with the Crown, which enables eligibility to access the Crown investment package. The Government has indicated that system-wide reform is needed to achieve lasting benefits for the local government sector, our communities, and the environment. The Government's starting intention is to reform local government's three waters services into a small number of multi-regional entities with a bottom line of public ownership. This would move the planning, operations, and management of the three waters out of Council control.

Freshwater Management

The Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (Freshwater NES) regulates activities that pose risks to the health of freshwater and freshwater ecosystems. The regulation came into effect in August of 2020

The concept of Te Mana o te Wai is central to the freshwater management. It refers to the vital importance of water and the need to ensure that freshwater is managed in a way that prioritises (in this order):

- the health and well-being of water
- the health needs of people
- the ability of people and communities to provide for their social, economic and cultural well-being.

The new National Policy Statement for Freshwater Management (NPS-FM) establishes a set of guiding principles and a hierarchy of obligations. It refers to the essential value of water, and the importance of sustaining the health and well-being of water before providing for human health needs, and then other uses.

The NPS-FM strengthens and clarifies Te Mana o te Wai by requiring regional councils to:

- set a long-term vision (inter-generational) for the water that is informed by aspirations of tangata whenua and communities for what the waterbodies should look like in future, an understanding of current pressures, and an understanding of the waterbodies' history
- report on progress towards the long-term vision
- investigate options for tangata whenua involvement such as joint management agreements, and publicly report on decisions around whether to use these options.

Environment Canterbury is working with Te Rūnanga o Ngāi Tahu and Papatipu Rūnanga to build an understanding of Te Mana o te Wai in Canterbury, and how this should be given effect to.

People making decisions on consents must now have regard to the relevant provisions of the NPS-FM and the National Environmental Standards for Freshwater (NES-F). The decision-maker must weigh up several factors. Considerable weight must be given to the principles of Te Mana o te Wai, and the requirement to put the health and well-being of freshwater first, then human health, and finally the ability of people and communities to provide for their social, economic and cultural well-being. To appropriately incorporate this new direction into the decisions we make on resource consents, Ecan is requiring people/organisations applying for consent, or with consents in process, to assess the relevant provisions of these documents, and particularly how their proposed activities give effect to Te Mana o te Wai and the hierarchy of obligations (see above).

This change will have significant impact on stormwater management in the Timaru District. Council is in the process of obtaining stormwater resource consents and identifying current and future management requirements to include infrastructure upgrades and new developments.

National Policy Statement on Urban Development

The National Policy Statement on Urban Development 2020 (NPS-UD) came into effect on 20 August 2020. It replaced the National Policy Statement on Urban Development Capacity 2016. It was developed by the Ministry for the Environment and the Ministry of Housing and Urban Development.

The NPS-UD 2020 recognises the national significance of:

- having well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future
- providing sufficient development capacity to meet the different needs of people and communities.

The NPS-UD 2020 requires councils to plan well for growth and ensure a well-functioning urban environment for all people, communities and future generations

This includes:

- ensuring urban development occurs in a way that takes into account the principles of the Treaty of Waitangi (te Tiriti o Waitangi)
- ensuring that plans make room for growth both 'up' and 'out', and that rules are not unnecessarily constraining growth
- developing, monitoring and maintaining an evidence base about demand, supply and prices for housing and land to inform planning decisions
- aligning and coordinating planning across urban areas.

The NPS-UD 2020 contains objectives and policies that councils must give effect to in their resource management decisions though not all NPS-UD 2020 objectives and policies apply to all councils. The objectives and high-level policies of the NPS-UD 2020 apply to all councils that have all or part of an urban environment within their district or region. However, some policies apply only to tier 1 or tier 2 councils.

NZ Coastal Policy Statement

The New Zealand Coastal Policy Statement 2010 (NZCPS) guides local authorities in their day to day management of the coastal environment.

The New Zealand Coastal Policy Statement (NZCPS) is a national policy statement under the Act. The purpose of the NZCPS is to state policies in order to achieve the purpose of the Act in relation to the coastal environment of New Zealand.

The coastal environment has characteristics, qualities and uses that mean there are particular challenges in promoting sustainable management:

- The coastal environment varies in nature and extent around the country;
- most existing towns and cities are in or close to a coastal location;
- the coastal environment contains established infrastructure connecting New Zealand internally and internationally such as ports, airports, railways, roads and submarine cables;
- natural and physical resources important to the economic and social wellbeing of the nation and communities, such as quality coastal environments, high quality fresh water, renewable energy, and minerals are found within the coastal environment, including in areas with high natural character, landscape and amenity values;
- the natural and recreational attributes of the coast and its attraction as a place to live and visit combine with an increasingly affluent and mobile society to place growing pressure on coastal space and other resources;
- activities inland can have a major impact on coastal water quality;
- activities in the coastal environment are susceptible to the effects of natural hazards such as coastal erosion and tsunami, and those associated with climate change;
- there is continuing and growing demand for coastal space and resources for commercial activities as diverse as aquaculture and sand mining; and
- the coast has particular importance to tangata whenua, including as kaitiaki.

The coastal environment is facing the following key issues:

- The ability to manage activities in the coastal environment is hindered by a lack of understanding about some coastal processes and the effects of activities on them;
- loss of natural character, landscape values and wild or scenic areas along extensive areas of the coast, particularly in areas closer to population centres or accessible for rural residential development;
- continuing decline in species, habitats and ecosystems in the coastal environment under pressures from subdivision and use, vegetation clearance, loss of intertidal areas, plant and animal pests, poor water quality, and sedimentation in estuaries and the coastal marine area;
- demand for coastal sites for infrastructure uses (including energy generation) and for aquaculture to meet the economic, social and cultural needs of people and communities;
- poor and declining coastal water quality in many areas as a consequence of point and diffuse sources of contamination, including stormwater and wastewater discharges;

- adverse effects of poor water quality on aquatic life and opportunities for aquaculture, mahinga kai gathering and recreational uses such as swimming and kayaking;
- loss of natural, built and cultural heritage from subdivision, use, and development;
- compromising of the open space and recreational values of the coastal environment, including the potential for permanent and physically accessible walking public access to and along the coastal marine area;
- continuing coastal erosion and other natural hazards that will be exacerbated by climate change and which will increasingly threaten existing infrastructure, public access and other coastal values as well as private property; and
- the use of vehicles on beaches causing ecological damage and creating conflicts with other recreational uses and values of the coastal environment.

This NZCPS is to be applied as required by the Resource Management Act 1991 ("the Act") by persons exercising functions and powers under the Act. The Act itself should be consulted, but at the time of gazettal of this statement, its requirements in relation to this NZCPS are, in summary, that:

- regional policy statements, regional plans and district plans must give effect to this NZCPS (sections 62(3), 67(3)(b), 75(3)(b) refer);
- local authorities must amend regional policy statements, proposed regional policy statements, plans, proposed plans, and variations to give effect to NZCPS provisions that affect these documents as soon as practicable, using the process set out in Schedule 1 of the Act except where this NZCPS directs otherwise (section 55 refers);
- a consent authority, when considering an application for a resource consent and any submissions received, must, subject to Part 2 of the Act, have regard to, amongst other things, any relevant provisions of this NZCPS (section 104(1)(b)(iv) refers);
- when considering a requirement for a designation and any submissions received, a territorial authority must, subject to Part 2 of the Act, consider the effects on the environment of allowing the requirement, having particular regard to, amongst other things, any relevant provisions of this NZCPS (sections 168A(3)(a)(ii) and 171(1)(a)(ii) refer);
- when considering a requirement for a heritage order, a territorial authority must, subject to Part 2 of the Act, in addition to having regard to certain matters, have particular regard to, amongst other things, all relevant provisions of this NZCPS (section 191(1)(d) refers);
- in considering an application for a water conservation order, a special tribunal, in addition to having particular regard to certain matters, must have regard to, amongst other things, the relevant provisions of this NZCPS (section 207(c) refers);
- in conducting an inquiry in respect of the report of a special tribunal on an application for a water conservation order, the Environment Court, in addition to having particular regard to certain matters, must have regard to, amongst other things, the relevant provisions of this NZCPS (section 212(b) refers).

Zero Carbon Act

The Climate Change Response (Zero Carbon) Amendment Act 2019 provides a framework by which New Zealand can develop and implement clear and stable climate change policies that:

- contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5° Celsius above pre-industrial levels
- allow New Zealand to prepare for, and adapt to, the effects of climate change.
- The changes do four key things. They:
- set a new domestic greenhouse gas emissions reduction target for New Zealand to:
  - reduce net emissions of all greenhouse gases (except biogenic methane) to zero by 2050
  - reduce emissions of biogenic methane to 24–47 per cent below 2017 levels by 2050, including to 10 per cent below 2017 levels by 2030
- establish a system of emissions budgets to act as stepping stones towards the long-term target
- require the Government to develop and implement policies for climate change adaptation and mitigation
- establish a new, independent Climate Change Commission to provide expert advice and monitoring to help keep successive governments on track to meeting long-term goals.

There will be a transitional period to 2021 to get the new provisions up and running.

- The Ministry for the Environment:
  - has already begun work on the first National Climate Change Risk Assessment. Future Risk Assessments will be carried out by the Climate Change Commission.

- is also developing a provisional emissions budget for 2021–2025. This will provide an early sense of direction before the first three emissions budgets (for the emissions budget periods 2022–2025, 2026–2030 and 2031–2035) are recommended by the Climate Change Commission in early 2021, and set by the Government by the end of 2021.

- The NZ ETS will be an important tool in delivering emissions reductions and helping New Zealand achieve its emissions budgets and 2050 target. The provisional emissions budget for 2021–2025 will be used to inform the unit supply settings.

Resource Management Act

The Government plans to repeal the Resource Management Act 1991(RMA) and replace it with three new pieces of legislation.

The three proposed new pieces of legislation to replace the RMA are as follows.

Natural and Built Environments Act

This is the core piece of legislation to replace the RMA. The purpose of this Act is to enhance the quality of the environment to support the wellbeing of present and future generations.

This would be achieved by:

- promoting positive outcomes for both the natural and built environments
- ensuring that use, development and protection of resources only occur within prescribed environmental limits
- ensuring adverse effects of activities on the environment are avoided, remedied or mitigated.

Under the Act, central government's proposed new National Planning Framework will provide a set of mandatory national policies and standards on specified aspects of the new system. These will include environmental natural limits, outcomes and targets.

Strategic Planning Act

This Act provides a strategic and long-term approach to how we plan for using land and the coastal marine area.

Long-term spatial strategies in each region would be developed to identify areas that:

- will be suitable for development
- need to be protected or improved
- will need new infrastructure and other social needs
- are vulnerable to climate change effects and natural hazards such as earthquakes.

The regional strategies would enable more efficient land and development markets to improve housing supply, affordability and choice, and climate change mitigation and adaptation.

Climate Change Adaptation Act

This Act would support New Zealand's response to the effects of climate change. It would address the complex legal and technical issues associated with managed retreat and funding and financing adaptation.

Climate Change and Natural Hazards

Climate change is considered as a critical consideration in the Council's long term planning. Council uses guidance from the New Zealand government, based upon the best available climate science, to support the planning.

Natural hazards, accelerated by climate change, pose a risk to a resilient infrastructure network. Flooding, landslides, rising groundwater and the risk of liquefaction in the event of an earthquake pose the most significant risks to Timaru Districts infrastructure. It is anticipated these risks will increase over time because of climate change. Climate change impacts include more extreme rainfall events, storms, and flooding. Rising groundwater in low-lying areas is the most significant risk from climate change. High groundwater can cause several problems such as increased frequency of flooding and surface ponding.

The Ministry for the Environment information on http://www. mfe.govt.nz/climate-change/how-climate-change-affects-nz/how-might-climate-change-affect-my-region/canterbury provides a summary of projected climate changes over the period 2031- 2050 and 2081-2100, compared with 1986-2005 and the key impacts this is likely to have.

Potential key impacts are likely to include:

- **Water shortages** – Higher temperatures, less rainfall and greater evapotranspiration are likely to cause increasing pressure on water resources. Droughts are likely to become more frequent and more extreme.
- **More frequent storm events** – An increased frequency of storm events can impact on the quality of raw water in streams and shallow bores, that result in greater water treatment efforts to comply with drinking water standards.

- **Fire risk** – Strong winds, combined with high temperatures, low humidity and seasonal drought may result in an increased fire risk. The length of the fire season is expected to increase.
- **Sea level rise** – As the climate changes and the sea level rises, the risk of flooding will increase. Coastal erosion is also likely to increase.
- **Biosecurity** – Climate change could increase the spread of pests and weeds. Banana passionfruit, a frost-tender plant, appears to be spreading, and argentine ants have survived through two winters, which was previously not thought possible. There may also be an increased threat to native species from changed distribution of disease vectors.
- **Agriculture** – Warmer temperatures, a longer growing season and fewer frosts could provide opportunities to grow new crops. Farmers might also benefit from faster growth of pasture and better crop growing conditions. However, these benefits may be limited by negative effects of climate change such as prolonged drought, new or increased pests, increased flood risk, and greater frequency and intensity of storms. There is also likely to be increasing pressure on water resources.
- **Changes in average temperatures**

  These effects have the potential to increase:
  - Longer dry periods causing increased dust on unsealed roads
  - High temperatures causing bitumen softening causing flushing
  - Stress on plantings and increased maintenance (e.g. changes in planting regimes for parks and reserves
  - Legislative changes to mitigate negative effects of climate change (e.g. changes to building codes to require rainwater capture)
  - Gas and leachate volumes from landfills

Roading and Footpaths

Some infrastructure is exposed to the effects of climate change, including:

- Rise of sea level
- Adverse weather events: Intensity of rainfall
- Strong winds
- Droughts
- Snowfall
- Changes in average temperatures

These effects have the potential to increase:

- Longer dry periods causing increased dust on unsealed roads
- High temperatures causing bitumen softening causing flushing and reducing skid resistance
- Flooding and scouring damaging roads and bridges
- Trees and other structures falling / blocking roads

These all can affect road accessibility and network resilience. The mitigation of these will be reactive through timely response to events and repair works undertaken as required.

Water Supply

The associated risks to water supply relate to the availability and quality of source water. The increasing frequency of droughts could result in the probability of severe restrictions being imposed increasing above the 5% chance of occurring in any one year. More frequent and intense rainfalls could adversely impact on the quality of our raw water sources making it more difficult to treat to drinking water standards. These factors are acknowledged in Council's planning and operation of its assets, and measures are progressively being put in place (e.g. in design standards) to adapt to the effects of climate change. In the immediate term, an upgrade to the take, treatment and storage options is being investigated. This will ensure that appropriate and effective treatment can occur with significantly poorer quality raw water. Over the medium term, universal urban water metering and pricing is also programmed to be investigated and implemented, as a demand management measure to encourage more efficient use of water and increase water availability. In the long term, greater resilience to climate change may require development of new water sources and investing in additional storage and/or treatment upgrades.

Sewer

The occurrence of more intense rainfall events in the district could exacerbate inflow and infiltration (I&I) into the sewer network, with implications on the performance of the assets. Levels of service failure could occur if the existing design capacity of the wastewater network is not able to deal with these more intense rainfall events.

The rate of I&I into the wastewater network is also a key factor in future wastewater volumetric demands. Most urban systems across New Zealand experience I&I with stormwater making up 20% to 40% of wastewater volumes.

Incidents involving overflow from the sewer network due to high levels of I&I make it more likely that breaches of resource consents will occur. Council has an ongoing Inflow and Infiltration Assessment Programme targeting known problem areas and test results are used to inform the pipe renewal programme. Overall, timely renewal of defective pipes is key to mitigating the risk of sewer network overflows.

Stormwater

The effects of climate change on the district's stormwater networks are not quantifiable with any degree of accuracy. What is known is the district's primary stormwater networks are designed to meet a 1 in 5-year return rainfall event (i.e. a 20% chance of occurring in any one year) in residential areas and a 1 in 10 year return rainfall event (i.e. a 10% chance of occurring in any one year) in industrial and commercial areas.

The district's stormwater network is generally aged. With an increase in the frequency of higher intensity rain events, some parts of the network will not meet their intended level of service, resulting in overflows and ponding. Increasing the level of service to contain greater stormwater flow rates and volumes will involve significant investment in network capacity upgrade and development, and will be a major decision for Council and the community to consider. The LTP 2018 Consultation Document included a decision on the funding and timing of this and other stormwater improvements.

The Council have considered options, and decided to spend $15M over the next 10-15 years on stormwater improvements to meet the CLWRP requirements. Work will be undertaken in a staged fashion (short to long term), with environmental outcomes progressively enhanced.

Waste Minimisation

Waste has a contributing effect to climate change through the generation of methane gas. Under the National Environmental Standard for Air Quality, Redruth Landfill is required to implement systems for gas collection and destruction. Landfill gas systems are planned for at each stage of cell development capping and closure. The installation of the new LFG capture system and burn off flare will help Council ensure compliance with the NES, and help offset carbon credit purchases through the UEF credits.

High intensity rainfall will increase stormwater flow within the site and from the surrounding catchment. Stormwater planning will review controls required to mitigate the risks to the landfill stormwater system posed by climate change.

The location of the Redruth Landfill in a coastal area means the site may be at long term risk of erosion. This will be monitored. However, it is noted that the South Island main trunk railway lies between the Redruth landfill and the coast. The Redruth site may also be susceptible to flooding, but high bunds and swales to divert stormwater mitigate the risk.

Part of Council's work on climate change will be assessing the impacts it will have on its assets including the operation of its landfills and possible impacts on closed landfills, and a review will be undertaken in the next 3 years.

Coastal Erosion & Inundation

The district does not have significant roading or wastewater treatment infrastructure subject to the immediate threat of coastal erosion or inundation. However, it does have low lying recreation areas which are subject to it, for example the Otipua Wetlands and associated paths and bridges. The Redruth landfill is also potentially subject to erosion or inundation during the lifetime of this strategy. The issue can be summarised as follows:

- Coastal erosion is occurring along most of the South Canterbury Coastline with the exception of Caroline Bay, which is accreting.
- Erosion has been worsening in recent times as beach shingle is depleted, particularly in severe Northeasterly swells.
- Most at risk from current levels of erosion are coastal walkways, the Rail Corridor for the South Island main trunk railway line, Otipua Beach and the Otipua Wetlands.
- Looking to the next 25 to 50 years, more significant assets in terms of infrastructure may be affected by coastal erosion. If sea levels rise as predicted, together with more frequent extreme weather events, the rate of erosion and inundation will increase. This could potentially affect the following: Washdyke Lagoon – if the seaward side of the lagoon were to be completely eroded, it may expose a main sewer line to the risk of damage from the effects of coastal erosion

The Council Wastewater Treatment Plant and Oxidation Ponds have been built outside the coastal erosion zone, as defined by Environment Canterbury. It is anticipated that the plant and ponds may be at risk but not within the 100 year timeframe.

The Redruth landfill could be affected by erosion and inundation during the next 50 years. This could largely depend on whether KiwiRail take steps to protect the South Island main trunk railway line. If they do, that protection will likely protect the landfill. If not, the landfill could be at risk depending on the rate of erosion

Coastal erosion and inundation is a dynamic and variable phenomenon, which is hard to predict and does not occur in a linear manner. Accordingly, this is an issue that Council needs to monitor closely and address as required.

These key likely impacts have been factored into the planning for our infrastructure assets.

Climate change is expected to be a key focus government, which will potentially lead to a greater focus for local government in this area and more information to help determine the impact on our key infrastructure assets.

Infrastructure Resilience

Customers have a high expectation of continuing functionality and service delivery. Resilience is based on a design philosophy which acknowledges that failure will occur. Resilience requires early detection and recovery, but not necessarily through re-establishing the failed system.

We must consider managing and mitigating the risks to, and the resilience of, our infrastructure assets from natural disasters. The OAG has indicated, 'we consider that there is a need for councils to have a comprehensive discussion about resilience and climate change issues with their communities. The discussion needs to cover financial and non-financial effects' (from Matters arising from our audits of the 2018-28 long-term plans).

How resilient is our infrastructure?

The long term effects of climate change on our district and infrastructure are relatively unknown. There is some information at a regional level that was prepared by Environment Canterbury and further analysis is required. Preliminary work done by Timaru District includes:

- Climate change effects – Coastal erosion and inundation study, water source investigation.
- Water strategy considering resilience of supply
- Stormwater design rainfall higher standards
- Bridge renewals increase waterway capacity
- Emergency response procedures
- Road detours planned

Aging infrastructure

The infrastructure is aging and the district is approaching an important period to ensure that its infrastructure assets continue to meet the needs of the community in the future. We need to consider if we are going to apply a 'just in time' philosophy and defer renewals or apply pro-active renewals.

Council's renewal strategy is intended to provide for the progressive replacement of individual assets that have reached the end of their useful life. The rate of asset renewal is intended to maintain the overall condition of the asset system at a standard, which reflects its age profile, and ensures that the community's investment in the district's Roading and Footpaths, Water Services (Water Supply, Sewer and Stormwater) and Waste Minimisation infrastructure is maintained.

The rate of required renewals determines the funding required. Deferred renewals may affect levels of service and increase maintenance costs. Timely renewal intervention in accordance with good asset management practice is needed to ensure long-term maintenance costs are minimised, Levels of Service are maintained and renewal costs optimised.

As stated by Office of the Auditor General, "Asset management interventions should be driven by data about the factors that determine the cost of service to ratepayers and other users. This includes information about:

- Performance, condition, works, and cost, which is required to understand the current cost of service and trends;
- Cost driven information such as demand, volume, input price, and demand-related decay models, which is required to forecast maintenance and renewal need and cost; and

- Works achieved compared to target/expectation, maintenance compared to renewals expenditure, unit service delivery costs, and condition, which is required to assess trends in the effectiveness and efficiency of maintenance and renewal programmes."

Economic Activity

Sustainable Economy

Timaru District's industrial and commercial growth has been driven by gains in manufacturing, construction and business service sectors, including projects associated with factory and construction growth in Washdyke, and growth at the Clandeboye dairy manufacturing site. Between 2000 and 2015, industrial growth grew by 37% to some 9,000 employees, although in that period associated with the Global Financial Crisis (2008 - 2011) industrial employment actually decreased by 4%.

There are substantial industrial nodes and associated employment at the Port of Timaru, Redruth, Clandeboye and Washdyke. Smaller pockets are located at Geraldine, Temuka and Winchester.

Commercial growth has largely consolidated within the existing CBD's of Timaru, Temuka and Geraldine, and localised pockets provided in Pleasant Point and Winchester.

There is need to ensure that there is a diverse range of opportunities to develop economic and employment growth within the district, so as to retain and attract a diversity of people and business interests. This presents challenges in terms of:

Industrial development

- availability of affordable, well serviced Industrial land in appropriate locations without constraints;
- a need to efficiently align infrastructure provision with demand. There is an existing oversupply of industrially zoned, or deferred industrial land to cater for the additional 91.5ha actually required to service employment growth to 2048.

Commercial development

- there is sufficient on the ground provision and yet to be developed consented development (including the retail park at Showgrounds Hill) to meet demand till at least 2048.
- a wide range of retail and service activities are provided, although there are some store type gaps.
- a lack of activity is present in some areas of the districts town centres, where vacancy rates are high.
- retail expenditure leakage (that is money earnt in the district that is spent on retail outside the district) can be better retained through providing a more competitive and higher amenity offer

Affordability

In view of the significant infrastructure challenges Council is facing, providing and managing continued affordable service delivery is a significant and complex challenge.

This strategy connects with Council's Financial Strategy (FS) to seek a balance of meeting the future renewal and development needs of infrastructure, and maintain affordability for those paying. Assets have long lives, and benefits should be paid for across existing and future generations.

The relationship between the IS and FS is two way. The FS presents a balance between ratepayer affordability and the matters and issues that are summarised in the IS, such as:

- the need to maintain, replace and renew core infrastructure
- legislative obligations to meet new standards and requirements
- a desire to respond to the community aspirations for new and improved infrastructure
- the need to plan for the challenges of climate change and other big issues

Maintaining affordability is a significant challenge given Council's funding constraints and primary reliance upon rates to meet these challenges. The Strategies recognise this need by increasing rates funding and increases in Council's debt within prudent debt to revenue limits. Council's rates are comparatively low when compared with similar Councils, and this has impacted on our ability to meet these needs. Council is also investigating funding mechanisms that it might use to reduce the impact on rates such as Development Contributions. Nationally, work is underway on rethinking local government funding and infrastructure management with initiatives such as the Three Waters reform and the Productivity Commission's report on local government funding. Decisions are expected within the next year.

Land Use Change

The use of land in the Timaru District has changed substantially in the last 15 years. In the future, significant growth in demand for infrastructure services is expected to occur in the following parts of the District:

- Washdyke as the main industrial growth area
- Timaru CBD and the Showgrounds land for commercial use
- Residential growth continuing in Gleniti areas as well as Old North Road area
- Port-related land

At Washdyke, in 2011-14, Council rezoned 120 hectares of land from Rural to Industrial. This rezoning will result in developments that will require extensive new infrastructure, particularly roads, piped networks and electricity distribution systems. Council has determined that this recently zoned land will have infrastructure provided by developers at the time of development.

Rural land intensification has also occurred throughout the District with resultant impacts on infrastructure, particularly roads and bridges. In more recent times heavy trucks have been approved at a 60-tonne gross vehicle mass. The additional vehicle movements have resulted in extra costs in order to meet specified community levels of service.

Land use change impacts on water services are also significant. The increasing number of lifestyle blocks on the fringes of the District's urban areas has increased demand for extension of water supply services to these properties. As residential development continues, the extent of impervious areas grows and creates more demand for stormwater infrastructure services.

The current District Plan Review and subsequent revisions is required by the Resource Management Act 1991 to provide for the expected demand for additional urban land. The plan-led strategic approach taken by the Growth Management Strategy (GMS), which will inform the District Plan Review will ensure that any new areas of urban land are serviced with or can be serviced with infrastructure and that infrastructure is a key consideration in any decision on managing urban growth. This will help ensure new infrastructure provision is efficient. The issue of who prepares Outline Development Plans (ODPs) will be addressed in the GMS or by a Council policy. If Council decides to prepare ODPs, that will increase the demand for design work.

COVID-19

Officers have considered the impact of Covid-19 as part of the development of the Infrastructure Strategy and Activity Management Plans

The local impact of COVID-19 has been variable but far less than anticipated. For example, projections provided by Infometrics post-Covid predicted a more severe economic hit and 9.3% drop in employment by March 2021. Locally this has not occurred, and recent advice from Infometrics suggests a 0.8% employment hit to March 2021. There is a high level of uncertainty attached, due to the ongoing impact of COVID-19 and the risk of further community outbreaks.

There is some impact from COVID-19 on supply chains, in terms of delays in receiving specific materials for projects.

Demand is high for contractors and professional services, which is having some impact on Council's ability to progress or complete some work. This includes pressure on Council staffing, with demand from the private sector for specific skillsets.

Financially, revenue from Council services (fees and charges) has not been substantially affected. In some cases revenue has risen (e.g. increasing tonnages from landfill waste leading to more revenue). This can have other effects (e.g. less landfill life) that will need addressing in future years.

Revenue from dividends and interest are expected to reduce as a result of and expected Alpine Energy Limited dividend reduction and low interest rates. This has an approximately 3% impact on rates.

Economic activity is relatively buoyant across the district, with a strongly diversified economy. Consenting numbers remain strong.

Post COVID lockdown, Council reduced their potential rate increase to 2% for 2020/21, from around 8% as a response to the uncertainty generated from COVID-19. The impact of this decision means some rates catch-up is necessary, with the proposed 10.5% increase for 2021/22 absorbing this shortfall.

Council also agreed a $2M stimulus fund in the 2020/21 Annual Plan. No such fund is proposed for 2021/22.

Council are using the BERL mid-scenario for local government cost adjustors. This most closely resembles our existing situation, with a diverse and growing economy, sound infrastructure and high employment.

Included in the 2021/22 budget is investment in Council staffing, both to achieve a pay equity adjustment, and an annual increase to remunerate staff appropriately, retain staff and meet address labour market conditions. Also included is a number of new positions to meet and maintain levels of service, address compliance requirements and support the delivery of Council's capital programme.

Thirty Year Strategy

Timaru District Council will comply with the relevant New Zealand legislation, while working towards the Strategic Direction, as outlined earlier in this document.

The main theme underpinning this Infrastructure Strategy is ensuring responsible stewardship of our key infrastructure assets to promote the economic, environmental, social, and cultural wellbeing of the Timaru District community and businesses. This acknowledges the many and varied factors that influence the delivery of the district's infrastructure.

Some of the challenges identified are legacy issues (e.g. the decisions of past Councils or how things were built over 40 years ago). Others are simply the demands of a progressive society that is constantly seeking to improve. Either way, the Council is responsible for ensuring built infrastructure enhances community wellbeing and is fit for purpose, good quality, safe, future-proofed, cost effective and appropriately funded.

The Organisations' Priorities and Connecting to the Four Wellbeings

The Infrastructure Strategy takes direction from Council's vision, community wellbeing's, and focus areas to give effect to planning and delivery of infrastructure. The use of the four wellbeing's acknowledges Councils' broader role in looking after our communities, than simply providing core services. Council has identified five community wellbeing outcomes that promote the economic, environmental, cultural, and social wellbeing of the community. The community wellbeing outcomes include:

- Connected Citizens (social & cultural wellbeing)
- Enhanced Lifestyle (social & cultural wellbeing
- Sustainable Environment (environmental & cultural wellbeing)
- Diverse Economy (economic wellbeing)
- Resilient Infrastructure (economic, social, environmental wellbeing)

Council's initial assessment of each significant infrastructure project's contribution to the four wellbeing's is included within the Significant Infrastructure Issues and Decision section. This initial assessment is very subjective, and Council will further develop these contributions to the four well-beings in alignment with national guidance in the future.

The Council's asset and service priorities are:

- Maintain and optimise asset life
- Continue to replace ageing infrastructure
- Maintaining the current levels of service
- Manage the impacts of growth and land use change
- Comply with legislative requirements
- Providing long term affordable services
- Managing the impact of technology changes
- Addressing resilience
- Climate change considerations

Asset and Service Management Strategy

Council's management strategy is to be a prudent and knowledgeable asset manager that makes investment decisions based on asset age, condition, performance, deterioration and maintenance factors. Increasing legislative standards are acknowledged and actioned in all asset renewal projects.

Strategic and organisational priorities set the direction for planning of infrastructure that will continue to support quality living, economic development and environmental integrity, and social and cultural wellbeing in the District in the long-term. Looking ahead to the next 30 years, Council's approach is to be prudent in its investment decisions using a holistic lifecycle approach to asset management, responding to changes in demand for services, allowing for changes in levels of service, and mitigating identified risks. In planning and providing the district's infrastructure requirements in the next 30 years, Council will:

- **Maintain and optimise asset life** – through timely and effective maintenance. Council's philosophy is to view maintenance as a value driver rather than a cost centre. The decision to perform maintenance at any time is based on cost/benefit analysis, understanding that maintenance can add economic value to assets. There is no one-size-fits-all care programme for all of council's infrastructural assets. Council will continue to utilize a mix of approaches, including preventive maintenance, reactive maintenance, run-to-failure (breakdown maintenance), predictive maintenance which is condition rather than age based, and risk-based maintenance for critical assets that need to be monitored more frequently. The decision on what will work best requires a delicate balancing between the value that improved reliability can bring and the cost of maintenance.
- **Continue to replace ageing infrastructure** – through a robust asset renewal programme. Council has adopted a cyclic renewal strategy that provides for the progressive replacement of assets that are reaching the end of their useful life. The rate of asset renewal is intended to maintain the overall condition of the asset system at a standard which reflects its criticality and age profile, and ensures that the community's investment in the infrastructure is sustained.

  Deciding the timing of capital and maintenance expenditures is based on Council's understanding of the current condition and capacity of the assets, as well as future capacity, criticality and reliability requirements. Council will also consider the cost and risk associated with implementing or deferring renewals, upgrades or improvements. Council's strategy will be to:

  - Prioritise capital and renewal projects within the next ten year period based on the strategic objectives of the Timaru District's Long Term Plan and Infrastructure Strategy and a holistic risk based condition assessment; and
  - Forecast capital renewal, replacement and upgrade costs over the following 40 year period; and
  - Forecast the funding requirements based on estimates of costs and asset valuations
- **Maintain the current levels of service** – through a holistic lifecycle approach to asset management that covers the assets and their supporting resources, business processes, data and enabling technologies, critical to sustainably delivering agreed levels of service. This holistic approach to lifecycle asset management enables critical asset data, particularly condition and performance tracking, to be effectively used on a practical day-to-day business level to maximise the performance and life of the asset.
- **Manage the impacts of growth and land use change** – by providing the conceptual framework of infrastructure in support of development. The Council's Growth Management Strategy provides guidance on potential future infrastructure development in the district through identifying the potential location and scale of future growth. Contributions from development will be taken to fund necessary infrastructure so that growth pays for growth, and costs are not unfairly borne by established communities.
- **Comply with legislative requirements** – by acknowledging and actioning legislated standards in infrastructure planning and development. Meeting the LG Act purpose and compliance with the RMA, through the resource consenting processes. Anticipated increase in regulatory controls for drinking water supplies and stormwater signals that additional capital expenditures will need to be made to upgrade water treatment processes and other infrastructure. Land Transport must continue to meet increasing requirements of the Land Transport Management Act, Transport Act and new road user rules such as heavy vehicle mass.
- **Provide long-term affordable services** – through prudent financial management that complements asset management. The financial strategy will continue to reflect the balancing of ratepayer affordability against community needs and aspirations.
- **Manage the impacts of technology changes** – through monitoring technology developments and appropriate responses. The next 50 years will see significant advances in technology, particularly in transportation, and roading infrastructure will need to respond to support these changes. These will include electric vehicle/bike charging stations, information technology on direction, travel and safety and providing appropriate infrastructure for autonomous vehicles. Other potential technology

changes that may need a response are in waste disposal areas such as incineration, water quality monitoring, energy sources and use.

- **Addressing Resilience** – "The infrastructure strategy must outline how the local authority intends to manage its infrastructure assets, taking into account the need to...provide for the resilience of infrastructure assets by identifying and managing risks relating to natural hazards and by making appropriate financial provision for those risks." (Source: LGA Section 101B (3)(e))
- **Climate Change considerations** – Tasks planned initially include:
  - Confirming Council's carbon footprint
  - Completing data collection, research and analysis on the long-term effects of climate change on the Timaru District and Council activities, and incorporating findings into a 'living' climate change status report
  - Developing a District-wide climate change response plan aligned with Government advice and targets, in consultation with iwi and community
  - Developing policies and processes to embed sustainability and climate change into Council projects and decision making
  - Longer Term, the team would be responsible for Implementation of the District's climate change response plan including regular reporting on Council's emissions targets
    - Provision of climate change/sustainability expertise across the organisation's activities
    - Facilitation of adaptive planning conversations with affected communities
    - Monitoring of climate change impacts in the District

Council's Risk Management Policy provides that risks, to which Council is exposed, must either be avoided or controlled to an acceptable level. The policy directs the development of subsidiary risk management plans for each of Council's activities. A register of risks is held on Council's infrastructure assets. Risks are generally managed through the lifecycle management of assets which covers capital works, operations and maintenance.

Council's primary approach in addressing risks from natural hazards is ensuring strong organisational capacity and capability to respond to events that may occur. This means having an operable local Emergency Response Management Plan, Contingency Plan or Business Continuity Plan in place. Ongoing capability building on emergency response is provided to Council personnel through Council's Emergency Operations Centre.

On a day-to day basis, Council addresses all types of hazards to its assets and operations and progressively builds resilience through a whole-of-life approach to asset management. The aim is to continue to deliver the required level of service at all times. Activity Management Plans are updated on a 3-yearly cycle and identify specific risks to assets and operations. These are factored into the development of the associated capital expenditure strategies/ programmes.

Both physical and system resilience are crucial. This means:

- Design and construction standards (where cost effective) that ensure infrastructure is able to withstand natural hazards and long term changes in circumstances such as those resulting from climate change.
- Organisations and networks of organisations with the ability to identify hazards must share information, assess vulnerabilities, and plan for and respond to emergencies.
- Acknowledging the value of adaptability and redundancy in the network to improve business confidence.
- Identifying and managing cross-sectoral dependencies, such as power supply for communications infrastructure.

In order to improve resilience, the Council's approach will be to:

- Investigate options for alternative service provision and system redundancy
- Identify critical assets and ensure mitigation methods are developed
- Better integration of resiliency criteria in infrastructure design and ensure design standards meet climate change effects.
- Improve accuracy of asset condition data for better targeting of renewals
- Strengthen integration of infrastructure services planning with land use planning
- Obtain insurance where this is deemed to be the most cost effective approach or ensure Council funding provision for large scale events is available.
- Plan for Resilience - Network Resilience Maintenance, Monitoring and Prioritised Improvement Plan in place and actionable.
- Do Proactive Maintenance - number of events where journeys are lost due to loss of road function through proactive maintenance taking place
- Plan for Alternative Routes – a plan that details alternative route(s) available for vulnerable routes in case of road closure

- Prepare an Emergency Response Plan – an Emergency Procedures and Response Plan (EPRP)is in place and actionable

Activity Management Policy

The Council has an Activity Management Policy that defines the appropriate level of asset management in line with the International Infrastructure Management Manual 2020 (IIMM). Activity Management Plans are prepared that incorporate key information for managing each individual aspect of the activity. These plans are reviewed regularly.

The aspirational targets for Infrastructure activities are:

Water	Intermediate
Sewerage	Intermediate
Stormwater	Intermediate
Roading & Footpaths	Intermediate/ Advanced
Waste Minimisation	Intermediate

Improving Evidence Base

Council acknowledges there are limitations with its data that affects decision-making. Council has a commitment to improving data collection and analysis. The approach to data collection, management and implementation timeframes are discussed in the respective asset management plans and budgets included where appropriate.

LGA Section 17A Delivery of Services

Council undertook a review of the delivery of its services to meet the transitional provision under Section 17A of the Local Government Act 2002 Amendment Act 2014, requiring all services to be reviewed before 7 August 2017.

For the Water Supply, Sewer and Stormwater activities, Council determined that the services are being delivered cost effectively under existing governance, funding, management, and delivery approaches including contracting arrangements for operation, repair and maintenance of council assets. Council intend to carry out another review of the delivery of the Water Services in 2022, following further direction from the Government on the Three Waters Reform and in conjunction with retendering the Utilities Maintenance Contract.

In July 2017, Council received a Morrison Low report on the Land Transport activity. A wide range of service delivery options were considered for the future delivery of the Land Transport activity by the Council. A review was undertaken in 2019. The following two options were the service delivery options recommended in the review report that could provide improvements to the status quo for the Council:

1. Enhanced Status Quo
   a. Involves implementing the improvement initiatives to build upon the regional collaboration that has already taken place in the physical works space.
2. Shared Service Agreement between the Councils
   a. Involves a major change from the status quo and would represent a transformational shift in the way that the roading activity was managed and delivered in South Canterbury.
   b. Includes the development of a formal South Canterbury Roading Alliance with a shared services business unit incorporating all roading teams from the participating Councils.

Council's Policy and Development Committee in July 2017 considered a report presenting the recommendations and the following:

1. "That Timaru District Council supports the enhancement of the status quo for the delivery of roading professional services, building further on the Mid-South Canterbury Collaboration work to date.
2. That Timaru District Council supports further investigation of the development of a roading professional services alliance with Ashburton, Mackenzie, and Waimate District Councils and enters into discussions with them to explore the implementation of this option" (This has been progressed and is now well established practice)

The Morrison Low S17A review on Waste Minimisation in 2018 determined outsourcing the waste activity to a contractor was the most appropriate and efficient means to deliver the levels of service required. However, the recommendations noted that greater efficiencies could be realised through a collaborative approach with other South Canterbury councils for the contract tender process. To this end, Timaru, Waimate and Mackenzie District Councils entered into a joint contract negotiation with EnviroWaste Services Ltd. Each council has its own contract with EnviroWaste Services Ltd, from 2021-2036, with a five-year renewal to see it through until 2041.

Sustainable Service Delivery

One of the purposes of local government under is to provide for the social, economic, environmental, and cultural well-being of their communities, taking a sustainable development approach.

Section 10 of the LGA 2002 states –

Purpose of local government

1. The purpose of local government is—
   a. to enable democratic local decision-making and action by, and on behalf of, communities; and
   b. to promote the social, economic, environmental, and cultural well-being of communities in the present and for the future.

In order to deliver services that contribute to the social, economic, environmental, and cultural wellbeing of the community for the present and the future, Timaru District Council has adopted a philosophy of using a mix of in-house resources and consultants/contractors to carry out its work programme.

Core work is carried out by a wide range of professionals and support staff employed by the Timaru District Council. These staff carry out a base load of work and consultants are hired to carry out specialised work and also when the volume of work is greater than the internal capacity. The cost of hiring staff versus utilising consultants is evaluated on a job by job basis.

Significant Infrastructure Issues and Decisions

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

(2) The purpose of the infrastructure strategy 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 workshopped and identified the anticipated significant infrastructure issues over the next 30 years. The significant infrastructure issues and decisions faced by Council are summarised in Figure 4 and Figure 5 below. More detail is provided in the remainder of the section.

Figure 4. Three Waters Significant Issues and Projects

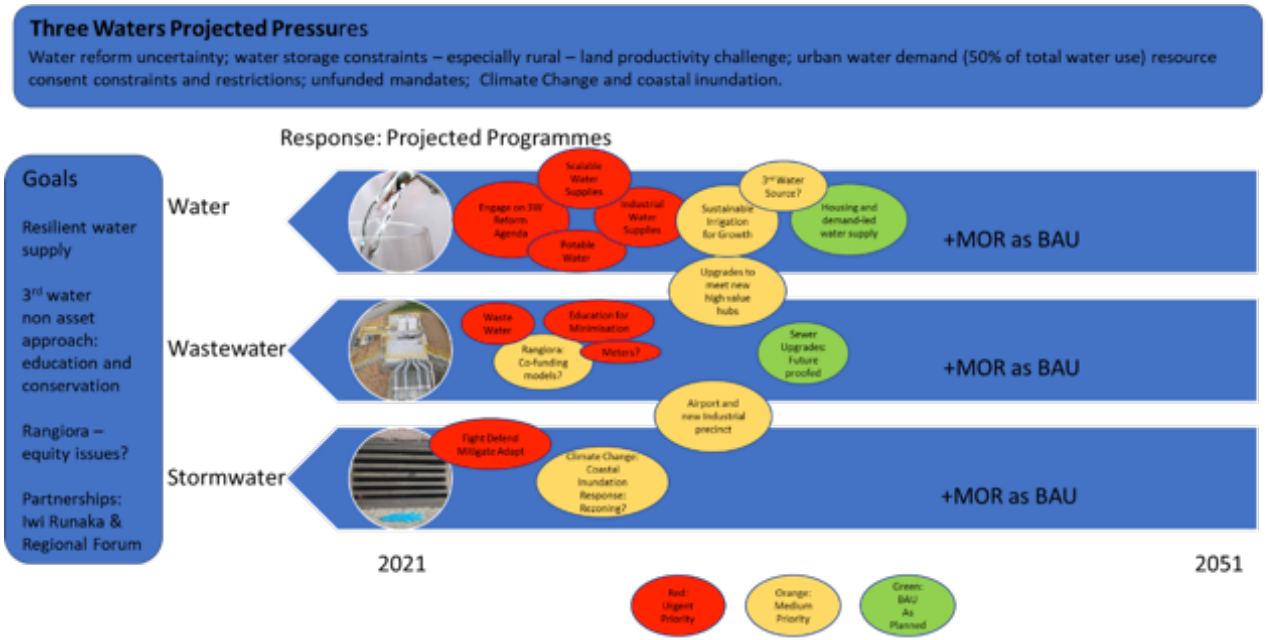


Figure 5. Roading, Solid Waste, Liveable, and Other Infrastructure Significant Issues and Projects

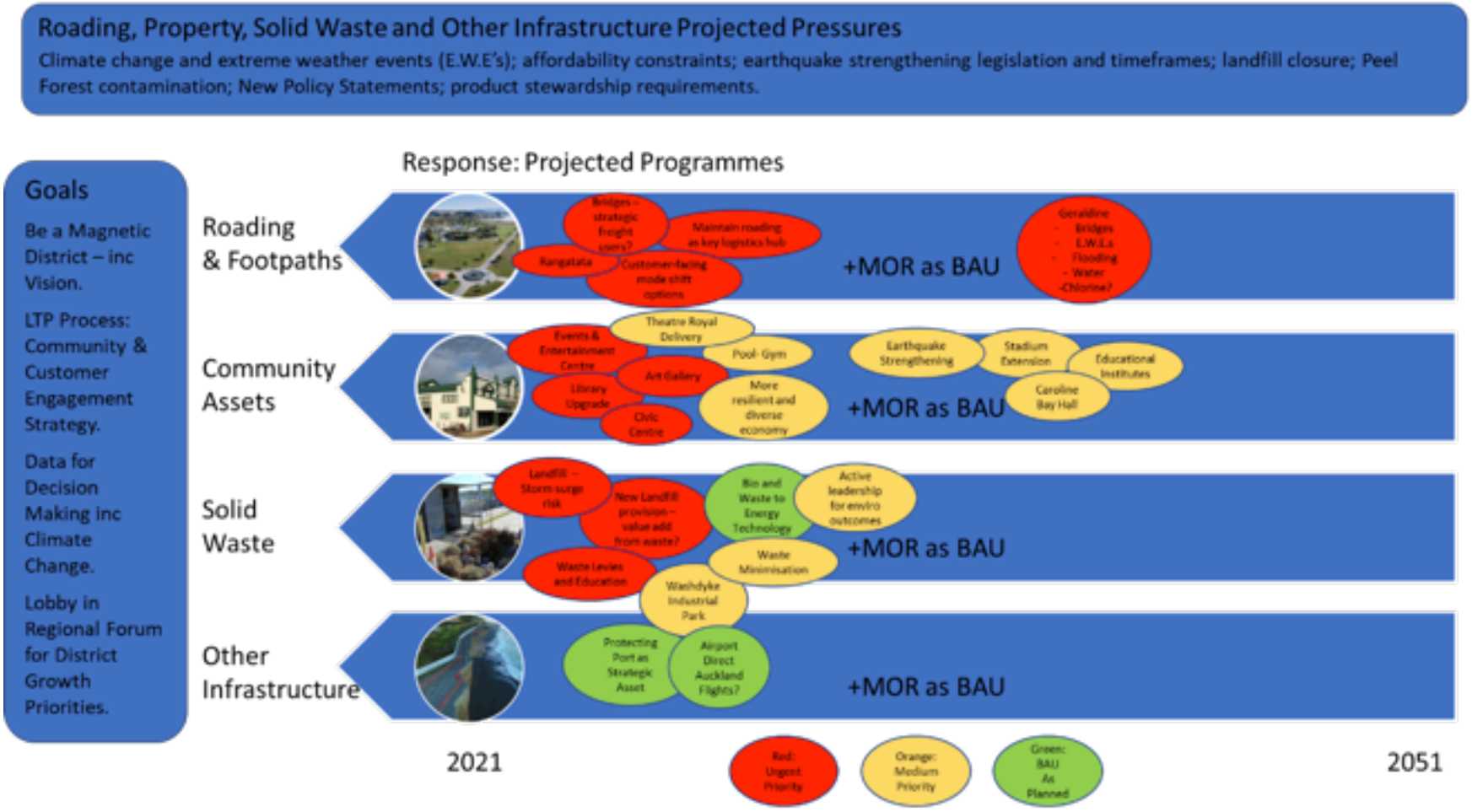
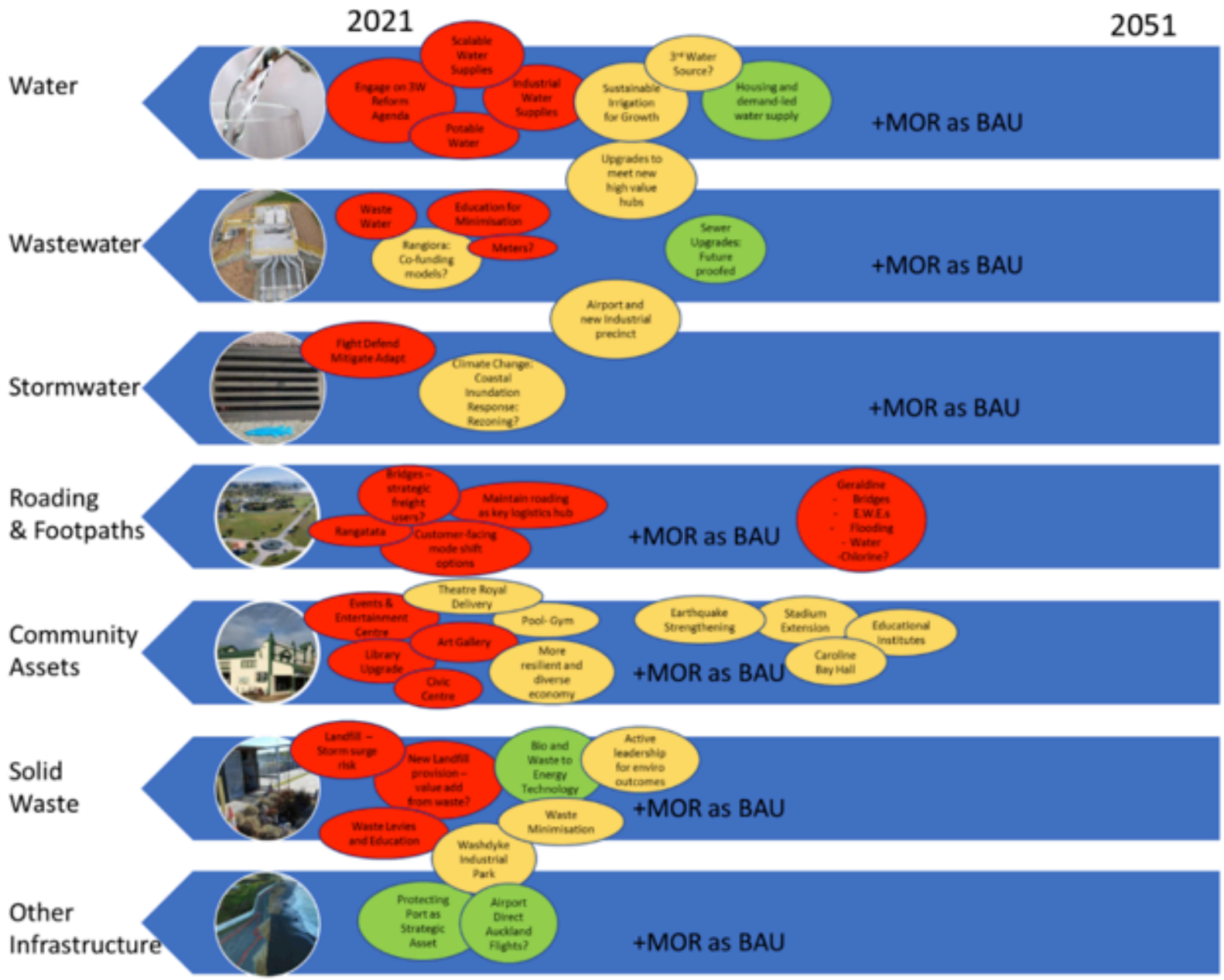


Figure 6. Summary of project timings



Water Supply

The district's water supplies were established at various periods, the oldest being the Timaru town water supply in 1880, followed by Temuka in 1906, and Downlands, Geraldine and Pleasant Point in 1938. The Peel Forest supply was established prior to 1950. The Winchester reticulation was installed in 1966-67. Seadown, Te Moana and Orari supplies were installed in the 1970s.

Around 200km of water mains (or 10% of the entire network) needs replacement within the next 10 years with an associated cost of around $68M. These comprise mainly of steel and asbestos cement (A/C) pipes which were the typical older pipe installations. The quantum of pipes reaching the end of their theoretical economic life is going to progressively increase from an estimated 10% in the next 10 years to about 30% of the entire water supply network within the 30 year period of this Infrastructure Strategy. Renewals of assets are generally funded from reserves which have previously been funded from rates. If there are insufficient funds in the appropriate reserve for the renewal expenditure, council has elected to borrow to pay for some of the renewals.

Later in the period (i.e. from around year 30) there is a significant jump in pipe renewals required, yet they appear to cost significantly less. The difference relates to the size (diameter) of the pipes being replaced. For example, a large trunk main can cost many millions of dollars (e.g. $20M for Pareora pipeline), whereas smaller water mains pipes cost a lot less to replace.

Key issues (10 year AMP)

During the 2020/21 development of asset management plans the following key issues were identified.

- Drinking water standards/Public health
- Climate Change
- Water resilience
- Treatment and Storage
- Supply Source Protection
- Seadown scheme reconfiguration
- Adequate staffing
- Asset renewals
- Firefighting standards
- Consent renewals

The Planned programme of work to address these issues includes the following work streams:

- Temuka treated water reservoir
- Ensure all drinking water standards are met
- Te Moana Upgrade
- Renewal of the raw water pipeline from the Pareora River to the Claremont treatment plant
- Springbrook upgrade
- Seadown Scheme reconfiguration
- Asset condition assessments and renewals and upgrades
- Completion of major projects (e.g. Pareora pipeline replacement, Downlands water supply upgrade)
- Installation of water meters
- Upgrading of Timaru water treatment plant
- Meeting new Drinking Water Standards
- Preparing for three waters reform

Council's goal for the water activity is:

- To support and underpin the health, wellbeing and financial prosperity of the community by providing a lawful, reliable, sustainable and cost effective supply of water to meet the needs of the consumer.

Significant infrastructure issues and decisions are tabled below. The highlighted option is the preferred approach for addressing the identified issue.

Significant Decisions	Description	Indicative Timeframe	$ (2021)	Options
Drinking water treatment and provision changes	The imminent changes in regulatory controls for drinking water supplies (with the establishment of Taumata Arowai) is expected to result in increased standards and rules for drinking water, which may include mandatory treatments. Decisions need to be made by Council on the approaches it will take in order to comply with these new requirements, particularly in providing for the necessary treatment and monitoring upgrades across all of its drinking water supplies. In line with this, Council also needs to make a decision on the treatment upgrade of the Timaru water treatment plant at Claremont, to deal with poor raw water quality as a result of an increasing frequency of storm events.	2021/22 (compliance monitoring) 2022 – 2025 (Timaru treatment upgrade) 2031 – 2035 (treatment upgrades all other supplies)	$18.8M	Option 1 – Treatment upgrades Option 2 – enhanced compliance monitoring Option 3 – Upgrades as required and enhanced compliance monitoring (PREFERRED)
Universal urban water metering and pricing	The demand for water by consumers in the district's urban supplies can put pressure on the availability of water during dry periods, when water use restrictions may be imposed. A decision by Council is required on the approach to increase security of the district's urban water supply. The preferred option is to implement metering and pricing of all consumption to manage demand and reduce excessive use of water. The reduction in demand is expected to be significant to offset and delay any required investment in a new water source. Council's current programme has the implementation of the water meters from 2025/26 – 2028/29. Upgrades to the Pareora pipeline and Opihi River water intake will progress, and other water options will continue to be investigated.	2025 onwards	$16M	Option 1 – install (PREFERRED) Option 2 – not install

Key Issues (30 Year)	Projects	Timing	$ (2021)	Options
Aging infrastructure (driving renewals)	Pipe renewals Treatment facilities	On-going	$1.75M (2021) per annum	Option 1 – Do less than the current level of service Option 2 –Accelerated renewals Option 3 – Current Level of Service (PREFERRED)
Water resilience and Climate Change	Treatment capacity Water metering Additional sources	2023 - 2027	$31M (2021)	Option 1 – Development of new sources Option 2 –Universal urban water metering and charging Option 3 – Treatment plant upgrade (PREFERRED)
Drinking Water Standard and Regulation compliance	Monitoring equipment Treatment plant upgrades Source upgrades	2031 – 2035 (treatment and source)	$21M $2.5M Rangitata Huts $4.1M Downlands (82%)	Option 1 – Comply with Drinking Water Standards (preferred) Option 2 – Do not comply with Drinking Water Standards

Issue – Water resilience and Climate Change

The occurrence of frequent storm events can impact on the quality of the raw water to such an extent that the current treatment process is unable to comply with drinking water standards. Although there is significant raw and treated water storage at the treatment plant, a deterioration of raw water quality for a period of time (as occurred in 2019) could result in Boil Water Notice being issued. Upgrades to the take and treatment facilities would eliminate this issue. An alternative source such as groundwater is also an option, although this would likely require additional specialised treatment.

Water shortage in the Timaru Water Supply Scheme is also an emerging issue during dry weather periods if restrictions are imposed on consents to take water from existing sources, the Pareora River and the Opihi River. The Current Peak day demand is 29 ML/d (megalitres per day), including an Industrial demand of up to 15 ML/d. The Projected Future Peak day demand (with no additional industry) is 31 ML/d. Although the current Maximum water availability is approximately 53 ML/d, the actual water availability can be constrained based on Pareora low flows and Opihi capacity limitations.

The combined effects of dry weather periods and growth in demand intensifying into the future could potentially lead to greater future limitations in resource consents to take water from the Pareora and the Opihi River during low river flows. Council acknowledges that if it does nothing, more stringent water use restrictions will have to be imposed to manage demand during periods of water shortage.

Main Options	Implication of Options	
Option 1 - Development of new sources and treatment	Development of groundwater has significant risk related to developing the bore(s) to obtain the required take, and with the local groundwater requiring significant treatment to remove hardness, iron and manganese. The change in the resultant water quality from the current quality will have a detrimental impact on water users, especially industrial users that heat the water, although there would be compliance with drinking water standards and future demands would be met. This option, including a pipeline to deliver the water to Timaru would all need to be completed (ie not staged implementation) to impact on water quality or quantity.	Cost: New bore field, treatment plant, and pipeline costs of $35 - 40 million capital. Operational cost increases of $1 million per year. Benefit: Increased level of service with less risk of stringent water use restrictions being imposed due to unavailability of water, however additional water will have residual hardness components. Minimal risk of drinking water standard compliance issues due to poor raw water quality. Increased domestic and industrial demand capacity. Increased resilience.

Main Options	Implication of Options	
Option 2 - Introduction of universal urban water metering and charging	The Canterbury Land and Water Regional Plan does make it possible that the Opihi source would not be restricted in times of drought, provided appropriate demand management practices were implemented. Universal water metering and charging results in a well-documented volumetric reduction of the peak day demand of 15 to 30% (normally 20 -25%). The introduction of universal urban water metering and charging is expected to result in the reduction of peak day demands of approximately 3 to 5 ML/d, which could delay the need to secure additional water for several years. This option would not have any impact on the risk of drinking water standard compliance issues due to poor raw water quality. This option could be part of a staged upgrade programme.	Cost: Additional capital costs of $16 million for installation of meters on all urban connections. Operational cost increases of $0.2 million per year, including charging administration. Meter replacement is on a 15-year cycle. Benefit: A reduction or deferment of capacity driven capital works would result (including intake, treatment and network upgrades). There would also be reduced operational treatment costs, although there would be increased water charging administration costs.
Option 3 – Treatment plant upgrade	A treatment upgrade at Claremont would be able to deal with poorer quality raw water due to storm or other events. This would provide significant resilience to the scheme to provide safe drinking water in all circumstances. An upgrade to the Claremont treatment process could be necessary if the Opihi intake is also upgraded in order to treat the poorer quality water that could occur for a period of time when the intake is disrupted. This option would supply water of a quality similar to existing and could be staged to meet demand. However there is no increase in domestic and industrial demand capacity.	Cost: Staged treatment costs at $15 million capital. Operational cost increases of $0.4 million per year. Benefit: Minimal risk of drinking water standard compliance issues due to poor raw water quality, with increased level of service with less risk of stringent water use restrictions being imposed due to poor water quality.

Main Options	Implication of Options	
Option 4 Staged major programme of work with upgraded treatment at Claremont, the introduction of universal water metering and charging, and securing additional water from an existing source through increased capacity from the Opihi River (PREFERRED)	Option 3 outlines the issue, cost and benefit of a treatment upgrade at Claremont, and Option 2 similarly outlines the issue, cost and benefit of the introduction of universal water metering and charging. These two options deal effectively with the main quality and quantity issues associated with the Timaru urban water supply. The treatment upgrade provides the resilience to the scheme to provide complying drinking water with a deteriorating quality of raw water. And universal water metering will result in volumetric savings and will provide the appropriate demand management practices that will ensure water take restrictions are minimised, to enable domestic and industrial demands to be met while deferring capacity driven capital works. . An upgrade to the Opihi take capacity could be staged at a later date, with a probable likely minimum water availability of 40 ML/d, which would be able to meet a significant increase in demand. An upgrade to the Opihi pipeline would also be necessary once demand has increased.	Although this option would be a significant cost, it would supply water of a quality similar to existing and could be staged to meet demand. It is proposed to implement the water treatment upgrade first and to then implement universal water metering. Opihi intake and pipeline capacity improvements would then be undertaken to meet future demands. Cost: Staged treatment costs at $15 million capital, and operational cost increases of $0.4 million per year. Capital costs of $16 million for installation of meters on all urban connections, with operational cost increases of $0.2 million per year. Future capital costs for Opihi intake upgrade, pipeline and increased treatment capacity to meet possible future demands of $23 million, and operational cost increases of $0.5 million per year. Benefit: Minimal risk of drinking water standard compliance issues due to poor raw water quality. Increased level of service with less risk of stringent water use restrictions being imposed due to unavailability of water. Increased domestic and industrial demand capacity.
Time period	2023 - 2027	
Cost	$31M (2021)	
What is the driver	Growth/LoS	
Assumption	After the 2018-28 consultation process, Council had initially programmed the implementation of water meters for 2023/24 - 2025/26. The renewal and upgrade of the existing ozone water treatment plant at Claremont was also programmed for 2025/26. The 2021-31 LTP has subsequently brought the water treatment plant upgrade forward to commence in 2023/24 and be completed by 2025/26 and delayed the implementation of the water meters until 2024/25 - 2027/28.	Upgrades to the Pareora pipeline and Opihi River water intake will progress, and other water options will continue to be investigated. The current residential demand from the urban water supplies will significantly reduce with water metering. The savings in water from water metering will be sufficient to a) meet growth in demand; and b) offset or delay investment in a new water source for the Timaru Water Supply.

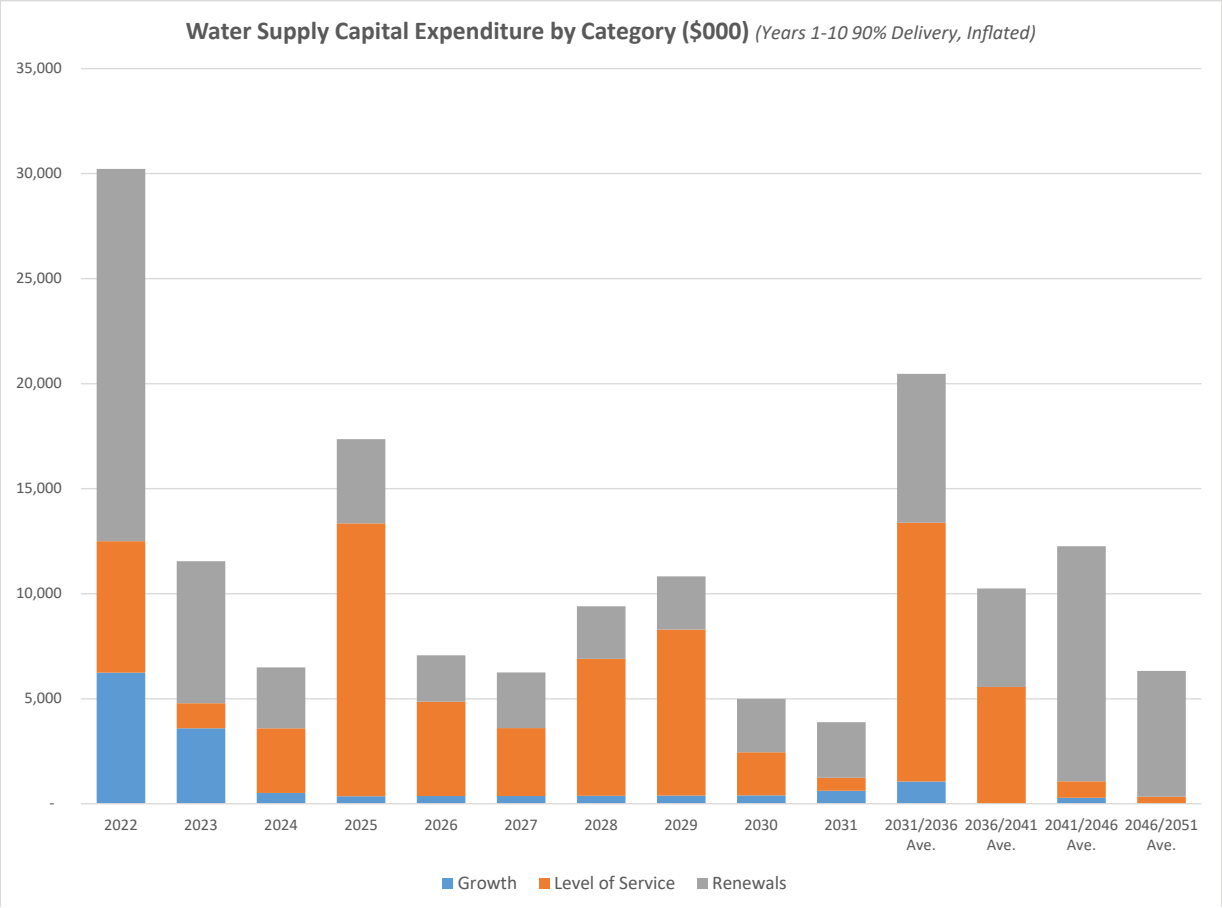
Issue – Aging Infrastructure (driving renewals)

Renewals of reticulation and facilities is a significant issue over the coming years, with many assets reaching the end of their theoretical useful economic lives. Depreciation reserves are used for funding renewals, with borrowing necessary to make up any shortfall.

The consequences of not implementing sufficient renewals in a timely manner is the failure to meet the required level of service or not complying with Drinking Water Standards or regulations, with likely increased operations costs.

Main Options	Implication of Options
Option 1 Do minimum (less than the current level of service)	Current levels of service will not be met, based on interruptions to supply, time for resolving failures, water pressure, etc. There would be significant risk of not complying with Drinking Water Standards or regulations, which would compromise the public health of the consumers and disrupt industry operations, and could result in fines from the Water Regulator or having another entity appointed to operate the water supplies.
Option 2 Have a programme that accelerates the renewals	The acceleration of renewals ahead of time is not economically efficient with assets being decommissioned or abandoned that still had an effective life and value. This would result in higher capital costs earlier in Council's programme of works.
Option 3 Current Level of Service (PREFERRED)	This will optimise the capital works programme in line with the renewal profile established from condition assessment, failure rates and other contributing factors (roading renewals), and will enable appropriate and adequate budgets to be set for maintenance and renewals.
Time period	2021/22 - 2050/51
Cost	$1.75M per annum (2021)
What is the driver	LoS/Renewal
Assumption	That the asset and condition data is sufficiently accurate to enable a robust renewal profile to be determined.

Cost ($000 inflated)														
	Year 1 (2021-22)	Year 2 (2022-23)	Year 3 (2023-24)	Year 4 (2024-25)	Year 5 (2025-26)	Year 6 (2026-27)	Year 7 (2027-28)	Year 8 (2028-29)	Year 9 (2029-30)	Year 10 (2030-31)	Year 11-15 (2031-36) Average	Year 16-20 (2036-41) Average	Year 21-25 (2041-46) Average	Year 25-30 (2046-51) Average
Operations	7,521	8,483	8,599	8,915	9,284	9,663	9,878	10,201	10,465	10,728	12,201	14,613	15,968	17,510
Capital Growth	6,238	3,595	521	356	366	375	385	395	406	623	1,063	-	289	-
Capital LoS	6,266	1,194	3,069	12,996	4,492	3,225	6,514	7,900	2,042	619	12,317	5,560	786	334
Capital Renewals	17,714	6,765	2,904	4,008	2,206	2,650	2,501	2,533	2,546	2,646	7,090	4,691	11,184	5,993



Sewer

Condition of pipes and manholes associated with the age of the asset can lead to increased rates of inflow and infiltration in the sewer systems. Cracks in pipes lead to intrusion of foreign materials, such as rocks, gravel, and solid waste matter into sewage flows which impact on the performance of the pipes, pumps and treatment facilities. Based on the assumed remaining life of the pipe assets, around 100km (30% of total network) need replacing over the next 30 years. There is an estimated $15 million cost to renew around 17km (or 5%) in the next 10 years.

Trade waste discharges that are not compliant with the individual trade waste agreements for each major industry result in outfall trigger levels being exceeded. Stricter management of the trade waste discharges and greater compliance through improved on-site treatments at each industry are required.

Key Issues (10 year AMP)

During the 2020/21 development of asset management plans the following key issues were identified.

- Regulatory compliance (including resource consent)
- The requirement to accommodate climate change issues
- Limitations on industrial and commercial growth

The Planned programme of work to address these issues includes the following work streams:

- Asset renewals and upgrades including an upgrade to the Talbot St (Geraldine) siphon, the industrial pump station upgrade and the Dawson Street pump station upgrade.
- New reticulation
- Asset condition assessments
- Ongoing monitoring
- Monitoring of the sludge volumes in the Timaru oxidation ponds
- A public education programme

Council's goal for the sewer activity is:

- To ensure the health of the community where urban housing exists, thereby eliminating the need for individuals to provide their own wastewater system (which carries much higher health risks)
- To provide a cost effective trade waste disposal system for commercial and some industrial users, thereby eliminating the need for individuals to provide their own wastewater system
- To provide acceptable collection, treatment and disposal systems for the use of communities

Significant infrastructure issues and decisions are tabled below. The highlighted option is the preferred approach for addressing the identified issue.

Significant Decisions	Description	Indicative Timeframe	$ (2021)	Options
Resource Consent	The resource consent for discharging of the district's treated wastewater to the ocean will be due for renewal in 2046. A decision needs to be made on whether significant changes or modifications to the resource consent conditions will be necessary and subsequently whether there will be changes in the associated treatment processes or in the ocean outfall.	2038-42	$6.5M (2021)	Option 1 – Re-consent wastewater discharge to the ocean with significant changes to the domestic and industrial treatment processes and/or ocean outfall structure
				Option 2 – Re-consent wastewater discharge to the ocean with minimal changes to the domestic and industrial treatment processes or the ocean outfall structure (PREFERRED)
Oxidation Pond Desludging	The level of sludge in the Timaru oxidation ponds will need to be monitored, with a decision made as to when the ponds will be desludged. Decisions will also need to be made on what the appropriate process will be for desludging the ponds and subsequently where the sludge will be disposed to.	2035-37	$5M (2021)	Option 1 – Defer desludging of oxidation ponds
				Option 2 – De-sludge oxidation ponds when sludge volumes reach a best practice level, using an appropriate sludge disposal method (PREFERRED)

Key Issues (30 year)	Projects	Timing	$ (2021)	Options
Aging infrastructure (driving renewals)	Pipe renewals Pumping station renewals Treatment facilities	On-going	$1.6M (2021) per annum	Option 1 – Do less than the current level of service Option 2 –Accelerated renewals Option 3 – Current Level of Service (PREFERRED)
Resource consent compliance and renewal of the wastewater discharge resource consent	Trade waste monitoring New discharge consent Ocean outfall upgrade Treatment process upgrades	On-going 2042-45 (Consent) 2045-47 (Outfall) (Treatment process not included)	$6.5M (2021)	Option 1 – Re-consent wastewater discharge to the ocean with significant changes to the domestic and industrial treatment processes and/or ocean outfall structure Option 2 – Re-consent wastewater discharge to the ocean with minimal changes to the domestic and industrial treatment processes or the ocean outfall structure (PREFERRED)
Desludging of Oxidation Ponds	Oxidation pond sludge volume monitoring and desludging Sludge disposal	On-going and then 2035-37 (Timaru desludging) and 2042/43 (Inland towns)	$5M (2021)	Option 1 – Defer desludging of oxidation ponds Option 2 – De-sludge oxidation ponds when sludge volumes reach a best practice level, using an appropriate sludge disposal method (PREFERRED)

Issue - Aging infrastructure (driving renewals)

Renewals of reticulation and facilities is a significant issue over the coming years, with many assets reaching the end of their theoretical useful economic lives. Depreciation reserves are used for funding renewals, with borrowing necessary to make up any shortfall.

The consequences of not implementing sufficient renewals in a timely manner is the failure to meet the required level of service or not complying with resource consents or regulations, with likely increased operations costs.

Main Options	Implication of Options
Option 1 - Do minimum (less than the current level of service)	Current levels of service will not be met, based on interruptions to disposal, time for resolving failures, overflows, etc. There would be significant risk of not complying with resource consents or regulations, which would compromise the public health of the community and disrupt industry operations, and could result in prosecution by the Regional Council.
Option 2 - Have a programme that accelerates the renewals	The acceleration of renewals ahead of time is not economically efficient with assets being decommissioned or abandoned that still had an effective life and value. This would result in higher capital costs earlier in Council's programme of works.
Option 3 - Current Level of Service (PREFERRED)	This will optimise the capital works programme in line with the renewal profile established from condition assessment, failure rates and other contributing factors (roading renewals), and will enable appropriate and adequate budgets to be set for maintenance and renewals.
Time period	2021/22 – 2050/51
Cost	$1.6M per annum (2021)
What is the driver	LoS/Renewal
Assumption	That the asset and condition data is sufficiently accurate to enable a robust renewal profile to be determined. And that increases in base flows due to climate change are included in renewal design.

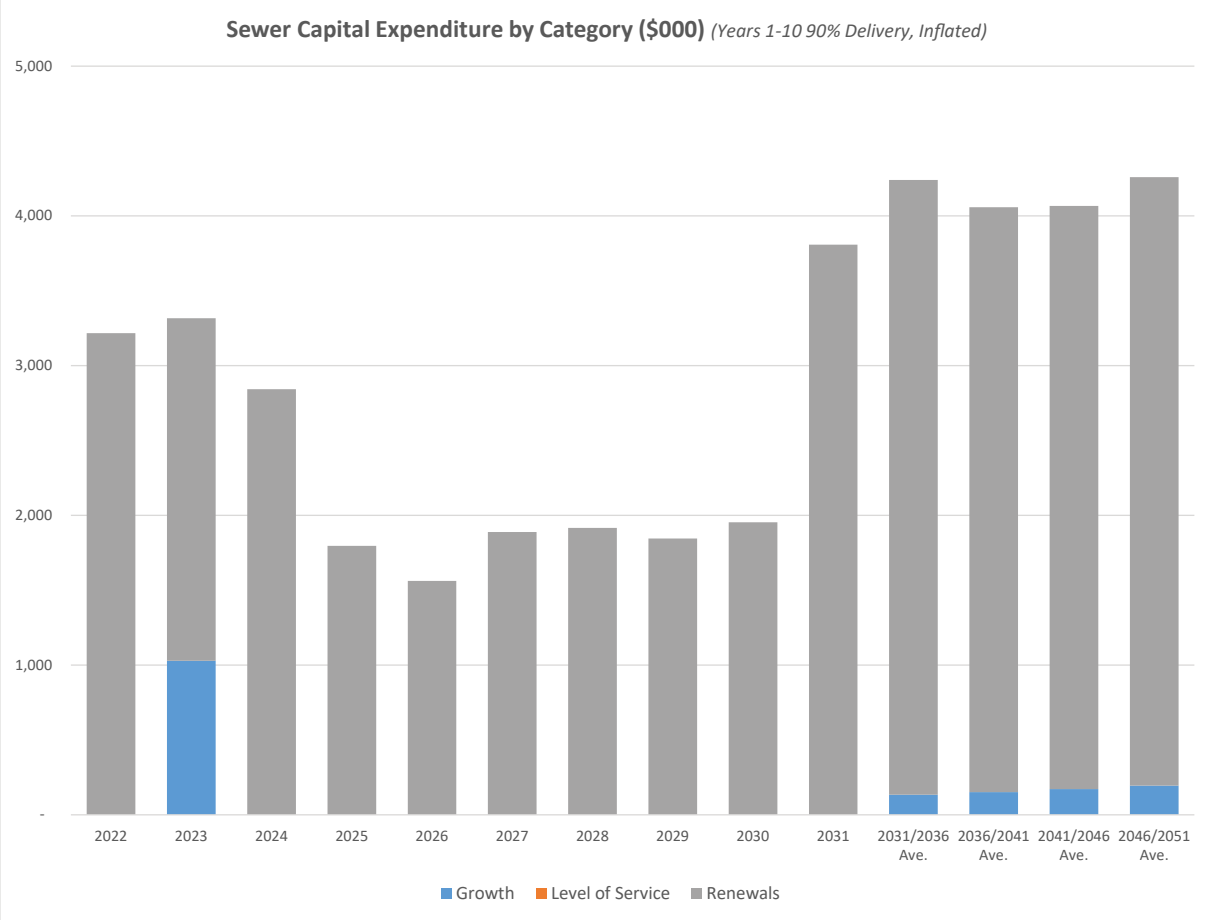
Issue – Renewal of the wastewater discharge resource consent

Main Options	Implication of Options
Option 1 – Reconsent the wastewater discharge to the ocean on the basis of significant changes to the domestic and industrial waste treatment processes and/or to the ocean outfall structure	Significant capital could be budgeted for major treatment process upgrades, both in the domestic and industrial wastewater streams, and a new and potentially longer sea outfall could also be planned, that would substantially change the basis of the wastewater discharge consent. At this time there is no evidence that this will be necessary. On-going monitoring of environmental impacts of the discharge will assist in this determination. It is possible that national regulations could be imposed that could make this option mandatory.
Option 2 – Reconsent the wastewater discharge to the ocean on the basis of minimal changes to the domestic and industrial waste treatment processes or the ocean outfall structure (PREFERRED)	Based on current monitoring and environmental impact investigations, it is proposed that this option is the best economic and environmental solution for the wastewater discharge. The ocean outfall structure may need to be refurbished, depending on any deterioration of its condition in the next 20 years.
Time period	2042 - 2047
Cost	$6.5M (2021)
What is the driver	Renewal
Assumption	That national regulations on a baseline treated wastewater quality, regardless of the discharge environment, are not introduced

Issue – Desludging of the oxidation ponds

Main Options	Implication of Options
Option 1 – Defer the desludging of the oxidation ponds	Deferring the desludging of the oxidation ponds impacts on the performance of the ponds, which makes them susceptible to 'biological upsets' and which can result in significant odour issues and discharge quality issues. This would likely lead to prosecution by the Regional Council.
Option 2 – Desludge the oxidation ponds when the sludge volumes reach a predetermined proportion of the ponds, with an appropriate sludge disposal method (PREFERRED)	This is the best economic and environmental solution for maintaining the performance of the oxidation ponds. The method of desludging and the disposal of the sludge will need to be determined.
Time period	2035 – 2037 (Timaru ponds), 2042/43 (Inland towns)
Cost	$5M (2021)
What is the driver	Renewal
Assumption	That the volume of sludge accumulation in the oxidation ponds is at a rate expected for ponds serving domestic populations and is not accelerated for any reason

Cost ($000 inflated)														
	Year 1 (2021-22)	Year 2 (2022-23)	Year 3 (2023-24)	Year 4 (2024-25)	Year 5 (2025-26)	Year 6 (2026-27)	Year 7 (2027-28)	Year 8 (2028-29)	Year 9 (2029-30)	Year 10 (2030-31)	Year 11-15 (2031-36) Average	Year 16-20 (2036-41) Average	Year 21-25 (2041-46) Average	Year 25-30 (2046-51) Average
Operations	5,459	4,870	4,920	4,926	4,880	4,948	4,980	5,049	5,231	5,696	5,980	6,435	6,766	6,954
Capital Growth	-	1,029	-	-	-	-	-	-	-	-	134	152	172	195
Capital LoS	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital Renewals	3,216	2,287	2,843	1,796	1,562	1,889	1,916	1,845	1,954	3,807	4,106	3,905	3,895	4,063



Stormwater

The issue with the district's aged stormwater reticulation relates not so much with physical deterioration of the asset but with the capacity of parts of the network not being able to meet the current levels of service (i.e. no network overflows for rainfall return periods of 1 in 10 years for residential areas and 1 in 20 years in commercial areas). Council has acknowledged this as a legacy issue that needs to be addressed in the renewal of the network. The district's stormwater network was originally designed based on smaller rain events relevant at that time. Some 3km of the stormwater pipe network will be renewed within the next 10 years at around $3 million cost.

A second major driver is the treatment and attenuation of stormwater. As noted previously, Council has adopted a district-wide Stormwater Management Strategy, driven by the policies and rules of the Canterbury Land and Water Regional Plan. This includes the provision of treatment for the removal of contaminants and the attenuation of stormwater flows using low impact design or green infrastructure approaches such as first flush retention dams, swales and rain gardens.

Key issues (10 year AMP)

During the 2020/21 development of asset management plans the following key issues were identified.

- The funding of compliance and improvements
- The requirement to accommodate climate change issues

The planned programme of work to address these issues includes the following work streams:

- Asset renewals and upgrades
- Implementation of new technologies
- Development of new reticulation
- A public education programme

Council's principal goal for stormwater over the next ten years is:

- To provide for the collection and disposal of stormwater to acceptable environmental standards

Significant infrastructure issues and decisions are tabled on the following pages. The highlighted option is the preferred approach for addressing the identified issue.

Significant Decisions	Description	$ (2021)	Indicative Timeframe
Setting work programmes to meet Resource Consent conditions	Council has adopted a Stormwater Strategy including concepts (additional operation costs 2 FTE's) for treatment and flow mitigation to be implemented in order to meet resource consent conditions and environmental standards. Conditions in the Area resource consents to be obtained in 2022 will have a major impact on setting the work programme in order to achieve the outcomes required. Decisions are required on the timing and funding of the work programme. As a result of the 2018 -28 LTP consultation process, the agreed option is to carry out the work required over a 10 to 15 year period.	$200K	2021 - ongoing

Key Issues (30 year)	Projects	Timing	$ (2021)	Options
Resource consent compliance	Environmental and discharge monitoring New discharge consents	2022 – ongoing (significant monitoring will be required under the area resource consents 2037 (The duration of the area resource consents may be 15 years)	$3.98M ($143k annually from Year 3)	Option 1 – provide resourcing to deliver monitoring in accordance with consent conditions (PREFERRED) Option 2 – Do minimum monitoring using resources currently available
Timing and funding of stormwater strategy	Capital upgrades	2022 -ongoing	$15M (2021)	Option 1 –change the stormwater treatment work programme to be completed over either a short period (5 years) or a longer period (20+ years) Option 2 – Fund and complete stormwater treatment work over a period of approximately 15 years (PREFERRED)

Issue – Timing and funding of stormwater strategy

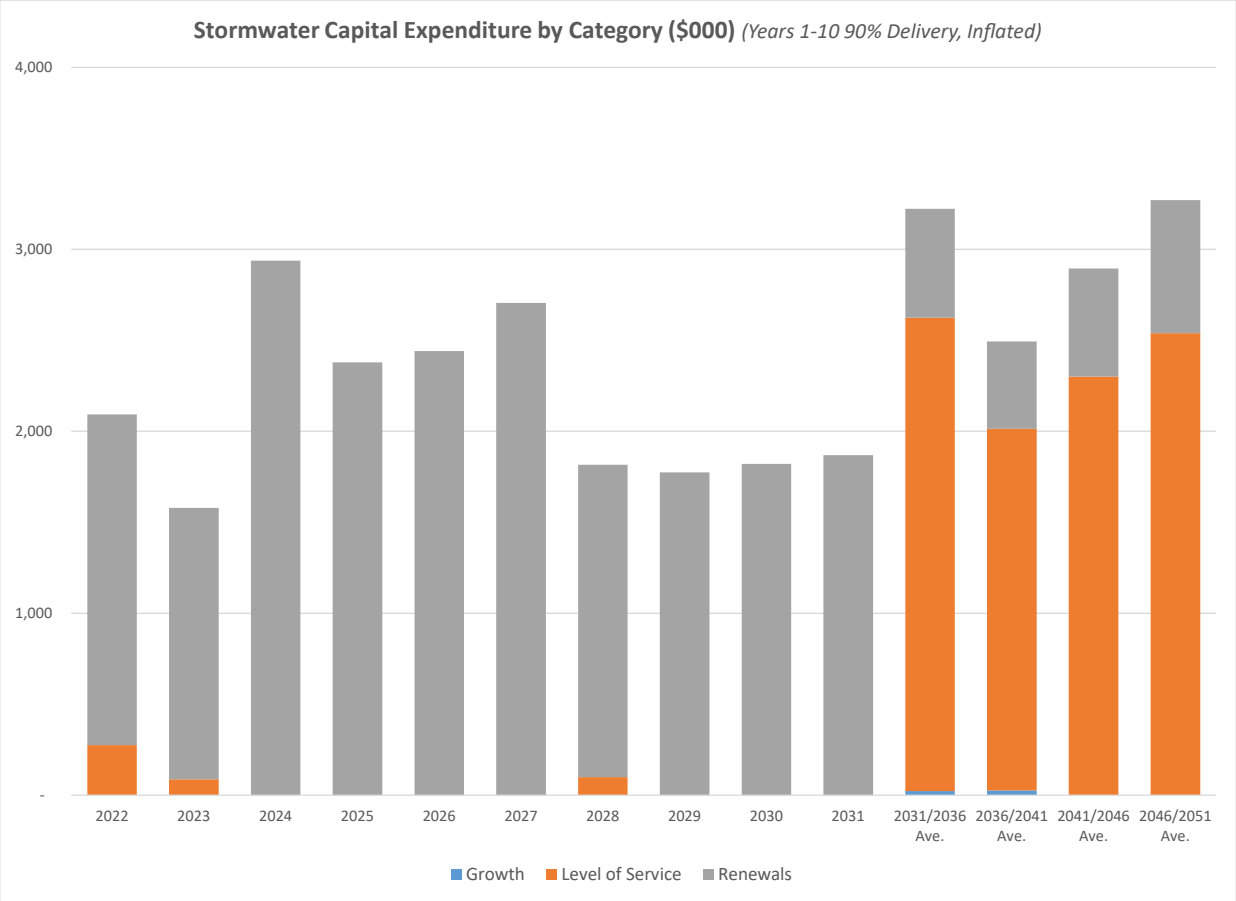
Rules and regulations regionally under the Canterbury Land and Water Regional Plan (LWRP), and nationally through the National Policy Statement for Freshwater Management require Council to apply a higher level of service to the management, attenuation and treatment of stormwater. Poor stormwater quality affects the health of waterways, reduces their intrinsic value and limits the use of the resource. Council must increase efforts to reduce the level of contamination in discharges of stormwater.

Area resource consents for the urban areas of the district are to be obtained in 2022, which will require stormwater treatment improvements to reduce the levels of contaminants that discharge to urban waterways. The rate of implementation of the stormwater treatment will impact on how quickly improvements to the environmental quality of the waterways are achieved.

The Area resource consents are likely to have a duration of 15 to 20 years.

Main Options	Implication of Options
Option 1 – To change the stormwater treatment work programme to be completed over either a short period (5 years) or a longer period (20+ years)	Fast tracking the work programme, will have very high funding requirements and may not result in the most economical or effective treatment options being implemented. Or implementing environmental quality improvements over many years, will have the least impact on rates, but improvement outcomes are too slow for that required from the resource consents. The results of public consultation on the 2018-2028 LTP did not prefer this option.
Option 2 - Fund and complete stormwater treatment work over a period of approximately 15 years (PREFERRED)	Environmental quality improvements are achieved over the term of the stormwater discharge consent, with medium funding requirements. The resource consents are based on an adaptive management concept where work programmes are developed over time to ensure the best outcomes are achieved with the budgets available. Cost: Approximately $1 million per year additional capital, with a gradual increase in operating costs of up to $600,000 per year. Benefit: Increased levels of service in relation to stormwater treatment and management achieved in the medium term. Achieving environmental quality improvement outcomes in a progressive measured manner.
Time period	15 years commencing in 2022
Cost	$15M (2021)
What is the driver	LoS
Assumption	Stormwater discharge quality in the district's urban areas will not deteriorate significantly. A resource consent will be obtained with favourable conditions for achieving defined environmental outcomes in a progressive measured manner. It is likely that new resource consents in 2037 will require additional improvements due to increasing environmental standards.

Cost ($000 inflated)														
	Year 1 (2021-22)	Year 2 (2022-23)	Year 3 (2023-24)	Year 4 (2024-25)	Year 5 (2025-26)	Year 6 (2026-27)	Year 7 (2027-28)	Year 8 (2028-29)	Year 9 (2029-30)	Year 10 (2030-31)	Year 11-15 (2031-36) Average	Year 16-20 (2036-41) Average	Year 21-25 (2041-46) Average	Year 25-30 (2046-51) Average
Operations	1,790	1,096	965	945	972	871	944	927	961	1,137	1,267	1,448	1,537	1,608
Capital Growth	-	-	-	-	-	-	-	-	-	-	23	26	-	-
Capital LoS	275	87	-	-	-	-	99	-	-	-	2,601	1,988	2,301	2,539
Capital Renewals	1,818	1,492	2,938	2,379	2,441	2,706	1,717	1,774	1,821	1,869	599	480	594	731



Roading and Footpaths

A significant amount of the District roading infrastructure was constructed between 50 and 80 years ago during the "pioneer" or "boom" times that provided access to land, industry, rail and ports. As a consequence these assets are in the second half (or less) of their useful life. This is most evident in the district's bridge stock where many will need replacing in 10 to 20 years time. Provision must be made for this "bow wave" of renewal expenditure.

In recent years, there has been a significant growth in the freight task and a modal shift to road transport. The result is more heavy vehicles using our roads and increases in the mass of these vehicles. This has accelerated the deterioration of our road assets shortening their useful lives. Hence, a significant renewal programme is required. This is monitored on an ongoing basis by the following:

- Lifecycle assets strategy and plan implementation
- Condition monitoring and assessment
- High Speed Data and Multi Speed/Falling Weight Deflectometer testing
- Deterioration modelling (dTIMS and Juno) dEffective and timely maintenance though Development of a "Pavement Management Strategy" between maintenance Contractor and Council
- Demand Management
- Traffic Counting
- Renewals programmed and completed in effective and timely manner
- Costs recorded and intervention actions based on whole of life costs.

Currently, Juno and dTIMS (deterioration predictive modelling) are used for pavements, which identifies intervention strategies and determines timing, frequency and treatment type to be implemented. This also optimises intervention strategies and produces expenditure forecasts, work programmes and predictions of future condition.

Bridges are inspected and structurally assessed every three years and renewal programmes are reviewed based on these assessments. The ageing of the assets and accelerated deterioration will result in challenges for future funding and resources to meet demand. This is a significant issue for the Council and will be for the short to medium term of this strategy (years 0-20+)

Key issues (10 year AMP)

During the 2020/21 development of asset management plans the following key issues were identified.

- Increased demand for heavy motor vehicles to support our buoyant local economy are placing increasing pressure and pavement and bridge assets, this is leading to accelerated consumption, and an increased need for investment
- There are an unacceptable number of fatal and serious injury crashes on the Timaru District roading network. There are several reasons for this but infrastructure related issues can be a contributor.
- Changes in our communities have identified a lack of multi-mode infrastructure. We have an ageing population who use semi-mobile modes and pedestrian facilities and crossing points are required for the visually impaired.
- Extreme weather events are occurring more frequently which is resulting in more instances of road closures an increase in emergency work costs and increased flushing on the networks sealed roads.

The Planned programme of work to address these issues includes the following work streams:

- Holistic Carriageway Management Approach
- Advanced Asset Management including a more proactive approach to assessing asset condition, gathering more asset information, and investing in more detailed analysis of asset performance to better predict interventions.
- Demand management – Restrict routes with no destination (or short cut routes) to High Productivity Motor vehicles, unfortunately this is difficult to police and VDAM heavy vehicles may still take the opportunity to use these routes to reduce Road User Charges
- Programme Response - Road Improvement Programme. We have developed a road improvement programme which will reduce reactive maintenance, reduce faults, and increase customer satisfaction.
- Climate Change Assessment Method – adoption of methodology to assess the impacts of climate change based on the best practice model advocated by the Office of the Auditor General.
- Climate Adaptation Programme to assess and upgrade drainage and bridge infrastructure to ensure greater resilience.
- Stormwater Channel Programme to ensure ongoing stormwater channel improvements are undertaken
- Delineation Strategy to get a consistent level of service for our lines and signs across the transport network.
- Safety Improvement Programme that targets Intersection and Route Improvements, Seal Widening and Seal Extensions.
- Road Safety Education Programme
- Skid Resistance Programme to improve surface texture through treatment of sites with low skid resistance properties.

- Adoption of One Network Framework under consideration to better differentiate our road network and support modal shift and urban form initiatives.
- Active Travel Programme to increase options for active travel journeys on the transport network.
- Maintenance Contract development – ensure upcoming maintenance contract has flexibility and ensures the outcomes for both clients and contractor are community focused and align well to Long Term Plan objectives.

Council's goal for the roads and footpaths activity is:

To provide a safe, affordable, sustainable land transport system that fully meets the environmental, economic and social needs of the district.

Significant infrastructure issues and decisions are tabled below. The highlighted option is the preferred approach for addressing the identified issue.

Significant Decisions	Description	Indicative Timeframe	$ (2021)	Options
Affordability	Consideration of policy on funding road activities eligible for but not financially assisted by NZ Transport Agency and extent of such funding to maintain current level of service.	3 Yearly in conjunction with Long Term Plan)		
Bridges Renewals	A significant number of road bridges will reach the end of their useful life in 10-20 years. The renewal of these bridges will require an increase in expenditure from $0.6M per annum to over $2.1 million per annum. A renewal and funding strategy needs to be determined to manage this to maintain affordability.	2025/26	$2.1M per annum	Option 1 –Do less than the current level of service Option 2 –Accelerated renewals Option 3 – Current Level of Service (PREFERRED)
Southern Port Access Overbridge	A deed of grant for the existing road to cross railway land at the Southern Port Access (Heaton Street) was granted in 2017. This allows the deferral of a new overbridge. Council will need to consider the future form of access prior to the expiry of the deed of grant.	2030	$10M	Option 1 – Status quo maintaining level rail crossing access. Option 2 – Construction of new overbridge across railway line.
Pavement Rehabilitations (Overlays)	A significant portion of the network is under stress due to increasing demand of heavy vehicles on poorly constructed/old pavements. Funding for both overlays and resurfacing (chipseal and asphalt) needs to increase by 2.5 million over the next 10 years with a further increase of $2m per annum in years 11-30	2021-2051	$10M per annum	Option 1 – maintain current level of renewals and consequent reduction in LOS. Option 2 – increase renewals and maintain current LOS (PREFERRED)

Key Issues (30 year)	Projects	Timing	$ (2021)	Options
Ageing assets and increased consumption	Renewal of Pavements Renewal of Bridges Renewal of Footpaths Renewal of street light poles and cables Renewal of car parks Renewal of car parking equipment Renewal of traffic signals	2021-2051	$9.5M (2021)	Option 1 – Do less than the current level of service Option 2 – Accelerated renewals Option 3 – Current Level of Service (PREFERRED)
Road Safety and Capacity	Increased Road Safety Education Programmes Road upgrades Intersection improvements Carriageway Widening	2021/22	$4.2M (2021/22 – increasing to $5.6M 2022/23-2031/32	Option 1 – Maintain current level of service Option 2 – Responsive level of service with increased resources (PREFERRED)
Amenity upgrades	CBD Hub projects Footpath Level of service Surveillance cameras upgrades/ extension	2021-2031	$42.9M (2021)	Option 1 – Maintain current level of service Option 2 – Undertake City Hub Upgrades and Footpath upgrades based on community leads (PREFERRED)

Issue – Ageing Assets and increased consumption

Renewals of road pavements and road bridges is a significant issue over the coming years. Obtaining the funding and managing the renewals will be challenging.

Pavements – The consumption of the asset is increasing due to the increase in freight task (numbers, weight and dimensions of heavy vehicles). This decreases the useful lives of the asset. In order to maintain fit for purpose roads, the structural integrity of pavements need to be renewed more frequently and increased in strength to optimise asset life.

Bridges/Structures – Many bridges were constructed over a short period of time. With the ageing of these bridge assets and the changes occurring in the area of freight task, the General Bridge Inspection Report 2015/16 has identified that there are a significant number of bridges/structures that will require renewals/replacements to address structural deterioration. The Council Bridge Policy (Doc # 423438), Council has identified that bridges on all primary collector and higher hierarchy roads shall be two lanes, and that all new and replacement bridges within the District shall be capable of minimum 50MAX capacity, and on collector and higher hierarchy roads shall be capable of full HPMV capacity.

Main Options	Implication of Options	
Option 1 - Do Minimum Level of Service	Pavements – The levels of service on roads can be reduced by allowing the road pavements to deteriorate and fail through less regular maintenance and deferral of renewals until full pavement failure. The reduction of levels of service may increase vehicle operating cost, reduce road safety, decrease road safety, and customer satisfaction while also increasing road roughness. There will be access restrictions on heavy vehicle use of some roads that will increase freight costs and potentially restrict economic growth. Bridges/Structures – The level of service is reduced for bridges/structures as bridge renewals are deferred. This will result in an increasing number of weight/speed restricted bridges/structures or closures. Portions of the roading	network will be restricted and unable to be used by large heavy vehicles and it will be difficult to meet the increasing freight task. This may impact access, travel times and increase freight costs that will potentially restrict economic growth in our district. Cost: The monetary cost of renewals reduces, but maintenance will increase. The costs in other areas such as safety, risks, and Council image increases. An increase in other costs (freight transport) for stakeholders is expected. Assets may not be fit for purpose. Benefit: Allowing for a reduction in levels of service will allow for Council to reduce overall renewal cost for the asset and gain additional life at a reduced Level of Service.

Option 2 - Current Level of Service	Pavements – This will see the pavement asset deteriorating as pavements are not strengthened / widened. They will therefore not be fit-for-purpose and premature pavement failure will be an ongoing issue. Bridges/Structures – The current bridge/structure assets renewals will not keep pace with the asset useful life expectation of these structures and therefore bridge load restrictions will become necessary. This will restrict access to large heavy vehicles particularly High Productivity Vehicles that may increase travel times, restrict vehicle size and increase freight costs that will potentially restrict economic growth in our district.	Cost: Council faces an increasing renewal demand as many bridges constructed in the early 1900's reach the end of their useful life and to meet pavement improvements. Current renewal funding will not address this "hump" and bridges renewals will need to be deferred. This means increasing maintenance cost and restricted network that increases freight and travel costs that will potentially restrict economic growth in our district. There is a risk of reduced road safety and also reduced asset resilience. Benefit: This option allows maintaining current funding levels long term and therefore minimises future rates increases requirements for roading.
Option 3 - Responsive Level of Service (PREFERRED)	Pavements – To keep up with the increasing freight task, Council has to provide a level of service that is fit-for-purpose. In order to address this, pavement strengthening is required, and added drainage may be required. This leads to additional funding and resources required. Cost: $255 million over the next 30 years. Benefit: Increases in Levels of Service to ensure the road assets remain fit-for-purpose and effectively meeting the demands of increasing heavy vehicles. There are also improvements in road safety and resilience. Bridges/Structures – There are a number of bridge/structure assets that are reaching their end of useful life. To meet the changes occurring with freight tasks, the bridge/structure assets will require improvements to increasing their level of service. Keeping in line with the Council's Bridge Policy, new	and replacement bridges within the District on specific road hierarchies will need to be strengthened and changed to two lanes. Cost: $91 million over the next 50 years. There is an increase in cost from year 10 as an increasing number of bridges reach the end of their useful life. Benefit: Increases in Levels of Service to ensure the road assets remain fit-for-purpose and effectively meeting the demands of increasing heavy vehicles. There are also improvements in road safety and resilience. This option is the preferred approach to ensure continued support for the increasing economic growth of the district and meeting the freight task associated with this growth. Managing this option could be challenging as it may strain affordability for Waka Kotahi and Timaru District
Time period	TBD	
Cost	$10 M per annum (2021)	
What is the driver	LoS/Renewal	
Assumption	No further changes to legislation allowing heavier vehicles on the network	

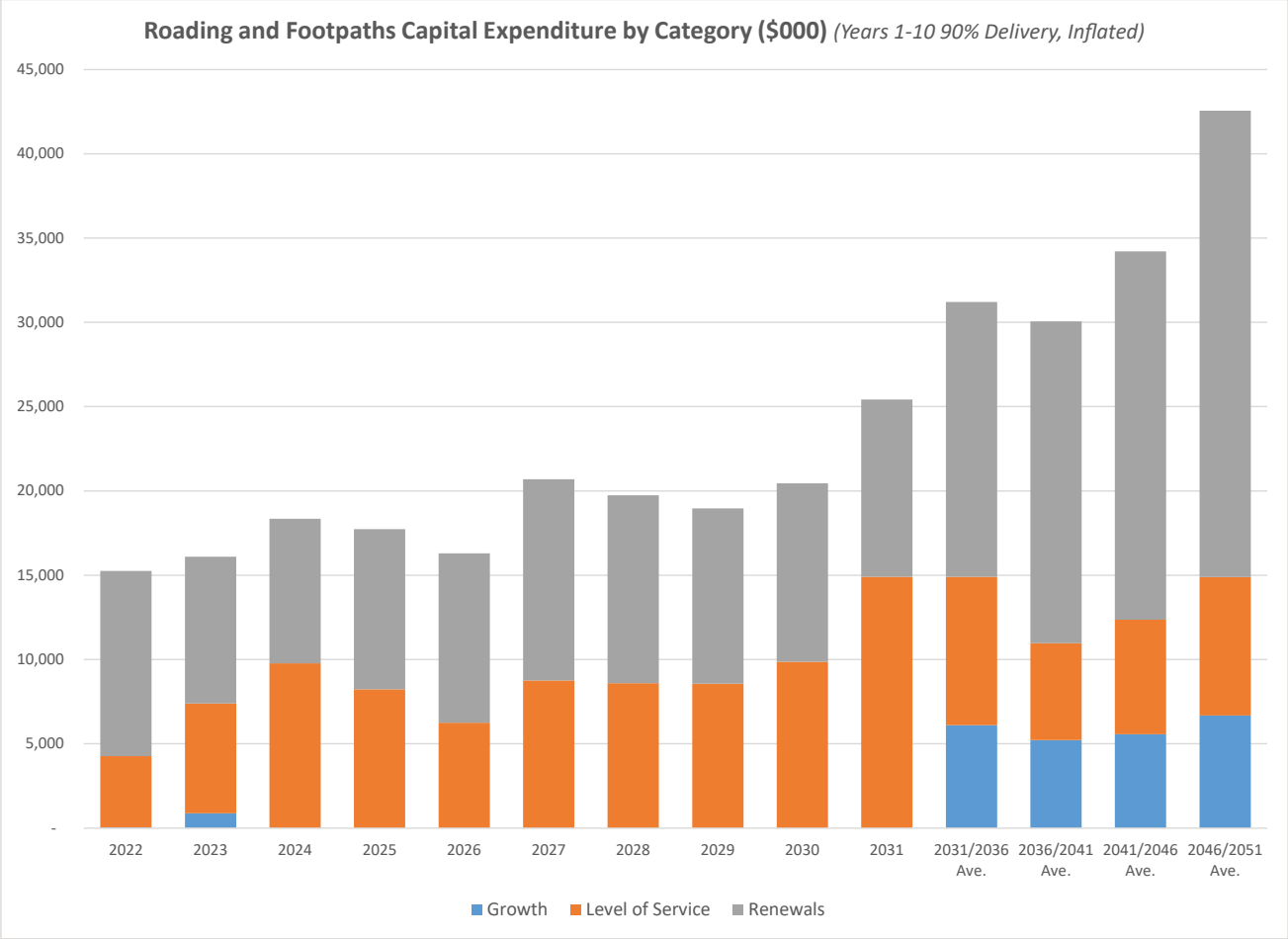
Issue – Road Safety and Capacity

Main Options	Implication of Options	
Option 1 - Current level of service	Deaths and Serious injuries occur at seemingly random locations and spread out across much of the network. While crash numbers are low, Timaru is not on track to achieve "Road to Zero" targets. Due to the "random" nature of the location of crashes, often there is not a high collective risk at individual locations Therefore, Timaru is often unable to demonstrate death and serious injury savings to be made, meaning attracting Waka Kotahi funding for these works is challenging. While there is a low number of deaths and serious injuries on our network on a number of our roads the personal risk is high. Customer Survey's are currently showing a downward trend in awareness of road safety programmes, by continuing with a low level investment in Road Safety Education Timaru is likely missing opportunities to educate and change driver behaviour and	attitudes. Cost: Road Safety Education $314,000 per annum or $9.4 million over the 30 year period Road Improvements $3.6m in year one increasing to $5m 30 year cost of $148m over 30 years Benefit: Low cost option. Continue programmes that are already underway Consequence: Crashes in the district continue to occur at a similar rate. The social cost of fatal crashes in any one year exceeds the cost of the full programme over 30 years.
Option 2 - Responsive level of service (PREFERRED)	A proactive approach to a South Canterbury Road Safety Strategy, where there is strong alignment with road safety education programmes nationally. Development and measurement of key performance indicators will help support all "three E's" (Engineering, Education and Enforcement) to make progress toward National Road to Zero objectives, saving lives. Among other things, this will see the introduction of a collaborative delineation strategy and roll out, meaning more advance warning for drivers, safer speeds, through a self-explaining road, speed limit by law review and targets road	safety education programmes across the South Canterbury sub-region Cost: $580,000 per annum or $17.4 million over the 30 year period Road Improvements $3.6m in year one increasing to $5m. 30 year cost of $148m over 30 years Benefit: Increased customer awareness of road safety education programmes, assisting success in self explaining roads and changing driver attitudes, with the goal of meeting or exceeding Road to Zero targets.
Time period	2020 - 2022	
Cost	$4.2M (2021/22) – increasing to $5.6M 2022/23-2031/32	
What is the driver	LoS	
Assumption	The speed limit setting rule will be fully embedded nationally. There will be no national policy statement on default speed limits	

Issue – Amenity Upgrades

Main Options	Implication of Options	
Option 1 – Do Nothing	Undertake footpath/paver repairs on an as requested basis. The level of service gap between townships would continue to grow and the customer satisfaction would likely drop considerably While this would be a low cost option due to a reduction in renewals the maintenance costs would increase, as would the number of trip hazards and safety issues for our public. If condition rating were to continue there would be a far higher length of footpaths falling in to a below average condition. The already high	age profile would soar and the footpaths would fall into disrepair, costing future generations significantly to catch up on delayed renewals Cost: $500,000 per annum - maintenance or $15 million over the 30 year period Benefit: No capital costs, so Council would have funds to invest into other capital programmes slowing down obtaining debt caps.
Option 2 - Current Level of Service	Undertake planned footpath renewals and upgrades, allowing for some alignment with other utilities installations in the corridor. Township funding if not combined to a district wide rate will continue to show disparity in level of service between townships. Reactive approach to Timaru Central Business District revitalisation.	Unlikely to attract priority with failures in other areas. Likely to continue to get complaints on pavers/tiles used in CBD. Also unlikely to see significant change in general customer satisfaction. Cost: $1,400,000 pa or $42m over 10 years then $10M years 11-15. Benefit: Lower capital costs
Option 3 - Undertake City Hub Upgrades and District Wide Footpath funding (Preferred option)	Undertake planned footpath renewals and upgrades, allowing for some alignment with other utilities installations in the corridor. Township funding if not combined to a district wide rate will continue to show disparity in level of service between townships. Enabling approach to Central Business district revitalisation in with implementation of the City Hub strategy projects. Likely to see customer satisfaction with the CBD surfaces improve and also an overall improvement in general satisfaction with the Districts footpaths.	Cost: Footpath Maintenance, renewals and new $2,290,000 pa or $68.7m over 30 years Plus a further $100M in City Hub upgrades over 10 plus years. Benefit: Increased customer consultation and satisfaction with footpaths and the CBD areas.
Time period	2021-2051	
Cost	$2.9M (2021)	
What is the driver	LoS/Renewal	
Assumption	Waka Kotahi continue to fund footpaths as an asset group and City Hub Project is successful	

Cost ($000 inflated)														
	Year 1 (2021-22)	Year 2 (2022-23)	Year 3 (2023-24)	Year 4 (2024-25)	Year 5 (2025-26)	Year 6 (2026-27)	Year 7 (2027-28)	Year 8 (2028-29)	Year 9 (2029-30)	Year 10 (2030-31)	Year 11-15 (2031-36) Average	Year 16-20 (2036-41) Average	Year 21-25 (2041-46) Average	Year 25-30 (2046-51) Average
Operations	9,611	10,559	12,064	13,339	13,741	14,527	15,461	16,266	16,848	18,635	20,892	25,018	29,314	34,452
Capital Growth	50	875	-	-	-	-	-	-	-	-	6,110	5,222	5,564	6,685
Capital LoS	4,214	6,514	9,777	8,231	6,250	8,750	8,589	8,575	9,867	14,905	8,792	5,743	6,792	8,209
Capital Renewals	10,988	8,703	8,576	9,505	10,050	11,941	11,151	10,388	10,579	10,515	16,310	19,096	21,853	27,664



Waste Minimisation

In Waste Minimisation many of the assets are buried within closed or active landfills. The Stage 1 Redruth landfill, closed in 1996, has no such buried assets, but required capping to improve environmental outcomes. Stage 2 and 3 combined form the "new Redruth Landfill" which will require an aftercare period of 30 years post-closure.

Pumps are the main landfill asset requiring regular renewal, and due to harsh conditions, they are often replaced on a failure basis. The transfer station infrastructure is between 17-25 years old and is generally in good condition. Renewals are required for compactors and compactor bins after the initial 10-year period.

Above ground assets are listed in a database and more work is required to date and report on these assets to improve renewals planning and funding requirements. This work will be undertaken in 2021 for a robust condition assessment and valuation to help develop a sound asset management plan for future strategies.

Key Issues (10 year AMP)

During the 2020/21 development of activity management plans, the following key issues were identified.

- Peel Forest closed landfill breach and mitigation following December 2019 flood that required remediation, and the subsequent analysis needed to analyse the risk for all 36 known closed landfills within the district..
- Contamination of kerbside collection waste (wheelie bins) – very high and increasing the amount of recycling material going to landfill so requires strong social marketing and communications to keep public engagement into best practice for recycling and waste
- Landfill gas flare compliance and ongoing monitoring for UEF application
- The consolidation, reconciliation and analysis of waste data to increase accuracy, help inform planning decisions, and improve waste charges
- Legislation changes for waste, including Council's role in managing or enforcing product stewardship schemes, changes to the Emissions Trading Scheme and Waste Levy requiring new landfill charges
- Climate change impacts and coastal inundation of Redruth landfill particularly around Saltwater Creek and Pareora River
- Increased waste tonnages going to landfill, necessitating the moving forward of landfill cell development in Redruth, reducing the landfill life to between 25-28 years and resulting in a new landfill required within 25 years
- Asset management to include condition assessments, valuation, and renewal programme

The Planned programme of work to address these issues includes the following work streams:

Programme/Project Name	Explanation
Closed Landfill Risk Assessment & Management Plan	Assess all 36 closed landfills currently identified in Timaru District for risk; develop plan for management due to risk to waterways (incl Peel Forest ongoing mitigation)
Contract management for new contract and kerbside contamination	Contract 2400 managed to ensure the ongoing monitoring of kerbside contamination, good community engagement & bin monitoring
Redruth Landfill Cell Design/ Builds/ Capping	Capping old landfill cells, design and build new cells for landfill based on waste volume to ensure capacity for 25-28 years
Redruth LFG upgrades	Upgrading LFG capture and flare system; purchase new monitoring equipment
Waste Data Analysis & Programme Management	Oversee RFID programme and do all analysis of discrepancies to provide better rating information; better management of Weightrax data to align to waste levy reporting and expenditure management
Fixed Assets – assessment, valuation and renewals	Fixed plant and equipment condition assessment, valuation and renewals (lights, electrical works, weighbridges etc.)

Timaru District Council's vision for waste management and minimisation is:

"A sustainable community that is able to reuse, recycle and recover discarded resources and minimise residual waste to landfill, while ensuring protection of public health and the environment."

To realise this vision, Council has set the following goals and objectives for its waste activity:

Goals	Objectives
1. Protection of public health from waste	1.1 Ensure health and safety risks are either eliminated, reduced, isolate or mitigated
2. Protection of the environment from waste	2.1 Ensure environmental risks are either eliminated, reduced, isolate or mitigated
3. Provide effective and efficient waste minimisation services in a sustainable manner	1. Achieve effective services 2. Achieve efficient services 3. Progress sustainable concepts

Significant infrastructure issues and decisions are tabled below. The highlighted option is the preferred approach for addressing the identified issue.

Significant Decisions	Description	Indicative Timeframe
Landfill life	Landfill life can be extended by a commitment to proactively implementing further diversion strategies. The landfill life will already extend beyond the expiry date of the resource consent, but further diversion will increase the life of the landfill. This will defer the need to implement alternative disposal methods.	2021 onwards
Contamination levels in kerbside collection	Contamination levels can determine waste volumes in landfill and the success of recycling schemes for waste diversion. Proactive management of communication and social media to keep public engaged into doing best practice is an essential commitment by Council and the contractor	2021 onwards
Closed landfills management (including Peel Forest)	Closed landfills are a risk to the environment in cases of breaching to adjacent waterways, creating ecological disasters and requiring significant resources to address. Assessing the risks of each known closed landfill and developing a robust monitoring and management plan will enable Council to proactively budget for any mitigation or remedial works necessary to reduce or eliminate the risks.	2021 onwards
Waste data management and analysis	Waste data is extensive and varied in quality and accuracy; needs FTE to adequately manage and streamline data to make it useful for Council's assets planning and rating purposes	2021 onwards

Key Issues (30 year)	Projects	Timing	$ (2021)	Options
Landfill capacity management	New cell developments New waste diversion facilities Enhanced landfill capacity development	2021 onwards	$23M (2021)	Option 1 – Status quo Option 2 - Divert waste by transporting to alternative landfills Option 3 - Contractor actively manages waste streams being delivered to Redruth encourages waste minimisation and managing new cell developments (PREFERRED)
Landfill at capacity (replacement)	New landfill site investigations and land purchase New landfill plant development	2041-46 – landfill development 2040 – site assessments, land purchase	$55M (2021)	Option 1 – Seek a new landfill site within District (PREFERRED) Option 2 – Send waste to an alternative landfill site outside of District Option 3 – Seek new landfill site in South Canterbury with collaboration
Climate change (LFG)	Gas collection/flaring systems	2021- completion of ring-piped system for gas collection 2022 – implementation of compliant flares and UEF application 2023 – operational and collection of UEF data for credits	$1M (2021)	Option 1 – Continue to utilise existing non-compliant flare for burnoff Option 2 – Proceed with implementing new ring LFG capture system and compliant flare (PREFERRED)

Key Issues (30 year)	Projects	Timing	$ (2021)	Options
Resource consent compliance	Monitoring equipment	2021 onwards	$500,000 (2021)	Option 1 – Ongoing monitoring and renew consent (PREFERRED) Option 2 – Do not renew consent
Aging Infrastructure	Transfer station renewals Asset maintenance & renewal plan	2021 – asset condition assessment and valuation 2022 – asset management plan with maintenance and renewal plan scope	$250,000 (2021)	Option 1 – Do less than the current level of service Option 2 –Accelerated renewals Option 3 – Current Level of Service (PREFERRED)
Landfill aftercare	Closed landfill investigation Remediation works	2021 – landfill aftercare for Stage One 2023 – landfill aftercare for Stage Two 2046 onwards – landfill aftercare for Stage Three	$7.5M (2021)	Option 1 – Status quo Option 2 – Minimal monitoring activities and wait for directives from government Option 3 - Commission the risk assessment for all known closed District landfills and development management plans. (PREFERRED)

Issue – Landfill capacity management

Main Options	Implication of Options
Option 1 – Status quo – no changes to fees, no more diversion initiatives	Waste going to landfill continues to increase, creating capacity issues and requiring new landfill cells to be filled and developed earlier than projected; landfill life continues to decrease; Council fails to meet KPIs
Option 2 - Divert waste by transporting to alternative landfills such as Kate Valley in North Canterbury, or landfills in Otago or Southland	Transportation costs increase which will cause waste disposal fees to increase; landfill life at Redruth is extended; Council may or may not meet KPIs depending if measures are solely measured on Redruth landfill capacity or total waste tonnage
Option 3 - Contractor actively manages waste streams being delivered to Redruth; encourages waste minimisation in public engagement campaigns, promotes and supports waste diversion schemes; manages new cell developments (PREFERRED)	Waste to landfill remains at a steady pace or reduces over time as more is diverted from landfill; landfill life is extended; waste diversion initiatives are accepted within the community as preferred options; contract does not require many variations as incentivising scheme to reduce waste to landfill is successful; Council meets KPIs
Time period	2021 - 2040
Cost	$23M (2021)
What is the driver	Growth/LoS
Assumption	That waste going to landfill's airspace consumption rate remains at 58,000 cubic metres per annum

Issue – Landfill at capacity (replacement)

Post Redruth Landfilling - when the Redruth Landfill is full, an alternative means of disposal must be found.

Main Options	Implication of Options
Option 1 - Seek a new landfill site in the Timaru District	Implications – Significant cost and community consultation involved as well as 10+ year planning timeframe. Cost: $55m Benefit: Local landfill controlled by Council. Transport risk is reduced.
Option 2 - Send waste to an alternative landfill site south of Timaru	Implications – Subject to availability of space and permission to deliver waste. Cost of waste (including transport) likely to increase significantly. Cost: $51,635,000 Benefit: Risk and cost of operations and management lies with external party.

Main Options	Implication of Options
Option 3 - Send waste to an alternative landfill site north of Timaru	Implications - Subject to Canterbury Waste Joint Committee approval, it is possible Timaru District Council may opt into the Canterbury agreement for landfilling at Kate Valley north of Amberley. Cost of waste disposal (including transport) likely to increase significantly. Cost: $53,735,000 Benefit: Risk of operations and management lies with regional group.
Option 4 - Seek a new landfill site in South Canterbury with collaboration.	Implications – Significant cost and community consultation involved as well as 10+-year planning timeframe. Collaboration with other parties required. Cost: $55m Benefit: Regional landfill controlled by Council and other parties reducing future transport risk.
Time period	From 2040 onwards
Cost	$55M (2021)
What is the driver	Growth/LoS
Assumption	Landfill will still be the preferred disposal and treatment of non-reusable waste, Council will still prefer to manage its own landfill within the district as opposed to transporting to Kate Valley

Issue – Climate change (LFG management)

Main Options	Implication of Options
Option 1 - Continue to utilise existing non-compliant flare for burnoff	Council will not be compliant with resource consent and will have to pay more for carbon credits
Option 2 - Proceed with implementing new ring LFG capture system and compliant flare (PREFERRED)	Council will meet NES standards for methane gas emissions; compliant with resource consent for landfill air emissions; will meet the criteria for UEF credits to help offset carbon credit charges in future years
Time period	2021 onwards
Cost	$1M (2021)
What is the driver	Growth/Renewal
Assumption	Council will seek offset measures and reduced costs for carbon credits

Issue – Resource consent compliance

Resource Consent Renewal - the consent for the Redruth landfill expires in 2030 and this will be before the landfill is completely filled. A consent renewal will be required in order to continue using the site. A consent renewal for the new Organics Processing Plant will be required in 2021.

Main Options	Implication of Options
Option 1 - Do not renew consent	Implications – Alternative disposal would need to be sought. Cost: $2,765,000 + early progression to Issue 2 (new landfill) Benefit: None. There would be environmental consequences and costs to closing the landfill before it is completely filled. Alternative disposal would cost more for the community, and have significant transport implications.
Option 2 - Renew consent(PREFERRED)	Implications – Redruth Landfill can continue filling to closure. Cost: $500,000 Benefit: Best environmental and economic option for the community as it allows full use of consented space. Completing all filling and capping will shed stormwater, reduce leachate and capture and flare gas. All these beneficial effects are maximised with landfill closed according to Whole Of Life Plan.
Time period	2021 (Organics Processing Plant), 2028 (Redruth Landfill renewal)
Cost	$0.5M (2021)
What is the driver	Growth//Renewal
Assumption	That organic waste tonnages remain constant at 27,000 tonnes per annum.

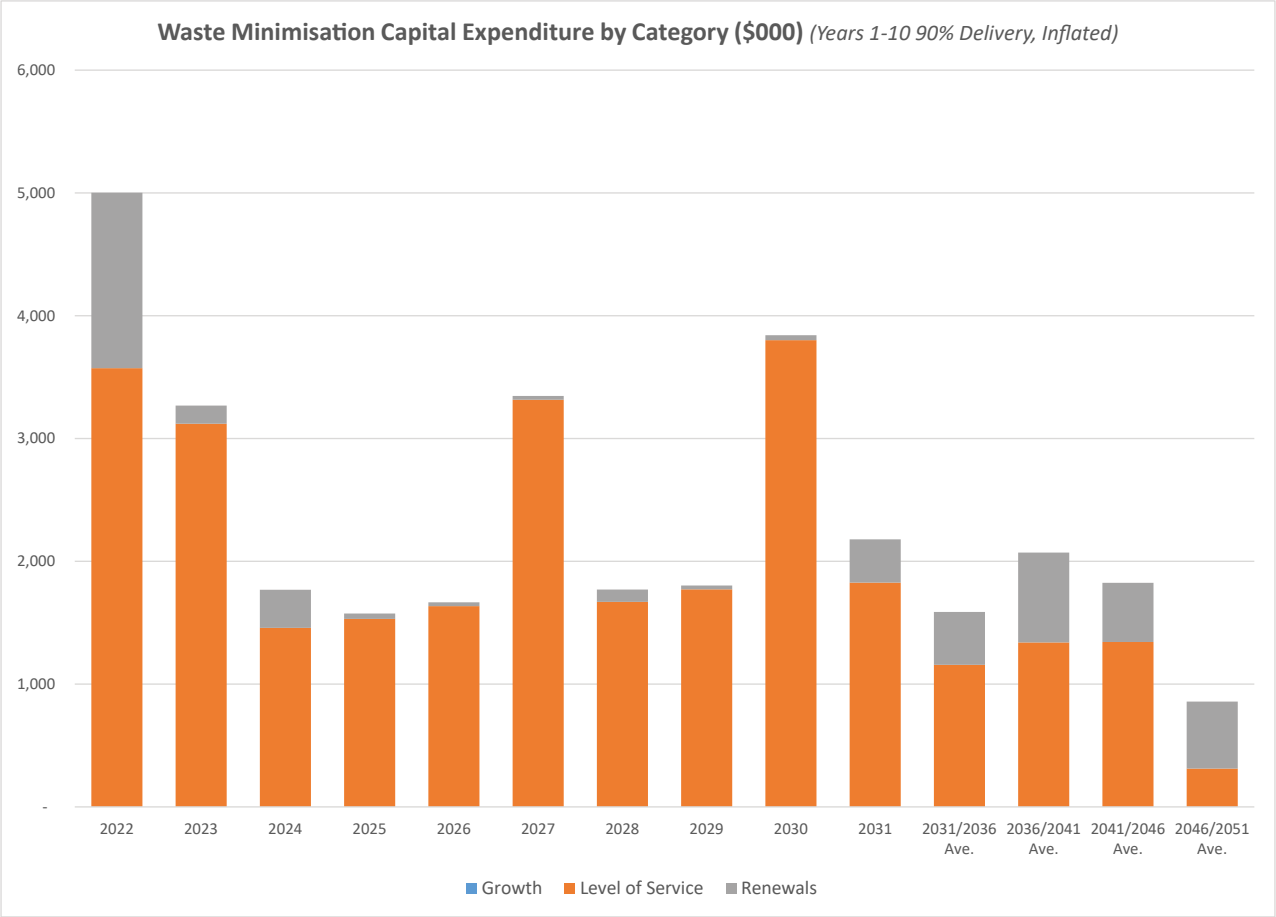
Issue – Ageing infrastructure Assessment

Main Options	Implication of Options
Option 1 -Do nothing; respond to infrastructure breakdowns as and when they occur	Council will not allocate sufficient budget for planned maintenance and will likely have to loan-fund repairs or replacements if significant equipment failures occur
Option 2 - Do a partial assessment to estimate renewals	As above
Option 3 - Commission a full condition assessment and valuation of all waste infrastructure assets, develop a comprehensive maintenance and renewal plan for asset management and budgeting (PREFERRED)	Council will have a sound understanding of the expected life of all waste assets, can adequately plan for a maintenance schedule the contractor must adhere to, will be able to budget adequately for maintenance and renewals in annual budgets
Time period	2021-25
Cost	$0.25M (2021)
What is the driver	LoS/Renewal
Assumption	Waste assets deteriorate and depreciate at a faster rate than normal infrastructure due to the harsh conditions at landfills

Issue – Landfill aftercare

Main Options	Implication of Options
Option 1 - Status quo – remain passive monitoring of six known sites and respond to issues as and when they arise	The risk of closed landfills breaching due to inundation or disturbance and creating ecological hazards in adjacent waterways remains high; potential for public relations issues if breaches occur plus high costs of remediation
Option 2 - Do nothing – cease all activities and management and wait for directives from government to take action	As above; additionally, government directives or legislation may require quick responses or immediate action that Council will not be resourced to do
Option 3 - Commission the risk assessment for all known closed landfills within the district; devise a monitoring and management plan based on the risks these present (PREFERRED)	Council will have a sound understanding of the status of closed landfills and the risks they present to adjacent waterways, and will be able to adequately plan for monitoring and managing these in future budgets. Council can also incorporate any government legislation or regulations pertaining to the management of closed landfills
Time period	2021 onwards
Cost	$7.5M (2021)
What is the driver	LoS
Assumption	Closed landfills will remain as the responsibility of local authorities who will have to finance the ongoing monitoring and management of these from rates

Cost ($000 inflated)														
	Year 1 (2021-22)	Year 2 (2022-23)	Year 3 (2023-24)	Year 4 (2024-25)	Year 5 (2025-26)	Year 6 (2026-27)	Year 7 (2027-28)	Year 8 (2028-29)	Year 9 (2029-30)	Year 10 (2030-31)	Year 11-15 (2031-36) Average	Year 16-20 (2036-41) Average	Year 21-25 (2041-46) Average	Year 25-30 (2046-51) Average
Operations	8,550	9,277	9,676	10,266	10,960	11,713	12,538	13,388	14,265	15,197	16,393	18,536	20,922	23,461
Capital Growth	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital LoS	3,573	3,120	1,458	1,531	1,636	3,317	1,670	1,772	3,802	1,827	1,157	1,340	1,344	312
Capital Renewals	1,430	148	311	45	30	31	100	32	39	353	431	731	482	546



Other Infrastructure

The liveable assets such as community facilities and airport have not been included in the Draft IS. It should be noted that these assets will also have significant expenditure requirements over the next 30 years and are just included for information.

Significant other infrastructure issues and decisions are tabled below.

Significant Decisions	Description	Indicative Timeframe	Indicative Cost ($M Not inflated)
Airport			
Runway resurfacing	Renewal of runway surfacing	2042	$4.5M
Freight Hub development	Development of air freight handling facilities and aircraft	2032	$unknown
Renewal energy	Development of solar power	2035	$unknown
Library			
Renewal of roof/redevelopment	Roof replacement at end of useful life and potential redevelopment of facility	2032-33	$10M
CBay Aquatic Centre			
Renewal of facility	Major Upgrade and improvements	2045	$30M

Financial Estimates

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

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

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

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

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

Total Expenditure

The projected capital and operating expenditure (including inflation) associated with the five infrastructure activities included in the Infrastructure Strategy is shown here.

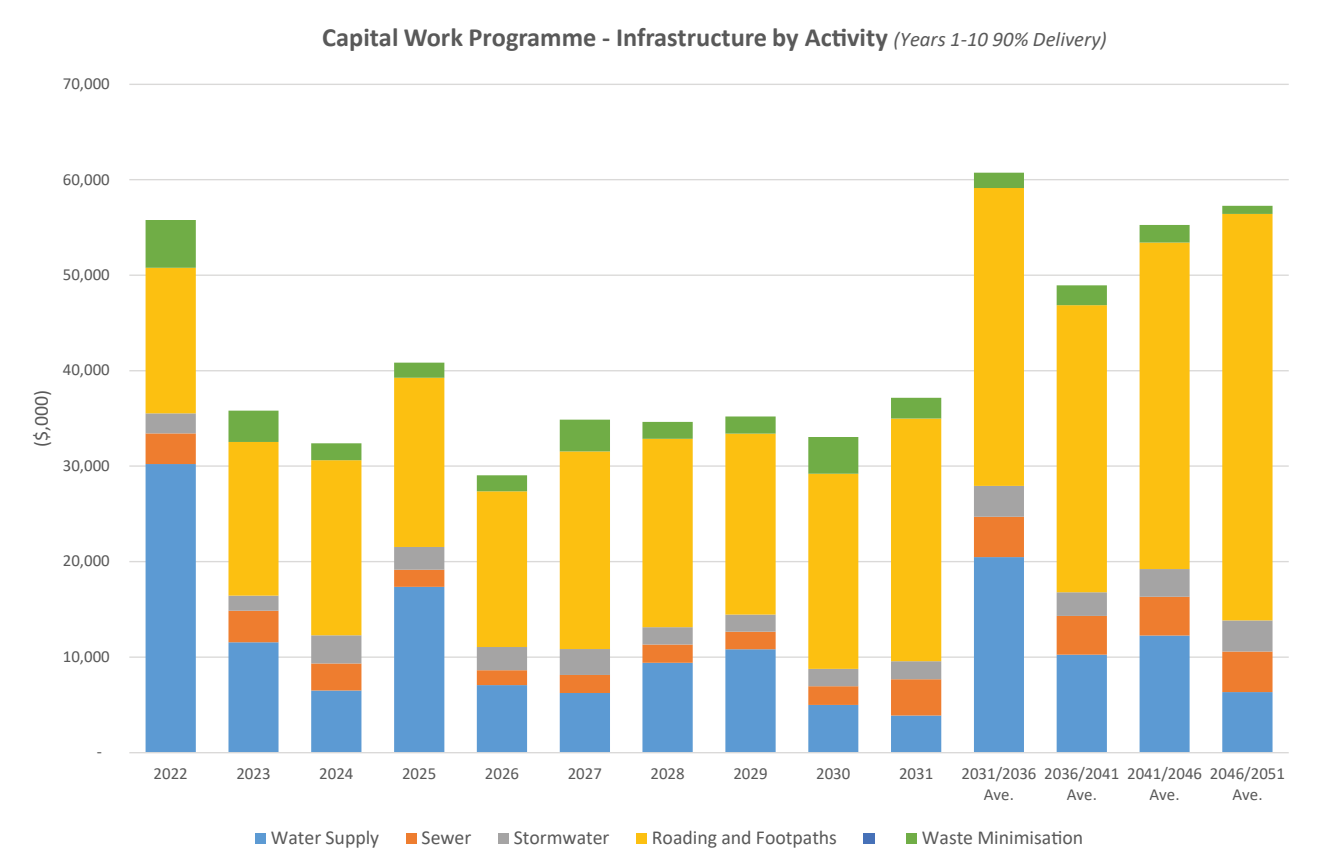
There is an estimated total of $1.479 billion capital expenditure in the next 30 years for these five infrastructure activities.

Of this:

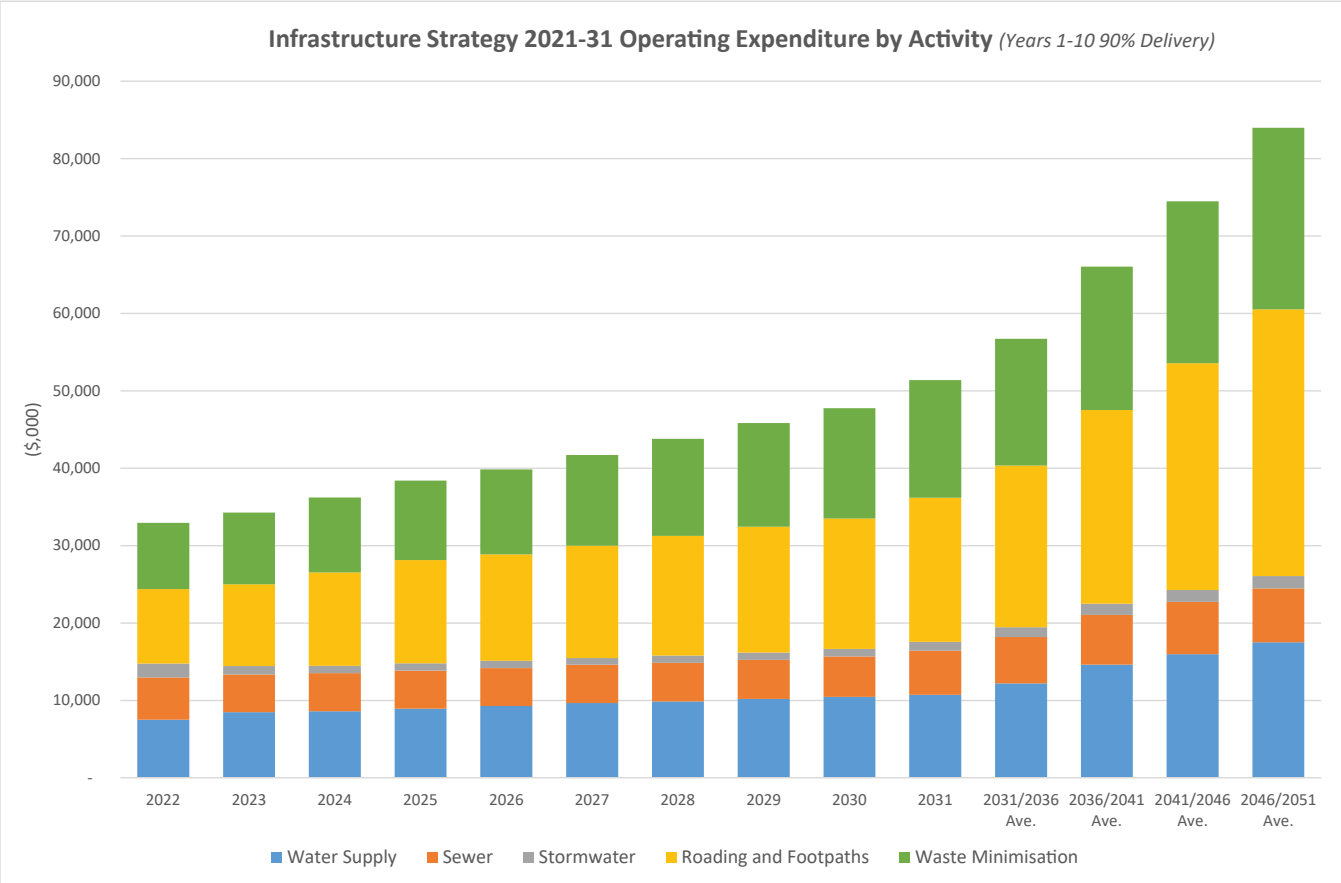
- Around $143M relates to expenditure in order to meet growth or additional future demand.
- Around $468M will be capital expenditure for levels of service upgrade.
- Around $868M will be renewals expenditure for replacement of aged assets to maintain the levels of service.

Over the next 10 years, capital expenditure for the five infrastructure activities will total around $368M (at 90% Capital Delivery). Associated operating expenditure will total around $412M.

Projected Capital Expenditure - Infrastructure Assets



Projected Operational Expenditure –Infrastructure Assets



Funding and Financial Impacts of the Infrastructure Strategy

Funding for asset renewals will be primarily funded from Depreciation Funds held by the Council. The Depreciation Funds held are not sufficient to fully fund all renewals and it will be necessary to fund some renewals via loans.

To reduce the amount of renewals that need to be loan funded, the amount of depreciation funded was increased as part of the 2018 Long Term Plan. This was based on the average renewals over the term of the Infrastructure Strategy. As part of the 2021-31 Long Term Plan the three waters and roading assets were revalued and optimised depreciation calculated. This has further increased the depreciation funding.

Expenditure associated with levels of service and growth will be loan funded to reflect the benefits being received by future ratepayers. Both internal loans and external loans will be used for this funding.

Capital, maintenance, and operational funding of the Roading and Footpaths, Water Services and Waste Minimisation activities is complex and made up of a number of streams.

Existing funding sources are as follows:

Roading and Footpaths

- General Rates based on land values and differentiated
- NZ Transport Agency (NZTA) Funding Assistance
- Depreciation funds
- Loans
- User charges
- Private parties

Water Services

- General Rates based on land values based on community of interest for stormwater
- Targeted Rates via uniform annual charges for water and sewer
- Targeted Rates via land area (for rural water)
- Targeted Rates via water volumes (for rural water)
- Subsidies for approved sewer schemes
- Depreciation funds
- Loans
- User charges
- Private parties

Waste Minimisation

- Targeted Rates via uniform annual charges
- Depreciation funds
- Loans
- User charges
- Private parties - leases

For details on how these activities are funded, refer to the Council's Revenue and Financing Policy in the Long Term Plan. This policy outlines the proportion of funding that will come from each source. Financial Contributions are charged under the current Financial Contributions policy in the District Plan. Currently, the Council does not use Development Contributions as provided for in the Local Government Act. However, Financial Contributions are being legislatively phased out and the Development Contributions Policy is to be reviewed.

Rating for these activities differs according to where the property is located, the land value of the property and the services received.

Roading and Footpaths – Government Funding

Funding for Roading and Footpaths from government through NZTA increasingly hard to obtain. This is subject to a number of potential changes as summarised below:

- Government Policy Statement (GPS) - funding category allocations are being reviewed by the government.
- Funding Assistance Rule (FAR) - the NZTA FAR review has implemented a flat rate for all activities and the outcome for Timaru is a reduced FAR of 51%
- Business Cases – business cases are to be prepared to support national priorities and contestability issues.
- One Network Road Classification (ONRC) – this is a national road classification hierarchy system. The ONRC system allows comparative analysis both nationally and with relevant peer groups. These comparative analysis reports provide evidence on a district's expenditure and asset management strategy efficiency.

Waste Minimisation

Timaru District must carefully manage its investment in infrastructure to ensure it gets value for every dollar spent and provide infrastructure in a lawful, functional and affordable manner.

Waste Minimisation

Waste Minimisation income from user charges varies annually according to tonnages disposed of. This presents a risk that income from user charges can vary significantly, particularly if waste flight occurs.

Infrastructure Strategy and Financial Strategy Linkages

The loan requirements to fund this capital programme were modelled to determine our ability to deliver the projects within the limits prescribed within the liability management policy.

The modelling calculations over the 30 years show that debt to total revenue ratio remains below the self-imposed policy debt limit of 2.10 during this period shown as follows:

Revenue	Debt Limit	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Borrowing ratio to Total Revenue	2.1	1.2	1.5	1.7	2	2	2	1.9	1.9	1.8	1.7

Revenue	Debt Limit	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Borrowing ratio to Total Revenue	2.1	1.86	1.96	2.00	2.00	1.97	1.83	1.75	1.64	1.45	1.24

Revenue	Debt Limit	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Borrowing ratio to Total Revenue	2.1	0.96	0.70	0.43	0.15	-0.07	-0.38	-0.69	-1.01	-1.35	-1.68

Water Supply

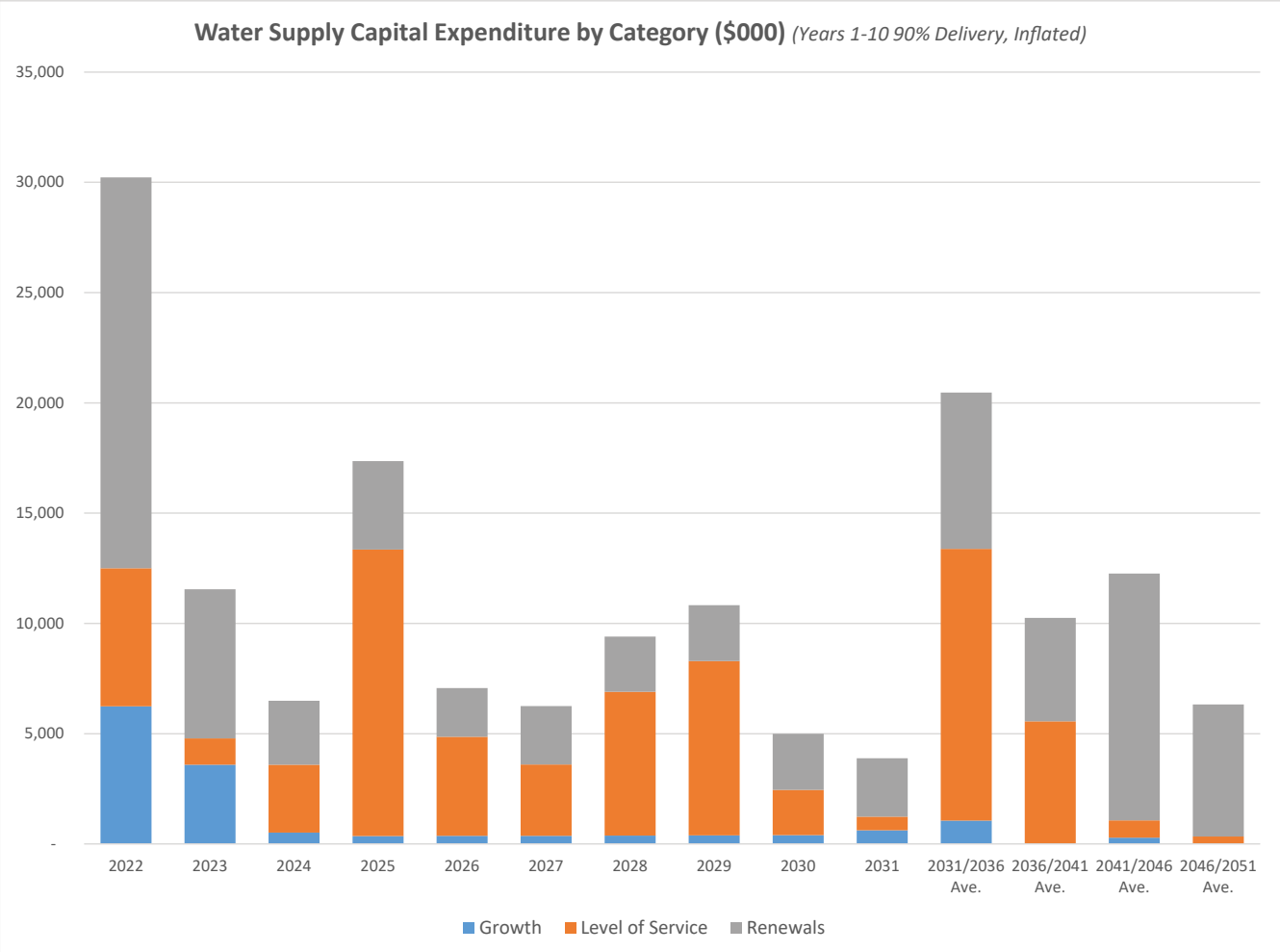
The projected capital expenditure (including inflation) associated with the Water Supply infrastructure assets is shown here.

There is an estimated total of $354 million capital expenditure in the next 30 years. Of this:

- Around $20M relates to expenditure in order to meet growth or additional future demand.
- Around $143M is capital expenditure for levels of service. These include upgrading of treatment facilities and processes in order to meet the Drinking Water Standards for New Zealand.
- Around $191M is renewals expenditure for replacement of aged assets.

Over the next 10 years, capital expenditure for water supply infrastructure will total around $108M (at 90% Capital Delivery). Operating expenditure associated with this will total around $94M.

Projected Capital Expenditure – Water



Sewer

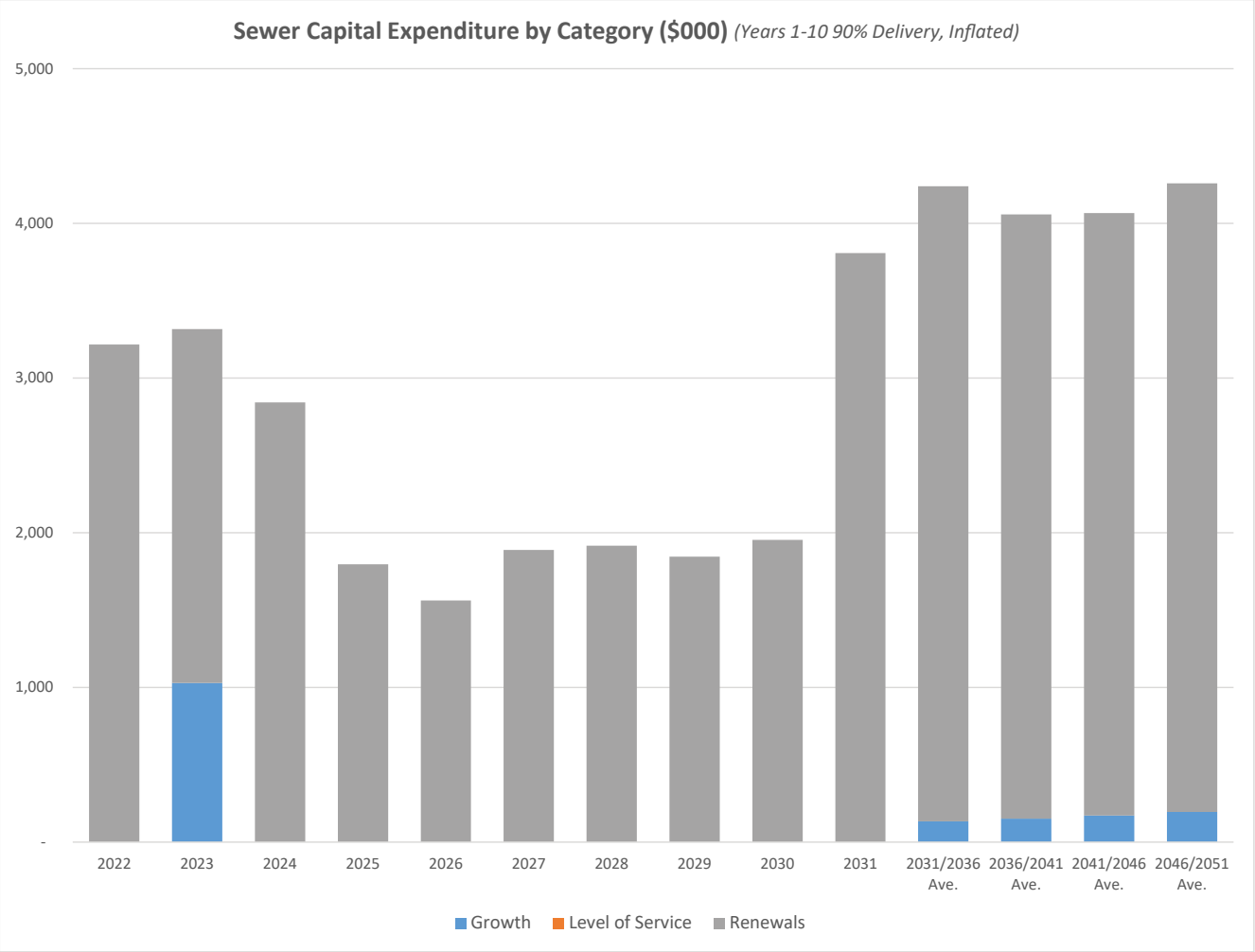
The projected capital expenditure (including inflation) associated with the Sewer infrastructure assets is shown here.

There is an estimated total of $107 million capital expenditure in the next 30 years. Of this:

- Around $4M relates to expenditure in order to meet growth or additional future demand.
- There is no capital expenditure for levels of service.
- Around $103M will be renewals expenditure for replacement of aged assets to maintain the levels of service. The bulk of the renewal expenditures relate to reticulation renewals throughout the district.

Over the next 10 years, capital expenditure for sewer infrastructure will total around $24M (at 90% Capital Delivery). Operating expenditure associated with this will total around $51M.

Projected Capital Expenditure - Sewer



Stormwater

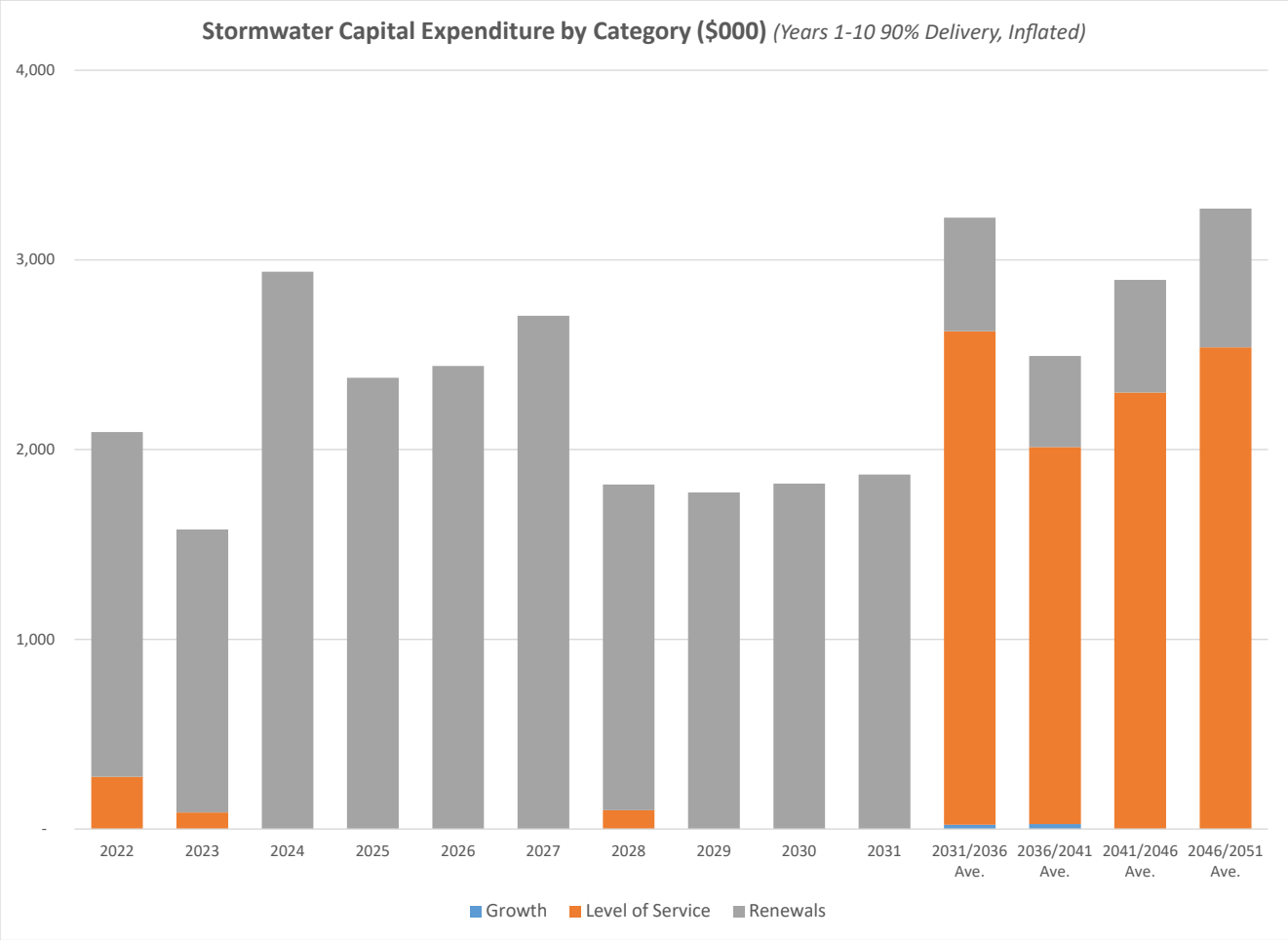
The projected capital expenditure (including inflation) associated with the Stormwater infrastructure assets is shown here.

There is an estimated total of $81 million capital expenditure in the next 30 years. Of this:

- Around $0.3M relate to expenditure in order to meet growth or additional future demand.
- Around $48M will be capital expenditure for levels of service upgrade. These include installing stormwater treatment and attenuation structures to improve the quality of the district's stormwater discharge. Network capacity upgrades are also programmed relating to the climate change factor that predicts a progressive increase in the frequency and/or intensity of rain events in the district.
- Around $33M will be renewals expenditure for replacement of aged assets to maintain the levels of service. The bulk of the renewal expenditure relates to reticulation renewals throughout the district.

Over the next 10 years, capital expenditure for stormwater infrastructure will total around $21M (at 90% Capital Delivery). Operating expenditure associated with this will total around $11M.

Projected Capital Expenditure – Stormwater



Roading and Footpaths

The projected capital expenditure (including inflation) associated with the Roading and Footpaths infrastructure assets is shown here.

There is an estimated total of $879 Million capital expenditure in the next 30 years. Of this:

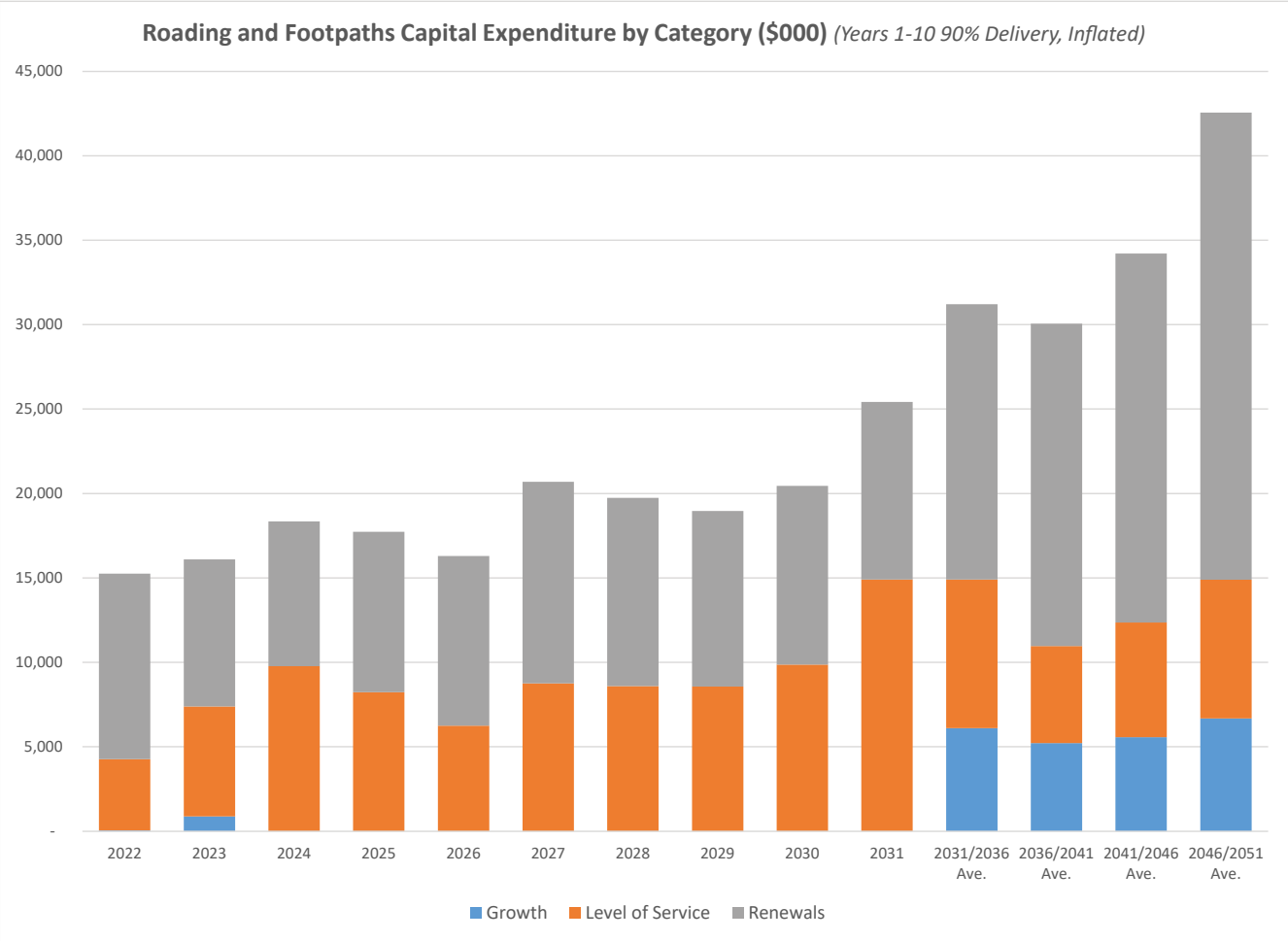
Around $119M relates to expenditure to meet growth or additional future demand (e.g. heavier vehicles, new connections required). This includes upgrading of roads, seal widening, construction of new roads, bridge strengthening, and potential overbridge for southern access to the Port.

Around $233M relates to capital expenditure for levels of service. This includes provision for seal extensions, road upgrading, two laning of bridges, construction of new bridges, improved stormwater run-off treatment, and new footpaths and cycleways.

Around $527M is renewal expenditure for replacement of assets that are reaching the end of their lives. This includes pavement rehabilitation, resealing, replacing bridges, kerb and channel, culverts, traffic services, footpaths and street lighting along with other assets such as the Piazza lift and carpark equipment.

Over the next 10 years, capital expenditure for roading and footpaths infrastructure will total around $189M (at 90% Capital Delivery). Operating expenditure associated with this will total around $141M.

Projected Capital Expenditure – Roads and Footpaths



Waste Minimisation

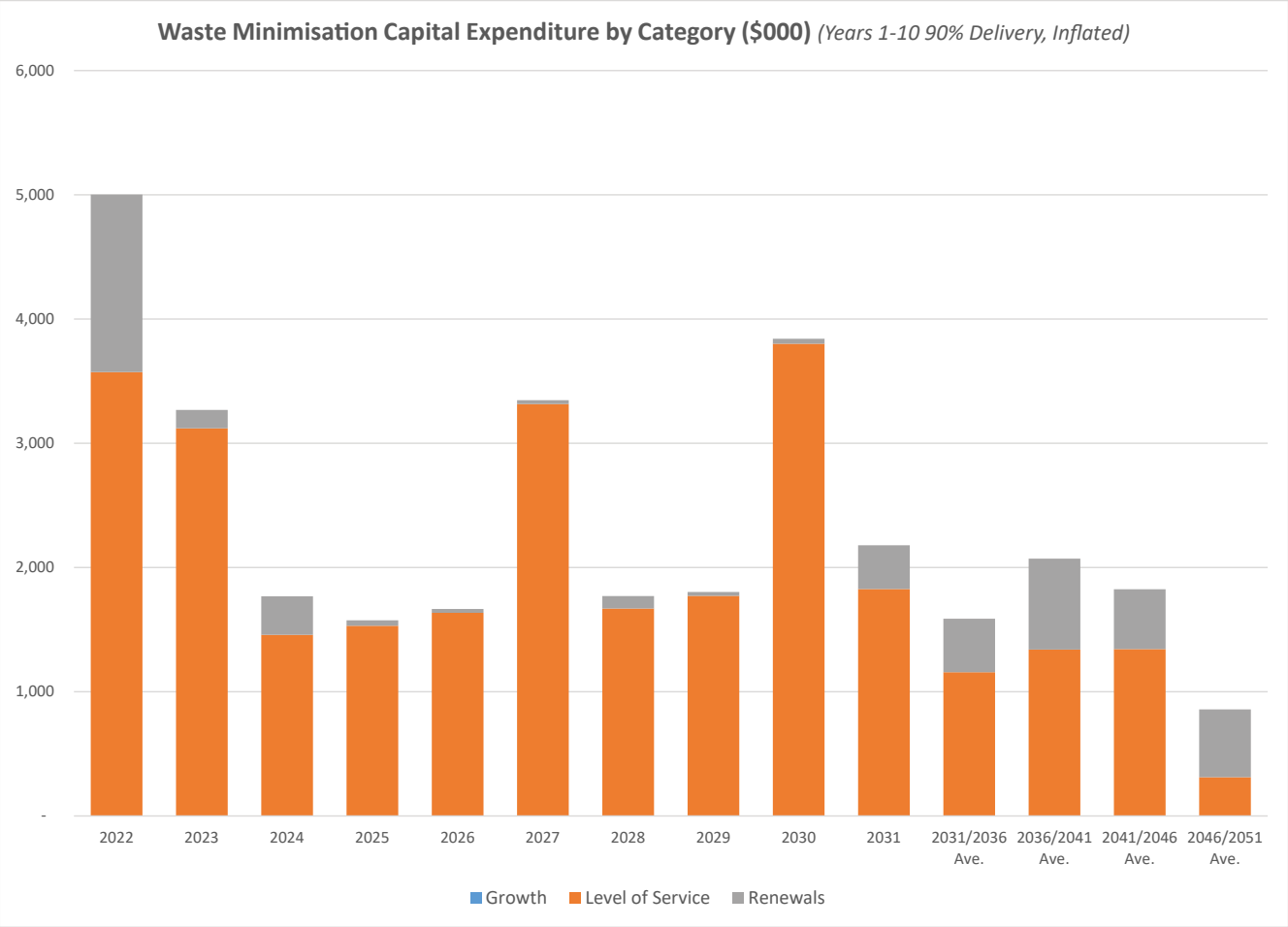
The projected capital expenditure (including inflation) associated with the Waste Minimisation infrastructure assets is shown here.

There is an estimated total of $58 million capital expenditure in the next 30 years. Of this:

- There is no expenditure planned in order to meet growth or additional future demand,
- Around $44M will be capital expenditure for levels of service upgrade. These include cell construction, other landfill and transfer station site works, landfill capping and landfill aftercare and construction of a new landfill
- Around $14M will be renewals expenditure for replacement of aged assets to maintain the levels of service.

Over the next 10 years, capital expenditure for waste minimisation infrastructure will total around $26M (at 90% Capital Delivery). Operating expenditure associated with this will total around $116M.

Projected Capital Expenditure – Waste Minimisation



Appendix 1: Resource Consents

	Consent Number	Details	Expiry
Beautiful Valley	992621.1	Take water	10/8/34
	992622	Excavate gravel at intake	10/8/34
Downlands	010392	Take groundwater, Pareora	27/10/35
	010393.1	Take groundwater Springbrook	27/10/35
	012184	Take water, Te Ana Wai	9/10/30
	980317	Maintain gallery, Te Ana Wai	24/9/32
	980318	Divert River, Te Ana Wai	24/9/32
	012183	Take water, Waitohi	9/10/30
	012182	Maintain galleries, Waitohi	9/10/30
	012185	Discharge contaminants to land	9/10/30
	012186	Disturb beds of rivers	9/10/30
	992823	Discharge from Camerons	9/8/34
	992824	Discharge from Taiko	9/8/34
	992825	Discharge from Sutherlands	9/8/34
	992826	Discharge from Clelands	9/8/34

	Consent Number	Details	Expiry
	992827	Discharge from Waitohi	9/8/34
Geraldine	064043	Take groundwater	30/10/27
Peel Forest	120219	Take surface water	31/8/46
Pleasant Point	981008.2	Take water	31/3/34
Rangitata Huts	171997	Take groundwater	25/9/31
Seadown	010349	Take groundwater	30/9/30
Te Moana	992618.1	Take water Hae Hae Te Moana	9/8/36
	992619.1	Discharge from sand filter	9/8/34
	992620	Excavate gravel Hae Hae Te Moana	9/8/34
	192123	Take water Pleasant Valley Hall	
Temuka, Winchester	167644	Take groundwater	23/8/48
Timaru	011399	Take water, Pareora River	5/11/24
	093305	Take Water Opihi River	9/10/30
Timaru	011402	Disturb beds of rivers Pareora pipeline	5/11/24
	011403	Discharge from Pareora pipeline	5/11/24
	011456	Discharge at Pareora Dam	5/11/24

	Consent Number	Details	Expiry
	940974	Discharge from Gleniti Reservoir	12/5/29
	940975	Maintain groyne fence Motukaika River	6/4/29
	157770	Discharge water to water, Opihi pipeline	2030
	147262	Discharge water, Claremont Reservoir	20/1/34
Timaru, Seadown,			
Waitohi	101875	Take 1001/s	9/10/34
Rangitata Orari	173642	Discharge various	3/3/44
	173643	Disturb the bed, Orari River	3/3/44
	173644	Divert water	3/3/44
Water Takes	951260	WWTP Irrigation	2030
	185291	Temuka Take	2044
	122463	Geraldine Ponds	2044
Sewer Discharge	101831	Discharge Treated Wastewater	2045
	101832	Maintain Outfall Structure	2045
Aorangi Ponds	165726	Discharge to Air	2042
	71876	Discharge Contaminants to Land	2042

	Consent Number	Details	Expiry
	71877	Divert Groundwater and Surface Water	2042
	72491	Store Domestic Effluent	2042
Rural Ponds	163114	Land for Treated Wastewater Geraldine	2044
	163129	Discharge Contaminates to Land Geraldine	2044
	164341	Land for Treated Wastewater Temuka	2044
	1634345	Discharge Contaminates to Land Temuka	2044
	164387	Land for Treated Wastewater Pleasant Point	2044
	164367	Discharge Contaminates to Land Pleasant Point	2044
Bridge Culverts and Waterways	191536	Use, Erect, Reconstruct, Place, Alter, Extend, Remove or Demolish any Bridge/Culvert or Ford	2050

TIMARU
DISTRICT COUNCIL
Te Kaunihera ā-Rohe
o Te Tihi o Maru

Timaru District Council
2 King George Place
PO Box 522, Timaru 7940
T (03) 687 7200
E enquiry@timdc.gov.nz

Temuka Library/Service Centre
72-74 King Street, Temuka
T (03) 687 7591

Geraldine Library/Service Centre
73 Talbot Street, Geraldine
T (03) 693 9336

www.timaru.govt.nz