

Selwyn District Council
Long-Term Plan 2018-2028, Vol 2

30-year Infrastructure Strategy 2018-2048



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1.0 EXECUTIVE SUMMARY

This is Selwyn District Council's second Infrastructure Strategy. It has been prepared from Council's 2018 suite of Activity Management Plans (AMPs) and the Long Term Plan of which it forms part. The issues discussed reflect the current legislative environment and the communities' priorities across the district.

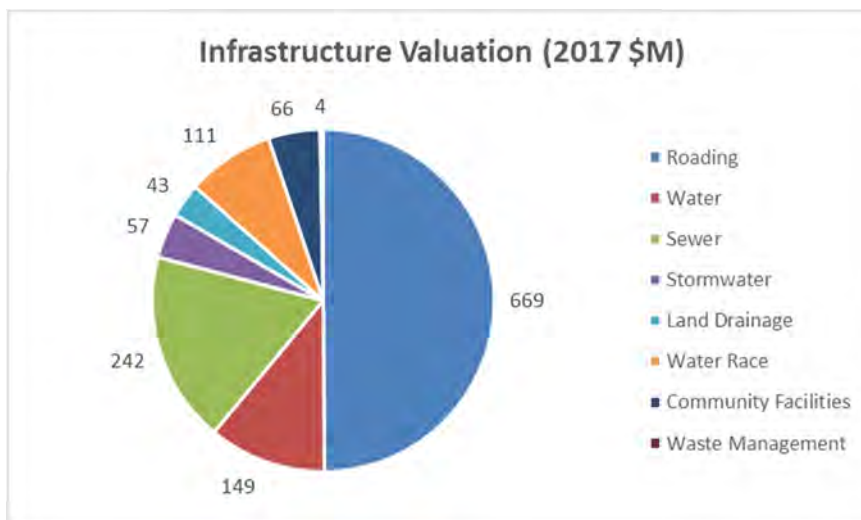
The financial forecasts are estimates, and the reliability of the forecasts decreases beyond ten years and towards the thirty year planning horizon.

The Selwyn district continues to be a great place to live, work and play. Selwyn is the fastest growing area in New Zealand in terms of population and Gross Domestic Product (GDP) growth. It really is an exciting time for the district with so much development taking place. Over 2,500 building consent are issued each year and this number is staying high while Canterbury as a whole slows. Growth is continuing in Selwyn and all predictions indicate that growth will continue. Selwyn's population is expected to grow from around 59,000 now to over 80,000 by 2031, and towards 105,000 in 2048.

By 2031 it is expected that Rolleston's population will grow from around 17,000 to approximately 27,000. This is a similar size to Timaru, and a population of around 35,000 in 2048 will make Rolleston one of the larger centres in the South Island. In 2014, the Council adopted two new master plans to guide the development of central Rolleston. Growth is also projected to continue in Lincoln and West Melton at a rapid pace. Lincoln is projected to grow to over 17,000 over the next thirty years, this would bring Lincoln's population to a similar size to Rolleston today. All settlements in the District are expected to grow, even modestly.

Selwyn District Council is committed to providing the services needed in building vibrant and sustainable communities within the district. The role of Rolleston as a hub in the centre of the district, closely linked to Christchurch city will increase over the years ahead. Over the last three years Rolleston has transformed into a more self-contained township, with more commercial activity and schools supporting the residents. This will continue, especially over the next ten years. The Council has acknowledged its leadership role in this development and works closely with private and government partners to develop the necessary infrastructure and services. A bright future within a context of rapid growth depends heavily on the provision of service via sound infrastructure.

The core Selwyn District Infrastructure Assets are tabled with 2017 replacement values totalling some \$1.4 Billion.



The capital works associated with the rapid growth are significant. The Council has considered the costs and effects of delaying or promoting projects. The costs of rapid growth are very real and are implementing programmes of works will be the priority for the Council alongside maintaining existing services. The 2018-2028 period is focussed on establishing priority infrastructure. This is mostly driven by increasing population growth, both upgrading existing systems and establishing facilities that a growing community expects.

In delivering services to the community and visitor over the long term, the Council has identified several risks that affect the Performance of infrastructural Assets. The highest levels include:

Growth (overall and demographic change)	Affects all activities in terms of the capacity of the infrastructure to provide adequate service for a growing population
Change in Legislation	Affects all activities in terms of the service standards required and ability to fund activities can change at any time
Funding challenges	Affects all activities particularly Roads and Footpaths in terms of the timely provision of infrastructure is reliant on timely funding from Council sources, partners including NZTA and developers

Infrastructure Planning is a key component of Council's planning regime which includes financial planning, land use planning and strategic planning. Strategic planning includes Selwyn 2031, township structure plans and area plans. Financial planning centres around several policies and the Financial Strategy which is a companion to this document.

Land use planning provides for develop to occur in a sustainable manner, with form appropriate to the district. The District Plan review underway will continue over the 2018-21 period with regular reviews each decade thereafter

5Waters

Based on current community growth trends, demand for water, wastewater and stormwater, services have the potential to exceed consented allowances in some schemes.

Achieving reasonable usage, particularly in the areas of water (human drinking water and stock water) together with wastewater treatment and disposal is a key factor in future planning. The future of the water race network is an important issue as the priority for these networks changes from productive water to ecosystem support.

The strong relationships between water use and wastewater disposal, stormwater, water race and land drainage systems have been provided for in integrated projects.

Transportation

Traffic numbers have increased dramatically in Eastern Selwyn, and this is expected to continue into the future. The motorway extension to Rolleston will enable convenient travel into Christchurch City, and improvement in the north-west quadrant will also improve access to the industrial zone, airport and further north.

With the establishment of two inland ports and ongoing expansion of Izone and IPort, heavy traffic numbers will be significant. Agricultural development across the plains will also increase traffic numbers as trucks cart supplies to farm and product from farms. With three dairy factories processing significant milk quantities, dairy will continue to influence heavy traffic movements.

While all this happens, the Council needs to ensure safety and alternative modes of transport are considered. The Council has developed a Road Safety Strategy and a comprehensive walking and cycling strategy. Along with its role as a passenger transport partner, the Council is actively pursuing a range of transport options.

Community Facilities

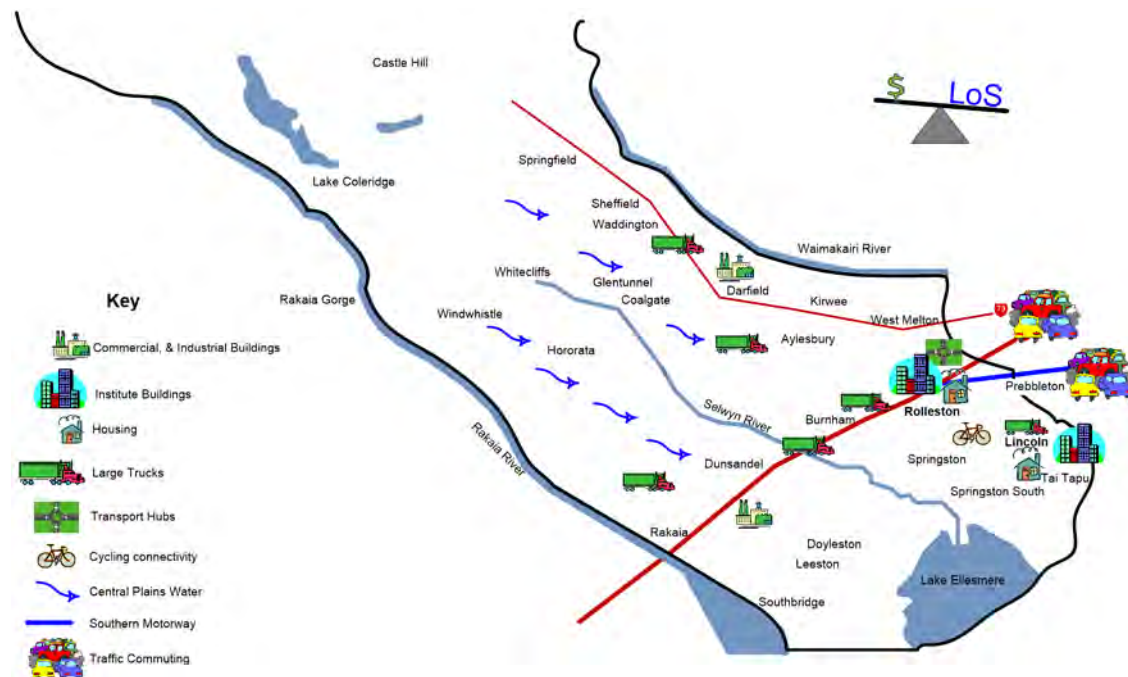
The desire for facilities is commensurate with the growth of the district's population. While established communities may have a range of facilities, the areas undergoing rapid growth do not. There is also a threshold level where larger facilities are required, such as indoor sports centres, and aquatic centres. The Council is tracking these demands closely and a programme of development is key to this plan.

Solid Waste

The growth in demand for solid waste services closely reflects population growth in the district. Commercial and industrial activity affect the quantity and composition of waste and there is considerable waste from construction during the building boom. There is a popular desire to reduce residual waste, which is expected to increase in the future as resources are viewed more holistically. Community support to expand recycling opportunities is expected.

Balancing priorities

Along with the replacement of existing infrastructure; Council's priority over the next ten to twenty years relates to the rapid growth in the eastern portion of the district. The issues are summarised in the schematic below.



Addressing the growth challenge is essential, and with the Selwyn Housing Accord and the National Policy Statement on urban development capacity in place, Council is rightly focussed on this. It should be noted that in responding to this challenge, the Council is considering the wider wellbeing of the community. Safety, recreation and enjoying being a Selwyn resident are all part of the mix.

A Strategy Driven Approach

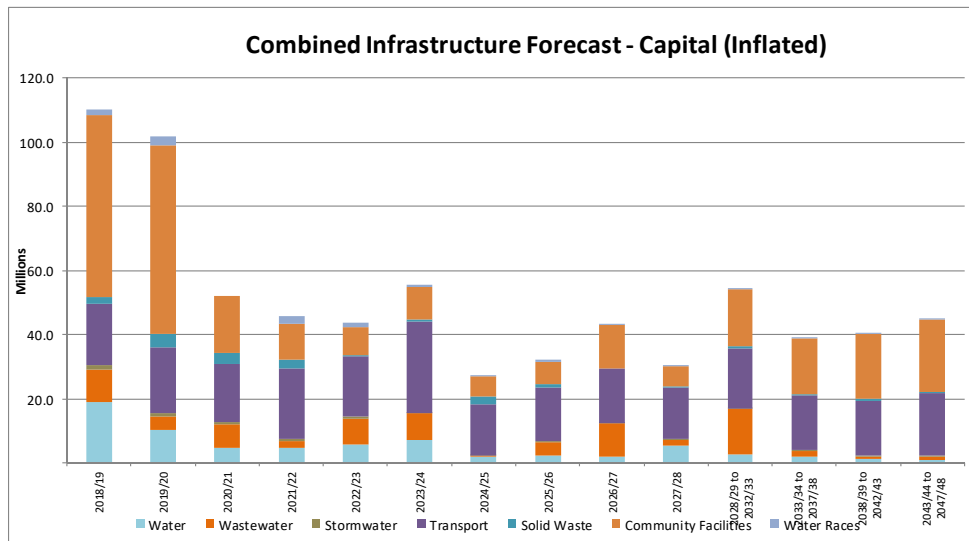
Selwyn has consulted extensively with the community and developed a range of strategic documents to drive investment in creating the future residents desire. Master planning and structure planning are key to this. This infrastructure strategy discussed the implementation of these documents alongside the management of core infrastructure.

The Council has an excellent relationship working collaboratively with NZTA, neighbouring authorities and stakeholders, this is a real benefit in developing and implementing transportation proposals. The Council is currently involved in seven business case processes which assist in identifying transportation options and benefits that can be achieved. These are long term processes involving commitment from all parties seeking the best outcome for all.

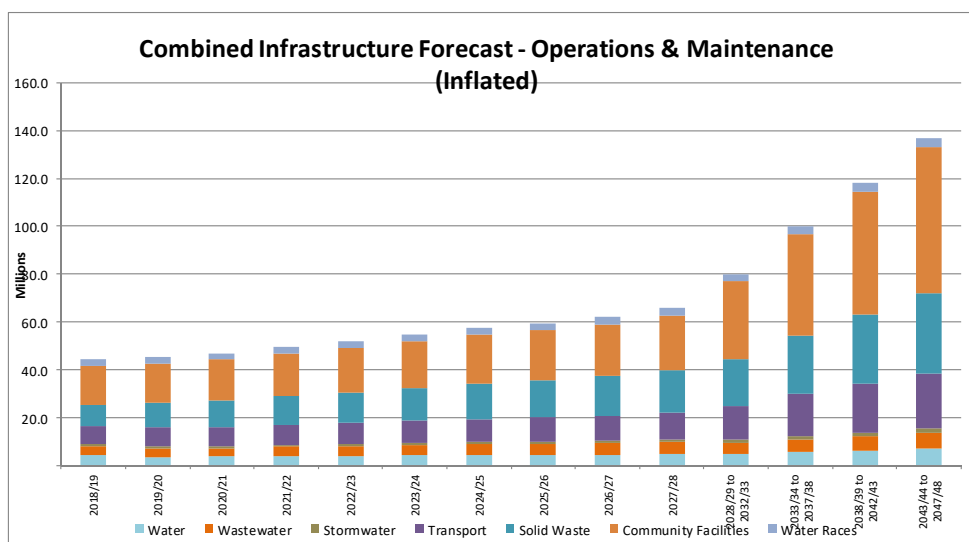
It is not Council’s intention to revisit the proposals developed with the community; and refined for implementation through activity management plans and workshops. Rather seeking timeframes and funding that is appropriate and affordable is key.

The projected capital expenditure associated with the significant infrastructure assets are graphically represented below.

Projected Capital Expenditure- Infrastructure Assets



Projected Operational Expenditure –Infrastructure Assets

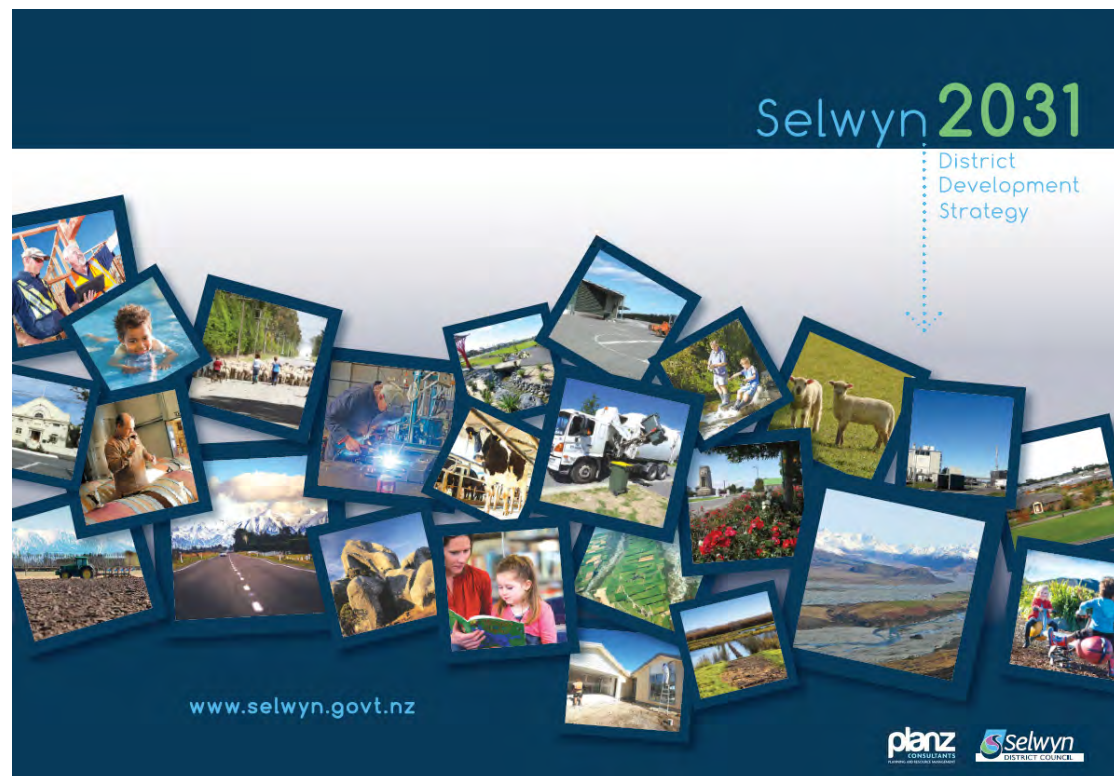


2.0 SELWYN DISTRICT

2.1 Background

The Selwyn district continues to be a great place to live, work and play. Selwyn is the fastest growing area in New Zealand in terms of population and GDP growth. It really is an exciting time for the district with so much development taking place. The district continues to figure strongly in Canterbury's rebuild and economic growth although growth was rapid before the earthquakes. Over 2,500 building consent are issued each year and this number is staying high while Canterbury as a whole slows. Growth is continuing in Selwyn and all predictions indicate that growth will continue.

The Council continued to focus on planning for our future, with the development of "Selwyn 2031: District Development Strategy" and the District Plan Review under way.



Selwyn's population is expected to grow from around 58,000 now to over 80,000 by 2031, and towards 105,000 in 2048.

Selwyn District Council is committed to providing the services needed in building vibrant and sustainable communities within the district. The role of Rolleston as a hub in the centre of the district, closely linked to Christchurch city will increase over the years ahead. Over the last three years Rolleston has transformed into a more self-contained township, with more commercial activity and schools supporting the residents. This will continue, especially over the next ten years. The Council has acknowledged its leadership role in this development and works closely with private and government partners to develop the necessary infrastructure and services.

By 2031 it is expected that Rolleston's population will grow from around 17,000 to approximately 27,000. This is a similar size to Timaru, and a population of around 35,000 in 2048 will make Rolleston one of the larger centres in the South Island. In 2014, the Council adopted two new master plans to guide the development of central Rolleston.

This includes the Masterplan which focuses on developing a town centre and a main street as the heart of Rolleston, attracting people to shop and work in the town and to provide new facilities and public places for people to enjoy. The plan includes the development of a new library, community and technology centre and town square. The Foster Recreation Park Masterplan outlines the development of the park as a significant sport and recreation facility.

Growth is also projected to continue in Lincoln and West Melton at a rapid pace. Lincoln is projected to grow to over 17,000 over the next thirty years, this would bring Lincoln's population to a similar size to Rolleston today. All settlements in the district are expected to grow, even modestly.

The Council has adopted a strategy driven approach to working through the challenges faced by the district. There are structure plans guiding township growth and design, and area plans that identify the desires of communities in the provision of infrastructure. These sit alongside regional and national plans such as the Selwyn housing accord which the Council is committed to enable. This infrastructure strategy reflects that the community has been engaged in decision making on an ongoing basis and the implementation of those strategies is now up for discussion.

A bright future within a context of rapid growth depends heavily on the provision of service via sound infrastructure. The capital works associated with the rapid growth is significant. The Council has considered the costs and effects of delaying or promoting projects. The costs of rapid growth are very real and implementing programmes of works will be the priority for the Council alongside maintaining existing services. The 2018-2028 period is focussed on establishing priority infrastructure. This is mostly driven by increasing population growth, both upgrading existing systems and establishing facilities that a growing community expects.

This is the second Infrastructure Strategy prepared by the Council and should be read as a companion document to the financial strategy.

The document has a thirty-year horizon and considers

- the issues affecting infrastructure
- the response to these issues
- the actions and expenditure involved with operations, maintenance, asset renewal and capital works.



Selwyn Aquatic Centre

3.0 THIS INFRASTRUCTURE STRATEGY

This is Selwyn District Council's second Infrastructure Strategy. It has been prepared from Council's 2018 suite of Activity Management Plans and the Long Term Plan of which it forms part.

The issues discussed reflect the current legislative environment and the communities' priorities across the district.

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

3.1 Strategy Layout

The Strategy document sections and corresponding LGA Act sections are tabled below:

Table 3.1: Strategy Layout

Strategy Section		LGA 2002 (Section 101B)
1	Executive Summary	
2	Identifies the purpose of the Infrastructure Strategy and the core infrastructure included in this strategy	2(a) and 6
3	Describe the district and illustrate the linkage between strategic documents	2(a)
4	Describe the core infrastructure, its condition and performance while recording the significant assumptions, risks and mitigation	2, 3(e), 4 (c) & (d)
5	Discuss the emerging issues that will impact on the core infrastructure assets	3 (b) to 3(e)
6	Discuss Council's response to the emerging issues and the significant decisions to be made during the term of this strategy	2(b), 4(b)
7	Identifies the response options for the significant issues and documents the benefits, cost, when and funding source	2(b); 3(a) to (e) & 4(a) to (c)
8	Identifies the costs associated with the actions proposed	4(a)

3.2 Purpose

Section 101B – Infrastructure Strategy states:

- (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:

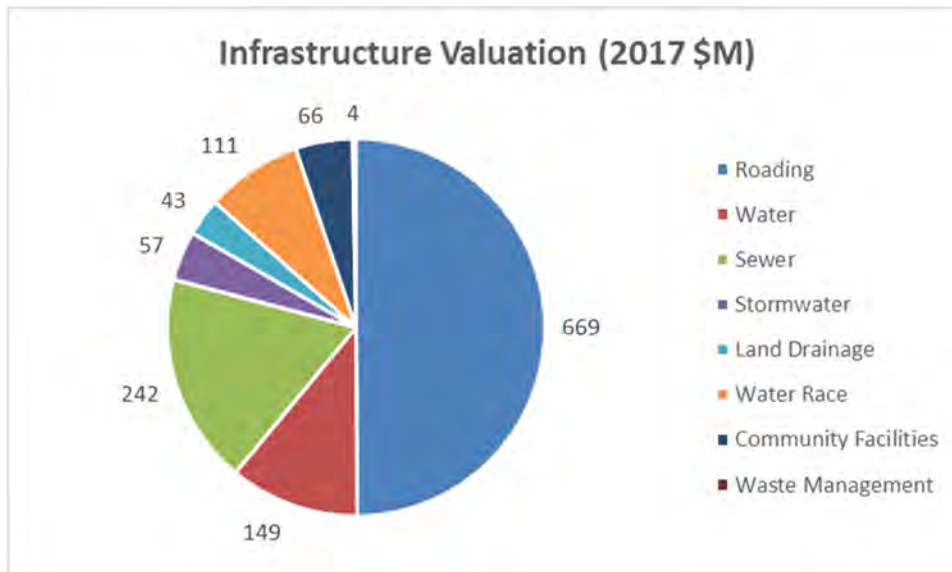
- a) *existing or proposed assets to be used to provide services by or on behalf of the local authority in relation to the following groups of activities:*
- i. *water supply;*
 - ii. *sewerage and the treatment and disposal of sewage;*
 - iii. *stormwater drainage;*
 - iv. *flood protection and control 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.*

3.3 Selwyn District Core Infrastructure Assets

The core Selwyn District Infrastructure Assets are tabled with 2017 replacement values below:

Table 3.2: Selwyn District Infrastructure Assets

Asset	Description	Replacement Value (\$M)	% of total
Water Supplies (urban and rural)	30 schemes: Water extraction, treatment and distribution	\$149	11%
Sewerage	14 schemes: Wastewater collection, treatment and discharge	\$242	18%
Stormwater	22 schemes: Stormwater collection and discharge	\$57	4%
Roads and footpaths	2,400 km urban and rural network. Roads (arterial, collectors, local; curbs and gutters), bridges, footpaths	\$669	50%
Land Drainage	11 schemes: Open Drains	\$43	3%
Water Races	3 schemes: Open channels and controls	\$111	8%
Community Facilities (improvements, not land)		\$66	5%
Waste Management		\$4	>1%
TOTAL		\$1,340	



3.3.1 Other Activities

The Council has elected to include Community Facilities and Waste Management in this Infrastructure Strategy. While not required by the Local Government Act 2002, the Community Facilities activity is regarded as significant enough to be included and to provide a more complete view of the infrastructure management issues ahead. In particular there are some significant community facility capital projects being considered within the 30 years horizon, and excluding these from the strategy would provide a distorted view of the programme ahead.

Waste Management is an essential service and is while the infrastructural asset base is smaller, the service is part of what is regarded as core infrastructure.

Land Drainage and Water Races are an integral part of the 5 Waters activity. Both activities are undergoing a period of change, so it is appropriate to include them in the strategy.

3.3.2 Infrastructure Performance

Services provided by Selwyn District Council have been established over many years, with significant additions to the networks created over the past decade of rapid growth.

In general the assets perform well and levels of service are met provided there are timely upgrades to meet the demands of a growing population.

Council's forward works programmes to continue to deliver services to meet community expectations, and improve assets where required. System performance is monitored through the non-financial performance measures suite, community surveys and technical measures.

3.3.3 Risks to Asset Performance

The Council had identified the main risks that would affect the performance of the infrastructural assets through the AMPs for each activity. These are summarised below.

Risk	Activities Affected	Risk Level
Growth (overall and demographic change)	All The capacity of the infrastructure to provide adequate service for a growing population	High

Risk	Activities Affected	Risk Level
Change in Legislation	All The service standards required and ability to fund activities can change at any time	High
Funding challenges	All, particularly Roads and Footpaths Timely provision of infrastructure is reliant on timely funding from Council sources, partners including NZTA and developers	High
'LoS creep'	All As the population grows and there is a greater proportion of 'urban' residents and service expectations increase	Moderate
Climate Change	Predominantly water services Sea level rise, more extreme weather patterns	Moderate
Adverse/catastrophic events	All A significant event such as earthquake, snow or wind storm, causes damages and changes the priority of Council	High

Mitigation measure associated with these risks are detailed in each AMP.

4.0 LINKAGE WITH OTHER DOCUMENTS

4.1 Strategic and Infrastructure Planning

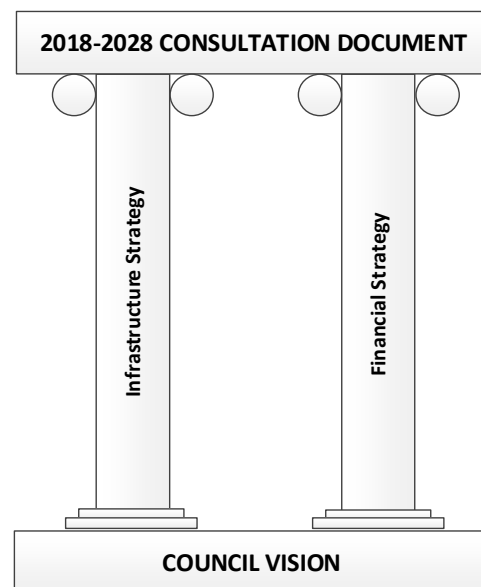
Infrastructure Planning is a key component of Council's planning regime which includes financial planning, land use planning and strategic planning.

Strategic planning includes Selwyn 2031, township structure plans and area plans.

Financial planning centres around several policies and the Financial Strategy which is a companion to this document.

Land use planning provides for develop to occur in a sustainable manner, with form appropriate to the district. The District Plan review underway will continue over the 2018-21 period with regular reviews each decade thereafter.

The Infrastructure Strategy and Financial Strategy form the pillars that support the Long Term Plan.



Selwyn 2031 Vision

"To grow and consolidate Selwyn District as one of the most liveable, attractive and prosperous places in New Zealand for residents, businesses and visitors."

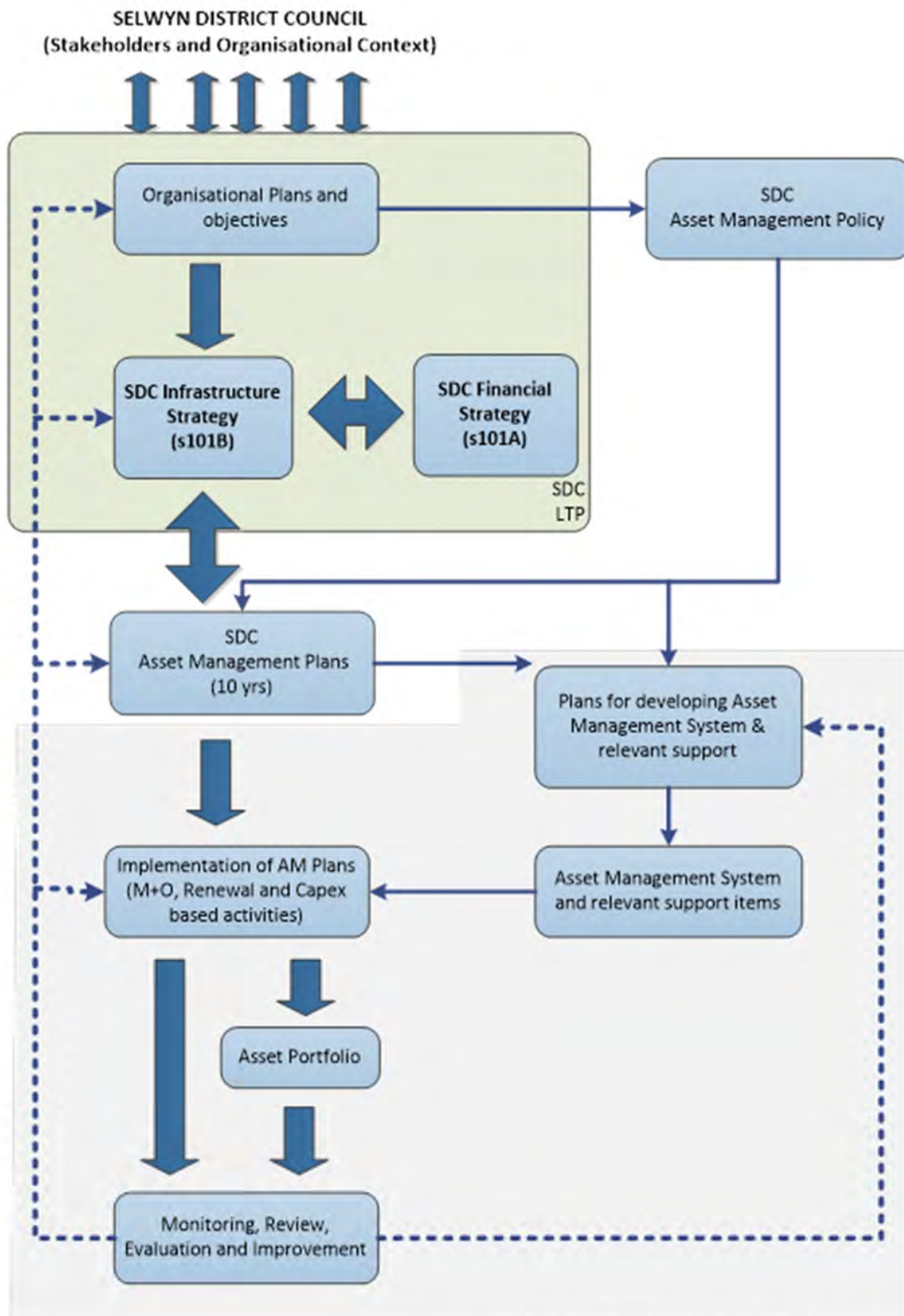
Selwyn 2031 Strategic Directions

To achieve this vision, Selwyn 2031 identifies the following five high-level Directions to guide Council's future decision-making:

- A More Sustainable Urban Growth Pattern;*
- A Prosperous Community;*
- A Great Place to Live;*
- A Strong and Resilient Community;*
- Sustainably Managing our Rural and Natural Resources.*

The following diagram illustrates the key linkages for this infrastructure strategy, utilising the asset management systems approach discussed in ISO 55000.

Figure 4.1: Infrastructure Strategy- Linkages with other Documents



Adapted from ISO55000:2014, Figure B1

4.2 Selwyn District Council

Selwyn district is named after the Selwyn River (Waikirikiri), which, in turn, is named after Bishop Selwyn, one of the first Europeans to walk through the area in the mid 1840s. The district's current boundaries date from 1989 when three adjacent counties, Malvern, Ellesmere and the rural half of Paparua, were fused into a single district. A generation earlier, in 1963, Ellesmere had absorbed a neighbouring fourth county, Springs. These counties had once been part of a larger Selwyn County.

The district covers a extensive area, from Arthurs Pass through to Lake Ellesmere/Te Waihora with a long farming heritage spreading across the plains.

From 1989 administration was split between offices in Darfield and Leeston; and in 2007 a central headquarters was established in Rolleston.

The Council is innovative and proactive, involved in commercial activities and is often recognised as a national leader in planning and community based activities.



Selwyn District Council offices in Rolleston

5.0 CORE INFRASTRUCTURE

5.1 Asset Description

Selwyn district's assets are split between older townships and the newer growth areas. The rural areas are also changing with irrigation and intensive farming. With rapid growth over the last twenty years Selwyn district's portfolio of assets is newer than many authorities. This means that the renewal challenge is further out, but will be a significant.

Community facilities now represent a sizable portion of Councils activities, so these are discussed in similar detail to other core infrastructure.

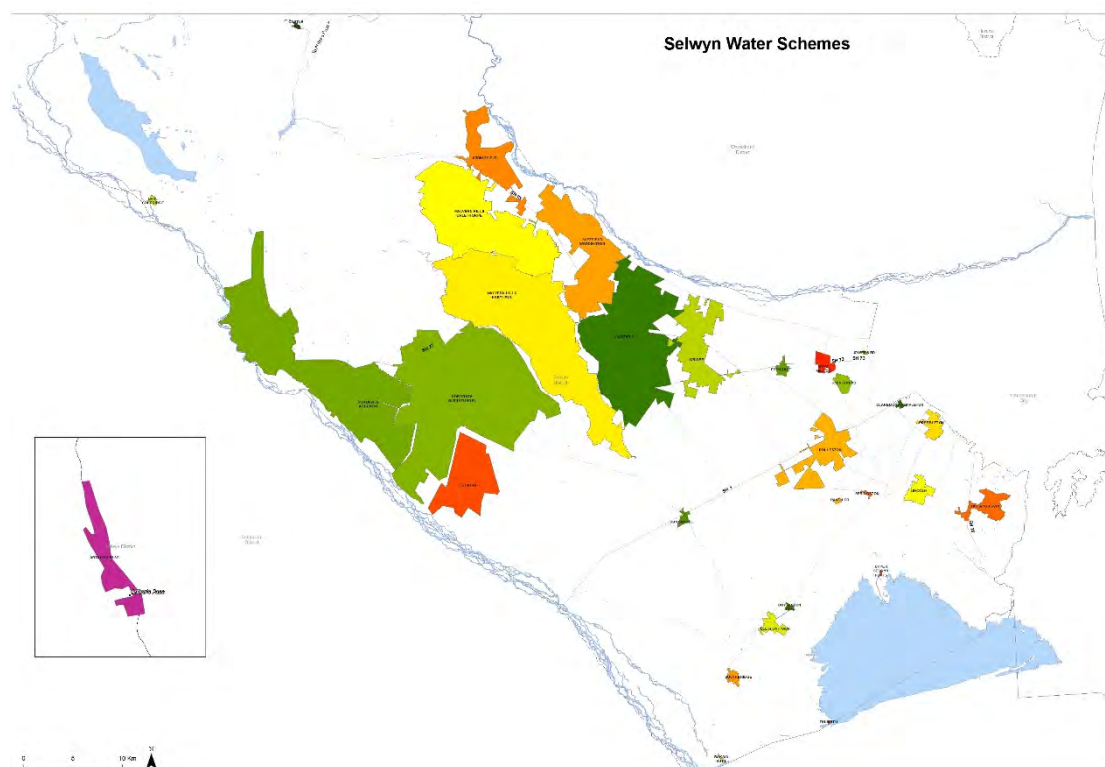
5.1.1 Water

The Council manages 30 water supplies providing water for public needs including household, gardens, and public reserves. The water supplies service 82% of residential properties within the district.

The sources of water for the schemes are river galleries or deep groundwater bores. The level of treatment required differs depending on the quality of the source water.

All schemes have been upgraded over time to meet the requirements of the Drinking Water Standard, and Water Safety Plans are in place for all schemes

Demand has generally grown in line with population and industrial growth. The has put pressure on resource consent abstraction limits and network infrastructure.



Scheme	Connections at 2017	Replacement Cost as at 2017 (\$,000)
Arthur's Pass Water Supply	124	681
Castle Hill Water Supply	124	2,348
Claremont Water Supply	55	670
Darfield Water Supply	1,268	20,338
Doyleston Water Supply	107	1,077
Dunsandel Water Supply	174	1,540
Edendale Water Supply	70	1,404
Johnson Road Water Supply	59	795
Jowers Road Water Supply	18	178
Kirwee Water Supply	435	5,430
Lake Coleridge Water Supply	57	676
Leeston Water Supply	909	4,312
Lincoln Water Supply	1,992	10,087
Malvern Hills Rural Water Supply	597	13,728
Prebbleton Water Supply	1,431	8,561
Rakaia Huts Water Supply	114	471
Raven Drive Water Supply	12	337
Rolleston Water Supply	5,500	37,763
Hororata-Acheron Water Supply	346	16,844
Sheffield/Waddington Water Supply	205	3,765,997
Southbridge Water Supply	351	1,807
Springfield Water Supply	195	3,611
Springston Water Supply	189	1,111
Tai Tapu/Otahuna Water Supply	238	2,553
Taumutu Water Supply	10	106
Te Piritā Water Supply	55	1,953
Upper Selwyn Huts Water Supply	-	68
West Melton Water Supply	654	6,938

Currently there are different levels and forms of water treatment across the district schemes as illustrated below.

Key



Existing



Upgrade

"Traffic light" indicates compliance status

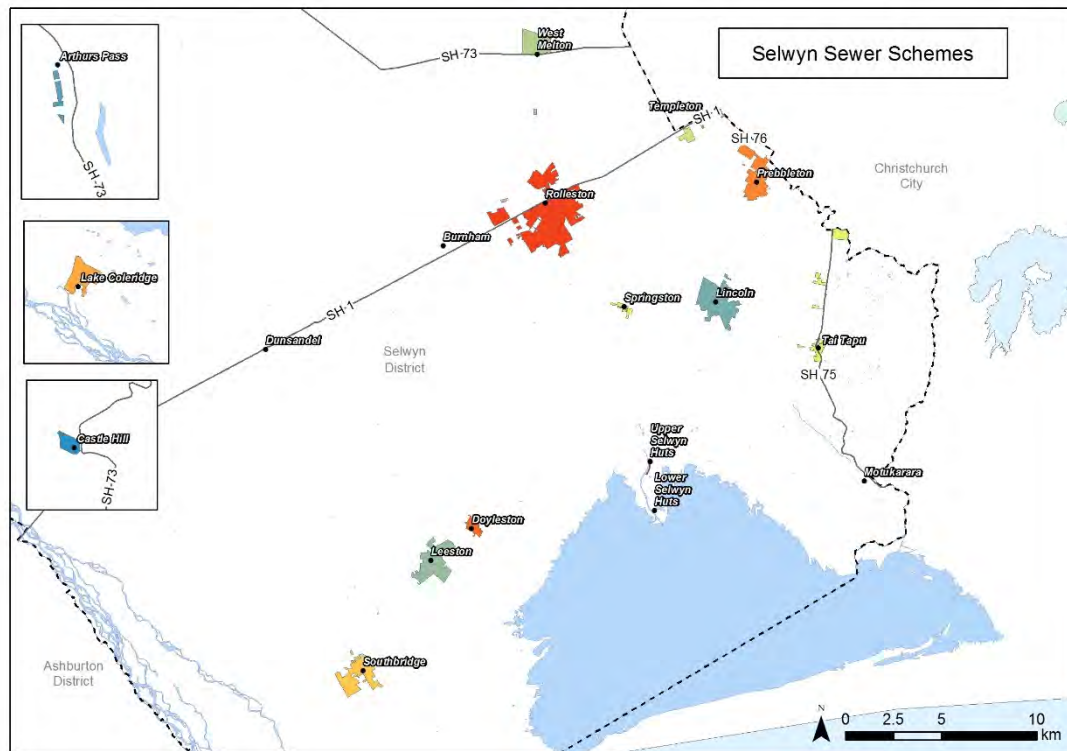
*Being connected to West Melton

? Chlorination means chlorination being considered

Scheme	Pop served	Source	Water Treatment Device			Compliance
			Filtration	UV	Chlorination	
Arthur's Pass Water Supply	350	Gallery/River	✓ 	✓ 		1/7/2019
Castle Hill Water Supply	299	Gallery/River			✓	1/7/2019
Claremont Water Supply	170	Deep Groundwater				
Darfield Water Supply	3,520	Deep Groundwater				
Doyleston Water Supply		Deep Groundwater				(from Leeston)
Dunsandel Water Supply	480	Deep Groundwater		✓		
Edendale Water Supply	180	Deep Groundwater		✓		
Hororata-Acheron Water - Glentunnel (Hororata)	920	Gallery/River		✓ 	✓	1/7/2019
- Acheron	240	Gallery/River			✓	1/7/2019
Johnson Road Water Supply	160	Deep Groundwater		✓		1/7/2019*
Jowers Road Water Supply	50	Deep Groundwater				1/7/2019
Kirwee Water Supply	1,207	Deep Groundwater				
Lake Coleridge Water Supply	148	Gallery/River		✓		1/7/2019
Leeston Water Supply	2,350	Deep Groundwater				
Lincoln Water Supply	5,400	Deep Groundwater				New bore
Malvern Hills Rural Water - Hartleys	1,409	Gallery/River	✓	✓	Chlorination ?	?
- Dalethorpe	183	Gallery/River		✓	✓	1/7/2019
Prebbleton Water Supply	3,906	Deep Groundwater				
Rakaia Huts Water Supply	313	Deep Groundwater				
Raven Drive Water Supply	35	Deep Groundwater				
Rolleston Water Supply	15,047	Deep Groundwater		✓ 		(complete Feb 18)
Sheffield/Waddington Water Supply	585	Gallery/River		✓ 	Chlorination?	1/7/2019
Southbridge Water Supply	992	Deep Groundwater				1/7/2019 New bore
Springfield Water Supply	520	Gallery/River	✓	✓	✓	1/7/2020 Flocculation?
Springston Water Supply	510	Deep Groundwater				
Tai Tapu/Otahuna Water Supply	606	Deep Groundwater				
Taumutu Water Supply	25	Previously Deep Groundwater				1/7/2020
Te Pirita Water Supply	30	Deep Groundwater				
Upper Selwyn Huts Water Supply	80	Previously Deep Groundwater				1/7/2020
West Melton Water Supply	1,800	Deep Groundwater		✓		

5.1.2 Sewerage

The Council is responsible for 14 reticulated wastewater systems that service 63% of properties within the district. There are 39 pump stations and 8 wastewater treatment and disposal plants along with some 250km of reticulation varying in diameter from 50 to 600 mm diameter.



Scheme	Connections at 2017	Replacement Cost as at 2017 (\$,000)
Arthur's Pass Wastewater Scheme	9	424
Castle Hill Wastewater Scheme	121	3,557
Claremont Wastewater Scheme	53	4,071
Doyleston Wastewater Scheme	114	1,921
Eastern Selwyn Sewer Scheme	-	57,538
Ellesmere Sewer Scheme	-	-
Lake Coleridge Wastewater Scheme	50	1,532
Leeston Wastewater Scheme	889	17,351
Lincoln Wastewater Scheme	1,963	43,336
Prebbleton Wastewater Scheme	1,357	18,046
Rolleston Wastewater Scheme	5,249	68,198
Septage Disposal Facilities	-	-
Southbridge Wastewater Scheme	332	7,153
Springston Wastewater Scheme	179	3,143
Tai Tapu Wastewater Scheme	185	4,924
Upper Selwyn Huts Wastewater Scheme	-	1,123
West Melton Wastewater Scheme	602	9,761

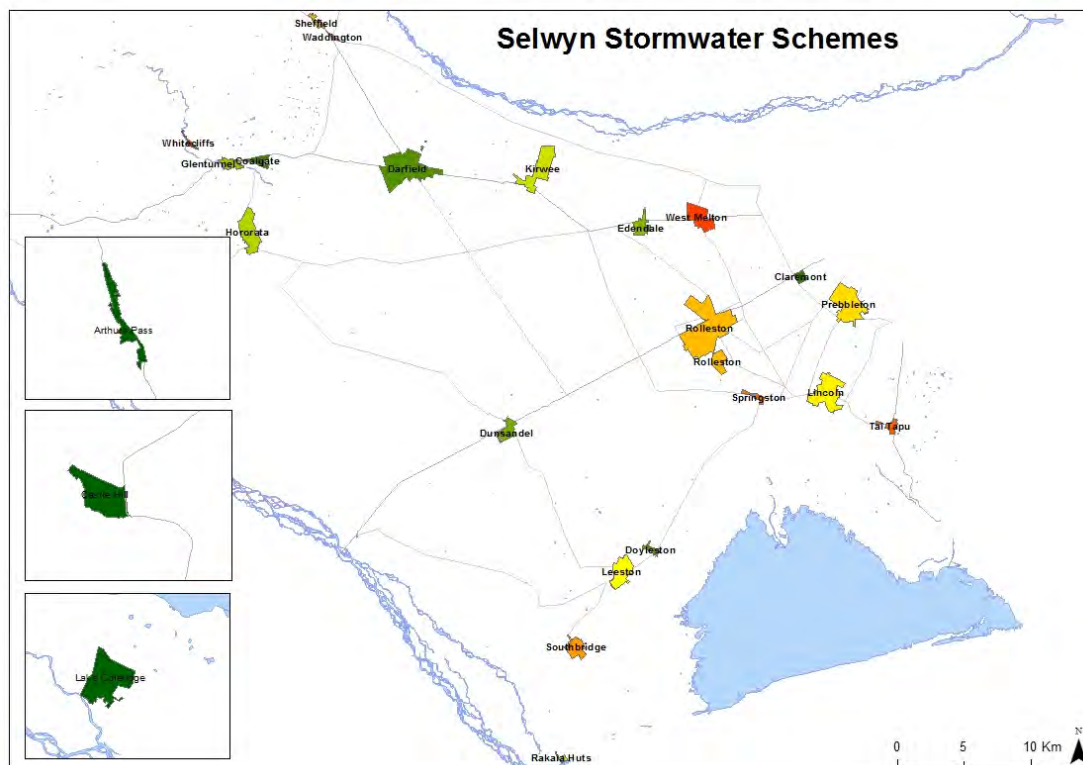
The Eastern Selwyn Sewer Scheme serves the townships of Rolleston, Lincoln, Prebbleton, Springston and West Melton (Pines WWTP), while the Ellesmere Treatment Plant serves Leeston, Doyleston and Southbridge.

Wastewater from Tai Tapu township is pumped to Christchurch City reticulation, where it is combined with City Council wastewater and treated.

5.1.3 Stormwater

The Council manages 22 stormwater management areas within the Selwyn district. These areas are all urban in nature and have infrastructure in place to collect, convey and dispose of surface water. Many areas also manage stormwater in terms of water quality and quantity. This helps manage surface water in these urban areas that can lead to risks to public health and safety, damage to property and contribute to dangerous road conditions.

The use of low impact urban design including swales and natural treatment methods are becoming more common. A protocol has been established to ensure there is integration between Roading, Stormwater and Parks management.



Scheme	Connections at 2017	Replacement Cost as at 2017 (\$,000)
Arthurs Pass Stormwater Scheme	136	321
Castle Hill Stormwater Scheme	188	699
Claremont Stormwater Scheme	58	109
Darfield Stormwater Scheme	1,060	574
Doyleston Stormwater Scheme	118	647
Dunsandel Stormwater Scheme	177	202
Edendale Stormwater Scheme	68	-
Glentunnel Stormwater Scheme	76	153
Hororata Stormwater Scheme	71	302
Kirwee Stormwater Scheme	356	182
Lake Coleridge Stormwater Scheme	69	108

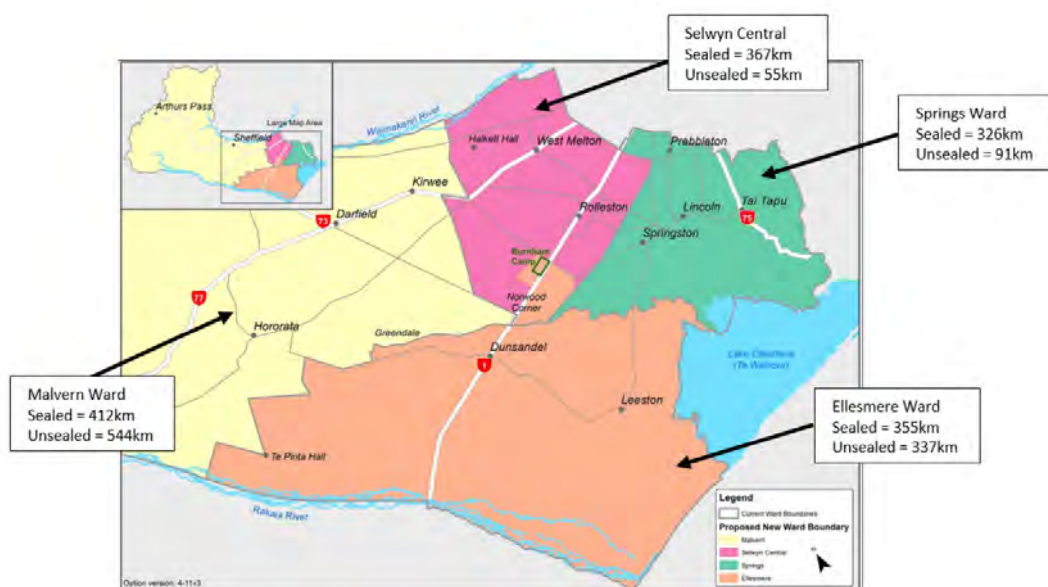
Scheme	Connections at 2017	Replacement Cost as at 2017 (\$,000)
Leeston Stormwater Scheme	889	6,289
Lincoln Stormwater Scheme	2,014	28,002
Prebbleton Stormwater Scheme	1,459	6,389
Rakaia Huts Stormwater Scheme	114	269
Rolleston Stormwater Scheme	5,284	4,641
Southbridge Stormwater Scheme	365	957
Springfield Stormwater Scheme	136	40
Springston Stormwater Scheme	195	894
Tai Tapu Stormwater Scheme	183	2,052
West Melton Stormwater Scheme	647	3,752
Whitecliffs Stormwater Scheme	90	80

5.1.4 Roads and Footpaths

Selwyn District Council manages an extensive roading network, spread across the hills, plains and coastal areas. The largest portion of the network serves the rural areas where traffic volumes are low, and a smaller portion serves urban areas with much higher traffic numbers. Some key commuter routes such as Springs Road and Shands Road are carrying high traffic numbers.

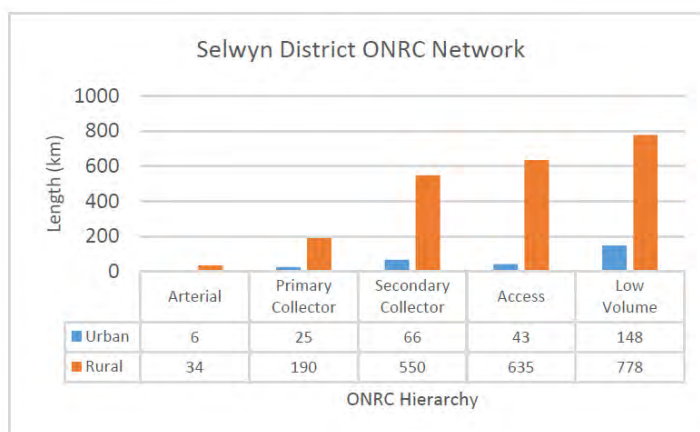
The roading network includes:

- Pavements (sealed and unsealed)
- Bridges
- Drainage
- Footpath
- Railings
- Stormwater Channels
- Signs
- Street Lights



Selwyn's network is split up by a national hierarchy (One Network Road Classification). As at 2017, Selwyn has 288km of urban road and 2,187km of rural roads.

Arterials make up 2% of the network, Primary and Secondary Collectors make up 34% of the network and Access and Low Volume roads make up the remaining 64% of the Network.



The Council maintains 123 bridges ranging in size from small timber bridges to the 260m long concrete bridge over the Selwyn River on Leeston Road. Bridge assets account for 11% of the total transportation asset group based on replacement cost.

Construction of the Christchurch Southern Motorway (Stage 2) reflects the rapid growth in the area, and this will require some reconfiguration of local roads. Township projects are integral to 'main street' redevelopments identified in Selwyn 2031 and Structure Plans.



Christchurch Southern Motorway (Stage 2) layout

5.1.5 Solid Waste

SDC provides a kerbside collection service to the more populous parts of the district, covering all of the urban areas and some rural areas.

At June 2017 there are approximately 43,000 bins in place throughout the district. This is made up of 16,000 residual waste bins, 7,000 organics bins and over 19,000 recycling bins.

The remainder of the waste, recycling and organics is taken directly by residents to the Pines Resource Recovery Park near Rolleston.

Waste Minimisation Act 2008 for all local authorities to improving the efficiency of resource use and reduce the amount of residual waste in the waste stream.

Residual waste (rubbish) is sent to the Kate Valley Regional Landfill, which has capacity and resource consent for another twenty years.

5.1.6 Community Facilities

The Community Facilities Activities have a major impact on both the social and cultural quality of life for the district's residents while contributing to the creation of an attractive living environment and preserving natural and heritage features. The Community Facilities Activity includes a diverse range of Council services aimed at providing places for recreation, leisure

and community activities as well as supporting the accommodation needs of other Council services.

The Community Facilities Activity Management Plan encompasses the following service areas:

Cemeteries

The Council has a total of 19 Cemeteries, of which 2 of these are closed. There is 50+ years capacity in all cemeteries except Prebbleton, Springston and Weedons.

Public Toilets

The Council has 6 Grade I Public Toilets, 12 Grade II Public Toilets and 8 Grade III Public Toilets.

Community Centres and Halls

The Council has a total of 2 Keystone Facilities (Lincoln Events Centre, Rolleston Community Centre) and 23 Local/Hub Facilities.

Rental Housing

The plan assumes that the Council will continue to divest involvement with rental housing and that, overtime, there will be few houses left that Council owns for rent.

The Council has a total of 22 houses (currently – 2017), 2 now leased as part of farm lease, and three Elderly Person Housing houses.

Property and Buildings

The Council has a diverse portfolio of properties buildings:

Heritage	Prebbleton Cottage Lincoln Coronation Library Darfield Jail Glentunnel Library Lake Coleridge Post Office Liffey Cottage Lincoln Malvern Museum Glentunnel Pioneer Hall Lincoln Tai Tapu Library
Community	Darfield Library & Service Centre Leeston Council Office Building, Library & Medical Centre Rolleston Library Lincoln Library & Service Centre Selwyn District Council HQ Offices Rolleston
Strategic Land	Breach Block, Rolleston Raeburn Farm, Darfield Vege Block, Lincoln Wrights Block, Kirwee
Depots	Darfield Depot (inc. SICON offices) Hororata Depot Leeston Depot (leased) Southbridge Depot
Miscellaneous	Lincoln Country Club Lincoln Playcentre Lincoln Plunket Lincoln Toy Library Darfield Medical Centre Glentunnel Holiday Park
Other Property / Land	Vacant land areas (freehold) Small residential properties

Gravel Reserves

The financial plan for Gravel Reserves reflects the change in service delivery for this activity whereby a number of pits (including those that are active for extraction) have been leased to third parties. The plan also signals the reduced income from gravel extraction as material is exhausted and the refocus of direction towards rehabilitation and restoration of sites.

The Council has a total of 225 current or former gravel reserves, 13 of these are active gravel pits.

Forestry

The Council has historically managed a forestry resource with a total of 57 sites across the district with a combined land area of 161.9 hectares (with the net forest area being 116.5 ha).

The Council have 57 identified forestry sites across the district, with a total of 87.8 ha of land currently used for forestry of which 62.7 ha is in forest cover. Previously there was a total of 74.1 ha of land used for forestry of which 53.8 ha was in forest cover and is now deforested. 98% of the current forest is planted in *Pinus radiata* and 2% in Douglas Fir.

Township Reserves

The residential subdivision development over the last few years, particularly in eastern Selwyn, has seen a dramatic increase in township reserves which are provided to cater for local recreation and play needs, to provide visual amenity and to create linkages for walking and cycling. This has seen township reserves increase from 181 (68 ha) in 2014 to 333 (97 ha) in 2017.

The Council has 3 Civic Spaces (1 Ha), 203 Neighbourhood Reserves land parcels (64 Ha), 181 Recreation and Ecological Linkages (21 Ha), and 5 Township Nature Reserves (11 Ha).

Swimming Pools

Selwyn District Council operates Selwyn Aquatic Centre, Rolleston Community Centre and Lincoln Events Centre as well as the district's community pools, delivering accessible opportunities for physical activity, social interaction as well as participation in recreation and sport.

Outdoor Sports Space

There is already a significant deficit in provision levels in Lincoln that will need to be addressed (1.9 ha per 1,000 population compared with the target of 3 ha).

Indoor Sports and Recreation

There is currently no major indoor sports and recreation complex, this is being considered as part of this long term plan (Foster Park).

Community Spaces

As townships develop, there is a greater demand for community space within the commercial and recreation areas. This is discussed in structure plans and the AMP.

Council Accommodation and Property Holdings

The temporary accommodation provided as a short term solution to meeting Council staffing needs has a consent for two years. The plan includes an extension for the SDC HQ of 385 m².

Playgrounds

The Council has a total of 83 playgrounds across the district with the majority (57) being sited in local township reserves. 26 playgrounds are managed by reserve committees



Rolleston Town Centre concept

5.2 Assumptions and Risk

The following assumptions and uncertainty have been developed for the Asset Management Plans and the Long Term Plan. The following assumptions are regarded as most relevant to this thirty-year strategy.

These assumptions were adopted for planning purpose prior to the 2017 national election, some refining will be required

Activity	Assumption area	Source of Information	Stated Assumption	Level of Uncertainty	Risk	Potential Impact/Consequence if Assumption Wrong
Asset Management Area: Financial						
All	Asset lives and depreciation	NAMS	It is assumed asset lives will be as set out in the statement of accounting policies.	Moderate	There is a risk that assets will wear out more quickly than forecast and require replacement earlier than planned.	If assets require replacement more quickly than forecast, renewal or capital expenditure projects may need to be brought forward. The Council will consider the funding implications of any early replacements as they occur. Early replacement will result in a write off of the book value of the asset, increasing expenditure in the year it occurs.
All	Asset values	BERL	The Council revalues its assets so that carrying values are maintained at fair value based on condition. It is assumed that revaluations will take place a minimum of every three years and that replacement value of the assets will reflect construction costs.	Moderate	There is a risk that price level changes will be greater or lower than those assumed and that revaluation movements will be higher or lower than forecast.	If price levels increase by more than forecast, the value of the Council's assets and the associated depreciation charge will increase. If price levels increase by less than that forecast, the value of the Council's assets and associated depreciation will increase less quickly. The impact of any such changes on rates will depend on whether the depreciation charge is funded by rates.

Activity	Assumption area	Source of Information	Stated Assumption	Level of Uncertainty	Risk	Potential Impact/Consequence if Assumption Wrong
All	Insurance		<p>That an appropriate level of insurance will be secured by Council.</p> <p>There is less certainty that Central Government will provide a sufficient share for post event works</p> <p>NOTE: What do we insure / we can get insurance / affordable? Higher excess requires allowance elsewhere</p> <p>Underground assets will be partly self-insured and that sufficient emergency funding will be available from NZTA for damage to roading assets caused by extraordinary events.</p> <p>That increases in Insurance Premiums will be similar to CPI.</p>	Moderate	<p>There is a risk that insurance will be difficult to secure and that NZTA will not provide adequate emergency funding to reinstate damaged services.</p> <p>There is a risk that insurance premiums will rise more rapidly than expected.</p>	<p>Council's assets may not be able to be insured in a similar manner to the current approach and different options may need to be considered. This includes increasing reserve funds and higher excess sums.</p> <p>Premiums will exceed budget allocation and savings will be required in insurance policies or funds will need to be reallocated from other areas of expenditure.</p>
All	Resource consents	The Council	Extra-ordinary consents required to implement the LURP and Housing Accord will be approved within normal budgets and processes.	Low	There is a risk that the consent conditions will change or that consent will not be obtained for the Council projects.	If consent conditions change, expenditure may increase to comply with the conditions and this may have an impact on rate levels. If consents cannot be obtained for planned projects, the project may be delayed or may not go ahead.

Activity	Assumption area	Source of Information	Stated Assumption	Level of Uncertainty	Risk	Potential Impact/Consequence if Assumption Wrong
Asset Management Area: Growth						
All	Greater Christchurch Urban Development Strategy (UDS)	The Council	The adopted strategy and action plan contained a preferred long-term urban development pattern for the greater Christchurch area. The UDS will continue to promote collaborative planning and project implementation (such as the Greater Christchurch Transportation Statement) across the partner agencies.	Moderate	There is a risk that coordinated effort will cease or become fragmented as priorities vary. There is a potential for competition for growth investment. Mandated amalgamation remains a concern.	Planning and funding initiatives are thwarted
All	Land Use Recovery Plan (LURP)	The Council	The LURP replaces the development staging detailed in the UDS, Regional Policy Statement PC1 and Selwyn District Plan policies and Land Use Zoning. It is assumed the Council will be able to provide sufficient controls on development, and establish any essential strategic infrastructure (as agreed) to facilitate the implementation of the LURP and in accordance with related Outline Development Plans.	High	There is a risk that development will be disconnected and/or at a rate faster or slower than expected. Achieving coordinated development in "brownfield" areas can be problematic dealing with multiple land owners with varying degrees of expectations	If development takes unexpected patterns, or becomes disjointed, the Council will need to review and revise its capital works programmes. It will also need to revise operations and maintenance budgets and renewals programmes to suit unpredicted demand and disconnected development.

Activity	Assumption area	Source of Information	Stated Assumption	Level of Uncertainty	Risk	Potential Impact/Consequence if Assumption Wrong
All	Land Use Recovery Plan (LURP)	The Council	It is assumed the Council will be able to provide sufficient controls on development, and establish any critical essential strategic infrastructure (as agreed) to facilitate the implementation of the LURP and in accordance with related Outline Development Plans.	High	There is a risk that development will be disconnected and/or at a rate faster or slower than expected. Achieving coordinated development in "brownfield" areas can be problematic dealing with multiple land owners with varying degrees of expectations	If development takes unexpected patterns, or becomes disjointed, the Council will need to review and revise its capital works programmes. It will also need to revise operations and maintenance budgets and renewals programmes to suit unpredicted demand and disconnected development.
All	Population Change	The Council and Statistics New Zealand	The Selwyn District population will continue to grow at a high rate, similar to that experienced over the past ten years. Growth will be focused in Rolleston and the Eastern Selwyn area, with moderate rates elsewhere. Some more remote communities will only experience limited growth. Total population will grow to nearly 79,200 in 2028 and 105,000 in 2048. The numbers of persons per house will vary between townships, with a decrease over time. Details of the population and household numbers are included in the appendix to this report.	Moderate	There is a risk that the level of population growth will be higher or lower than the projections and that the timing of population growth will differ from that in the model.	The Council has based its plans for the management and expansion of its infrastructure on the population projections. Should growth occur at different rates, it can respond by accelerating, delaying or revising planned capital works. The level of revenue from development contributions will vary from that forecast if actual growth differs from the projections, but any variation will tend to mirror the need for capital expenditure, thereby mitigating the risk to the Council of any shortfall. If growth occurs at a different rate from the projections, the forecasts for the cost of service provision will differ from the actual. Any impact on the Council's financial performance will be mitigated because the change in forecast revenue from rates and fees and charges will tend to mirror the change in the cost of service provision.

Activity	Assumption area	Source of Information	Stated Assumption	Level of Uncertainty	Risk	Potential Impact/Consequence if Assumption Wrong
Transportation	Traffic Growth - General - Heavy - Passenger Transport	The Council	There will be a growth in traffic on state highways and local networks within Selwyn district. While this will vary across the district, but generally be consistent with projected population growth rates.	High	There is a risk that traffic numbers and composition will increase at a rate beyond that expected.	If the Council is required to fund and undertake works that are not expected; this will put budgets under pressure, or the extent of works that can be undertaken will be restricted by budget available.
			Heavy traffic growth will be higher than general growth with concentrations around industry and transport hubs			
			Passenger transport growth will progressively increase			
Asset Management Area: Lifecycle						
All	No major adverse events	The Council	It assumed that there will be no major adverse events during the period covered by the Selwyn Long Term Plan, for example, earthquake, pandemic or flood. While events may occur at any time, Council's planning will focus on operational resilience and Emergency Management.	High	There is a risk that a major adverse event will occur and result in damage to assets and additional costs to the Council.	Any major adverse event will have a significant impact on the Council and the community. The Council seeks to mitigate this risk through its Civil Defence, Risk Management and Insurance Policies and maintaining headroom in its borrowing limits.

Activity	Assumption area	Source of Information	Stated Assumption	Level of Uncertainty	Risk	Potential Impact/Consequence if Assumption Wrong
Asset Management Area: Levels of Service						
Community Facilities	Committees	The Council	The structure and role of Council's committees may alter.	High	<p>Due to the aging population and make up of communities there are insufficient committee members and volunteers available.</p> <p>There is a risk that Council's structure will be altered, along with the role of those committees.</p>	Alternative structures may result in changes to decision making processes and delivery of services by Council.

Activity	Assumption area	Source of Information	Stated Assumption	Level of Uncertainty	Risk	Potential Impact/Consequence if Assumption Wrong
Asset Management Area: Sustainability						
All	Climate Change	Ministry for the Environment The Council	<p>It is assumed that climate change is happening but that there will be no significant impact on the Council's activities within the period covered by the Selwyn Long Term Plan. The Council will take into account the predicted impacts of climate change as it plans, builds and renews its infrastructure.</p> <p>The expansion/renewal of infrastructure at Selwyn Huts will consider both climate change projections and community views in decision-making.</p> <p>This will be informed by studies including "Impact of Climate Cycles and Trends on Selwyn District Water Assets" (Aqualinc, 2016)</p>	Moderate	<p>There is a risk that climate change will happen more quickly than expected or that the impact will be different to those predicted.</p> <p>Council's business units may not recognise climate change adequately in the delivery of their services.</p>	<p>If climate change happens more quickly or impacts services differently, the Council may need to carry out work on its infrastructure assets.</p> <p>Decisions made now without considerations may have intergeneration effects on land use decisions, environmental policy and infrastructure decisions eg relying on unsuitable assets and resources in highly vulnerable parts of the district.</p>

6.0 EMERGING ISSUES

The task of building, operating and maintaining these infrastructure assets in an **affordable** manner is becoming increasingly difficult in view of:

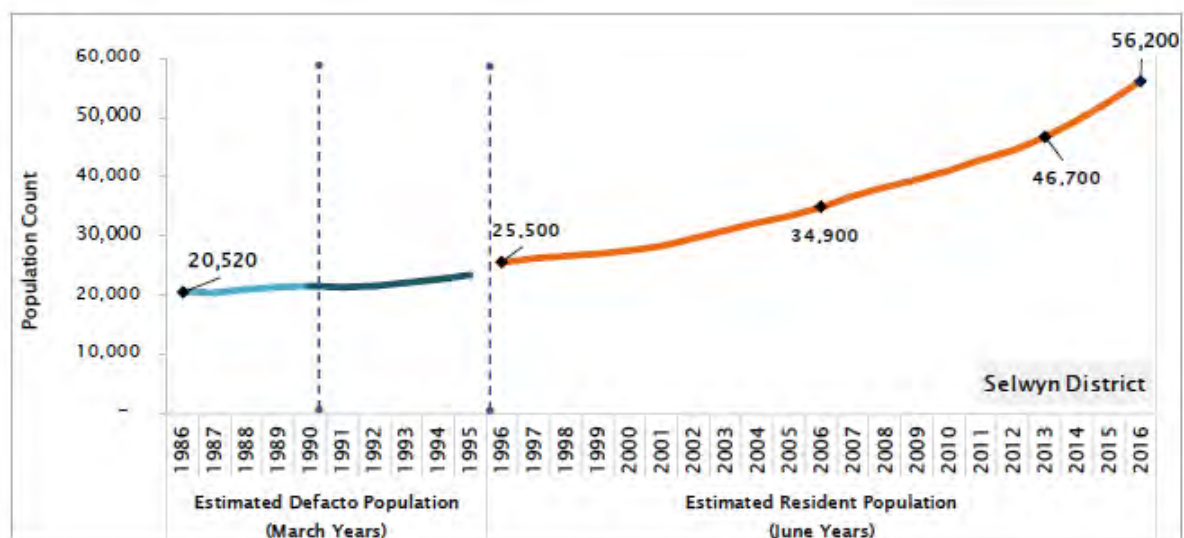
- Rapid Growth
- Demographic changes
- Environmental impacts and compliance requirements
- Continually changing legislative environment
- Infrastructure resilience
- Aging of infrastructure
- Funding challenges

6.1 Rapid Growth and Demographic Changes

The Selwyn district is one of the fastest growing districts in New Zealand.

The population of the Selwyn district has grown rapidly over the past thirty years, from 20,520 in 1986 to approximately 56,200 in 2016, an overall increase of 190%. The rate of growth has also increased each decade. This is a substantially greater rate of growth than experienced by either the Canterbury Region (+37%) or total New Zealand (+42%).

Figure 6.1: Population Size and Growth, 1986-2016, Selwyn District



This level of growth has created opportunities, but also placed stress on systems and infrastructure that support and sustain the community's well being.

Selwyn District Council has adopted a growth model for all strategic and activity management planning. The growth model indicates that it will continue at a relatively consistent pace over the next few years and then moderate slightly over the 10 year planning horizon for the LTP.

The Selwyn Growth Model is consistent with the Statistic NZ medium variant as indicated in the graph below

Figure 6.2: Population Projections, Selwyn District

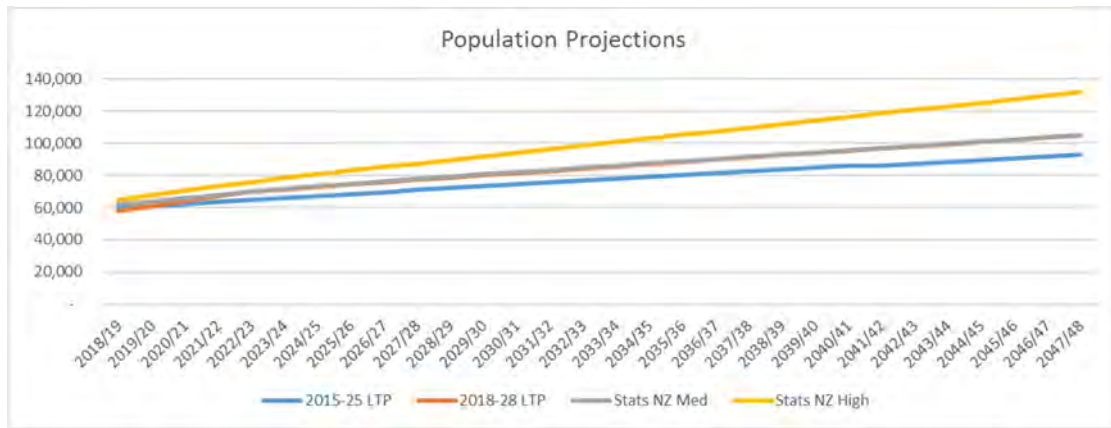
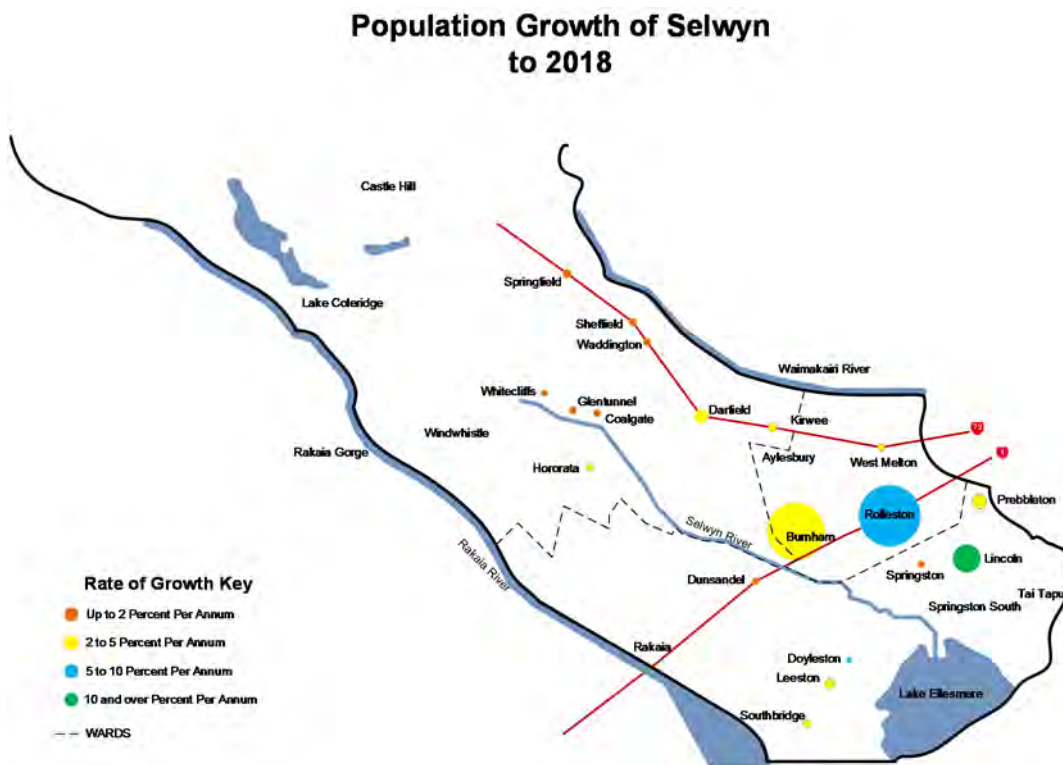
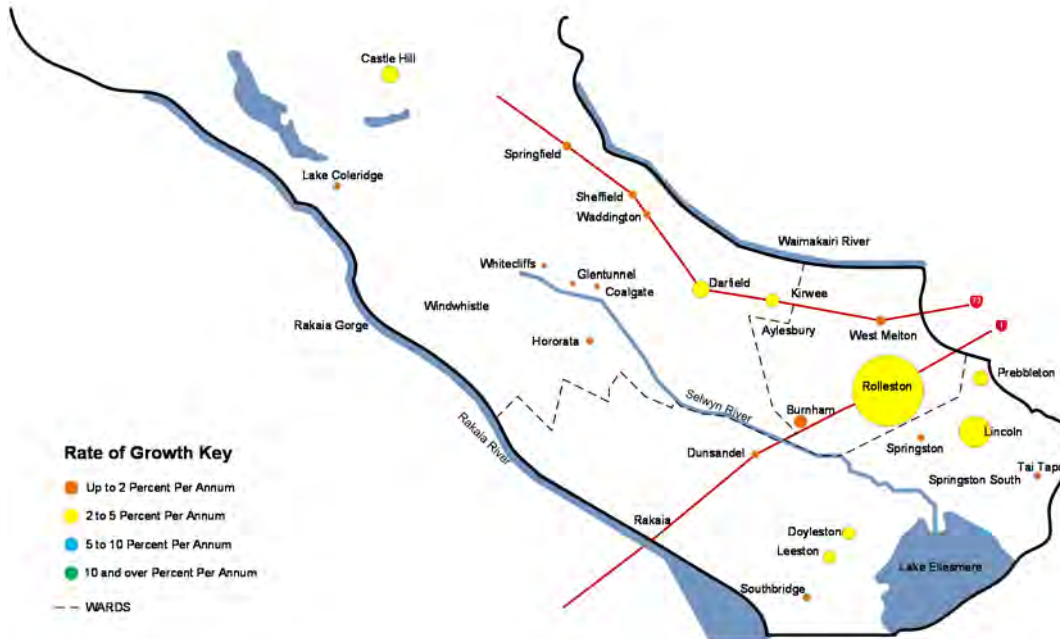


Figure 6.3 below shows that the majority of growth will occur in the eastern portion of the district.

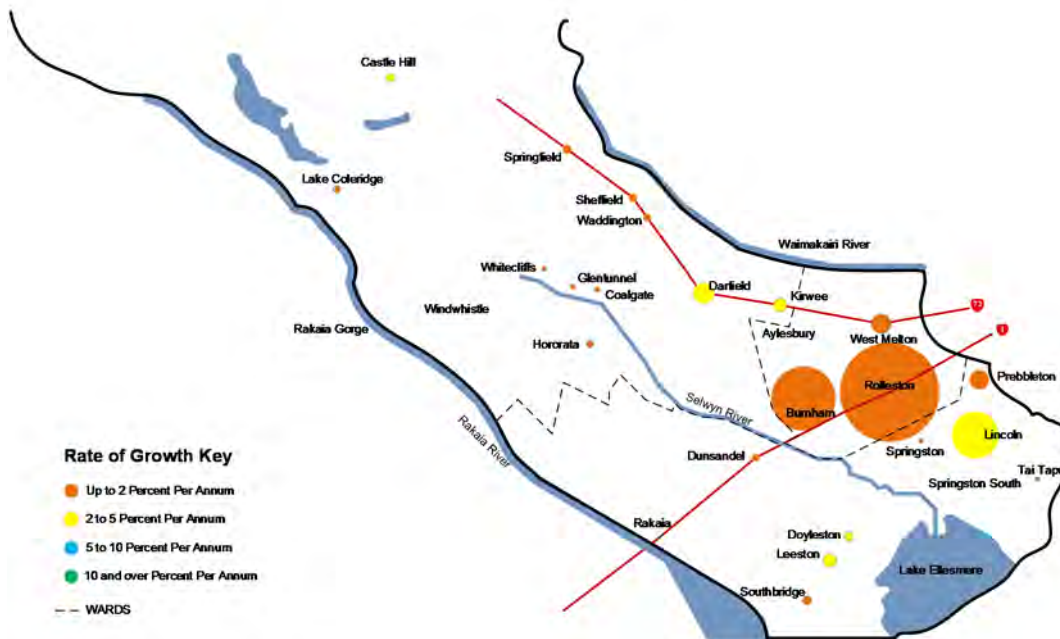
Figure 6.3: Projected Population Growth, Selwyn District



Population Growth of Selwyn from 2018 - 2028



Population Growth of Selwyn from 2028 - 2048



Addressing growth is expected to remain Council's greatest challenge. There are short-term actions required in terms of the Selwyn Housing Accord and the National Policy Statement-Urban Development Capacity. These are discussed in detail in the Activity Management Plans.



Residential development, Rolleston

Currently the Selwyn population has a younger demographic profile than much of rural and provincial New Zealand. However, aging is expected to follow a similar pattern to the majority of NZ. There is some uncertainty about this as patterns tend to be masked by the high growth rate, and the multi-generational patterns for Selwyn's residents remain unknown.

A reduction in the number of persons per household reflects the 2013 census data and the normal pattern of aging populations. Persons per household varies across the district and will continue to reduce. This has an overall impact of some 3,000 additional households at 2043.

6.2 New Technologies

New technologies affect the community at large as well as the manner in which The Council provides services.

The new technologies that the Council expects that will have an impact on service delivery include:

- Communications – high speed broadband, mobile communications and data acquisition and control techniques
- Level of service creep – customer expectations for services and the format in which they are delivered will require ongoing monitoring and response
- Changing transportation patterns including modal shift, 'smart' vehicles along with alternative fuel use (especially electric) and transportation funding

Looking out beyond ten years there are disruptive technologies that we anticipate will come to fruition. If realised, some of these will have a significant impact.

- Autonomous vehicles – the introduction self-drive cars and trucks. This will change the requirements for traffic services in particular (signage and markings) as well as the way road works are undertaken.
- Transport as a service – the need to own one or more vehicles is likely to change when transport can be purchased as a service. This could become quite common with ride sharing and commuting. This is on note as Selwyn has one of the highest vehicle rates per household in New Zealand
- More virtual meetings and high-speed communications should reduce the need for travel; school and universities along with workplaces and social meetings would be more flexible and traffic congestion should reduce as 'rush hour' is less of an issue

- Residents and businesses may choose to become more self-sufficient in terms of energy production (eg solar and wind power). This would be typical of more self-responsibility actions and interaction with the environment.
- Wastewater treatment at source – while reticulated wastewater systems with centralised treatment have been the preferred method for over a century, there is a potential to move to new decentralised technology. While such systems are not feasible at this stage, it is quite possible this will occur within thirty years.
- Water will be regarded differently to today. If groundwater quality and quantity declines, and climate change causes droughts and storms, planning and management of the water resource can be expected to be more deliberate and regulated. The Council may not be able to source water as easily as it currently does; and more controls on use (and wastage) are likely.

6.3 Changing Government Priorities and Legislative Environment

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.

The National Infrastructure Plan, March 2011, states that:

There are two key outcomes the government would like to drive through its infrastructure strategy:

- *Better Use of Existing Infrastructure*
- *Better Allocation of New Investment*

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

Transportation is heavily influenced by central Government and the New Zealand Transport Agency's priorities as described in the Government Policy Statement on Land Transport Funding and other publications.

While governments will change over time, the vision in the NIP is broad enough to remain, unless there is significant geopolitical change. Ongoing development of standards and operating environment can be expected for all activities, but the basic provisions of services such as a safe and efficient transport network, safe drinking water, and wastewater removal (to protect health) and treatment (to protect the environment) will remain.

A greater degree of environmental consciousness can be expected over the next few decades, especially as natural resources are threatened and if any significant event such as pollution or contamination occur.

6.4 Climate Change

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

Selwyn district has discussed the risks that climate change may bring to the provision of infrastructural services in the AMPs for each activity.

The Local Government Leaders' Climate Change Declaration (2017) states

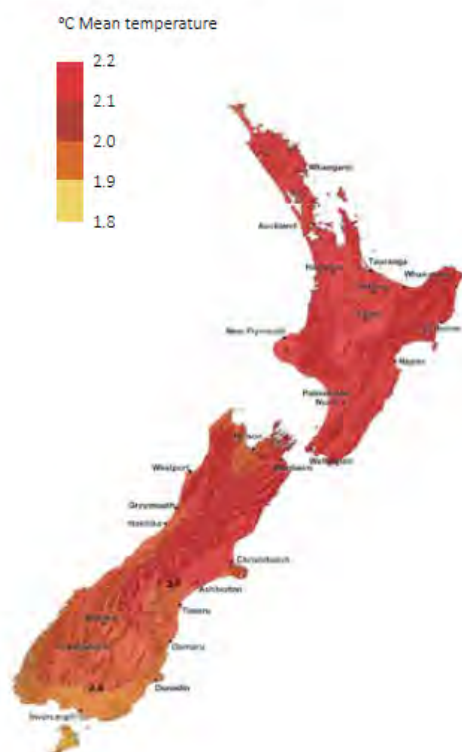
Climate change actions have three components:

1. *actions to reduce emissions (mitigation);*
2. *planning and actions at the national and local level to support public safety and effective adaptation; and*
3. *limiting or removing pressure on systems affected by climate change.*

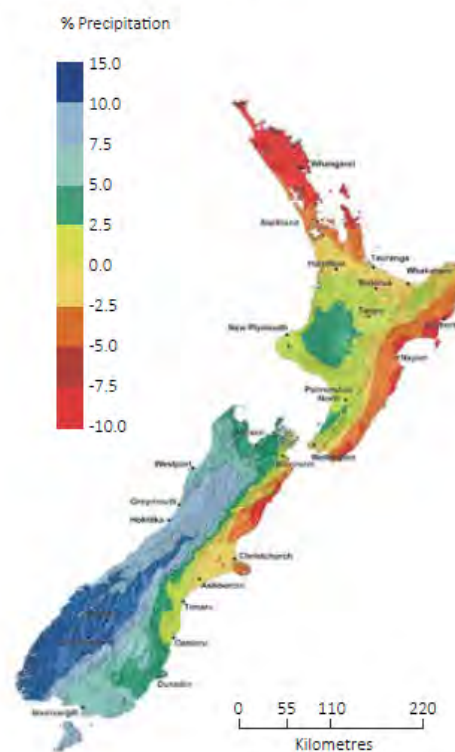
All local authorities (city, regional, district and unitary) are at the frontline of climate change adaptation and have a role to play in mitigation.

Figure 7: Average changes in annual mean temperature (left, degrees Celsius) and precipitation (right, percent) during 2080–2099 compared to 1980–1999, for a climate change scenario midway between low- and high-carbon futures.

Projected Annual Mean Temperature Change between 1980–1999 and 2080–2099



Projected Annual Mean Precipitation Change between 1980–1999 and 2080–2099



Source: Climate change: implications for New Zealand (Royal Society of New Zealand, April 2016)

The Council recognised the roles of Local Government, NZ, the Ministry of Primary Industries, and the Ministry for the Environment and the Royal Society of NZ in researching and guiding a pragmatic response.

The Council has undertaken a thorough study into the impacts that can be expected on Council's water activities from climate change. Of core infrastructure, water supplies and land drainage are expected to be the most affected.

The 'Impact of Climate Cycles and Trends on Selwyn District Water Assets' study is a high level risk assessment, to identify the assets that are most likely to be affected by climate change.

Priority areas were guided by a risk matrix that we developed in consultation with SDC at the outset of the study. The environmental factors that were identified as having the greatest impact were:

- *Groundwater levels;*
- *Annual Rainfall;*
- *Extreme rainfall;*
- *Alpine and foothill river flows (floods and low flows);*
- *Evapotranspiration; and*
- *Sea level rise;*

The report notes that the impact is generally minor in terms of the thirty year horizon.

The District Plan review will incorporate climate change considerations to futureproof development.

Coastal Impacts

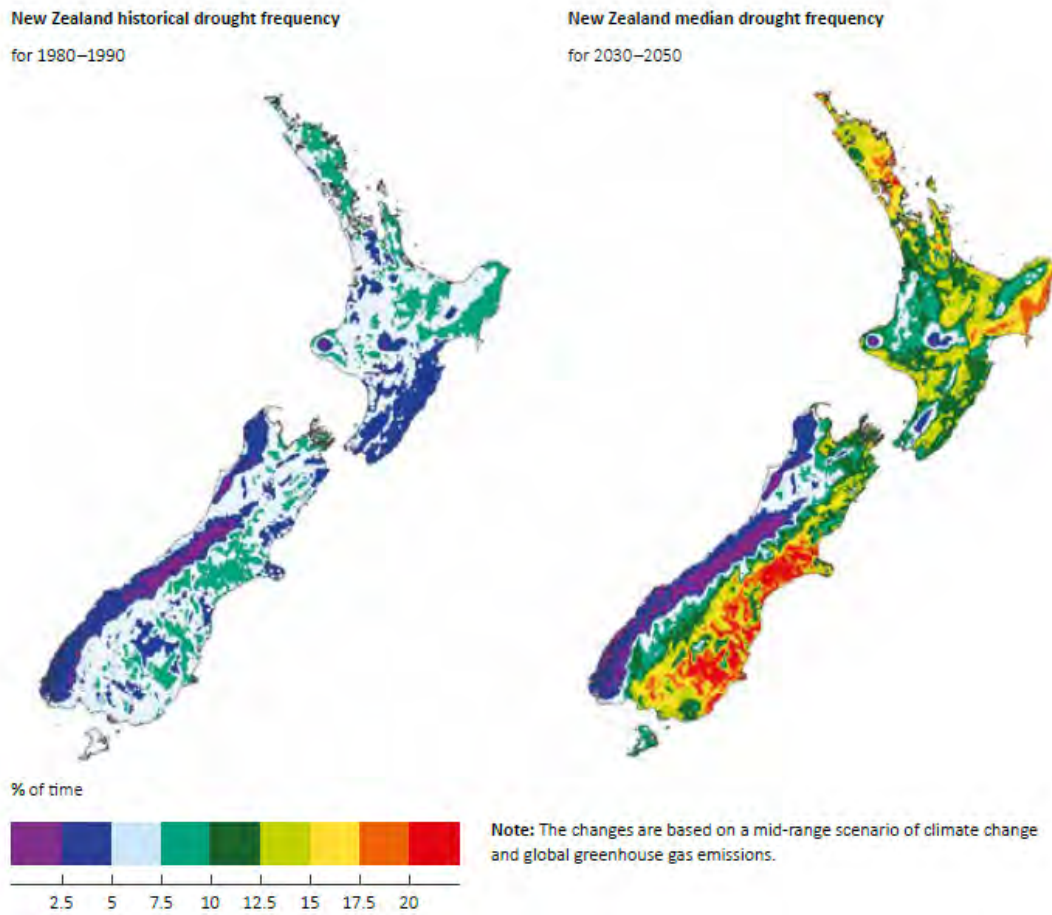
Sea levels in New Zealand have risen an average of 17 cm in the last 100 years, in line with global trends. Some studies have suggested that the rate of rise may be increasing, and is currently around 3 mm/yr.

In a high carbon world, we can expect sea levels around the New Zealand coast to rise by between 0.6 and 1.1 m by 2100 and continuing to rise beyond 2100. A 0.8 m rise in sea level would mean that the current 1-in-100-year high tide level will be exceeded during more than 90% of high tides (ie almost daily). In addition to sea-level rise, the projected changes to the frequency and intensity of storms will mean greater potential for erosive storm events at the coast, with storm surges on top of already higher mean sea levels

Climate change: implications for New Zealand (Royal Society of New Zealand, April 2016)

Extreme Weather

More extreme weather patterns in the form of drought and intense storms are expected, and these impact infrastructure performance as well as the wider community. Drought is of concern in that it could affect water supplies – sourcing water and demand. Council is seeking better security for water supplies where this is a concern. More extreme rainfall will cause surface flooding, and stormwater networks may struggle to cope. Development that include secondary flow paths are favoured, and modelling Stormwater flowpaths may become necessary.



Source: Climate change: implications for New Zealand (Royal Society of New Zealand, April 2016)

6.5 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 have to consider managing and mitigating the risks to, and the resilience of, our infrastructure assets from natural disasters.

Selwyn district and Canterbury residents are all too aware of the significant and ongoing impacts of earthquake. While the district has recovered quickly from what was considerable damage in 2010, the wider community is still affected by resettlement and rebuild.

With the alpine fault and the Greendale fault running through the district, infrastructure and planning needs to be mindful of the risks.

Selwyn district also has a history of weather related events, particularly flooding, snow and strong winds. Planning regimes consider these items along with emergency management preparedness.

The impact of an Alpine Fault rupture is a growing concern and is an incident authorities are considering in their planning (known as AF8).

These threats are considered within the risk management process as part of activity management planning for each activity.

Criticality is a key tool that the Council has applied to network planning – transportation and 5Waters. This assists to identify where there is redundancy in networks or individual assets that play a vital role.

6.6 Aging Infrastructure

Some of the Council's infrastructure in older townships 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 apply a 'just in time' philosophy and defer renewals through proactive maintenance measures. While much of the infrastructure in Selwyn district is relatively new, there is infrastructure in older townships that requires attention. The Council needs to balance this with meeting the needs of growth.

Currently the Council prepares a renewal programme for infrastructural assets for twenty years in the respective AMP. This is compared to the depreciation calculation for the valued assets to verify the appropriateness of the renewal programme.

Along with older infrastructure, Council's portfolio is increasing quickly with development. The Council is aware of this as a future renewal issue

The Council has developed comprehensive renewal plans based on asset condition, performance and models of those results. For 5Waters, renewal profiles of up to 120 years have been developed to fully understand the assets and the investment that will be required.

Transportation assets require considerable investment in renewal (resurfacing and rehabilitation) as these lifecycles are shorter than other infrastructure. Deterioration modelling is undertaken to project what programmes will be required to deliver the appropriate level of service in the most cost effective manner.

Community facilities assets are regularly surveyed to ascertain their condition and if the performance is fit for purpose. It is also important with these facilities to understand the community's opinion on how their expectations are met and if the facilities are a satisfactory match.

6.7 Rapid Growth

Being one of the fastest growing districts in the country, Selwyn is rapidly transforming from a rural amalgam of three former rural counties into the combination of urban and rural. Responding to this growth, as well as the pace of change brought about by post-earthquake recovery, over the next few years is a real challenge in terms of land use planning, infrastructure provision, asset management and service delivery. While the Council is required under the Land Use Recovery Plan (LURP) to support the required development, the Council does not see its role as the facilitator of development or the coordinator of individual land owner's developments.

5Waters

Based on current community growth trends, demand for water, wastewater and stormwater services have the potential to exceed consented allowances in some schemes. This analysis is based on the Council's population information, a detailed review of historical records and forward predictions of use, after factoring in potential climate changes as well as engineering staff / contractor knowledge.

Achieving reasonable usage, particularly in the areas of water (human drinking water and stock water) together with wastewater treatment and disposal, is a key factor in future planning. In particular, the need to ensure that water is used wisely, sits above all other issues in the operations and maintenance sphere. The Council has an active demand management strategy for water supplies. The strong relationships between water use and wastewater disposal, stormwater, water race and land drainage systems have been provided for in integrated projects.

Transportation

Traffic numbers have increased dramatically in Eastern Selwyn, and this is expected to continue into the future. The motorway extension to Rolleston will enable convenient travel into Christchurch City, and improvement in the north-west quadrant will also improve access to the industrial zone, airport and further north.

With the establishment of two inland ports and ongoing expansion of Izone and IPort, heavy traffic numbers will be significant. Agricultural development across the plains will also increase traffic numbers as trucks cart supplies to farm and product from farms. With three dairy factories processing significant milk quantities, dairy will continue to influence heavy traffic movements.

While all this happens, the Council needs to ensure safety and alternative modes of transport are considered. Council has developed a Road Safety Strategy and a comprehensive walking and Cycling Strategy. Along with its role as a passenger transport partner, Council is actively pursuing a range of transport options.



Motorway construction, Weedons

Community Facilities

The desire for facilities is commensurate with the growth of the district's population. While established communities may have a range of facilities, the areas undergoing rapid growth do not. There is also a threshold level where larger facilities are required, such as indoor sports centres, and aquatic centres. The Council is tracking these demands closely and a programme of development is key to this plan.

Solid Waste

The growth in demand for solid waste services closely reflects population growth in the district. Commercial and industrial activity affect the quantity and composition of waste and there is considerable waste from construction during the building boom. There is a popular desire to reduce residual waste, which is expected to increase in the future as resources are viewed more holistically. Community support to expand recycling opportunities is expected.

6.8 Environmental Impacts, Sustainability and Compliance requirements

Increasing environmental compliance is ongoing. As consents expire and new consents are required to meet the demands of growing populations, planning and infrastructure costs are anticipated. The Council is required to implement a 'sustainable development' approach, and this is part of councils planning philosophy. Sustainability principles have been developed and are a core consideration in infrastructure and strategic planning.

The 5 Waters activities are mutually interdependent, and the Council will provide the extent and quality of service demanded by the community and legislation. This involves prudently managing the acquisition, maintenance, operation, renewal and disposal of water assets in ways that optimise the value of services delivered to the community.

6.9 Continually changing legislative environment (Central & Regional Government)

Along with the requirements of the Resource Management Act and the Local Government legal requirements, the Regional Council's requirements as outlined in the Land and Water plan are expected to involve higher levels of compliance. Further change is expected as regional councils implement the National Policy Statement on Freshwater Management.

In particular, Plan Change 4 to the Land & Water Regional Plan, referred to as the "Omnibus" plan change, amends the policies and rules relating to the management and operation of stormwater discharges into and from reticulated stormwater systems. It requires operators of these systems to implement methods to manage the quality and quantity of all stormwater entering their system. From 2025, the Council will be responsible for all stormwater discharges from its network.

6.10 Rates and Charging Mechanisms

With a large number of water and wastewater schemes with different characteristics, along with community facilities that serving a wide range of the population standardising rates, fees and charges are favoured. This enables implementation of infrastructural programmes differently as there is a broader base to programme expenditure, and support smaller communities. The details of the charging methodology are described in the financial strategy.

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

7.0 THIRTY-YEAR STRATEGY

In its role as Local Authority Selwyn District Council will comply with the relevant New Zealand legislation, while the following Strategic Statements will guide decision-making over the next 30 years. These statements have been developed through Council workshops and derived from Council's Outcome Statements and Long Term Plan

Strategy #	Strategic Statements
1	A clean environment
2	A rural district
3	A healthy community
4	A safe place in which to live, work and play
5	An educated community
6	A prosperous community
7	An accessible district
8	A community which values its culture and heritage

7.1 Applying the Strategic Statements to Infrastructure Planning

A clean environment – air, land, water and general environment to be kept in a healthy condition.

To support this strategic statement the Council will:

- Advocate to ensure organisations responsible for protecting the environment have appropriate policies and strategies to achieve this outcome
- Provide water and sewerage systems that minimise the negative effects of their activity
- Provide a service to collect and dispose of solid waste in a manner that minimises any potential harm to people and to the environment
- Ensure services are available for the effective and affordable collection, processing and marketing or beneficial use of diverted materials

The water and wastewater activities make key contributions to the achievement of these objectives.

A healthy community – Selwyn people have access to appropriate health, social and community services.

To support this strategic statement:

- Advocate to ensure appropriate health and social services are accessible to Selwyn residents
- Facilitate and provide opportunities for Selwyn residents to enjoy healthy, active lifestyles including provision of recreational open space and community facilities

The water and wastewater activities make key contributions to the achievement of these objectives.

A safe place in which to live, work and play – we are safe at home and in the community.

To support this strategic statement:

- Encourage neighbourhood support and other community support groups
- Ensure that all buildings constructed in the district are safe, durable, accessible and fit for their intended purpose
- Promote walking and cycling as a safe, viable mode of transport and recreation
- Encourage and support volunteer's involvement with safety initiatives
- Provide and maintain a Civil Defence Emergency Organisation and a Rural Fire Organisation
- Encourage and support community involvement in emergency management
- Maintain, operate and upgrade the transportation network and work with key stakeholders and the community to reduce fatal and injury crashes
- Provide/facilitate safe entertainment/recreation activities for young people

The transportation and community facilities activities make key contributions to the achievement of these objectives.

An educated community – our district provides a range of quality, lifelong education and training opportunities.

To support this strategic statement:

- Advocate for improvements to educational opportunities within the district
- Provide lifelong learning opportunities through its Libraries

The community facilities activity makes key contributions to the achievement of these objectives.

An accessible district – effective and accessible transport system

To support this strategic statement:

- Provide a well-maintained, operated and affordable land transport system
- Advocate for improvements to state highways (NZ Transport Agency) and public transport services (ECan) where community concerns are raised

The transportation activity makes key contributions to the achievement of these objectives.

A community which values its culture and heritage – our district provides a range of arts and cultural experiences and facilities, and our heritage is preserved and shared

To support this strategic statement:

- Provide information, recreational, cultural and learning opportunities through its network and Libraries
- Provide support to local arts and cultural organisations
- Provide support to the Canterbury Museum Trust
- Recognise and protect sites, buildings and significant trees with cultural or heritage values
- Work with Te Taumutu Rūnunga to ensure our commitments to the Treaty of Waitangi are met

The community facilities activity makes key contributions to the achievement of these objectives.

7.2 The Organisation's Priorities

At high level, the Council's priorities are to:

- Manage the impacts, including transportation impacts, of rapid population growth
- Achieve compliance with legislation and consents
- Ensure the district is attractive for residents
- Reflect inter-generational benefit in the funding of large projects
- Implement Selwyn 2031 and the Master Plans already consulted on
- Continue to develop community facilities including community centres, halls and reserves
- Fund and provide water supplies and wastewater schemes
- Implement the rationalisation of the water race network

These issues have been identified through AMP and LTP workshops in 2017.

The Council is aware of the priority tensions across the district. These are associated with growth that will occur and Councils role in terms of the LURP; alongside other communities in the district with older infrastructure. There are also priorities in terms of the implementation of plans where the community has had input and has expectations going forward. This highlights the need for the Council to plan for the long term, communicating the priorities and timing of its response to the community.

7.3 Asset and Service Management Strategy

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

1. Maintain the existing networks (including 'routine' renewals)
2. Implement upgrades required to meet legislative and regulatory compliance
3. Consider the level of demand for services and plan increases or reductions accordingly (actions and timeframes)
4. Ensuring vested assets are appropriate and of the standard required
5. Undertake asset renewals through coordinated programmes.

This approach recognised the relatively new assets that comprised Selwyn's networks, and the small proportion of assets requiring renewal in the near future. The performance of assets is generally satisfactory and maintaining these is the priority so that services to the community are not compromised. Monitoring the condition and performance of assets remains important while the emphasis is on responding to growth, to ensure that the assets are not deteriorating prematurely and renewal plans remain appropriate.

The Council has established an asset management policy. This defines the appropriate level of asset management planning in line with the discussion contained in the International Infrastructure Management Manual (2015). The policy definitions are as follows:

Water	Intermediate
Sewerage	Intermediate
Stormwater	Core
Roads & Footpaths	Intermediate
Other Infrastructure	Core

In order to manage infrastructural assets that support the wellbeing of the district it is essential that there is a logical system of good asset management practice. This includes inventory, asset condition, performance required and performance delivered, and risks that affect service delivery records.

7.4 Cost Effective Delivery of Services

In terms of section 10 (Purpose of local government) there is a clear requirement to meet the current and future needs of communities for good-quality local infrastructure, local public services,... in a way that is most cost-effective for households and businesses.

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

(a) efficient; and

(b) effective; and

(c) appropriate to present and anticipated future circumstances

In order to demonstrate that the delivery of services are efficient, effective and appropriate; Selwyn District Council has developed and implemented a procurement strategy across the delivery of infrastructure-based services. Value for money is a key objective of this strategy.

The Council has undertaken service delivery review: to examine the efficiency and effectiveness of service delivery. In summary the findings were supportive of the current models.

It is noted that transport services are delivered at a cost per km rate among the lowest in New Zealand, while outcome results are some of the best.

7.5 Addressing Resilience

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. Engineering Lifelines groups have already undertaken work in this area (NIP 2011)

Infrastructure resilience is discussed in section 6.5. It is also important to consider community resilience. This is the ability of the community to adapt and progress through challenging times. The rapid growth and the Canterbury earthquakes have placed Council and the Selwyn community under stress and the result has been rapid recovery and a desire to make Selwyn a better place to live.

The Council has acknowledged that events may occur at any time, and that Council's planning will focus on operational resilience and Emergency Management. Operational resilience will include 'building in' capacity in systems where this is achieved at a marginal cost and considering sustainability outcomes in the decision-making process.

These actions include:

- Actively participate in CDEM planning and activities, at both regional and local levels
- Investigate options for alternative service provision and system redundancy
- Identify critical assets and ensure mitigation methods are developed
- Obtain insurance where this is deemed to be the most cost effective approach

Allowance for these items has been included in LTP budgets. The Council has acknowledged that regular allocations to an emergency reserve fund would be desirable, but this is not a priority for the next ten years when compared with growth response.

7.6 Evidence Base

The Council acknowledges there are limitations with its data that affect decision-making.

A considerable portion of the infrastructure portfolio is relatively new, so good data is available. The Council has had data collection and management programmes in place for many years and so data reliability is moderately high. Road and footpath data is comprehensive and the culmination of over fifteen years of through data collection and management programme. 5Waters data is also extensive with well-established practices. Demand management would be better understood with universal metering in place. Community facilities information is less robust but mostly fit for purpose, improvements are planned to support decision making.

A commitment to improving data collection and analysis is indicated below.

Table 7.1: Data Improvements

Activity	Data to be collected	Data to be analysed	Value this data provides
Water Supply	Zone and universal metering	Water demands	Universal metering provides a comprehensive data set that helps understand peak demands
Community Facilities	More detailed capital planning	Population and demographics Expectations	With rapid growth the communities' expectations can change quickly, provision of fit for purpose facilities should be continually assessed

The approach to data collection and management will be discussed in the respective asset management plans and budgets included where appropriate.



Alpine community recycling station

7.7 Significant Decisions Required

Taking a long-term view to the management of infrastructural Assets, Selwyn District Council needs to make key decisions in a timely manner. In addressing Community desires and priorities the following key decisions have been identified. These are shown ahead of the project timeframes, so they can be discussed and appropriate levels of community engagement progressed.

The Council has adopted a strategy driven approach to working through the challenges faced by the district. There are structure plans guiding township growth and design, and area plans that identifies the desires of communities in the provision of infrastructure. These sit alongside regional and national plans such as the Selwyn housing accord which the Council is committed to enable. This infrastructure strategy reflects that the community has been engaged in decision making on an ongoing basis and the implementation of those strategies is now up for discussion

This is not a review of a project list, it is a discussion on the strategic response to issues raised. Estimates for projects and packages of projects are included in section 8.

Items are listed in five-year bands as an indication of the timeframe involved in decision making and project planning.

Indicative Timeframe	5 Waters	Transportation	Community Facilities	Solid Waste
	<i>Projects focus on increasing asset capacity to cater for growth, other are water quality related</i>	<i>Projects focus on increasing asset capacity to cater for growth,, integrate with State Highway Project and integrate with township projects</i>	<i>Many of the projects are growth related, as the population grows, and community develops, the need for facilities increases</i>	<i>Redevelopment of the Resource recovery parks to keep up with growth and reduce the amount of waste to landfill</i>

Indicative Timeframe	5 Waters	Transportation	Community Facilities	Solid Waste
<p>2018/19 to 2022/23</p>	<p>Chlorination: From a health perspective, chlorination is a favoured option. Chlorinating all supplies is a decision to be worked through with all communities along with an appreciation of the risks involved.</p> <p>Water supply source and reticulation upgrades: Comprehensive programme to increase capacity to meet growth indicated in master plans</p> <p>Wastewater reticulation and treatment upgrades: Comprehensive programme to increase capacity to meet growth indicated in master plans</p> <p>Upper Selwyn Huts: A short term consent will allow time to work through long term options – these will need to be worked through with the community.</p> <p>Water Races: There is progressive change form consumer focus to ecology focus. Consultation is on-going.</p>	<p>Maintenance and, Renewals: The cost of maintaining the network is increasing. A lift in investment is planned.</p> <p>Rolleston Town Centre: Street upgrades, parking, traffic signals, paths and lighting are part of the programme</p> <p>Lincoln Town Centre: Street upgrades, parking, traffic signals and lighting are part of the planned programme</p> <p>Prebbleton: CSM2 and locals roads intersections and connections</p> <p>Rolleston Flyover: Now led by NZTA, SDC support is vital to proceed.</p> <p>Walking & Cycling: Comprehensive programme across district providing a network</p> <p>Seal Extensions and widening 15 year proposal</p>	<p>Developing Reserves: With a large number of reserves, a comprehensive programme for development is essential. This includes:</p> <ul style="list-style-type: none"> - District Park - Foster Park - Lincoln Park - Rolleston reserves - Prebbleton reserves - Rolleston Town Centre <p>Community Centres/Libraries As part of the social fabric, the retention or extension of community centres is important. This period includes a replacement facility for Prebbleton, and a combined library/centre project for Rolleston</p> <p>Aquatics Selwyn Aquatic Centre extension</p> <p>Indoor courts facility: Constructing an indoor courts facility based on the anticipated level of demand. Future extensions are planned.</p> <p>SDC HQ extension Extending the building to provide extra accommodation space.</p> <p>Public Toilets Consider replacement and upgrade of the network including at Lincoln, Lake Coleridge and Dunsandel.</p>	<p>RRP 'reconnect' project: Project planned for 2018-2023</p>

Indicative Timeframe	5 Waters	Transportation	Community Facilities	Solid Waste
<p>2023/24 to 2027/28</p>	<p>Land Drainage: Projects are planned for mid-decade, these should be reviewed in the context of environmental outcomes and service delivered</p>		<p>Development of Parks & Reserves: The focus is on ensuring there is adequate provision of open space and facilities for sport and recreation. Including continuation of development at:</p> <ul style="list-style-type: none"> - District Park - Foster Park - Prebbleton reserves <p>Community Centres A new facility for Hororata, and Leeston</p> <p>Public Toilets: Consider replacement and upgrades to the network including at Leeston, Springston and Darfield.</p>	

Indicative Timeframe	5 Waters	Transportation	Community Facilities	Solid Waste
2028/29 to 2032/33	<p>Darfield Wastewater: Consideration of if a reticulated wastewater system for Darfield should be reviewed</p>		<p>Developing Reserves: Continue to develop the district park and develop new reserves vested from subdivision and consider a programme to provide artificial playing surfaces from 2030.</p> <p>Aquatics Darfield Pool – redevelopment from 2030 and potential additional facilities at Selwyn Aquatic Centre in 2029/30.</p> <p>Rolleston Community Centre: Redevelopment planned for 2031</p> <p>SDC HQ extension: Consider further extension to the building to provide extra accommodation space in 2029/30.</p> <p>Public Toilets: Program to build one new facility every four years to meet demand.</p>	
2033/34 to 2037/2038			<p>Lincoln Sports Park: Planned land purchase and park development, from 2035.</p> <p>Indoor Courts Facility: Review provision of courts to meet demand in 2034/35.</p> <p>Rural Recreation/Wilderness Reserve: Development is planned from 2035 to 2040.</p> <p>Cemeteries: New or expansions 2035 and 2042</p>	

Indicative Timeframe	5 Waters	Transportation	Community Facilities	Solid Waste
2038/39 to 2042/43			<p>Reserve Development: Continue to develop sports parks to meet demand.</p> <p>SDC HQ extension: Further extension to the building to provide extra accommodation space in 2041/42.</p> <p>New Community Facilities for Rolleston: Consider from 2045.</p>	
2043/2044 to 2048/47				

8.0 SIGNIFICANT INFRASTRUCTURE ISSUES

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

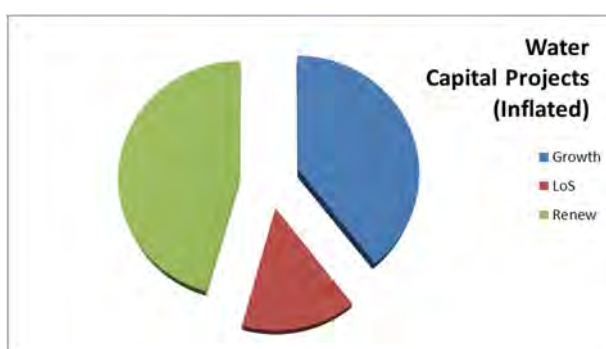
“(b) identify the principal options for managing those issues and the implications of those options.

In developing this 30-Year Strategy the Council identified the anticipated significant infrastructure issues over the 30 years and considered each significant action and the benefits of the action. The significant infrastructure issues faced by SDC with the benefits and costs are tabled below. The items listed in reach of the tables below reflect projects or combinations of projects with a level of investments exceeding \$1M and are shown in 2018 and inflated dollars.

8.1 Water

Council’s goal for the water activity is:

To provide water services that meet all relevant standards and are at a service level the public can afford and have confidence in, now and forward into the future.



Water Supply Upgrades

The budget provides for the continued upgrading of Councils water supplies to provide a higher level of treatment and redundancy.

It is predicted that the security and quality of groundwater will decline over the next ten year period. This is already been observed in places like West Melton and recently in Rolleston. The budget also provides for significant funding of growth related upgrades to ensure the continued high level of service for our growing communities.

In addition to the table below, there are many smaller projects which add up to a considerable sum. They are not listed below due to the complexity of the programme.

Renewals

Renewal profiles have been prepared for a 120 year horizon (refer to AMP). This allows for smoothing of the programme appropriate for infrastructure strategy planning. Specific programmes for renewal are also discussed in the AMP.

Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it	Growth	LoS	Renew
Adequate Urban Water Supply for Prebbleton	Upgrading headworks to improve supply quality and capacity in line with population growth	Ensure there is adequate water supply for the growing community	\$4.5M [\$4.7M with inflation]	2018/19-2032/33	✓		

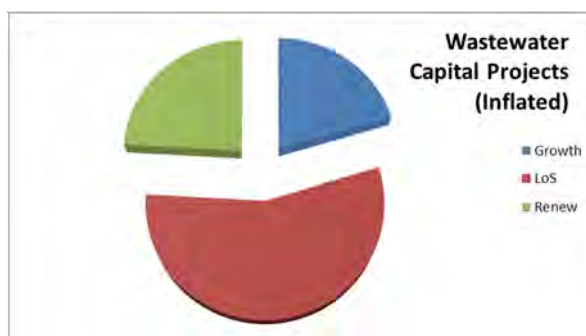
Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it	Growth	LoS	Renew
	Assumptions	Projections of water demand and the capability of the infrastructure planned are sufficiently accurate and improvements can be made in an acceptable timeframe					
Adequate Urban Water Supply for Lincoln	Upgrading headworks to improve supply quality and capacity in line with population growth	Ensure there is adequate water supply for the growing community	\$7.1M <i>[\$8.2M with inflation]</i>	2018/19-2040/41	✓		
	Assumptions	Projections of water demand and the capability of the infrastructure planned are sufficiently accurate and improvements can be made in an acceptable timeframe					
Adequate Urban Water Supply for Darfield	Upgrading headworks to improve supply quality and capacity	Improve water quality and certainty of supply	\$3.0M <i>[\$3.3M with inflation]</i>	2018/19-2032/33	✓	✓	
	Assumptions	Projections of water demand and the capability of the infrastructure planned are sufficiently accurate and improvements can be made in an acceptable timeframe					
Adequate Urban Water Supply for Rolleston	Upgrading headworks to improve supply quality and capacity in line with population growth	Ensure there is adequate water supply for the growing community	\$18.1M <i>[\$23.3M with inflation]</i>	2018/19-2042/43	✓		
	Assumptions	Projections of water demand and the capability of the infrastructure planned are sufficiently accurate and improvements can be made in an acceptable timeframe					
Aging infrastructure	Replacing pipes that are reaching the end of their economic life	Continued level of service	\$2.2M average per year	2018/19 onwards			✓
	Assumptions	Condition monitoring and modelling as sufficiently accurate that renewals can be undertaken without too much prior repair to keep them in service					

8.2 Sewerage

Council's goal for the sewerage activity is:

To provide water services that meet all relevant standards and are at a service level the public can afford and have confidence in, now and forward into the future.

The Eastern Selwyn Sewerage Scheme Treatment Plant (Pines) is of a modular design, meaning it's capacity can be extended to meet the growing population. Further development is required regularly to keep up with the demand.





The future of the Pines site, or the need for an additional site, will need to be considered in future. This is not listed as a project, but identified as a future issue for the Council to address (section 7.7)

Renewals

Renewal profiles have been prepared for a 120 year horizon (refer to AMP). This allows for smoothing of the programme appropriate for infrastructure strategy planning. Specific programme for renewal are also discussed in the AMP.

Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it	Growth	LoS	Renew
Adequate wastewater treatment for growing Communities	Design and construct Ellesmere WWTP Upgrade	Greater treatment capacity	\$6.9M <i>[\$7.8M with inflation]</i>	2019/20-2023/24	✓		
	Assumptions	Projections of treatment required and the capability of the infrastructure planned are sufficiently accurate and improvements can be made in an acceptable timeframe					
Adequate wastewater treatment for growing Communities	Design & construct ESSS WW Mains Extension & WWTP Upgrade	Greater treatment capacity	\$17.6M <i>[\$19.0M with inflation]</i>	2018/19-2026/27	✓		
	Assumptions	Projections of treatment and pipelines required, and the capability of the infrastructure planned are sufficiently accurate and improvements can be made in an acceptable timeframe					
Adequate wastewater treatment and allow for growth	Consider establishing a reticulated wastewater system in Darfield	Reduced environmental impact, potential for more intensive development	Indicative \$64M <i>[\$89M with inflation]</i>	Consultation 2018/19-2021/22 Construction	✓	✓	

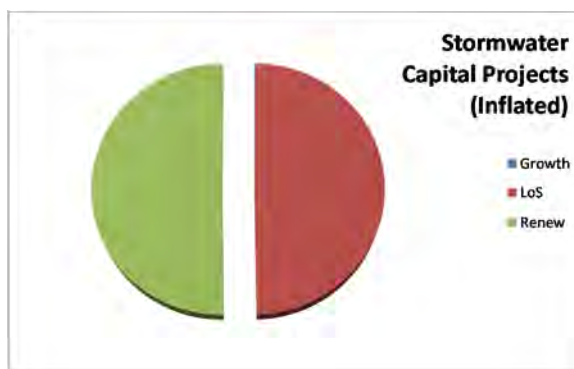
Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it	Growth	LoS	Renew
				2018/29-2032/33			
	Assumptions	The current system is not having a detrimental effect on the environment and a scheme would only proceed with general public support					
Upper Selwyn Huts resource consent expiry in 2020 may require addition treatment	Consider options for improving treatment options in order to obtain a new consent/ alternative treatment option for Upper Selwyn Huts	Reduced environmental impact, certainty for residents	\$2.8M - \$6.8M (various options)	Consultation 2018/19-2021/22			
	Assumptions	A short term consent can be obtained and an acceptable solution reached with residents and the wider community.					
Aging infrastructure	Replacing pipes that are reaching the end of their economic life	Continued level of service	\$2.0M average per year	2018/19 onwards			
	Assumptions	Condition monitoring and modelling as sufficiently accurate that renewals can be undertaken without too much prior repair to keep them in service					

8.3 Stormwater

Council’s goal for the stormwater activity is:

To provide water services that meet all relevant standards and are at a service level the public can afford and have confidence in, now and forward into the future

There are numerous smaller projects identified, but only one project which is considerable in terms of cost and wider community impact.



Stormwater Catchment management plans have been developed for some population centres but not all. These will be required as part of the process of obtaining a global stormwater consent.

Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it	Growth	LoS	Renew
Flooding risk	Construct Leeston Township Flood Diversion	Ensure greater protection for people and property	\$1.0M	2018/19-2019/20		✓	
	Assumptions	The design storm will address the flooding risk to an appropriate level for the Leeston community					

8.4 Land Drainage

Council’s goal for the stormwater activity is:

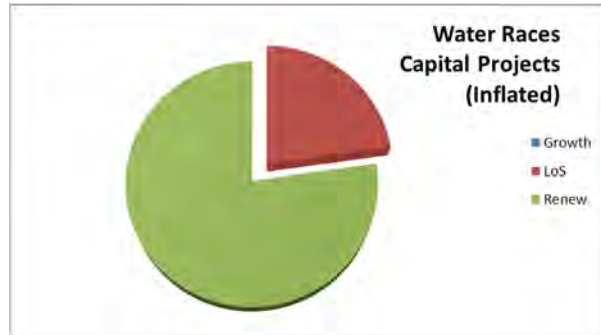
To provide water services that meet all relevant standards and are at a service level the public can afford and have confidence in, now and forward into the future.

There are a number of projects identified, many of which relate to environmental compliance. None of the projects are regarded as significant. The land drainage schemes are party of the area’s ecosystems and are important form ecological and freshwater management perspective. Accordingly management in future will be more cognisant of wider environmental issues.

8.5 Water Races

Council's goal for the stormwater activity is:

To provide water services that meet all relevant standards and are at a service level the public can afford and have confidence in, now and forward into the future.



There are no significant projects planned, and closure/future role is being worked through as part of the 2018-28 LTP.

8.6 Roads and Footpaths

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

To maintain, operate, and if necessary, improve the road network and other transport activities to achieve a range of facilities that provide for the safe and efficient movement of people and goods to a standard that is both acceptable and sustainable.



In addition to the major projects scheduled below, there are numerous smaller projects planned. Safety is a key feature in these projects. While they are smaller the combined total is some \$14 million (2018 dollars).

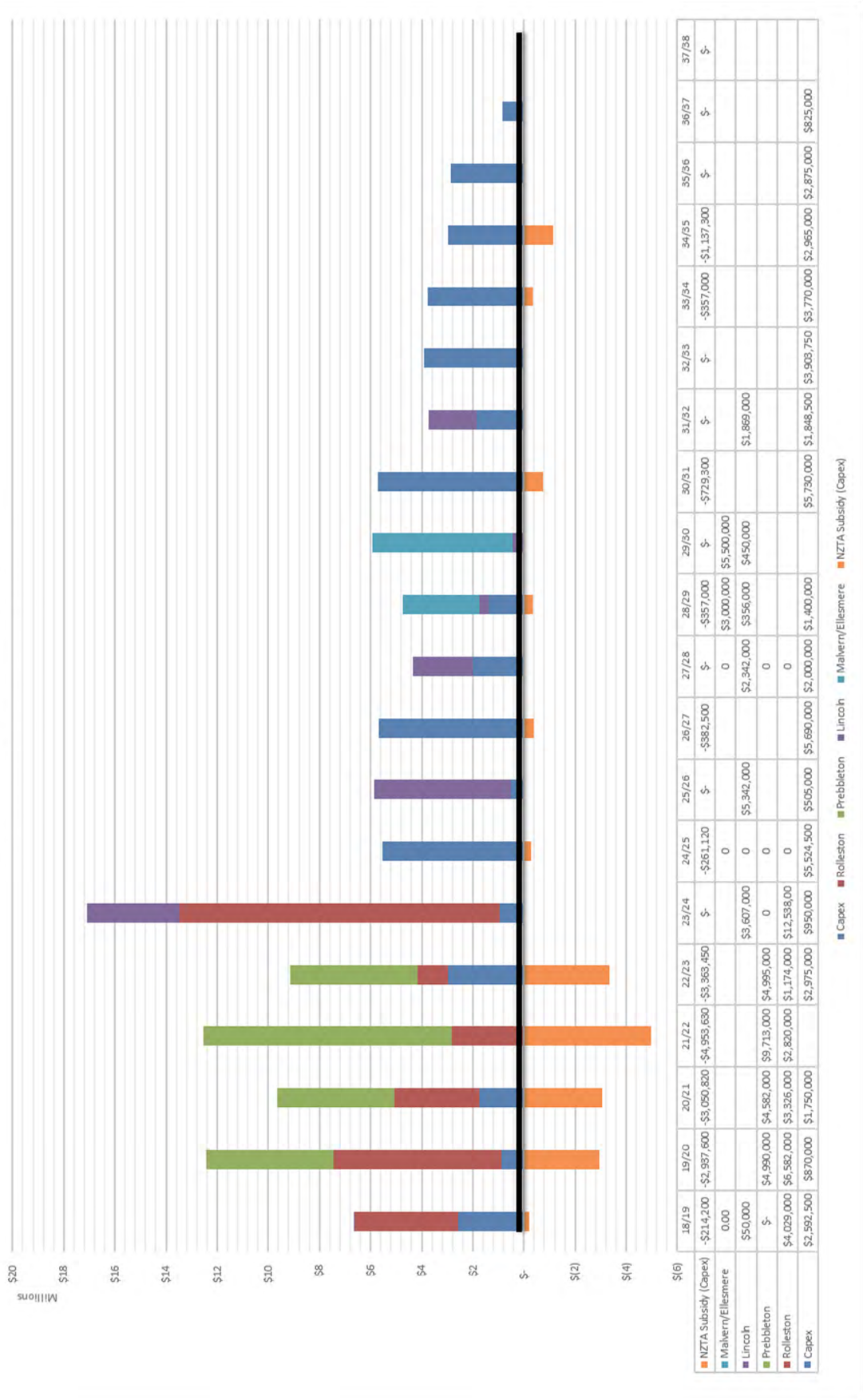
Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it (yr beginning)	Growth	LoS	Renew
SH1 Access at Rolleston Township/ Rolleston Industrial Zone	Construct upgrades at key SH1 intersections in Rolleston/ Rolleston Industrial Zone	Ensure safe and convenient access for light and heavy traffic, including the planned 'inland ports'	\$10M (SDC share) [\$11.2M with inflation]	2023/24	✓	✓	
	Assumptions	Traffic models indicate the timeframe for intervention adequately. There will be adequate funding from each of the stakeholders involved The Rolleston 'flyover' project will be led by NZTA and the SH1/SH73 Hoskyns Rd Slip Lane Izone Access is now part of NZTA's programme					

Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it (yr beginning)	Growth	LoS	Renew
Rolleston Town Centre Upgrades	Construct intersections and road upgrades the in Rolleston township	Ensure safe and convenient access for residents and heavy traffic	\$20.5M <i>[\$21.4M with inflation]</i>	2018/19-2023/24	✓	✓	
	Assumptions	Traffic models indicate the timeframe for intervention adequately. There will be adequate funding from each of the stakeholders involved					
Prebbleton Arterial/ CSM2 Linkages	Construct intersections and road upgrades to provide linkages to and around CSM2	Ensure safe and convenient access for residents, visitors and heavy traffic, while providing choice of travel mode	\$24.3M <i>[\$25.7M with inflation]</i>	2019/20-2022/23	✓	✓	
	Assumptions	Traffic models indicate the timeframe for intervention adequately. There will be adequate funding from each of the stakeholders involved					
Lincoln Township Upgrades	Construct intersection Construct intersections and road upgrades the in Lincoln township	Ensure safe and convenient access for residents, visitors and heavy traffic, while providing choice of travel mode	\$14.0M <i>[\$17.0M with inflation]</i>	2018/19-2032/33	✓	✓	
	Assumptions	Traffic models indicate the timeframe for intervention adequately. There will be adequate funding from each of the stakeholders involved					
Ellesmere Area Plan Projects	High St Southbridge Upgrade	Ensure safe and convenient access for residents, visitors and heavy traffic, while providing choice of travel mode	\$8.5M <i>[\$11.7M with inflation]</i>	2028/29 - 2032/33		✓	
	High St Leeston Upgrade						

Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it (yr beginning)	Growth	LoS	Renew
	Assumptions	Communities support the programmes and there is multi-agency financial commitment					
Walking and Cycling Strategy	Construct walking and cycling infrastructure discussed in strategy	Safe and convenient routes will encourage active transportation	\$11.5 <i>[\$15.1M with inflation]</i>	2018/19-2027/28			
	Assumptions	Communities support the programmes and there is multi-agency financial commitment					
Narrow and/or unsealed roads	Widen seal on narrow routes	Improved safety and potential maintenance savings	\$15.0M <i>[\$20.0M with inflation]</i>	2020/21-2034/35			
	Assumptions	Communities support the programmes and there is multi-agency financial commitment					

A graphical representation of the twenty-year programme, indicating the project locations follows.

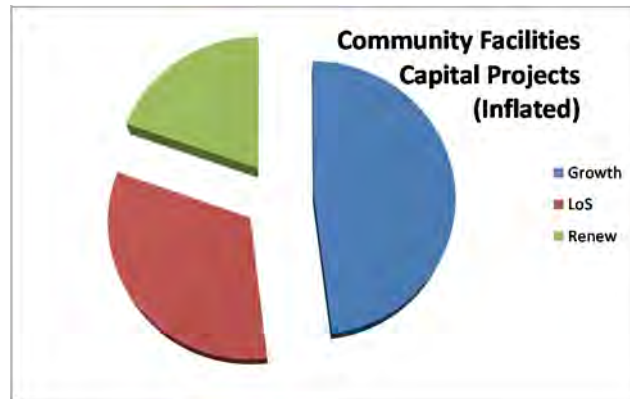
Total CAPEX program (excluding LC/LR)



8.7 Community Facilities

Council's goal for the Community Facilities activity is:

"To provide community, cultural and recreational facilities that enhance the health and wellbeing of the district's communities and improve the overall quality of life for residents and, to effectively manage Council's property portfolio".



Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it?	Growth	LoS	Renew
Rapid growth of the population in the district means there is inadequate supply of open space	Foster Recreation Park- development	Ensuring there is sufficient open space for active and passive recreation	\$11 M [\$11.9M with inflation]	2018/19 - 2032/33	✓	✓	
	Development of vested reserves		\$22M [\$27.0M with inflation]	From 2018/19 - 2044/45	✓		
	Rolleston Town Centre		\$7.2M [\$9.7M with inflation]	2018	✓	✓	
	District Park		\$30.1M [\$43.5M with inflation]	From 2019/20 - 2032/33	✓	✓	
	Artificial Playing Surfaces		\$6.5M [\$10.5M with inflation]	2030/31 2038/39 2045/46	✓	✓	
	Lincoln Sport Park development		\$12.9M [\$19.0M with inflation]	2019/20 - 2042/43	✓		
	Prebbleton reserve and sports field development		\$10.9M [\$13.3M with inflation]	2019/20 - 2042/43	✓		
	Rural Recreation Reserve/ Wilderness Area		\$3.5 M [\$6.0M with inflation]	2038/39 - 2042/43	✓		

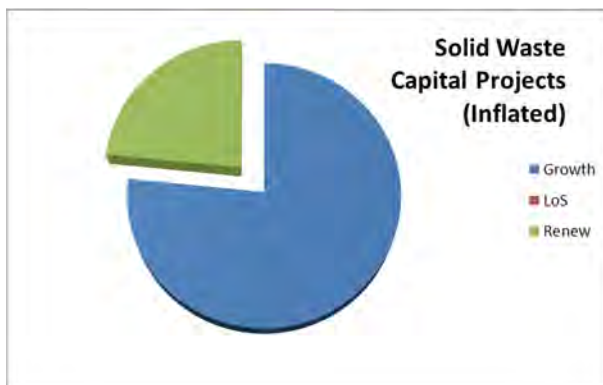
Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it?	Growth	LoS	Renew
	Assumptions	Demand for facilities will occur as predicted and there will be sufficient space available for development					
Rapid growth of the population in the district and increasing expectation means there is inadequate supply of facilities	Rolleston Library & Community Space	Ensure there is a suitable range of facilities that support district activities	\$17.6M	2018/19	✓	✓	
	Health Hub (Breach Block)		\$15M [\$15.3M with inflation]	2018/19 - 2019/20	✓	✓	
	Retail Space (Picture Theatre)		\$5.4M [\$5.5M with inflation]	2018/19 - 2019/20	✓	✓	
	Selwyn Aquatic Centre Extension		\$15.5M [\$18.0M with inflation]	2018/19 - 2029/30	✓	✓	
	Hororata Community Facility		\$3.9M [\$4.5M with inflation]	2023/24		✓	
	Prebbleton Community Facility		\$5.8M [\$6.1M with inflation]	2019/20 - 2020/21	✓	✓	
	New Community Facilities - Leeston		\$4.8M [\$6.0M with inflation]	2025/26 - 2026/27	✓	✓	
	Darfield Pool Redevelopment		\$8M [\$11.4M with inflation]	2030/31 - 2032/33		✓	
	Indoor courts - Construction - Extension		\$29M [\$36.2M with inflation]	2018/19 - 22/23 & 2033/34 - 35/36	✓	✓	
	Redevelop Community Facilities - Rolleston		\$5M [\$7.1M with inflation]	2031/32 - 2032/33	✓	✓	
New Community Facilities - Rolleston	\$10M [\$18.4M with inflation]	2043/44 - 2047/48					

Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it?	Growth	LoS	Renew
	Providing Public Toilets to meet demand		\$2.9M <i>[\$3.1M with inflation]</i>	From 2020/21 - 2047/48	✓	✓	✓
	Assumptions	Demand for facilities will occur as predicted and there will be sufficient opportunities for these developments					
Cemetery space becomes limited	Cemetery (new or extension)	Provision for future burials	\$2.0M <i>[\$3.5M with inflation]</i>	2035/36 - 2044/45	✓		
	Assumptions	Demand for burials will occur as predicted and there will be sufficient space available for development					
SDC Council building capacity becomes inadequate	HQ Building extensions	Space to accommodate staff and Council functions	\$13.0M <i>[\$18.5m with inflation]</i>	2019/20 2030/31 - 2042/43	✓		
	Assumptions	Demand for accommodation will occur as predicted and there will be sufficient space available for development					

8.8 Solid Waste

Council's goal for the solid waste activity is:

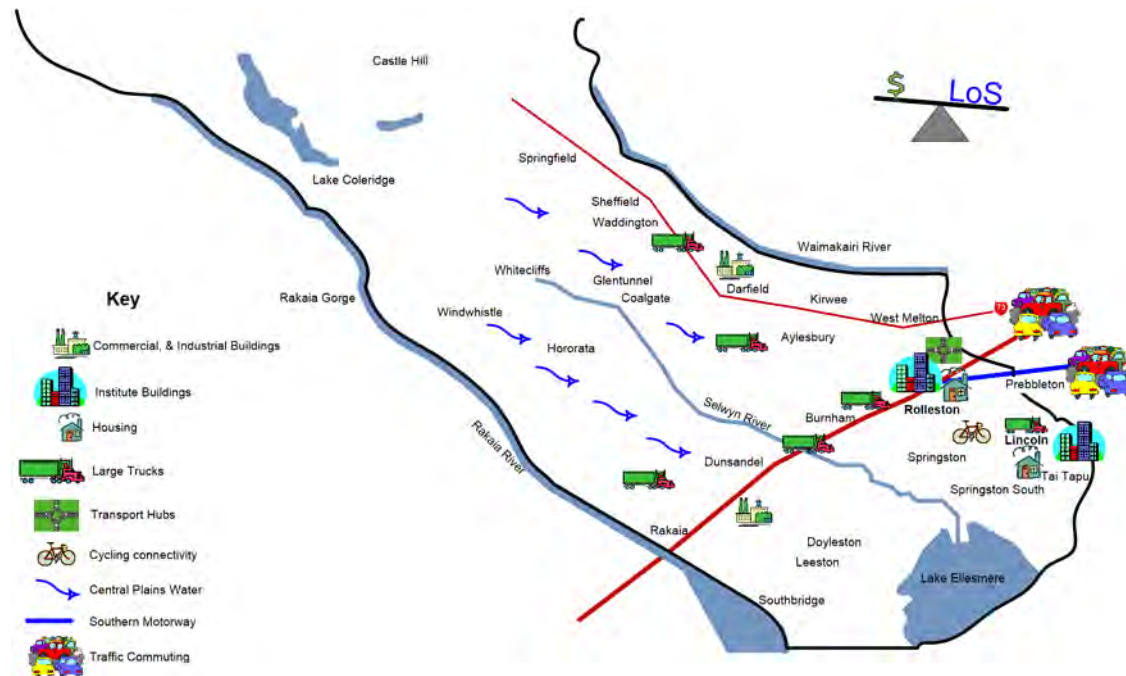
Selwyn District embraces the philosophy behind the Waste Hierarchy in every way that is economically and practically achievable, in order to maintain or improve the condition of air, land, water and the general environment for current and future generations.



Issue	What are we doing?	What is the benefit?	How much will it cost?	When are we doing it?	Growth	LoS	Renew
Rapid growth of the population in the district and reduce waste to landfill	Replace the composting plant at the Resource Recovery Park	Provide service for increasing population and reduce waste to landfill	\$2.6 M [\$2.7m with inflation]	2019/20	✓	✓	
	Resource Recovery Park 'Reconnect' project (staged)		\$9.1M [\$9.6m with inflation]	2019/20 - 2023/24	✓	✓	
	Assumptions	Demand for waste services will increase with population but be of similar composition					

8.9 Summary of Significant Infrastructure Issues

Along with the replacement of existing infrastructure; Council's priority over the next ten to twenty years relates to the rapid growth in the eastern portion of the district. The issues are summarised in the schematic below.



Addressing the growth challenge is essential, and with the Selwyn Housing Accord and the National Policy Statement on urban development capacity in place, the Council is rightly focussed on this. It should be noted that in responding to this challenge, the Council is considering the wider wellbeing of the community. Safety, recreation and enjoying being a Selwyn resident are all part of the mix.

Selwyn has consulted extensively with the community and developed a range of strategic documents to drive investment in creating the future residents desire. Master planning and structure planning are key to this. This infrastructure strategy discussed the implementation of these documents alongside the management of core infrastructure.

The Council has an excellent relationship working collaboratively with NZTA, neighbouring authorities and stakeholders, this is a real benefit in developing and implementing transportation proposals. The Council is currently involved in seven business case processes which assist in identifying transportation options and benefits that can be achieved. These are long term processes involving commitment from all parties seeking the best outcome for all.

It is not Council's intention to revisit the proposals developed with the community, and refined for implementation through this strategy. Rather seeking timeframes and funding that is appropriate and affordable is key.

8.10 Other Scenarios Considered

The key issue the Council is addressing is growth. The rate of growth and if growth will continue are central to all decision making and strategy formulation.

Councils approach to this challenge is two-fold: developing sound projections and responding with scalable interventions.

Projections used have been independently reviewed and are regularly tested against growth to date. The model has proved to be robust and appropriate for planning.

Where possible a scalable approach is being used to address the variability in growth. This also limits the financial risk to the community as the Council is not 'getting ahead of itself' with construction projects. The transportation programme is comprehensive and can be adjusted over time as required. Traffic models are run in combination with NZTA and Christchurch City Council to track demand and trends.

The combination of separate wastewater schemes into the Eastern Selwyn Sewerage Scheme provides flexibility and the plant has a modular design, so can be expanded in line with growth.

The rate of growth is driving a demand for community facilities that is step change from that typical of smaller communities. Again, confidence in understand population growth and demographic profiles is key. Infrastructure programmes are staggered over the next thirty years.

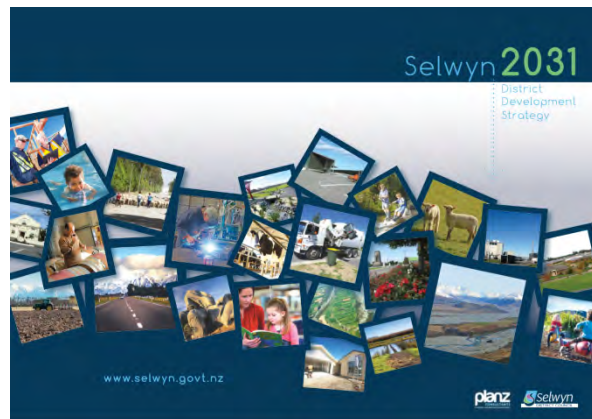


Selwyn Aquatic Centre

Changes to the programme are to be expected. However, the Council has undertaken extensive consultation to understand the short term needs and the long terms desires of its residents. There are strategies in place across the portfolio of assets charting a clear direction ahead. The infrastructure strategy enables the development to be altered by speed and direction as the priorities of the community, visitors and central government.

Selwyn 2031 (2014)

The purpose of Selwyn 2031 is to provide an overarching strategic framework for achieving sustainable growth across the district to 2031. The Strategy emphasises the importance of adopting and implementing a strategic approach to managing urban growth as a means of strengthening the district's self-sufficiency and to ensure that it continues to be a great place to live, work and play. In doing so, the Strategy seeks to provide higher quality living environments; innovative business opportunities; maintain the district's iconic rural character; explore opportunities to enhance our social and cultural wellbeing and better manage our natural resources.



Selwyn 2031 identifies the following five high-level Directions to guide Council's future decision-making:

- *A More Sustainable Urban Growth Pattern;*
- *A Prosperous Community;*
- *A Great Place to Live;*
- *A Strong and Resilient Community;*
- *Sustainably Managing our Rural and Natural Resources*

Lincoln Structure Plan (2008)

The purpose of the Lincoln Structure Plan is to outline an urban design vision for the future development of Lincoln Township and to provide a strategic framework to guide the development process.

The Lincoln Structure Plan has been prepared in order to facilitate an integrated approach to achieving the sustainable management of the natural and physical resources of the Lincoln Study Area. This includes:

- *Development of an urban design strategy for the area;*
- *Identification of key natural resources and community assets within and related to the area;*
- *Establishing an integrated land use pattern that responds to the characteristics of the area;*
- *Identification of infrastructure requirements to facilitate urban development.*

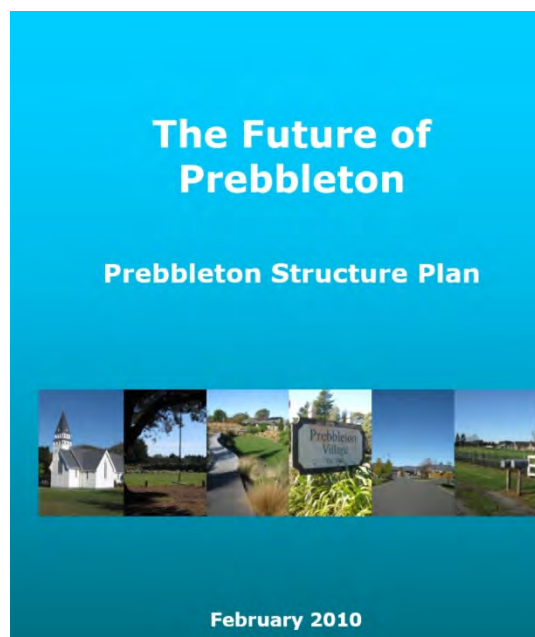
The Lincoln Structure Plan creates a framework to guide development and will be used as a basis for:

- *Future changes to the District Plan;*
- *Developing an infrastructure programme;*
- *Determining the Long Term Council Community Plan*



Prebbleton Structure Plan (2010)

The purpose of this document is to provide a framework for coordinating development and other changes in Prebbleton in order to achieve a high standard of town planning and urban design. This report and accompanying Structure Plan map (Map 6, Appendix 3) provide an overview of the existing form and content of the township, consider development constraints and opportunities, and community aspirations.



Rolleston Structure Plan (2009)

The Rolleston Structure Plan has been initiated as part of delivering the Greater Christchurch Urban Development Strategy. The Plan seeks to manage the rapid growth that has and will likely occur in Rolleston, which could be a town as large as 50,000 by 2075.

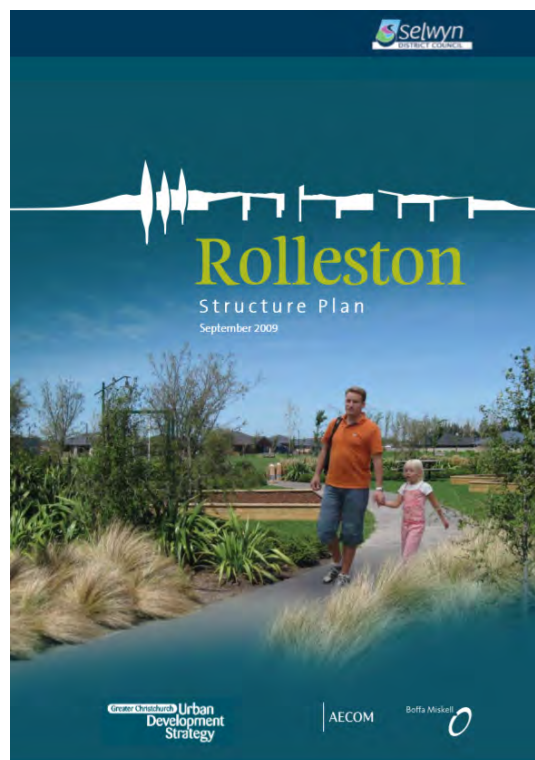
The three objectives of the Plan are

- *A Sustainable Rolleston*
- *A Well Designed Rolleston*
- *A Realistic and Achievable Rolleston*

To achieve the vision and these objectives, the Structure Plan proposes the following major developments:

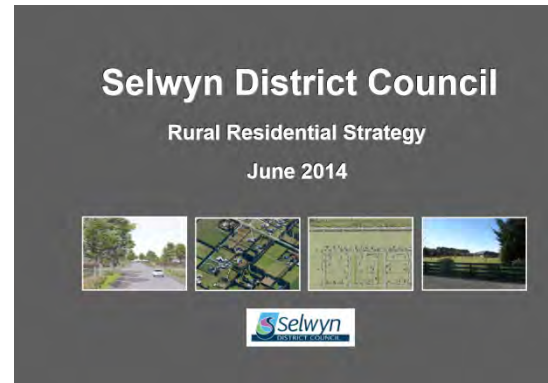
1. *A refocused Town Centre:*
2. *A New Recreation Precinct:*
3. *A New 100 hectare Regional/District Park:*
4. *A mix of housing in Rolleston:*

Implementation of the Structure Plan will be crucial in achieving the vision and major developments outlined above. The key objectives are considered within the document with a checklist and implementation tables at each stage along with cost estimates where they are known and any affordability issues that may have been identified.



Rural Residential Strategy (2014)

The primary purpose of the RRS14 is to provide guidance and policy direction on how best to manage rural residential development within the eastern portion of Selwyn district that is generally recognised as the commuter belt with Christchurch City. This includes establishing the optimal form, function and character of rural residential development and where it is best located.



Ellesmere and Malvern Area Plans

The Ellesmere Area Plan and Malvern Area Plan were adopted by Selwyn District Council in September 2016. The purpose of the plans is to provide high-level planning direction to guide the growth and sustainable management of each township in the Ellesmere and Malvern areas through to the year 2031.

The plans identify initiatives to assist in the delivery of the Selwyn 2031: District Development Strategy (Selwyn 2031) vision, which is:

“To grow and consolidate Selwyn District as one of the most liveable, attractive and prosperous places in New Zealand for residents, businesses and visitors.”



Other scenarios that affect the decisions integral to this Infrastructure Strategy include:

Water quality, changes to source water and drinking water requirements – a risk based approach has been applied to introduce further treatment where it may be required in the future.

Climate change – the impacts on water supplies have been modelled and learnings applied to other services. The long term options for some communities affected by sea level rise will be considered alongside their needs for infrastructure investment. More severe weather should be expected, and is being factored into infrastructure management and Council operations.

There is a positive relationship with Christchurch, in that both communities affect each other. The UDS framework provides a framework for joint planning, and there is a no surprises approach across the UDS partners. Joint planning remains vital to effective and efficient service delivery to the community.

9.0 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



Farming in Selwyn

9.1 Total Expenditure

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

Notes

1. The graphs include all projected expenditure and is not limited to the significant projects discussed earlier.
2. Capital project estimates are inflated
3. The expenditure indicated in the five year blocks from 2027/28 to 2047/48 are averages for the 5 year period.

Figure 9.1: Projected Capital Expenditure - Infrastructure Assets

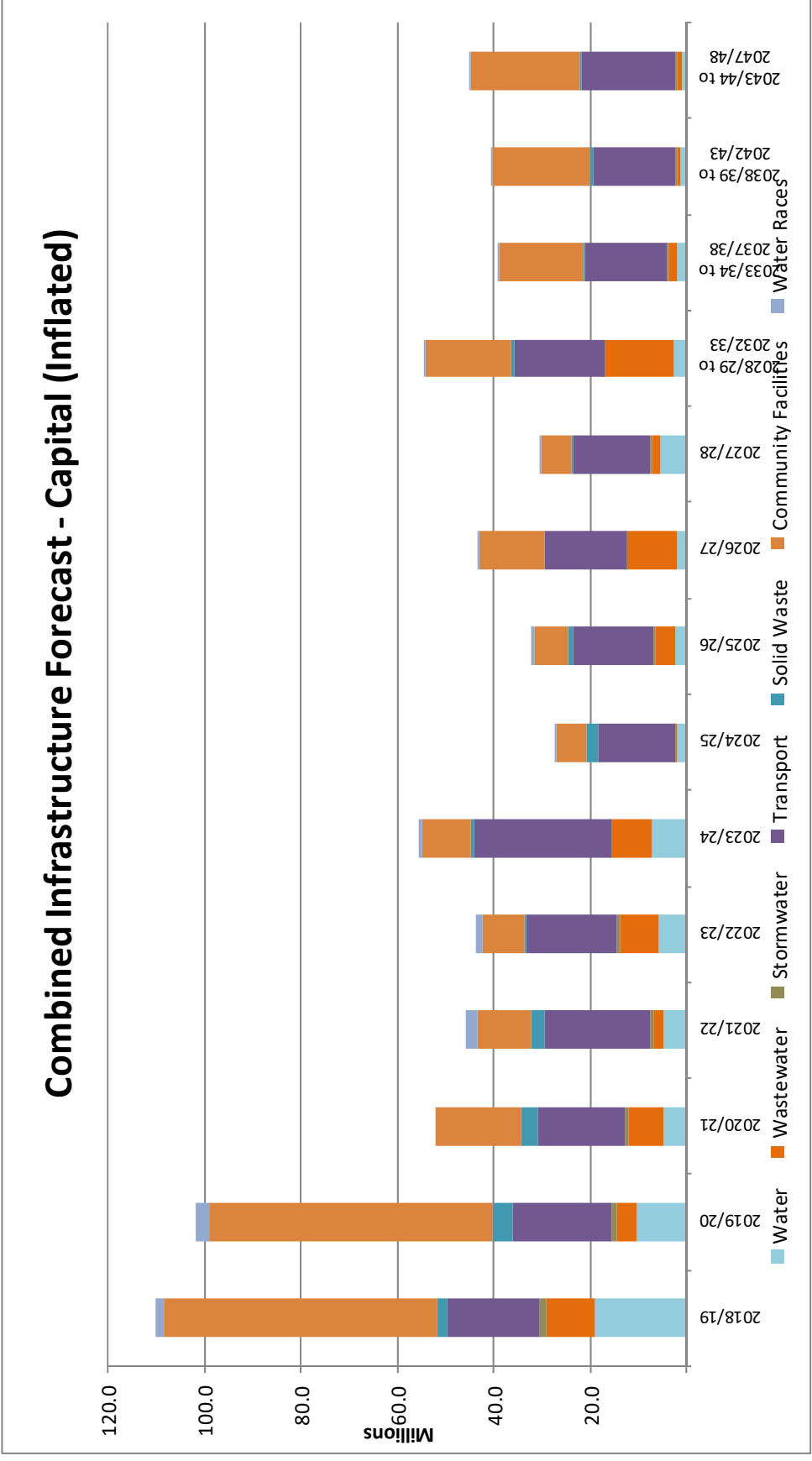
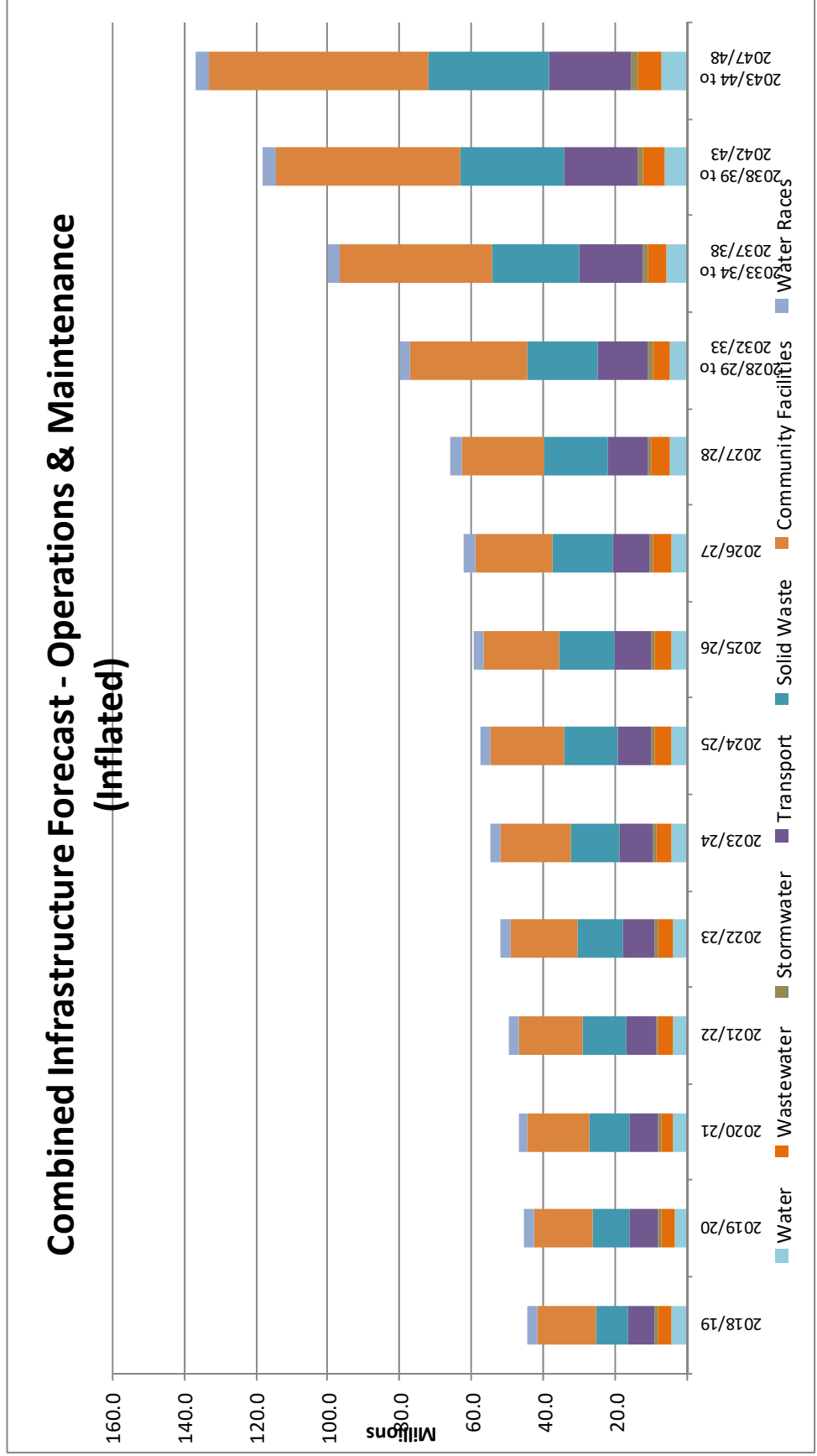


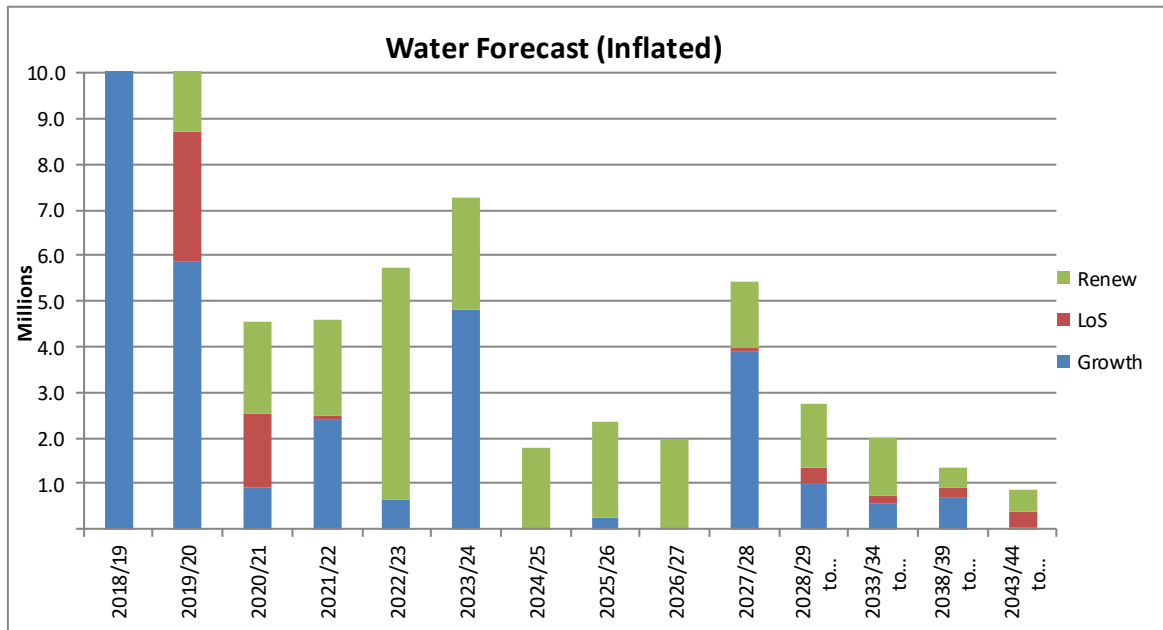
Figure 9.2: Projected Operational Expenditure – Infrastructure Assets



9.2 Water

The projected capital expenditure associated with the water infrastructure assets are graphically represented below:

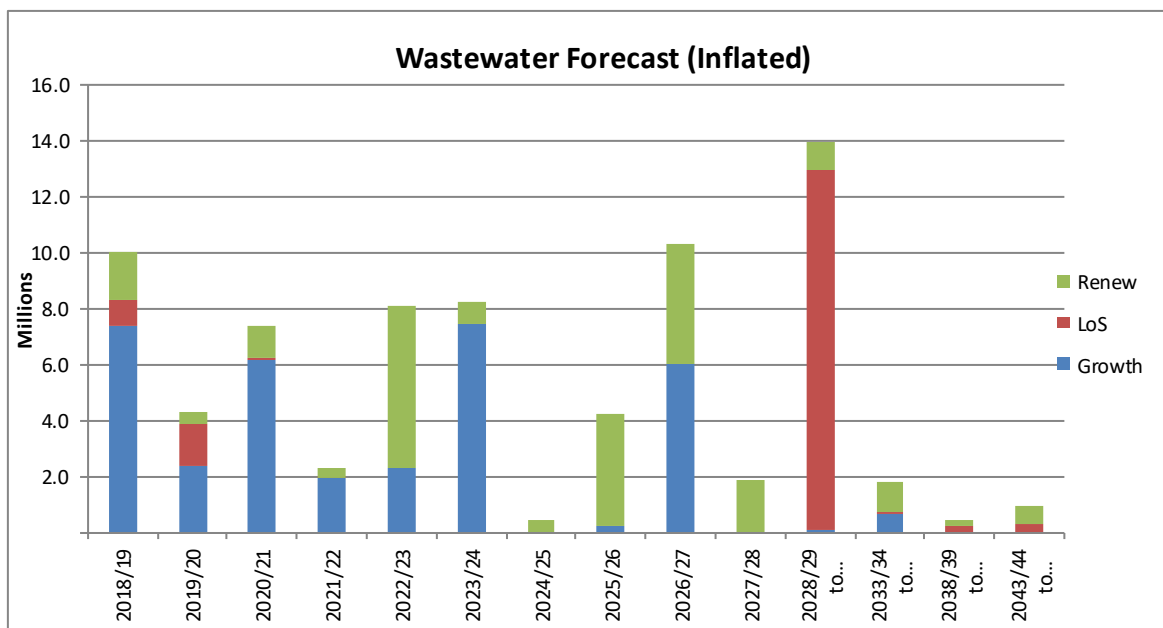
Figure 9.3: Projected Capital Expenditure – Water



9.3 Sewerage

The projected capital expenditure associated with the sewerage infrastructure assets are graphically represented below:

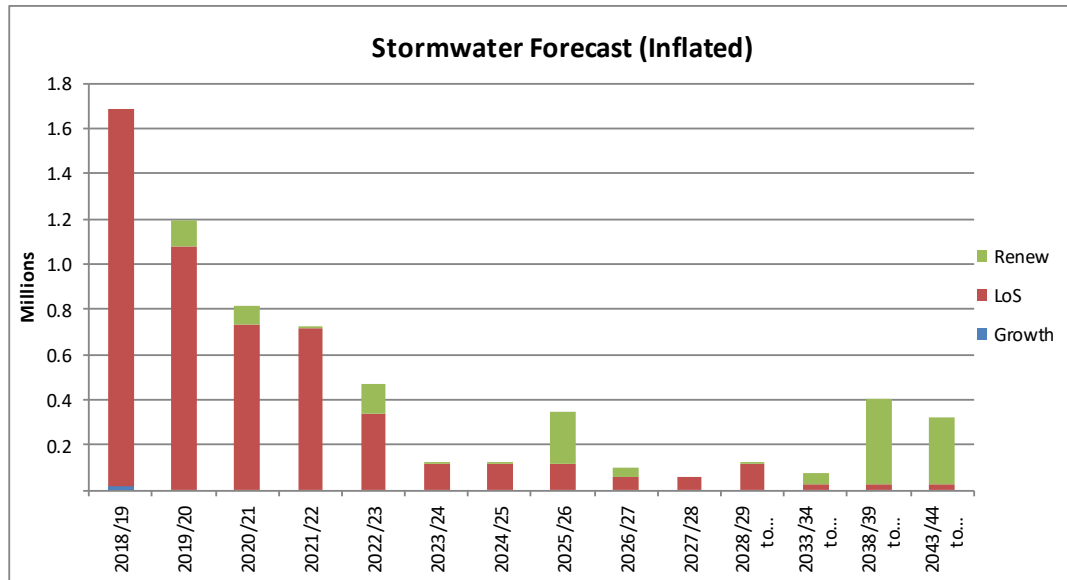
Figure 9.4: Projected Capital Expenditure – Sewerage



9.4 Stormwater

The projected capital expenditure associated with the stormwater infrastructure assets are graphically represented below:

Figure 9.5: Projected Capital Expenditure – Stormwater



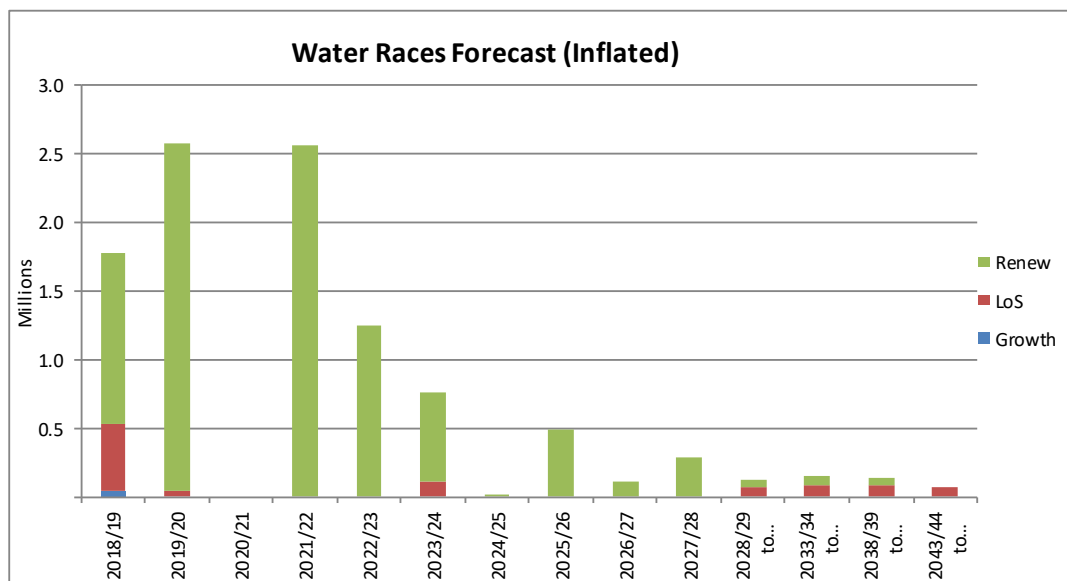
9.5 Land Drainage

There are no significant project planned for land drainage.

9.6 Water Races

The projected capital expenditure associated with the water race infrastructure assets are graphically represented below:

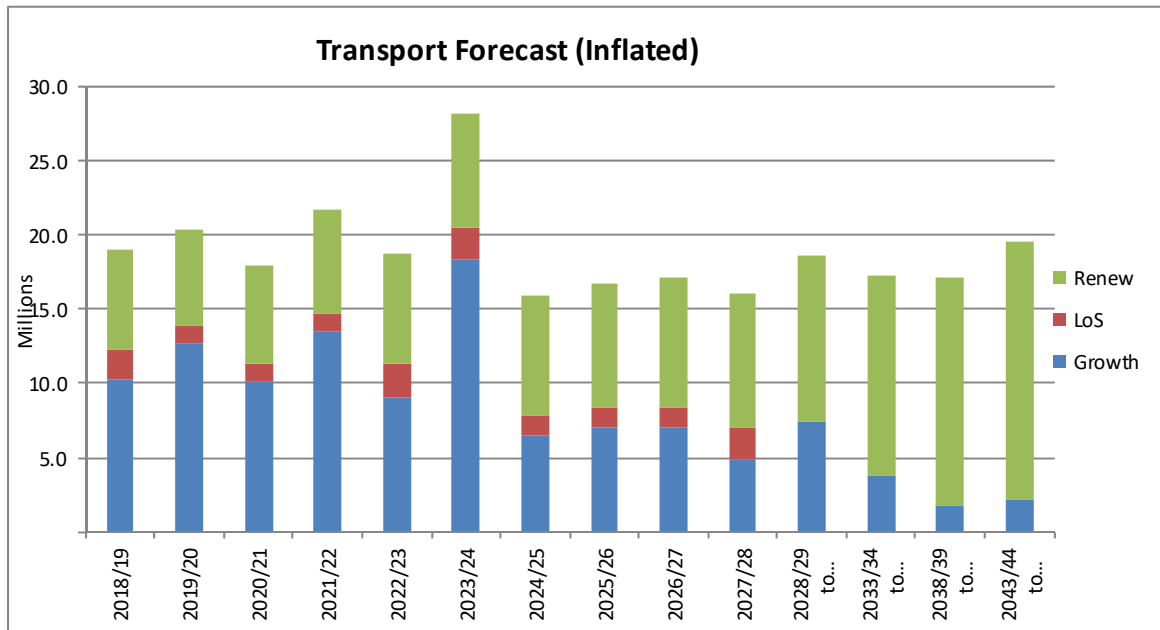
Figure 9.6: Projected Capital Expenditure – Water Races



9.7 Roads and Footpaths

The projected capital expenditure associated with the roads and footpaths infrastructure assets are graphically represented below:

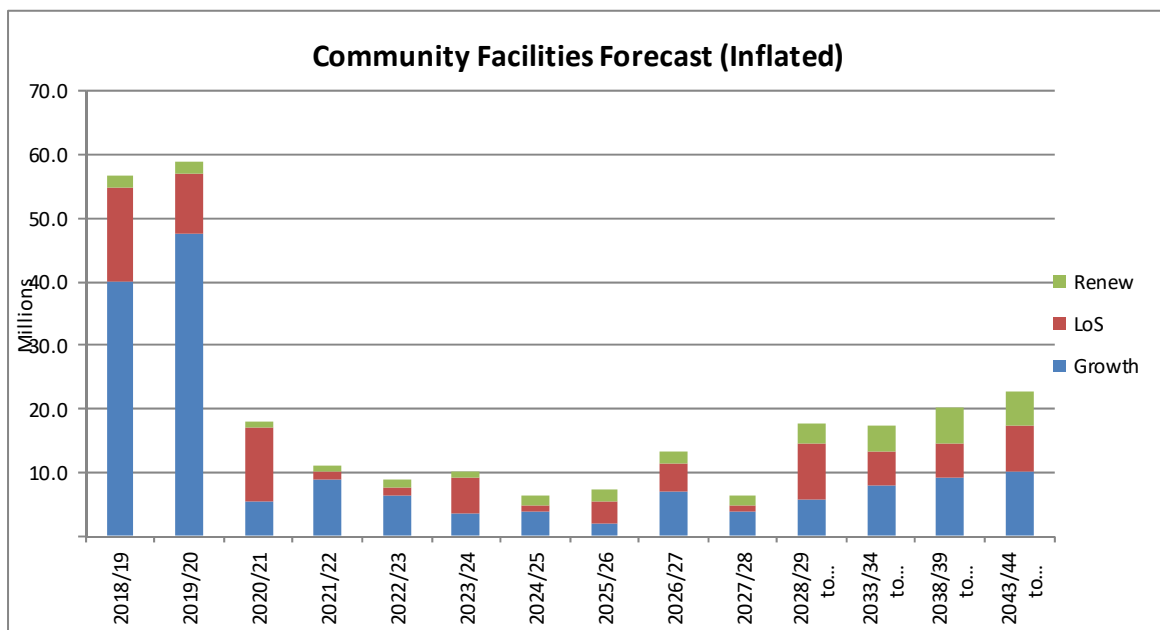
Figure 9.7: Projected Capital Expenditure – Roads and Footpaths



9.8 Community Facilities

The projected capital expenditure associated with community facilities infrastructure assets are graphically represented below:

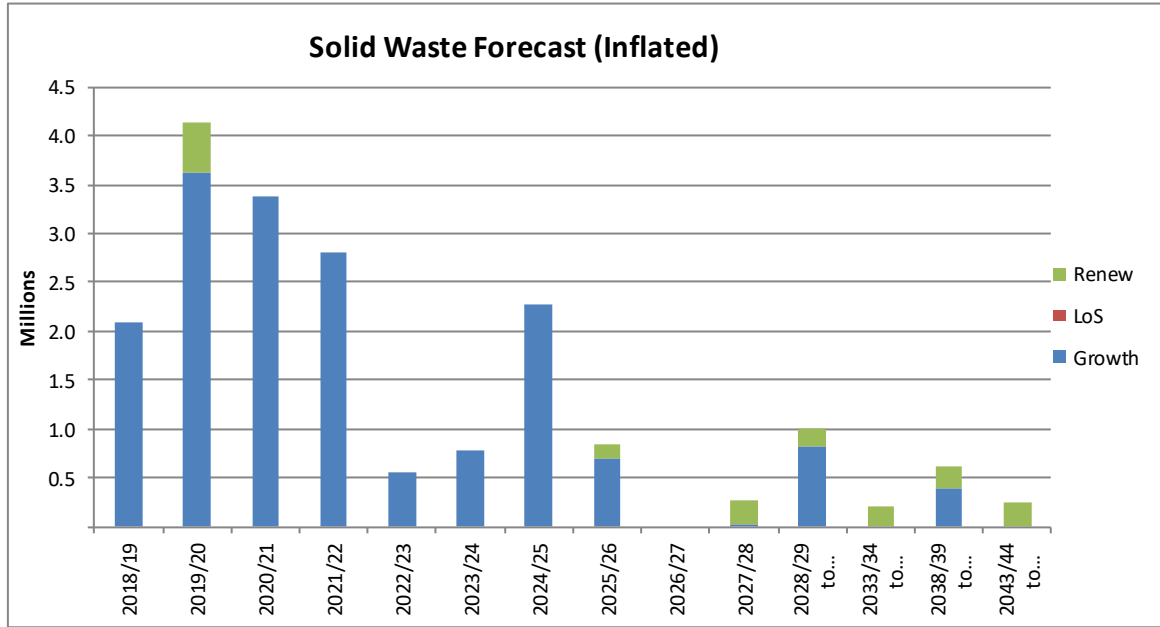
Figure 9.8: Projected Capital Expenditure – Community Facilities



9.9 Solid Waste

The projected capital expenditure associated with Solid Waste infrastructure assets are graphically represented below:

Figure 9.9: Projected Capital Expenditure – Solid Waste



9.10 Financial Impacts of the Infrastructure Strategy

While the Council is in a sound financial position, it is fully aware of the scale of expenditure discussed in this infrastructure strategy. The proposals discussed in this strategy benefit both current and future residents and ratepayers, so a balance between 'who pays' should be sought. This also needs to be considered in terms of new developments, so that there is a reasonable share been existing and new residents.

As the main urban areas of the district's townships expand, they provide a greater range of services to the district's residents. Both Rolleston and Lincoln in particular are becoming less reliant on Christchurch and recognised as centres with their own facilities. The timing for the town centre projects is crucial to consolidate this transition.

Selwyn's strategy driven approach is key to a four-wellbeings approach to a growing district with a sustainable future. This includes the whole district not just the pressure points.

Growth can be addressed with the right infrastructure at the right time. Robust planning for solid waste, transportation and water services is in place to ensure these services are fit for purpose. An expansion in community facilities will support activity and community vitality into the future.

The Council is required to respond to the growth challenge as detailed in the Land Use Recovery Plan and the Selwyn Housing Accord.

Over the thirty-year horizon of this strategy, capital investment is in the order of \$40 million each year. This has been established from detailed activity management plans, growth models, demand management models and monitoring of asset performance.

As the asset portfolio increases, the cost of operations and maintenance increases. Decisions on capital works shall include energy efficient, sustainable designs. Incremental costs at construction time will be weighed up with the whole of life costs for assets delivering service to the community.

This infrastructure strategy focusses on long term service provision at an appropriate and sustainable level. The underpinning levels of service are largely similar to current levels, and those described in the long term plan. Some variation should be expected over time, as new assets are established expectations may be exceeded, while at other times assets will be constructed 'just in time' to meet demand.

There are risks evident in this strategy, the greatest being a change in the rate of population growth. Many of the infrastructure proposals discussed are modular and can be adjusted to suit the demand or timing as appropriate. The Eastern Selwyn Sewerage Scheme as an excellent example of this approach, ensuring that demand and performance are tracked, so that capital works are constructed at the right time reducing the risk of over-capitalising.

Council's prudent financial management means that there are resources available to implement the proposals discussed in this strategy. The investment required reflects the community's confidence in Selwyn as a great place to live, work and play.



Izone Southern Business Hub, 2017

Quality Record Sheet

Selwyn District Council 30 Year Infrastructure Strategy 2018 - 2048

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