Appendix 5 –2018/28 LTP Consultation Supporting Documentation

Infrastructure Strategy

INFRASTRUCTURE STRATEGY 2018/2048

Purpose

Infrastructure accounts for 55% of the Council's operating expenditure and 85% of the Council's capital expenditure. The role of infrastructure is to support, promote and achieve the Council's Community Outcomes therefore providing the foundations on which the South Wairarapa District's community is built. It is essential to health, safety, and community sustainability and has a significant impact on the physical environment. Infrastructure enables businesses and communities to flourish. Getting infrastructure spending right is a prerequisite to economic performance and determining how much the council can spend on other services that enhance the quality of life and attract people to live in the district.

The purpose of the infrastructure strategy, as prescribed by the Local Government Act, is to identify the significant infrastructure issues for SWDC over the next 30 years, and to identify the principal options for managing those issues and the implications of those options.

The strategy provides guidance for:

- Maintaining current levels of service across all assets
- Meeting statutory requirements and
- Keeping cost increases to a minimum

The main goals of the strategy are to:

- Balance adequate infrastructural capacity to meet current and future demand whilst being affordable to the community.
- Increase the reliability and resilience of the existing and future infrastructure.
- Ensure sustainable use of resources and protect the environment.
- Ensure assets are utilised for their full lifecycle and maintained in perpetuity.
- Ensure agreed levels of service are met.
- Ensure infrastructure enables our district to develop and be prosperous.
- Ensure our services enable a healthy community and environment.
- Monitor and manage the infrastructure risks.
- Predict, monitor and mitigate unauthorised discharges to the environment.
- Utilise public education to assist with demand management and effective systems.

The strategy outlines the most likely infrastructure asset management scenario for South Wairarapa District Council over the next 30 years including:

- Significant infrastructure issues and the actions required to address the gaps in both the short and long term.
- Options and associated expenditures.
- Service delivery implications and targets.
- The associated risks.
- The Council's current preferred scenario.

SUMMARY

The 2018-2048 Infrastructure Strategy (IS) is an outline for Council, developers and the community. The strategy should be read in conjunction with the relevant Asset Management Plans (AMPs) and the Long Term Plan (LTP). It covers the provision of assets and services to the residents of the South Wairarapa district assisting the Council and community to make informed decisions now, taking into account the major decisions and investments that will occur in the next 10 to 30 years.

Investment must take into consideration demand, future affordability, technology, and the effect on other projects to ensure it is both sustainable and effective. We manage our assets for their full lifecycle using integrated planning and underlying data about their condition to ensure maintenance, replacement and renewal decisions are sound and in line with best practice and estimated lifespan.

The general strategy overall is based on prudent renewal to decrease maintenance and ensure serviceability to maintain the levels of service (LOS) except in areas where LOS are expected to increase e.g. new consents for wastewater disposal to land. Retaining LOS whilst preventing increased costs where possible, and developing a prepared response to adverse events to aid recovery.

Expenditure for growth, renewal and changes in levels of service

In line with Council's Financial Strategy, growth is anticipated, particularly in Greytown and Martinborough over the period of the current LTP and this IS. Council collects capital contributions from developers subdividing property to upgrade the existing assets and for extension of infrastructure if required. The capital contributions are allocated to reserves to cover future infrastructure needs as a result of the growth. The capital budgets make provision for: additional capacity where this is anticipated; renewals; increases in service levels for wastewater consents; and anticipated additional legislation regarding drinking water standards.

Service levels are anticipated to be unchanged (except in new consents and potentially drinking water standards) and therefore cost increases are expected to be in line with the relevant price index. Renewals are delivered through provision for depreciation in line with Council's financial strategy.

Operating expenditure plans do not differentiate between expenditure for growth, renewal and changes in levels of service. As stated above, in most cases the service levels retain the status quo. There is some anticipated growth and therefore a requirement to fund infrastructure for growth in addition to the capital expenditure targeted at renewal.

A major focus of this strategy is the accumulation and use of data that has a good confidence level for accurately targeted renewals, maximising the effect of the capital spent. The significant decisions required in renewal projects are reviewed annually as part of the annual plan process and targeted renewals developed based on areas requiring replacement. This is a prioritisation process where as an example renewals for amenities can be ranked against the submissions received and the need for the asset, in which case a decision may favour the renewal of a pool over the renewal of a sports field.

The expectation of expenditure on renewals is determined through the asset condition and level of service with the expenditure required laid out in the AMPs and LTP budgets. The expenditure required to retain the investment in the associated assets is known with the only substantial decisions required in the operational targeting of the spending.

Significant Issues

- The renewal of the wastewater consent in Featherston and the associated upgrades.
- Greytown and Martinborough wastewater upgrades for new consents.
- The proposed reduction in New Zealand Transport Agency's (NZTA) funding assistance rate (FAR) funding for part of the "special purpose" road (Cape Palliser Road) from 100% to 52%. We are currently discussing the financial impact of this change with NZTA.
- The upgrade of the water supplies for Featherston, Greytown and Martinborough to fully comply with New Zealand Drinking Water Standards (NZDWS). Consideration of improvements needed as a result of the Havelock North water enquiry.
- Expansion of Greytown and Martinborough infrastructure to cater for growth in subdivisions, including the Greytown future development area. We have assessed the Featherston infrastructure and concluded there is infrastructure capacity to cater for growth in the town without any further investment from Council.
- Proposed Natural Resources Plan (NRP) impacts.
- Compliance with NZTA's One Network Road Classification (ONRC) performance measures.

INTRODUCTION

The community must work together to meet the challenges of managing networked infrastructure such as roads, water supply, wastewater and stormwater with projected levels of population growth, changing statutory and service level expectations, and event driven remedial requirements. Through consultation we balance competing needs, demands and preferences, against available financial and physical resource.

Consultation from previous annual plans identified that the residents of SWDC want to retain and maintain the same infrastructure capacity and where possible improve or increase its use to maximise and realise its value. In most cases, our current infrastructure has sufficient capacity to meet demand, except at peak times e.g. Toast Martinborough and Martinborough Fair. Council uses workarounds and innovation to manage this peak demand, rather than investing in new or additional infrastructure.

Due to the number of subdivisions underway in Greytown, we are planning for additional infrastructure for the town to cater for the projected increase in population. We are also expecting growth in Martinborough over the period covered by this Infrastructure Strategy.

Our approach to ensuring we manage our existing assets efficiently and effectively and invest in new infrastructure assets wisely is based on the philosophy and practice of guardianship, kaitiakitanga which takes into account the intergenerational nature of the resources. This makes the role of the present council to protect and grow the assets for future generations, ensuring long-term stability and sustainability in favour of short-term gain. The Council chooses to do this in a risk-averse manner, slowly, carefully and sustainably protecting the asset rather than engaging in high-risk changes, using the following community outcomes to guide decision making:

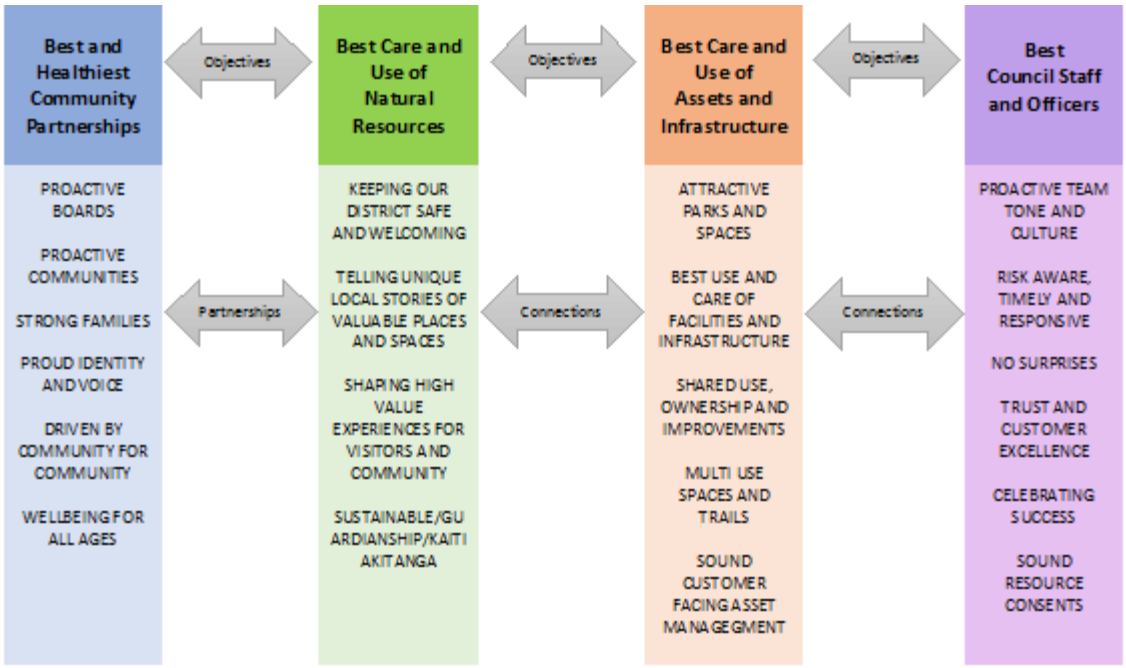
Healthy & Economically Secure People
Healthy, well housed people who are economically secure, active involved community.
Educated & Knowledgeable People
Educated and knowledgeable people, who are confident they can achieve their aspirations.
Vibrant & Strong Communities
A place where people feel safe, are proud to live and have a sense of belonging.
Sustainable South Wairarapa
A sustainably managed district encompassing economic development and environmental management
A Place that is Accessible & Easy to Get Around
A range of transport options (including roading), local and regional services and telecommunications.

The new Council developed the following outline of the strategic plan for the three years ahead. These four pillars have formed the basis for decisions on what to include and what to exclude from the current LTP and this Infrastructure Strategy.

Our Vision: Open, Energetic, Unified Community

Our Mission: Future Focused, Growth Oriented, Exercising Sound Judgement

Our Internal Values: Rigorous, Listening, Learning and Respecting Teamwork, Community Focused, Valuing Mana, Uara of People and Land, Manaakitanga Caring Society, Freedom and Liberty



SWDC's infrastructure assets were valued at $358 million at 30 June 2017. The table below shows the asset values for all categories of assets as at that date:

ASSET VALUES AT 30 JUNE 2017

Asset	$'000s
Roads	288,027
Bridges	21,622
Water Systems	21,622
Wastewater Systems	14,332
Stormwater Systems	2,822
Land	26,122
Buildings	6,695
Heritage Assets	4,378
Other	4,066
Total Assets	**382,777**

Over the next 10 years the Council plans to invest $40 million on capital works for transport and the three waters (water supply, wastewater and stormwater), comprising upgrades, renewals and construction of new assets. This is made up as follows:

CAPITAL EXPENDITURE 2018-2028

Asset	$'000s
Land Transport	27,884
Water	4,894
Wastewater	6,946
Stormwater	608
Total Expenditure	**40,332**

The land transport capital expenditure is the gross amount paid by SWDC before deducting the NZTA subsidy.

Objectives

Council exists to deliver and maintain assets in a responsible manner that meet the needs of the wider community both living within and visiting the district.

This is achieved through long term strategic planning, financial responsibility and the creation, operation, maintenance and rehabilitation of the district's assets.

Roading and transport is a vital element to enable social and economic development. The Council is in

the best position to manage the roading network on behalf of the community.

Key maintenance objectives have been set for the land transport assets to ensure compliance with NZTA requirements including ONRC and the safety of those who travel in our district.

Water supply, wastewater and stormwater are also essential services for our communities. Our objective is to maintain these assets to provide a continuous service to our customers with minimal disruption. To achieve this we complete planned renewals of underground infrastructure to ensure minimal disruption that could result from aging assets. We also use demographic forecasts to predict requirements for increased infrastructure and include budgets for these in future years.

This helps us achieve the community outcomes of healthy and economically secure people and sustainable South Wairarapa as well as the 'Best and healthiest community' and 'Best care and use of assets and infrastructure' from our strategic plan.

Continuous Improvement

SWDC strives to achieve continuous improvement. This includes internal staffing resources and contracted external professional services to undertake specialist tasks and tasks not continuous throughout the year. LOS actual performance against targets are reported to every Council meeting with financial performance reported monthly to guide improvement.

A particular focus in current infrastructure management is improved data and information. This is needed to establish a more reliable basis for actions in this strategy and record condition information gathered

During the 2016/17 financial year, SWDC commissioned a report from Wellington Water Limited (WWL) to better understand the existing asset data to inform preparation for the asset management integration in preparation of forecasts of future renewals of its underground infrastructure assets. This report gave us more confidence in the asset information and gave us a clear picture of the future replacement needs for our underground infrastructure assets. It confirmed that there were peaks but the current rates more than adequately covered these, with no significant large capital expenditure required.

In addition, SWDC has installed new software, AssetFinda, to assist with the management of data regarding infrastructure assets and renewals planning. AssetFinda will provide increased integration and better information to enable the infrastructure team to manage the three waters assets more effectively.

SWDC uses Roading Assessment and Maintenance Management System (RAMM) for roading asset management. The RAMM database is the electronic storage system for much of the static and dynamic knowledge about the roading network. Output from the RAMM system includes maintenance costs, roughness information and Treatment Selection Reports that determine the optimum maintenance intervention levels, defective locations, and rectification costs for "good practice" rectification works.

Geographic Context

The South Wairarapa district is situated at the southernmost corner of the North Island and is approximately 248,455 hectares (2,484 square kilometres). In the south the district boundary follows the coastline from the western end of Palliser Bay in Cook Strait to Honeycomb Rock, east of Martinborough. The western boundary follows the main divide of the Rimutaka and Tararua ranges to Mount Hector, from which the boundary runs south east across the Wairarapa Plains to the coast. The districts main centres are Featherston, Greytown and Martinborough with a number of small coastal settlements and rural dwellers making up the population.

Demographics

The most important assumption made in this strategy is the future population of the district as this informs assumptions around:

- How many people we consider will be using a service?
- How many more will be using that service in years to come?
- How much of the service or product they will be using?
- How this will affect the life of the assets?

Population is influenced by a range of factors such as employment opportunities, business activity, age profile, fertility and mortality rates. Changes in population are difficult to predict but vital to understand future requirements for the infrastructure based services.

The growth projections used in determining the most likely scenario are set out below. The projections through to 2043 were compiled by "Id Consultants' (ID), a Melbourne based company with a New Zealand presence since 2010. The forecasts from ID have allowed us to explore what is driving population change in the South Wairarapa communities.

Forecast information predicts how the population, age structure and household types will change between now and 2043.The resident population in the district is currently around 10,406 people and is expected to increase to 11,421 by 2028 and approximately 12,733 by 2043.

Projections used for our last LTP indicated a population of 10,250 by 2043 so the latest projections reflect the increased growth in the district over the last three years, which is expected to continue.

The median age is currently 45.2 (compared with 38 nationally) and is projected to increase to 49 by 2043.

ID Consultants' report revealed the following information about our district:

- Màori residents make up 15% of the population which is slightly lower than the national average of 16%.
- 5.2% of residents are unemployed compared with a national average of 7.1%.
- Our average household size is 2.36 compared to the national average of 2.66.
- Low income households make up 21% of households which is only slightly higher than the national average of 19%.
- 14% of our residents were born overseas compared with a national average of 24%.

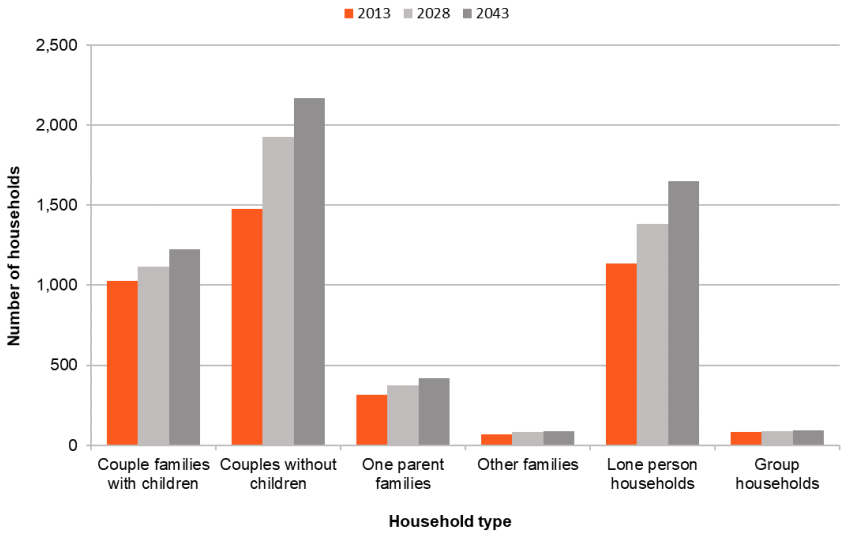
ID Consultants' projections for the future reveal the following trends:

- Populations in all three towns are predicted to grow at around 1% per annum for the next 25 years. Rural growth is about a third of this at 0.3% pa, with overall growth for the district at 0.9% p.a. for the next 25 years.

Area	Population 2013	Population 2043	Change in population	Average annual pop change (%)
Featherston	2,434	3,127	694	0.80%
Greytown	2,438	3,581	1,142	1.30%
Martinborough	1,569	2,325	757	1.30%
Rural	3,360	3,700	340	0.30%
Total Population	**9,800**	**12,733**	**2,933**	**0.90%**

- When looking at where this growth would come from, the dominant household type in the South Wairarapa district are couples without children and lone person households as second. Couples without children make up 36% of all households in 2013 and 39% in 2043. Lone person households make up 28% of all households in 2013 and 29% in 2043. Although there are more families in 2043 than 2013, they decrease in terms of share of all households.

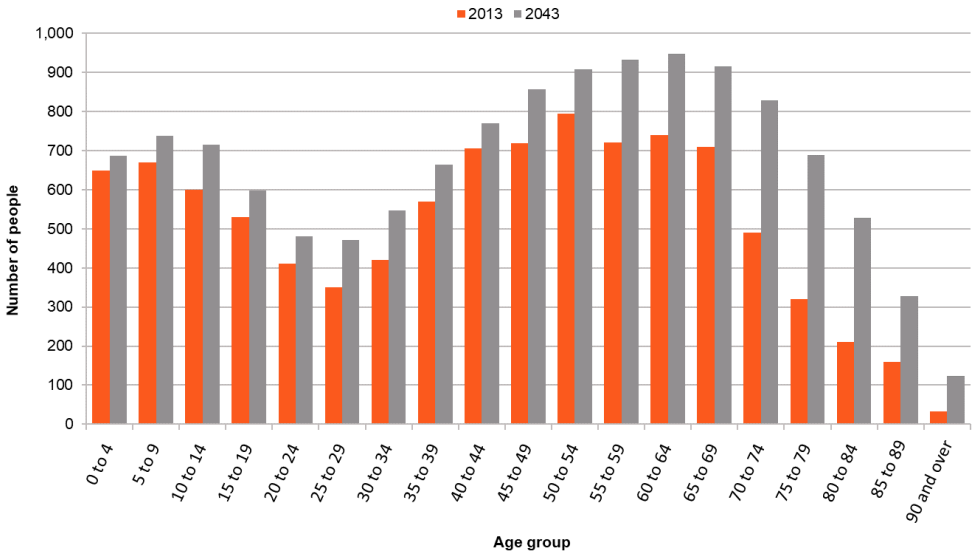
Households by type, South Wairarapa District Council – 2013, 2028 and 2043



Overall there will be population gains in all age groups. The most evident gains are of persons aged over 60 years of age. In terms of shares of total population, residents aged over 70 comprised 13% of the total population in 2013 and 20% by 2043. Persons aged under 20 years in South Wairarapa make up 25% of the 2013 population and 21% of the 2043 total population.

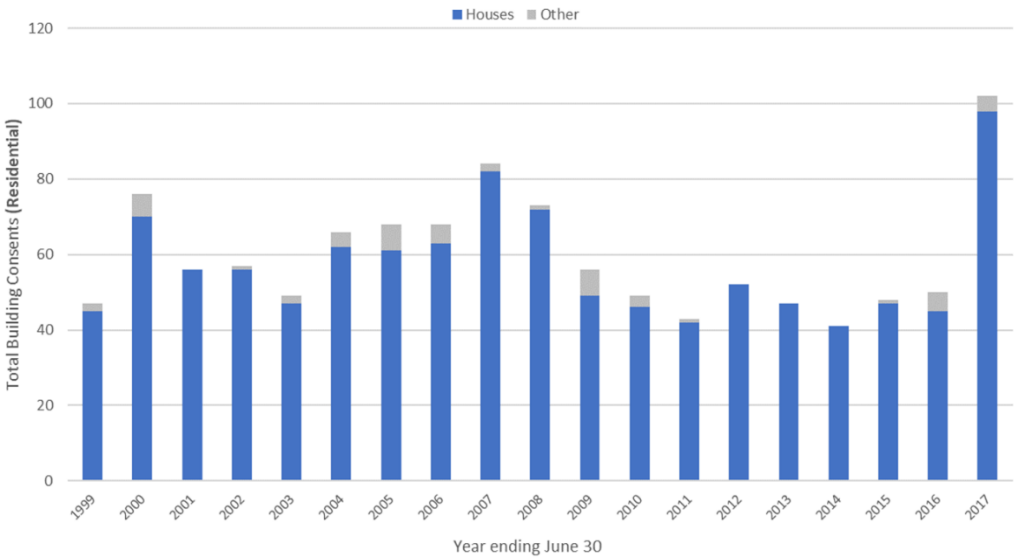
The movement in the percentage of the population of "working age" (up to age 65) is not as dramatic as might have been expected. In 2013 61% of the population was in the working age group, by 2043 this will be 56%. This 5% drop is not as significant as might be expected in terms of the issues created by a rapidly aging population.

Age structure, South Wairarapa District Council – 2013 and 2043

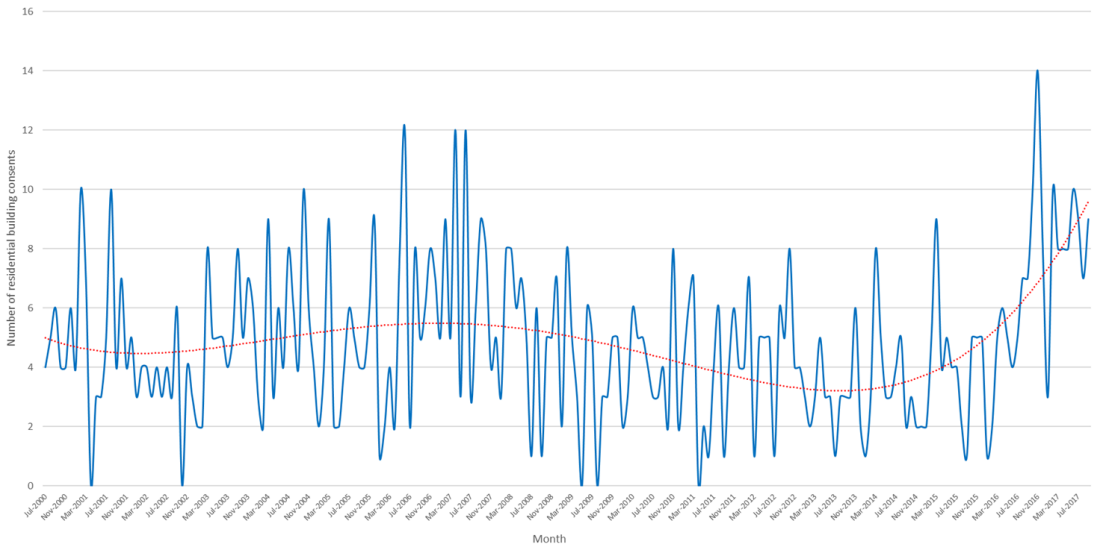


The following two graphs show the trends over recent years in the number of building consents in the South Wairarapa District. The trends clearly back up the known growth in the district over recent years.

Annual Residential Building Consents, by type 1999 – 2017



Monthly Residential Building Consents, July 2000 – September 2017



Finally, ID have given the following predictions of ongoing new build activity in the district in five year groups through to 2043. This shows a spike in the period 2019 to 2023 to 68 new dwellings pa and then a steady number of dwellings in each of the next five year groups ranging from 58 to 66 new dwellings pa.

This confirms our assumptions that our communities will continue to grow steadily over the period of this LTP and for the following 15 years as well.

This is helpful to inform our decisions regarding future infrastructure requirements for each of our towns.

SWDC Assumed Development Rates (five yearly)

Years	Total Additional Dwellings	Additional Dwellings per annum
2014-2018	285	57
2019-2023	341	68
2024-2028	332	66
2029-2033	310	62
2034-2038	309	62
2039-2043	292	58
Total	**1,869**	**62**

Funding Strategy

South Wairarapa District Council is a small rural local authority, with a relatively high infrastructural asset base per capita, and a relatively small ratepayer base. Small local authorities generally have very little discretionary expenditure and are therefore required to focus heavily on maintaining current service levels and their infrastructural asset base.

This strategy reflects this focus, and we are confident the AMPs, LTP and infrastructure strategy will ensure the longevity of the asset base and maintenance of service levels while retaining financial health.

Debt raising is generally only undertaken for new assets, replacement of existing assets should be made from depreciation reserves built up for that purpose.

Financial sustainability is fundamental to the long term sustainability of the district. The forecasts have been prepared on the basis that, as a minimum, existing levels of service will be maintained.

The demographics information was used to assess if the existing assets would accommodate future demand or require upgrade. For our water and wastewater assets, this also involves comparing the theoretical demand on the network and the treatment plants against the measured historical demand. The daily, weekly and seasonal variations are also assessed to check if the theoretical (typical NZ household) demand reflects the local trends, i.e. weekend use when more people are home doing washing, or dry summer condition for water use.

This demand is assessed against the existing capacity of the network and treatment plants and also compared to the population change to assess when or if increased capacity is required.

Ageing Population

The rate of natural population change is related to fertility and mortality rates. In New Zealand natural population growth is slowing in response to a declining fertility rate and an ageing population. South Wairarapa district population projections follow this general trend with a decreasing birth rate and increasing death rate over time. The demographics of our resident population is moving to a median age of 49 years by 2043. The aging population is likely to

result in an increase in the number of residents with fixed incomes who may not be able to easily absorb the cost of increased Council charges.

Other key points of interest:

- Approximately 27% of our properties have absentee owners resulting in increased resident population in weekends and holidays.
- Household size is decreasing in line with national trends.
- Whilst we predict growth in Greytown and Martinborough, it is difficult to estimate the speed at which this growth will occur.

Rural Land Use

There has been a reduction in the number of farming and horticultural units over recent years which is reflected by small changes in the size of farming units.

The use of the urban water supply in viticulture has a strong draw on council's water infrastructure in Martinborough. This is dealt with under the terms of SWDC's water consent with conditions regarding use at periods of low river flow; ensuring water is available for the most critical of users, public use and health and ongoing water demand management. There are also the SWDC Water Conservation Strategy 2015 and Water Demand Management Plan 2015 which were developed to ensure the long term security for the water supplies.

There is a positive link between tourism industries and horticulture with data from Statistics NZ showing a steady increase supporting the growth in tourism.

OVERARCHING MANAGEMENT

1. IDENTIFYING PRIORITIES

As the demand for additional or improved infrastructure increases, the biggest challenge facing local authorities today is getting the funds required for upgrades of ageing or obsolete infrastructure, and for new infrastructure to meet increased levels of service and growth. Proposals to meet each of these challenges are presented later in this strategy.

It is important to identify where there are infrastructure deficiencies whether they are in data, performance or capacity and prioritise so that resources and efforts are focused on these first. Identifying what infrastructure is important to the community and to meet the Council's legislated obligations, Council's levels of service have been developed to help define and identify the key strategic priorities around our infrastructure.

The key pieces of legislation and regulations that inform Council's legislative obligations in respect of its infrastructure include, but are not limited to, the following;

- Health Act 1956
- The Health (Drinking Water) Amendment Act 2007 (replaces the Water Protection Regulations 1961)
- Local Government Act 2002
- Building Act 1994
- Resource Management Act 1991
- Health and Safety at Work Act 2015
- New Zealand Drinking Water Standards (2005) revised 2008
- Civil Defence Emergency Management Act 2002
- Public Works Act 1981
- Greater Wellington Region Council's Proposed Natural Resources Plan
- Wairarapa Combined District Plan
- Outcomes from the Havelock North enquiry
- Water Fluoridation Bill
- Land Transport Act 1998

2. LEVELS OF SERVICE

SWDC will maintain current levels of service and capacity for the period of this strategy with affordable renewal programmes to address the condition of infrastructure. The exception is the increased LOS for wastewater as a result of the new resource consents to dispose of wastewater to land. We also anticipate some increased LOS for drinking water standards as a result of the Havelock North enquiry.

Managing the current infrastructure well paves the way for investing in new infrastructure in the future.

Service levels are reviewed annually as part of the annual plan process. Following public consultation, they are not expected to change unless legislative changes are imposed. Any increase in service will incur a cost increase.

3. FINANCIAL STRATEGY

Council's infrastructure strategy is in line with Council's financial strategy in achieving a balanced budget as required under the Local Government Act where cash surpluses are shown in Council's reserves. These reserves can be used towards the planned upgrades of infrastructure in the future.

Within the financial strategy, Council is cognisant of the pressure to increase the quality of wastewater discharges, reduce the discharge of wastewater to waterways and the consenting processes. The infrastructure strategy mirrors the need to mindful of the targeted debt levels and the need for interest to not exceed 12% of rates revenue. The infrastructure strategy in general meets the requirements laid out in the financial strategy for Council.

4. FUNDING STRATEGY

SWDC is aware that raising debt locks ratepayers into repayments for 25-35 years and is to be prudent it its debt raising. We have built into our financial strategy consistent increases in depreciation, except on assets we have decided not to replace, allowing for a balanced budget to be achieved. Cash reserves will more closely match the total of special reserves, trust funds and depreciation reserves.

The demographic trend analysis shows some growth ahead for the district. Council has experienced growth in financial contributions revenue due to increased development in recent years and anticipates this income will continue. Income from capital contributions is used to fund increased infrastructure capacity as required. This infrastructure strategy and the LTP for 2018/2028 includes capital expenditure budgets to cover this increased capacity and increased LOS around wastewater and water.

5. REPLACEMENT, RENEWAL AND MAINTENANCE

The general approach to renewals and maintenance is that maintenance is used to re-validate asset data through either RAMM for roading or CEM/CAM for the waters. The ability to see the asset data while carrying out maintenance also allows for photos and attributes data to be added where it had not been collected previously as well as existing data to be checked against the asset in real time. Council has implemented an asset management system, AssetFinda to carry out the same functions as RAMM for below ground assets and condition assessments by incorporating the information from CAM and inspections.

Renewal programmes can be generated electronically via RAMM condition data for roading. Also through the use of CAM as described above, previous breakages and works can be viewed on the new AssetFinda. Once an indicative programme is produced for renewals the sites can then be validated via site inspections.

Council plans to:

- Bring in external resources to perform targeted investigations, e.g. the Wellington Water report completed in the 2016/17 year.
- Maintain an ongoing relationship with Wellington Water for evaluation of data and more specialised modelling.
- Review and cleanse historical data from the CEM/CAM system for incorporation in AssetFinda.

Council staff and contractors review of assets on site to ensure renewal programmes are accurate and correct, allowing assets to be replaced following inspection not on a cyclical basis. This ensures assets are renewed as required and not ahead of time to ensure no unnecessary work is carried out and keep costs down for ratepayers.

6. NEW INVESTMENT

New infrastructure assets may be commissioned due to:

- Rising environmental expectation
- Climate change
- Earthquake resilience
- Raised level of service
- At or in avoidance of failure
- Population growth /increased development

Commissioning of new assets is to be kept on an "as needs" basis or when serendipity provides opportunities for funding. Community consultation in line with the Council's Significance and Engagement Policy will take place in these situations. This is seen in the water upgrades that match the rising water health standards and Ministry of Health funding available. SWDC anticipates further changes in requirements in this area as a result of the Havelock North water enquiry.

7. DEPRECIATION RATES

Below is a summary of the current depreciation rates and estimated lives of different asset categories for SWDC.

DEPRECIATION		
ASSET	**ESTIMATED LIFE**	**DEPRECIATION RATE**
Buildings	100 years	1%
Heritage assets	100 years	1%
Furniture and equipment	5 to 22 years	20% to 4.5%
Motor vehicles	5 years	20%
Library collections	7 years	14%
Roading*	1 to 100 years	100% to 0.3%
Bridges*	18 to 100 years	5.6% to 1%
Water infrastructure*	1 to 100 years	100% to 2.5%
Wastewater infrastructure*	2 to 100 years	50% to 1%
Stormwater infrastructure*	10 to 100 years	10% to 1.25%
Parks and reserves	5 to 50 years	20% to 2%
Finance leases	3 to 5 years	33% to 20%

* Indicates infrastructure assets covered by this strategy

8. SUSTAINABILITY

It is also critically important that infrastructure decisions and the actions taken to achieve them are sustainable to strengthen quality of life. For infrastructure decisions and actions to be sustainable they should:

- Promote the efficient and effective use of resources.
- Deliver equity for present and future generations.
- Avoid, mitigate and remedy any adverse effect on the environment.
- Promote the creation of liveable communities with a sense of place and identity.

The questions taken into consideration to help ensure sustainable outcomes are:

- Will the type of infrastructure built or being maintained, continue to serve the community into the future?
- Can the infrastructure be maintained or renewed given the limited resources available to the community?
- Does the infrastructure create effects or impacts that erode the quality of our natural environment?

Does the method of maintaining or constructing this infrastructure have local or global impacts environmentally, socially or economically?In the actions outlined later in this strategy, Council will strive to act sustainably in all decisions, actions and practices throughout the lifecycle of assets.

Risks to infrastructure and continued resilience are provided for in design, funding and management.

Roading infrastructure is developed through the use of resilience projects and funding based on net present value (NPV) and whole of life calculations through the NZTA funding process. Examples of this in funding and design can be seen in the preventive maintenance work carried out on the Cape Palliser road decreasing the incidence of closure (greater resilience). Resilience is also managed through processes to minimise fragility, vulnerability and weakness and well as minimise impacts for ratepayers and visitors to the district. Increased inspections and faster interventions through better knowledge and data is also a strategic way SWDC increases resilience on roads.

Water infrastructure resilience is dealt with in several ways with the primary worst case scenario through the Civil defence and emergency management (CDEM) planning where households are encouraged to have at least 3 days' water supply available. Council also support the dissemination of CDEM rain water harvesting tanks for residents and has the availability of a fresh water tank for communities as a last resort. Resilience is also supported through demand management plans and the renewal planning based around condition of the networks.

9. RISKS

Risk is defined as the effect of uncertainty on objectives e.g. deviation from the plan. Risk management is the coordinated activities to direct and control an organisation with regard to risk. Council has a responsibility to assess risks in order to best manage assets with the resources available to avoid and mitigate the effects of any negative outcome.

Risks that sit across all assets are:

- Continued servicing of all facilities with an ageing population resulting in a greater percentage of ratepayers being on fixed incomes.
- The adoption of higher levels of service and the associated cost implications.
- Insurance not being sufficient to cover a significant loss.
- A disaster recovery plan for assets has not yet been prepared though the Wairarapa Emergency Lifeline Association (WELA) report sets a good foundation for the development of the plan and is planned to be updated in the 2018/19 year.
- For natural and man-made disaster events the initial response to events and the priority order of inspection of assets also needs to be documented.
- If population predictions are not accurate this will impact the timing of new infrastructure needs. This risk has been minimised by using a specialist company (ID consultants) which provides forecasts to 145 local authorities and uses a robust forecasting model. IDs assumptions and methodology was discussed with and understood by Council staff to minimise the risk in this area.

10. PUBLIC HEALTH

Public health is very important to South Wairarapa District Council in particular with regard to potable water, disposal of wastewater and stormwater. We will continue to meet current requirements and adopt improved and new health and environmental standards as they arise.

The focus of public health intervention is to improve health and quality of life through prevention and treatment of disease and other health conditions. This is done through surveillance of cases and health indicators, and through promotion of healthy behaviours. The interventions can range from advocacy against psychoactive substances to meeting water quality standards and cover a broad range of issues. SWDC can provide facilitation, negotiation as well as physical works and services to assist in the health of its residents. Council will monitor the government's response to the Havelock North inquiry, and is anticipating the need to make improvements in this area. For example SWDC is planning to upgrade the Martinborough water supply to provide residual disinfection.

The South Wairarapa District Council promotes the "active rural lifestyle" as a general principal in all its

undertakings and acknowledges that the dimensions of health can encompass "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

New technologies such as modern transportation can cause reduced physical activity and the introduction of a cycle strategy and increased active recreational activities are being considered by Council. For the 2017/18 summer season, SWDC provided free swimming at its three swimming pools which resulted in much higher swimming numbers. It is pleasing to see more residents using Councils facilities and being more active than in previous years. SWDC believes that behaviour is more effectively changed by taking development and motivations into consideration instead of only presenting information about health effects and lifestyle.

Some programmes and policies associated with public health promotion and prevention can be controversial and Council works to avoid this. Social programmes assisting public health (for example free swimming, and reading programmes in our libraries) target areas of the community where assistance can be given as health problems can be as a result of personal behaviours.

Through the Community Safety and Resilience working party health resilience is a key focus beyond the empirical measurement of health indicators.

11. MÀORI CONTRIBUTION

The Local Government Act 2002 requires territorial authorities to maintain and improve the ability of Màori to contribute to local government decision-making. Council is required to have regard to the relationship between Màori and their ancestral lands, water, sites, wahi tapu and other taonga of national importance. These relationships must be recognised and provided for by decision makers.

For many reasons, the Treaty of Waitangi considerations and the Resource Management Act (RMA) 1991 have a direct impact for long term infrastructure management. This includes consultation required as part of the resource consent process as well as consulting with Màori on the provision of infrastructure, relating to the likes of discharge of wastewater to land, or extraction of water.

The Council has a strong link with Iwi through the Màori Standing Committee and through the Tangata Whenua Values Monitoring Plan prepared for the wastewater consents. Council is also monitoring any potential impact of the Treaty settlements currently in progress in the District to ensure ongoing positive working relationship with local iwi.

12. CLIMATE CHANGE

In the long term it is predicted that climate change will have two principle impacts upon the South Wairarapa district: an increased risk from severe natural hazards, and a gradual change in environmental conditions such as rainfall and tide levels.

Compared to 1995, temperatures are likely to be 0.7˚C to 1.1˚C warmer by 2040 and 0.7˚C to 3.0˚C warmer by 2090. As a result, evaporation will increase, and enhanced westerly winds will occur. Heavy rain/storms may become more frequent requiring council to consider the level of flood protection and the capacity of the three towns' stormwater drainage system. According to the most recent projections, Wellington and Wairarapa are not expected to experience a significant change in the frequency of extreme rainy days as a result of climate change.

More frequent droughts may affect the security of water supply to all three towns. Currently the council relies on adequate water flows from bores and has reservoirs to buffer daily demand; there are no stored water facilities for a prolonged drought.

The Ministry for the Environment indicates that New Zealand tide records show an average rise in relative mean sea level of 1.7 mm per year over the 20th century. Sea level rise may generate additional issues along coastal roads from rising tides and coastal erosion from storm surge. The assessed impact on infrastructure from coastal change is negligible in the 30 year horizon and there is no immediate response to these risks presented in this strategy. However Council will keep abreast of reports on these issues.

We will look to align our approach to that currently being developed by Greater Wellington Regional Council.

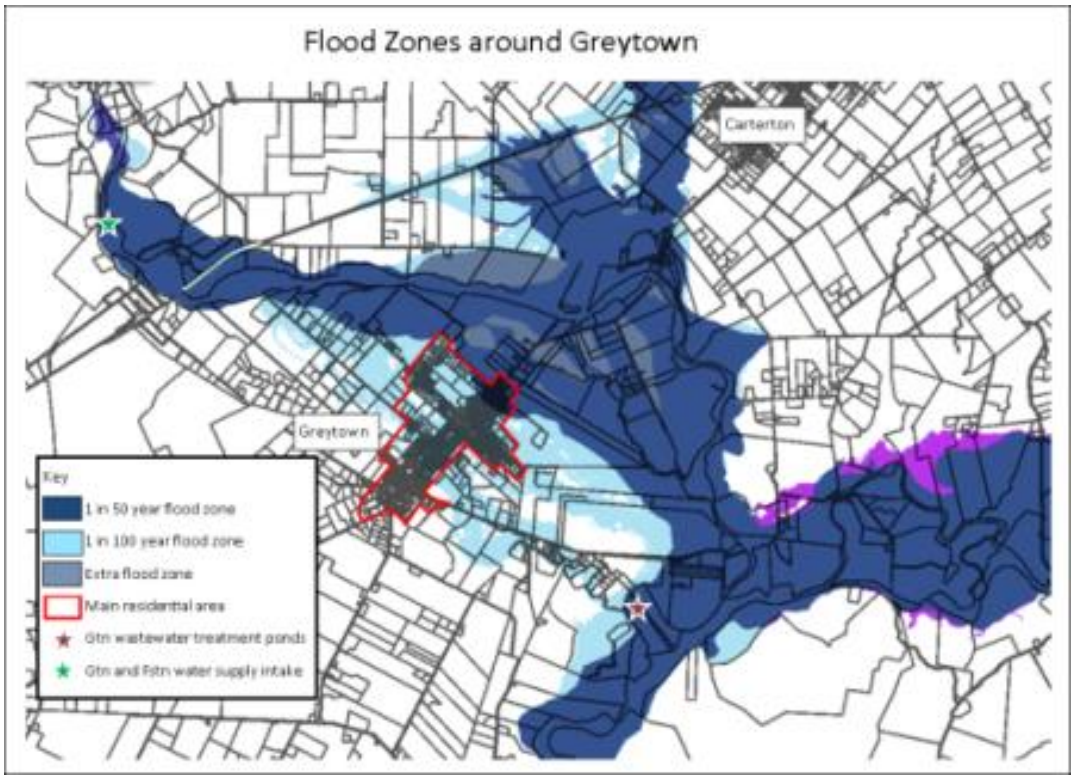
13. NATURAL DISASTERS

South Wairarapa District Council recognises natural disasters will occur but has not set aside funds to cover this eventuality. Should a natural disaster occur in the period covered by this strategy, it is envisaged damage will be fixed through the maintenance budget, insurance, reserves, government grants and loans. The council currently has no redundancy in the form of back-up systems, but has limited facilities to connect temporary generators for water supplies in an emergency.

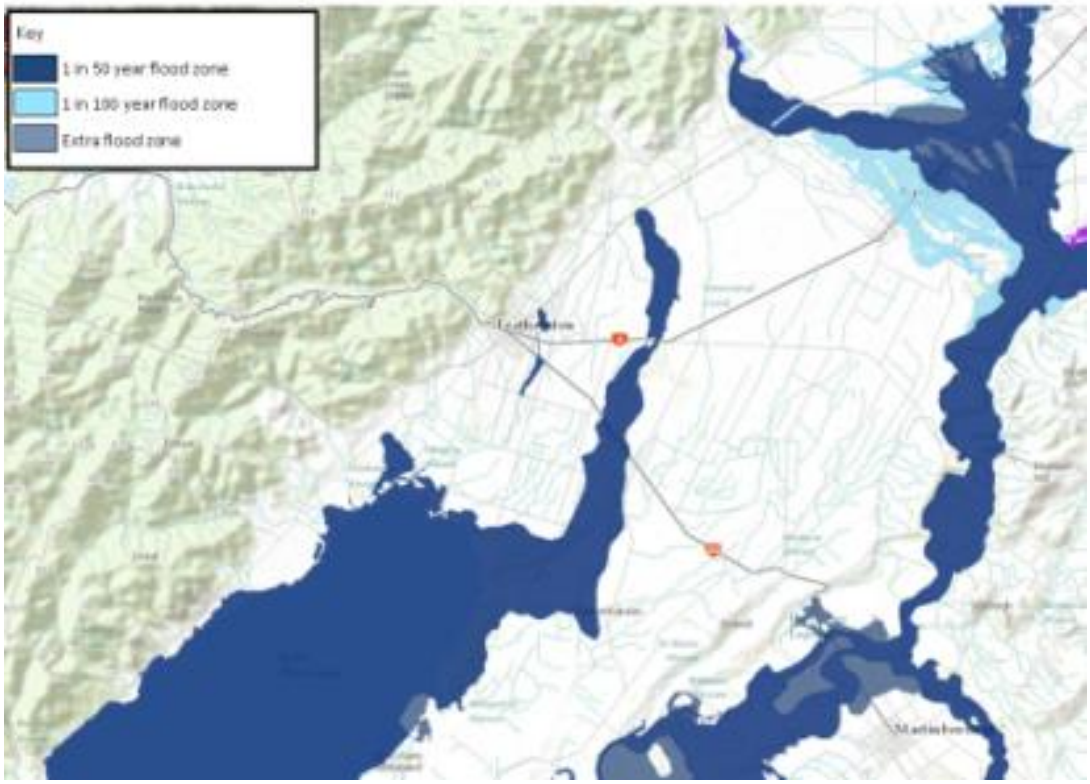
Flooding is the most frequently experienced natural hazard in the district, and the likelihood of a major flood occurring in any year is high. The other natural

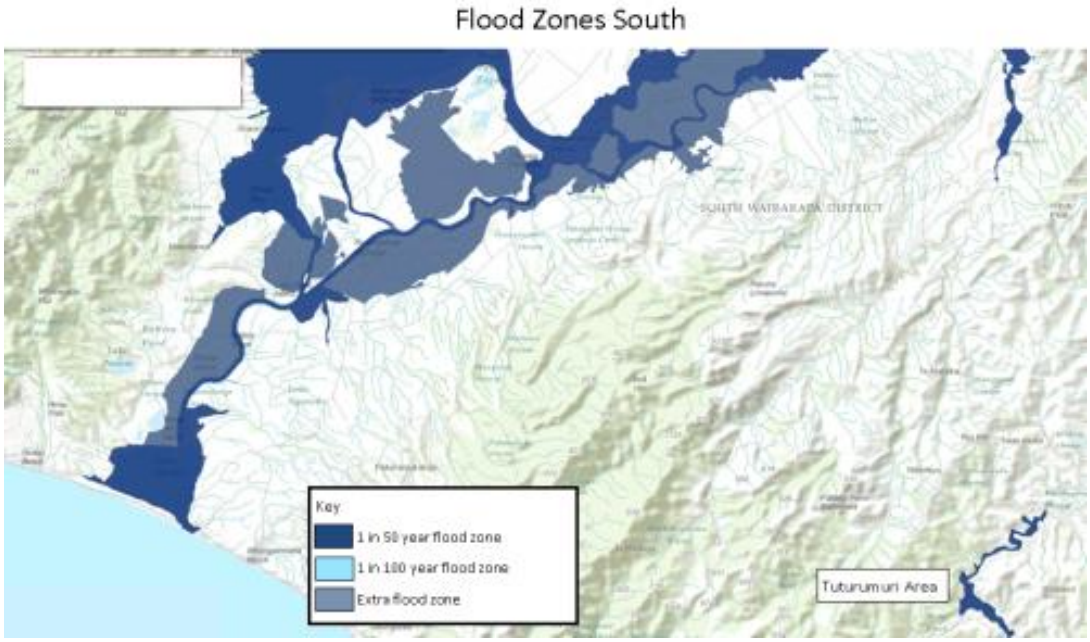
hazards occur less frequently, but have the potential to cause significant adverse effects and pose a risk to people and property.

Below are maps released by Greater Wellington Regional Council in December 2014 indicating the flood zones for the South Wairarapa. These flood zones have recently been reviewed by GWRC and the new flood maps are currently being peer reviewed before being released to the public.



Flood Zones North

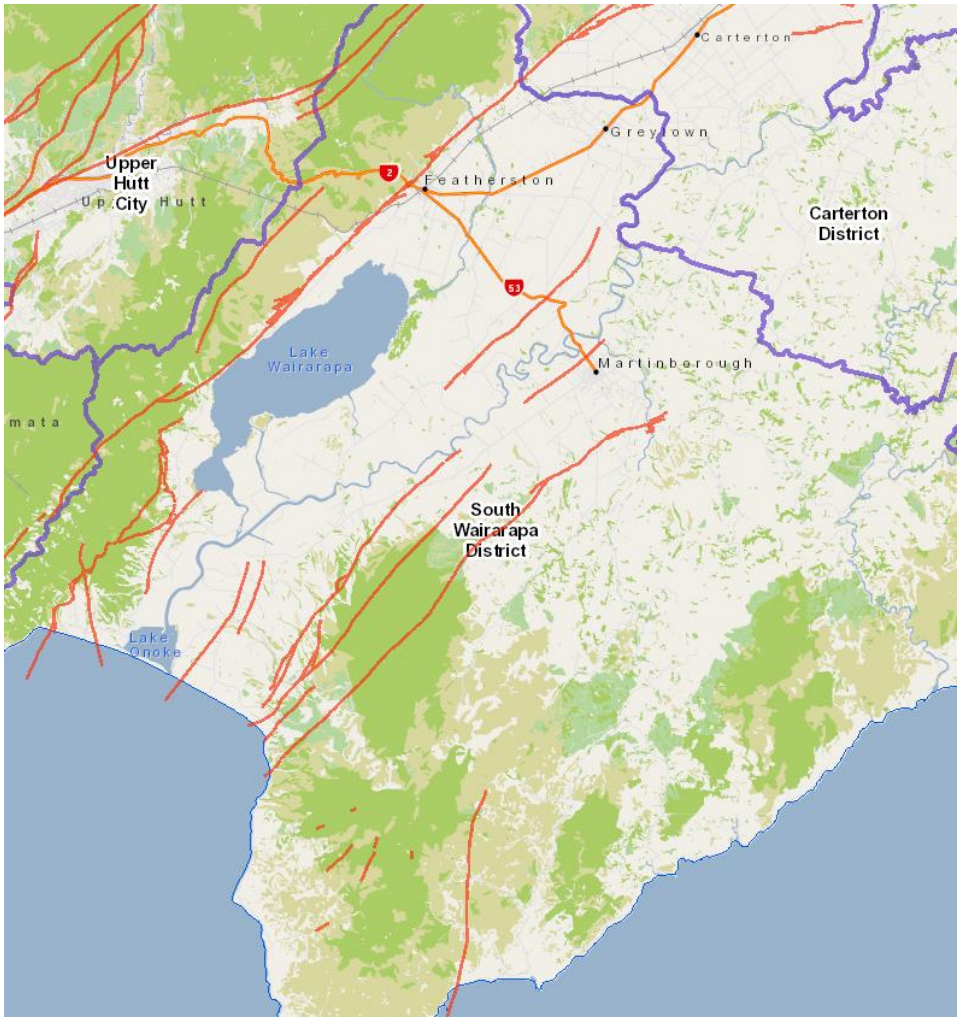




While Greater Wellington Regional Council is responsible for flood control, large scale flood events have a significant impact on the ability of Council to continue to deliver the services addressed in this strategy.

Earthquake fault lines run through the South Wairarapa district and their existence means that the district is vulnerable to earthquakes. An earthquake could potentially cause devastation to both above and below ground infrastructure in developed areas through ground rupture, liquefaction or ground deformation. Fault or ground rupture can occur during a very large earthquake where the movement creates discrete breaks at the ground surface, which is of particular risk to buildings, structures and infrastructure.

The known active faults are shown in the diagram below.



Other potential impacts from a large earthquake in the South Wairarapa district include:

Tsunami: Initial wave and on-going wave oscillation around the coast could lead to major flooding and significant damage to coastal infrastructure, especially roading.

Land Slips: due to regular slips and dropouts Council inspects all roads post heavy rain and storms to mitigate the risk of accidents and minimise cost. Council has a continued monitoring programme at the Whatarangi Cliffs to monitor the movement towards the ocean.

Council has put some mitigation measures in place by way of development controls in the District Plan which determine where development can take place, in turn determining where infrastructure is required.

SWDC is a member of the Wairarapa Engineering Lifelines Association (WELA). The WELA project report "Risk to Lifelines from Natural Hazards" completed in 2004 identified hazards and engineering effects on "Lifeline assets" such as waters and transportation assets. These assets are the essential assets to the community and are listed in the "Risk to Lifelines from Natural Hazards" report.

Work has been done looking at critical infrastructure outside of Council's control, being primarily telecommunications and power but also the state highway network managed by NZTA. There are several bridges managed by NZTA that are critical to South Wairarapa residents for access to key areas in the district.

Wellington Region Emergency Management Office (WREMO) is a semi-autonomous organisation that co-ordinates Civil Defence and Emergency Management (CDEM) services on behalf of the nine councils in the Wellington region. They manage the initial response to a natural disaster through community resilience, operational readiness, and business and development. SWDC would liaise with WREMO and the Wairarapa

Regional Civil Defence office via the Masterton HQ for initial information on infrastructure damage should a natural disaster occur.

14. RESILIENCE FRAMEWORK

SWDC has developed a resilience response framework. The framework applies a systematic approach focusing on a broad range of structural and non-structural responses to identified risk before, during and after adverse events.

The framework is based on:

a) Prevention, mitigation and preparedness ahead of an event to:

   1. avoid exposure to risk where possible;
   2. reduce the impact of risks where they cannot be prevented; and
   3. be well prepared and practised ahead of an event.

b) Emergency response during an event, activating the preparedness initiatives and planning already in place.

c) Restoration and rehabilitation after an event, activating preparedness activities already in place and returning to desired customer levels of service.

The framework enables resilience risks to be identified, assessed and monitored over the assets and networks rather than treated where they may not occur. It also builds on the councils existing risk management and business continuity planning process.

15. NON-ASSET BASED DEMAND MANAGEMENT

Council utilises non-asset based demand management including:

- Bylaws and policies within the district.
- Education and communication programmes e.g. conservation and recycling.
- The District Plan e.g. for preventing or restricting development with substandard infrastructure.

16. ASSET CONDITION & MONITORING

The Council uses ArcMap Geographic Information System (GIS). The three Wairarapa councils have a shared service agreement for a range of spatial information on a shared platform, powered by ESRI GIS application providing a public, viewable, web-based mapping application. The new website (launched in 2017) provides information about the region's properties, district planning zones, streets/roads and geographic features, transport networks, civil defence centres, water and sewer pipes, water races, fault lines, tsunami and flood risks. It also includes recent aerial photography.

Condition surveys are not completed for all assets. Contractors are obligated to collect and report back asset condition data as they work on the network. Critical parts of the network (service large numbers, essential services and businesses) will be prioritised for renewals. Condition information is recorded in AssetFinda (for three waters assets) or RAMM (for roading assets) and used to plan the renewal programme for the district.

During 2017, Council commissioned a report from Wellington Water using historic data and condition assessments gathered by Council contractors. This report has given us an improved understanding of the asset condition of existing assets which has been incorporated into AssetFinda.

Indicative condition is assessed from maintenance records and frequency of complaints. Individual asset condition surveys are carried out through renewal programmes and assessed for impending failure. Following this process works are prioritized and funds allocated over time or grants sought.

The Wellington Water report (2017) gave us confidence that the overall condition of our underground assets was reasonably robust with no anticipated large amounts of capital expenditure ahead in the near future. This report gave us a picture of our likely renewals costs through to 2105 for our water and wastewater assets.

Council reviews complaints received on a regular basis. The use of real-time asset maintenance allows for just-in-time renewals based on real faults recorded and scrutinized against criticality.

17. ASSET VALUATION

The Council engages Opus International Consultants Ltd to undertake a valuation of the roading network and three waters every three years.

The most recent valuation report values the assets as at 30 June 2018.

Now that AssetFinda has been set up, in between Opus valuations, Council will review the asset valuation on an annual basis using the unit rates in AssetFinda, which will be based on actual council or regional pipe renewal costs.

18. VALUATION METHODOLOGY

Every recorded component is valued in terms of its replacement and depreciated replacement value.

The Opus valuation has been carried out in accordance with the following standards:

- The NZ equivalent to the International Financial Reporting Standard 16, Accounting for Property, Plant and Equipment (IAS 16).
- New Zealand Infrastructure Valuation and Depreciation Guidelines, issued by the National Asset Management Steering Group (NAMS) of IPWEA.

A number of assumptions are used in the valuation process. These are derived from the best available information at the time by a suitably experienced and competent person. The Valuation Report holds a detailed account of the key assumptions derived for each asset group and the basis for and use of these assumptions.

No assets have been identified as surplus.

19. INSURANCE

Local Authority Public Protection Scheme (LAPP) insure 40% of the value of underground assets with the government underwriting the remaining 60%. Above ground utilities are insured through brokers Jardine Lloyd Thompson Limited.

The previous Government indicated they may change the 40/60 split of underwriting underground assets to put more of the burden of cost on to local authorities. The new Government's stance is not yet known. Council continue to communicate with our insurers and LGNZ to ensure we have early warning and can be prepared for the financial impacts of this change if it happens.

Roads are not insured so SWDC would use the 52% NZTA funding along with some of the maintenance budget and borrowing to deal with issues that arise.

20. INFLATION

The financial forecasts for the first 10 years of this strategy are adjusted for projected inflation based on the BERL local government cost index. The financial forecasts for years 11 to 30 use the inflation adjuster for the 2028 year from the relevant BERL cost index.

The financial forecasts for years 11 to 30 for water and wastewater reticulation renewals are based on the Wellington Water predicted renewals programme spread evenly over the twenty year period so as not to create spikes in expenditure or rates.

INFRASTRUCTURE

Infrastructure is the fundamental facilities and systems that serve the ratepayers of South Wairarapa District Council. The systems and data employed and produced ensure sustainability.

Water and wastewater expenditure is viewed together. The impact of this spend is borne by the urban ratepayer and council views it as a complete system with the water coming to the household and being disposed of from the household. All capital expenditure is closely viewed with the long term goal of environmental compliance and affordability.

Where savings in money, time or resource can be achieved council will work with neighbouring councils to maintain infrastructure.

WATER SUPPLY

1. OVERVIEW

In the South Wairarapa district, there are two community water supply systems with 3954 properties connected.

Council will continue to work to improve the water supplies in the three main towns. Subsidies have been obtained for an alternative Featherston source to ensure that the Featherston/Greytown supply is robust enough to cope with not only current and future demand but also maintenance and other outages. Operational expenses such as power and filter replacement have been incorporated to ensure financial prudence.

The performance of Council's water supplies is continually reviewed to ensure compliance with public health requirements.

The maintenance contract was re-let on a five year contract to CityCare in 2012 with an option to extend it by two years. The contract was renewed and now expires in October 2019.

Figure 1: Featherston and Greytown Water Supply Schematic

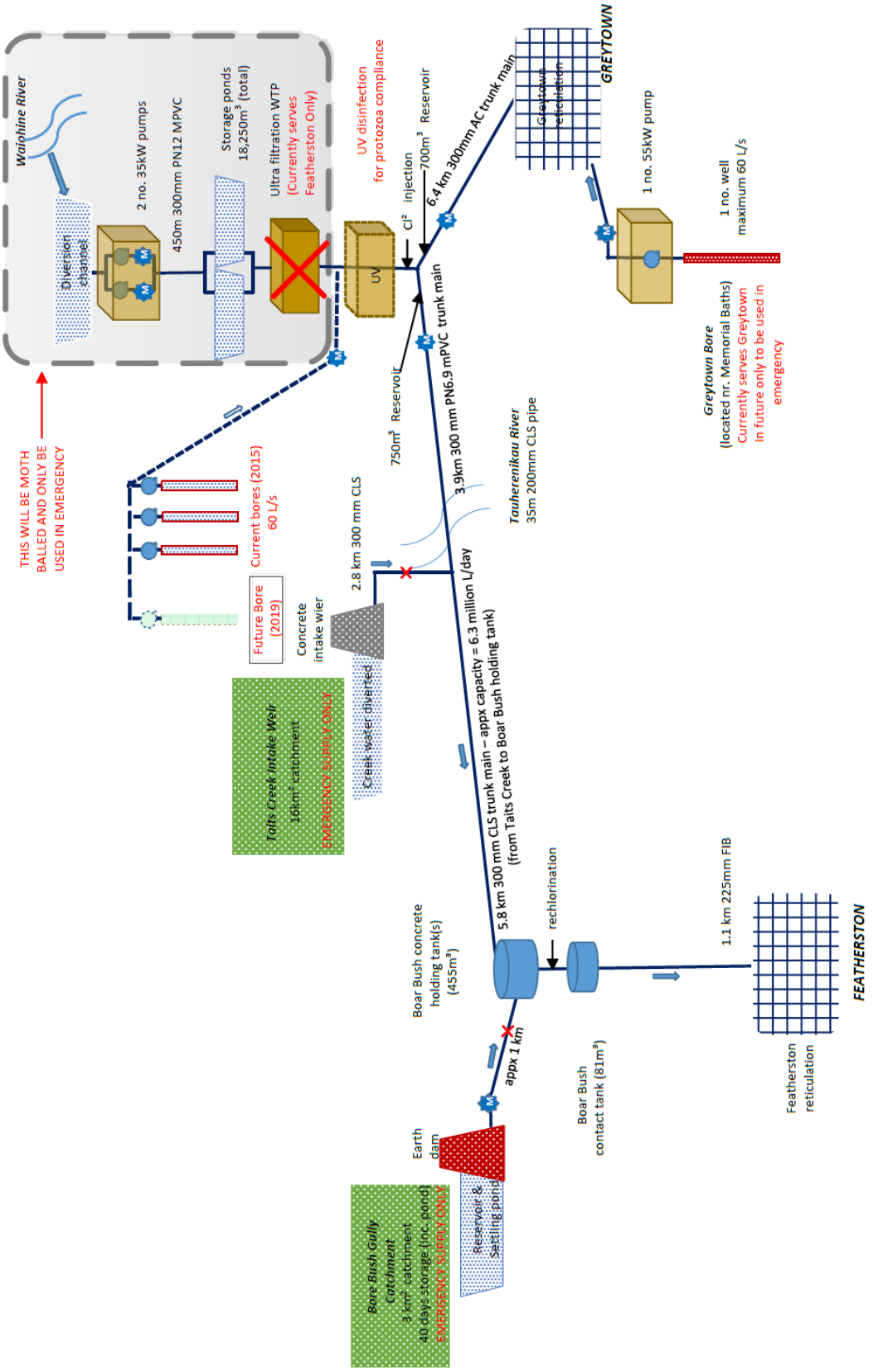
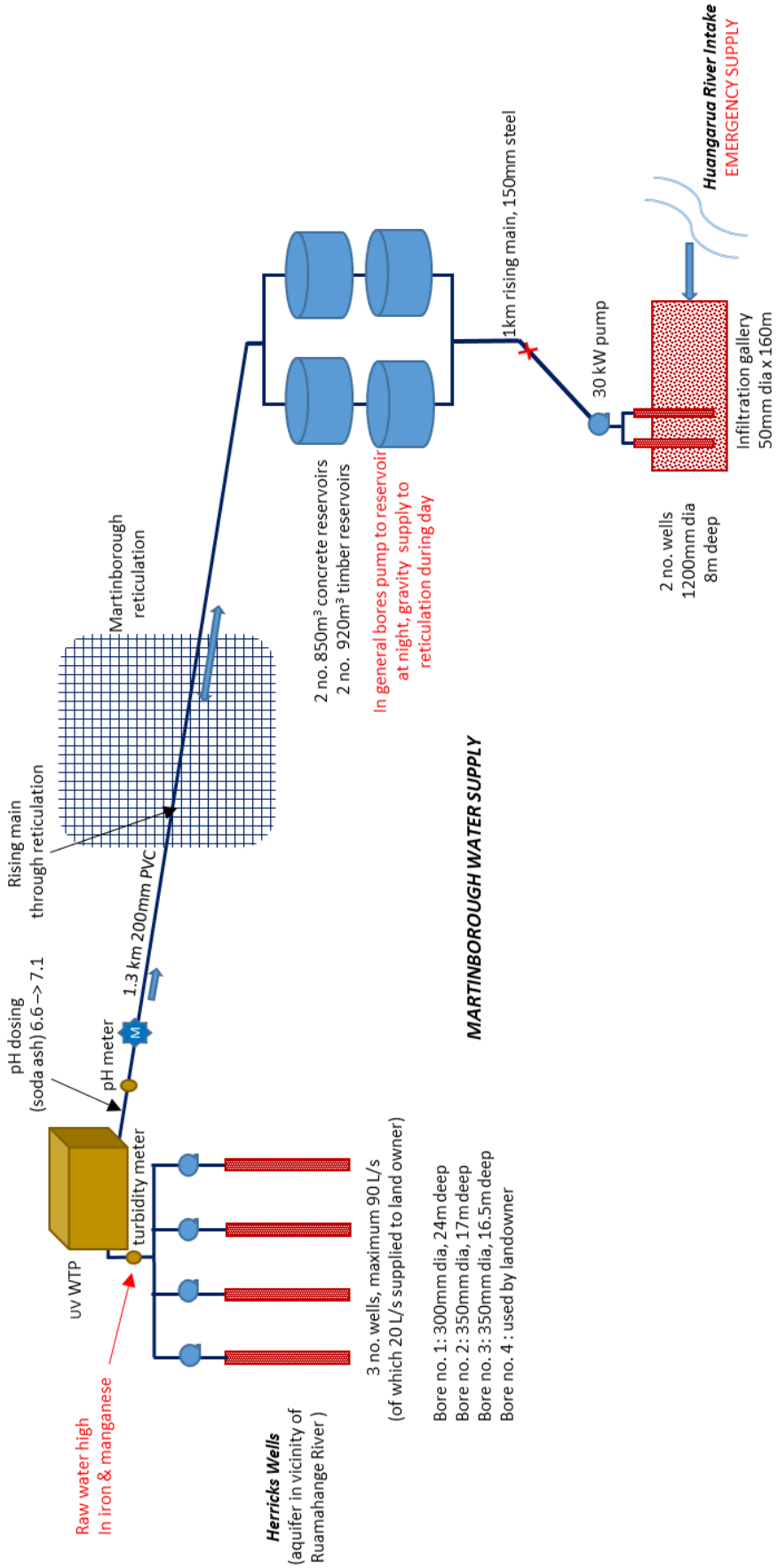


Figure 2: Martinborough Water Supply Schematic



2. CURRENT CONDITION

Below is an estimate of the condition of each asset in terms of the asset grading system set out in the International Infrastructure Management Manual Australia/New Zealand Edition Version 3.0 – 2006. This system grades assets using six broad categories of condition.

- 0 - Non-existent
- 1 - Very Good
- 2 – Good
- 3 – Fair
- 4 – Poor
- 5 - Very Poor

The generalised condition grading is presented below (for individual asset grading refer to Council valuation register).

DESCRIPTION	CONDITION GRADING
Featherston Rural Longwood Water Race (40km)	3
Greytown Rural Moroa Water Race (225km)	3
Featherston Urban	
Taits Creek Intake	2
Boar Bush Dam	2
455 m 3 concrete tank	3
81 m 3 concrete tank	3
Chlorination equipment - complete	3
Building	1
Control System - alarms, telemetry, housing	2
Sampling manhole, magmeter and flow recorder	1
Valves (headworks)	2
Valves (reticulation)	1 - 3
Fire hydrants	1 - 2
Surface boxes (valves, hydrants)	3
Water connections	1 - 2
Greytown Urban	1
Bores (3)	1
Pumps (3)	1
Controller room	1
Pump VSDs and equipment	1
Electric control systems	1
Control system - alarms, telemetry	1
UV Plant (Mar 17)	1
Building	1
Magmeter, datalogger & turbidimeter, UVT, pH probe	1
Miscellaneous Pipework (pumphouse, pumphouse to reservoir)	1 - 3
Valves (reservoir site)	1 - 3
Chlorination and Monitoring equipment - complete	1
Residual chlorine monitor	2 (redundant)
Building (reservoir site)	1
700 m ^{3} concrete tank	3
750 m ^{3} timber tank	1
Sampling manhole, magmeter and flow recorder	1 - 2
Valves (reticulation)	1 - 2
Fire hydrants	3
Surface boxes (valves, hydrants)	1 - 2
Water Connections	2 (mothballed)
Filtration Plant – mothballed – TBC final solution	2
Well, 1.2 dia x 4m deep	2
Pumps (2)	2
Valves (pumphouse)	1
Switchboard (pumphouse)	1
Building (pumphouse)	2
No. 1 Pond (plastic lined)	3
No. 2 Pond (plastic/concrete)	3
Miscellaneous Pipework (reservoir site)	3
Control system - alarms, telemetry, landline (pumphouse & reservoir)	3
Feed Pumps (2) and building	3
Martinborough Urban	
A - Ruamahanga	
Bore #1, 300 dia x 24m	3
Bore #2, 300 dia x 17m	3
Bore #3, 350 dia x 16.5m	1
Bore# 4 350 dia x 16.5m	1
Pump No. 1 & 2	3
Pump No. 3	1 - 2
Pump No 4	1
Transformer & electric control systems	1
Chlorinating equipment	1
Control system - alarms, telemetry	1
UV Plant (Dec 11)	1
Building	-
Magmeter, datalogger & turbidimeter.	2
Huangarua	
Wells	3
Infiltration gallery	3
Pump	3
Control system and alarms, telemetry	2
Building	2
Reservoir Site	
850 m^3 concrete tank	3
850 m^3 concrete tank	3
920 m^3 timber tank	2
920 m³ Timber Tank	1
	1
	-
Chlorinating equipment	1 – 2
Control system - alarms, telemetry	1 – 2
Building	1 – 2
Valves	
Magflometer and data logger	
E - Council Office	
Datran computer and telemetry system	3
New Abbey System to replace Datran as system need replacement	1

Daily Pumping (based on typical usage patterns)

PUMP SITES	AVERAGE DAILY OPERATION (HOURS)
Waiohine River – Featherston & Greytown	5 – 7 (seasonal)
Greytown Bore – Greytown	15- 20 (all year round)
Ruamahunga Wells – Martinborough	6 – 12 (seasonal)
Huangarua - Martinborough	Emergency Back up

Reservoir Storage Capacity

RESERVOIR NAME	STORAGE VOLUME (CUBIC METRES)	AVAILABLE SUPPLY AT PEAK USAGE
Featherston Urban		
Boar Bush Dam(emergency only)	82,000 gross	3 hours to 20 days, depending upon source
Holding tank	455	
Mixing tank	81	
Featherston/ Greytown Urban		0.5 days Featherston & Greytown at 3000m3/d
Timber tank	750	
Mixing tank	700	
Martinborough Urban		
No. 1 Tank	850	2 days based on full development and fire requirements
No. 2 Tank	850	
Timber Tank	920	
Timber Tank	920	

NB: Availability of supply at peak usage above, assumes no pumping/replenishment and is based on storage only

Funding continues to be set aside for targeted cyclical replacement to ensure reliable safe, cost effective, efficient, water supply infrastructure as per the water AMP.

The performance of the Greytown and Featherston water supply was increased with Capital Assistance Programme (CAP) funding obtained in 2011. The upgrade mitigated the risks of raw water turbidity from the river source, meeting the Drinking Water standards New Zealand (2008) by removing the risk of abstracting contaminated water, removing the risk of production of disinfection by-products, resolving the problem of limited supply storage and reducing operating costs. This work was completed in 2016 and has operated successfully but will require an extra bore to supply both towns during the peak summer season. This additional bore is planned to be installed in the 2018/19 year.

The rural water race systems provide an important service in supply of livestock drinking water and run-off control and management of stormwater. For those with alternative water sources or who do not farm their land intensively, costs for upkeep of the race systems can seem a burden. However, the best option for the community as a whole, is to keep the water races, and the water races continue to function within their consented conditions.

Council maintain a short section of the rural water races (Moroa and Longwood) below the intakes and through council properties. The water race road culverts are presently maintained and where necessary, replaced by the Council's roading group.

3. MANAGEMENT OF WATER SUPPLY

Since 2000 Council has been collecting new asset information via the GIS nominee (Council staff or contractor) in hard copy and video footage. Information regarding new assets is logged in the GIS and assigned a new asset ID. This information includes: type, size, length, installed by, material, address, condition, data modification date, date installed, verified with, x and y mapping coordinates, street name, town, and any additional information relative to the particular asset.

Once within the GIS the new asset is then transferred to the infrastructure asset register spreadsheet with the new ID, the asset information and financials from the works. This is the same process for renewals, information is updated and transferred to the infrastructure asset register spreadsheet. The spreadsheet is then able to provide information on financial life expectancy for assets. AssetFinda will provide better information to enable the infrastructure team to manage the three waters assets more effectively.

The NAMS (National Asset Management Steering group) Condition Rating Model is utilised for generating a maintenance programme.

4. WATER SUPPLY CAPITAL EXPENDITURE

The renewal programme for water main reticulation and facilities has been identified over the period 2018 to 2048 and more investigative work continues to increase the level of confidence in the long term renewals plan. Council's preliminary funding programme for reticulation renewal is $333,000 per year for the period 2018/19 to 2027/28.

Cyclical componentry renewal is presently undertaken with replacement of UV lamps annually.

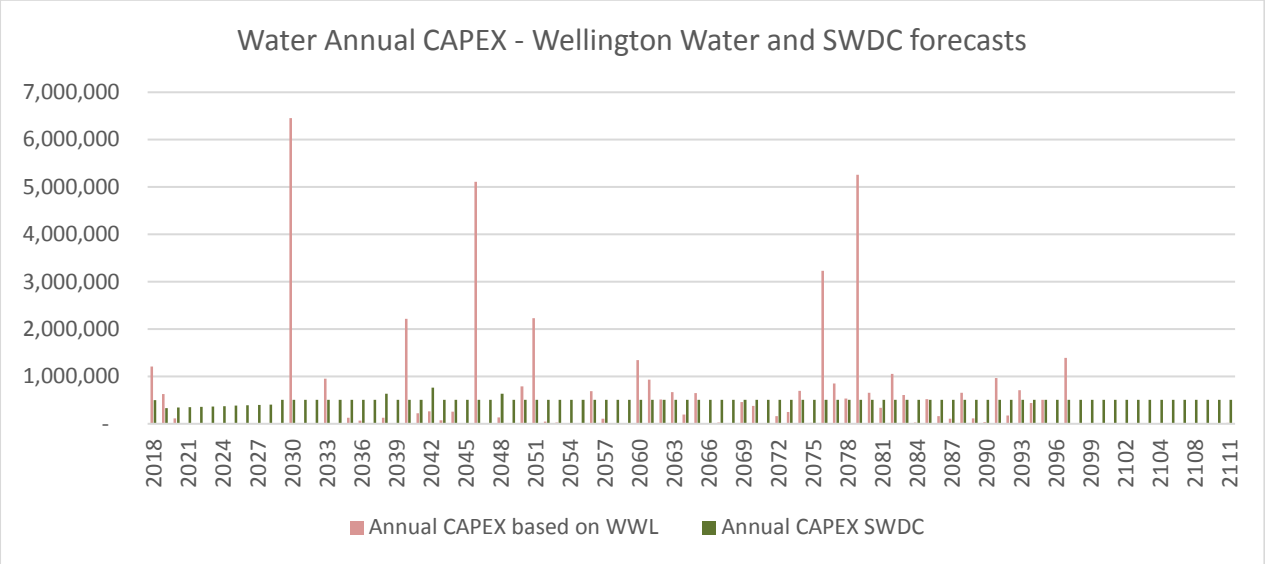
Elsewhere, electrical componentry is renewed as required either driven by repetitive fault and failure or pre warned end of useful life information.

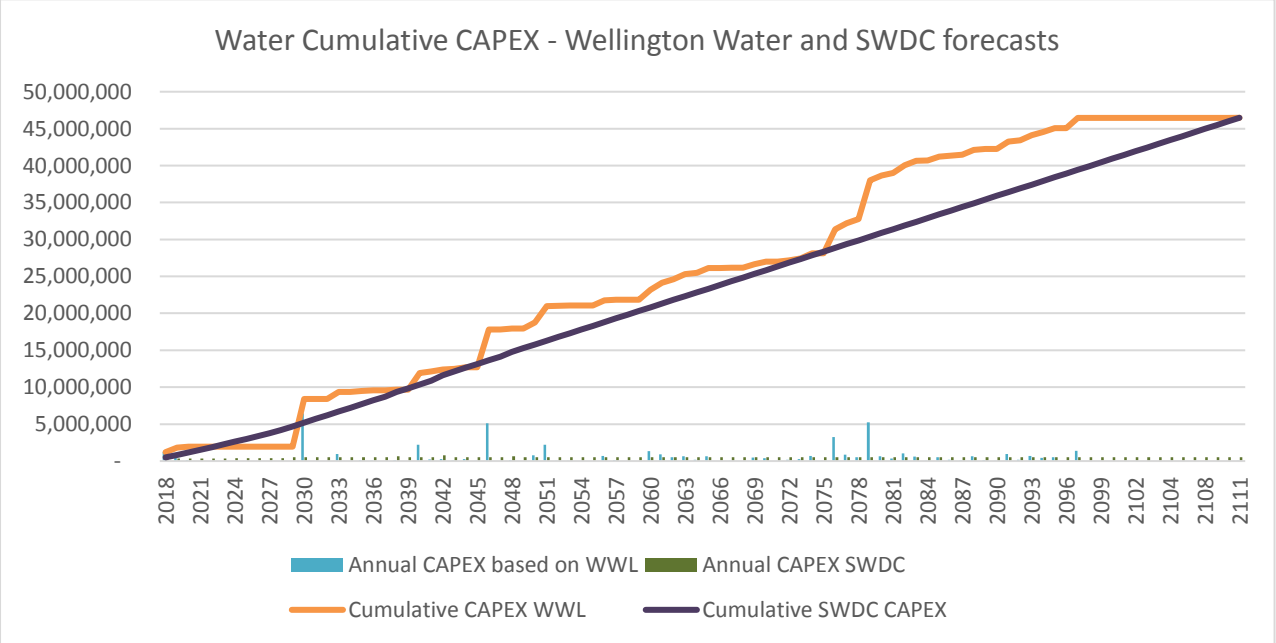
Council's water supply capital expenditure forecast is presented below. This graph is based on the

projected renewals from the Wellington Water (WWL) report.

The financial forecasts for years 11 to 30 are based on the Wellington Water predicted renewals programme spread evenly over the twenty year period so as not to create spikes in expenditure or rates.

The first graph compares the annual spend proposed by WWL to the SWDC approach of spreading the cost evenly over the period through to 2111. The second graph compares the cumulative spend based on WWL projections versus the SWDC cumulative spend over the period from 2018 to 2111.





5. RISKS

RISK	RATING	PROPOSED ACTION
Accuracy of Asset Condition leading to under investment	High	New asset management system implemented to provide quality to decisions.
Service failure through ageing assets	High	Continuous renewal programme focused on highest risk.
Health	High	UV plant in Greytown New bore for GTN/FTN
Poor Contract Management	Significant	On-going review of contractors KPI's
New legislation re drinking water standards	High	Increased investment in water treatment to reach required LOS.

6. LEVEL OF SERVICE

Below is a sample of the level of service key performance indicators for the water supply activity. A full list with future year targets can be found in the water supply activity section of the LTP document.

SERVICE LEVEL	KEY PERFORMACNE INDICATORS	RESULTS 2016/17	PERFORMANCE TARGET 2018/19	HOW IT WILL BE MEASURED
Potable water demand	The average consumption of drinking water per day per resident within the territorial authority.	605 Lt	<400 Lt	Council Records
The Council provides reliable and safe drinking water supplies	Compliance with resource consent conditions/water permit conditions to "mainly complying" or better	100 %	95%	Council Records
The water provided is safe to drink	Water supply systems comply with Ministry of Health Bacteriological Drinking Water Standards guidelines 2008*	MBA: No GTN: No FTN: No	95%	Council Records
	Water supply systems comply with Ministry of Health Protozoal Drinking Water Standards guidelines 2008	MBA: No GTN: No FTN: No	95%	Council Records
Customer satisfaction**	The total number of complaints received by the local authority about drinking water taste per 1000 connections	0	< 15	Council Records
	The total number of complaints received by the local authority about drinking water odour per 1000 connections	0.29	<15	Council Records
	Ratepayers and residents satisfied with level of service for water	59%	80%	NRB Survey
Fault response times where the local authority attends a call-out in response to a fault or unplanned interruption to its networked reticulation system, the following median response times measured	Attendance for urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site in < 1 hour	72%	75%	Council records
	Resolution of urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption in < 8 hours	89%	90%	Council Records
Maintenance of the reticulation network	The % of real water loss from the local authority's networked reticulation system identified by establishing and measuring night flow.	MBA: 31% GTN: 37% FTN: 48%	<20%	Council Records

7. OPTIONS

ISSUE	PRINCIPLE OPTIONS	COST $000	IMPACT, BENEFITS & DISADVANTAGES	TIMING
Compliance with drinking water standards	Increased storage and additional bore (GTN) (Preferred option)	$161k	Benefit: Compliance with NZ drinking water standards Disadvantage: cost to ratepayers in short term (but long term cost savings)	2018-2019
	Alternate – lower levels of service, accept risk of resource consent being breached	$0	Disadvantage: Levels of Service reduction and risk of public health issues and fines from regulator	
Compliance with Greater Wellington and other legislation	Implement work programmes to ensure rules can be measured and complied with. (Preferred Option)	Additional monitoring costs $15k pa	Benefit: Comply with new Regional Policy Disadvantage: cost to ratepayers in short term (but long term cost savings)	Annual
	Alternate – non-compliant water scheme	$0	Disadvantage: Non-compliant, fines from regulator, health risks to ratepayers	
Ageing Asset	Renewals and Rehabilitation Programme (Preferred option)	$333k pa	Benefit: Avoid Regulatory Infringements and additional maintenance costs due to deteriorating assets, reduce water loss from leaks Disadvantage: cost to ratepayers in short term (but long term cost savings)	Annual
	Alternate – reduce levels of service	$0	Disadvantage: More outages and dissatisfied ratepayers, water loss from leaks	Annual
Impact of growth in population	Based on ID projections we have assessed the need for extra capacity in each town. Current predictions do not indicate the need for increased capacity in the period of this strategy (Preferred Option)	$0	Benefits: Current capacity sufficient to handle population growth until 2048	Review annually
Impact of further economic development	Monitor water usage and assess land use applications that indicate high water demand that may impact capacity (Preferred Option)	Unknown (depends on type of development)	Benefits: Monitoring prior to development enables SWDC to control water connections	As needed

8. WATER SUPPLY FINANCIAL BUDGETS

Following is a summary of the financial budgets for both operating and capital expenditure on water systems for SWDC for the period of this infrastructure strategy.

YEAR	OPERATING $000	CAPITAL $000	TOTAL $000
2018/19	2,708	801	3,509
2019/20	2,791	468	3,259
2020/21	2,824	780	3,603
2021/22	2,861	534	3,394
2022/23	2,935	366	3,301
2023/24	2,961	374	3,335
2024/25	2,966	381	3,347
2025/26	3,092	389	3,481
2026/27	3,169	397	3,566
2027/28	3,137	405	3,542
2028-2033	16,438	2,515	18,953
2033-2038	17,227	2,644	19,871
2038-2043	18,468	2,778	21,246
2043-2048	20,240	2,649	22,889

WASTEWATER TREATMENT AND DISPOSAL

In the South Wairarapa district, there are four wastewater community systems with 4,086 properties connected. Lake Ferry was the first area to irrigate wastewater to land as council plans to move to 100% disposal of wastewater to land within 35 years.

Funding continues to be set aside for targeted cyclical replacement to ensure reliable, safe, cost effective, efficient, wastewater disposal as per the AMP which also outlines the risks.

The performance of Council's wastewater is continually reviewed. Levels of service and measures are outlined in the annual plan and form part of the annual review.

1. OVERVIEW

SWDC has four wastewater systems, servicing the Featherston, Greytown, Martinborough and Lake Ferry communities.

Council obtained 35 year consents to dispose of wastewater to land for Greytown and Martinborough during 2016. A further consent for Featherston is currently being applied for.

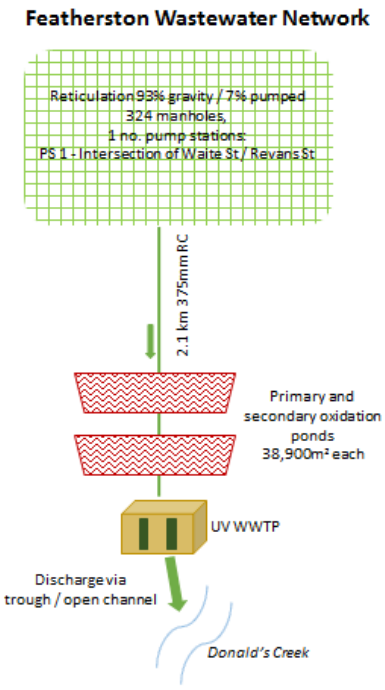
The first disposal of wastewater to land in Martinborough took place in November 2017. Work was completed in Greytown to dispose to land in May 2018. We continue to work with GWRC to obtain the resource consent for disposal to land for Featherston and hope to have this completed by the end of 2018.

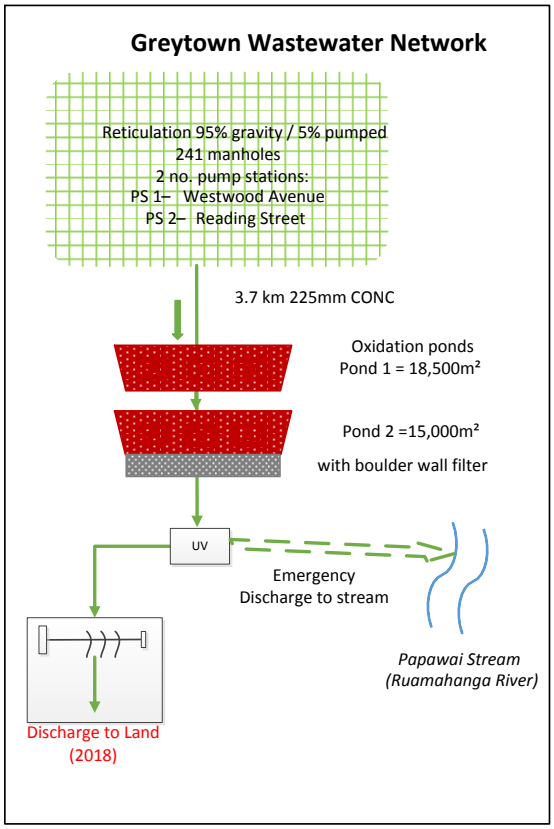
Maintenance and renewal work on Council's wastewater assets is covered by a contract with Citycare which commenced in 2012 for 5 years with an option to extend it 2 years. This contract was extended and now expires in October 2019.

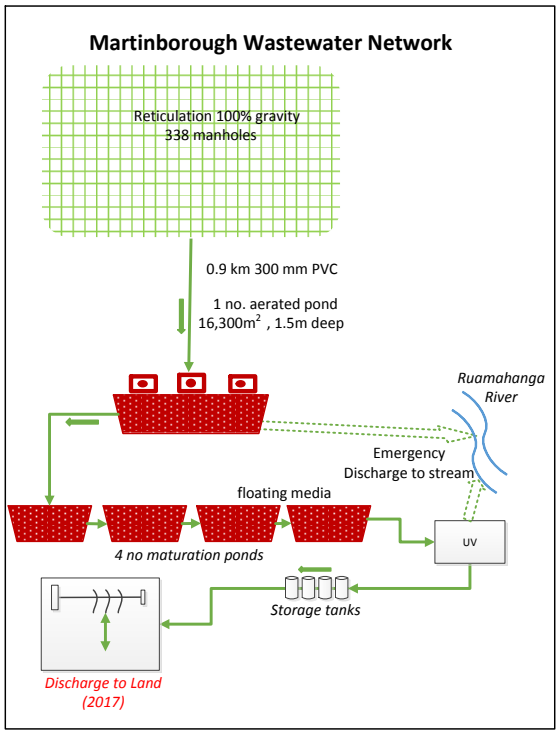
Sections of underground wastewater reticulation not considered to be satisfactory are confirmed through CCTV investigation. A number of areas within the reticulation system are overloaded due to stormwater infiltration. Ongoing investigation and identification of these sections will continue over the next 10 years as detailed in the 3 new wastewater consents.

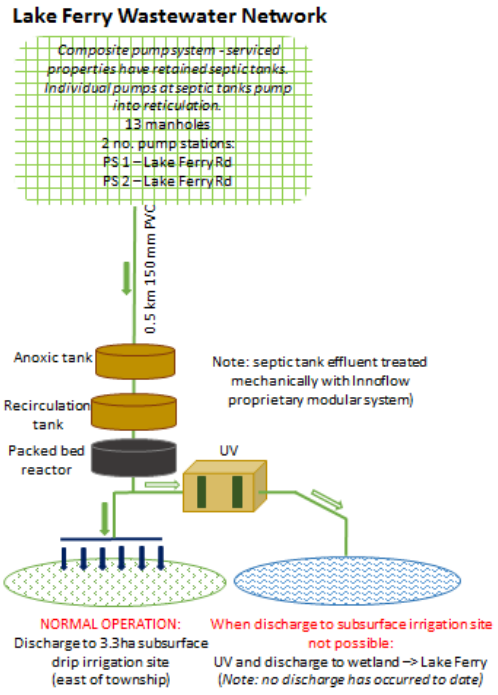
The progressive move to land disposal over time will allow for the increased flows in a worst case scenario however the reticulation renewals are planned to decrease these flows over time with work already complete on the identification of priority areas for replacement.

The figures below explain the current set up of each of the four wastewater networks.









2. FEATHERSTON URBAN WASTEWATER SCHEME

Is mainly a gravity reticulated system (93%) with minor pumping (7%). A pond based treatment facility with disposal into Donald's Creek is provided some 1.5km south of the township.

Current Condition

- There is one 375mm sewer from the reticulation system to the oxidation ponds.
- Approximately 90% of the reticulation is serviced by 150mm diameter sewers.
- A number of areas within the underground reticulation system are overloaded due to stormwater infiltration. The extent of this continues to be confirmed through investigation of current and new CCTV records. Excess flows at times are in the order of 4 to 5 times the estimated Average Daily Flow (ADF).
- There is little industrial activity in Featherston and limited commercial activity. Domestic sources generate the majority of the wastewater.
- Based on typical figures for the generation of wastewater it is estimated that 2,482m^3/day of wastewater is produced in terms of an ADF.

Below is a summary of the condition rating of the various components of the Featherston wastewater scheme:

DESCRIPTION	CONDITION RATING
Oxidation Ponds	2
Monitoring Manholes	2
Outlet Structure	1
Disposal trough	2
Pump Station	3
Pumps (New = Spare)	1,3
Telemetry & Control Systems	1

Note: 1 – Very Good 2 – Good 3 - Fair

3. GREYTOWN URBAN WASTEWATER SCHEME

The reticulation is a gravity system. At present 95% of the Greytown urban area is connected to the wastewater system. A small number of properties are still on septic tanks.

A pond based treatment facility is located at the end of Pah Road, 3.7km from Greytown.

The treated effluent discharges into the Papawai Stream and flows into the Ruamahanga River some 1,500 metres downstream of the effluent discharge point.

Current Condition

- Twin 225mm sewers convey wastewater from the reticulation joining into a single 225mm sewer just beyond the former Borough boundary from where it is conveyed 2.5km to the oxidation ponds. Council plans to upgrade the single sewer to accommodate the population growth due to new subdivisions.
- Approximately 56% of the reticulation system is serviced by 150mm diameter sewers.
- Some areas of the Greytown system accumulate gravel and debris within the sewers.
- There is limited commercial/industrial activity contributing to the sewerage system. This activity does not significantly add to the normal domestic load.
- Greytown ADF for 2016/17 was 685m^3/day.
- Some sections of reticulation within Greytown are not considered to be satisfactory as confirmed through CCTV investigation. On-going investigation and identification of these sections will continue over the term of this IS.

Below is a summary of the condition rating of the various components of the Greytown wastewater scheme:

DESCRIPTION	CONDITION RATING
Oxidation Ponds	2
Monitoring Manholes	1
Outlet Structure	2
Aeration System	1
Pump Station	1
Rock Baffles	1

(1 – Very Good 2 – Good 3 – Fair)

4. MARTINBOROUGH URBAN WASTEWATER SCHEME

Martinborough operates entirely as a gravity system.

Wastewater flows by gravity from individual connections through the sewer to a single anaerobic pond.

Following treatment in the maturation ponds effluent is discharged via an outlet structure into the Ruamahanga River.

Current Condition

- Twin 200mm sewers convey wastewater from the southern and western side of town joining into a single 200mm sewer along Weld Street. This pipe carries wastewater to the pond 750 metres away, located beside the Ruamahanga River.
- The majority of sewers are either 150mm or 200mm diameter asbestos cement (AC) pipes.
- There is little industrial activity in Martinborough and only limited commercial premises. Domestic sources generate the majority of the wastewater.
- Martinborough ADF for 2016/17 was 262m^3/day.
- Reticulation condition within Martinborough is considered to be adequate.

Below is a summary of the condition rating of the various components of the Martinborough wastewater scheme:

DESCRIPTION	CONDITION RATING
Oxidation Ponds	2
Monitoring Manholes	1
Outlet Structure	2
Disposal trough	2
Aerators	1
Telemetry & Control Systems	1
Irrigation pumps	1
Travelling irrigator	1

(1 – Very Good 2 – Good 3 – Fair)

5. LAKE FERRY-RURAL/COASTAL WASTEWATER

This small community system services properties at the Lake Ferry settlement and was commissioned in 2007.

Serviced properties retain on - site septic tank systems and the effluent from the septic tanks is either pumped or gravitated depending upon location

to local pump stations and then to a centralised treatment plant and disposal field east of the settlement.

Current Condition

- All serviced properties have an inspected and complying septic tank.
- Two pump stations lift the collected wastewater to a modular package treatment plant on elevated land behind the community.
- ADF is estimated to be 20 - 30 m³ increasing to 100m³ at peak loading periods over the Christmas holiday period.

6. MANAGEMENT

SWDC will be reducing inflow and infiltration into the wastewater systems, which puts a high load on the treatment plants and increases the environmental effects. This will be achieved through customer education and a review of policy. Funding continues to be set aside for the targeted cyclical replacement of wastewater infrastructure as per the Wastewater AMP.

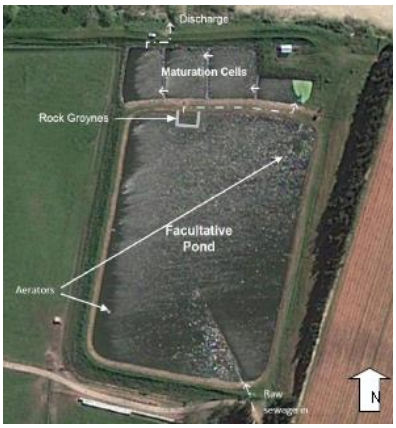
7. RENEWAL

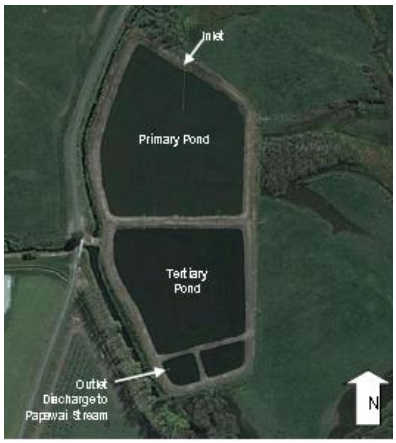
The wastewater consent renewals for Greytown, Featherston and Martinborough are council's largest single expenditure for this LTP which commenced with purchases of farmland in Greytown and Featherston totalling $7.4M in 2015.

Council's target of 100% disposal of wastewater to land has required a balance between economic and environment impacts of treatment and disposal. There is a commitment to making sure that our operation and consents are pragmatic; meet the needs of residents; and allow for adoption of more efficient and effective technology as this becomes available.

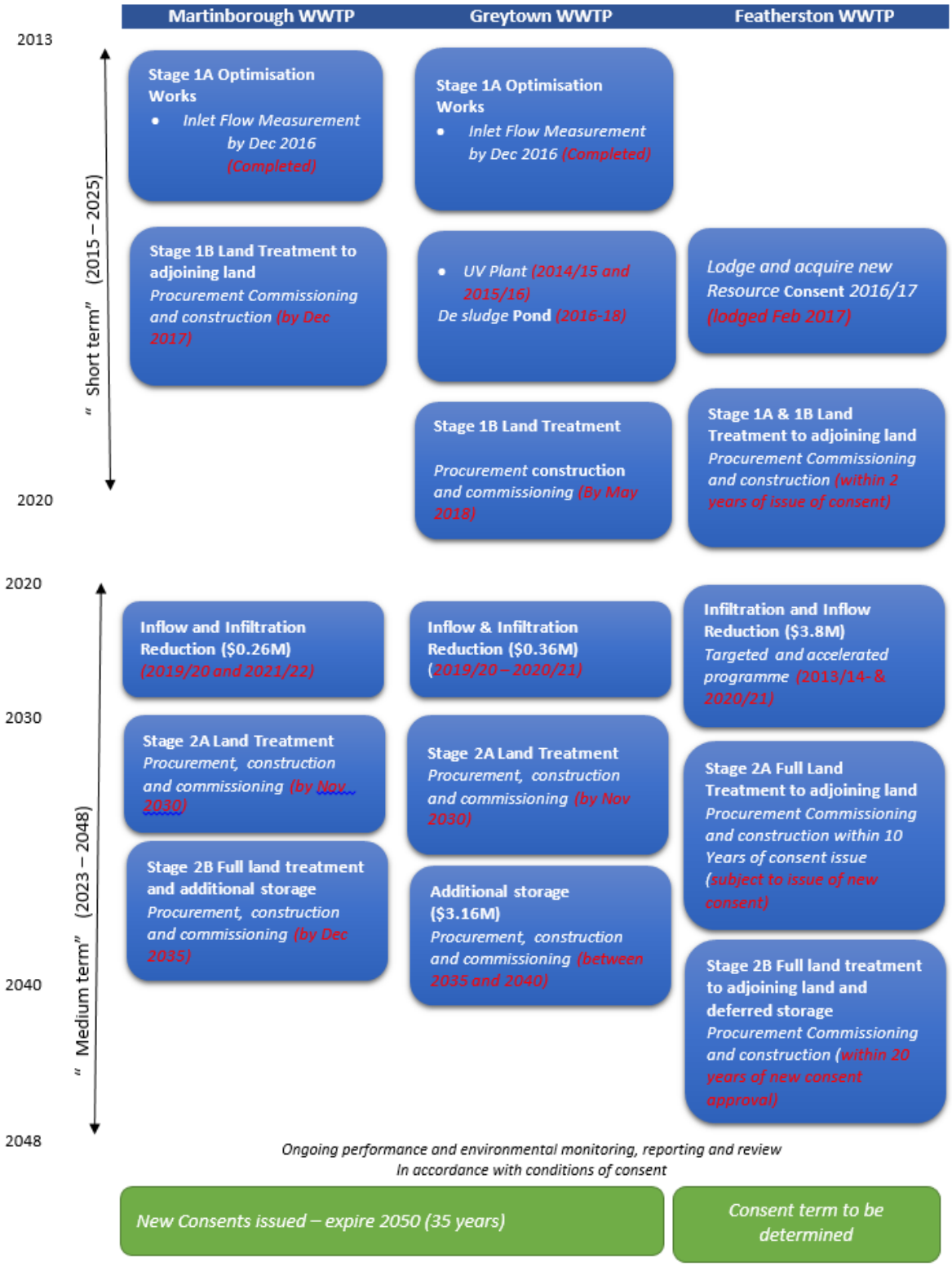
The strategic move to land disposal limits the burden of depreciation, manages the costs of obsolescence, produces a revenue stream and is an environmental improvement. The strategic staging of the projects ensure good cash-flow management and brings on line staged revenue in part before complete disposal to land.

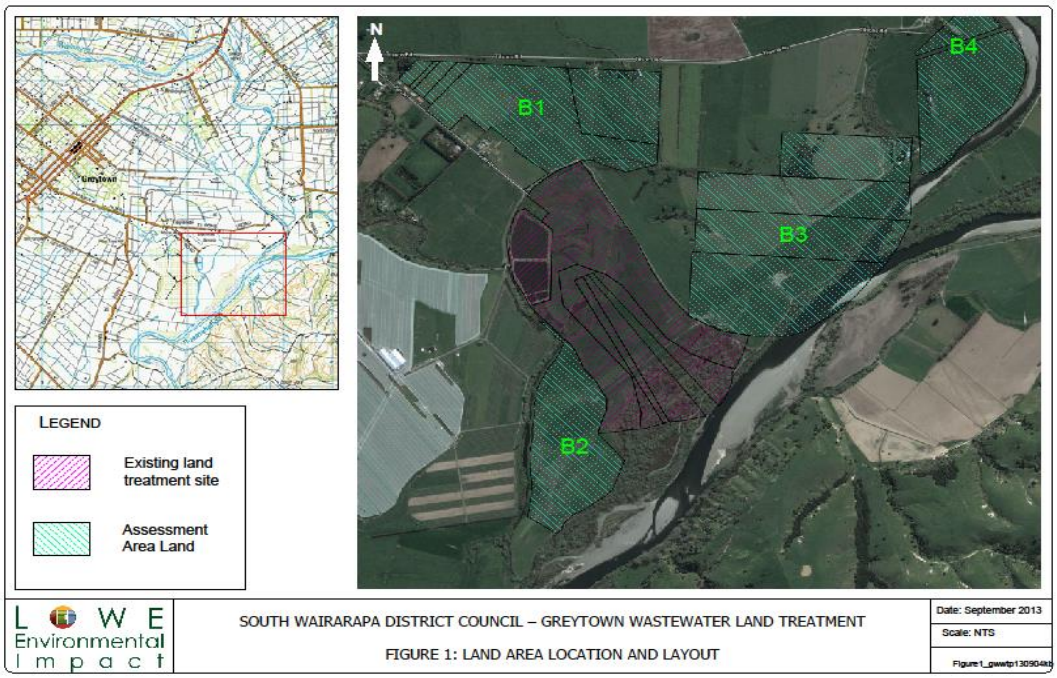
Below are aerial views of the oxidation ponds for Martinborough, Greytown and Featherston.





The diagrams below show the planned timing of the wastewater projects for Martinborough, Greytown and Featherston:





Greytown Irrigation Plan

The figure above shows the location of the Greytown wastewater to land treatment project.

8. CAPITAL EXPENDITURE

The following graphs show the indicative wastewater capital expenditure (CAPEX) from the Wellington Water report and the SWDC planned capital expenditure. Apart from the wastewater to land projects, the majority of the CAPEX is for underground reticulation renewals which SWDC plan to complete gradually over the period to avoid the large spikes in expenditure indicated by the WWL report. The second graph shows the cumulative spend which shows that SWDC forecasts will enable all predicted work to be completed by the end of the period covered by the WWL report using the approach of spreading the renewal costs more or less evenly over the period.

9. RISKS

RISK	RATING	PROPOSED ACTION
Service Failure through ageing assets	Medium	Appropriate renewal programmes
Poor contract management	Medium	On-going review of contractors KPI's
Redundant Infrastructure	Medium	Move to land disposal
Increase in compliance costs	Medium	Long term Consent application (35 Years)

10. LEVEL OF SERVICE

Below is a sample of the level of service key performance indicators for the wastewater activity. A full list with future year targets can be found in the wastewater activity section of the LTP document.

SERVICE LEVEL	KEY PERFORMANCE INDICATORS	RESULTS 2016/17	PERFORMANCE TARGET 2018/19	HOW IT WILL BE MEASURED
Council provides wastewater services that effectively collect and dispose of wastewater	Number of blockages per 1000 connections	11.55	<10	Council records
	Ratepayers and residents satisfaction with wastewater services	49%	70%	NRB survey 3 yearly
	Attendance time: from notification to arrival on site < 1 hour	68%	70%	Council Records
	Resolution time: from notification to resolution of fault < 4 hours	73%	75%	Council Records
Wastewater disposal does not create any smells, spill or health issues and causes minimal impact on the natural environment	% of resource consent conditions complied with to mainly complying or better*	96%	90%	Council records
	No. of abatement notices	0	<2	Council Records
	No. of infringement notices	0	0	Council Records
	No. of complaints per 1000 connections received about sewage odour	0.9 (4)	< 15	Council Records
	No. of complaints per 1000 connections received about sewage system faults	1.5 (7)	< 15	Council Records
	No. of complaints per 1000 connections received about sewage system blockages	12.62 (51)	< 15	Council Records
	No. of complaints per 1000 connections received about the response to issues with wastewater	0 (0)	< 15	Council Records
	Proportion of urgent wastewater service requests responded to within 6 hours of notification	84% (52/62)	95%	Council records

11. OPTIONS

LEVEL OF SERVICE ISSUES	PRINCIPAL OPTIONS	COST	IMPACT	TIMING
Compliance with Greater Wellington Regional Council and consent conditions	Implement appropriate technologies and programmes to achieve compliance. (Preferred Option)	$29 M over 35 years	Benefits: Achieve compliance, less negative impact on waterways, cleaner rivers, income from crops from irrigated land Disadvantage: Cost to ratepayers	35 years
	Alternate – lower levels of service, accept risk of breaching resource consent conditions	$0 Plus fines and fees	Disadvantage: Level of service reduced and consent breach costs incurred, negative impact on the environment	
Effect of wastewater on rivers	Alternate – Continue to discharge into rivers/streams	$0 Plus fines and fees	Disadvantage: Level of service reduced and consent breach costs incurred, negative impact on the environment	Annually
Ageing Assets	On-going renewal and rehabilitation plan (Preferred Option)	$ 307k	Benefits: Less Network failures, reduced cost over time due to fewer urgent repairs needed Disadvantage: cost to ratepayers in the short term but reduced costs long term	Annually
	Do nothing	$0	Disadvantage: Network failure, increased lifetime cost of assets	
Inflow and Infiltration	Reduce Inflow and Infiltration via renewal and Rehabilitation programme (Preferred Option)	$150K pa	Benefits: increased capacity Disadvantage: cost to ratepayers	Annually
	Do nothing	$0	Disadvantage: Incur additional process cost	
Impact of growth in population	Based on ID projections we have reviewed the need for extra capacity in each town. Current predictions indicate the need for increased capacity in Greytown in 2019 and 2029 and Martinborough in 2031 (Preferred Option)	$588K 2018/19 GTN $200K 2028/29 GTN $400K 2030/31 MBA	Benefits: increased capacity Disadvantage: cost to ratepayers but alternative not acceptable	2018/19, 2028/29 and 2030/31
Impact of further economic development	Manage using trade waste onsite treatment (Preferred Option)	$1K pa per site monitoring costs	Benefits: increased capacity not funded by other ratepayers Disadvantage: may be a disincentive to development but similar regimes exist in all other areas	As required

12. WASTEWATER FINANCIAL BUDGETS

Below is a summary of the financial budgets for both operating and capital expenditure on wastewater systems for SWDC for the period of this infrastructure strategy.

YEAR	OPERATING $000	CAPITAL $000	TOTAL $000
2018/19	2,131	2,274	4,405
2019/20	2,265	818	3,084
2020/21	2,218	838	3,056
2021/22	2,257	329	2,586
2022/23	2,294	337	2,631
2023/24	2,442	344	2,786
2024/25	2,466	351	2,817
2025/26	2,355	358	2,713
2026/27	2,387	365	2,752
2027/28	2,460	932	3,392
2028-2033	12,892	5,943	18,835
2033-2038	13,511	6,536	20,047
2038-2043	14,483	6,253	20,737
2043-2048	15,874	4,702	20,576

STORMWATER DRAINAGE

It is Council policy that all stormwater from buildings is disposed of onsite through soak pits. The low density of development and the soil type generally means there are few stormwater problems. The Council will maintain the status quo with no major decisions pending. We will continue to monitor the situation and service levels as part of the annual plan to ensure the approach is effective. Council will also respond to on-going or significant issues of water ponding on roads. Street cleaning works are included in the joint council roading contract to ensure an economy of scale and allow for efficiency in using mechanical sweeping to reduce build-up of debris in stormwater drains.

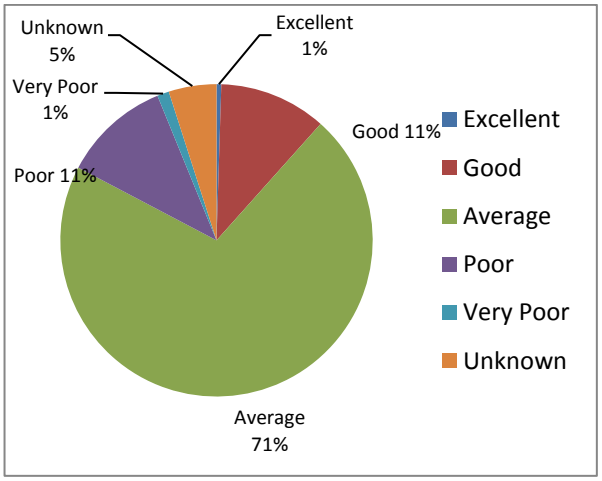
1. OVERVIEW

Below is a summary of the stormwater drainage assets owned by SWDC:

SURFACE WATER CHANNELS BY TYPE	LENGTH (M)
SWC (Shallow, <200 Below Seal Edge)	273,420
SWC (Deep, >200 Below Seal Edge)	343,722
Kerb & Channel (Concrete)	70,665
Mountable Kerb & Channel (Concrete)	8,964
Kerb Only (Concrete)	2,261
Dished Channel (Sealed)	2,296
Dished Channel (Concrete)	3,323
Dished Channel (Asphalt)	43
Slot Channel (Concrete)	372
Other Type	112
Total	**705,178**

ASSET COMPONENT	TOTAL	UNITS
Catchpit type 1	82	(ea)
Catchpit type 2	32	(ea)
Culvert	29,170	(m)
Debris catching grid	3	(ea)
Manhole/Drop chamber	150	(ea)
Side Culvert	314	(m)
Soak pit	23	(ea)
Subsoil drain	380	(m)
Sump	457	(m)
CULVERT PIPES (M)		
Up to 375 diameter	20,436	(m)
375 – 525 diameter	3,421	(m)
550 – 750 diameter	4,082	(m)
800 – 1200 diameter	2,442	(m)
1200 – 1500 diameter	544	(m)
1600 – 2100 diameter	130	(m)
> than 2100 diameter	198	(m)

2. CURRENT CONDITION



As shown in the figure above the RAMM data indicates 83% of culverts are of an average condition or better. Condition ratings are updated annually as part of the inspection process.

The kerb and channel on our roads are an important part of our stormwater system and are used as a conduit to allow water to flow through the townships to outfalls in creeks, rivers and drains. In times of heavy rainfall the use of 'bubble up pits' and connected pipes equalises the water height from one side of the road to the other, preventing individual properties from flooding.

3. MANAGEMENT

The capacity of the drain structure to cope with the catchment run-off is generally adequately designed and constructed relevant to the standards at the time of installation. However as standards for design or factors used in the original design change over time, and as the condition of the asset deteriorates, the assets ability to manage flows from the catchment can be compromised.

Typically such situations are often identified during storm events when flooding occurrences are investigated, and appropriate remedial or upgrade works are subsequently determined and scheduled for action on a priority basis to resolve the matter.

In addition to this however there are also regular routine inspections of drainage assets as part of the network management, maintenance and works programming tasks throughout the year.

4. RENEWAL

Minimal renewal is required and the functionality is retained through maintenance after periods of inundation. The overall capacity and performance of the drainage assets is assessed to be average to fair, based on the large proportion of culverts that are small diameter (300mm or less) and the average number of culverts per km of rural road, balanced by the low level of customer complaints and/or service requests recorded for drainage issues despite some significant storm events having occurred in recent years.

5. RISKS

RISK	RATING	PROPOSED ACTION
Consenting Stormwater	Medium	Currently submitting for Proposed Natural Resource Plan for continued permitted discharge
Discharge	Medium	Acquire exemptions

OPTIONSISSUE	OPTIONS	COST $OOO	IMPACT, BENEFITS & DISADVANTAGES	TIMING
Limited existing stormwater network	Build a stormwater network and pipe water	Capital expenditure $2.5 M minimum Monitoring costs $250k pa	Benefit: would cater for increased flooding if this occurs, compliance with Natural Resources Plan (NRP) Disadvantage: cost to ratepayers to install and maintain	
	Status Quo (Preferred Option)	As per NZTA Funding	Benefit: no additional cost to ratepayers Disadvantage: non-compliance with NRP	

6. STORMWATER FINANCIAL BUDGETS

Below is a summary of the financial budgets for both operating and capital expenditure on stormwater systems for SWDC for the period of this infrastructure strategy.

YEAR	OPERATING $000	CAPITAL $000	TOTAL $000
2018/19	250	55	305
2019/20	256	56	312
2020/21	262	58	319
2021/22	280	59	339
2022/23	285	60	346
2023/24	292	61	354
2024/25	291	63	354
2025/26	298	64	362
2026/27	305	65	370
2027/28	306	67	372
2028-2033	1,601	349	1,950
2033-2038	1,678	366	2,043
2038-2043	1,799	392	2,190
2043-2048	1,971	430	2,401

LAND TRANSPORT

Roading is a vital element to enable social and economic development. With 401km sealed and 268km unsealed roading and limited funds, consideration needs to be given to sustainability of maintaining roads over the long term. Council will continue to focus on applying to attract maximum NZTA subsidies in the areas of drainage, bridging, road safety and maintenance.

Land transport has the highest projected capital spend of all the activities Council undertakes. The robust processes around the development of projects and the whole of life costs involved in attracting funding ensures that expenditure balances sustainability and affordability.

The greater reliance on "Better Business Case" development for NZTA funding ensures SWDC is looking at the whole of life implications for maintenance, renewal and capital expenditure. The auditing by NZTA on expenditure, quality and standards as well as reviews of the Land Transport AMP ensures an independent third party review of Council's largest asset spend.

NZTA has removed the seal extension subsidy indefinitely on all road classes, including Special Purpose Roads. Future changes to the Funding Assistance Rates (FAR) and NZTA's proposed removal of funding for part of the SPR is outlined in Land Transport AMP.

1. OVERVIEW

South Wairarapa District has 401 km of sealed roads and 268 km of unsealed roads. In addition there are 57.9 km of footpaths across the 3 main towns. Footpaths are constructed predominately in concrete and when in need of repairs are overlaid with asphalt. Council's strategic approach is to have a footpath on one side of the street emanating concentrically from the town centre. New paths are constructed in line with the strategic approach to lead to the town centre but also to link community infrastructure such as pools or medical centres. The renewal of footpaths takes priority over the construction of new paths as there is greater risk in the use of a path with an existing hazard to that of a path not constructed. Paths can be renewed (repaired) in single points through replacing the affected slab or in longer sections by overlaying a length.

Council understands the need to improve pedestrian and cycle access across the district as walking and cycling is beneficial for individuals, easy on our environment and is supported by Council. We have seen the success of the first stages of the Greytown rail trail in attracting and fostering cycling, and to a lesser extent walking. As means of transport, walking and cycling also helps the wider promotion and development of the district.

A strategy has been drafted will be incorporated over the 2018/2028 LTP period into the regional trails framework. This strategy is intended to guide the people and Council as they make walking and cycling an integral part of their daily lives and the Wairarapa becomes a more pedestrian and cycle friendly district. The framework is intended to help guide other organisations in their efforts to improve conditions for walking and cycling for transport and recreation. This has currently been developed in association with private and public groups. Local trails are important for everyday health, wellbeing, connectivity and amenity.

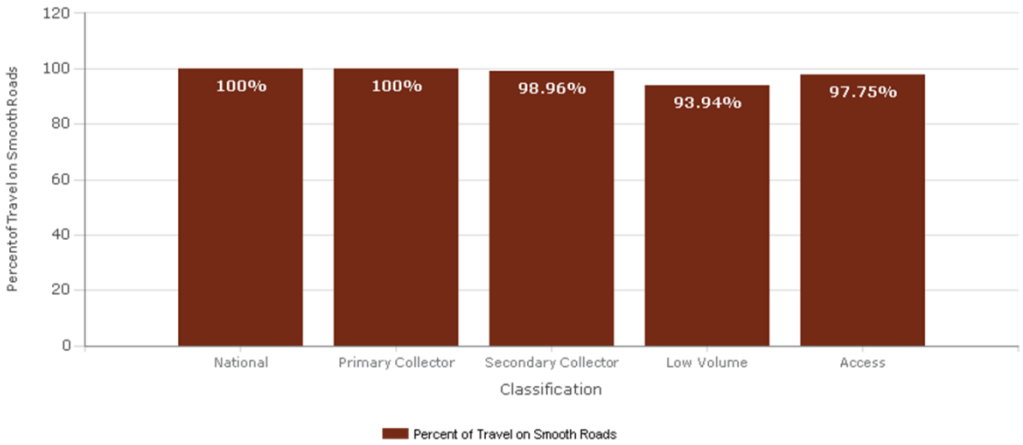
2. CURRENT CONDITION

At present the roading network is generally in good condition. The RAMM database provides up to date knowledge about the roading network. Information held in RAMM includes maintenance costs, roughness and suggested treatment selection locations. These help determine the optimum maintenance intervention levels, defective locations, and rectification costs.

We are currently working on improving our knowledge of the 138 bridge assets taking into account the new weight and dimension limits for heavy vehicles introduced in December 2017.

NZTA have introduced the One Network Road Classification (ONRC) system, which involves categorising roads based on the functions they perform as part of an integrated national network. The classification is designed to help local government and the NZTA to plan, invest in, maintain and operate the road network in a more strategic, consistent and affordable way throughout the country. This will be achieved through improved investment prioritisation across the country.

There are a number of requirements that are being incorporated into or internal LOS targets and monitoring for the ONRC.



Graph of Smooth Travel Exposure Rural & Urban Roads South Wairarapa District Council Network

The graph above indicates the percentage of travel on smooth roads in our district. This shows SWDC is achieving its target for Smooth Travel Exposure (STE) of 95 % in all but one category of roads being low volume roads.

3. MANAGEMENT

The current RAMM data has sufficient information to complete asset valuation, for 'minimum' plus replacement cost and asset age /life. The new asset hierarchy for ONRC has been developed and approved via NZTA and asset identification and asset attribute systems documented. A condition assessment programme is in place for major asset types, prioritised based on asset risk and the data supports asset life assessment. Within the AMP data management standards and processes are documented and a programme for data improvement has been developed.

Through a number of sources and organisations SWDC roading staff and advisers keep abreast of new technology and techniques for reducing lifecycle costs of roads e.g. polymer stabilisers for unsealed roads to reduce maintenance costs. The Forward Work Programme (FWP) is an integral part of the Lifecycle Management Plan setting out the planned physical works required to maintain the assets and therefore meet the specified Levels of Service (LOS) for each category of road. SWDC is currently aligning the work programme to the Levels of Service specified for each category of road under the ONRC. It is Council's intention to fully implement this over the 2018/19 year.

Council utilises a number of the RAMM tools including the Asset Valuation Module, Treatment Selection Algorithm, and RAMM Contractor for managing maintenance contracts.

The roading network physical condition data is contained within the RAMM database. This information is continually updated as roads are maintained, resealed or rehabilitated, vested to Council, structures built and new traffic signs installed.

4. RENEWAL

Council operates a programme of work that provides the best value for ratepayers and NZTA, obtaining the longest possible life from our roading assets without compromising safety and smooth travel experiences for drivers. The overall objective of the Lifecycle Management Plan is to maintain the assets to ensure that the current management strategies do not consume the assets, leading to an unexpected increase in maintenance or renewal expenditure in the future. The relative cost of road maintenance versus renewal for both sealed and unsealed roads needs to be weighed up as part of the budget prioritisation process.

Footpath maintenance and renewals also need careful management and are an area our ratepayers often give us feedback about. Careful management of the maintenance budget versus renewals and extensions of footpaths in the district are a key part of the budget process. Council's goal is to have a footpath on at least one side of every

urban street. We put funds aside each year to work towards this goal.

New LED lighting was installed recently across the 754 urban street lights to take advantage of a one off subsidy from NZTA. LED bulbs have longer lives and lower ongoing maintenance costs. These were installed at a lower lumin to meet the requirements for the dark sky reserve but still meet NZTA criteria for safety on roads and footpaths.

5. Risks

RISK	RATING	PROPOSED ACTION
Crashes where road condition is a contributing factor	Medium	Monitor crashes Maintain known crash sites
Financial Impact of NZTA managing Special Purpose road with lower subsidy	Medium	Advocate for funding with NZTA, if not successful, use the rural roading reserve to cover the reduction in funding Greater preventative works
Changes to ONRC	Low	Adjust to ONRC Standards
Roads being cut off due to storm events	Medium	Good communication with contractors to ensure roads are cleared as quickly as possible after an event
Waihenga Bridge closing due to flooding, (Key access route to Martinborough). This bridge is controlled by NZTA as it is on a State highway.	Medium	Continue to lobby NZTA for an improved solution
Damage to coastal roads due to climate change	Medium	Continue to monitor closely and put in flood protection where possible
Key assumptions for LTP are incorrect	Medium	Continue to monitor actual versus budget costs closely. NZTA review ensures consistency with other local authorities and a reasonableness check over land transport plans, considerably reducing the risk in this area.

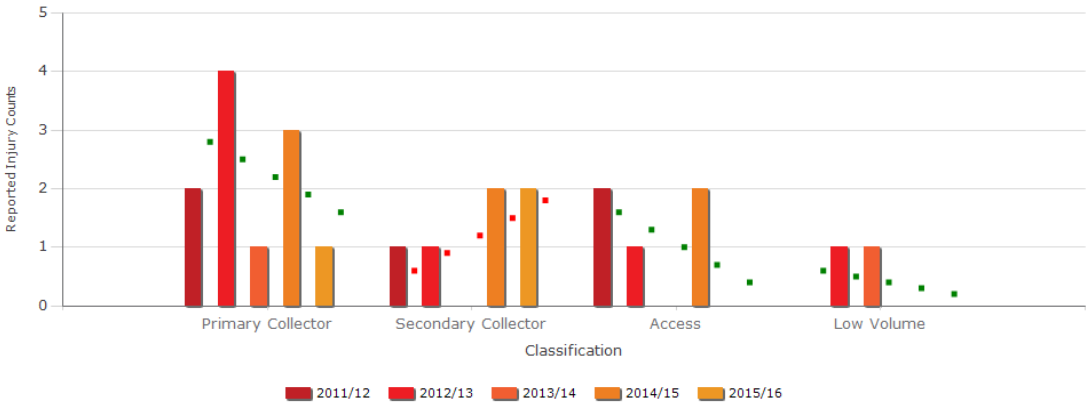
The Crash Analysis Risk Matrix from NZTA's Crash Analysis System (CAS) identified two areas of concern in the most recent report covering both local roads and the State Highways. These were speed and young drivers.

The table below shows the number and type of crashes that have occurred on the SWDC network over the 10 year period 2006-2017. Over 50% of fatal and serious injury crashes occurring on the SWDC rural roading network take place where there have not been other fatal or serious crashes within a 250m radius within the last 5 years. This makes reduction in crashes difficult to achieve by targeting individual crash sites and therefore a programme addressing routes is more effective.

Safety Customer Outcome 1 - Serious Injuries and Fatalities

Financial Year: 2017/18
RCA: South Wairarapa

The total number of reported serious injuries and fatalities (DSI) each year on the network



Crashes were grouped by road to identify which roads had the highest number of crashes. It is well known that on rural roads a large number of crashes go unreported. It is therefore expected that sites identified through CAS are also likely to have unreported crashes and therefore using the CAS data to identify the routes to be treated is considered the best approach.

Evident in the CAS output is the large proportion of crashes that occur on bends, 64% of fatal and serious crashes and 58% of all injury crashes.

Our percentage of high severity crashes occurring in the dark is below the national average figures in the NZTA High Risk Rural Road Guide and at the national average for wet.

The proposed removal of NZTA funding for the SPR (Cape Palliser Road) poses a financial risk due to the instability of the road. The proposal from NZTA is to move from 100% funding of the SPR to the 52% FAR is set to occur gradually from the 2018/19 financial year to 2023/24. Council is working with NZTA regarding this proposed change of funding.

Financial risk is also possible due to changes to the Funding Assistance Rates (FAR) along with additional work resulting from the ONRC implementation.

Other risks to our roading network are that parts of our community can get cut off as a result of storm events/heavy rainfall. The Waihenga Bridge can be shut during one of these events which makes access to Martinborough more difficult. There are alternative routes but they are much longer. This bridge is on a state highway and therefore controlled by NZTA.

Climate change presents a particular risk to our coastal roads due to potential erosion. We monitor these routes regularly and put in retaining walls and other storm protection as required.

6. LEVELS OF SERVICE

Below is a sample of the level of service key performance indicators for Land Transport. A full list with future year targets can be found in the Land Transport activity section of the LTP document.

SERVICE LEVEL	KEY PERFORMANCE INDICATORS	PERFORMANCE TARGET 2018/19	PERFORMANCE TARGET 2019/20	HOW IT WILL BE MEASURED
The roads are maintained to ensure that they are safe and comfortable to travel on	Using the RAMM measurement system, average smooth travel exposure on urban roads to be 85% and rural roads 95% with maximum variation of 5%	95%	95%	Council records
	Ratepayers and residents fairly/very satisfied with the roads	85%	85%	NRB Survey 3 yearly
Footpaths can be safely used to get around town	Ratepayers and residents are satisfied with footpaths in the district	75%	75%	NRB Survey 3 yearly
	Footpath Condition rating 95% compliant with SWDC AMP Standard	95%	95%	Council Records
	The % of customer service requests relating to roads and footpaths responded to within 48 hours	95%	95%	Council Records

7. PREFERRED OPTIONS

LEVEL OF SERVICE ISSUE	PREFERRED OPTIONS	COST $000	IMPACT/BENEFITS/DISADVANTAGES	TIME
ONRC changing standards	Improving the Classification of roads with regard to ONRC	Increased unsubsidised Roads costs	Initial classification complete and being moderated by NZTA. Benefits: Comply with national standards	2019 Onwards
ONRC changing standards	Understanding implications of the ONRC on the District Plan	$0	Work to be completed to update terminology in District Plan to ONRC terminology alongside neighbouring councils Benefits: Comply with national standards	2018-2019
ONRC changing standards	Identifying gaps in performance (measures) or network outcomes between current practice and the ONRC and getting Council agreement to remedy any gaps	Unknown	Programme to be established in conjunction with elected members Benefits: Comply with national standards	2019-2021
NZTA Monitoring requirements for ONRC	Designing and implementing performance monitoring programmes	$0	Better use of existing systems Benefits: Comply with national standards	2019-2021
ONRC Measures	Implementing the measures and building them into service contracts	$0	Service contracts due for renewal 2019/20 financial year Benefits: Comply with national standards, hopefully better conditions in new contracts	2019-2020
NZTA National LTP 2018-2028	Planning investment (and dis-investment) programmes to address gaps in time for the development of the 2018/28 NLTP	$15k	Programme to be established in conjunction with NZTA and elected members. Benefits: Alliance between SWDC and NZTA planning	June 2018
ONRC changing standards	Aligning levels of service with ONRC through negotiation between the Council and NZTA	$10k	Programme to be established in conjunction with NZTA and Calibre consultants Benefits: Comply with national standards	2018-2019
Seal Extensions	Seal Extensions – Fully funded by SWDC	$125k	Benefits: Removal of dust nuisance, creation of alternative routes and protection of sensitive crops and increased usage Disadvantages: Fully funded by SWDC, Increases future maintenance costs	Annually
Footpath extensions	Footpath extensions– Fully funded by SWDC	Maximum $95k	Benefits: Increased amenity of urban areas, maintain safety of pedestrians Disadvantages: Fully funded by SWDC, ongoing maintenance costs of additional foothpaths	Annually

There are no growth issues identified for Land Transport as current roading and footpath assets are considered sufficient to cover future needs. Any new roading and footpaths as a result of new subdivisions will be funded by developers.

Similarly there are no projected impacts on roading as a result of expected economic development over the period of this strategy.

8. LAND TRANSPORT FINANCIAL BUDGETS

Below is a summary of the financial budgets for both operating and capital expenditure on land transport for SWDC for the period of this infrastructure strategy. These figures are gross (before deducting the NZTA subsidy).

YEAR	OPERATING $000	CAPITAL $000	TOTAL $000
2018/19	5,784	6,575	12,359
2019/20	5,896	1,977	7,873
2020/21	5,989	1,999	7,988
2021/22	5,939	2,216	8,156
2022/23	6,028	2,311	8,339
2023/24	6,115	2,415	8,530
2024/25	6,296	2,511	8,807
2025/26	6,387	2,567	8,954
2026/27	6,489	2,626	9,115
2027/28	6,698	2,686	9,384
2028-2033	35,364	14,077	49,441
2033-2038	37,344	14,753	52,097
2038-2043	40,481	15,815	56,296
2043-2048	45,015	17,333	62,348

INFRASTRUCTURE STRATEGY - SOUTH WAIRARAPA DISTRICT IN 2048

Looking ahead to 2048, sustainable practices, adapting to the changing environment, and societal needs will still be the focus.

From where we are now it is envisaged:

a) More people will be walking and cycling in the future, both for exercise as part of a healthy lifestyle and as an inexpensive and convenient form of transport. The popularity of the district's walkways and cycleways is likely to continue and could be supplemented by further facilities in available space.

b) The vast nature of our district however and lack of public transport choices means that the motor vehicle will still be the predominant method of transport in our communities for the foreseeable future.

c) There is likely to be an increase in the use of electric motor vehicles (EVs) and therefore a requirement for more EV charging points in the district.

The district will be more environmentally and economically sustainable and economical having:

- Developed eco-friendly ways to use water and dispose of wastewater as per our long term consents, including producing crops from the wastewater.
- Water sensitive urban design.
- Better stormwater management practices.

Climate change will impact the environment globally and locally. Changes in wind and weather patterns, sea level rises, increased flood risk and frequency of extreme weather events are predicted. Climate change is not expected to create new hazards but may change the frequency and intensity of existing hazards. Council is responsible for a range of functions that may be affected by climate change. These include resource management, land use planning, civil defence and the provision of infrastructure such as stormwater drainage, water supply and roads.

The population will have increased by over 22% from 10,406 in 2018 to 12,733 in 2043. Council facilities will be used by a larger number of people.

INFRASTRUCTURE STRATEGY - OTHER LINKED DOCUMENTS

This strategy is a key component of the Council planning process, linking with the following Council plans and documents:

- SWDC Long Term Plan
- SWDC Annual Plans
- SWDC Policies
- SWDC Finance Strategy
- Significance and Engagement Policy
- AMPs for Council infrastructure
- SWDC Bylaws
- Combined Wairarapa District Plan

There are linkages to other local and national planning documents as follows:

- Government Policy Statement on Land Transport Funding
- National Policy Statement on freshwater
- NZTA manuals and procedures
- National Land Transport Plan
- Regional Land Transport Strategy
- Regional Land Transport Programme
- Regional Road Safety Plan
- Wairarapa Life Lines Study
- Regional Walking Plan
- Regional Cycling Plan
- Regional Plans (Freshwater, Discharges, Coastal, Policy)
- Regional Freshwater Plan, GWRC
- National Resources Plan, GWRC
- Ministry for the Environment wastewater guidelines
- National Policy statement for Freshwater management 2014
- Other affected party protocols and policy documents e.g. Fish and Game

INFRASTRUCTURE STRATEGY - SUPPORTING ASSUMPTIONS

Population

- With population growth projections showing continued growth in our region, we will plan for and build major asset renewals or new infrastructure with some redundant capacity for future growth. The population is likely to grow from 10,000 to 12,000.
- The median age is currently 45.2 and will rise to approximately 49 by 2043. The previous predicted median age was 50.

Finance

In the AMP's:

- Asset information will continue to be acquired to complete a full understanding of the community reticulation networks condition.
- The external regulatory environment is likely to require further investment by SWDC over the next five to ten years, particularly regarding drinking water as a result of the Havelock North water enquiry.
- Council and its community will maintain a similar level of expectation in relation to service levels.
- Where data is not available the knowledge of the practitioners directly providing this activity, both on a day-to-day basis and historically, has been relied upon. These practitioners include Council's staff, consultants, and staff of the various physical works contractors.
- There will be an on-going requirement/demand for the provision of these activities.
- Renewal and capital costs are preliminary cost estimates not final costs and will be further researched and refined on a project by project basis as part of development.

In the financial forecasts:

- NZTA will continue to provide subsidised funding to Council for the roading network apart from the SPR where NZTA are proposing reducing funding gradually from 100% in 2017/18 to 52% by 2023/24. Council is working with NZTA regarding this proposed decrease in the subsidy and its impact on SWDC.
- Council will continue to fund the current levels of service.
- The Total Useful Life and Residual Useful Lives of the assets in relation to the asset valuation are deemed equal.
- The asset data provided is reliable and fit for the purpose of developing the long term financial forecasts.

Service Levels

- This strategy assumes that all Levels of Service targets will be unchanged in the future apart from in the area of drinking water standards where we expect there will be further regulation as a result of the Havelock North enquiry.
- Where Level of Service capital expenditure is proposed (largely in the water and wastewater activities), this is to meet mandatory Levels of Service. Planned capital expenditure will result in a positive effect on the environment.
- Where there are land use changes in the District Plan, some areas may be entitled to an altered Level of Service. It is assumed that there will be no impact from land use changes in the District Plan in terms of ability to meet these Level of Service changes.
- All Levels of Service are tabled in the Annual Plan and Long Term Plan.

Ownership

Council currently owns and operates the infrastructure assets outlined in this strategy. Although most of the field works are undertaken by private contractors, the overall responsibility for service delivery rests with Council. This strategy assumes that the current ownership/ operating model in use by Council will continue through the next 30 years.

Demand

- Overall demand will increase due to predicted population growth. Evaluation of change will take place on an as required/provided basis resulting in progressive development.

- The age demographic change will result in greater demand in levels of service in one area with a corresponding decrease in another.

Statutory Change

SWDC will meet all current and new statutory obligations, assuming cost of compliance will be in line with current operational and projected budgets.

Life Cycle

All assets will be utilised for their full lifecycle and maintained in perpetuity.

Design

All design will meet current industry standards and adhere to best practice.

Obsolescence/Disposal

- No components of the district's assets are obsolete or will be in the term of the strategy.
- Under this strategy there is no requirement for material decommissioning of assets.
- Any forced obsolescence through consenting requirements and community expectations will be accounted for through the consenting processes.

Natural Disasters

- Commentators say "There will be an increased frequency and severity of storm events and or flooding due to climate change."
- Sea levels will rise.
- No funds have been attributed to this activity and will be funded from reserves, insurance, grants and loans if it occurs.
- Earthquake strengthening will be completed.
- Flood protection and control works are the responsibility of Greater wellington Regional Council.

Technology

- Current engineering will remain unchanged and lower cost options will continue to be made available.

Asset data and information

SWDC will:

- Have a single repository for collection of asset data for each area of activity.
- Have a full process for tracking maintenance costs.
- Accurately collect, validate and record data via staff and contractors.
- Complete asset condition assessment and performance monitoring.
- Allow for complete asset capacity and utilisation assessment.
- Update and refine the required renewal expenditure based upon the improved data as it becomes available.

Due to the following we are reasonably certain of the assumptions used in the collation of this report and those feeding into it:

- Steady predicted population growth over the period.
- Long-term infrastructure investment to be maintained in perpetuity.
- No asset replacement bubbles.

Below is a summary of the level of uncertainty or risk around each of the assumptions and the potential impact from them.

Infrastructure Strategy Assumptions	Level of Risk	Potential Impact
Population	Low	Low
Finance	Low	Medium
Service Levels	Low	Low
Ownership	Low	Low
Demand	Medium	Medium
Statutory Change	Medium	High
Life Cycle	Low	Low
Design	Low	Low
Obsolescence/Disposal	Low	Low
Natural Disasters	Medium	Medium
Technology	Low	Low
Asset data and information	Low	Low