



Infrastructure Strategy 2015–2045



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PROLOGUE

Recent changes to the Local Government Act require local authorities to prepare and adopt a 30-year infrastructure strategy as part of its Long Term Plan.

Long term planning for infrastructure is not new to the Tararua District Council; we prepared comprehensive asset management plans for each of our asset groups¹ in 2011/12. These asset management plans were foundation documents for the Council 2012-2022 Long Term Plan. Much of the information and assumptions contained within these asset management plans is still valid today.

This strategy brings together, into one document, key outputs from the Transportation, Water, Wastewater and Stormwater Asset Management Plans. It has been prepared under Section 101B of the Local Government Act and it provides the Council and community with an integrated picture of the key infrastructure service issues they are likely to face over the next thirty years.

The resulting strategy addresses:

- the main options for dealing with those issues;
- the scenario Council considers is the most likely for dealing with these issues; and
- the indicative estimates and timing of the cost of managing infrastructure assets under this scenario.

This is the first infrastructure strategy prepared by Tararua District Council. Coupled with sound asset management plans, Council sees this 30-year strategy as a demonstration of sound stewardship of the Council-Community owned assets and future finances.

In the future Council intends to bring the infrastructure and financial strategies together into one.

¹ Transportation (roading and footpaths), water, wastewater, stormwater, community facilities (parks, reserves, and buildings) and solid waste.

INTRODUCTION

The provision and management of infrastructure is a core function of Council, accounting for the largest portion of its annual operating and capital expenditure. Infrastructure provided by the Council protects public health by providing clean drinking water and treating and disposing of wastewater appropriately. It enables goods and people to move around the district, contributing to the economy and facilitating social interaction. It ensures that homes and businesses are protected from the effects of flooding, and it is at the heart of the recovery following a natural disaster.

Planning and delivering infrastructure is a balance between providing for growth in demand and the levels of service the community desires, and affordability for ratepayers. Infrastructural assets have long lives that extend well beyond the 30 years of this strategy, and once in place, these assets incur operating, maintenance and renewal costs that communities are committed to fund for many years to come. Planning for future infrastructure needs to be considered with a long-term view in mind.

Planning brings with it uncertainty. Assumptions are made about demand and the service standards future generations will want and are willing to pay. The regulatory environment is also changing and Council needs to build and replace assets with assets that will deliver on increasing health, safety, and environmental standards in the future.

The purpose of the infrastructure strategy is to:

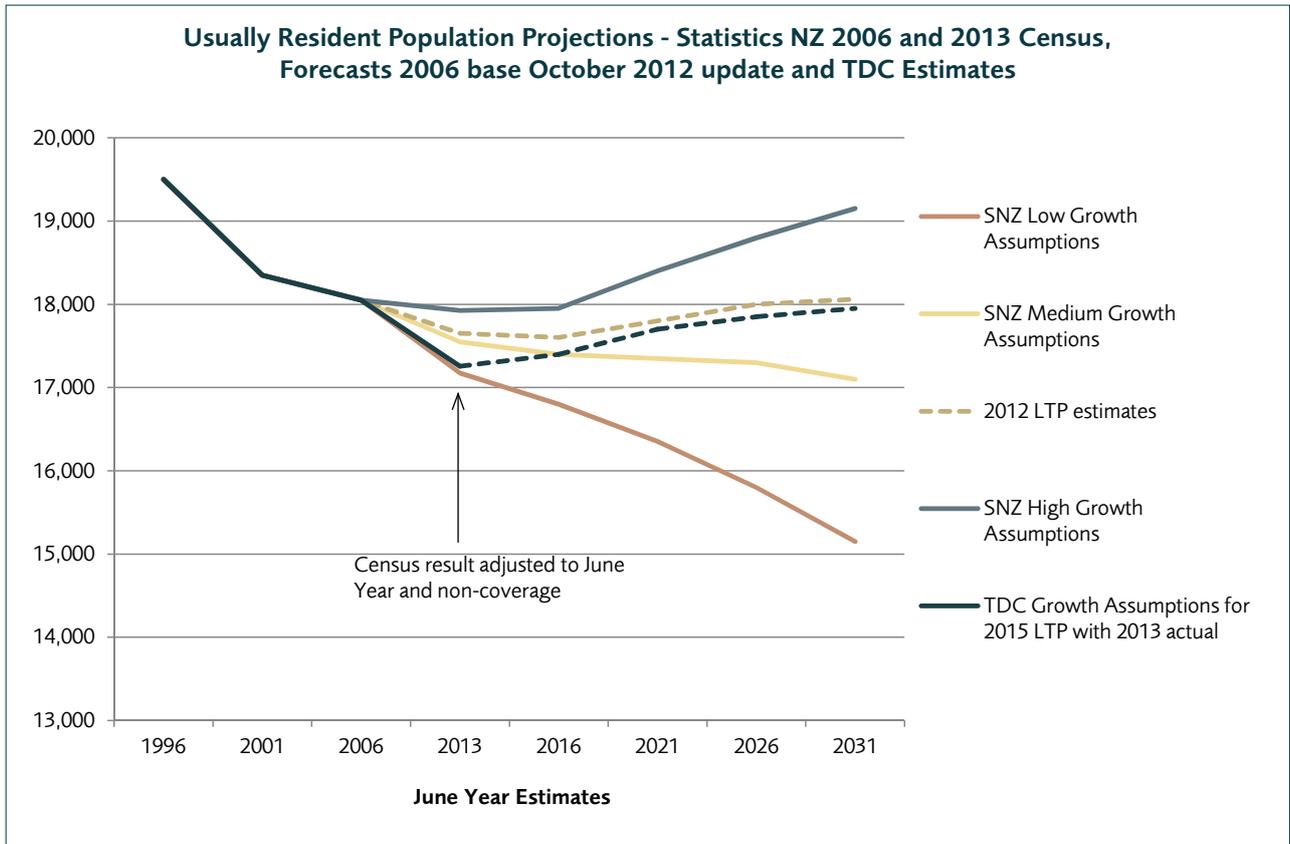
- a) identify significant infrastructure issues for the local authority over the period covered by the strategy; and
- b) identify the principal options for managing those issues and the implications of those options.²

The strategy focuses on understanding the medium to long-term infrastructure needs which in turn informs the 10 year Long Term Plan decision making process of Council.

² Local Government Act, Section 103B (2)(b)



Figure 1: Population Growth Scenarios





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TARARUA DISTRICT AT A GLANCE

Tararua district is situated on the southeast coast of the North Island, bound to the west by the Tararua Range. It covers an area of 4,360km² and has an estimated resident population³ of 17,225.

The four main towns of Dannevirke, Woodville, Pahiatua, and Eketahuna are service centres for the agricultural sector. In addition they service other categories of economic activity, such as industry and tourism (mostly domestic from passing traffic).

The primary industry in Tararua is agriculture with over a third of the district's workers employed in this sector. Tararua has a wealth of resources, the greatest being the farmland that grows top quality stock, producing wool, meat, and dairy products of a particularly high standard.

A small number of larger industries include meat processing, dairy processing and steel fabrication, and smaller scale industries including clothing. Agriculture, retail trade, manufacturing, farm servicing, health and education services make up the bulk of employment. Cottage industries and home occupations are common. Tourism currently makes a small contribution to the district's economy.

2.1 Our Infrastructure

A broad range of infrastructure networks support the Tararua district. Transportation networks stretch across the district, linking people, places and businesses with each other and other parts of New Zealand. Our piped networks on the other hand, are confined to the towns. They enable residents and businesses to connect to water, wastewater, and stormwater schemes.

A number of different borough councils established the assets of Council prior to the merger and establishment of Tararua District Council in 1989. As a result, levels of service vary across the district, particularly for piped networks. Council has been prudent in its investment and funding provisions for the future replacement of this aging infrastructure.

In an environment of low population growth, Council has made a steady investment in its infrastructure over time with a focus on addressing condition and performance issues, and establishing appropriate and affordable levels of service.

³ 2013 Census



2.2 Demographic Context

Preparing 30-year forecasts of core network infrastructure requires forecasting of population and households to 2045. However, detailed forecasts based on the 2013 census will not be available until February 2015, and district and area unit forecasts published by Statistics NZ do not go past 2031, currently.

The accuracy of such long term forecasts are likely to be low, with the result being driven by local employment conditions, international farm product prices, and the relative attractiveness of other areas and countries. Society, government policies, technology, transport, communication, etc will likely be very different.

2.2.1 Population to 2045

The population of the Tararua district has declined over the last 12 years at around 0.5% a year. The decline was bigger from 2006 to 2013, although Council has a view that most of this decline was in the 2006 to 2011 period. During 2013 and 2014 there has been a major change in international migration trends, as well as continued strong retail trade sales, increased job numbers, and improved farm returns for beef.

Council has determined that the most likely scenario (MLS) in terms of population and household change is medium to 2016

to a high growth scenario thereafter⁴, based on Statistics NZ current forecasts.

The population decline is forecast to reverse and grow from current levels to 2016, then grow steadily over the following 30 years to 2045 as a result of:

- A reversal of outward net migration as less residents leave to seek employment in Australia and more people choose to live in the Tararua.
- High commodity prices result in increased disposable incomes in the rural sector (once debt levels are reduced) flowing through to increased retail and servicing profitability.
- Improved infrastructure (including water, wastewater, and broadband fibre) and recreational facilities.
- Employment growth in manufacturing and retail business builds on the positive initiatives currently underway, new windfarm and oil exploration investments, and more promotion by the Council.
- Increasing demand for affordable rural lifestyles.
- Increasing demand for low-cost housing within commuting distance to Hastings and Palmerston North.

Table 1: Population Forecast to 2031

Year	2012 Update 2006 base Medium Series Stats NZ forecasts	2012 Update 2006 base High Series Stats NZ forecasts	TDC Forecasts 2015 (mixture – recovery to 2016 and Stats NZ high after that)	2012 Long Term Plan Forecasts
Usually Resident Population Forecasts as at 30 June				
1991	19,500	19,500	19,500	
1996	19,500	19,500	19,500	
2001	18,350	18,350	18,350	
2006	18,050	18,050	18,050	
2011 estimate	17,750	17,750	17,750	
2013 estimate	17,255	17,255	17,255	17,650
2016 forecast	17,400	17,950	17,400	17,600
2021 forecast	17,350	18,400	17,600	17,800
2026 forecast	17,300	18,800	17,850	18,000
2031 forecast	17,100	19,150	17,950	18,060

⁴ Detailed assumptions and forecasts are contained within Part A of the Tararua District Council Asset Management.

The assumptions for population growth past 2031 will be for modest growth with no major “game-changing” factors such as a major oil find, or a very large increase in the profitability of sheep, for example. This implies net migration losses that are less than forecast by Statistics NZ.

Table 2: TDC Population Forecast 2031 to 2046

TDC Growth Assumptions	
2031 forecast	17,950
2036 forecast	18,050
2041 forecast	18,200
2046 forecast	18,300

The Statistics NZ forecasts assume a continued loss of residents due to migration. Statistics NZ does not forecast significant changes in net migration as this variable is almost impossible to predict, so the last 10 years of trends are used. The international migration trends for Taranaki have dramatically improved over the last year. This has been driven largely by less people moving to Australia and the 2014/15 year could see a net gain. This current trend is built into the rapid recovery scenario that results in a lift in population. The risk is that the drivers of this new trend (China and world demand for quality protein, and reduced demand for minerals such as iron ore, coal, gold and oil) could again change and that the population forecasts are too optimistic.

The Council is forecasting that rural incomes will continue to be sound on the back of the current higher food commodity prices. This should result in higher disposable incomes for many residents in the current year. Changes can happen quickly and can be generated by events outside of the Taranaki area or influence (such as a major earthquake in Wellington). These impacts are normally seen through the net migration figures. New jobs and/or a greater interest in relocating in to Taranaki for lifestyle reasons will result in the population stabilising over the next 10 years and then slowly growing after that.

2.2.2 Population Forecast – by Area

The Statistics NZ 2010 update medium growth forecasts (based on the 2006 census) shows a decline in population in Eketahuna, Pahiatua and Woodville, with Dannevirke also declining in the longer term. The actual outcome in the 2013 census was for a decline in Dannevirke and Pahiatua, and a small decline in Eketahuna and the rural area. Woodville stayed static compared to 2006.



Table 3: Resident Population by Major Urban Area and Combined Rural Areas

Urban and Rural Areas	Usually Resident Census Count			% Change 2006 to 2013
	2001	2006	2013	
Dannevirke	5,376	5,517	5,043	-8.6%
Woodville	1,479	1,401	1,401	0.0%
Pahiatua	2,610	2,562	2,412	-5.9%
Eketahuna	579	456	441	-3.3%
Rural	7,815	7,695	7,557	-1.8%
Total District	17,859	17,631	16,854	-4.4%

Detailed recent employment data for Dannevirke and the Fonterra upgrade of Pahiatua, and anecdotal movement in the real estate market, give some optimism that the two major urban areas are currently growing again. The more likely scenario in the medium term (based on current trends) is for Dannevirke to recover modestly, Pahiatua strongly, Woodville to grow modestly and Eketahuna to remain at current levels. The rural area is expected to show a minor decline as farm sizes continue to grow.

Table 4: 30-Year Forecasts for Major Urban Area and Combined Rural Areas

	Dannevirke	Woodville	Pahiatua	Eketahuna	4 Urban Areas	Urban % of District	Rural Areas	District
Taranaki Area Unit Population Forecasts, Urban Recovery and Steady Rural Decline Plus Lifestyle Growth								
1996	5,680	1,610	2,770	650	10,710	55%	8790	19,500
2001	5,530	1,520	2,680	590	10,320	56%	8030	18,350
2006	5,660	1,430	2,630	470	10,190	56%	7860	18,050
2013	5,180	1,430	2,480	455	9,545	55%	7680	17,225
2016	5,300	1450	2,550	460	9,760	56%	7640	17,400
2021	5,450	1450	2,650	460	10,010	57%	7590	17,600
2026	5,600	1500	2,700	470	10,270	58%	7580	17,850
2031	5,700	1525	2,750	475	10,450	58%	7500	17,950
2036	5,750	1550	2,800	480	10,580	59%	7470	18,050
2041	5,800	1600	2,850	480	10,730	59%	7470	18,200
2046	5,850	1650	2,850	500	10,850	59%	7450	18,300

2.2.3 Population Forecasts – by Household

Total households were forecast to increase slowly from 2011 to 2016, and then grow modestly from 2016 to 2031. The pattern of a steady decline in the number of people per household has continued. This is a long-term trend across most of New Zealand. The 2013 census recorded a 1% increase in occupied dwellings and a 15% increase in unoccupied dwellings compared to 2006. Overall, there was a 2% increase in total dwellings.

Table 5: Statistics New Zealand Medium Growth Forecasts 2006 Census Base With 2013 Census

Series	Forecast Households at 30 June						Change 2006–2031	
	2006 (SNZ)	2013 Estimate	2016	2021	2026	2031	Number	Average Annual (%)
Tararua District								
High			7,600	7,800	8,000	8,200	1,100	0.6
Medium	7,100	7,140	7,300	7,400	7,400	7,300	200	0.1
Low			7,000	7,000	6,800	6,500	-600	-0.3

Total household numbers, including unoccupied dwellings, are forecast to have a modest increase despite the relatively stable population. Forecasts are driven by the household occupancy rate falling from 2.4 residents per house in 2013 (2.5 in 2006) to 2.3 residents in 2031, and 2.2 residents in 2046. Eketahuna and Pahiatua are forecast to have the smallest increase, with Dannevirke, Woodville and the rural areas having a modest increase.

Table 6: 30-Year Forecasts for Total Households Major Urban Area and Combined Rural Areas

	2013	2031	2046	% Change 2013 to 2045	% of District Households 2013	% of District Households 2031
Number of Households (including Unoccupied Dwellings), Forecasts based on 2013 census data and TDC occupancy rate forecast for Tararua 2031 and 2046						
Dannevirke	2,416	2,655	2,850	10%	30%	30%
Woodville	720	750	830	9%	9%	9%
Pahiatua	1,150	1,300	1,390	4%	14%	14%
Eketahuna	260	265	275	3%	3%	3%
Balance rural area	3,530	3,730	3,880	13%	44%	45%
Tararua district	8,076	8,700	9,225	10%		



2.3 Strategic Context

The Infrastructure Strategy is informed by the asset management plans, which are the Council's tactical plans for delivery on the Outcomes of Council through management and investment in infrastructure. Whereas the Financial Strategy sets out the funding constraints, the asset management plans identify the demand for infrastructure. Through conjoint development of the infrastructure and financial strategies, trade-offs and key strategies are developed, which inform the Council's Long Term Plan.

The relationship between these documents is shown in Figure 2.

Figure 2: Relationship between key planning documents



Whilst the relationship is shown as hierarchical, planning information flows both ways. Knowledge of Council's current services and the assets that support them helps inform the future Vision. In turn the asset management planning process is informed by the Vision; the services likely to be needed in the future.

The Infrastructure Strategy is a key document informing the Financial Strategy and visa versa. In time it is the intention of Taranua District Council to merge these two strategies into one single document, such is the strength of the linkages.

In January 2012, the Council adopted its first asset management policy. The adoption of an asset management policy ensures that the Council takes a consistent approach to asset management planning, that the asset management plans reflect the strategic direction of Council, and provide a sound basis for developing the Infrastructure Strategy and Long Term Plan.

2.3.1 Council's Vision and Strategy

The Vision for the 2015-2025 Long Term Plan is the vision the Council developed with the community for the 2012 Long Term Plan:

"A growing and prosperous district providing a wide range of employment opportunities that is underpinned by highly efficient, capable and affordable infrastructure."

The Vision is underpinned by six Council Outcomes:

- **Efficient Infrastructure** Highly efficient, fit for purpose and affordable rural and urban infrastructure.
- **Prosperous Economy** A strong, growing, prosperous local economy that attracts, welcomes and retains businesses and residents.
A district with a clear identity that promotes its lifestyle.
- **Collaborative Council** A council seen as a leader in community partnerships and collaboration to ensure services are delivered in the most effective and affordable way.
- **Great Lifestyle** Recreation facilities, heritage and public amenities that support an outstanding lifestyle.
- **Sustainable Environment** The district has a natural environment that is protected, preserved, and enhanced for present and future generations.

2.3.2 Financial Strategy

The Financial Strategy provides a financial framework for making decisions and outlines how Council intends to manage it finances prudently. Council's 2015-2025 Long Term Plan financial strategy is about living within our means by keeping our services and investments, affordable and sustainable.

While the Infrastructure Strategy provides details of the level and timing of investment needed to operate, replace, renew and upgrade existing facilities, the Financial Strategy outlines the required rating and debt levels to fund these investments. Together they outline how the Council intends to balance investment in assets and services with affordability.

The Infrastructure Strategy and the Financial Strategy are "two sides of the same coin". The Infrastructure Strategy is informed by the Financial Strategy, and the Financial Strategy outlines Council's approach to funding the infrastructure needs identified in the Infrastructure Strategy.

Any major changes to the direction of the financial strategy of Council would require a review of this Infrastructure Strategy and visa versa.

2.3.3 Asset Management Plans

The key documents underpinning the Infrastructure Strategy are the asset management plans (AMP). Asset management plans are the tool for combining management, financial, engineering and technical practices to ensure that the level of service required by customers is provided at the lowest long-term cost to the community. This requires taking a lifecycle approach to asset planning.

The objectives of the Council's asset management plans are:

- to describe how Tararua District Council will implement the expectations that the community has about the management of its asset based activities through setting and delivering service levels within budget constraints;
- to provide clear linkages to the Annual Plan, Long Term Plan, and all other key planning processes and documents;
- to comply with the Local Government Act (LGA), specifically in relation to activities, services and assets.

Many of the assets planning activities undertaken by Council are applied to all infrastructure assets. For this reason, Tararua District Council has developed asset management plans in two parts. A single Part A document provides an overview of asset management planning at Tararua District Council⁵. A Part B document for each asset group describes the assets and how the Part A principles are applied to the management of the assets.

Council has recently reviewed the 2012 asset management plans as the first step in preparing its 2015-2025 Long Term Plan. As the Vision for the 2015-2025 Long Term Plan is no different to the 2012 Vision, the asset management plan review focused on levels of service and asset performance; identifying any known significant issues for the delivery of the activity/assets now and in the future. This work has led to the identification of the current and future asset requirements and the financial forecast for capital (renewals and new capital projects) and operational expenditure for each asset group.

Most Likely Scenario (MLS)

The basis of this strategy is built on a series of assumptions and forecasts that translate into major drivers of demand for expenditure. Section 2.2 outlines the demographic context under which the Council forecasts it will be operating.

Council has developed a detailed forecast of assumptions that impact across all Council activities. These detailed assumptions are included in the Draft Long Term Plan 2015-2025 and are summarised in Appendix A of this strategy. More detailed forecasts of issues that impact directly on the infrastructure activities have been developed through the asset management plan process. Where relevant, these assumptions are summarised in Section 6 of this strategy.

⁵ Part A Tararua District Council – Overview of Asset Management Planning



3

SIGNIFICANT INFRA- STRUCTURE ISSUES

Unlike many other councils in New Zealand, Tararua District Council do not forecast growth to be an infrastructure issue in the next thirty years. The existing urban areas have considerable capacity to cater to stronger population growth. With a relatively stable, to slowly increasing population forecast, decline is not considered to be an issue either.

The assets of the Council are in overall good condition. Whilst assets are aging, regular and ongoing investment in preventative maintenance and operations of these assets, combined with programmed renewals, will ensure that these assets are able to continue to deliver the agreed levels of service for the least lifecycle cost without increasing the risk of failure. With the current financial strategy, the maintenance, operation and renewal of assets will not be significant issues for Council.

The Council has not identified any significant gaps between the levels of service people expect from core infrastructure and the levels of service Council is able to deliver, now and over the next thirty years. Where levels of service gaps exist currently, projects and changes in management techniques have already been identified or are underway to address these, as detailed in the asset management plans.

The overarching significant infrastructure issue facing our community is maintaining affordability whilst upgrading aging infrastructure. The population of the district is dispersed and there is a large roading network to maintain. There are multiple small towns each with their own wastewater and water schemes. These networks require upgrading to meet increased environmental and health standards, and to improve the resilience of the infrastructure for the future.

The quality of life, health, and economy of the Tararua district is reliant on infrastructure. The impact of infrastructure failure through natural disasters can result in loss of service or access, social and business disruption, and costly repairs. Within the region there are a number of existing and potential natural hazards including flooding, land instability, storms, coastal inundation, and earthquakes. In the future, weather related events are expected to increase in frequency and intensity due to climate change. It will be a challenge for the Council to invest in the resilience of its infrastructure while still maintaining affordability.

INFRASTRUCTURE STRATEGY

A number of options for managing forecast infrastructure issues were developed as preparation for this strategy. Council programme summaries⁶ detail these issues and options. The Council has developed its strategic response to identified infrastructure issues within the constraints of affordability and the Financial Strategy.

The Infrastructure Strategy takes its priorities from the Council Vision and Strategy. These are:

- **Continued investment in core infrastructure;** and
- **Continued financial viability through sustainable growth and investment**

In order to meet the above, Council has a continued focus on ensuring that infrastructure delivers the agreed levels of service to the community in the most cost effective manner. The focus for the next thirty years will be on "thinking smart":

- Prudent operation and maintenance of existing infrastructure assets, as outlined in Council's asset management plans.
- Investment in innovative and cost effective infrastructure solutions to replace aging assets and enhance the overall network performance.
- Undertaking regular condition and performance monitoring of assets in order to renew and replace assets in a timely manner and ensure no loss of service.
- Honouring our commitment to the Manawatu River Accord by striving to continually improve the quality of our district's waterways through innovation in operation and design of our wastewater treatment plants and stormwater networks.
- Improving resilience by building redundancy or spare capacity into systems, relocating infrastructure that is at significant risk of hazards, strengthening existing infrastructure (e.g. seismic strengthening) to withstand hazards or building assets which are less vulnerable to hazards.
- Investment in new infrastructure that provides enhanced levels of service, and meets or exceeds environmental and health standards, whilst being efficient to operate, maintain and upgrade as needed. This may mean increased expenditure up front in order to reduce whole of life costs.
- Managing the scale of infrastructure investment – avoiding a "one size fits all" scenario where, for smaller towns, this could lead to over investment in assets that are under-utilised and a waste of Council's financial resources. Balancing this with ensuring sufficient capacity is maintained in networks to support economic and social development of communities.

⁶ Business Case Summaries – 2015–2025 Long Term Plan

5

INFRASTRUCTURE INVESTMENT SUMMARY

The provision of fit for purpose, affordable infrastructure is key to delivering on the Council's Vision. Many of the infrastructure projects of Council are small, have relatively little impact on the delivery of agreed levels of service, and are therefore "business as usual" for Council.

Figure 3 provides a summary of the forecast annual capital expenditure under the most likely scenario (MLS) for the four infrastructure groups covered by this policy.

The investment in capital projects is only part of the picture. The capital investments Council has made in the past, and will continue to make in the future, commit Council and its community to a long-term stream of annual costs to maintain, operate, renew and replace these assets. Figure 4 shows that the Council's operating expenditure on infrastructure assets is forecast to steadily rise over the 30-year period as a result of the operating impact of investments and inflation. Transportation makes up most of the expenditure, consistent with the historical expenditure pattern of this Council.

Table 7: Historic Renewals – Transport and Three Waters

Activity	2011/12	2012/13	2014/15
Roading	5,980	5,393	6,219
Footpaths	37	113	7
Water Supply	155	575	194
Wastewater	57	417	571
Stormwater	84	144	-
Total	6,313	6,642	6,991

Combined together in Figure 5, Council's forecast annual expenditure on transport and the three waters for the next 30 years is clear. The graph shows that operating expenditure will account for most of the annual costs, with renewals making up most of the capital expenditure, and investment in level of service being relatively minor by comparison, particularly after year five.

Figure 3: Annual Capital Expenditure – Transport and the Three Waters

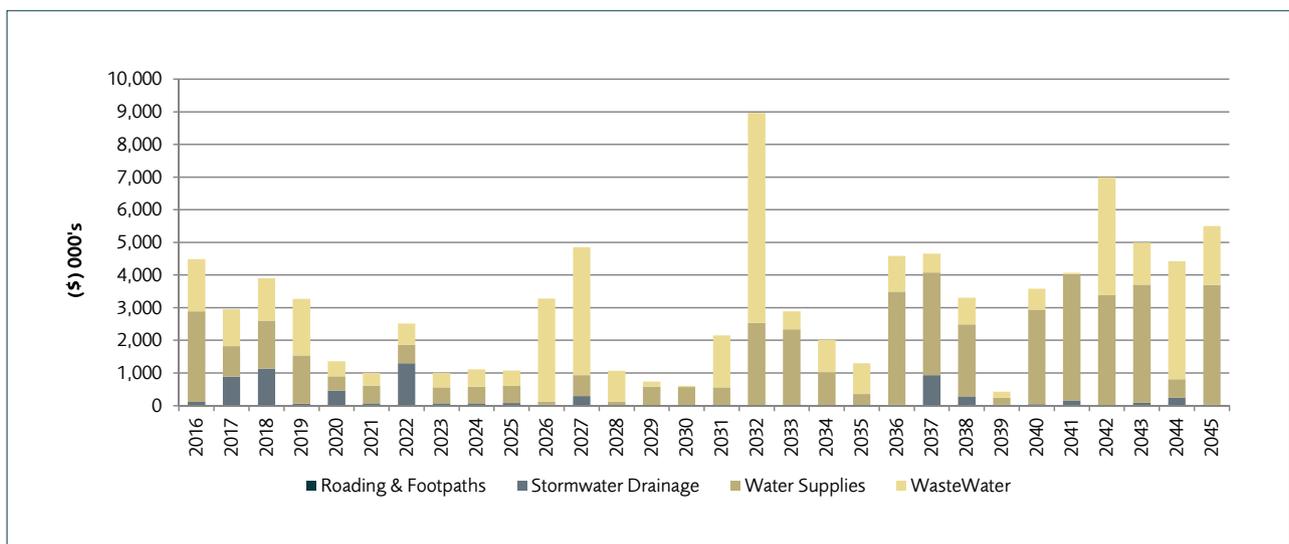


Figure 4: Annual Operating Expenditure – Transport and the Three Waters

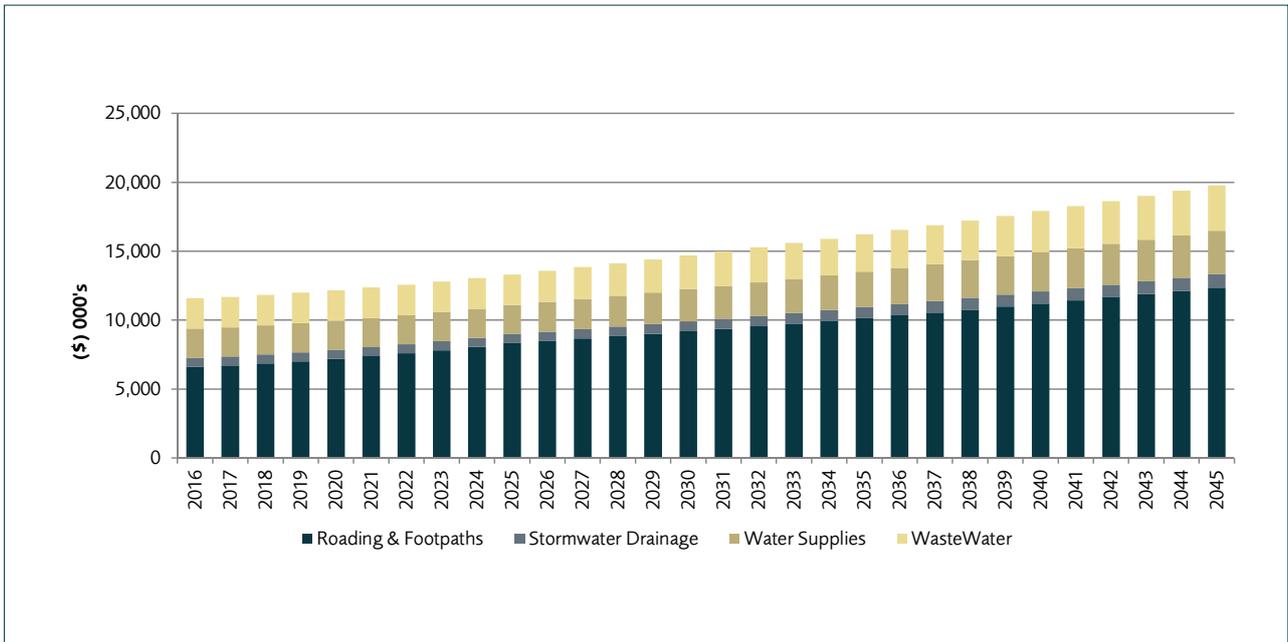
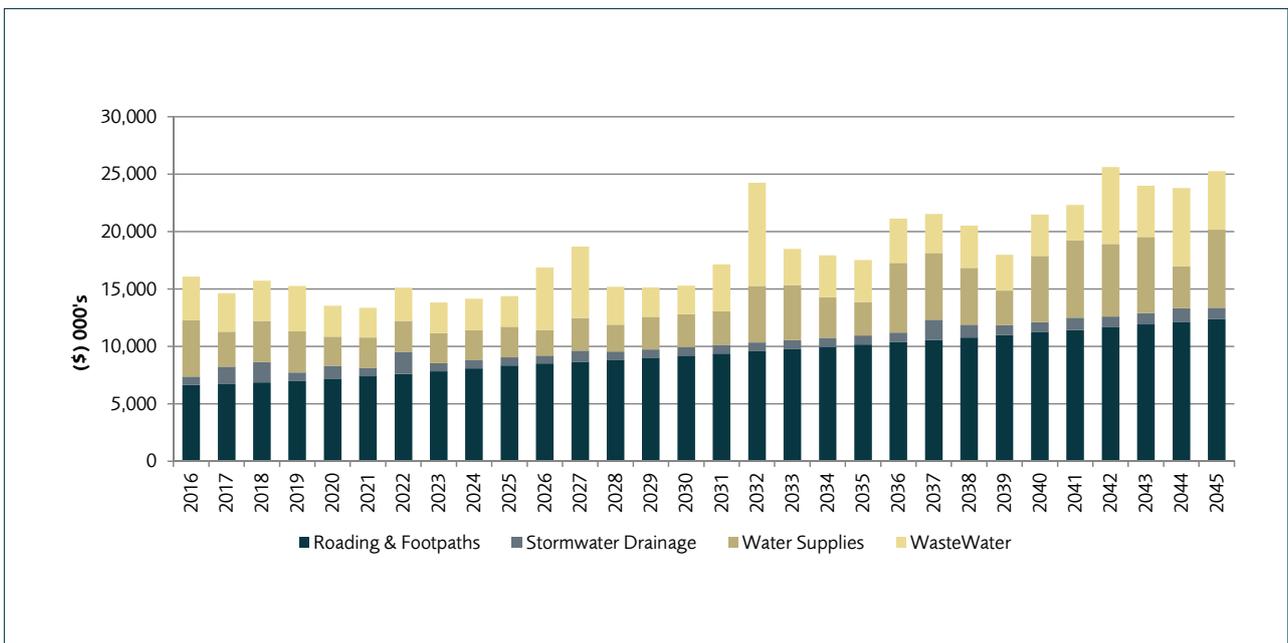


Figure 5: Total Annual Spend – Transport and the Three Waters





5.1 Sustainability of Asset Funding

Assets are generally in a good condition. The roading network has a high rating for smoothness and has spare capacity across most of the network, although the network is ageing. Water networks are in good shape but extensive renewals will be required within the next 30 years in Pahiatua and Woodville, in particular. Stormwater networks are relatively basic and do not yet need a high level of investment. Wastewater networks are in reasonable condition and have been the focus of CCTV camera inspections, and this has allowed Council to gain a good understanding of asset condition and performance of the reticulation. Greater emphasis is being placed on performance and compliance issues including the amount of inflow and infiltration.

The strategy is to renew the assets before maintenance costs rise, resulting in the effective use of scheme funds (optimised decision-making). The required level of renewal will vary, depending on:

- the age profile of the asset;
- the condition profile of the asset;
- the ongoing maintenance demand;
- the performance of the asset.

Council is part way through a process of improving its asset management plans and has recently shifted to a new asset management information system. This is part of a shift to a more proactive management approach that will directly link condition assessments to asset lives and funding required. The new system should be progressively implemented over the next few years and be fully in place for the 2018 Long Term Plan process.

5.1.1 Financial Provisions

Council has built depreciation reserves over time to fund the long term renewals of assets. These depreciation funds have an overall substantial positive balance (2015/16 opening balance \$19.7 million). This balance is forecast to reach \$46.6 million at the end of the 10 year period (June 2026). Council has no intention of changing its policy of fully funding depreciation.

In the event of natural disasters or new legal requirements to increase standards Council can access these reserve funds to fund the renewal of assets. Council is also able to access borrowings to supplement depreciation reserves, if required.

5.2 Maintaining or Improving Public Health and Environmental Outcomes

Council has two main focus areas for maintaining or improving public health. The first is based around the upgrade of public urban water supplies to improve the quality and resilience of these networks. This involves meeting the mandatory Drinking Water Standards. The second is to upgrade the treatment and disposal of urban wastewater to improve the health of our river systems. As such, the latter is more focused on environmental outcomes.

Council has already completed a number of these projects in the last few years. The major projects remaining are:

Environmental Outcomes

- Dannevirke waste water treatment plant upgrade
- Disposal of treated effluent to land
- Eketahuna Treatment plant
- Norsewood treatment plant Upgrade

Maintaining or Improving Public Health

- The renewal and upgrade of the Woodville water storage dam.
- Upgrade of Pongaroa water treatment
- Upgrade the water treatment in Akitio
- Upgrade stormwater Dannevirke
- Upgrade stormwater Pahiatua

Details on these projects are set out in Section 5.4 on Significant Capital Expenditure Decisions.

5.3 Disposal of Assets and Deferral of Expenditure

Council has no intention to dispose of assets covered by this Strategy, or to defer expenditure on assets. There are no significant disposal issues for assets at the end of their useful lives.

Pipe assets may be relined (sewer) or left in situ, as opposed to removed. Pipes are typically located in the Roothing corridor, and their removal necessitates reinstatement work that causes disruption to the Community and costs that exceed the benefit of pipe removal. Exceptions are where the location is needed for a new asset or a change in the design of the roading assets necessitates the pipe removal. Council has a strategy over time to replace pipe assets at the end of their life in locations whereby trenches can be 'shared' for multiple assets and disruption to the roading corridor is minimised. Council has no intentions

to remove any roading assets; these assets are typically rehabilitated in their current location.

5.4 Significant Capital Expenditure Decisions

In preparing an Infrastructure Strategy, in accordance with the Local Government Act 2002 Amendment Act 2014, Council is required to:

Identify the significant decisions about capital expenditure that local authority expects it will be required to make – (Section 101B (4) (b) (i))

In determining, what are decisions are significant, in the context of this strategy; reference has been made to Council's Significance and Engagement Policy (2014). An outline of the relevant sections of this policy is contained in Appendix C.

Generally a significant infrastructure decision, in the context of this strategy, will have two or more of the following characteristics:

- Has a substantial tangible impact on the whole District based on changes to services levels or the manner in which revenue is to be obtained.
- Has a significant multi-year change in the levels of service at an activity level.
- The decision represents a new strategic direction for Council.
- A decision or proposal on a matter where the majority of a community expresses considerable interest or the community is deeply divided.

Council has already made a number of significant capital expenditure decisions as part of the 2012-2022 Long Term Plan. A number of the resulting projects have been completed or are underway

These included:

1. Upgrade of the Saddle Road.
2. Upgrade of water supplies – Dannevirke impounded supply and treatment, Pahiatua second bore, Eketahuna extra storage, Pongaroa treatment, Akitio treatment.
3. Upgrade of wastewater treatment plants- This programme received funding from the Ministry for the Environment 'Clean up river fund', for treatment upgrades, including the relining of sewage oxidation ponds and land irrigation, in Dannevirke, Pahiatua and Woodville. Council is also upgrading its plants in Eketahuna, Norsewood and Pongaroa. This programme is ongoing and also addresses ongoing operational efficiency and affordability of the treatment solutions.

4. Main street Upgrades Woodville, Eketahuna and Pahiatua

Table 8 provides an overview of the significant capital expenditure decisions the Council will make as part of its 2015 Long Term Plan regarding transportation and the three waters. The table outlines the options the Council has considered. In some cases these are for projects which have already been consulted. Where Council has a preferred option, this is indicated and the cost of that option included within the financial summary. In some cases, the infrastructure decision is some way off, and further investigations are required before Council can determine its preferred option. In these cases, a business case will be prepared and the preferred option consulted on as part of an Annual Plan. The financial summary for these projects includes a best guess estimate for the project, made by the Asset Manager, based on the information at hand.



Table 8: Significant Capital Expenditure Decisions

Asset/ Network	Issue / Risk	Practical Options
Woodville water supply	<p>The Woodville water supply consists of an unlined earth embankment impounded supply that supplements the flow from the river. The supply is used when the river water is too turbid to harvest, or river levels are low and consent conditions require the harvest volume to be reduced. Historical issues with the supply are:</p> <ul style="list-style-type: none"> • Water must be pumped to the treatment plant. • Unlined leading to murky water and higher treatment costs and processing time. • Algal problems due to being uncovered, higher temperatures, and duck effluent. • Insufficient volume to meet town needs during long dry periods. 	<ol style="list-style-type: none"> 1. Optimize the existing impounded supply through deepening and adding an impervious liner. 2. Seek a site for a new impounded supply, that optimizes construction costs with a reduction in pumping costs. <p>Objective: Ensure Woodville water treatment plant can access a secure source and appropriate volume of water, that has the best whole of life cost. This objective will be the basis of a business case in Year 1 to establish which of the two main options is the best.</p> <p>Note: The Woodville water treatment plant was upgraded in 2013 to address water clarity, odour and taste issues.</p>
Pongaroa water supply	<p>The Pongaroa water scheme does not comply with Treatment and Storage Compliance with Water Quality Standards.</p> <p>Treating the current water source to drinking water standards, will not be affordable for the community without external funding.</p> <p>Up to 85% funding is available through the Ministry of Health.</p> <p>Some urgency to get an application in before closing date of 27 February 2015.</p> <p>The community has not been consulted regarding this scheme. The resulting operating costs would be paid for through the targeted water rate. The cost of water for Pongaroa residents would rise from \$100 to over \$300 per household.</p>	<ol style="list-style-type: none"> 1. Status quo – advertise as a non-compliant supply but supply home UV and filter systems. 2. Meet minimum water quality standard + minimum storage. 3. Meet minimum water quality standard + good storage. <p>Council's preferred option is Option 2.</p>
Wastewater plant upgrades	<p>Environmental standards for wastewater disposal have increased and, as a signatory to the Manawatu River accord, Taranua District Council is committed to improving the environmental outcomes from the discharge of treated wastewater.</p> <p>A programme of upgrades began in 2012, assisted through funding from the Ministry for the Environment.</p> <p>The overall programme consists of a number of specific projects, including pond lining, treatment upgrades, and land disposal irrigation systems.</p> <p>There is a risk that the programme will not be finished on time or achieve the environmental standard required for new consents.</p>	<p>Components of the upgrades contain a number of options. Council wishes to achieve the following with each treatment plant upgrade:</p> <ul style="list-style-type: none"> • Ministry for the Environment funding and reporting conditions are met. • Effluent results meet or exceed likely consent requirements. • Treatment process are sustainable- environment and financial. • Treatment plants are resilient. • Surplus capacity is built in to cope with changes in inflow during extreme events.



Implications / Decision (Cost and Timing)	Purpose of Expenditure				
	Renewal	LOS Increase	Growth	Public Health	Natural Hazard
<p>Business case prepared Year 1.</p> <p>Consultation as part of 2015/16 Draft Annual Planning process.</p> <p>Financial provision of \$2 million in Year 3 of Long Term Plan (2018/19) based on an upgrade to the existing impounded supply</p> <p>Note: once decision has been made, there is a long lead in time for this project due to engineering designs, consents for building and managing the storage.</p>		✓	✓	✓	✓
<p>Loan funding of \$186,000 in last Long Term Plan in 2016/17 and 2017/18 – actual gross cost is greater based on Eketahuna experience.</p> <p>New costs are estimated to be \$400,000. Based on receiving 65% subsidy, Council costs are \$186,000.</p> <p>This is to treat the existing water source to drinking water standards.</p> <p>Home owners would also have the cost of disconnecting their current tanks.</p> <p>Rates impact: approximately:</p> <p>+\$17,000 debt funding (interest and loan repayment) + \$8,000 extra depreciation + \$12,000 maintenance per annum spread over two years</p>		✓		✓	
<ul style="list-style-type: none"> Eketahuna treatment plant, Year 1 \$810,000 Norsewood upgrade, Year 3 \$75,000, Year 4 \$125,000 Dannevirke Manawatu River discharge, Year 3 \$300,000 	✓	✓		✓	



Asset/ Network	Issue / Risk	Practical Options
Land disposal of treated wastewater	<p>Council is planning to dispose of treated wastewater to land as part of its commitment to cleaning up our rivers.</p> <p>Investigations to date have not found any suitable land due to climate, soil types current land usage and industry restrictions on grazing treated land.</p>	<ol style="list-style-type: none"> 1. Abandon plans for land irrigation and continue to improve the quality of effluent entering waterways through treatment plant upgrades 2. Continue with plans to develop land irrigation to irrigate land <p>Council's preferred option is Option 2. Council is committed to the River Accord and removal of waste is a key objective for the signatories, including local iwi.</p>
Dannevirke stormwater	<p>The storm water scheme in Dannevirke is a combination of pipes and streams. During periods of heavy rainfall, surface flooding occurs on a number of road intersections, particularly to the North of the town.</p>	<ol style="list-style-type: none"> 1. Divert part of the Mangapurupuru Stream stormwater before it enters town. 2. Undertake storm water modelling to determine best solution before commencing physical works. <p>Council's preferred option is Option 2. Undertake stormwater modelling of the scheme, which involves looking at scheme capacity and demand during low, high, and extreme rainfall events. This will identify all potential issues with the scheme, including areas of likely surface flooding during extreme events. From this, solutions can be identified and prioritised.</p> <p>Stormwater issues remain until modelling completed.</p>
Pahiatua stormwater	<p>The storm water scheme in Pahiatua is a combination of open drains and underground pipes. During periods of heavy rainfall, surface flooding occurs in some locations, due to the limitations of the scheme. Members of the community have also raised their concerns, from time to time, about the safety of the Huxley Street drain.</p>	<ol style="list-style-type: none"> 1. Utilise existing open drain network which runs parallel with Tiraumea Road travelling across SH2 to Halls Road, to divert storm water before it enters town 2. Undertake storm water modelling to determine best solution before commencing physical works <p>Council's preferred option is Option 2. Undertake storm water modelling of the scheme which involves looking at scheme capacity and demand during low, high and extreme rainfall events. This will identify all potential issues with the scheme, including areas of likely surface flooding during extreme events. From this, solutions can be identified and prioritised</p> <p>Drain and storm water issues remain until modelling completed.</p>
NZ Transport Agency One Network Road Classification	<p>A large portion of Council's network is likely to be re-classified.</p> <p>Reclassification may result in a decrease in funding, which will place pressure on Council's financial resources.</p>	<p>Currently, pending assessment from NZ Transport Agency, the current Tararua District Council Road Classification is being assessed in accordance with NZ Transport Agency guidelines to meet One Network Road Classification (ONRC) requirements.</p>



Implications / Decision (Cost and Timing)	Purpose of Expenditure				
	Renewal	LOS Increase	Growth	Public Health	Natural Hazard
<p>Council will carry forward funding into Year 3, \$450,000 in anticipation of a site being found.</p> <p>Funding includes pumping and reticulation costs</p>		✓		✓	
<p>Modelling Year 1</p> <p>\$800,000 Year 2 Mangapurupuru diversion</p> <p>\$350,000 Year 5</p> <p>Budget assumptions at this time are high level based on a diversion of rural stormwater and an urban stormwater diversion project</p>		✓	✓	✓	✓
<p>Modelling Year 1 - \$25,000</p> <p>Diversion works Year 3 – \$1 million – (within 2012 Long Term Plan provision)</p> <p>Piping Huxley Street Drain year 7 – \$1 million – new works</p> <p>Current Budget listed in 2012 Long Term Plan is \$ 1,237,000 for the Pahiatua storm water diversion project. It is unclear until modelling is completed, whether this is sufficient.</p> <p>Budget assumptions at this time are high level based on a diversion of rural storm water and piping the Huxley Street Drain.</p>		✓	✓	✓	✓
<p>2018-2020 Upon implementation of the NZ Transport Agency ONRC levels of service will be adjusted in accordance with NZTA guidelines.</p> <p>This could affect levels of renewals for both pavements and bridges.</p>	✓				



Asset/ Network	Issue / Risk	Practical Options
Eketahuna town centre upgrade	<p>There is an opportunity to upgrade the Eketahuna CBD including footpaths, parking and underground services. This could lead to improved driver and pedestrian safety, improved services, less surface flooding, enhanced aesthetics and encouragement for visitors to stop and shop.</p> <p>NZTA have indicated lack of funding available to replace the kerb and channel in the town centre .</p>	<ol style="list-style-type: none"> 1. Undertake Maintenance and renewal works with no change in design 2. Defer Upgrade 3. Proceed with project as planned 4. Undertake Project as planned and use roading budgets to replace kerb and channel <p>Council's preferred option is Option 4.</p> <p>This option ensures that the maximum number of the desired project outcomes is achieved, when compared to the other options.</p> <p>This option will result in a reduction in the funding available for other roading projects</p>
Pahiatua town centre upgrade	<p>There is an opportunity to upgrade the Pahiatua town centre including footpaths, parking and underground services. This could lead to improved driver and pedestrian safety, improved services, less surface flooding, enhanced aesthetics and encouragement for visitors to stop and shop.</p> <p>The town Centre is bisected by two lanes of highway and NZTA have indicated lack of funding available to replace the Kerb and Channel in the town centre.</p> <p>Outcomes may be compromised if state highway assets are not upgraded as part of the project.</p>	<ol style="list-style-type: none"> 1. Proceed with project as planned 2. Undertake Project as planned and use roading budgets to replace kerb and channel <p>Council's preferred option is Option 2.</p> <p>This option ensures that the maximum number of the desired project outcomes is achieved, when compared to the other options.</p> <p>This option will result in a reduction in the funding available for other roading projects.</p> <p>There is sufficient time to re-prioritise roading projects.</p>

A copy of the major capital investments Council plans to make during the 10 years of the Long Term Plan, is contained in Appendix E.



Implications / Decision (Cost and Timing)	Purpose of Expenditure				
	Renewal	LOS Increase	Growth	Public Health	Natural Hazard
<p>This option utilises the current planned budget of \$442,000 to undertake work for the town centre upgrade to realise as many of the community outcomes desired as possible.</p> <p>At the same time, Council budgets for kerb and channel Renewals - Sealed Pavement Maintenance (\$55,000) are used to upgrade kerb and channel and the footpath renewal budget (\$50,000) where possible to assist with Construction Costs.</p>	✓	✓			✓
<p>\$50,000 investigation and design Year 3</p> <p>Construction Year 4 - \$1.5 million</p>	✓	✓			✓

ASSET LIFECYCLE MANAGEMENT

This section of the Strategy provides more detail on each of the four infrastructure asset groups covered by this strategy, including key issues, level of service and demand assumptions, plans to renew and upgrade existing assets, including to maintain or improve public health and environmental standards and to improve asset resilience.

6.1 Significant Assets

The Local Government Act requires Council to include the assumptions of the local authority about the life cycle of significant infrastructure assets – (Section (4)(c)(i)).

Council identifies those assets critical to the delivery of level of service, as part of its asset management planning process. These assets are listed within each of the asset management plans⁷. These constitute Council's significant assets in the context of this strategy.

In some cases these are individual assets, e.g. Civic building. In other cases they are a network or collection of assets that are managed collectively to deliver the agreed level of service. They are not significant to Council because of their dollar value, but because of the tangible impact, they have on delivery of levels of service.

6.1.1 Lifecycle Management Practices

Council ensures that asset management practices are applied in a consistent way. These practices are detailed in Part A of the Tararua District Council asset management plan. The current practices relevant to this strategy are as follows:

6.1.2 Condition & Performance Processes

The assessment of asset condition is an essential part of asset management planning. Asset condition assessments are undertaken to determine:

- where the asset is in its life cycle;
- the remaining effective life of an asset;
- the rate of deterioration of the asset;
- when asset rehabilitation or replacement will be required;
- financial cash flow projections;
- the risk of failure;
- the frequency of inspection required to manage risk of failure.

The data collected is used to support core asset management activities such as, risk management, predictive modelling, planned maintenance and rehabilitation, asset valuation and budget forecasting.

⁷ Business Case Summaries – Long Term Plan 2015–2025

Assets are assigned a grade from 0-5. The general meanings of the grades are as follows:

Table 9: Asset Grades

Grade	Condition	General Meaning
0	Non-existent	Asset absent or no longer exists <i>No work required</i>
1	Excellent	Sound physical condition
2	Good	Acceptable physical condition; minimal short term failure risk but potential for deterioration <i>Only minor work required (if any)</i>
3	Average	Significant deterioration evident; failure unlikely in near future but further deterioration likely <i>Work required but asset is still serviceable</i>
4	Poor	Failure likely in short term <i>Substantial work required in short term, asset barely serviceable</i>
5	Very Poor	Failed or failure imminent/ safety risk <i>Major work or replacement required urgently</i>

Formal assessment of roads assets is an ongoing process. Roadway data is graded using the RAMM grading scale.

Historically, formal condition assessment was not undertaken for pipe networks. Council purchased a CCTV camera in 2012 and has begun a programme of formal grading of pipes using the NZWWA grading system. To date waste water pipes within the Dannevirke and Eketahuna networks have been inspected, as well as waste water and storm water pipes at other locations where an issue has arisen.

Condition assessment primarily relates to the physical state of an asset, whereas the performance of the asset is closely aligned to the level of service provided to customers. For example, waste water pipes may be under performing due to a build up of fat, even though the pipe itself is in perfect condition. Alternatively it may be operating satisfactorily even though the condition is poor.

Performance grading is a relatively new concept for Council. Performance assessment has been largely limited to bridges, and some treatment plants and network pipes. Assets are assigned a grade from 0-5. The general meanings of the grades are shown in Table 10.

Performance information is maintained through investigations undertaken in response to customer requests for service/

complaints and routine maintenance audits. For example, water quality testing, Hydrant flow and static pressure testing, traffic counts. There is opportunity for further development of the process for capturing performance data.

Table 10: Performance Gradings

Grade	Performance	General Meaning
1	Excellent	Meets user needs in every way <i>No work required</i>
2	Good	Largely meets user needs <i>Only minor modification required (if any)</i>
3	Average	Meets most of the user needs, but there are levels of service gaps <i>Meets most of the user needs, but there are levels of service gaps</i> <i>Some modification needed</i>
4	Poor	Meets very little of the user needs <i>Substantial modification work required in short term</i>
5	Very Poor	No longer an appropriate asset to meet current levels of service <i>Replacement required</i>

6.1.3 Maintenance Strategy

The short-term maintenance strategy is intended to retain current levels of service with respect to asset condition and functionality whilst minimising costs. In the longer-term maintenance activity will be modified as necessary to reflect:

- The age of assets relative to expected economic life cycle.
- The risk of failure of critical assets.
- Changes in the desired level of service.
- The nature and timing of asset upgrading/development works.

6.1.4 Renewal Tactics

The general renewal strategy is to rehabilitate or replace assets when justified by:

- Asset performance.
- Renewal of an asset where it fails to meet the required level of service.

Non-performing assets are identified by the monitoring of asset reliability, capacity and efficiency during planned maintenance



inspections and operational activity. Indicators of non-performing assets include:

- Repeated asset failure.
- Repeated reticulation leaks.
- Ineffective and/or uneconomic operation.
- Inefficient energy consumption.
- Economics – when it is no longer economic to continue repairing the asset (i.e. the annual cost of repairs exceeds the annualised cost of its renewal).
- Risk – risk of failure and associated environmental, public health, financial and social impact justifies proactive action.

Council will proactively renew water, storm water and wastewater pipes in conjunction with other infrastructure projects in the roading corridor, to reduce the cost of trenching and reinstatement and minimise social and business disruption, providing the asset has been identified as being near the end of its physical life and/or not performing to the required standard.

Council will also take the opportunity when renewing assets to achieve increased environmental standards, public health and provide greater asset resilience, where this can be achieved as an augmentation to the asset renewal programme

Renewal budgets are forecast by asset managers based on life and condition/performance. RAMM is used to generate renewals forecast for roads assets.

6.1.5 Data Sources

The component data entered in SPNAM is the data source for the valuation of three waters assets. SPNAM is currently only used to estimate future renewal budgets, due to the lack of a full set of condition data to verify the estimated replacement dates of assets.

RAMM is the data source for Roading assets.

The confidence in the asset data used as a basis for the financial forecasts has been assessed using the grading system from the International Infrastructure Management Manual International Edition, 2011, as reproduced below.

Table 11: Data Accuracy Grading System

Confidence Grade	Description	Accuracy
1	Accurate	100%
2	Minor Inaccuracies	± 5%
3	50% estimated	± 20%
4	Significant data estimation	± 30%
5	All data estimated	± 40%

The confidence gradings for asset data are included in Appendix B.

6.1.6 Asset Lives

Assumptions about asset lives are contained in Appendix D. Whereas the table shows a range of values, in reality each asset and asset component within the asset database has a theoretical useful life. The assigned value is based on the asset type, the materials it is constructed from, the size of the asset (particularly pipes), the use of the asset (particularly bridges, roads and pipes) and the environment in which the asset is located. Assigned useful lives are based on industry guidelines and the knowledge of the asset manager. They are reviewed annually.

6.2 Water Supplies

Council aims to provide a reliable supply of potable water, of a quality that the community can afford and which meets the general needs of residents and businesses within the district's townships.

6.2.1 Overview of Water Assets

The residential water schemes of the district are outlined in Table 12.

Table 12: Tararua District Council Water Supplies

Water Supply Networks as at 30 June 2014	Asset Register		Valuation	
	Length of Pipe	Number of Connections	Gross Replacement Cost (\$)	Depreciated Replacement Cost (\$)
Dannevirke	74.9km	2,500	28,989,901	14,900,177
Pahiatua	33.7km	1,140	10,892,615	6,775,066
Woodville	36.0km	846	13,063,216	6,285,600
Eketahuna	21.1km	292	7,463,825	5,252,526
Norsewood	3.4km	74	682,649	454,077
Akitio	2.0km	53	422,006	201,993
Total	170.7km	4,905	61,514,212	33,869,439

Pongaroa also has a water supply network, however, this is managed privately and the consent is not in Council's name.

All schemes consist of three main categories of assets:

The water intakes: Water sources in the Tararua are a mix of bores and open watercourses – streams/rivers. Where the source is a bore, assets consist of the bore and pump, pump shed. Where the source is an open watercourse, assets are typically an intake structure of some kind with telemetry to control the intake volume. Water intakes are subject to resource consent conditions.

Water treatment and storage: Water moves to the treatment and storage facilities through a pipe network controlled by valves either through gravity or via pumping. Treatment facilities vary from scheme to scheme, but typically consist of a filtering process and a chlorination process. The process may also include physical disinfection-UV. Water is stored both as untreated and treated water.

Water reticulation: Treated water is delivered to the consumer through a network of pipes. The flow of water is controlled through a series of valves and may include some pumping. Water is accessed via individual property connections to mains and sub-mains, and through hydrants. Council is able to monitor water flows and usage through meters located throughout the network and at extraordinary user connections.



6.2.2 Key Issues

The key issues that have been identified for Council's water supplies include:

- Maintaining the quality and continuity of waster supplies
- Managing the demand for water to comply with conditions of consent to abstract water and to reduce the extent of capital investment in storage
- The need to invest in storage to improve the resilience of schemes
- Continued investment in the renewal of pipes and other water supply infrastructure

6.2.3 Level of Service Assumptions

- The future costs of providing desired levels of service and funding are based on the current Drinking Water Standards. No significant changes to the standards will occur during the period of the plan.
- Government subsidies may be available for Pongaroa to comply with the Drinking Water Standards but no other networks (noting that Eketahuna and Pahiatua have already been funded).
- Levels of service will be progressively increased in those schemes where the current level of service falls below the agreed targets in the Long Term Plan. All other level of service will remain unchanged.

None of the above assumptions are rated as having a high degree of uncertainty⁸.

Council intends to deliver the following levels of service to communities connected to a Council owned residential water scheme⁹. These are no different to the levels of service that are currently being delivered.

- Council provides a reliable water supply
- Council provides water at a consistent volume
- Water looks and tastes good
- Interruptions to supply are minimised
- Water provided is safe to drink
- Council is responsive to issues relating to water supplies
- Wastage of water is minimised

In order to achieve the above service standards, Council intends to increase the following levels of service:

6.2.3.1 Water quality Council will progressively increase the safety of water supplied to communities through continuing the programme of water supply and treatment upgrades it began in 2012. Council intends for all schemes to have a Public Health Management Plan in place be fully compliant with safety aspects of the New Zealand Drinking Water Standards.

6.2.3.2 Provision of water at a consistent volume It is Council's intention to ensure that all towns have an appropriate volume of water in storage or a bore supply, in order to ensure that water restrictions are limited. This will be achieved in part through capital expenditure on increasing storage in towns where storage is currently limited and in part through management of the existing supply to ensure water is harvested and stored in wetter months for supplementing supply during drier periods.

6.2.3.3 Loss of water Council will continue its programme of leak detection and address leaks through repair and replacement of pipes, valves and connections.

Council also intends to decrease the following level of service:

6.2.3.4 Extraordinary users connected to the intake line There are a small number of extraordinary users within the District that are connected directly to the intake line. They are connected by virtue of historical agreements, as the water main passes over their land. Over time their demand for water has become high, especially during dry periods. Their usage can reduce the flow of water entering the Council's storage and treatment facilities at a time when consent conditions also limit water abstraction. This impacts on Council's ability to provide a consistent volume of water to users in the town schemes.

These users have little or no storage on site, and are therefore very dependent on the Council supply. Council intends to manage this situation through restricting supply and/or encouraging on site storage.

6.2.4 Demand Assumptions

- Council will continue to supply reticulated water to the six towns that currently with a residential water scheme
- Future demand for water will be similar to current trends.
- Conditions of existing resource consents held by Council will not be altered significantly

⁸ Part B Tararua District Council Water Asset Management Plan and Long Term Plan Significant Forecasting Assumptions and Risks.

⁹ Tararua District Council Draft Long Term Plan 2015-2025.

- There will be no large extensions to the water network needed to meet growth during the 30-year period
- No new large wet industries will connect to Council water supplies – it is forecast that no new large wet industries will enter the district, and that if they did, they will source their own water, in the same way as existing wet industries – Fonterra, Tui Breweries, Oringi, etc.
- Growth in connections will be limited to infill developments and small subdivisions
- The existing reticulation and supplies will have sufficient surplus capacity to meet forecast demand, throughout the year, once storage issues have been addressed
- Users will continue to be responsible for the management and funding of their connection to the Council main

None of the above assumptions are rated as having a high degree of uncertainty.

6.2.5 Asset Condition

The condition of water assets is assessed by physical inspection – where assets are easy to access, such as treatment plants and pumps, and hydrants, and through inspection as part of physical renewal work, asset failures and when addressing asset performance issues, where assets are below ground such as pipes and valves. Figure 6 provides an overview of the condition of assets within each scheme using the 1-5 condition grading system outlined in Section 6.2.1.

For water assets, the condition grading of the schemes is largely based on age and type of material.

Figure 7 (over page) shows the renewal forecast for pipe schemes based on SPNAM data. The uncertainty about the actual installation date of some parts of the pipe network, means, that the data set currently assumes 51% of the network was installed in the 1980s. We know this not to be the case. The installation date is the major factor contributing to the peaks shown in the graph. The water data set is currently being loaded into a new software solution. This will give Tararua District Council greater ability to forecast the timing of renewals based on condition, age and performance, and the relative importance of these.

6.2.6 Significant Decisions relating to Water Supply

Woodville Water Storage

Woodville water supply is sourced from an open source stream into a storage dam or directly to the treatment plant.

Council upgraded the quality of water in Woodville in 2011. The issue that remains is the volume of supply. This means that Woodville often enters summer with the storage at less than full levels. Water restrictions are common throughout summer. If anything goes wrong with the treatment plant, there is little opportunity to fix it before the town runs out of water.

The aim of this project is to address these issues and provide adequate drinking water to the community throughout the year.

Figure 6: Condition of Water Scheme Reticulation

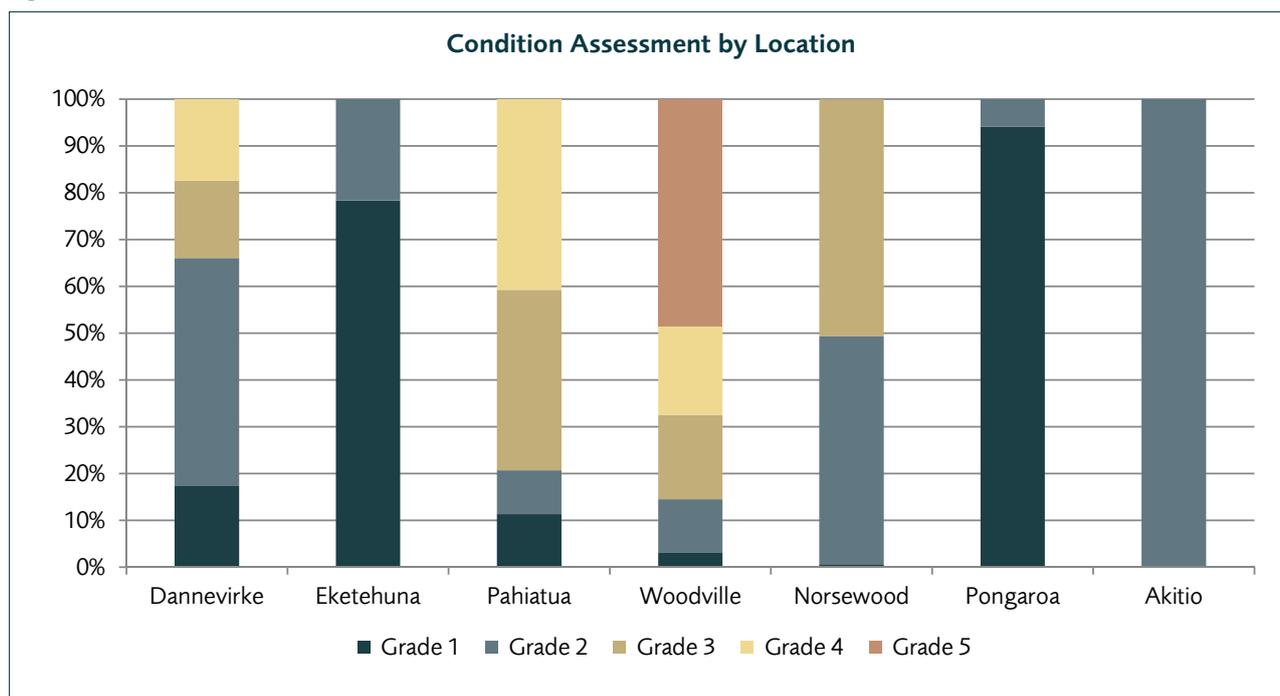
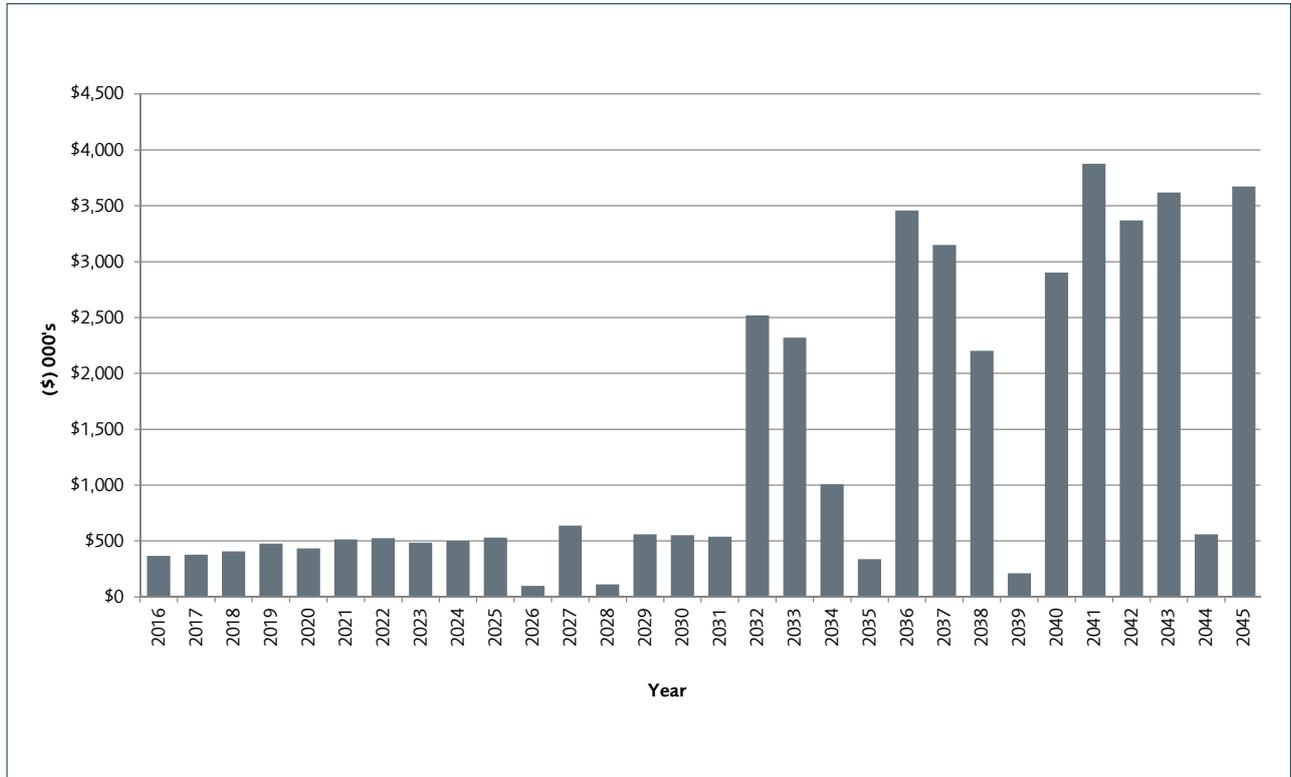




Figure 7: Total Water Supply Renewals 2015-2045



There is a need to increase the storage of both treated and raw water in Woodville, making the scheme less dependent on weather conditions and more resilient. Options for storage include expanding the current facility, or building a new storage facility at a new site.

Council has provided \$50,000 in Year 1 to prepare a business case that will be considered by the Woodville township and Council as part of the 2016/17 Annual Plan. The 10 year plan assumes a total of \$2 million funded from loan will be spent in 2017/18 and 2018/19 for the construction of the Woodville Water storage.

Extraordinary Users

In the past, decisions on who - in the adjacent rural areas - has access to each water supply, and the cost and conditions of that access, have impacted on the size and treatment costs required. Council has decided that within the next few years the non-urban use of Council water supplies will be reviewed.

Council intends to ensure that extraordinary users (rural and large industrial) of Council water supplies are supplied on an equitable basis. Many of these users have historical agreements made with previous Councils. Longstanding issues with some of these users are now creating problems as a result of the new standards and consent conditions for water use. Council is

seeking to limit the usage of Council supplied water to that set out in any previous agreements. This will help Council address the water demand issues in the main towns.

Council will also look to amend its Water Supply Bylaw to consider the option for all urban users to have a separate rain water tank to help meet water demand for non-portable (garden etc) use during summer months.

Pongaroa Water Supply

An application is being made to Ministry of Health, on behalf of the Pongaroa community for funding assistance towards a treated residential water scheme. Funding of the scheme, and its subsequent operation, is subject to community consultation as part of the 2015–2025 Long Term Plan.

6.3 Wastewater Schemes

Council aims to provide urban areas with a reliable wastewater system that protects people's health and our environment.

6.3.1 Overview of Water Assets

The residential wastewater schemes of the district are outlined in Table 13.

Table 13: Taranua District Council Wastewater Schemes

Location of Network	Property Connections	Pipe length (km)	Pump stations number	Treatment Plant	Gross Replacement Cost (\$) June 2014	Depreciated Replacement Cost (\$) June 2014
Dannevirke	2,661	37.5	7	3 ponds 9.2 ha	23,844,187.32	10,670,856.76
Pahiatua	1,123	17.8	3	3 ponds 4.1 ha	10,475,860.32	4,930,609.01
Woodville	675	13.1	1	2 ponds 2.9 ha	8,799,697.21	3,475,169.71
Eketahuna	220	6.5	2	2 ponds 0.4 ha	3,752,242.07	1,754,596.40
Norsewood	70	3.2	2	2 ponds 0.06 ha	1,090,515.83	718,310.23
Pongaroa	69	3.4	2	2 ponds 0.32 ha	1,093,420.07	729,011.20
Ormondville	39	3.5	3	2 ponds 0.22 ha	925,002.62	646,866.58
Total Plant & Networks	4,857	85	20	16 ponds	49,980,925.44	22,925,419.89

All schemes consist of three main categories of assets:

Wastewater reticulation: Untreated wastewater is discharged by the consumer through a network of pipes. The flow of wastewater is controlled through a series of valves and may include some pumping. Wastewater makes its way from the property connection into mains and sub-mains, and through to the treatment plant. Council is able to monitor wastewater flows through meters located throughout the network and at the treatment plant.

Wastewater treatment: Wastewater moves into the waste water treatment plant through a screen which removes solid particles. The wastewater then moves through a series of ponds, where biological processes occur to reduce the level of nutrients. It is in these ponds that particulate matter that has not broken down settles to the bottom of the pond. The wastewater moves through a treatment plant. Treatment facilities vary from scheme to scheme, but typically consist of a filtering process and a chemical treatment process. The process may also include physical disinfection (UV).

Treated wastewater discharges: Treated wastewater is discharged into open wafer courses under the provisions of a resource consent. The consent conditions vary from scheme to scheme but include conditions for water quality – nutrient levels and volume. Discharges structures have been developed and located to facilitate as much mixing with the receiving environment as is possible.



6.3.2 Key Issues

The key issues that have been identified for Council's wastewater schemes include:

- Discharge effluent quality – to meet the requirements of the Manawatu River Leader's Accord Action Plan, particularly with regard to higher nutrient discharge standards.
- Resource consents have expired or are due to expire and need renewing.
- Affordability – more demanding treatment requirements will, over time, impact on communities' ability to pay for wastewater.
- Infiltration into wastewater pipes leading to greater volumes of wastewater arriving at the plants for treatment than is necessary.
- Continued investment in the renewal of pipes and other wastewater supply infrastructure.
- Network failure – maintaining the quality and continuity of sewerage systems, which are particularly susceptible to severe damage in seismic events and inundation in high rainfall events.
- Managing the demand for water to comply with conditions of consent to abstract water and to reduce the extent of capital investment in storage.

6.3.3 Level of Service Assumptions

- Existing and new resource consent requirements will necessitate upgrades of the seven schemes.
- The future costs of providing desired levels of service and funding are based on the provisions of the current One Plan. No significant changes to this plan will occur during the period of the strategy.
- Society will continue to have an increasing focus on environmental protection (waterways) .
- Levels of service will be progressively increased in those schemes where the current level of service falls below the agreed targets in the Long Term Plan. All other level of service will remain unchanged.

None of the above assumptions are rated as having a high degree of uncertainty¹⁰.

Council intends to deliver the following levels of service to communities connected to a Council owned residential wastewater scheme¹¹. These are no different to the levels of service that are currently being delivered.

- A reliable waste water service
- Risks to public health and our natural environment are minimised.
- Council responds quickly when things go wrong
- Council services meet customer expectations

In order to achieve the above service standards, Council intends to increase the following levels of service:

6.3.3.1 Discharge Water Quality Council will progressively increase the cleanliness and safety of water in the streams and rivers into which treated wastewater is discharged through continuing the programme of wastewater treatment upgrades it began in 2012. Council intends for all schemes to have resource consent in place and be operating in accordance with or exceeding consent conditions within three years.

6.3.3.2 A reliable wastewater scheme It is Council's intention to continue its CCTV programme to identify pipe failures and pipe blockages and prioritise the renewal and servicing of these pipes.

6.3.3.3 Infiltration Council will continue its programme to address infiltration and reduce the volume of water entering the wastewater network from leaking pipes and stormwater connections. This will lead to increased resilience of the wastewater scheme during heavy rainfall events and a reduction in the volume of wastewater entering the treatment plants.

Council does not intend to decrease any levels of service.

6.3.4 Demand Assumptions

- Council will continue to supply reticulated wastewater scheme to the seven towns that currently have a residential wastewater scheme.
- Future demand for wastewater will be similar to current trends.
- Conditions of existing resource consents held by Council will be altered significantly.

¹⁰ Part B Tararua District Council Wastewater Asset Management Plan and Long Term Plan Significant Forecasting Assumptions and Risks.

¹¹ Tararua District Council Draft Long Term Plan 2015-2025.

- There will be no large extensions to the wastewater network needed to meet growth during the 30-year period.
- No new wet industries will enter the district and if they did, they will make some provision for waste water treatment onsite.
- Growth in connections will be limited to infill developments and small subdivisions.
- Changes to Council policy on trade waste charges will not impact on demand.
- The existing reticulation and treatment plants will have sufficient surplus capacity to meet forecast demand and discharge consent conditions, throughout the year, once infiltration issues have been addressed.
- Users will continue to be responsible for the management and funding of their connection to the Council main.

None of the above assumptions are rated as having a high degree of uncertainty.

6.3.5 Asset Condition

The condition of wastewater assets is assessed by physical inspection- where assets are easy to access, such as treatment plants, ponds and pumps, and through the use of the CCTV

camera where assets are below ground such as pipes. Inspection occurs as part of physical renewal work, asset failures and when addressing performance issues. Figure 8 provides an overview of the condition of assets within each scheme using the 1-5 condition grading system outlined in section 6.2.1.

For wastewater assets, the condition grading of the schemes is largely based on age and type of material. The CCTV camera has allowed Council to gain a good understanding of asset condition and performance of the reticulation. This data is now being used to programme pipe renewals. When Council has a complete data set, this information will be used to reassess the over all condition of each scheme and forecast the timing of renewals.

Renewal Profile

Figure 9 (over page) shows the renewal forecast for wastewater schemes based on SPNAM data. The large peak in 2023 represents the replacement of the microfiltration plant at Dannevirke. In reality this plant will not be replaced in totality. Further work on the asset data is needed to componentise plants to get better definition of renewal needs.

The wastewater data set is currently being loaded into a new software solution. This will give Taranua District Council greater ability to forecast the timing of renewals based on condition, age and performance, and the relative importance of these.

Figure 8: Condition of Wastewater Schemes

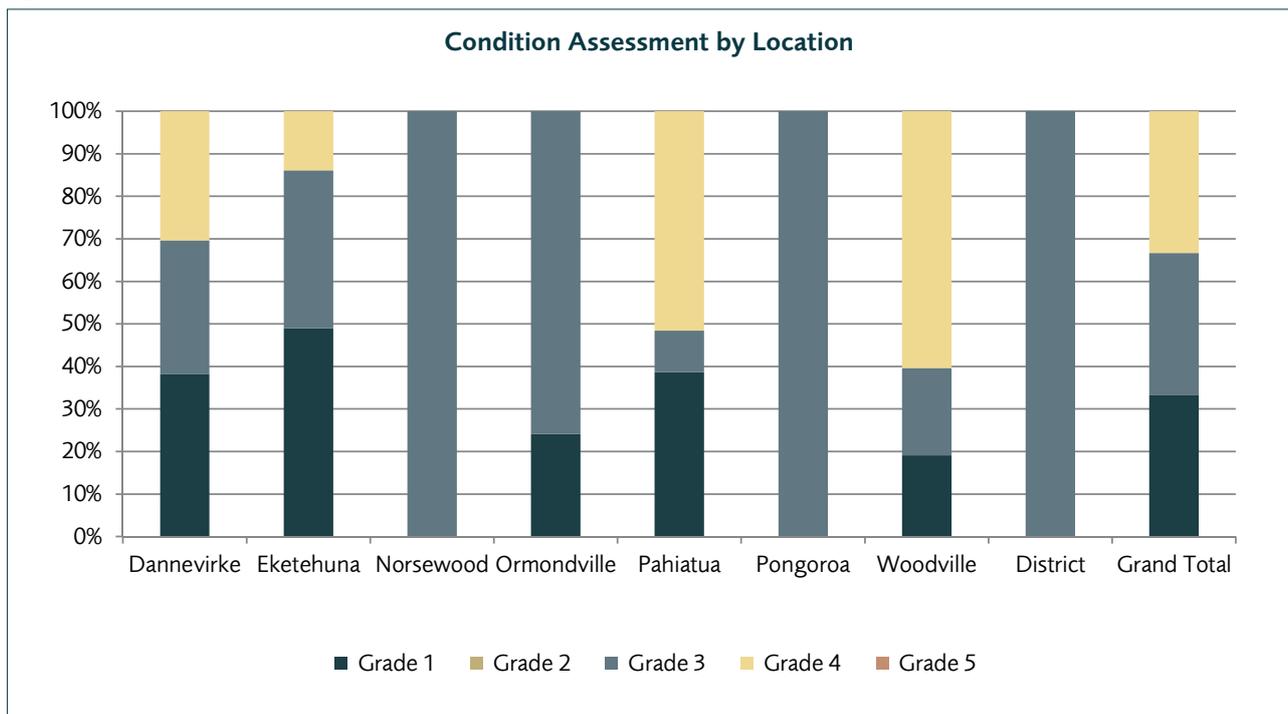
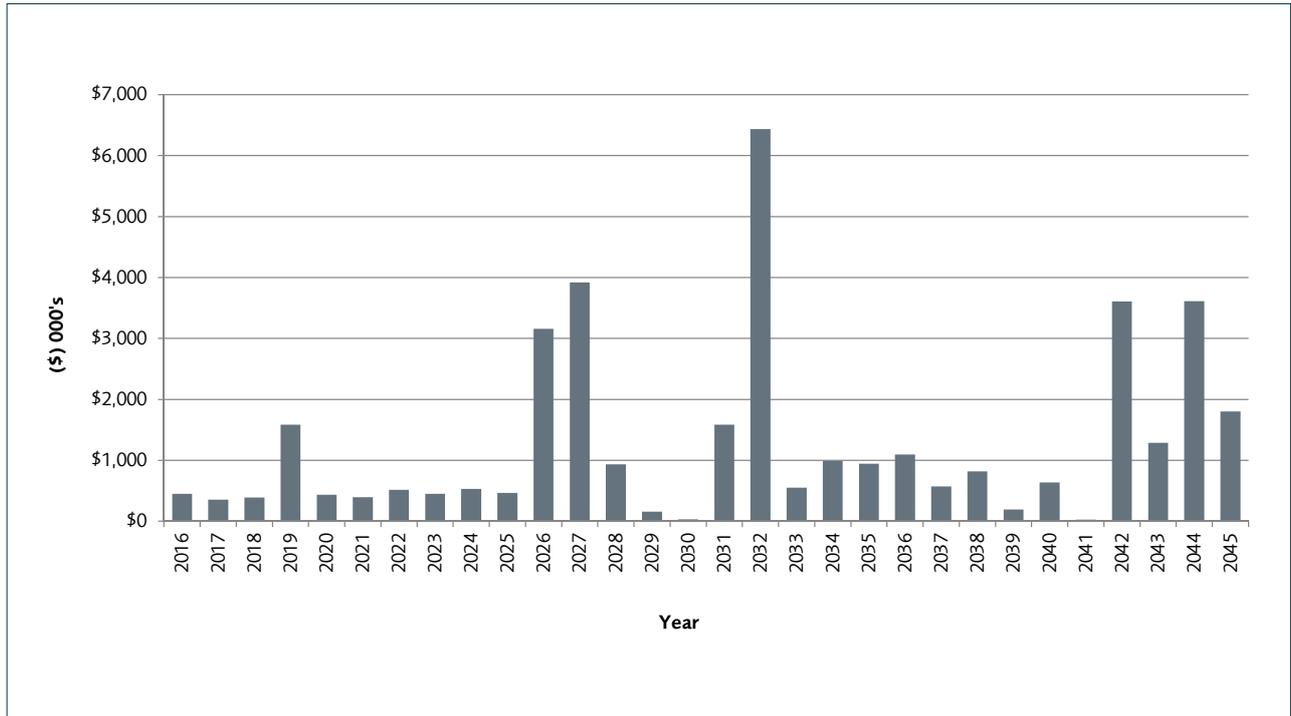


Figure 9: Total Wastewater Renewals 2015-2045



6.3.6 Significant Decisions Relating to Wastewater

Land Irrigation

Council remains committed to further reducing impacts from wastewater discharges into rivers, and over the 10 years of this plan, will continue to pursue land based treatment options. This includes the irrigation and secondary use of the land, which may require the direct purchase or lease as suitable land becomes available. A budget of \$450,000 has been included in the 10 year plan.

6.4 Stormwater

Council aims to provide protection of the community's assets from flooding by providing systems that enable stormwater to dissipate as quickly as practicable.

6.4.1 Overview of Stormwater Assets

The urban stormwater schemes of the district are outlined in Table 14.

Table 14: Tararua District Council Stormwater Schemes

Location of scheme	Gross Replacement Cost (\$)	Depreciated Replacement Cost (\$)
Pahiatua	6,491,205.31	4,623,145.02
Dannevirke	7,460,189.90	4,350,596.12
Woodville	2,838,969.69	1,846,876.15
Eketahuna	1,353,761.43	751,631.51
Grand Total	18,144,126.33	11,572,248.80

The network assets consist of:

- **21.8km of pipes**, of which:
 - 18.3km are reinforced concrete with rubber joints;
 - 1.6km are uPVC plastic.

- **307 manholes** made from steel reinforced concrete with cast iron lids.
- **1.3km culverts**, either round, rectangular or "arch roofed" in cross section, carrying stormwater under buildings, roads and driveways.
- **23.9km of open-channel drains and streams.**

Also part of the system but managed under Council's Asset Management Plan for Roading:

- Approximately 886 sumps made of steel reinforced concrete with metal grates.
- Approximately 225km of kerb and channel draining to the stormwater networks.

6.4.2 Key Issues

The key issues that have been identified for Council's stormwater schemes include:

- Localised surface flooding during heavy rainfall events
- High volumes of water entering the townships from surrounding areas
- The high cost of maintaining open water courses
- Public health and safety issues associated with open drains in urban areas

6.4.3 Level of Service Assumptions

- The future costs of providing desired levels of service and funding are based on the current One Plan. No significant changes to this plan will occur during the period of the strategy.
- Levels of service will be progressively increased in those schemes where the current level of service falls below the agreed targets in the Long Term Plan. All other level of service will remain unchanged.

None of the above assumptions are rated as having a high degree of uncertainty¹².

Council intends to deliver the following levels of service to communities connected to an urban stormwater scheme¹³.

These are no different to the levels of service that are currently being delivered.

- An effective stormwater system that protects people and properties from flooding.
- A reliable stormwater network.

In order to achieve the above service standards, Council intends to increase the following levels of service:

6.4.3.1 Surface flooding and resilience of schemes

Council intends to reduce the incidence of surface flooding events and incidences of residential and business inundation by stormwater during heavy rainfall. Modelling techniques will be used to assess stormwater distribution throughout the township, identifying the areas with potential for stormwater issues. Council's response to this information will be a combination of diverting stormwater before it enters the area, building up stormwater holding capacity within the area and increasing maintenance of stormwater assets.

Council does not intend to decrease any levels of service.

6.4.4 Demand Assumptions

- Council will continue to manage stormwater in the four towns that currently have an urban stormwater scheme.
- Annual stormwater volumes will remain constant over the next 30 years for the four networks.
- Eliminating infiltration into the sewerage reticulation may, in turn, create a greater stormwater discharge into the network.
- Any new stormwater diversion projects would create new point discharges that would require resource consent from the Regional Council.
- The current levels of service achieved will continue (design return events).
- Ensuring the waterways are clear at all times from rubbish, debris and weed growth so the system runs at full capacity with no obstruction during heavy rainfall .
- There will be increased incidences of heavy stormwater events due to climate change.
- No new major legislation on stormwater will be enacted.
- There will be no large extensions to the stormwater network needed to meet growth during the 30-year period.
- Growth in connections will be limited to infill developments and small subdivisions.

¹² Part B Taranaki District Council Stormwater Asset Management Plan and Long Term Plan Significant Forecasting Assumptions and Risks.

¹³ Taranaki District Council Draft Long Term Plan 2015-2025.



- The existing reticulation will have sufficient surplus capacity to meet forecast demand, throughout the year, stormwater diversion projects have been completed.
- Users will continue to be responsible for the management and funding of their connection to the stormwater outlet in the Council kerb and channel.

None of the above assumptions are rated as having a high degree of uncertainty.

6.4.5 Asset Condition

The condition of stormwater assets is assessed by physical inspection- where assets are easy to access, such as sumps, grates, and through the use of the CCTV camera where assets are below ground such as pipes. Inspection also occurs as part of physical renewal work, asset failures and when addressing performance issues. Figure 10 provides an overview of the condition of assets within each scheme using the 1–5 condition grading system outlined in Section 6.2.1.

For stormwater assets, the condition grading of the schemes is largely based on age and type of material. The CCTV camera has allowed Council to gain a good understanding of pipe condition and performance. This data is now being used to programme pipe renewals. When Council has a complete data set, this information will be used to reassess the overall condition of each scheme and forecast the timing of renewals.

Figure 11 provides an overview of the current renewal profile for storm water assets based on SPNAM data. The large peak in 2037 is as a result of assumed installation date, rather than known condition. The data will be reviewed as part of Council's asset management improvement programme.

6.4.6 Significant Decisions Relating to Stormwater

Dannevirke Stormwater Diversion

In Dannevirke, stormwater enters the Mangapurupuru Stream and then runs through the town. Council is investigating a project that will reduce stormwater flooding in the town by diverting stormwater away from the Mangapurupuru Stream.

As each stormwater network operates as one system, any changes will have an impact on other parts of the scheme. Council is proposing to conduct stormwater modelling in Year 1 (\$25,000) to understand the best value stormwater options to solve the current problems. A possible response is to build two new stormwater pipes to divert stormwater from flowing through the network.

- Divert stormwater at Cole Street and pipe to discharge into Mangatera Stream.
- Divert stormwater from High Street/Hospital Street and pipe down legal right of way to Mangatera Stream.

Pahiatua Stormwater Diversion

In Pahiatua, the aim is to reduce stormwater flooding during heavy rain events, but also to improve the safety and aesthetics of Huxley Street by piping the existing drain. These are two separate projects but are closely related. Piping the Huxley Street drain becomes more feasible once stormwater flowing into the system from the rural area to the south of Pahiatua is diverted – this has been debated by Council's for over 30 years.

Council needs to better understand the flows and impacts of change in order to find an affordable solution. As in Dannevirke, Council is proposing to conduct stormwater modelling in Year 1 (\$25,000) to understand best value options with the decision to be made as part of 2016/17 Annual Plan process. Funding is included for a stormwater diversion project in 2017/2018, and piping the Huxley Street drain in 2021/22.

Figure 10: Condition of Stormwater Schemes

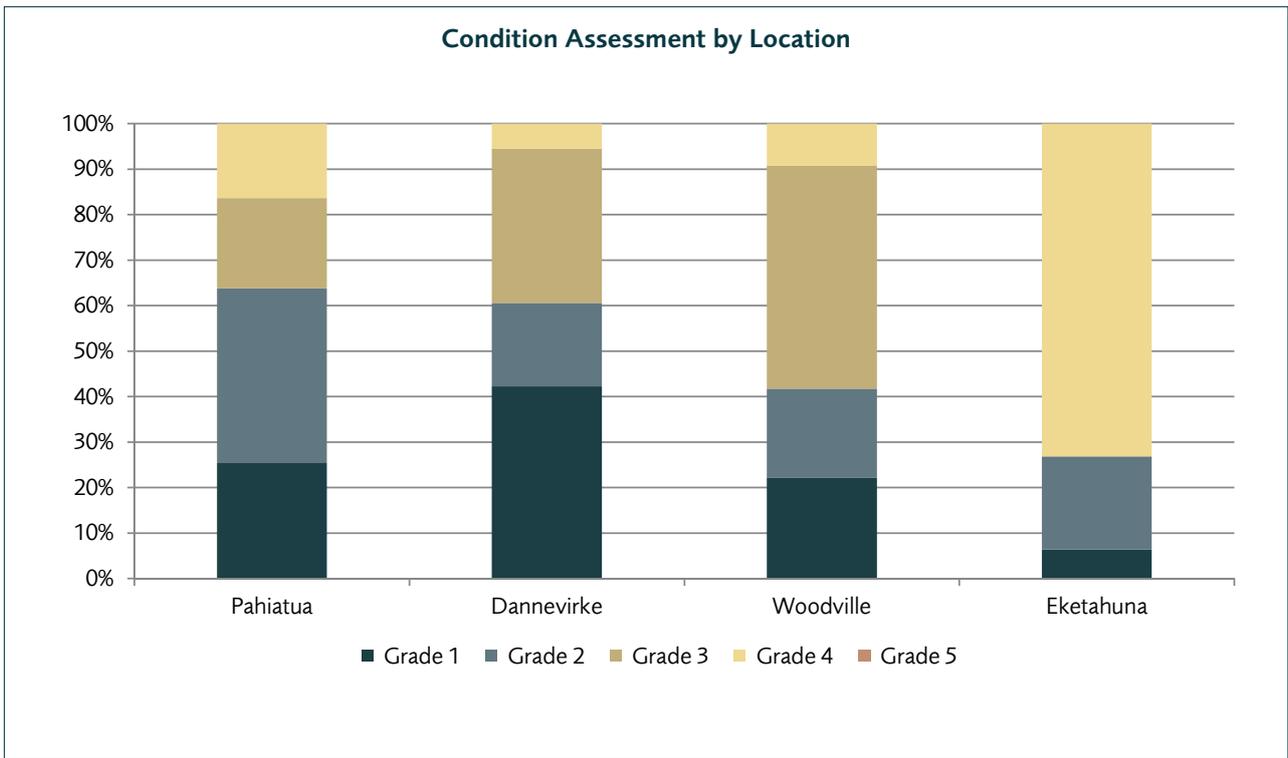
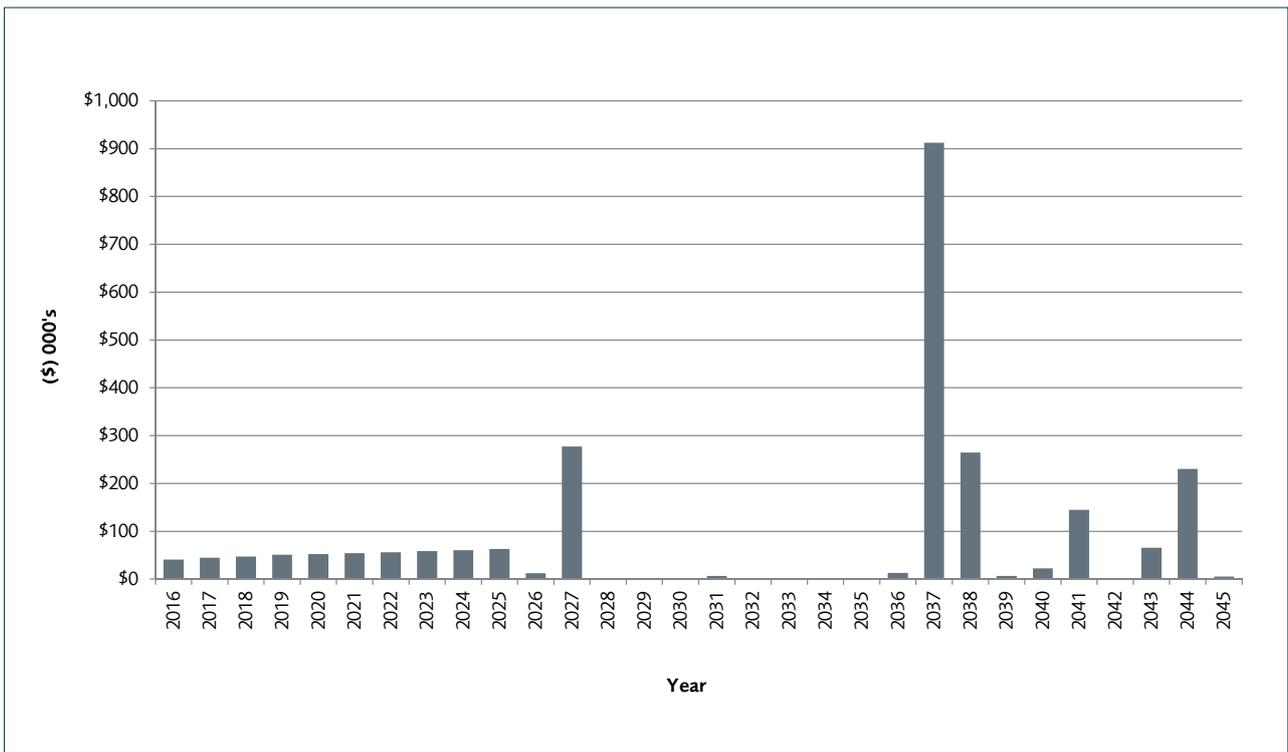


Figure 11: Total Stormwater Renewals 2015-2045





6.5 Transportation

Council aims to provide a safe and efficient Roothing network that meets the short and long term needs of the District and is operated and enhanced in a sustainable manner at the lowest overall whole of life cost.

6.5.1 Overview of Transportation Assets

The transportation assets of the district consist of:

- 1,175.60kms of sealed roads
- 782.10kms of unsealed roads
- 112.40kms of footpaths
- 9106 road signs
- 398 bridges
- 130 large culverts
- 2,078 water tables
- 1,542 surface water channels

The values of the transportation assets are detailed in Table 15.

Table 15: Tararua District Council Transportation Assets

	Gross Replacement Cost (\$)	Depreciated Replacement Cost (\$)
Road surface	36,710,151.80	20,918,317.11
Sealed basecourse	154,294,967.31	101,208,887.23
Sealed formation	437,524,890.80	437,524,888.56
Sealed land	24,832,602.78	0
Sealed sub-base	37,826,485.56	36,125,482.50
Road footpaths	11,880,649.18	5,962,057.79
Road roundabouts	398,196.49	306,913.90
Road structure bridges	131,548,942.13	52,150,306.26
Road structures large culverts	15,895,823.40	5,118,211.29
Group summary	147,444,765.53	57,268,517.55
Road drainage	85,639,776.86	67,510,181.52
Road lights:	2,665,570.99	1,060,487.70
Road traffic facilities signs	1,853,940.74	926,970.44
Total	941,071,998.06	728,812,704.30

The Roothing Network within Tararua District Council has grown the amalgamation of various counties/boroughs such as Dannevirke, Woodville, Pahiatua, Eketahuna, Akitio, and Weber.

All counties/boroughs had various forms of road management within very differing ground/road conditions. Areas towards the coastal region had very unstable country, whereas, areas to the south had many roads built on river gravels.

Records show prior to various amalgamations many roads were sealed particularly within the Woodville area. Pavements were not fully reconstructed but road surfaces broomed and sealed. This occurred through the early seventies/eighties. Over the following years reseals and pavement rehabilitation have been undertaken on the sealed surfaces.

6.5.2 Key Issues

The challenges facing the Roothing network are not related to traffic growth. Across the network there is considerable spare capacity to cater for additional traffic flows. The key issues are:

- The roading network is old and was not originally built to handle the heavy traffic that uses it today.
- Changes to NZTA Funding Assistance Rate (FAR) Review and One Network Road Classification (ONRC) may force reductions in levels of service.
- Emergency works and the effects of Flat Lined Subsidy.
- Increasing costs and reduced funding from NZ Transport Agency for maintenance and renewals.
- Increasing effects of forestry and dairy on the network.
- Securing funding for network improvements.
- Renewing the large number of bridges in the future.

A 30-year roading strategy has recently been prepared¹⁴. In conjunction with the asset management plan, this provides more detail on the management of transport assets over the next thirty years.

6.5.3 Level of Service Assumptions

Roothing is funded through a partnership with Central government through the NZ Transport Agency. Historically most standards were set by the Council within broad NZTA guidelines. This year a new system has been set in place that sets national standards (One Network Road Classification) for each type of road. Figure 12 shows the movement in road classifications within the Tararua District Council network. This

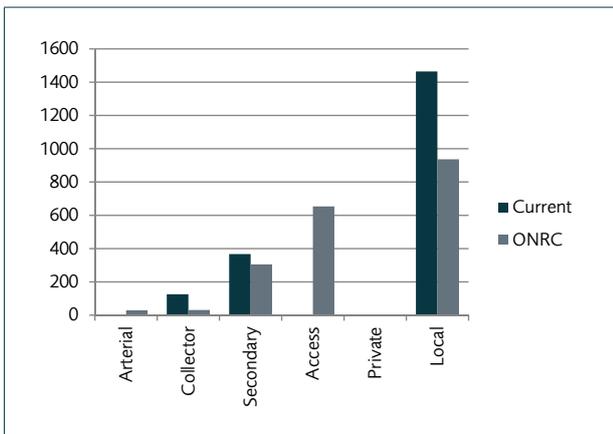
¹⁴ Tararua District Council – 30 Year Roothing Infrastructure Strategy

may impact on the affordability of maintaining existing levels of service.

Other assumptions include:

- Levels of service will be progressively increased on those roads where the current level of service falls below the agreed targets in the Long Term Plan. All other level of service will remain unchanged.
- Council will continue to address safety issues on the network as they are identified.

Figure 12: Kilometres of Tararua District Council Roads Within NZTA Rooding Categories



None of the above assumptions are rated as having a high degree of uncertainty¹⁵.

Council intends to deliver the following levels of service to the community¹⁶. These are no different to the levels of service that are currently being delivered.

- Safety: Utilise appropriate best practice to provide a safe road network.
- Quality: Construct and maintain road links to provide appropriate access.
- Reliability: Provide a Rooding network that gives substantially unimpeded travel.
- Appearance: Provide a road network that is aesthetically pleasing.
- Affordability: Provide an affordable road network.
- Legislative: Ensure activities associated with the road network comply with legislation and the Council's legal liability to provide roads.

- Community: Recognise roads as part of the community where enquiries are responded through a timely manner.

6.5.4 Demand Assumptions

- There will be no significant increase in the size of the network.
- Traffic volumes will remain low.
- Mature forests will be harvested and transported to ports by road.
- Mobility scooters on footpaths will increase as out population ages.
- Some roads will be subjected to more heavy vehicles, for intense periods of time, as a result of forestry harvesting.
- Users will continue to be responsible for the management and funding of their vehicle crossing.

None of the above assumptions are rated as having a high degree of uncertainty.

6.5.5 Asset Condition

Pavement Condition

Pavement condition is currently assessed by road roughness, visual inspection and age. Some deflection and circle testing is also carried out.

Condition is measured biennially and physical faults are continuously recorded over a fixed statistically representative portion of the carriageway. Capturing condition at any one time is complex because of the constant wear, and it is more meaningful to chart the trends from year to year. The extent and severity of defects such as rutting, cracking, shoving, corrugations, potholes and edge break, together with roughness, define the overall condition of the pavement.

Figure 13 (over page) shows asset condition using the roughness readings. These readings are only taken on sealed roads. Unsealed road roughness is a much more difficult task to deal with. A roughness level of 130 is generally considered to be the point at which road pavements should be considered for renewal. Of the 1,322km surveyed, 19% of the roads have a roughness count of less than 50, whereas only 2% are greater than 230. Being a district with predominantly low traffic volumes, consideration is all we can give to these sections. Rehabilitation work is based more on observed condition than roughness.

¹⁵ Part B Tararua District Council Transportation Asset Management Plan and Long Term Plan Significant Forecasting Assumptions and Risks.

¹⁶ Tararua District Council Draft Long Term Plan 2015-2025.



Figure 13: Surface Roughness Statistics

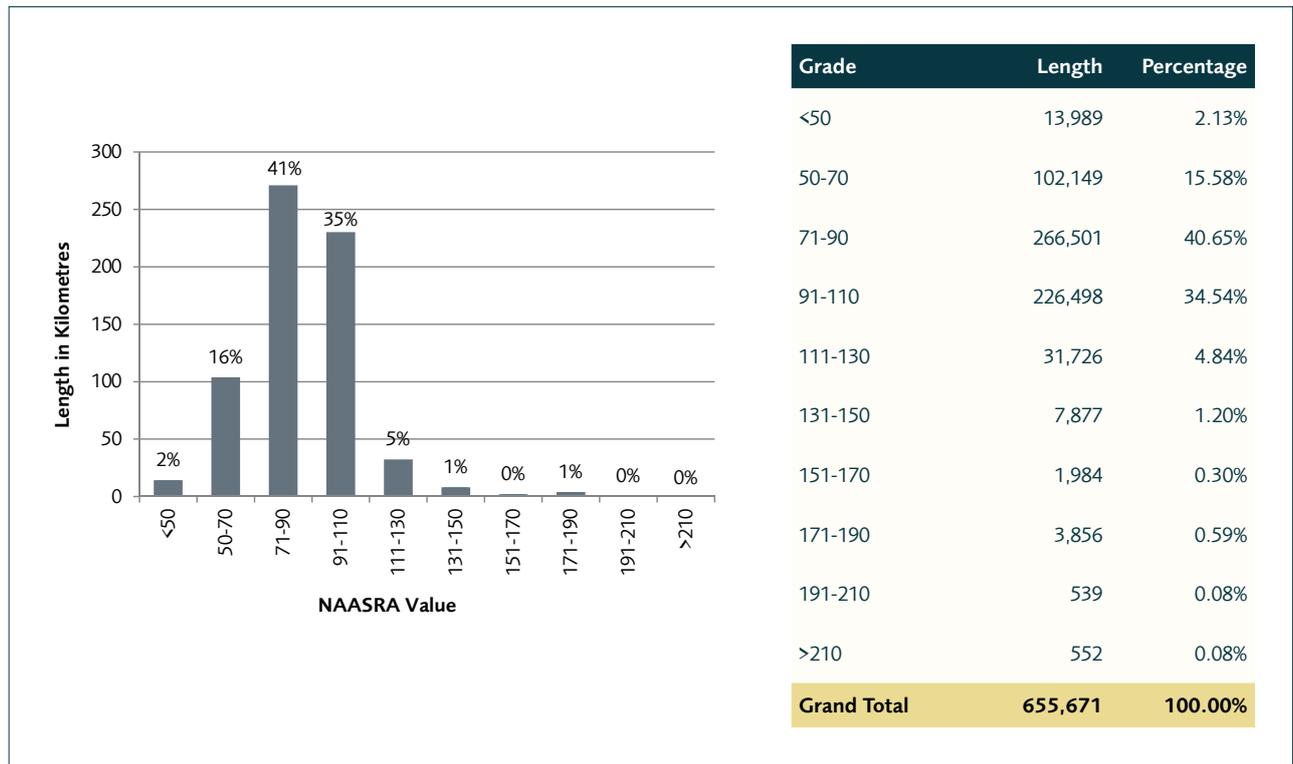
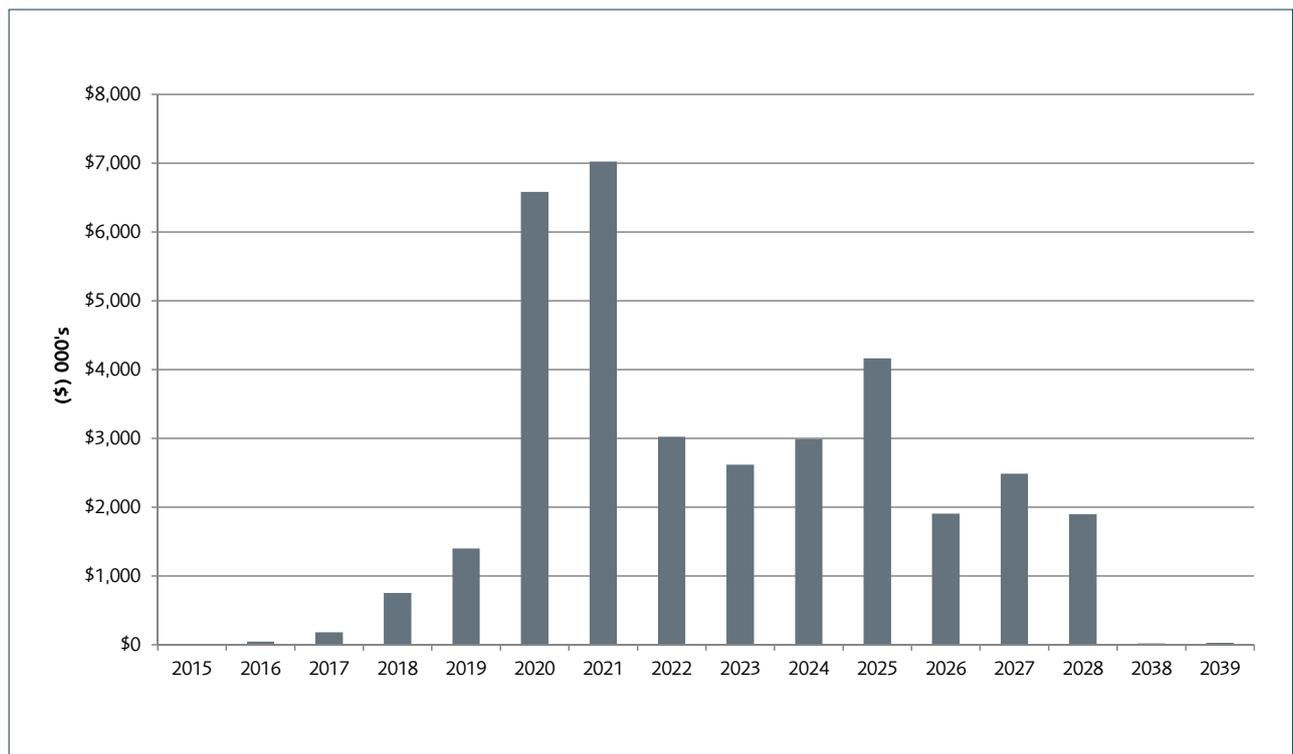


Figure 14: Forecast Road Surface Renewals





Council is aware that parts of some significant assets are ageing and will need renewal over the next 30 years. These form the basis of the renewal budget forecasts contained in this Strategy and the 2015–2025 Long Term Plan.

The assumptions underpinning these renewal profiles are:

1. That Council will manage out any peaks and troughs and maintain the average sealing quantity as per the last 20 years.
2. Over the past 20 years, Council has averaged 93km of reseal per year, so with an average seal width of 5.6m we end up with 522,404m² seal a year.
3. Using the 2014/15 valuation rate at \$4.96/m² for sealing, we end up with a starting point of \$2.5 million.
4. Inflation at 1% over the whole period – this is in line the NZ Transport Agency budget provisions.

Bridge Asset Condition

Annual inspections are carried out on all bridges, large culverts, and underpasses using the NZ Transport Agency 'Bridge and Other Structures Inspection Policy' (NZTA S6:2009) as a basis for inspection policy, and using the Transit New Zealand 'Bridge Inspection and Maintenance Manual Revised Edition – 2001'

(manual number: SP/M/016) for inspection and recording procedures.

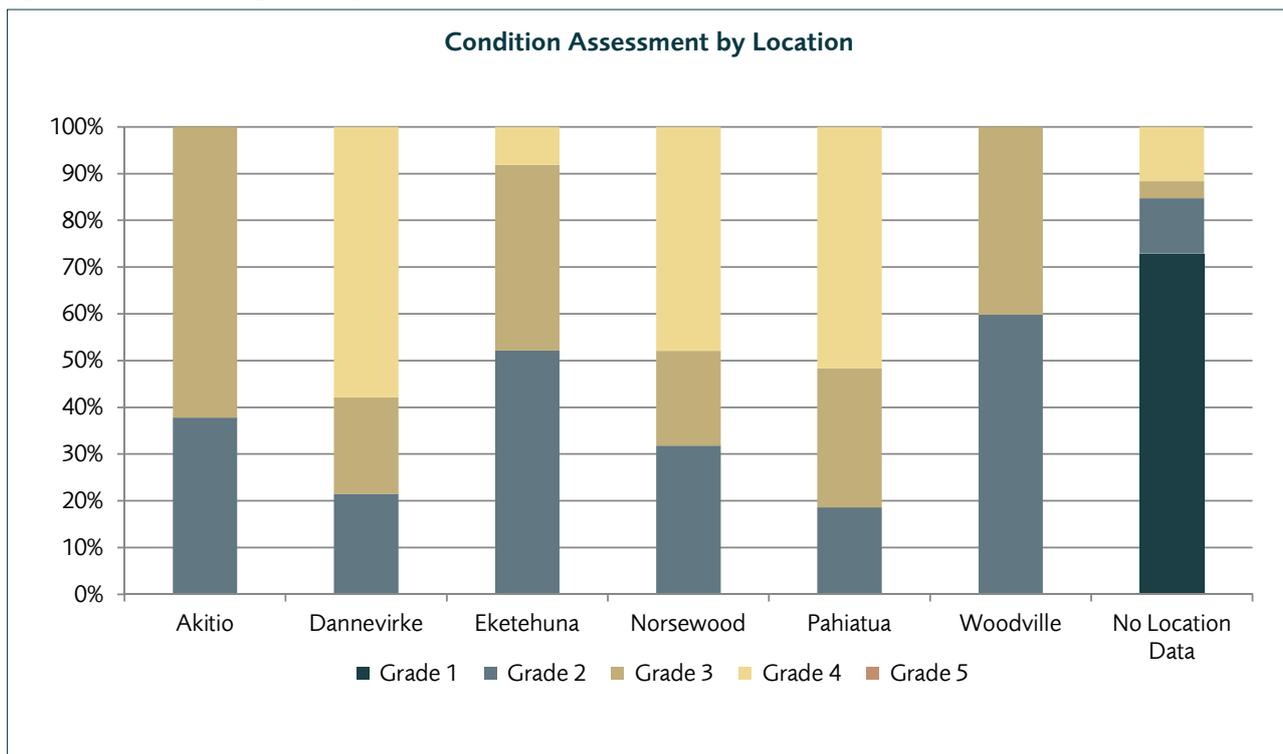
A formal condition-grading programme has also been developed. This rating assesses the major components of the Bridge, assisting with forecasting remaining useful life. As time progresses the inspections will give a pattern to develop further maintenance needs or ultimately signal Bridge Renewals.

An overall intention of this rating system will be to form guidance for bridge lifespans, which have the potential to increase.

Figure 15 provides an overview of the condition of bridges and large culverts assets within each scheme using the 1–5 condition grading system outlined in section 6.2.1.

As New Zealand is a relatively young nation the history on Bridge lifecycles is unknown so hence the current practise of giving a Bridge an average life expectancy of 100 years. As many of these assets have yet to be renewed there is often no proven age that they will need to be replaced. Renewal ages are based on industry accepted good practice and are conservative. Current renewals do not point to any issues with this approach (i.e. asset failures have not increased in recent years).

Figure 15: Condition of Bridges and Large Culverts Within Network





The renewals forecast for bridges based on a 100 year life, is shown in Figure 16.

If we use condition information as evidence that the bridge life expectancies can be increased then the depreciation values change significantly for bridge renewals over the next 30 years:

- Under current life cycle of 100 years requirement will be for 115 Bridges to be renewed at an estimated cost of \$34,615,107.
- If the lifecycle is adjusted to 110 then the requirement will be for 45 bridges to be renewed at an estimated cost of \$13,762,852.
- If the lifecycle is adjusted to 120 then the requirement will be for 9 Bridges to be renewed at an estimated cost of \$1,637,571.
- If the lifecycle is adjusted to 130, then the requirement will be for one bridge to be renewed at an estimated cost of \$121,827.

As actual condition assessments improve over the medium term, these will be used to modify the renewal forecasts. As an example, major bridge renewals could easily change by +/- 10 years or even longer on the positive side.

6.5.6 Significant Decisions Relating to Transportation

Town Centre Upgrades

Council will continue with its town centre upgrade projects, with Eketahuna and Pahiatua due in the next few years. Council will

work closely on the design and scope with the local community and businesses. NZ Transport Agency is also involved as the owner of the state highway road(s) passing through these towns.

The upgrades have three main objectives. The first is to provide an attractive town centre environment for residents that increases local pride. Secondly to increase local business by attracting out of town travellers to stop and shop. Thirdly to upgrade infrastructure (water, stormwater, wastewater, communications) where required while the road and footpaths are being dug up.

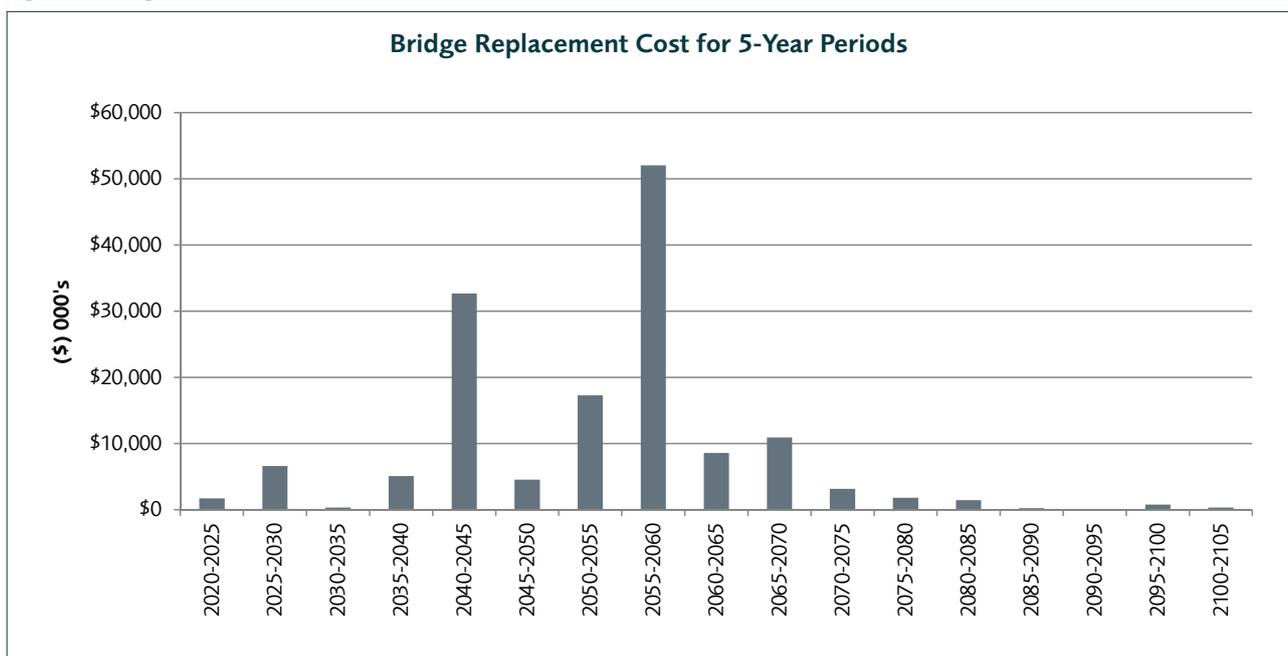
Eketahuna Town Centre Upgrade

The upgrade of the Eketahuna town centre is next off the block and is scheduled for 2015/16 for a total cost of \$442,000. The Eketahuna Community Board has undertaken a comprehensive community consultation process to establish the outcomes the community wants from the project. Council will also do kerb and channel, water, stormwater, and wastewater renewals, and consider lighting, safety and telecommunications improvements as part of this upgrade. To assist with the total construction cost, where possible, these additional works will be funded from budgets other than the town centre upgrade projects.

Pahiatua Town Centre Upgrade

The Pahiatua town centre upgrade follows, and is scheduled to start in 2017/18 at a total cost of \$2.9 million. As with Eketahuna, infrastructure and other renewals/upgrades will also be considered.

Figure 16: Bridge Renewals



A

APPENDIX A – ASSUMPTIONS

The Council has made a number of assumptions in preparing the 10-year Long Term Plan. The assumptions ensure that all estimates and forecasts are made on the same basis across all Council activities. These assumptions have been used for the infrastructure strategy.

These assumptions are outlined below. They are described in more detail, including mitigation measures in the Draft Long Term Plan 2015–2025.

1. Population Growth or Decline

Assumption

Population growth - Council has projected that over the 10 years, the district population will increase slightly by 3% with the total population in 2026 at 17,850 compared to 17,255 estimated in 2013 (based on 2013 Census).

Households (including unoccupied) are forecast to increase by 5% with the total households in 2026 at 8,500 compared to 8,076 estimated in 2013 (based on 2013 Census).

Risk

Population and household growth is significantly different (growth or decline) to that assumed, or population in a particular sector may change significantly.

Level of Uncertainty

Low to medium.

Impact

Low to medium



2. Ageing Population

Assumption

That the median age of District residents will increase significantly over the long term leading to changes in the way Council delivers services. The number of residents aged 65+ increased by 17% from 2006 to 2013. Older people now make up 17% of the resident population (March 2013). This is expected to increase to 24% in 2026.

Risk

The main risk is that population will continue to age significantly faster than forecast. The increase in older people is happening at a faster rate than previously forecast.

Level of Uncertainty

Low – The long-term trend to an older population is reasonable certain. The actual outcomes are highly dependent on the migration trends.

Impact

Low.

3. Natural Disasters

Assumption

Natural disasters – Council will be prepared to respond to any natural hazards including floods, storms, earthquakes and volcanic activity that occur. It is assumed that natural disasters will not be catastrophic in scale such as experienced by Christchurch City recently.

Risk

Natural disaster can cause significant damage to infrastructure and disruption of service. An increasing number of natural disasters including earthquakes, floods and volcanic events have occurred in New Zealand in the last decade. Insurance is becoming increasingly difficult to obtain at an affordable level.

Council may not be adequately prepared or resourced to respond to a major natural disaster, or to a succession of natural disasters. The current risk partnership with government where the government covers 60% of costs to Water and Wastewater from natural disasters (leaving Council to cover 40% through external insurance cover or self-insurance may not continue¹⁷). Any reduction in government cover from 60% will result in increased insurance costs or higher risks. The % government contribution to Roading repairs through NZTA is set by the FAR plus 20% (85%) and the size of the event. Current indications are that the criteria for government funding may be tightened, increasing the risks to Council.

Level of Uncertainty

Low.

Impact

High.

4. Infrastructural Capacity

Assumption

That forecast population, household and business growth could be catered for by current and planned capacity of assets.

Risk

A major surge in household and/or industrial growth in a number of urban centers would place pressure on three waters infrastructure in those networks. This is unlikely and there is considerable existing capacity (both in infrastructure and housing) in the urban areas.

Level of Uncertainty

Low – a much higher growth rate would be required before capacity issues arose due to the level of surplus capacity currently in the networks.

Impact

Low.

5. Climate Change

Assumption

It is assumed that the District will be affected by long-term climate change in parallel with predicted changes as advised by government agencies, and that any climate changes will not be significant during the 10 Year Plan.

Risk

That there will be increasing intensity of climate related event(s) requiring emergency work that cannot be funded out of normal budgetary provisions.

Level of Uncertainty

Low/medium – while the long term trend of rising temperatures and more frequent intense weather events is reasonably certain, the short to medium term impacts are less certain.

Impact

Medium.

6. Inflation

Assumption

Council has adjusted financial projections to reflect the estimated impact of inflation. Council has used the Local Government Cost Index (LGCI) forecasts of price level changes to calculate a weighted average inflation rate for each year of the plan. Appendix one contains the BERL inflation adjusters (commissioned by the Society of Local Government Managers) used in producing this plan. These forecasts were issued in October 2014.

Risk

That actual inflation will be significantly different from the assumed inflation. Council is exposed to cost increases based on international oil prices (pipes, bitumen, and fuel). Council has no control on these prices and these are often volatile due to shifts in exchange rates and international oil prices.

Level of Uncertainty

Medium.

Impact

Medium.



7. Asset Lives

Assumption

Useful lives of assets are as recorded in asset management plans or based upon professional advice. Refer to Accounting Policies for Depreciation Rates. The overall costs of renewals and operating costs for the three waters and Roothing is shown in the Infrastructure Strategy.

Risk

Assets wear out earlier or later than estimated.

Level of Uncertainty

Years 1-3 low; Years 4-10 medium; years 11 to 30 (as shown in Infrastructure Strategy) medium.

Impact

Medium.

8. Revaluation of Property, Plant & Equipment

Assumption

Assets are valued as stated in the accounting policy. The following assumptions have been applied to projected asset revaluations:

- the revaluations will reflect the changes predicted by BERL;
- depreciation impact of inflation will be in the year following revaluation;
- value of non-depreciable assets (e.g. land) is forecast to remain constant.

Risk

That the BERL Forecasts will be materially incorrect, leading to misstatements, in particular forecast asset values that will result in changes to the depreciation charged and hence the rates levied.

Level of Uncertainty

Medium.

Impact

Medium.

9. Contracts

Assumption

There will be no significant variations in terms of price from the re-tendering of operation and maintenance contracts and renewal of service level agreements, other than those variations recognised in this plan.

Risk

There is a significant variation in cost and / or terms from re-tendering contracts and renewal of service level agreements. Refer to the inflation assumption for more detail on cost impacts.

Level of Uncertainty

Low.

Impact

Medium.

10. Sources of Funds for the Replacement of Significant Assets

Assumption

That the depreciation reserves will adequately fund the renewals of assets over the 10 year period and the longer term (to 2045). Additional details are set out in the Revenue and Finance Policy, Financial Strategy and Infrastructure Strategy.

Risk

That there will be a shortfall in funds available to replace assets.

Level of Uncertainty

Medium.

Impact

Medium.

11. NZTA funding

Assumption

NZ Transport Agency requirements and specifications for the performance of subsidised work will not alter to the extent that they impact adversely on operating costs. As a result of the FAR review Council is forecasting that the current subsidy level of 62% (2015/16 formaintenance and renewal costs within the approved NZTA Roothing Programme) will increase by 1% a year to 65% in 2018/19. The 65% level of subsidy is assumed to continue after that for the long term.

Risk

Changes in the subsidy rate and variation in criteria for inclusion in the subsidised works programme. A new national level of service framework (ONRC) is being implemented for 2018 onwards. This may reduce the roading programme eligible for subsidy. Emergency works criteria has changed and may reduce the level of subsidy to repair flood damages.

Level of Uncertainty

Medium(due to ONRC implementation).

Impact

Medium.

12. Subsidies for Water and Wastewater Upgrades

Assumption

Health and Environment subsidies will not be available for wastewater network improvement projects that are additional to those already approved under the Ministry for the Environment River Clean-up Fund. Water Supply subsidies from the Ministry of Health Drinking Water Subsidy Scheme are assumed to close in 2014/15. Subsidies have been secured for some current projects that are yet to be built. Details of individual upgrade projects and the funding sources are set out in the Statement of Capital Expenditure.

Risk

There is no risk to the Long Term Plan forecasts as any variation to this assumption will be financially positive to Council.

Level of Uncertainty

Medium.

Impact

Low.

13. Wind Farm Impact

Assumption

Development of wind farms will not have significant impact of Council renewals expenditure for the roading network.

Risk

Wind Farms will result in significant cost to Council in upgrades and renewals or their timing for the roading network.

Level of Uncertainty

Low.

Impact

Low.



14. Legislative changes

Assumption

Legislative changes are expected to have a minor effect on Council's finances and / or levels of service, but no change to the current governance arrangements. It is assumed existing shared services and collaboration will continue.

The Council is assumed to retain the current boundaries and it is assumed that there will be no forced amalgamations.

The forecasts assume:

- that the Council will continue to deliver infrastructural services within the existing legislative framework;
- that legislated minimum levels of service / standards (such as drinking water quality) will not be changed.

Risk

Roading, Water Supply, Wastewater and Stormwater are the subjects of ongoing reviews that could impact on the way these services are delivered. Local Government New Zealand is leading a review of possible efficiencies in the three waters activities.

Changes to the Health and Safety Act have been signaled for 2015. These changes are likely to increase the risks/ liability for Council and senior Council staff. Additional processes and operating costs above the ability to be absorbed in current budgets are possible.

The government has stated that forced amalgamations will not occur. This may change over time. Any group in the community can now initiate a review of Council boundaries. Over time, if amalgamations proceed in other regions, it is likely that the issue of amalgamation with one or more neighbors will arise and be the subject of a Local Government Commission review.

Level of Uncertainty

Medium.

Impact

Medium/high.

15. Resource Consent Renewals

Assumption

Conditions of existing resource consents held by Council will not be altered significantly. Any resource consents due for renewal during the 10-year period will be renewed accordingly. Resource consents issued for new/upgraded infrastructure will not contain significantly different conditions/standards to those anticipated in the project.

Risk

Conditions of resource consents are altered significantly.

Council is unable to renew existing resource consents upon expiry.

Level of Uncertainty

Medium.

Impact

Low.

16. Interest Rates

Assumption

Council has budgeted for this long-term plan that interest on loans raised will be 5.5% in year one and average 5.8% over 10 years. It is assumed that return on investments made by Council will be 4.5% year 1 and average 4.8% over 10 years.

Risk

Prevailing interest rates will differ significantly from those estimated.

Level of Uncertainty

Medium.

Impact

Low.

17. Access to External Funding

Assumption

Council will be able to borrow at the required level.

Risk

Inability to fund services or capital investment if Council is not able to borrow. Risk is seen as low as Council have access to the LGFA funding market. While it is likely Council will be able to secure loans, it cannot be guaranteed.

Level of Uncertainty

Low.

Impact

High.



B

APPENDIX B – DATA CONFIDENCE

From Valuation Report 2012/13:

Table 16: Data Reliability

Asset Type	Reliability of data
Pavements	A
Formation and basecourse	D
Small culverts	C
Other road components	B
Pipeline assets*	B-C

** While pipeline quantities are well documented (rating A), there is little condition data and hence remaining lives have a low confidence rating (B-C).*

- A – Highly reliable** Data based on sound records, procedure, investigations and analysis, documented properly and recognized as the best method of assessment.
- B – Reliable** Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example the data are old, some documentation is missing, and reliance is placed on unconfirmed reports or some extrapolation.
- C – Uncertain** Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data is available.
- D – Very uncertain** Data based on unconfirmed verbal reports and/or cursory inspection and analysis.

Roading

(From Asset Management Plan)

Table 17: Data Confidence and Completeness

Year	Data Confidence				Data Completeness				
	Very uncertain	Uncertain	Reliable	Highly reliable	60%	70%	80%	90%	100%
Bridges			●					●	
Culverts		●			●				
Footpaths								●	
Marking			●				●		
Retaining walls		●			●				
Signage			●				●		
Street lighting			●					●	
Carriageway			●					●	

Table 18: Data Accuracy Grading System

Grade	Description	Accuracy
1	Accurate	100%
2	Minor Inaccuracies	+/- 5%
3	50% estimated	+/- 20%
4	Significant data estimated	+/- 30%
5	All data estimated	+/- 40%

Water Supply

(From Asset Management Plan)

The confidence level is assessed at between 2 and 3 overall. Additional pipeline investigations are needed to provide more accurate forecasts of future renewal costs. While the number of assets is high the assessment of condition and costs has only been moderate. Ongoing condition assessment is also needed to further determine the appropriate time of renewal expenditure. Data accuracy is assessed at around 80%.



Wastewater

(From Asset Management Plan)

The confidence level is assessed at 3 overall. Additional pipeline investigations are needed to provide more accurate forecasts of future renewal costs. While the number of assets is high the assessment of condition and costs has only been moderate. Ongoing condition assessment using the CCTV camera, and linked to the asset register is needed to further determine the appropriate time of renewal expenditure. Data accuracy is assessed at around 70%. Although the data accuracy appears low at 70% the indications from the Customer Service records that the proposed level of service is being met.

Stormwater

(From Asset Management Plan)

The confidence level is assessed at just over 2 overall. Condition assessments of pipes and culverts are largely complete. Ongoing condition assessment and valuation is required on stormwater assets to determine the appropriate time of renewal expenditure. A documented renewal schedule is yet to be prepared in detail. Improvements to the maintenance process for and accuracy of the Asset Register information is required. This will be a key role of the Tararua Alliance who are now managing stormwater as part of the Roding network

C

APPENDIX C – SIGNIFICANCE AND ENGAGEMENT POLICY

This policy provides that in determining the degree of significance of any issues, proposals, assets, decisions, or activities, Council will assess and consider a set of criteria and measures.

Table 19: Criteria for determining significance (reproduced from Council Significance and Engagement Policy)

Criteria	Measure
1. The degree to which the issue/ decision affects the district	Has a substantial tangible impact on the whole District based on changes to services levels or the manner in which revenue is to be obtained.
2. The degree to which the issue/ decision affects the level of service of a significant activity	A significant multi-year change in the levels of service at an activity level.
3. The impact on the ability of future Councils to reverse the decision, where financial or legislative agreements permit	Future Councils will be committed to long-term (>5 year) contract costs (>5% of Council operational costs), without the ability to periodically consider viable alternatives.
4. The degree to which the issue/ decision has a new financial impact on Council or the rating levels of its communities	Impact on rates is not within the Financial Strategy limit (LGCI plus or minus 2% in one year).
5. The degree to which a decision or action would require a change in an underlying strategic policy	The decision represents a new strategic direction for Council.
6. The level of district interest in the decision	A decision or proposal on a matter where the majority of a community expresses considerable interest or the community is deeply divided.

The significance and engagement policy states that, in general, if an issue exceeds at least two of the above criteria, the matter is more likely to be considered significant. In determining whether a decision about capital expenditure is significant or not, criteria 1, 2, 5 and 6 are considered to be the most relevant.



D

APPENDIX D – ASSET LIVES

Table 20: Asset Lives

Asset Category	Useful Life	Depreciation Rate
Operational & Restricted Assets		
Buildings	15–80	(1.3%–6.7%)
Computer equipment	3–5	(20%–33%)
Furniture and fittings	2–45	(2.2%–50%)
Landfill post closure	25–40	(2.5%–4.5%)
Leasehold Development	3–20	(5%–33%)
Library Books	1–10	(10%–100%)
Motor vehicles	5–20	(10%–20%)
Plant and equipment	2–25	(4%–50%)
Swimming pools	15–50	(2%–6.7%)
Infrastructural Assets		
Roading		
Top surface (seal)	15–18	(5.6%–6.7%)
Top Surface (Unsealed)	1	(100%)
Pavement (seal base course)	30–90	(1.1%–3.33%)
Pavement (unsealed base course)	Not depreciated	
Sub-base (Rural)	Not depreciated	
Sub-base (Urban)	40	(2.5%)
Formation	Not depreciated	
Culverts	50–100	(1%–2%)
Kerbing	25–100	(1%–4%)
Footpaths	10–100	(1%–10%)
Signs	8	(12.5%)
Streetlights	12–30	(3.3%–8.3%)
Bridges	50–140	(0.7%–2%)
Sewerage Network		
Pipes & Manholes	60–120	(0.8%–1.7%)
Treatment Ponds	80	(1.3%)
Pumps	10	(10%)
Flow Monitoring Equipment	10	(10%)



Asset Category	Useful Life	Depreciation Rate
Stormwater		
Pipes	80	(1.3%)
Manholes	100	(1%)
Water Network		
Monitoring Equipment (hardware)	10–20	(5%–10%)
Monitoring Equipment (software)	5	(20%)
Pipes, Hydrants, Valves	50–120	(0.8%–2%)
Treatment Plants	10–100	(1%–10%)
Pumps	15–25	(4%–6.7%)
Tanks	40–200	(0.5%–2.5%)
Waste Management	2–17	(5.9%–50%)
Items under construction	Non depreciable	



E

APPENDIX E – MAJOR CAPITAL PROJECTS 2015– 2025

Table 21: Major Capital Projects 2015–2025

Ref	Activity	Description	Primary Type	Year 1 2016
1	Footpath	Kerb & Channel / Footpath Renewal Eketahuna	Level of Service	442,000
2	Footpath	Kerb & Channel / Footpath Renewal Pahiatua	Level of Service	-
3	Roading	Saddle Road Upgrade	Level of Service	608,000
4	Roading	Minor Safety Improvements	Level of Service	600,800
5	Roading	Unsealed Road Metalling - Heavy Metal Overlays	Renewal	574,711
6	Roading	Traffic Services Renewal	Renewal	92,945
7	Roading	Structures Component Replacements	Renewal	95,000
8	Roading	Sealed Roads Resurfacing	Renewal	2,375,268
9	Roading	Pavement Rehabilitation	Renewal	1,703,996
10	Roading	Drainage Renewals	Renewal	506,035
11	Roading	Bridge Renewals	Renewal	-
12	Stormwater	Pahiatua diversion prior to town system	Level of Service	25,000
13	Stormwater	Dannevirke Mangapurupuru diversion	Level of Service	25,000
14	Stormwater	Dannevirke Allardice St diversion from High St	Level of Service	-
15	Stormwater	Pahiatua pipe Huxley Street drain	Level of Service	-
16	Wastewater	Ormondville sewerage treatment upgrade	Level of Service	-
17	Wastewater	Sewage treatment plant membrane cassettes	Level of Service	-
18	Wastewater	Sewerage treatment discharge to Manawatu River	Level of Service	-



Year 2 2017	Year 3 2018	Year 4 2019	Year 5 2020	Year 6 2021	Year 7 2022	Year 8 2023	Year 9 2024	Year 10 2025
-	-	-	-	-	-	-	-	-
-	51,815	1,591,800	1,260,644	-	-	-	-	-
-	-	-	-	-	-	-	-	-
609,211	622,609	637,569	653,490	671,154	689,959	710,686	732,736	756,888
582,757	595,573	609,883	625,113	642,010	659,998	679,826	700,918	724,021
94,246	96,319	98,633	101,096	103,829	106,738	109,945	113,356	117,092
96,330	98,449	100,814	103,332	106,125	109,098	112,376	115,862	119,681
2,408,522	2,461,490	2,520,634	2,583,579	2,653,412	2,727,758	2,809,705	2,896,877	3,275,480
1,727,852	1,765,851	1,808,281	1,853,436	1,903,534	1,956,869	2,015,657	2,078,194	2,393,620
518,251	534,945	553,277	572,763	594,127	616,883	641,768	668,297	697,227
-	-	-	271,925	-	-	-	-	314,950
-	1,069,100	-	-	-	-	-	-	-
830,400	-	-	-	-	-	-	-	-
-	-	-	398,895	-	-	-	-	-
-	-	-	-	-	1,223,200	-	-	-
-	-	-	-	-	134,552	-	-	-
519,000	-	-	-	-	-	-	-	-
-	320,730	-	-	-	-	-	-	-



Ref	Activity	Description	Primary Type	Year 1 2016	Year 2 2017
19	Wastewater	Norsewood upgrade	Level of Service	-	-
20	Wastewater	Dannevirke Disposal to Land CF	Level of Service	-	-
21	Wastewater	Eketahuna treatment plant	Level of Service	810,000	-
22	Wastewater	Mains replacement	Renewal	280,000	290,640
23	Wastewater	Dannevirke membrane replacement	Renewal	-	-
24	Water Supplies	Pongaroa Township Water Supply	Level of Service	-	519,000
25	Water Supplies	Woodville water storage	Level of Service	50,000	-
26	Water Supplies	Norsewood additional storage/valves	Level of Service	-	-
27	Water Supplies	Mains replacement	Renewal	305,000	326,970
Total				8,503,755	8,622,619



Year 3 2018	Year 4 2019	Year 5 2020	Year 6 2021	Year 7 2022	Year 8 2023	Year 9 2024	Year 10 2025
80,183	137,913	-	-	-	-	-	-
481,095	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
320,730	330,990	364,704	377,472	415,888	431,698	448,970	467,840
-	1,210,320	-	-	-	-	-	-
-	-	-	-	-	-	-	-
1,069,100	992,970	-	-	-	-	-	-
-	-	-	-	-	-	-	-
347,458	364,089	376,101	389,268	403,656	422,810	435,765	-
9,915,447	10,957,173	9,165,078	7,440,931	9,044,599	7,934,471	8,190,975	8,866,799