

Tasman District Council

Wastewater Activity Management Plan

2012 - 2022

July 2012

Quality Assurance Statement

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For full Quality Assurance Statement, Refer Appendix Z

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1 KEY ISSUES FOR THE WASTEWATER ACTIVITY

The most important issues relating to the wastewater activity are shown below in Table 1-1.

Table 1-1: Key Issues for the Wastewater Activity

Key Issue	Description
Damage to wastewater supply assets from storms and heavy rainfall events.	In December 2010 and December 2011 the Tasman District experienced extremely heavy rainfall which led to flooding, slips and debris flows resulting in damage to Council infrastructure and private property. This was particularly destructive in Golden Bay in 2011 and in Murchison and Golden Bay in 2010. Both these events depleted Council's disaster funds. The full extent and cost of the damage to Council infrastructure for the December 2011 event, including wastewater utility infrastructure, is estimated to be approximately \$10.1 million. Of these costs around \$6.7 million should be recoverable from the Ministry of Civil Defence and Emergency Management or from insurance, which leaves a Council liability of around \$3.4 million. Most of the repair work will be undertaken in the current 2011/2012 year. Much of the Council funding is likely to come from existing Council disaster funds or new loans. Council has budgeted for around \$900,000 to help replenish the disaster funds in 2012/2013. Council has also decided to use \$3 million of the Port Nelson special dividend received in 2011/2012 to replenish the General Disaster Fund. This additional funding will mean there should be sufficient money available to cover the costs of the disaster recovery work.
Aging infrastructure.	Some of the pipe networks in the district are approaching the end of the useful life. Maximising the economic life of the assets and determining the optimal time for replacement are important challenges. Council undertakes CCTV inspections of assets to help determine the optimal time for replacement.
Infiltration into the wastewater network.	Stormwater infiltration is a significant issue for some wastewater networks, causing the overloading of networks and wastewater treatment plants during very heavy rainfall events. This may result in occasional overflows from the sewer network, breaches of resource consent conditions and potential public health risks.
Infrastructure upgrades causing pan charges to increase.	Council is planning to upgrade the Takaka and Motueka Wastewater Treatment Plant in 2012 - 2014. The cost of upgrading the two plants is \$12.2 million. These treatment plant upgrades along with a large list of other high cost wastewater projects are needed to satisfy resource consents, to renew aging infrastructure and to meet projected growth levels. This is leading to forecast wastewater rates (pan charge) increases from \$691.93 (inc GST) to \$1,042.46 (inc GST) over the 10 years and higher Development Contributions charges. The wastewater debt level is also forecast to rise to \$13.1 million over the 10 year period, which is in turn causing loan servicing costs to increase.
Mapua wastewater upgrade.	The current Mapua wastewater system is operating close to capacity. None of the existing pump stations have sufficient capacity to handle future growth. Council have outlined a programme of upgrades and reconfiguration of the network to accommodate this future growth.
Infrastructure not included in the 10 years.	Tasman village and Marahau have both been identified as settlements that would benefit from public wastewater systems. These systems are not provided for in the 10 year period covered by the Long Term Plan (LTP).
Meeting growth needs.	There are a number of projects planned that are driven fully or partially by the need to cater for future growth. Council applies development contributions to these projects so that developers meet the cost of the growth component of the projects, rather than ratepayers. The cost of development contributions can act as a disincentive for growth. The combined effect of all the contributions has led to the wastewater development contribution being forecast to increase from \$5,696 to \$8,118.

<p>Nelson Regional Sewerage Business Unit (NRSBU) budgets.</p>	<p>The NRSBU is proposing major capital expenditure to upgrade the pipelines and Bells Island treatment plant in coming years. The wastewater budgets contained in the Long Term Plan contain an allowance for Council's contribution to the costs of the NRSBU. The budget also contains an estimate of the potential surplus, which could be returned each year to Council as a NRSBU shareholder. Council is proposing to use the surplus to pay off wastewater debt, rather than to off-set operating costs. By doing this Council avoids sudden changes in the pan charges if the expected surpluses are not realised. Council also reduces debt levels, which are a concern to the public. If Council's contribution to the costs of the NRSBU and/or the potential surpluses is different from the projections, the actual pan charges may vary each year from those contained in the Long Term Plan.</p>
<p>Odour from wastewater assets.</p>	<p>Long pipelines for raw wastewater with pump stations in series can lead to development of hydrogen sulphide gas and odours. These odours can be disruptive to the public if air release valves, pump stations, or wastewater treatment plants are close to residential properties.</p> <p>There are existing programmes to monitor hydrogen sulphide levels in key pipelines to warn of likely odour issues. Key assets such as air valves and pump stations have carbon filters and chemical dosing installed. Chemical dosing prevents generation of hydrogen sulphide and carbon filters prevents hydrogen sulphide becoming a nuisance odour above ground.</p>

2 ACTIVITY DESCRIPTION

2.1 What We Do

Tasman District Council is responsible for the provision and management of wastewater treatment facilities and sewage collection and disposal to the residents of 14 Wastewater Urban Drainage Areas (UDA's). The assets used to provide this service include approximately 380km of pipelines, 3,470 manholes, 74 sewage pump stations, seven wastewater treatment plants and the relevant resource consents to operate these assets.

Tasman District Council owns, operates and maintains 12 sewerage systems conveying wastewater to eight wastewater treatment and disposal plants (WWTPs).

Tasman District Council is a 50 percent owner of the Nelson Regional Sewerage Business Unit (NRSBU). Nelson City Council owns the remaining 50 percent. The NRSBU operates the Bells Island treatment plant which treats wastewater from most of Nelson City, Richmond, Mapua, Brightwater, Hope and Wakefield.

A complete description of the assets included in the wastewater activity is in Appendix B.

2.2 Why We Do It

The provision of wastewater services is a core public health function of local government and is something that the Council has always provided. By undertaking the planning, implementation and maintenance of wastewater and sewage disposal services Council promotes and protects public health within the district.

Territorial authorities have numerous responsibilities relating to wastewater. One such responsibility is the duty under the Health Act 1956 to improve, promote, and protect public health within the district.

3 COMMUNITY OUTCOMES AND OUR GOAL

The community outcomes that the wastewater activity contributes to most are shown in Table 3-1.

Table 3-1: Community Outcomes

Community Outcomes	How Our Activity Contributes to the Community Outcome
Our unique natural environment is healthy and protected.	All wastewater in the Council-owned schemes is treated and discharged into the environment. This activity can be managed so the impact of the discharges does not adversely affect the health and cleanliness of the receiving environment.
Our urban and rural environments are pleasant, safe and sustainably managed.	The wastewater activity ensures our built urban environments are functional, pleasant and safe by ensuring wastewater is collected and treated without causing a hazard to public health, unpleasant odours and unattractive visual impacts.
Our infrastructure is safe, efficient and sustainably managed.	The wastewater activity is considered an essential service that should be provided to all properties within the urban drainage areas in sufficient size and capacity. This service should also be efficient and sustainably managed.

3.1 Our Goal

We aim to provide cost-effective and sustainable wastewater systems in a manner that meets environmental standards and agreed levels of service.

4 OPERATIONS, MAINTENANCE AND RENEWALS STRATEGY

4.1 Operations and Maintenance

The day to day operational, inspection and maintenance of the wastewater systems is carried out by Downer NZ Ltd under the maintenance contract C688. This maintenance contract is administered by MWH NZ Ltd under the professional services contract C461.

Both of the contracts were competitively tendered on the open market (C461 in 2000 and C688 in 2007). C461 has been extended until March 2013 and C688 potentially runs until 2014, dependent on successful re-negotiations. Both contracts are primarily based on a comprehensive schedule of rates and a combination of lump sum payments. This provides all parties involved with a vested interest in optimising both pro-active and reactive maintenance requirements. Although they are not specifically set up as one, the contracts are in many respects similar to a partnering agreement with all parties working closely together with the same goal in mind, ie. delivering a high level of service and providing value for money for the Council ratepayers.

Some of the key aspects of this contract are:

- performance based
- emphasis on proactive maintenance
- programme management
- quality management
- detailed schedule of works
- measurement of performance
- team approach to problem solving.

Operation and maintenance is discussed in detail in Appendix E.

4.2 Renewals

Renewal expenditure is major work that does not increase asset design capacity but restores, rehabilitates, replaces or renews an existing asset to its original capacity. Work over and above restoring an asset to original capacity is new works expenditure.

Assets are considered for renewal as they near the end of their effective working life or where the cost of maintenance becomes uneconomical and when the risk of failure of critical assets is sufficiently high.

The renewal programme has been developed by the following.

- Taking asset age and remaining life predictions from the valuation data in Confirm, calculating when the remaining life expires and converting that into a programme of replacements based on valuation replacement costs.
- Reviewing and justifying the renewals forecasts using the accumulated knowledge and experience of asset operations and asset management staff. This incorporates the knowledge gained from tracking asset failures through the Customer Services System, the GPS locating of pipe breaks and overflows, and contract reporting structures.
- Undertaking an optimising review to identify opportunities for bundling projects across assets, optimised replacement, timing across assets – especially between pipe upgrades and roading works, and smoothing of expenditure.
- Undertaking CCTV recordings of pipelines to better understand the conditions of assets.

The renewal programme is reviewed in detail at each Asset Management Plan (ie. three yearly), and every year the annual renewal programme is reviewed and planned with the input of the maintenance contractor.

Renewals are discussed in detail in Appendix I.

5 EFFECTS OF GROWTH, DEMAND AND SUSTAINABILITY

5.1 Population Growth

The Council has developed a Growth Demand and Supply Model (GDSM) to forecast the population and business growth in the district and the implications of this growth on network infrastructure. The Growth Demand and Supply Model is described in brief in Appendix F and in more detail in a separate model description report.

The ultimate outputs of the Growth Demand and Supply Model include a projection of the district's population, and forecast of where and when new dwellings and business buildings will be built and a forecast of the number of new wastewater connections. This is summarised in Appendix F. The population projection for Tasman district is shown in Figure 5-1.

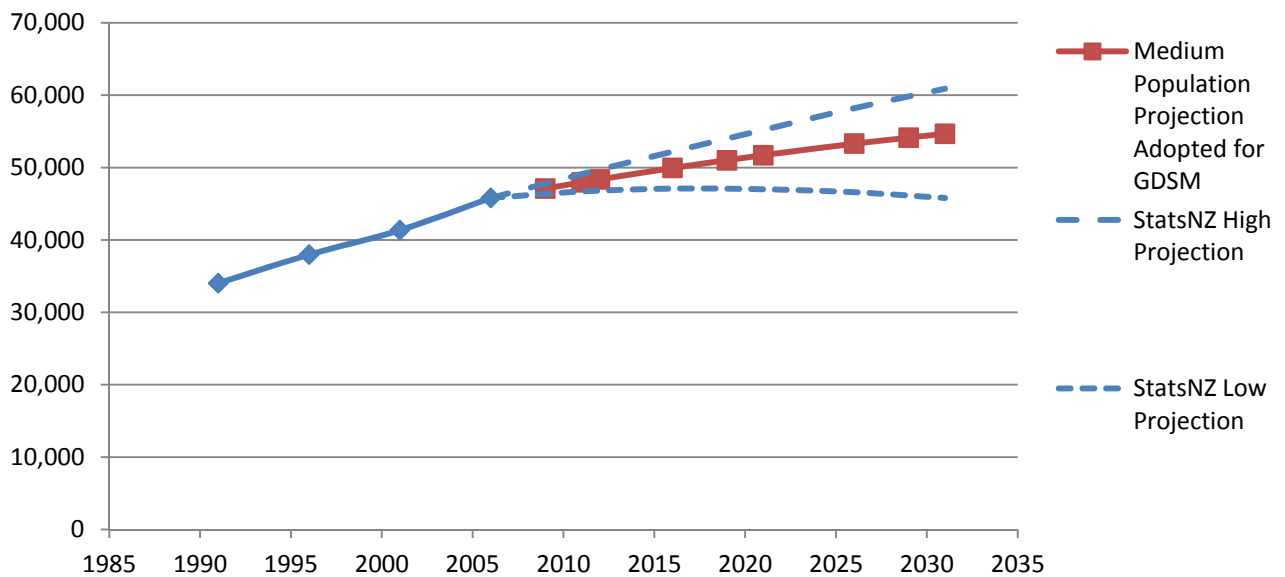


Figure 5-1: Projected Population Growth for Tasman District

The forecast of population growth has been used to determine where and when Council infrastructure needs to be developed and at what capacity. Council has also considered the influence of changing demographics, community expectations, industrial/commercial demand, technology and legislation on the demand for this service.

As a result of the recession and general slowdown in development since 2008, Council has:

- adopted medium population growth projections for Richmond and Motueka, (in 2008 Council adopted Statistics New Zealand high growth projections)
- assumed there would be no business growth until July 2012 that would have a significant demand on infrastructure.

From these analyses and assumptions, Council has a moderate forecast of growth for the district. However there are a number of projects where growth is a contributing factor and allowance has been made in the design of future works and in funding arrangements. The major growth projects are listed in Table 8-1 and are identifiable by the project driver column.

5.2 Sustainability

The Local Government Act 2002 (LGA) requires local authorities to take a sustainable development approach while conducting its business, taking into account the social, economic and cultural well-being of people and communities, the need to maintain and enhance the quality of the environment and the reasonably foreseeable needs of future generations.

Sustainable development is a fundamental philosophy that is embraced in Council's Vision, Mission and Objectives, and that shapes the community outcomes. The levels of service and the performance measures that flow from these inherently incorporate the achievement of sustainable outcomes.

Many of the Council's cross-organisational initiatives are shaped around community well-being (economic, social, cultural and environmental) and taking into consideration the well-being of future generations. This is demonstrated in:

- Council's Integrated Risk Management approach which analyses risks and particularly risk consequences in terms of community well-being
- Council's Growth Demand and Supply Model which seeks to forecast how and where urban growth should occur taking into account opportunities and risks associated with community well-being
- Council adopting a 20 year forecast in the Activity Management Plans to ensure the long term financial implications of decisions made now are considered.

At the activity level, a sustainable development approach is demonstrated by the following:

- co-ordinating boundary wastewater activities with Nelson City Council through the Nelson Regional Sewerage Business Unit
- considering options for repair of existing sewers instead of replacement to maximise the economic life of the existing assets
- involving key stakeholders in working groups prior to identifying solutions for wastewater treatment plant upgrades
- planning for the use of pressure sewer systems to provide wastewater reticulation in low lying, high groundwater, estuarine environments
- paying careful attention to the importance of fully complying with resource consent conditions to ensure natural watercourses are protected and conserved
- ensuring that the districts likely future wastewater requirements are identified at an early stage and that they and the financial risks and shocks are competently managed over the long term without the Council having to resort to disruptive revenue or expenditure measures. (ie. financial sustainability).

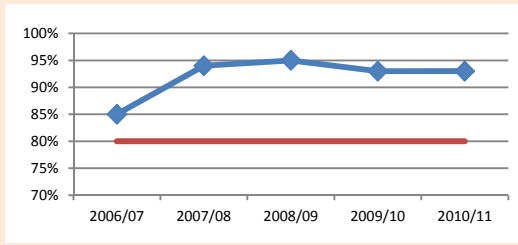
6 LEVEL OF SERVICE AND PERFORMANCE MEASURES

The following table summarises the levels of service and performance measures for the wastewater activity. Development of the levels of service is discussed in detail in Appendix R. The shaded rows indicate those Levels of Service and performance measures which are included in the Long Term Plan.

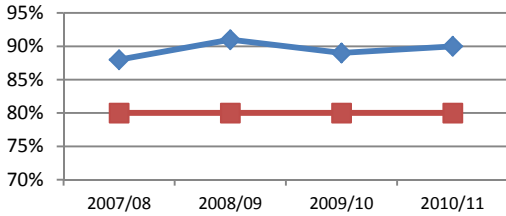
Table 6-1: Levels of Service

ID	Levels of Service (we provide)	Performance Measure (We will know we are meeting the level of service if...)	Current Performance	Future Performance			Future Performance (targets) in Year 10 2021/22
				Year 1	Year 2	Year 3	
				2012/13	2013/14	2014/15	
Community Outcome: Our unique natural environment is healthy and protected.							
1	Our wastewater systems do not adversely affect the receiving environment.	All necessary resource consents are held. Resource consent information is held in Council's Confirm database.	Actual = 100% All WWTPs hold all necessary consents	<i>In place</i>	<i>In place</i>	<i>In place</i>	<i>In place</i>
2		Number of beach closures or shellfish gathering bans caused by sewer overflows - as recorded in Council's Confirm database.	Actual = 0	<5	<5	<5	<5
3		<i>Compliance with all effluent quality conditions stated in resource consents for wastewater treatment plants. As measured by laboratory analysis.</i>	Collingwood 89% Motueka 87% Murchison 95% St. Arnaud 98% Takaka 76% Tapawera 100% Upper Takaka 100% Takaka WWTP compliance levels are expected to increase significantly once the upgrade is complete. This measure covers those consent conditions requiring laboratory testing only.	90% Takaka- 75%	90%	90%	90%

ID	Levels of Service (we provide)	Performance Measure (We will know we are meeting the level of service if...)	Current Performance	Future Performance			Future Performance (targets) in Year 10 2021/22
				Year 1	Year 2	Year 3	
				2012/13	2013/14	2014/15	
Community Outcome: Our urban and rural environments are pleasant, safe and sustainably managed.							
4	Our wastewater systems reliably take our wastewater with a minimum of odours, overflows or disturbance to the public.	Number of complaints relating to our wastewater systems - as recorded in Council's Confirm database.	Actual = 26 (60% noise, 40% odour)	<30	<30	<30	<30
5		Number of overflows resulting from faults in Council's wastewater systems.	Actual = 37 overflows (0.097 per km) With a total of 380 km this equates to 0.097 overflows per km of sewer.	<1 per km	<1 per km	<1 per km	<1 per km
6		<i>Number of overflows on to private property resulting from Council system fault. As recorded in Confirm.</i>	Actual = 11 All overflows on private property are recorded, but only those resulting from Council system fault are reported here.	<5	<5	<5	<5
7		<i>Number of overflows from pump stations. As recorded in Confirm.</i>	Actual = 1 (Hill Street WWPS – 5/10/2010)	<10	<10	<10	<10
Community Outcome: Our infrastructure is safe, efficient and sustainably managed.							
8	Our wastewater activities are managed at a level that satisfies the community.	% of customers satisfied with the wastewater service - as measured through the annual residents' survey.	Actual = 93% The Communitrak™ residents survey was undertaken in May/June 2011. 93% of receivers of the service were found to be satisfied with the service they received.	80%	80%	80%	80%



ID	Levels of Service (we provide)	Performance Measure (We will know we are meeting the level of service if...)	Current Performance	Future Performance			Future Performance (targets) in Year 10 2021/22
				Year 1	Year 2	Year 1	
				2012/13	2013/14	2012/13	
9	Our systems are built, operated and maintained so that failures can be managed and responded to quickly.	% of faults responded to within contract timeframes e.g. Emergency = service restoration in four hours. Urgent = service restoration in one working day. As recorded through Council's Confirm database.	Actual = 97% The operations and maintenance contractor is required to meet a target of 90% of faults to be responded to and fixed within specified timeframes. The figure reported here relates to completion within the final completion timeframe. More detailed response times are monitored through contract 688.	>90%	>90%	>90%	>90%
10		<i>All pump stations have standby pumps in case of mechanical failures. As detailed in the asset register.</i>	Actual = 100% All pump stations have stand-by pumps.	100%	100%	100%	100%
11		<i>Our pump stations have storage or standby electrical generation in case of power failure. As detailed in the Asset Register.</i>	Actual = 17% of pump stations have either storage or on-site standby electrical generation. However, there are two portable generators available which are able to serve up to 53% of pump stations.	30%	30%	30%	50%
12		<i>Our pump stations have telemetry to allow automatic communication of failures. As detailed in the Asset Register.</i>	Actual = 60% 46 of the 76 pump stations have telemetry.	60%	65%	70%	100%
13		<i>Critical assets are identified and included in the Activity Risk Register.</i>	Actual = Critical assets are identified and assessed for Risk. Where mitigations measures are required, they have been included for action in the AMP.	In place	In place	In place	In place

ID	Levels of Service (we provide)	Performance Measure (We will know we are meeting the level of service if...)	Current Performance	Future Performance			Future Performance (targets) in Year 10 2021/22															
				Year 1	Year 2	Year 1																
				2012/13	2013/14	2012/13																
14		<p><i>Assets are operated, maintained and repaired to a high standard.</i></p> <p><i>As measured through audits carried out by the Engineer.</i></p>	<p>Actual = 90%</p>  <table border="1"> <caption>Current Performance Data</caption> <thead> <tr> <th>Year</th> <th>Actual Performance (%)</th> <th>Target (%)</th> </tr> </thead> <tbody> <tr> <td>2007/08</td> <td>~88</td> <td>80</td> </tr> <tr> <td>2008/09</td> <td>~91</td> <td>80</td> </tr> <tr> <td>2009/10</td> <td>~89</td> <td>80</td> </tr> <tr> <td>2010/11</td> <td>~90</td> <td>80</td> </tr> </tbody> </table>	Year	Actual Performance (%)	Target (%)	2007/08	~88	80	2008/09	~91	80	2009/10	~89	80	2010/11	~90	80	80%	80%	80%	80%
Year	Actual Performance (%)	Target (%)																				
2007/08	~88	80																				
2008/09	~91	80																				
2009/10	~89	80																				
2010/11	~90	80																				

7 CHANGES MADE TO ACTIVITY OR SERVICE

Table 7-1 summarises the key changes for the management of the wastewater activity since the 2009 Asset Management Plan.

Table 7-1: Key Changes

Key Change	Reason for Change
<p>Council had planned to review and update its Water and Sanitary Services Assessment (WSSA) by 2009/10 but is now not planning to do this until 2015/16.</p>	<p>Changes to the LGA in October 2009 saw the deletion of Sections 124 and 125 which related to the assessment of water and sanitary services.</p> <p>Local authorities are still required to assess the provision of water and other sanitary services 'from time to time', but there is no prescription of what should be included in the assessment or how often it should be performed. Council have planned to update its WSSA in 2015/16.</p>

8 KEY PROJECTS

Table 8-1 details the key capital and renewal work programmed for years 2012 to 2022. A full list of capital and renewal projects for the 20 year period is included in Appendix F and I respectively.

Table 8-1: Significant Projects

Project Name	Description	Year 1 (\$)	Year 2 (\$)	Year 3 (\$)	Years 4 to 10 (\$)	Project Driver ¹
Brightwater – Burkes Bank.	Brightwater main pump station and rising main replacement.				2,146,200	G/LoS
Tapu Bay Pipeline.	Replace estuary pipeline with land based pipeline.		38,122	152,488	3,621,590	R
Kaiteriteri – Martins Farm Pumpstation.	Upgrade pump station	53,120			266,880	G/LoS/R
Mapua – Pipeline Renewals.	Pipeline renewals				203,000	R
Mapua – Aranui Combined Pumpstation Upgrade.	Upgrade pump station and storage.				318,659	G / LoS
Mapua – Tait's Pumpstation and Rising Main Upgrade.	New pumpstation and 33m ³ storage, rising main upgrade.			219,165	2,087,835	G/LoS
Motueka – 13 Trewavas Street Pumpstation (Price) Upgrade.	Relocate pump station and install telemetry.				825,906	R
Motueka – New Pumpstation Motueka West.	New pump station and rising main from corner of King Edward/High Streets to tie in with Thorp Street rising main.			50,480	1,211,520	G
Motueka WWTP Upgrade.	WWTP upgrade	748,816	2,545,974	2,695,737	1,497,632	G/LoS
Motueka – Oaks Village Pumpstation (Naumai Street) Upgrade.	Replace Oaks Village pump station (Naumai Street).				687,000	LoS/R

¹ R = Renewal, LoS = Levels of Service, G = Growth

Project Name	Description	Year 1 (\$)	Year 2 (\$)	Year 3 (\$)	Years 4 to 10 (\$)	Project Driver ¹
Motueka Pipeline Renewals and Manholes.	Pipeline renewals.	51,765	610,827	608,756	3,147,312	R
Richmond – Gladstone Road Pipeline Upgrade.	Upgrading a section of pipeline down Gladstone Road.				348,247	G/LoS
Richmond – Queen Street Pipeline Upgrade.	Upgrading a section of pipeline down Queen Street.			16,300	146,700	G/LoS
Richmond – Wensley Road Pipeline Upgrade.	Upgrading a section of pipeline down Wensley Road.			94,980	379,920	G/LoS
Richmond – Telemetry Renewal.	Renewing Telemetry at key assets	225,600	225,600	225,600	1,579,200	LoS / R
Pohara/Tata Beach Upgrade.	Four Winds, Pohara Camp, Tarakohe, Pohara Valley pump stations and rising main upgrades.	59,416	1,128,904		4,753,280	G/LoS/R
Richmond Pipeline Renewals.	Pipeline renewals.	30,000	270,000	30,000	1,170,000	R
Motueka Bridge – Motueka Ponds.	Motueka Bridge – Motueka Ponds rising main.		58,840	529,560		G/LoS/R
St Arnaud – Rising Main Upgrade to WWTP.	Replace 140mm PN4 with PN12 rising main.				1,048,307	G/LoS
St Arnaud – Desludging WWTP.	Desludging oxidation ponds				304,500	R
Takaka Pipeline Renewals.	Pipeline renewals.				612,045	R
Takaka WWTP Upgrade.	Full upgrade.	561,735	3,130,736	52,429		G/LoS

Note:

1. See Appendix F for a full detailed list of new capital works projects driven by growth (G), renewals (R) and or an increase in level of service (LoS).
2. See Appendix I for a full detailed list of renewal projects.

9 MANAGEMENT OF THE ACTIVITY

9.1 Demand Management

Council's current strategy for reducing domestic demand for wastewater services involves:

- CCTV and spot repairs
- inflow and Infiltration studies.

Public education on water conservation will have an indirect effect on the volume of wastewater produced. Public education has been included within the water supply demand management plan.

Council is continuing to investigate and identify major defects in reticulation systems where inflow and infiltration (I&I) is a significant issue. I&I results in high volumes of water entering the wastewater network. The effects of high I&I result in the reduction of capacity within the infrastructure therefore increasing the risk for an overflow within the network and at the wastewater treatment plant (WWTP). Furthermore, a greater amount of wastewater needs to be treated at the WWTP. Reduction in I&I would result in optimising the performance of the network and WWTP, extend the life of mechanical assets, reduce the likelihood of an overflow and reduce the cost to operate and maintain the network and treat the wastewater effluent.

9.2 Significant Effects

The significant negative and significant positive effects are listed below in Table 9-1 and Table 9-2 respectively.

Table 9-1: Significant Negative Effects

Effect	Council's Mitigation Measure
The costs of providing the services.	Council uses competitive tendering processes to achieve best value for money for works it undertakes.
If the discharge from wastewater treatment plants does not meet consent conditions, it may result in the degrading of the receiving environment and potential public health risks.	Upgrading wastewater treatment plants that struggle to meet their resource consent conditions.
Odour released from hydrogen sulphide in pipelines or from operational failures at the wastewater treatment plants can be offensive and a nuisance to the public.	Installing odour control systems at problematic air valves, pump stations and treatment plants. This can include chemical dosing to reduce the hydrogen sulphide produced in pipelines and includes carbon filters to reduce above ground odours by neutralising the hydrogen sulphide.
There could be disruption to the community if the service is not available for prolonged periods.	Consulting the public and key affected parties prior to undertaking works identifies ways to minimise the disruption and helps affected parties make alternative plans.
Overflows can occur from the wastewater network due to blockages or high flows with potential risks to the environment and public health. This can also affect the ability of the public to use and swim at beaches and to gather shellfish.	Programme of CCTV identifies blockages such as root intrusion in pipes and means that root cutting programmes can be targeted. Programme of CCTV identifies structural defects that may be causing blockages and enables prioritisation of defect repairs and sewer renewals. Inflow and infiltration issues are identified by monitoring flows to highlight problem catchments for further investigation and remedial action to eliminate inflow and infiltration.
Potential to affect historic and wahi tapu sites.	Council undertakes consultation with affected parties prior to undertaking works. Council also maintains a record of known heritage sites.

Table 9-2: Significant Positive Effects

Effect	Description
Public health benefits.	Spread of disease is limited and public health improved by having a public wastewater collection and treatment system.
Wastewater collection and treatment systems minimise environmental impact and water quality problems from discharges which is better for recreation activities and helps protect intrinsic environmental values.	Treated wastewater is frequently discharged into, or nearby to, coastal and river environments. By limiting the environmental impact from these discharges these amenities are still able to be used for public recreation and the environmental and cultural values of the receiving environment are protected.
Economic development.	Council's management of the Wastewater and Sewage Disposal activities uses best practice and competitive tendering to provide value for money for ratepayers and provides jobs for contractors.

9.3 Assumptions

Council has made a number of assumptions in preparing the Asset Management Plan. These are discussed in detail in Appendix Q. Table 9-3 lists the major assumptions and briefly outlines the impact of the assumption.

Table 9-3: Significant Assumptions

Assumption Type	Assumption	Discussion
Financial assumptions.	That all expenditure has been stated in 1 July 2011 dollar values and no allowance has been made for inflation.	The LTP will incorporate inflation factors. This could have a significant impact on the affordability of the plans if inflation is higher than allowed for, but Council is using the best information practically available from Business and Economic Research Limited (BERL).
Financial assumptions.	That the NRSBU business plan forecasts of operating expenditure and surpluses are correct.	If NRSBU operating expenditure increases, funding for this change may result in the deferral of some strategic studies and/or Operation and Maintenance.
Asset data knowledge.	That Council has adequate knowledge of its assets to adequately forecast planned renewal works to meet the proposed levels of service.	There are several areas where Council needs to improve its knowledge and assessments but there is a low risk that the improved knowledge will cause a significant change to the level of expenditure required.
Growth forecasts.	A reasonable degree of reliability can be placed on the population and other growth projections that have been used as forecast assumptions for the priorities in the Wastewater and Sewage Disposal group of activities. However, these are projections and need to be carefully tracked to ensure that they continue to be a reliable indicator of likely future trends.	If the growth is significantly different it will have a significant impact. If higher, Council may need to advance capital projects. If it is lower, Council may have to defer planned works.

Assumption Type	Assumption	Discussion
Network capacity.	That Council's knowledge of network capacity is sufficient enough to accurately programme capital works.	If the network capacity is less than assumed, Council may be required to advance capital works projects to address this issue. The risk of this occurring is low; however the impact on expenditure could be large. If the network capacity is greater than assumed, Council may be able to defer works. The risk of this occurring is low and is likely to have little impact.
Timing of capital projects.	That capital projects will be undertaken when planned.	The risk of the timing of projects changing is high due to factors like, resource consents, funding and land purchase. Council tries to mitigate this issue by undertaking the consultation, investigation and design phases sufficiently in advance of the construction phase. If delays are to occur, it could have major effects on the level of service.
Funding of Capital Projects.	That the projects identified for subsidies will receive subsidy.	If subsidies are not secured, it may have significant effect on the levels of service as projects may be deferred due to lack of funding.
Accuracy of capital project cost estimates.	That the capital project cost estimates are sufficiently accurate to determine the required funding level.	The risk of large under estimation is low; however the potential impact is moderate as Council may not be able to afford the true cost of the projects. Council tries to reduce the risk by including a standard contingency based on the projects lifecycle. Inflation adjustments are provided for in the Long Term Plan budgets.
Changes in Legislation and Policy.	That there will be no major changes in legislation or policy.	The risk of major change is high due to the changing nature of the government and politics. If major changes occur it is likely to have an impact on the required expenditure. Council has not mitigated the effect of this.
Resource consents.	That Council will be granted resource consent for key capital projects and renewal of existing resource consents for existing assets.	In the event a consent is not granted, then this can significantly affect the future of the project, cost and timing. If a consent is not renewed, then a new capital project may be required to replace the existing asset.
Land purchase.	That Council will be able to purchase land to undertake the capital works projects.	The risk of the timing of projects changing is high due to a delay in land purchase. Council tries to mitigate this issue by undertaking consultation with landowners sufficiently in advance of the construction phase. If delays are to occur, it could have major effects on the level of service.
Motueka WWTP and Takaka WWTP.	That Council will: <ul style="list-style-type: none"> - be able to purchase sufficient land for disposal purposes for Motueka WWTP within a suitable time period, - be able to obtain resource consents with appropriate conditions within a suitable time period. 	These assumptions underpin the cost estimate and timing of these projects. Any variance to these may result in major changes to the design, cost or timing of the project which in turn will impact on the ability to meet levels of service.

Assumption Type	Assumption	Discussion
	That the level of treatment identified in the project estimating will meet resource consent conditions and environmental requirements.	
Pipeline renewals.	That pipeline renewals expenditure is sufficient to address an aging network.	Pipeline renewals programmes are generally based on asset age rather than condition. Council are improving its use of asset condition assessment to better identify a programme of renewals.
Inflow and infiltration.	That identifying and resolving all inflow and infiltration issues will not offset efficiencies in operational costs with the capital costs invested.	A major risk is that major capital investment to resolve some issues will not recoup any financial benefit for the community. Council intend to tackle those inflow and infiltration issues that are easy to identify and offer quick returns once resolved.
Disaster fund reserves.	That the level of funding held in Council's disaster fund reserves and available from insurance cover will be adequate to cover reinstatement following emergency events.	The risk of inadequate reserves and recovery from insurance claims would mean deferral of future capital projects to provide any financial shortfall required to cover reinstatement costs.

The most major capital projects and their main uncertainties are listed in Appendix Q.

9.4 Risk Management

Council's risk management approach is described in detail in Appendix Q.

This approach includes risk management at an organisational level (Level 1). The treatment measures and outcomes of the organisational level risk management are included within the Long Term Plan.

At an asset group level (Level 2), Council has identified 15 high or very high risks and planned mitigations measures to reduce these risks to four high risks. Council has planned controls for the remaining four high risks but even with the controls, they remain high. Council has decided to accept these risks. These are listed in Table 9-4.

Table 9-4: Significant Risks and Control Measures

Risk Description	Current Control	Proposed Control	Target Risk Level
Iwi: Ineffective relationship impacts operations and maintenance and renewal works.	Regular meetings. Procedure for notification of Overflows. Involvement in application stage of resource consents.	Monitor.	HIGH
Earthquake (1:400): Significant damage to infrastructure (Reticulation).	Reticulation planning. Hazard register. Lifelines Planning. Design for fault lines.	Review planning. Undertake work as required	HIGH
River Floods (1:400): Impacts networks conveyance.	No controls in place to this level.	Undertake work as required.	HIGH
River Floods (1:400): Impacts ability to discharge.	No controls in place to this level.	Undertake work as required.	HIGH

Council has also identified and assessed critical assets (Level 3), the physical risks to these assets and the measures in place to address the risks to the asset. This has led to a list of projects to mitigate the risks to acceptable levels as detailed in Table Q-7 in Appendix Q. The specific risk mitigation measures that have been planned in the 20 year wastewater programme include:

- updating System Operating Plans
- a programme of telemetry installation and upgrade
- continuing to develop Council's Asset Management System/Confirm
- ensuring all necessary regulatory consents are obtained and that existing consents are renewed as required
- the pump station upgrade programme includes new storage and telemetry
- purchase of mobile generators to allow operation of key wastewater assets during power outages
- retendering of maintenance/professional service contracts
- upgrading Motueka and Takaka WWTP, to satisfy growth and resource consents
- on-going I&I investigation and minor repairs across the district.

9.5 Improvement Plan

This Activity Management Plan document was subject to a peer review in its Draft format by Waugh Infrastructure Management Ltd in October 2011. The document was reviewed for compliance with the requirements of the LGA 2002. The findings and suggestions were assessed and prioritised by the asset management team and either implemented for the final version of the document or added to the Improvement Plan.

Development of the improvement plan is discussed in Appendix V. It includes a table (Table V-3) of planned improvements that are still to be implemented and information on how they have been budgeted. It is a snapshot of the improvement plan as at February 2012 and includes. It is intended that the Improvement Plan is continually updated and monitored as a live document.

Version 4 of this document and the Improvement Plan was then reviewed a final time by Waugh Infrastructure Management Ltd in May 2012. The report produced has been included in Appendix V along with key improvements that have been achieved since the 2009 AMP.

10 SUMMARY OF COST FOR ACTIVITY

The following figures have been generated from the Funding Impact Statement held in Appendix L and the Public Debt and Loan Servicing Cost information held in Appendix K. Further detail is held in Appendix E, F and I for operating and maintenance, new capital and renewal costs respectively. All of the following graphs include inflation.

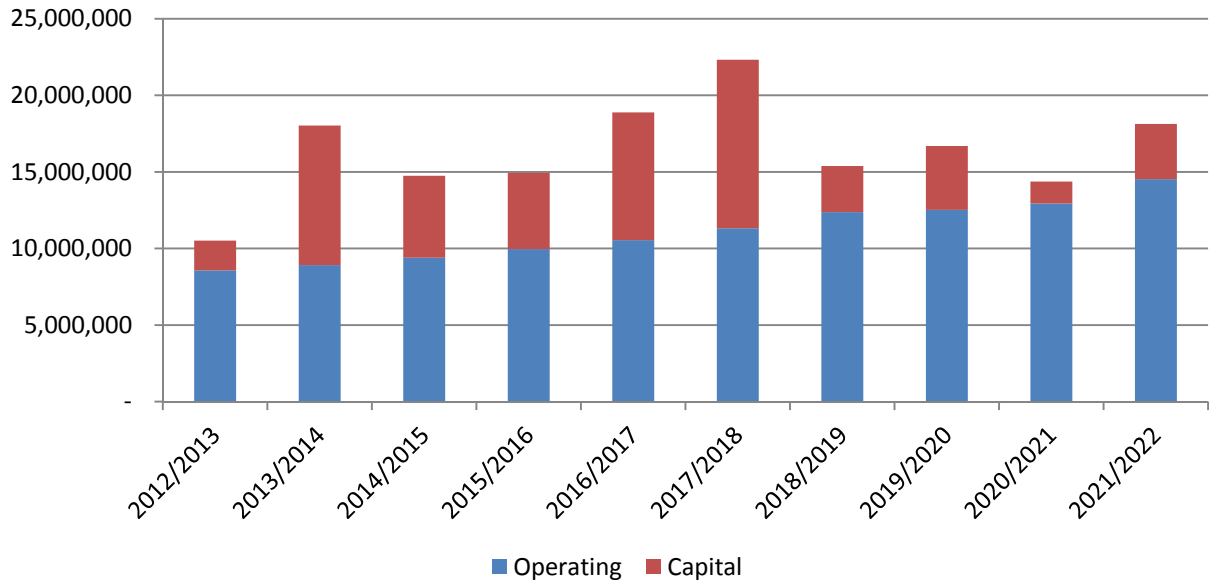


Figure 10-1: Total Expenditure

- The capital expenditure fluctuates over the 10 year period. The notable peaks in years 2013/14, 2016/17 and 2017/18 are due to Motueka and Takaka WWTP upgrade and the renewal of the Tapu Bay pipeline.
- Operating expenditure increases from \$8.6 to \$14.5 million over the 10 year period. This is due to inflation, increase loan servicing costs and network growth.

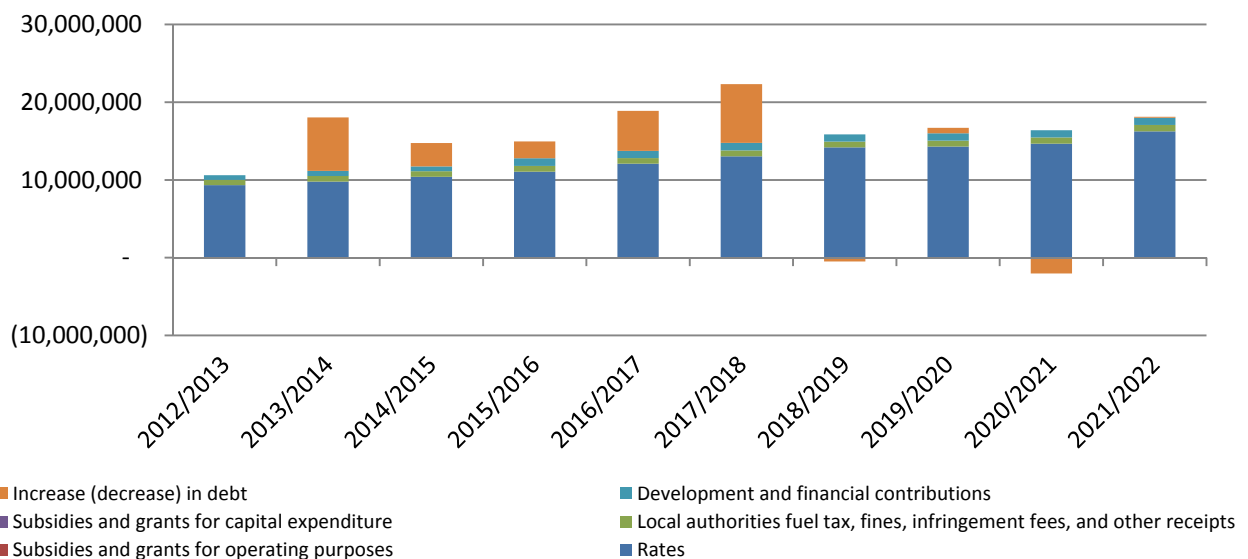


Figure 10-2: Total Income

- The income proposed for the next 10 years corresponds with the proposed expenditure in Figure 10-1.
- Rate increases account for the majority of the increase in income. Debt increases are in conjunction with major capital projects.

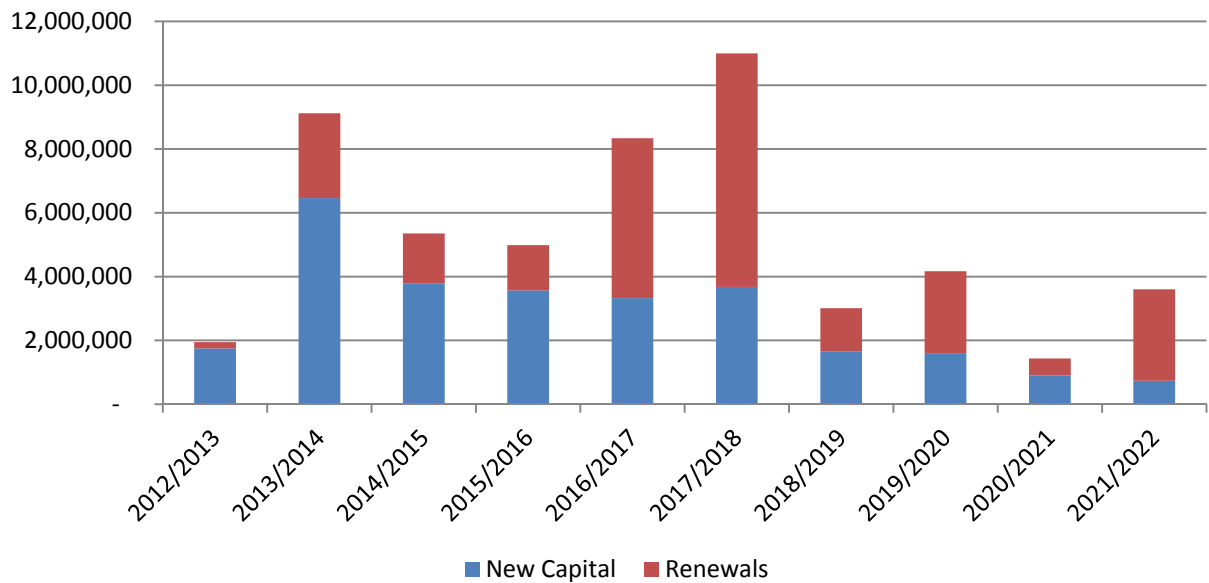


Figure 10-3: Capital Expenditure

The spend over the next 10 years shows an average spend of \$3.5 million per year except in 2013/14, 2016/17 and 2017/18. Over the 10 year period, several key capital projects occur, these projects include:

- Brightwater – Burkes Bank Pipeline Upgrade, years 2016-2019
- Kaiteriteri Tapu Bay Pipeline, years 2013–2018 - \$3,812,200,
- Mapua Taits PS and RM upgrade, years 2014–2017 - \$2,307,000,
- Motueka WWTP Upgrade, years 2012–2016 - \$7,488,158,
- Motueka West New PS, years 2014/15 and 2017/18 - \$1,262,000
- Pohara/Tata Beach PS Upgrades, years 2013/14 and 2016–2018 - \$5,941,600
- Takaka WWTP Upgrade, years 2012–2015 - \$3,744,899

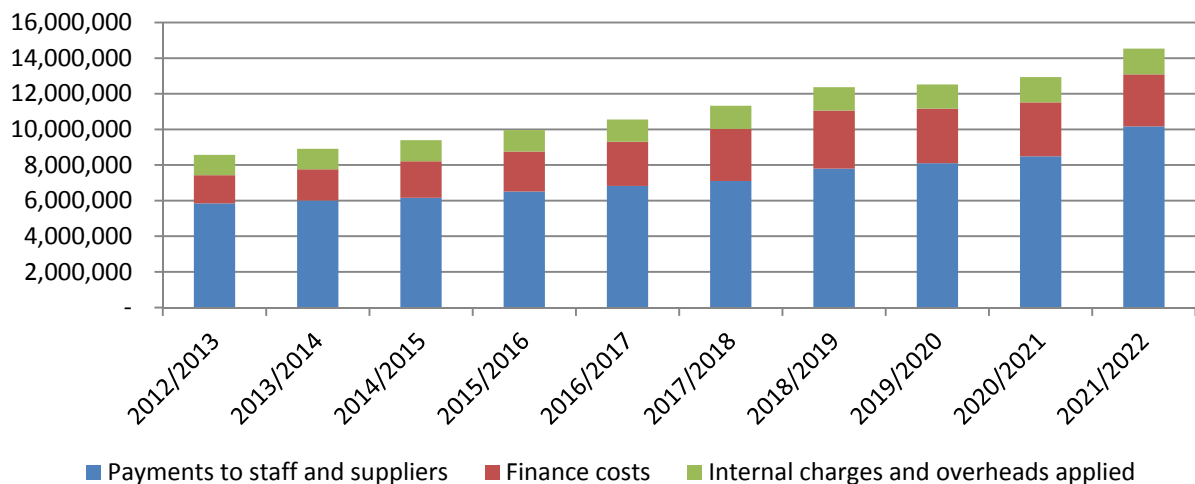


Figure 10-4: Operating Expenditure

- The Payments to Staff and Suppliers includes maintenance contract costs, NRSBU costs and professional service fees.
- Finance costs increase over the next 10 years due to an increase in the level of debt shown in Figure 10-5.

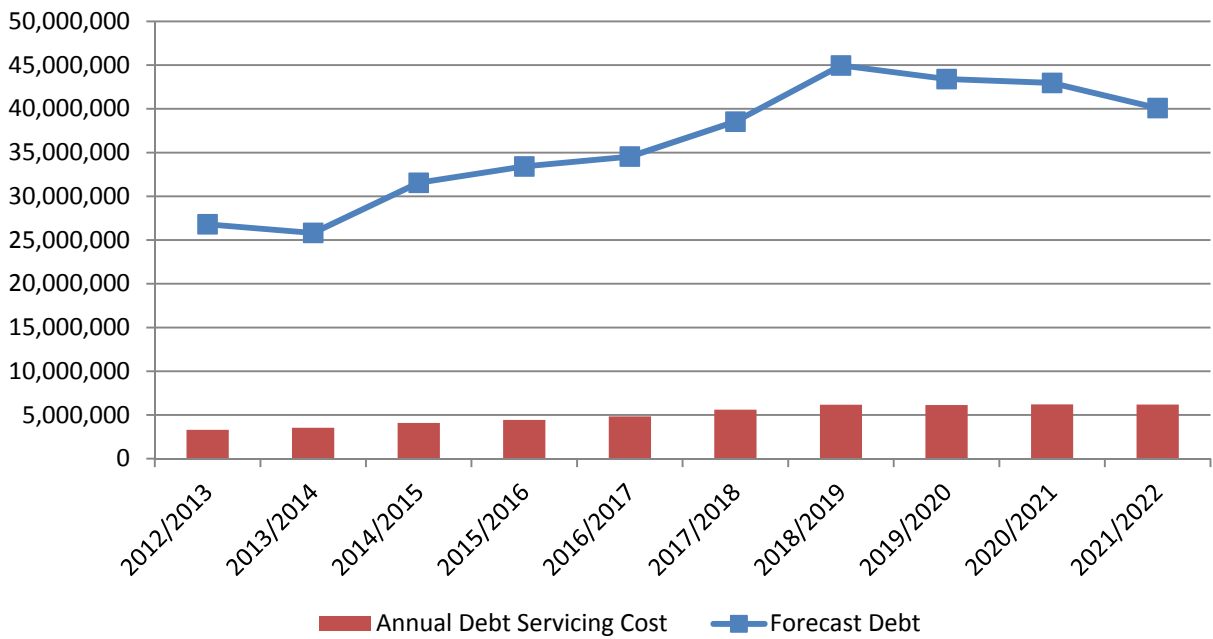


Figure 10-5: Debt

- Council's debt associated with the Wastewater activity is forecast to increase from \$26.8 to \$40.1 million over the next 10 years. This will also increase the debt servicing costs as shown.

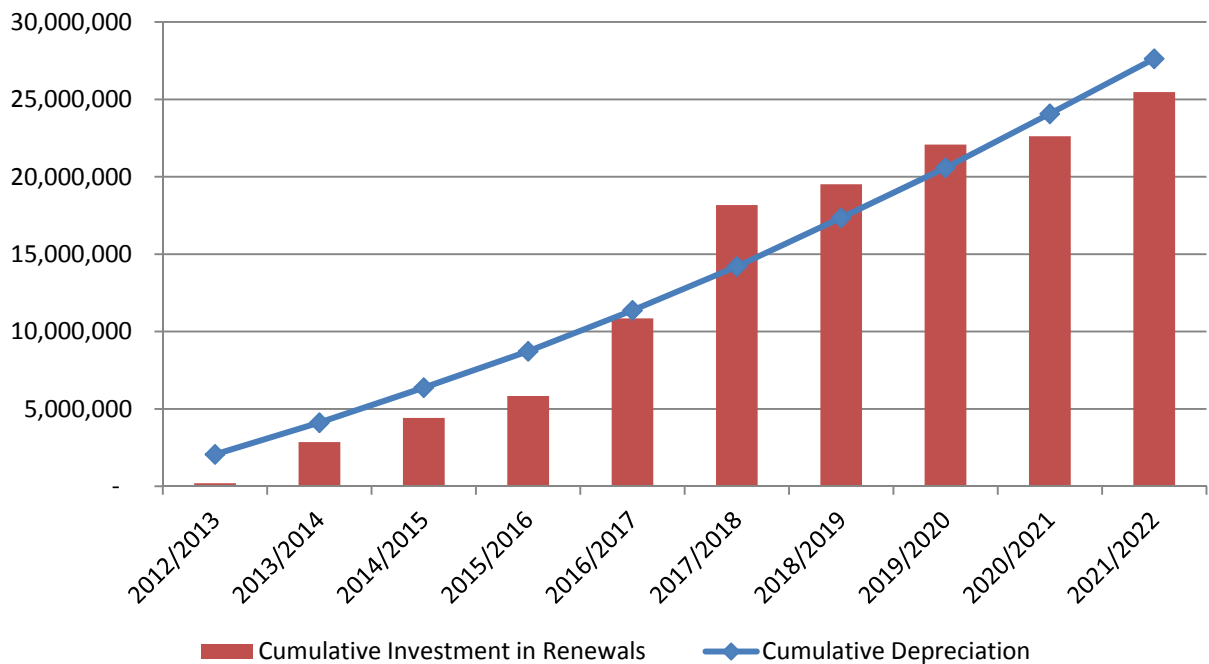


Figure 10-6: Investment in Renewals

- Council is investing in renewals at a rate that matches depreciation so the asset is not being consumed.