

# **Tasman District Council**

# **Wastewater**

# **Activity Management Plan**

**2012 - 2022**

**October 2011**

### Quality Assurance Statement

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For full Quality Assurance Statement, Refer Appendix Z

## **TABLE OF CONTENTS**

<b>1</b>	<b>KEY ISSUES FOR THE WASTEWATER ACTIVITY .....</b>	<b>1</b>
<b>2</b>	<b>ACTIVITY DESCRIPTION .....</b>	<b>2</b>
2.1	What We Do.....	2
2.2	Why We Do It.....	2
<b>3</b>	<b>COMMUNITY OUTCOMES AND OUR GOAL .....</b>	<b>2</b>
<b>4</b>	<b>OPERATIONS, MAINTENANCE AND RENEWALS STRATEGY .....</b>	<b>3</b>
4.1	Operations and Maintenance.....	3
4.2	Renewals .....	3
<b>5</b>	<b>EFFECTS OF GROWTH, DEMAND AND SUSTAINABILITY .....</b>	<b>4</b>
5.1	Population Growth .....	4
5.2	Sustainability.....	5
<b>6</b>	<b>LEVEL OF SERVICE AND PERFORMANCE MEASURES .....</b>	<b>6</b>
<b>7</b>	<b>CHANGES MADE TO ACTIVITY OR SERVICE .....</b>	<b>10</b>
<b>8</b>	<b>KEY PROJECTS .....</b>	<b>11</b>
<b>9</b>	<b>MANAGEMENT OF THE ACTIVITY .....</b>	<b>13</b>
9.1	Demand Management .....	13
9.2	Significant Effects .....	13
9.3	Assumptions .....	14
9.4	Risk Management.....	15
9.5	Improvement Plan.....	16
<b>10</b>	<b>SUMMARY OF COST FOR ACTIVITY .....</b>	<b>17</b>

## **LIST OF TABLES**

Table 1-1: Key Issues for the Wastewater Activity.....	1
Table 3-1: Community Outcomes.....	2
Table 3-2: Our Goal.....	2
Table 6-1: Levels of Service.....	6
Table 7-1: Key Changes.....	10
Table 8-1: Significant Projects.....	11
Table 9-1: Significant Negative Effects .....	13
Table 9-2: Significant Positive Effects .....	14
Table 9-3: Significant Assumptions .....	14
Table 9-4: Significant Risks and Control Measures .....	16

## **LIST OF FIGURES**

Figure 5-1: Projected Population Growth for Tasman District.....	4
Figure 10-1: Total Expenditure (\$ million) .....	17
Figure 10-2: Total Income (\$ million) .....	17
Figure 10-3: Capital Expenditure (\$ million).....	18
Figure 10-4: Operating Expenditure (\$ million) .....	18
Figure 10-5: Debt (\$ million).....	19
Figure 10-6: Investment in Renewals (\$ million) .....	19



## 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	Council Approach
Some of the pipe networks in the District are approaching the end of their useful life. Maximising the economic life of the assets is key, as is determining the optimal time for replacement.	An ongoing programme of CCTV assessment of the sewer network is used to determine asset condition and to identify priority areas for both defect repairs and for sewer renewals.
Inflow and infiltration is a significant issue for some networks, causing overloading of networks and wastewater treatment plants. This may result in surface flooding from the sewer network and breach of resource consent conditions at the wastewater treatment plant.	<p>Inflow and infiltration issues are identified by monitoring flows through pump stations to highlight problem catchments for further investigation. Where there are no pump stations flow surveys are carried out.</p> <p>When sewer renewals are undertaken private property laterals are tested and property owners are encouraged to repair defective laterals.</p> <p>Discharge volumes from wastewater treatment plants are monitored, when these are at risk of breaching resource consent limits remedial work is identified in the network to reduce flows.</p>
Some wastewater treatment plants struggle to meet the conditions in their discharge consents. This is due to: aging assets that no longer perform as required; higher growth in the catchment than anticipated causing higher loading on the plant than expected, and growth of industries in the catchment causing higher loading on the plant than expected.	Projects are planned to apply for new consents when existing consents expire. Projects are also planned to improve treatment plant performance where necessary to ensure consent conditions are complied with.
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.	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.
There is a large list of high value projects needed to ensure Council's wastewater sites satisfy resource consents. This is leading to the forecast wastewater rates to increase from \$XX to \$XX. Also the wastewater supply debt is forecast to rise from \$XX to \$XX, which is in turn causing the loan servicing costs to rise from \$XX to \$XX.	<p>Council's input is required here, as we have not received the financials yet.</p> <p>Important to note that Council will undertake a discretionary, non discretionary review to help determine the priorities of projects.</p>
There are a number of projects planned that are driven fully or partial by the need to cater for future growth. Council's funding approach means that development contributions need to be collected to contribute to the cost of these projects. The combined effect of all the contributions has lead to the Wastewater Supply Development Contribution being forecast to increase from \$XX to \$XX.	<p>Council's input is required here, as we have not received the financials yet.</p> <p>Important to note that Council will undertake a discretionary, non discretionary review to help determine the priorities of projects.</p>



## 2 ACTIVITY DESCRIPTION

### 2.1 What We Do

Tasman District Council is responsible for the provision and management of wastewater services that comprise of wastewater treatment facilities and sewerage collection systems to the residents of 14 Wastewater Urban Drainage Areas (UDAs).

The assets used to provide this service include approximately 340km 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 plants (WWTPs).

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 management services is a core public health function of local government. By undertaking the planning, implementation, and maintenance of wastewater services Council promotes and protects 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 and special natural environment is bountiful, healthy, clean 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 built urban and rural environments are functional, 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 transport and essential services are sufficient, 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.

**Table 3-2: Our Goal**

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

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## 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 database, 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.

The renewal programme is reviewed in detail at each AMP (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.

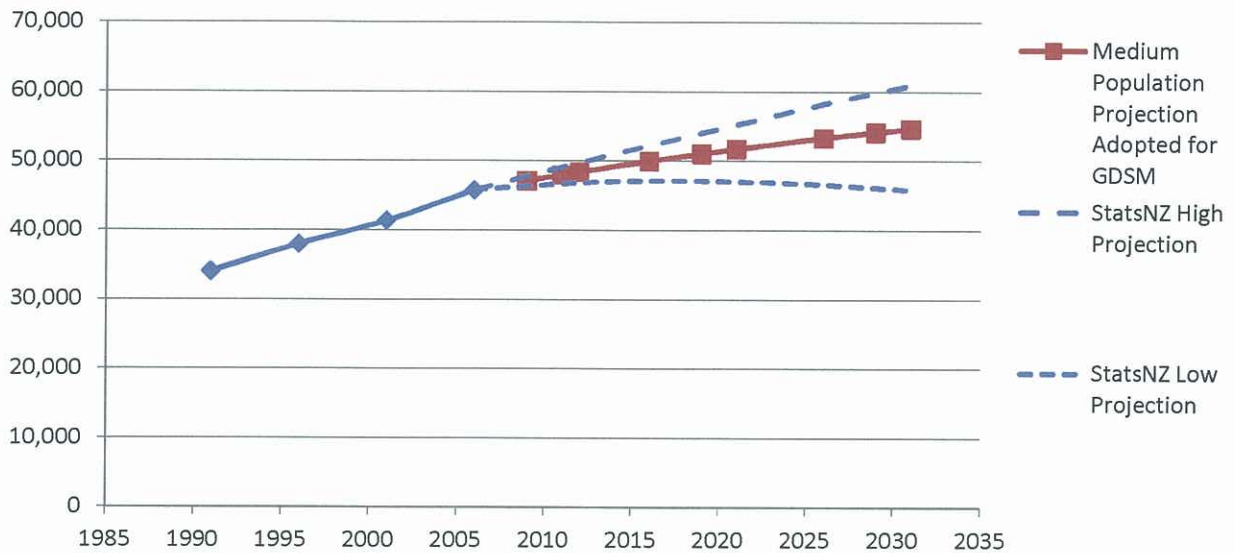


## 5 EFFECTS OF GROWTH, DEMAND AND SUSTAINABILITY

### 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 GDSM is described in brief in Appendix F and in more detail in a separate model description report.

The ultimate outputs of the GDSM include a projection of the District's population, and forecast of where and when new dwellings and business buildings will be build 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 slow down 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 growth major projects are listed in Table 8-1 and are identifiable by the project driver column.



## 5.2 Sustainability

The Local Government Act 2002 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; 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 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

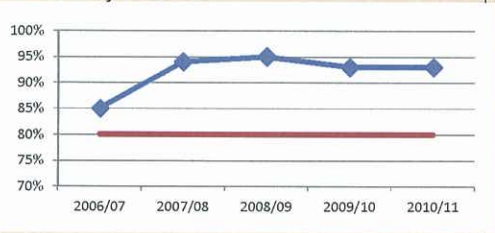
The following table summarises the levels of service and performance measures for the wastewater activity. Development of the levels of service is discussed in detail in Appendix R.

**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	
<b>Community Outcome: Our unique and special natural environment is bountiful, healthy, clean and protected.</b>							
1	<b>Our wastewater systems do not adversely affect the receiving environment.</b>	<i>All necessary resource consents are held. Resource Consents are held in Council's Confirm database.</i>	<b>Actual = 100%</b> All WWTPs hold all necessary consents	<i>In place</i>	<i>In place</i>	<i>In place</i>	<i>In place</i>
2		<i>Number of beach closures or shellfish gathering bans caused by sewer overflows. As recorded in Council's Confirm database.</i>	<b>Actual = 0</b>	<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%

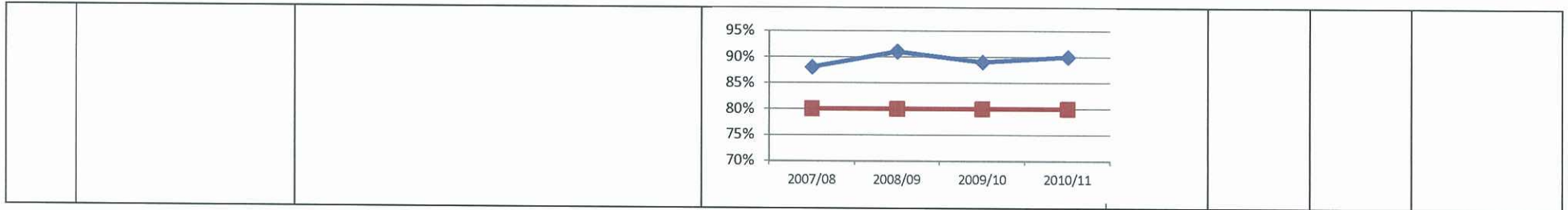


ID	Levels of Service (we provide)	Performance Measure (We will know we are meeting the level of service if...)	Current Performance	Future Performance			Future Performance (targets) in Year 10 2021/22
				Year 1	Year 2	Year 3	
				2012/13	2013/14	2014/15	
<b>Community Outcome: Our built urban and rural environments are functional, pleasant, safe and sustainably managed.</b>							
4	<b>Our wastewater systems reliably take our wastewater with a minimum of odours, overflows or disturbance to the public.</b>	<i>Number of complaints relating to our wastewater systems. As recorded in Council's Confirm database.</i>	<b>Actual = 26</b> (60% noise, 40% odour)	<30	<30	<30	<30
5		<i>Number of overflows resulting from Council system fault. As recorded in Council's Confirm database.</i>	<b>Actual = 37 overflows (0.097km)</b> A total of 37 overflows have occurred over the year. With a total network of 380km, 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 of private property resulting from Council system fault. As recorded in Confirm.</i>	<b>Actual = 11</b> 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>	<b>Actual = 1</b> (Hill St WWPS – 5/10/2010)	<10	<10	<10	<10
<b>Community Outcome: Our transport and essential services are sufficient, efficient and sustainably managed.</b>							
8	<b>Our wastewater activities are managed at a level that satisfies the community.</b>	<i>% of customers satisfied with the wastewater service. As measured through annual resident survey.</i>	<b>Actual = 93%</b> The Communitrak™ survey was undertaken in May/June 2011. 93% of receivers of the service were found to be satisfied with the service they receive.	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 time frames. eg. Emergency = Service Restoration in four hours. Urgent = Service Restoration in one working day. As recorded through Council's Confirm database.	<b>Actual = 97%</b> 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 time frame. More detailed response times are monitored through Contract 688.	>90%	>90%	>90%	>90%
10		All pump stations have standby pumps in case of mechanical failures. As detailed in the asset register.	<b>Actual = 100%</b> All pump stations have stand-by pumps.	100%	100%	100%	100%
11		Our pump stations have storage or standby electrical generation in case of power failure. As detailed in the Asset Register.	<b>Actual = 17% of pump stations have either storage or on-site standby electrical generation.</b> However, there are two portable generators available which are able to serve up to 53% of pump stations.	30%	30%	30%	50%
12		Our pump stations have telemetry to allow automatic communication of failures. As detailed in the Asset Register.	<b>Actual = 60%</b> 46 of the 76 pump stations have telemetry.	60%	65%	70%	100%
13		Critical assets are identified and included in the Activity Risk Register.	<b>Actual = Critical assets are identified and assessed for Risk.</b> Where mitigations measures are required, they have been included for action in the AMP.	In place	In place	In place	In place
14		Assets are operated, maintained and repaired to a high standard. As measured through audits carried out by the Engineer.	<b>Actual = 90.</b>	80%	80%	80%	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 AMP.

**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 <sup>1</sup>
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
Ligar Bay Upgrades	Ligar Bay pump station and rising main upgrades.				1,649,100	LoS / R
Tata Beach Upgrade	Tata Beach pump station and rising main upgrade.				1,096,657	LoS / R
Mapua – Aranui Combined PS Upgrade	Upgrade pump station and storage.				318,659	G / LoS
Mapua – Tait's PS and RM Upgrade	New PS and 33m <sup>3</sup> storage, rising main upgrade.		219,165		2,087,835	G / LoS
Motueka – 13 Trewavas Street PS (Price) Upgrade	Relocate pump station and install telemetry.				825,906	R
Motueka – New P.S. Motueka West	New pump station and rising main from corner of King Edwards/High Streets to tie in with Thorp Street rising main.	49,975			1,212,025	G
Motueka WWTP Upgrade	WWTP upgrade	1,722,276	1,572,513	2,695,737	1,497,632	G / LoS
Motueka – Oaks Village PS (Naumai Street) Upgrade	Replace Oaks Village pump station (Naumai Street).				687,000	LoS / R
Motueka Pipeline Renewals and Manholes	Pipeline renewals.	610,827	610,827	608,756	4,261,292	R

<sup>1</sup> R = Renewal, LOS = Levels of Service, G = Growth

Project Name	Description	Year 1 (\$)	Year 2 (\$)	Year 3 (\$)	Years 4 to 10 (\$)	Project Driver <sup>1</sup>
Motueka – Thorp Street Pipe Replacement	Replacement of main from 13 Trewavas Street pump station to manhole WWSF5168.				1,867,905	G / LoS
Motueka – Thorp Street Pipe Replacement	Replacement of main from manhole WWSF5168 to Motueka WWTP.				3,262,464	G / LoS
Pohara/Tata Beach Upgrade	Four Winds, Pohara Camp, Tarakohe, Pohara Valley pump stations and rising main upgrades.	1,188,320			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 – Risingmain Upgrade to WWTP	Replace 140mm PN4 with PN12 rising main.				1,048,307	G / LoS
Takaka Pipeline Renewals	Pipeline renewals.				612,045	R
Takaka WWTP Upgrade	Full upgrade.	1,086,021	2,606,450	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 affects 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
If the discharge from wastewater treatment plants does not meet consent conditions, it may result in the degrading of the receiving environment (social, environmental, economic, and cultural).	Upgrading wastewater treatment plants that struggle to meet their resource consent conditions.
Odour released from hydrogen sulphide in pipelines can be disruptive to the public (social, economic).	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.
Construction activity associated with sewer renewals or construction of new pipelines can generate noise, dust, and traffic disruption (social, environmental, economic).	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 from the wastewater network due to blockages or high flows (social, environmental, economic).	<p>Programme of CCTV identifies blockages such as root intrusion in pipes and means that root cutting programmes can be targeted.</p> <p>Programme of CCTV identifies structural defects that may be causing blockages and enables prioritisation of defect repairs and sewer renewals.</p> <p>Inflow and infiltration issues are identified by monitoring flows to highlight problem catchments for further investigation and remedial action to eliminate inflow and infiltration.</p>



**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.
Minimised environmental impact from discharges is better for community recreation and to 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.

### 9.3 Assumptions

Council has made a number of assumptions in preparing the AMP. 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).
Asset Data Knowledge	That Council has sufficient knowledge of the assets and their condition so that the planned renewal work will allow Council to meet their 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	That the District will grow as forecast in the Growth Demand and Supply Model (refer to Appendix F).	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.
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.

Assumption Type	Assumption	Discussion
Accuracy of Capital Project Cost Estimates	That the capital project cost estimates are sufficiently accurate enough 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 Logn 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 to 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.
Motueka WWTP and Takaka WWTP	That Council will: <ul style="list-style-type: none"> <li>- be able to purchase sufficient land for disposal purposes for Motueka WWTP within a suitable time period,</li> <li>- be able to obtain resource consents with appropriate conditions within a suitable time period.</li> </ul> <p>The level of treatment identified in the project estimating will meet resource consent conditions and environmental requirements.</p>	These assumptions underpin the cost estimate and timing of these projects. <p>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.</p>
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.

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 LTP.



At an asset group level (Level 2), Council has identified 15 high or very high risks and planned mitigation 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
<b>Iwi:</b> Ineffective relationship impacts operations and maintenance and renewal works.	Regular meetings. Overflow procedure of notification. Involvement in application stage of resource consents.	Monitor.	HIGH
<b>Earthquake (1:400):</b> Significant damage to infrastructure (Reticulation).	Reticulation planning. Hazard register. Lifelines Planning. Design for fault lines.	Review planning. Undertake work as required	HIGH
<b>River Floods (1:400):</b> Impacts networks conveyance.	No controls in place to this level.	Undertake work as required.	HIGH
<b>River Floods (1:400):</b> 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
- ongoing I&I investigation and minor repairs across the District.

## 9.5 Improvement Plan

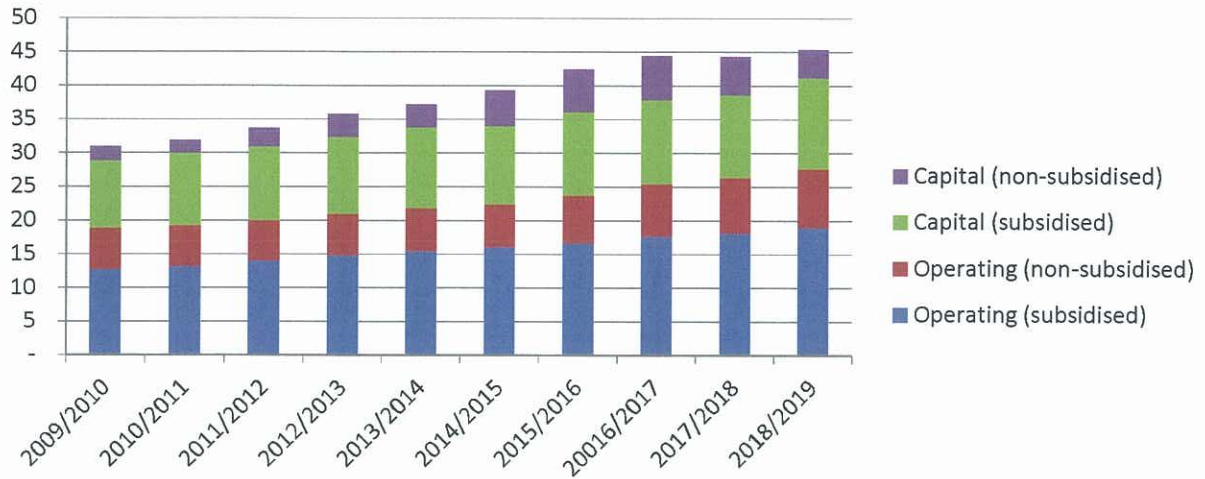
Development of the improvement plan is discussed in Appendix V. It includes a table of planned improvements that are still to be implemented and information on how they have been budgeted. It is a snapshot of the improvement plan at September 2011. It is intended that the improvement plan is continually updated and monitored as a live document.

Appendix V also includes a summary of the key improvements that have been achieved since the preparation of the 2009 AMP.



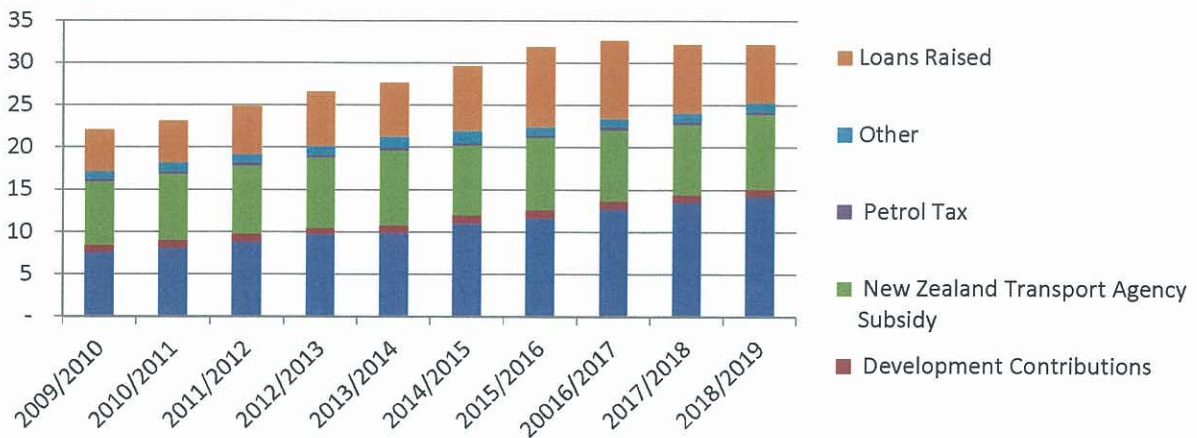
## 10 SUMMARY OF COST FOR ACTIVITY

A full cost summary is included in Appendix L. The graphs below represent the key financial elements for the wastewater activity.



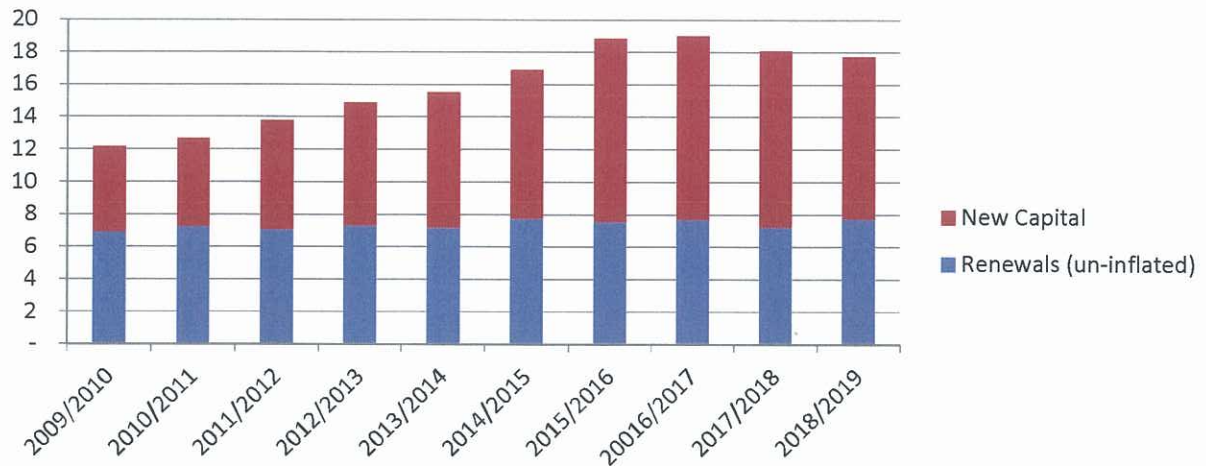
**Figure 10-1: Total Expenditure (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 data.
- Refer to Appendix E, Appendix F and Appendix I for detailed operating and maintenance, new capital, and renewal projects respectively.



**Figure 10-2: Total Income (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 data.
- Refer to Appendix L for full income details.



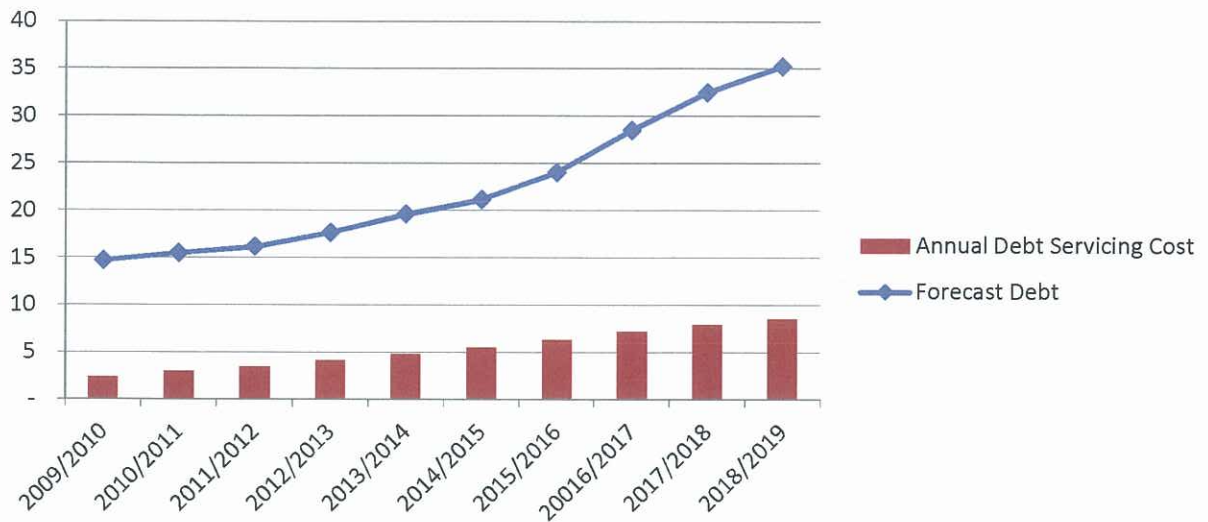
**Figure 10-3: Capital Expenditure (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 data.
- Refer to Appendix F and Appendix I for a full list of new capital and renewal projects respectively.



**Figure 10-4: Operating Expenditure (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 data.
- Refer to Appendix L for full operating expenditure details.



**Figure 10-5: Debt (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 data.
- Appendix L for full Debt details



**Figure 10-6: Investment in Renewals (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 data.
- Appendix L for full Investment and Renewal details

**ALL TABLES ABOVE TO BE UPDATED WITH 2012 WHEN AVAILABLE**