Tasman District Council

WATER SUPPLY
Activity Management Plan

2012 - 2022

October 2011

Quality Assurance Statement		
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For full Quality Assurance Statement, Refer Appendix Z

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1 KEY ISSUES FOR THE WATER ACTIVITY

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

Table 1-1: Key Issues for the Water Activity

Key Issue	Council Approach
The Waimea Basin is a good quality but limited groundwater resource. There is high demand for water in the area and the sustainable allocation limit is already over allocated. This is leading to an increase in the application of water rationing and in drought times can lead to flows in the Waimea River that drop below what is needed for environmental health. There is a project (Lee Valley Dam) underway to resolve these issues. It is the preferred option to deal with the wider Waimea Basin and Council water supply issues. Successful implementation of the project is important, because if it does not proceed, there is the possibility of reduced water takes and constraints on growth.	Council has supported investigations into the Lee Valley Dam project financially and is a key stakeholder. Council has made financial provisions in the financial forecasts to fund its share of the project, if it proceeds. Note: This needs confirmation from Council prior to finalising the AMP.
The Coastal Pipeline is a large project needed to improve the water supply capacity to Mapua and facilitate growth in the Coastal Tasman Area (CTA). In Mapua growth currently constrained because no new connections are allowed on the water supply. The Coastal Pipeline is needed to allow more growth. The key issue is the large upfront investment in the infrastructure, this is difficult to afford.	Council is planning to continue with this project as more water is needed for Mapua and the CTA to cater for the expected growth in these areas. Supplying more water from Waimea has been considered but it is currently not a more cost effective option.
Richmond is currently fed from two sources. While there is sufficient water for 10 to 15 years and there is an opportunity to increase supply capacity when the Lee Valley Dam is built, Council needs to construct the Richmond Water Treatment Plant and develop a new source away from the coastal margin to provide a higher level of security for long term supply (especially in the light of climate change and sea level rise).	Council has programmed the construction a new water treatment plant in Richmond, where both the Waimea and Richmond sources will be blended. A new groundwater source project has been programmed, which will cater for future demand in the township and provide greater bore security.
Following introduction of The Health (Drinking Water) Amendment Act 2007 (HDWAA), it is now mandatory to comply with drinking water standards. While most supplies in the district source water from good quality groundwater sources, they are currently not meeting the standards. The main reason for non compliance is a lack of protozoa treatment at the treatment plants. The HDWAA also requires the completion and implementation of Public Health Risk Management Plans (PHRMPs) for all Council water supplies by set dates.	Council has completed PHRMPs for several water supply schemes and has a programme in place to complete the rest in advance of the legislated deadlines. The PHRMP is a 'live' plan which outlines the necessary steps required to reduce public health risks within the scheme and to meet and maintain compliance with the Drinking Water Standards New Zealand (DWSNZ). Council has programmed upgrades of all water treatment plants not currently meeting the DWSNZ into the AMP.
There are several water supplies that need significant supply improvements to meet future water demands. These include Wakefield, Brightwater and	Council has programmed projects to manage the predicted water demand in Wakefield, Brightwater and Pohara.

Key Issue	Council Approach
Pohara.	
Council's rural water supplies, including Dovedale, Redwood Valley and 88 Valley are virtually all fully allocated. There are some projects planned that will provide some capacity improvements, however these are only small increments. There is little capacity for any significant additional demand.	Council has closed these water supplies to new connections.
Motueka does not have a fully reticulated scheme, with the majority of the population is using private shallow water bores. This is considered a high public health risk due to potential groundwater contamination and poor fire fighting coverage.	Council had programmed the construction of a new reticulated scheme for Motueka. This would be a large expense to the community. Council had applied for a Government subsidy which has been recently declined. Council need to develop a new plan, with assistance from the community, to resolve these risks. As a result, the project is now programmed outside the first ten years. Council will re-apply for a subsidy.
There is a large list of high value projects needed to secure the long term future of Council's water supplies. This is leading to the forecast water rates to increase from $XX to $XX. Also the water 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.	Councils input is required here, as we have not received the financials yet. Important to note that Council will undertake a discretionary and non discretionary review to help determine the priorities of projects.
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 led to the Water Supply Development Contribution being forecast to increase from $XX to $XX.	Councils input is required here, as we have not received the financials yet. Important to note that Council will undertake a discretionary and non discretionary review to help determine the priorities of projects.

2 ACTIVITY DESCRIPTION

2.1 What We Do

This activity comprises the provision of potable water (ie.The Council's network is extensive and growing rapidly. At present the network comprises approximately 660km of pipeline, 34 pumping stations, 11,400 domestic connections and 44 reservoirs and break pressure tanks. In addition Council manages the Wai-iti water storage dam to provide supplementary water into the Lower Wai-iti River and aquifer. Water is supplemented at times of low river flows to allow a sustained water take for land irrigation.

Tasman District Council owns, operates and maintains 10 Urban Water Supply Schemes, three Rural Supply Schemes, and three Community Schemes.

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

2.2 Why We Do It

By providing ready access to high quality drinking water, the Council is primarily protecting public health, and also facilitating economic growth and adequate fire fighting supply.

3 COMMUNITY OUTCOMES AND OUR GOAL

The community outcomes that the water 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 water in the Council-owned schemes is taken from the environment. This activity can be managed so the impact of the water take does not prove detrimental to the surrounding environment.
Our built urban and rural environments are functional, pleasant, safe and sustainably managed.	The water supply activity is a service to the community providing water that is safe to drink and is efficiently delivered to meet customer needs. It also provides a means for fire fighting consistent with the national fire fighting standards.
Our transport and essential services are sufficient, efficient and sustainably managed.	The water activity is considered an essential service that should be provided to all properties within water supply network areas in sufficient capacity and pressure. This service should also be efficient and sustainably managed.

Our Goal

We aim to provide and maintain water supply systems to communities in a manner that meets the levels of service.

4 OPERATIONS, MAINTENANCE AND RENEWALS STRATEGY

4.1 Operations and Maintenance

The day to day operational, inspection and maintenance of the water supply 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.

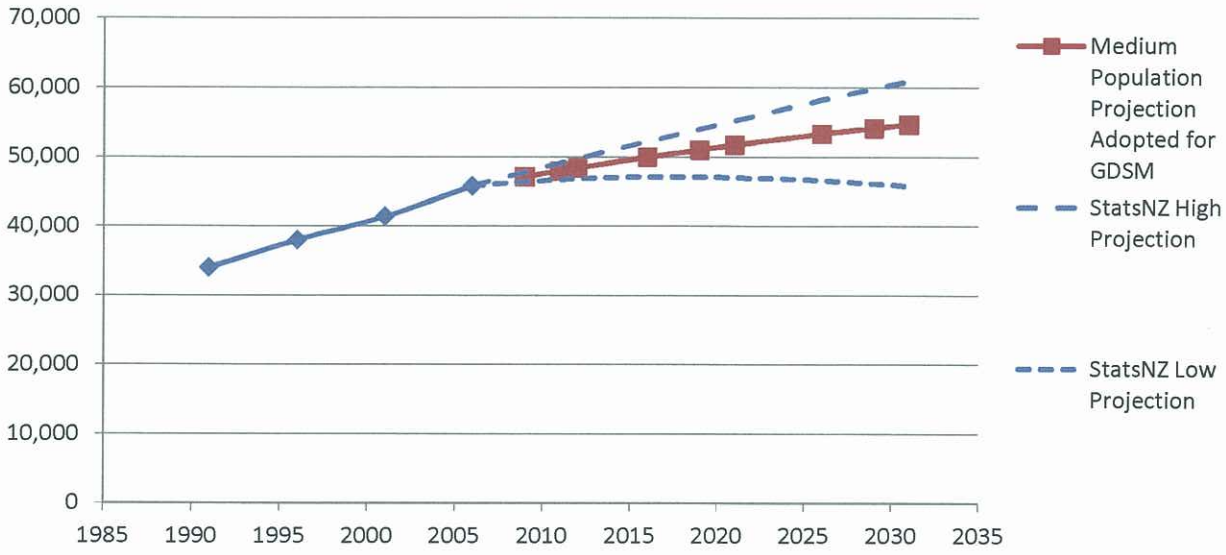
5 EFFECTS OF GROWTH, DEMAND AND SUSTAINABILITY

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 built and a forecast of the number of new water connections. This is summarised in Appendix F. The population projection for Tasman District Council is shown in Figure 5-1.

Figure 5-1: Projected Population Growth for Tasman District



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 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 for 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:

- Securing the long term water needs of the Waimea Basin by pursuing the Lee Valley Dam which will allow for the current and long term community and business water supply and irrigation needs whilst enhancing the in-stream environmental values of the Waimea River. This will also mitigate the effects of climate change.
- Planning to construct the Coastal Pipeline and CTA reticulation water supply to provide for the long term water needs of a water short area where there is high demand for rural residential development. Council has considered the best long term water resource to service this water, included water re-use in design guidelines and the challenge of funding the infrastructure in advance of development.
- The demand management planning that Council is advancing, especially the water metering and volumetric charging, and the adoption of water demand targets to reduce depletion of the water resources.
- Planning to construct a new water source for Richmond away from the coastal margin to safeguard the water supply from the long term impacts of sea level rise.
- An education programme for general public and targeting schools, including promotion of water efficient fixtures and appliances.
- Paying careful attention to the importance of fully complying with resource consent conditions to ensure natural water sources are protected and conserved.
- Ensuring that the District's likely future water supply 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

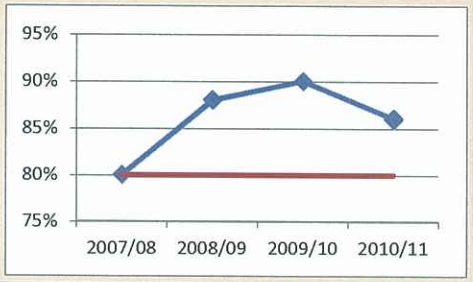
Table 6-1 summarises the levels of service and performance measures for the water activity. Development of the levels of service is discussed in detail in Appendix R.

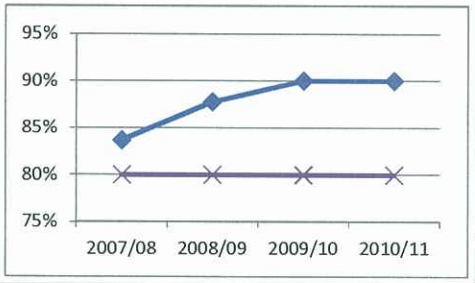
Table 6-1: Levels of Service

ID	Levels of Service (we provide)	Performance Measures (We will know we are meeting the level of service if...)	Current Performance (as at end Yr 2 2010/11)	Future Performance			Future Performance (targets) in Years 4 - 10
				Year 1	Year 2	Year 3	
Community Outcome: Our unique and special natural environment is bountiful, healthy, clean and protected.							
1	**Our water takes are sustainable.**	*All water takes have resource consents.* *All resource consents are held in Confirm.*	**Actual = 100%** A current resource consent is in place for each water take. No abatement notices have been received for breach of resource consent.	*100%*	*100%*	*100%*	*100%*
2	**Our use of the Water Resource is efficient.**	*Water demand management plans are in place for each water scheme.* *As measured by having a demand management plan.*	**Actual = 5/16** A Demand Management Plan is in place for Richmond, Brightwater/Hope, Wakefield, Mapua/Ruby Bay and for Waimea.	*6/16*	*8/16*	*10/16*	*12/16*
3		*The weighted average of metered residential consumption across the district reduces.* *As measured through Council's district-wide Water Demand Management Plan.*	**Actual =** 196 l/capita/day	*<250l/capita/day*	*<250l/capita/day*	*<250l/capita/day*	*<250l/capita/day*
4		*The weighted average of measured water loss across the district reduces.* *As measured through Council's district-wide Water Demand Management Plan.*	**Actual =** 239 l/connections/day	*<235l/connection/day*	*<230l/connection/day*	*<225l/connection/day*	*<175l/connection/day*

ID	Levels of Service (we provide)	Performance Measures (We will know we are meeting the level of service if...)	Current Performance (as at end Yr 2 2010/11)	Future Performance			Future Performance (targets) in Years 4 - 10
				Year 1	Year 2	Year 3	
Community Outcome: Our built urban and rural environments are functional, pleasant, safe and sustainably managed.							
5	**Our water is safe to drink.**	*Number of temporary Advisory notices issued to boil water.* *As issued in consultation with Medical Officer of Health.*	**Actual = 2** Motueka due to zone transgression and Pohara due to plant failure. There is a permanent notice in place at Dovedale, which is not covered in the targets as it is a permanent notice.	*0*	*0*	*0*	*0*
6		*There are no bacterial non-compliances for water supplies.* *As measured by water sampling and analysis to meet DWSNZ, recorded in WINZ.*	**Actual = 5** Zone – Three transgressions were recorded for *E.coli* . Plant – Two transgressions were recorded for *E.coli.* Council carries out water compliance testing on all of its public water supplies to DWSNZ:2005 (revised 2008). If a transgression occurs, further samples are taken and an investigation begins.	*0*	*0*	*0*	*0*
7		*P1 and P2 monitoring shows we are in compliance with DWSNZ.* *As measured by water sampling and analysis to meet DWSNZ, recorded in WINZ.*	**Actual = 98.5%** Zone – 783 samples were taken over the year. Of these, three transgressions were recorded for *E.coli* and 19 transgressions recorded in Richmond for nitrate = 97.2% Plant – 764 samples were taken over the year. Of these, two transgressions were recorded for *E.coli.* = 99.7%	100%	100%	100%	100%
8		*PHRMPs are in place, approved and being implemented for each water supply.* *As measured by approval by Ministry of Health.*	**Actual = 5/16** PHRMPs approved for Tapawera, Upper Takaka and Motueka, Waimea, Richmond Two further ready for submission (Wakefield, Brightwater) and one in appeal (Collingwood).	10/16	13/16	14/16	16/16

ID	Levels of Service (we provide)	Performance Measures (We will know we are meeting the level of service if...)	Current Performance (as at end Yr 2 2010/11)	Future Performance			Future Performance (targets) in Years 4 - 10
				Year 1	Year 2	Year 3	
9	**Our water supply systems provide fire protection to a level that is consistent with the national standard.**	*Urban water supplies meet fire fighting standards.* *As measured through hydraulic modelling, revised biennially.*	**Actual = 90%** 9/10 urban systems fully comply with the fire fighting capability. The vast majority of Richmond complies, with the exception of Cropp Place. Rural water supplies and community supplies do not provide fire-fighting capacity so are not covered by this performance measure, however a reticulated fire fighting scheme for the CBD in Takaka was completed this year and Motueka has a network of fire wells which provide a limited fire-fighting service.	*90%*	*90%*	*90%*	*100%*
10		*Planned service interruptions do not exceed 4 hours.* *As measured through the maintenance contract.*	**Actual = 0** No planned service interruptions have exceeded four hours.	0	0	0	0
11		*Flow from hydrants meets fire fighting standards.* *As measured by random annual spot checks of hydrants.*	**Actual = This is not currently being measured.** Budget assigned in AMP to undertake programme of hydrant spot checks.	100%	100%	100%	100%
12		*No system shall be down for longer than two hours per week.* *As measured through the Maintenance contract.*	**Actual = 0** No system has been interrupted for more than two hours in any one week	0	0	0	0
13		*Hydraulic models are in place for key urban water supplies.* *As measured through professional services contracts.*	**Actual = 6 hydraulic models are in place** for Richmond, Waimea, Brightwater, Wakefield, Mapua, Motueka.	6 / 10	6 / 10	6 / 10	8 / 10

ID	Levels of service (we provide)	Performance measures (We will know we are meeting the level of service if...)	Current performance (as at end Yr 2 2010/11)	Future performance			Future performance (targets) in Years 4 - 10
				Year 1	Year 2	Year 3	
Community Outcome: Our transport and essential services are sufficient, efficient and sustainably managed.							
14	**Our water supply activities are managed at a level that the community is satisfied with.**	*% of customers are satisfied with the water supply service.* *As measured through annual resident survey.*	**Actual = 86%** The Communitrak™ survey was undertaken in May/June 2011. 86% of receivers of the service were found to be satisfied with the service they receive. 	*80%*	*80%*	*80%*	*85%*
15	**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.*	**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 time frame. More detailed response times are monitored through Contract 688.	*>90%*	*>90%*	*>90%*	*>90%*
16		*Critical assets are identified and included in the Activity Risk Register.*	**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 Measures (We will know we are meeting the level of service if...)	Current Performance (as at end Yr 2 2010/11)	Future Performance			Future Performance (targets) in Years 4 - 10
				Year 1	Year 2	Year 3	
17		*Water supply systems have the following storage:* *Urban: - one day at average annual demand* *Rural: - six hours at average annual demand* *As measured through annual demand figures vs actual storage.*	**Actual = 12 of the 13 schemes have the required storage** All three rural schemes meet storage requirements. Nine of the 10 urban supplies meet the required storage. Richmond fails to meet the requirement. Schemes are identified within the AMP to construct new reservoirs in this area. Tapawera failed to meet the required storage volume previously, however, significant reduction in water loss through leaks in this system have been resolved	13/13	13/13	13/13	13/13
18		*Assets are operated, maintained and repaired to a high standard.* *As measured through audits carried out by the Engineer*	**Actual = 90.6%** 	80%	80%	80%	80%

7 CHANGES MADE TO ACTIVITY OR SERVICE

Table 7-1 summaries the key changes for the management of the water activity since the 2009 AMP.

Table 7-1: Key Changes

Key Change	Reason for Change
Council have advanced its water demand management to the current state where there is an overarching Water Demand Management Plan (WDMP) and five WDMPs for individual water supplies. Council has also introduced water demand targets into the Levels of Service.	The improvement in the water demand management enables Council to be more sustainable in its use of a scarce resource and more efficient in its operations. Improving demand management and more "wise use of water" is becoming an expected part of water management. Tasman District Council is a leader in this area with water metering and volumetric charging in place. However early results show that Council can do more to achieve better results.
Water gradings are no longer carried out.	Now that it is mandatory to comply with the drinking water standards, water gradings are no longer necessary.
Council had planned to review and update its Water and Sanitary Services Assessment (WASSA) by 2009/10 but is now not planning to do this until 2015/16.	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. 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 now plans to update its WSSA in 2015/16.

8 KEY PROJECTS

Table 8-1details 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]
Mapua Coastal Pipeline	Construct a new source, treatment plant (in Motueka) and pipelines to service Mapua and the coastal communities.				$19,323,420	LoS/G
Mapua – Aranui Road Main Replacement	Replacing the existing watermain down Aranui Road.				$880,709	R
Richmond Water Treatment Plant	Construct a new treatment plant to meet DWSNZ.	$2,162,500	$3,892,500	$2,595,000		LoS/G
Pohara Water Treatment Upgrade	Upgrade the existing treatment plant to meet DWSNZ.	$65,730	$372,470			LoS
Richmond Rezoning	Upgrading pipelines within Richmond and adjusting the zonal boundary between Waimea and Richmond.	$1,334,381	$145,900		$287,900	LoS/G
Motueka – Thorp Street Replacement	Replacing the low grade class B pipe down Thorp Street.				$1,629,200	R
Richmond – Gladstone Road Watermain	Installing a new pipeline down Gladstone Road to help supply water to Richmond West.				$1,522,000	R/LoS
Richmond – Lower Queen Street Replacement	Upsizing and replacing the existing 100mm main down Lower Queen Street.				$783,400	R/LoS
Richmond – Queen Street Main Replacement	Replacing the 300mm truckmain down Queen Street within the CBD.			$188,150	$1,693,350	R/LoS
Wakefield – New Source and WTP	Construct a new treatment plant to meet DWSNZ. This involves a new source.	$87,370	$87,370		$4,193,760	LoS/G
Wakefield – Re-zoning	Re-zoning the Wakefield and 88 Valley Zone. Involves		$2101,167		$2,428,010	LoS/G

[1] Project Drivers – LoS = increasing Levels of Service, G = Growth, R = Renewals

Project Name	Description	Year 1 ($)	Year 2 ($)	Year 3 ($)	Years 4 to 10 ($)	Project Driver[1]
	pump stations and reservoirs.					
Redwood Valley – Treatment Upgrade	Upgrade the existing treatment plant to meet DWSNZ.	$11,375			$863,656	LoS
Brightwater – Treatment Upgrade	Upgrade the existing treatment plant to meet DWSNZ.				$913,00	LoS/G
Collingwood – Treatment Upgrade	Upgrade the existing treatment plant to meet DWSNZ.				$573,200	LoS
Dovedale – Treatment Upgrade	Construct a new treatment plant to meet DWSNZ. This involves a new source.	$8,395			$1,670,618	LoS/G
88 Valley – Treatment Upgrade	Upgrade the existing treatment plant to meet DWSNZ.	$10,015			$657,651	LoS
Kaiteriteri – Treatment Upgrade	Upgrade the existing treatment plant to meet DWSNZ.	$54,821			$788,579	LoS/G
Murchison – Treatment Upgrade	Upgrade the existing treatment plant to meet DWSNZ.	$5,8400	$525,960			LoS

9 MANAGEMENT OF THE ACTIVITY

9.1 Demand Management

The objective of Water Demand Management Plan (WDMP) is to provide a framework and action plan to continuously improve efficient use of water and water demand management across Tasman District Council water supplies, targeting the highest demands / water loss first, to achieve a level of water demand management that is consistent with good performance in New Zealand.

By doing this Council will ensure its use of the water resource is efficient which is one of the levels of service that contributes to the community outcome "our unique and special natural environment is bountiful, healthy, clean and protected" (refer Levels of Service Appendix R).

Council has set level of service performance measures for residential water consumption (250 L/capita/day) and water loss (235 L/connection/day dropping to 175 L/connection/day by year 10) that it will report on (refer Appendix R, performance measures 3 and 4). These are weighted averages of the performance of all water supplies for which Demand Management Plans have been completed.

These targets can be compared against performance in other water supplies in New Zealand in the following graphs (note not many Councils have or publish this data and those that do are likely to be the best performers).

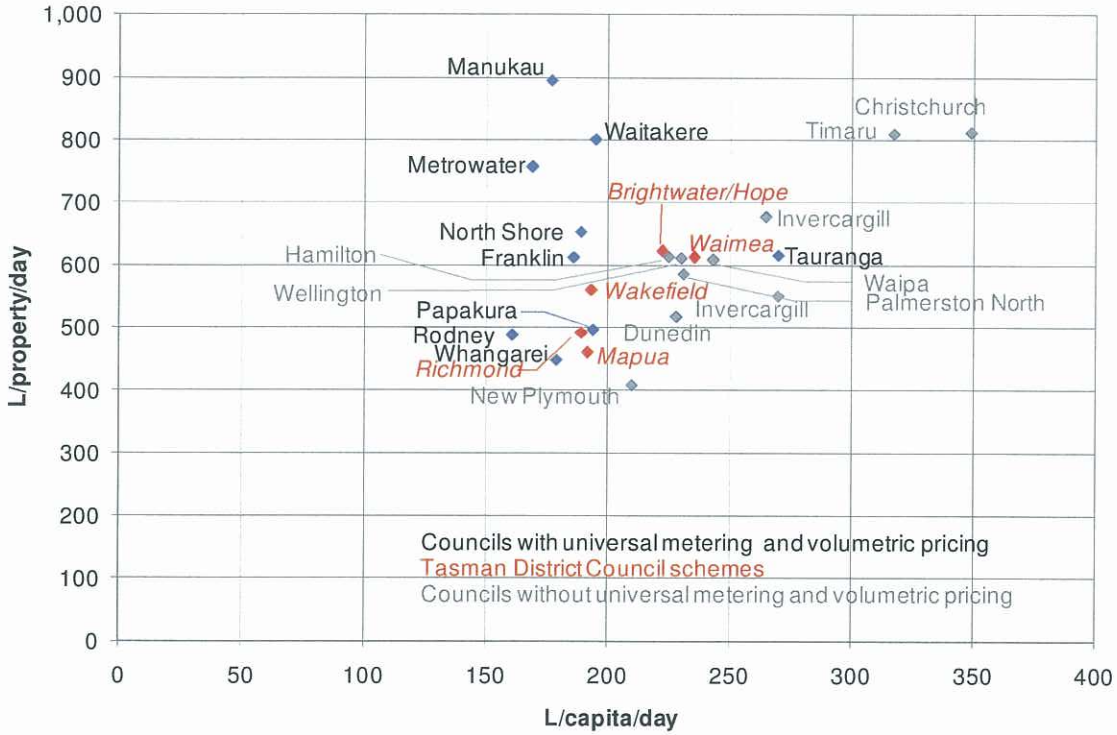


Figure 1: Benchmarking Metered Residential Consumption against other New Zealand Supplies

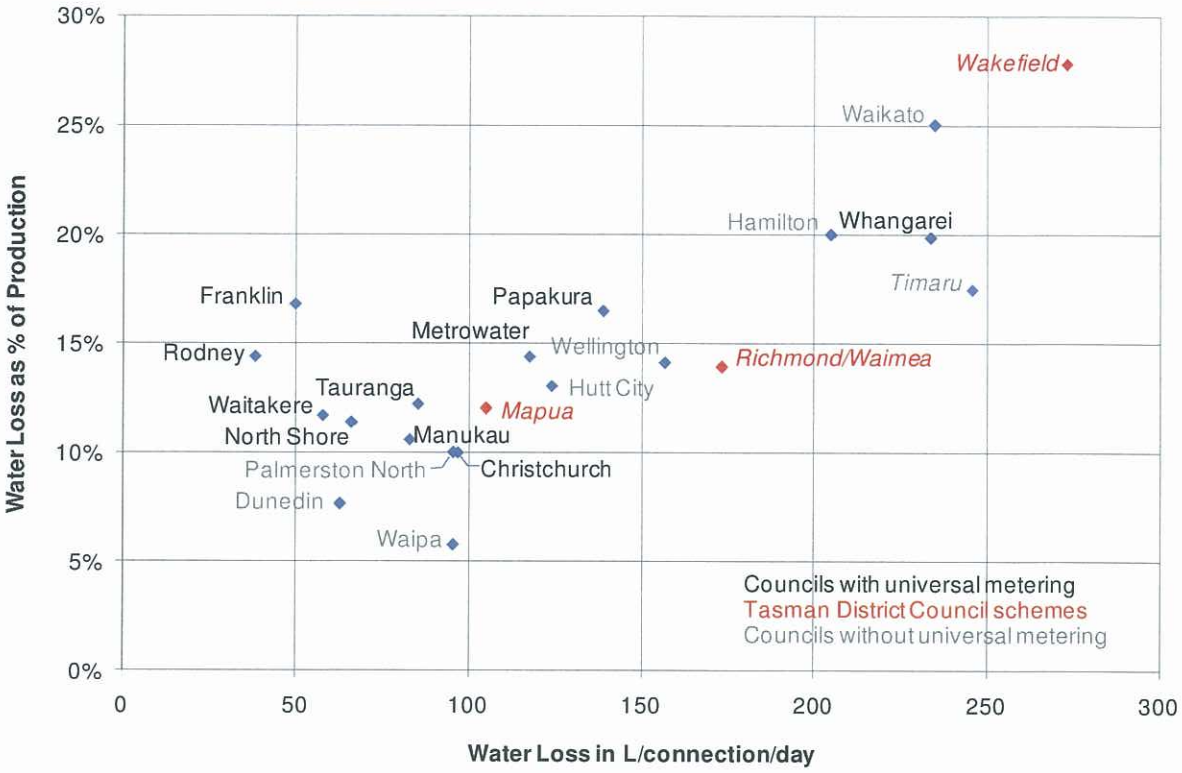


Figure 2: Benchmarking Water Losses against other New Zealand Supplies

The priority for Council is to bring down the water losses in Wakefield and Brightwater. The demand management programme is therefore focussed on night flow monitoring, leak detection and repairs on these supplies. Some focus will also go on Richmond water losses. Further completion of demand management plans has been spread over the period but the focus will be on the above priorities.

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
Water is abstracted from surface water and groundwater sources. The removal of water from the natural environment can impact that environment and results in the water being unavailable for other uses such as irrigation or recreation. Water abstraction from surface water, may add strain on a river system which is already very low.	Council introduces water rationing during times of drought. Resource consents are in place, so Council cannot exceed sustainable certain limits. Investigating new water sources and educating the public on water usage. Demand Management will assist with reducing the volume of water abstracted from the water source.
The installation of water supply infrastructure can cause disruption to the local community. The works can impact on traffic flow and business and cause nuisance noise, dust and visual impacts. Shutdowns may result in properties not receiving water during the day.	Public consultation. Notifying the public of the works through various forms of the media.
Water restrictions can have a large impact on: • commercial and industrial businesses that rely on using water for their production • residential customers that rely on using water for garden watering.	Council is supporting the Lee Valley Dam project and has made allowances in the AMP for new water sources. Council has made allowances for improving the demand management which will assist with making the water usage more sustainable.
Malfunction of water assets can cause disruption to supply. This is frustrating to the local community and businesses relying on this supply.	Council has specifically written operation and maintenance contracts to ensure quick response to failures and to minimise shutdowns. Some disruptions are necessary but Council and the contractors seek to minimise these as much as possible.
Chemicals are used at water treatment plants and with the Tasman region being an environmentally sensitive area; any chemical spill will have a notable effect on the environment and potential to public health.	Council ensures only appropriately trained staff and contractors handle all necessary chemicals. All chemicals are stored in the corrected manner.

Table 9-2: Significant Positive Effects

Effect	Description
Providing drinking water to the community	The water supply activity is a service to the community providing water that is safe to drink and is efficiently delivered to meet customer needs. Safe drinking water has public health benefits.
Economic development	Council provides water to commercial, retail, recreational and non-commercial users, which ensure the growth and prosperity for these users.
Fire fighting supply	The vast majority of the Council's urban water network is built to accommodate the required fire fighting standard.

9.2 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 most significant 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 lower than assumed, Council may be required to advance capital works projects to address congestion. The risk of this occurring is low; however the impact on expenditure could be large. If the network capacity is lower than assumed, Council may be able to defer works. The risk of this occurring is low and is likely to have little impacts.
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.
Construction of Key Projects	That the Lee Valley Dam will be built and will be sufficient to support the Waimea Basin.	The Waimea Water Augmentation Committee is proposing the construction of the Lee Valley Dam. If this project is not completed Council will need to re-think the matter and develop a new approach for dealing with Waimea Basin Supply.
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

Assumption Type	Assumption	Discussion
		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 significant changes occur it is likely to have a significant impact on the required expenditure. Council has not mitigated the effect of this.
Lee Valley Dam	That the Lee Valley Dam will proceed and Council will be able to increase its water allocations on the Waimea Plains.	If Lee Valley Dam does not proceed, Council's current allocations may be reduced and Council would need to find alternative water sources. Any alternative is likely to be expensive for Council.
Motueka Water Supply Subsidy	Council will be granted a subsidy to help fund the proposed Motueka water supply.	Council applied for a government subsidy towards the Motueka Water Supply project in 2010, but was unsuccessful at that stage. Council will have to consult with the community to determine whether the project proceeds or whether alternative arrangements are made. Therefore, the project has been deferred until Year 11 to enable council to re-examine the options available to it and to consider re-applying for a government subsidy at a later date.
Resource consent	Council will be granted a resource consent to abstract water from the Motueka aquifers to supply Motueka, Mapua and the CTA area.	Council has been granted a consent but this has been appealed to the Environment Court. If Council does not get this consent granted, Council will have to consider alternative arrangements for supplying these communities.
Water Source Quantity and Quality	Council will be able to find and develop water sources of sufficient quality and quantity to meet the needs of Richmond and Wakefield.	If the proposed water sources do not have sufficient water to cope with the projected demand, Council will need to investigate new source locations, this could have an effect on the timing and cost of the jobs. If the water quality is poor, ie. high nitrate levels, then the cost of treatment may increase.
Changes in the Fire fighting Standard	The NZ Fire Service Fire Fighting Water Supplies Code of Practice 2003 was updated in 2008. Where the network met the 2003 fire fighting standard, it has been assumed that the same areas meet the updated 2008 fire fighting standard.	Modelling had been undertaken in various water supplies in 2007 to confirm whether the networks met the 2003 fire fighting standard. Since the introduction of the 2008 standard, only Richmond has been modelled to check compliance with this standard. An allowance has been made in this AMP to confirm whether the rest of the urban water supplies meet the standard. In the event new areas do not, additional projects may need to be introduced to meet the standard.

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

9.3 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 eight high risks and planned mitigations measures to reduce these risks to two high risks. Council has planned controls for the remaining two 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.	Monitor.	HIGH
Earthquake (1:400): Significant damage to infrastructure.	Seismic protection for reservoirs. Reticulation planning. Hazard register. Lifelines Planning.	Review planning. Consider retrofitting additional infrastructure.	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 within the 20 year water programme include:

- completing PHRMPs for all water supply systems
- a programme of telemetry installation and upgrade
- a programme of well head security improvements
- a programme of backflow installation
- seismic protection at key reservoirs
- inspection of water retaining structure throughout the district
- Wai-iti Dam safety audits
- hydraulic modelling.

9.4 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 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 THE ACTIVITY

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

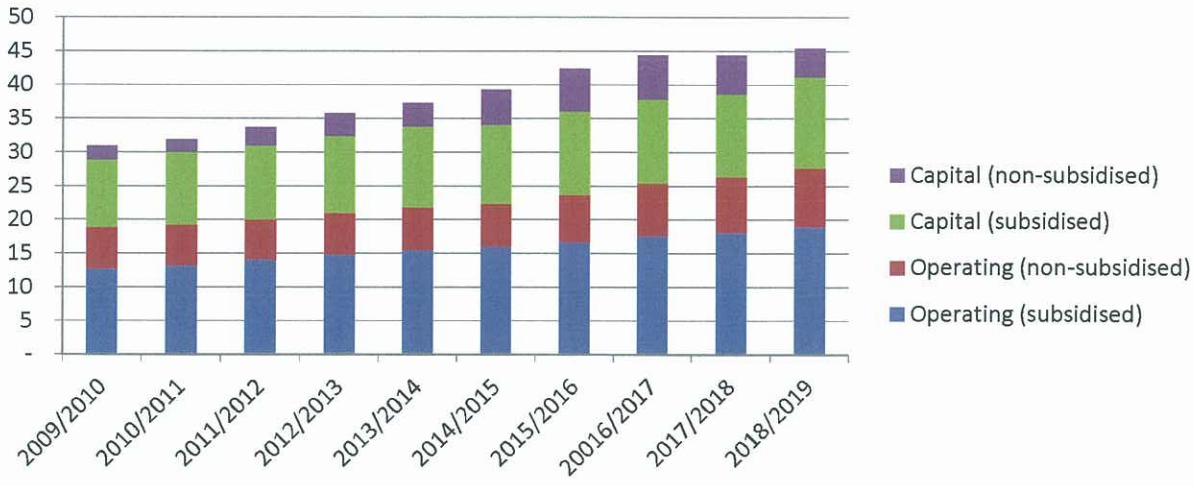


Figure 10-1: Total Expenditure ($ million)

- **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.

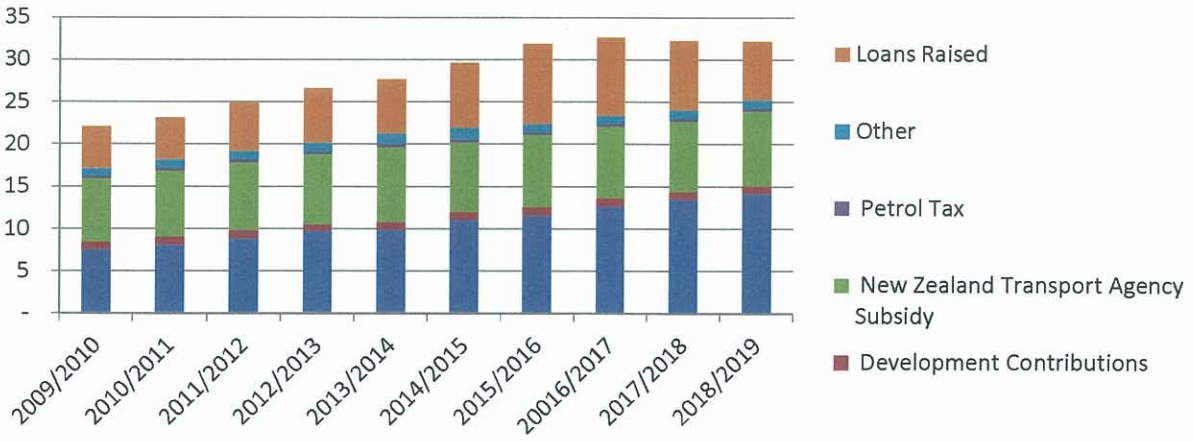


Figure 10-2: Total Income ($ million)

- **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: Urban and Industrial Water Charges from Final Ten Year Plan ($)

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

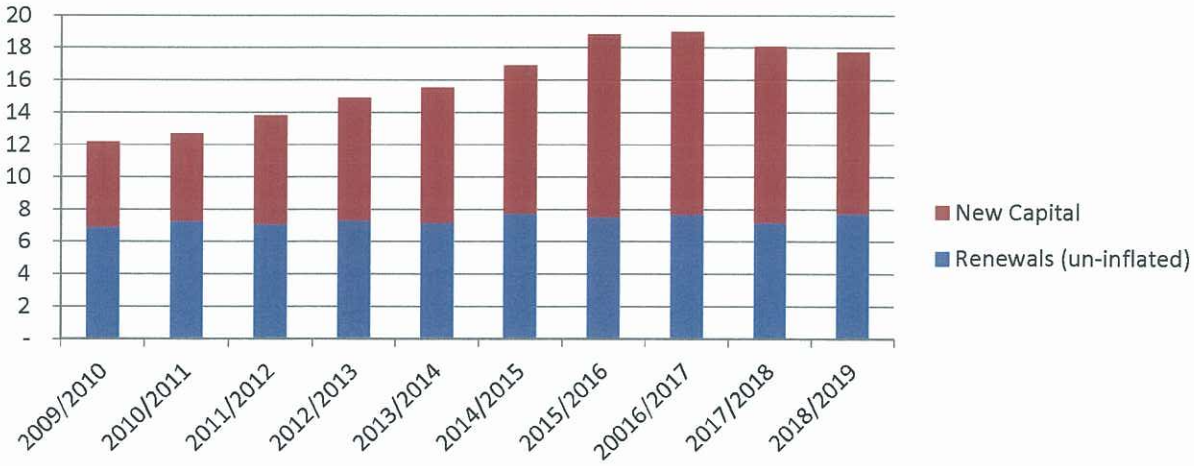


Figure 10-4: Capital Expenditure ($ million)

- **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 10-5: Operating Expenditure ($ million)

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

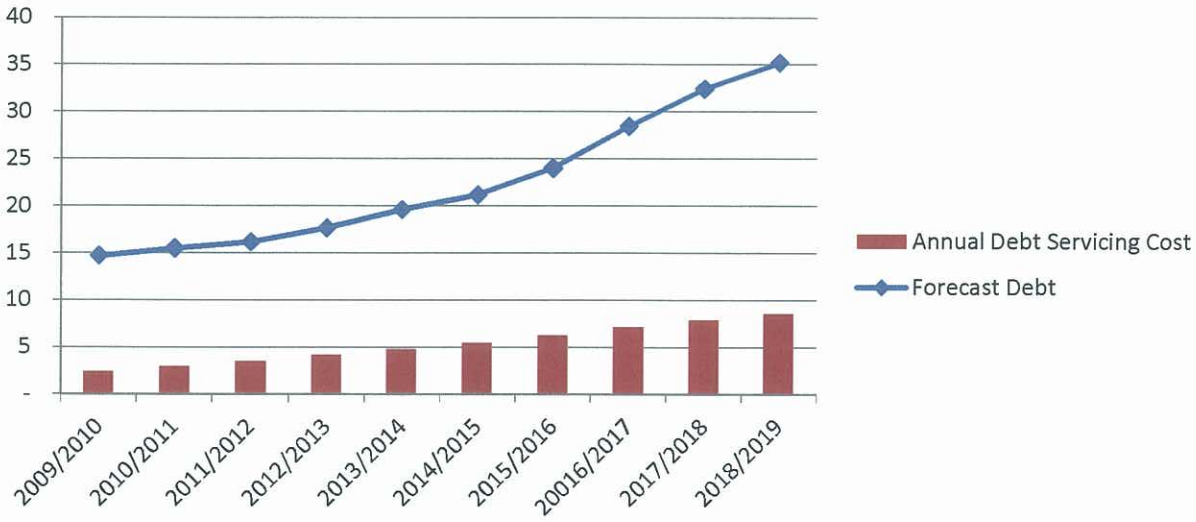


Figure 10-6: Debt ($ million)

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

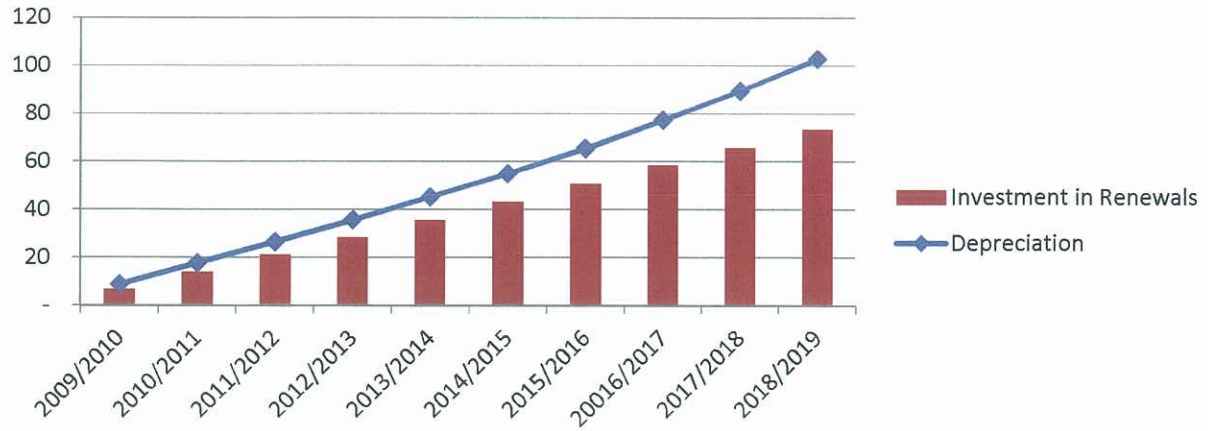


Figure 10-7: Investment in Renewals ($ million)

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