APPENDICES

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APPENDIX A. LEGISLATIVE AND OTHER REQUIREMENTS AND RELATIONSHIPS WITH OTHER PLANNING DOCUMENTS AND ORGANISATIONS

A.1 Introduction

The purpose of this plan is to outline and to summarise in one place, the Council's strategic and management long-term approach for the provision and maintenance of its wastewater assets.

The AMP demonstrates responsible management of the district's assets on behalf of customers and stakeholders and assists with the achievement of strategic goals and statutory compliance. The AMP combines management, financial, engineering and technical practices to ensure that the levels of service required by customers is provided at the lowest long term cost to the community and is delivered in a sustainable manner.

The provision of wastewater management services is considered to be a core function of local government and is something that the Council has always done historically. The service provides many public benefits and it is considered necessary and beneficial to the community that the Council undertakes the planning, implementation, and maintenance of wastewater services in 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 health within the district. This implies that, in the case of the provision of wastewater services, councils have the obligation to identify where such a service is required, and to either provide it directly themselves, or to maintain overview of the supply if it is by others.

The front section of this AMP document is produced with the aim of the target audience being Council staff and Councillors. The Appendices provide more in depth information for the management of the activity and are therefore targeted at the Activity Managers. The entire document is available within the public domain.

In preparing this AMP the following have been taken account of.

- **National Drivers** – for example drivers for improving Asset Management through the Local Government Act 2002.
- **Local Drivers** – for example the Community Outcomes determined through consultation with the public, and change in rules and environmental standards in the Tasman Resource Management Plan (TRMP).
- **Linkages** – the need to ensure this AMP is consistent with all other relevant plans and policies.
- **Constraints** – the legal constraints and obligations Council has to comply with in undertaking this activity.

The main Drivers, Linkages and Constraints are described in the following sections.

A.2 Key Legislation and Industry Standards, and Statutory Planning Documents

A.2.1. Acts of Parliament

The Acts below are listed by their original title for simplicity however all Amendment Acts shall be considered in conjunction with the original Act, these have not been detailed in this document.

- Local Government Act 2002 especially:
  - Part 7
  - Schedule 10
  - the Trade Waste provisions (Sections 148 and 196)
  - the requirement to consider all options and to assess the benefits and costs of each option (see Appendix 'F')
  - the consultation requirements (see Appendix 'U').
- Building Act 2004

- Civil Defence Emergency Management Act 2002 (Lifelines)
- Climate Change Response Act 2002
- Health Act 1956
- Health and Safety in Employment Act 1999
- Local Government Act 1974 (Part XXXI)
- Local Government (Rating) Act 2002
- Resource Management Act 1991

For the latest Act information refer to http://www.legislation.govt.nz/.

A.2.2. National Policies, Regulations and Strategies

- The Government's Sustainable Development Action Plan
- The New Zealand Coastal Policy Statement 1994
- existing established policies of the Council (outside those contained in this Activity Management Plan itself) regarding this activity
- existing policies (or requirements) of the Unitary Council that might impinge on the activity.
- Regional Growth Strategy and any Regional Coastal Policies
- New Zealand Standard SNZHB 4360:2000 'Risk Management for Local Government'
- Ministry of Health Sanitary Works Subsidy Scheme Guidelines

A.2.3. Standards New Zealand (for all refer to http://www.standards.co.nz)

- AS/NZS ISO 31000:2009 Risk Management Principals and Guidelines
- NZS 4404:2010 Land Development and Subdivision Infrastructure
- AS/NZS ISO 9001:2008 Quality Management Systems
- AS/NZS 4801:2001 Occupational Health and Safety Management Systems

A.2.4. Local Policies, Regulations, Standards and Strategies

- Tasman District Council District Plan – Tasman Resource Management Plan (TRMP) http://www.tasman.govt.nz
- Tasman Regional Policy Statement (TRPS) http://www.tasman.govt.nz
- Tasman District Council Engineering Standards and Policies 2008 http://www.tasman.govt.nz
- Council's Procurement Strategy
- Wastewater Activity Management Plan 2006
- Tasman District Council Trade Waste Bylaw 2005
- Tasman District Council Waste Management Plan
- Any existing established policies of the Council (outside those contained in this Activity Management Plan itself) regarding this activity.
- Any existing strategies or policies (or requirements) of the Council that might impinge on the activity.

A.3 Links with Other Documents

This AMP is a key component in the Council's strategic planning function. Among other things, this plan supports and justifies the financial forecasts and the objectives laid out in the Long Term Plan (LTP). It also provides a guide for the preparation of each Annual Plan and other forward work programmes.

Figure A-1 depicts the links between Council's AMPs to other corporate plans and documents.

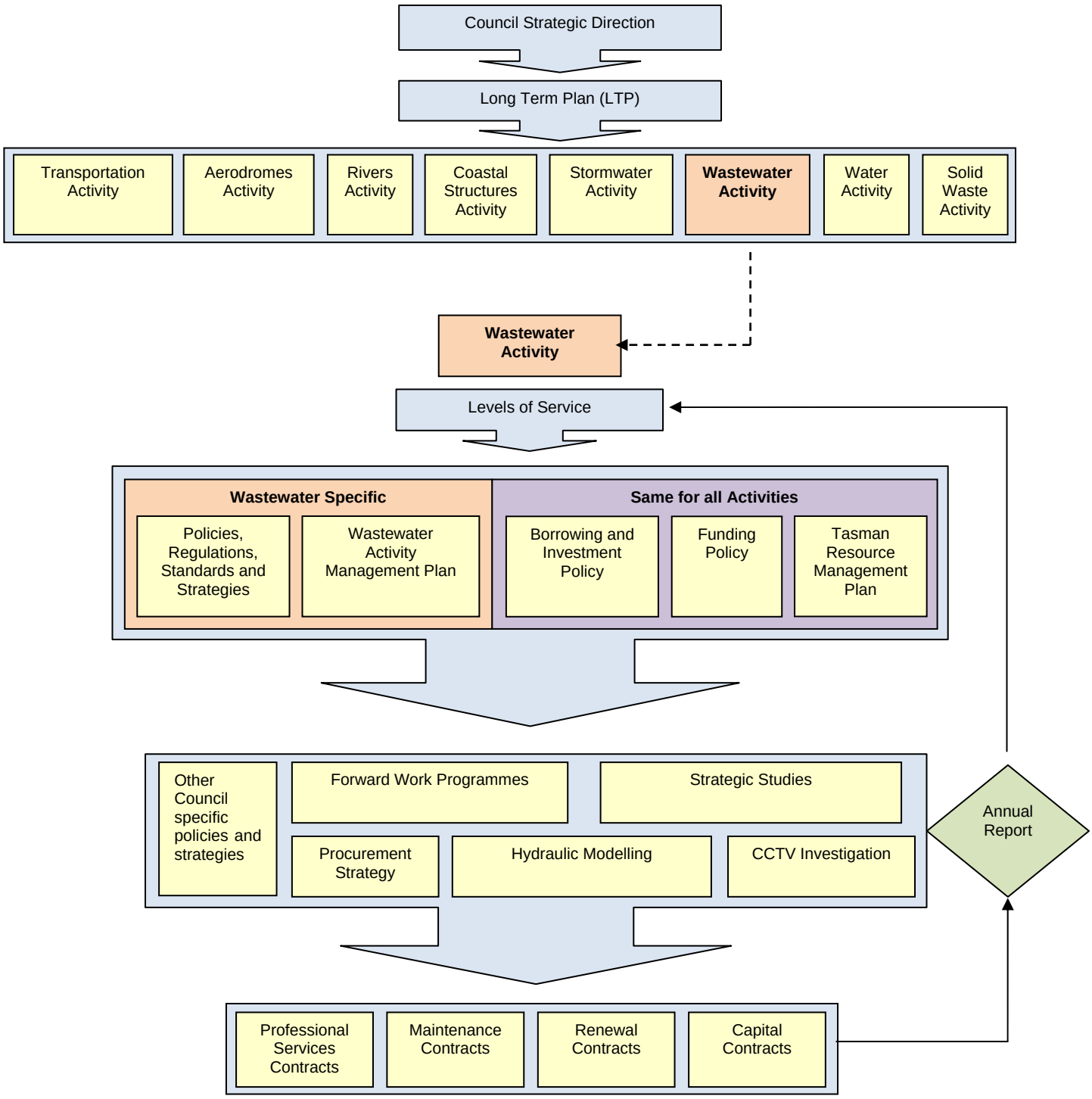


Figure A-1: Hierarchy of Council Policy, Strategy and Planning

A.4 Strategic Direction

Vision: An interactive community living safely in the garden that is Tasman district.

Mission: To enhance community wellbeing and quality of life.

Objectives:

Objective 1:
- To implement policies and financial management strategies that advance the Tasman district.

Objective 2:
- To ensure sustainable management of natural and physical resources, and security of environmental standards.

Objective 3:
- To sustainability manage infrastructural assets relating to Tasman district.

Objective 4:
- To enhance community development and the social, natural, cultural and recreational assets relating to Tasman district.

Objective 5:
- To promote sustainable economic development in the Tasman district.

The following table outlines the strategic documents utilised by the Council as part of the planning process.

Table A-1: Strategic Documents Utilised During the Planning Process

Long Term Plan (LTP)	The Long Term Plan. The primary instrument for the Council to report on its intentions on delivering its services to the community. This is the broad strategic direction of Council set in the context of current and future customer requirements. The AMP is the tactical plan with a view to achieving the strategic targets.
Annual Plan	The service level options and associated costs developed in the AMP will be fed into the Annual Plan consultation process. The content of the Annual Plan will feed directly from the short term forecasts in the LTP.
Financial and Business Plans	The financial and business plans requirement by the Local Government Amendment Act (3). The expenditure projections will be taken directly from the financial forecasts in the AMP.
Contracts	The service levels, strategies and information requirements contained in the AMP are the basis for performance standards in the current Maintenance and Professional Service Contracts.
Operational Plans	Operating and maintenance guidelines to ensure that the network operates reliably and is maintained in a condition that will maximise useful service life of assets within the network.
Corporate Information	Quality Asset Management Plan is dependent on suitable information and data and the availability of sophisticated Asset Management Plan systems which are fully integrated with the wider corporate information systems (eg. financial, property, GIS, customer service, asset data etc.). Council's goal is to work towards such a fully integrated system.

A.4.1. Our Goal

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

APPENDIX B. OVERVIEW OF ALL COUNCIL OWNED AND OPERATED WASTEWATER SYSTEMS IN THE DISTRICT

B.1 Introduction

The Urban Drainage Areas (UDA) in the Tasman district are detailed in the following sections:

B2 – Wakefield, Brightwater, Richmond/Hope, Mapua/Ruby Bay.

B3 – Motueka, Riwaka, Kaiteriteri.

B4 – Takaka, Pohara, Ligar Bay/Tata Beach.

B5 – Collingwood.

B6 – Upper Takaka.

B7 – Tapawera.

B8 – St Arnaud.

B9 – Murchison.

B.1.1. Plans of Catchment Areas

Plans of the UDA boundaries and the main components of the systems are shown in Appendix Y.

B.1.2. Levels of Service

A detailed profile of the Levels of Service Council intends to meet can be found in Appendix R. The levels of service apply to all customers though the significance differs from area to area.

B.1.3. Possible Future Developments

Comprehensive growth modelling has been undertaken projecting population growth and related property/dwelling growth for the next 20 years and beyond. This is summarised in Appendix F. The growth analyses have included projecting growth across the district, on a settlement by settlement basis, balancing demand and supply factors to get a distributed growth forecast. They have then been used as the basis for future forecasts of demand for wastewater infrastructure and, in turn, have determined the planned asset capacity requirements. The projected growth of wastewater pan numbers due to the projected population growth is shown in Appendix F.

Although this AMP focuses on the next 20 years, the asset designer has to consider at least the next 20 years and be aware of what may happen up to 50 years on. This is because most wastewater asset components have a life-cycle of somewhere between 20 and 70 years.

B.1.4. Relationship with Iwi

Council and Manawhenua ki Mohua (iwi with rangatira status and kaitiaki role in Golden Bay) signed a Memorandum of Agreement in 2008. The Agreement sets up a Golden Bay Sewerage Liaison Group which includes representatives of Manawhenua ki Mohua and Council and meets at least annually.

The group's purpose is to review the performance of all Golden Bay WWTPs and make recommendations on the scope and adequacy of environmental monitoring, the state of the WWTPs, and opportunities for improvement and enhancement that reduce cultural and environmental impacts of the WWTPs.

The Agreement also documents timeframes and the scope of reviews and reports required for the Takaka WWTP.

Council are working with Tiakina te Taiao to develop a similar Agreement for wastewater systems within the rest of the Tasman district.

B.1.5. Asset Valuation

Assets are currently valued collectively for all catchments. The details are provided in Appendix D.

B.2 Wakefield, Brightwater, Richmond/Hope and Mapua/Ruby Bay

B.2.1. System Description

These four UDAs are grouped together because they all discharge to the Bell Island WWTP managed by the Nelson Regional Sewerage Business Unit (NRSBU).

B.2.1.1 Wakefield and Brightwater

The Waimea Basin wastewater scheme services the Wakefield and Brightwater Urban Drainage Areas.

All Wakefield reticulation is gravity, which gravitates to the Brightwater main pump station via a 200mm-dia trunk main laid in the old railway reserve.

The Brightwater reticulation consists of gravity reticulation and three pump stations that pump into the gravity system discharging into the Brightwater main pump station.

All Brightwater and Wakefield wastewater arrives at the main pump station adjacent to Brightwater Engineers Ltd where it is pumped up and over Burkes Bank to discharge into the manhole at the start of the gravity trunk main to Richmond.

The Brightwater main pump station is equipped with a standby diesel generator that automatically cuts in if the power supply is cut or the high well alarm is activated. This pump station has three pumps; duty, standby and the third is connected to the generator circuit and is monitored by telemetry.

The operation of pumps in all pump stations is controlled by float switches.

B.2.1.2 Richmond/Hope

Hope discharges to the trunk gravity main in the disused Railway Reserve (from Burkes Bank to the Beach Road NRSBU pump station). This trunk main also carries all of the Wakefield and Brightwater sewage.

The Richmond wastewater scheme is a gravity reticulation system originally installed in the 1950's. There are two small pump stations on Hill Street that pump into the gravity system which discharges to the Beach Road pump station at the northern edge of the town. From the Beach Road pump station the scheme is under the control of the NRSBU.

A new pump station was constructed off Headingly Lane in 2010. This pump station pumps to the existing reticulation near Beach Road pump station.

B.2.1.3 Mapua/Ruby Bay

Wastewater reticulation was constructed in Mapua and Ruby Bay circa 1988. The reticulation drains generally south and east via gravity and pumped mains to a new pump station at the Mapua Wharf. A rising main crosses the Mapua Channel to Rabbit Island and then to Bell Island WWTP. Council's responsibility for the rising main ends at the connection to the NRSBU inlet works on Bell Island.

The pumps in all 12 pump stations are controlled by float switches to start and stop pumps at predetermined effluent levels. All pump stations have a duty and standby pump with corresponding controls.

The main Mapua Wharf pump station and others are telemetry linked with the Council Datran system which can be viewed and interrogated by Council staff, MWH New Zealand Ltd and Council's maintenance contractor who is responsible for monitoring alarms and state of operation.

The trunk main under the Mapua Channel is a 250mm dia PE pipeline. A 160/200mm dia PE sewer pipeline exists under the channel this is to allow for future growth in Mapua. The balance of the trunk main to Bell Island WWTP is 355mm dia PE, this was installed in 2010.

B.2.2. System Operation Overview

B.2.2.1 Wakefield and Brightwater

The Wakefield and Brightwater gravity systems run relatively trouble free.

Currently there is no way to hold back the significant gravity flows from Wakefield from discharging into the Brightwater main pump station. Therefore there is no safe way to undertake maintenance work within the wet well.

The Brightwater main pump station is equipped with a standby diesel generator that automatically starts if the power supply is cut or the high well alarm is activated.

Telemetry is needed at the Malthouse Crescent pump station so it can be monitored remotely.

B.2.2.2 Richmond/Hope

There is no telemetry at the Sunview Heights pump station or 423 Hill Street pump station so they cannot be monitored remotely.

Overloading of the reticulation due to stormwater and/or groundwater infiltration has been a regular occurrence during wet weather. The stormwater enters the system through eroded rubber ring joints in some of the older reticulation. Recent upgrading works have included new mains to relieve some of the bottlenecks and has reduced the occurrence of overflows. Modelling of the reticulation network has identified several areas that need upgrading to meet the demands of stormwater flows and population growth.

The main trunk gravity line from Three Brothers Corner to Beach Road was upgraded in 2007 and has sufficient capacity for future development. Some of Richmond reticulation is on private property and manholes can become buried under gardens, making emergency access difficult.

B.2.2.3 Mapua/Ruby Bay

The Mapua system suffers from high wet weather flows due to infiltration problems. The pumps stations are a very basic design with no storage provided and the non-return valves in many of the pump stations restrict flow and cause blockages.

The Mapua / Ruby Bay reticulation network has been modelled and the capacity of the existing pipework and pump stations is known. Most of the trunk mains and pump stations do not have sufficient capacity for future growth so a progressive upgrade of the network is planned.

B.2.3. Schematic Drawings

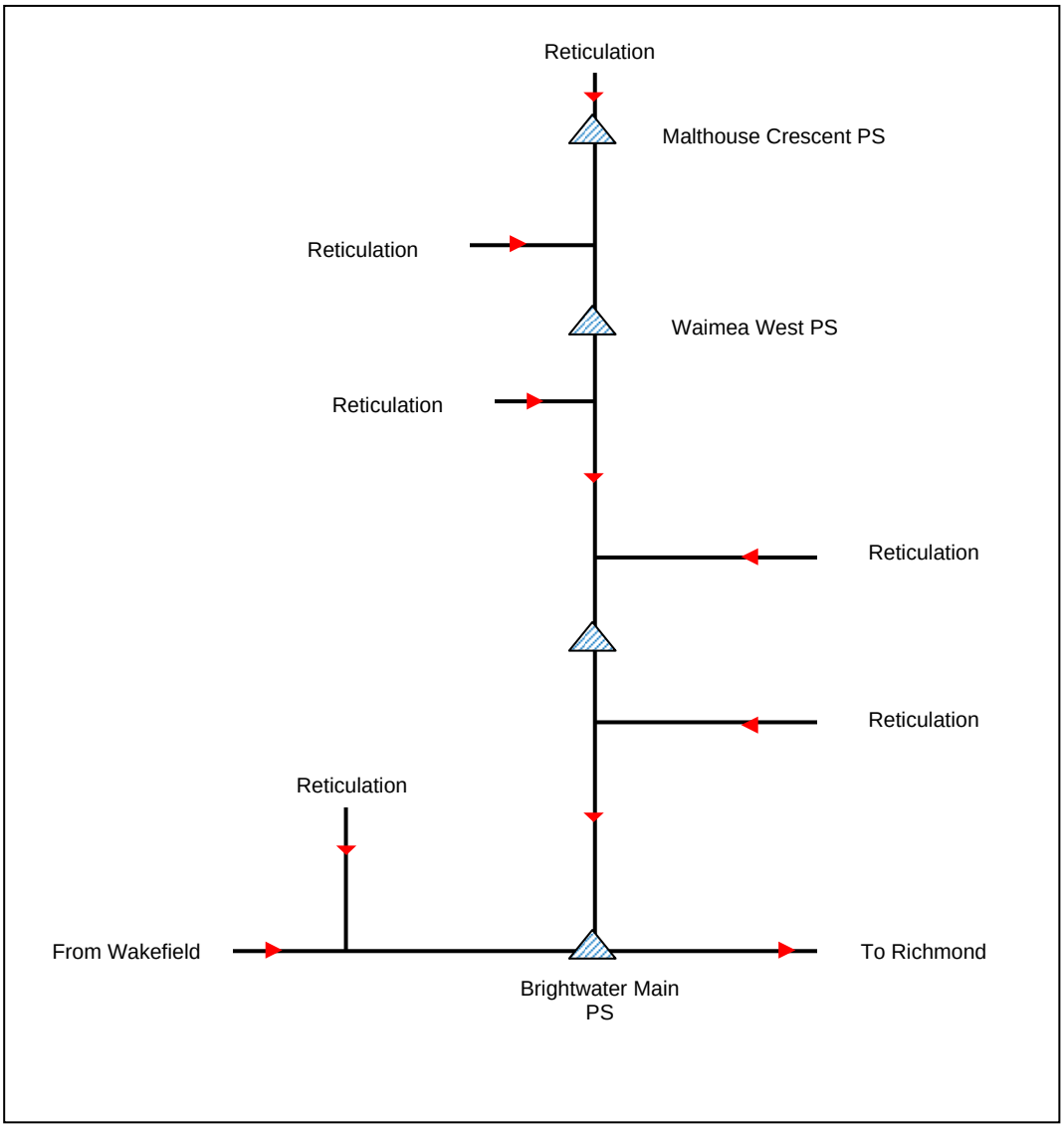


Figure B-1: Overall Schematic for Wakefield/Brightwater

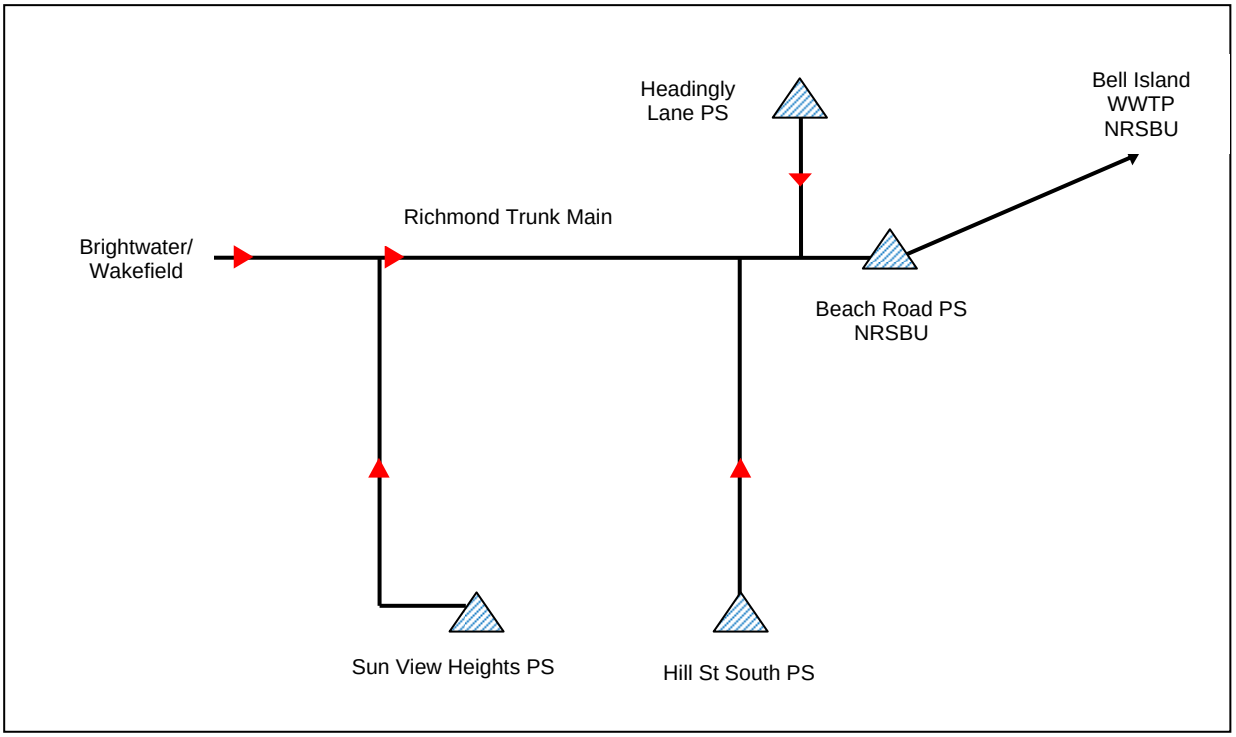


Figure B-2: Overall Schematic for Richmond

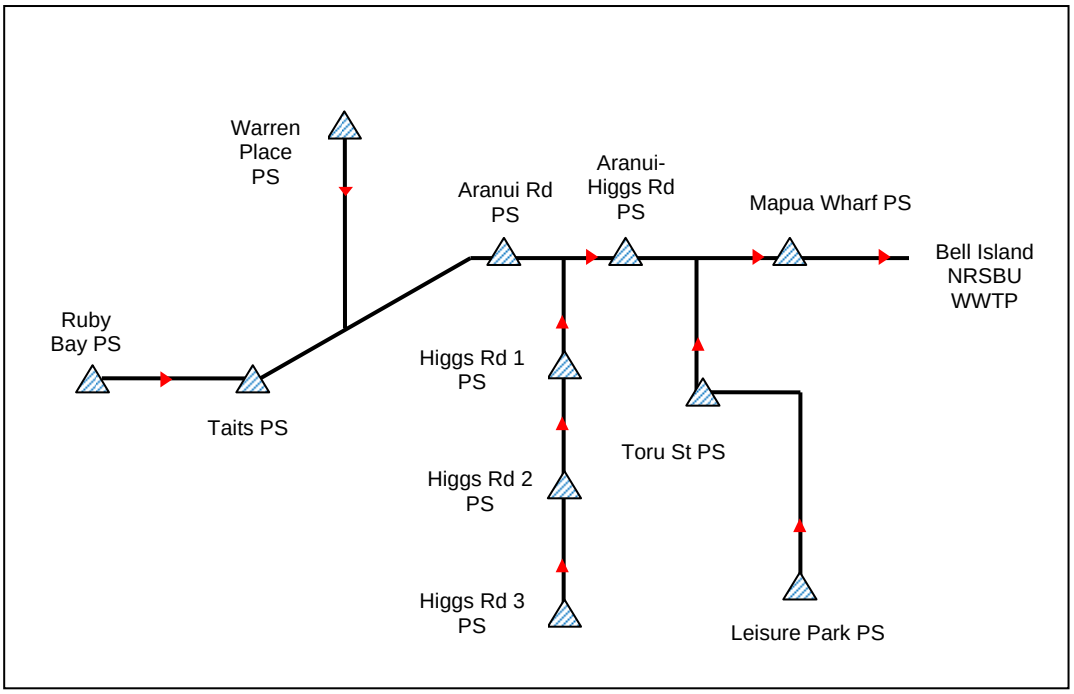


Figure B-3: Overall Schematic for Mapua/Ruby Bay

B.2.4. Key Lifelines

The Nelson Tasman Engineering Lifelines report, 2008, confirms the pump stations and trunk mains from Wakefield to Richmond's Beach Road pump station are at a high to extreme risk of failure from earthquake shaking and/or liquefaction. The report made reference to the Rabbit Island trunk main from Mapua/Ruby Bay to the NRSBU Bell Island WWTP being in poor condition and under capacity. This main was replaced in 2010.

B.2.5. Compliance with Levels of Service

LoS 1 – WWTP hold all the necessary resource consents.

- N/A – NRSBU manage all resource consents.

LoS 3 – Compliance with all effluent quality conditions stated in resource consents for WWTP.

- N/A – NRSBU manage all resource consents.

LoS5 – Number of overflows resulting from Council system fault.

- 19 Overflows (nine Richmond, one Wakefield, four Brightwater, five Mapua/Ruby Bay). With a combined network of 184km, this equates to 0.103 overflows per km of sewer.

LoS10 – All pump stations have standby pumps in case of mechanical failures.

- Richmond, Wakefield/Brightwater and Mapua/Ruby Bay all have standby pumps.

LoS 11 – All pump stations have storage or standby electrical generators in case of power failure.

- Wakefield/Brightwater has a pump station with a generator and a pump station with storage, Richmond has a pump station with storage.

LoS 12 – All pump stations have telemetry to allow automatic communication of failures.

- Richmond has one pump station with telemetry, Wakefield/Brightwater has three pump stations with telemetry and Mapua/Ruby Bay has eight pump stations with telemetry.

The WWTP at Bell Island is managed by NRSBU and there the performance is not measured and recorded under Tasman District Council Level of Service reporting.

B.2.6. Asset Condition Overview

B.2.6.1 Wakefield and Brightwater

No formal assessment of the reticulation condition has been undertaken. However, there are no known specific concerns regarding the condition of these assets. This scheme was designed in the late 1980s and, to date, there have been no significant issues identified with the capacity of the reticulation. Inspections by Council staff, maintenance contractors and consultants have not identified any specific defects however there are a few operational improvements needed.

Table B-1 below summarises the assets within the UDA.

Table B-1: Assets within the Wakefield and Brightwater UDA

Pump Stations	Treatment Plants	Reticulation	Other Assets
*Brightwater Main 2 x Pumpex K89 12.5kW *Bryant Road 2 x Pumpex K80 F-VA197-2 2.7kW *Waimea West Road 2 x Flygt 3085 MT461 1.3kw Malthouse Crescent 2 x Sarlin * on telemetry	Bell Island WWTP (NRSBU)	**Brightwater** Gravity pipes: 80mm - 7102m 100mm -3806m 150mm -7655m 200mm -3630m 250mm -1440m 300mm -48m Laterals: 100mm -1025m Pressure pipes: 80mm - 164m 100mm -56m 225mm -1644m **Total – 26,570m** **Wakefield** Gravity pipes:	Cleaning eyes 234 Generator 1 Manholes 255

Pump Stations	Treatment Plants	Reticulation	Other Assets
		100mm -2696m 150mm -10750m 200mm -2264m Laterals: 100mm -898m 150mm -22m **Total – 16,630m**	

B.2.6.2 Richmond/Hope

Much of the reticulation is less than 20 years old due to the significant development of Richmond during the late 1980's and 1990's, however, the original reticulation installed during the 1950's is in poor condition. Generally the concrete pipes from the original scheme are in the worst condition through degradation of the pipe material. The original earthenware pipes also suffer significant infiltration but this appears to be due more to the degradation of the rubber joints rather than the pipe material itself. Recent improvements in the main problem areas have reduced the frequency of overflows during heavy rainfall events, however there are still significant capacity issues due to groundwater infiltration, especially for the central and southern lower parts of the reticulation.

Table B-2 below summarises the assets within the UDA.

Table B-2: Assets within the Richmond/Hope UDA

Pump Stations	Treatment Plants	Reticulation	Other Assets
423 Hill Street 2 x Jung UAK 08/2MS 1.08kW Sunview Heights 2 x Jung UAK 35/2M 3.5kW *Headingly Lane 2 x Flygt NP 3127-181-SH7.4kW * on telemetry	Bell Island WWTP (NRSBU)	**Richmond** Gravity pipes: 100mm -3484m 150mm -63915m 200mm -4578m 225mm -6850m 250mm -366m 300mm -4864m 375mm -1415m 400mm -905m 450mm -82m 475mm -256m 525mm -1248m 675mm -1344m 750mm -94m Laterals: 100mm -5519m 150mm -158m Pressure pipes: 40mm - 23m 50mm - 191m 100mm -34m **Total – 95,326m** **Hope:** Gravity pipes: 100mm -2939m 150mm -5826m 250mm -2361m 300mm -1458m Laterals: 100mm -222m	Cleaning eyes 383 **Richmond** Manholes: 1,515 **Hope** Manholes: 49

		Pressure pipes: 50mm - 362m 225mm -388m **Total – 13,556m**	

B.2.6.3 Mapua/Ruby Bay

All the main pump stations and rising mains in Mapua require significant upgrade. A strategy study has been completed which identifies the extent of the upgrades required. It is envisaged that two new pumping stations will be built, five existing pumping stations will need a significant upgrade, and that the rising mains will also need to be upgraded.

Table B-3 below summarises the assets within the UDA.

Table B-3: Assets within the Mapua/Ruby Bay UDA

Pump Stations			Treatment Plants	Reticulation	Other Assets
*Mapua Wharf	2 x Pumpex K89 VE2215	21kW	Bell Island WWTP (NRSBU)	Gravity pipe 100mm -6503m 150mm -11226m 200mm -1228m 300mm -5m Lateral 100mm -875m Pressure pipe 50mm - 586m 80mm - 1505m 100mm -960m 150mm -260m 355mm -8657m **Total – 31,800m**	Cleaning eyes 102 Biofilters 2 Manholes 206
*Aranui-Higgs Road	1 x Sarlin SV024 B	2.15kW			
	1 x Pumpex K80	2.7kW			
*Leisure Park	1 x Pumpex K89	12.5kW			
	1 x Jung UAK 25/251	2.6kW			
*Toru Street	2 x Sarlin SV014 BL	1.65kW			
Higgs Road No 1	2 x Jung VAK 35/251	3.7kW			
	1 x Jung VAK 25/2M	2.2kW			
Higgs Road No 2	2 x Jung VAK 25/251	2.6kW			
Higgs Road No 3	2 x Jung VAK 25/251	2.6kW			
*Aranui Road 109	1 x Sarlin SV014 BL	1.65kW			
	1 x Pumpex K80	2.7kW			
*Stafford Drive (Tait)	1 x Flygt M18-10-2AL 4.4kW				
	1 x Jung 35/251	3.7kW			
*Ruby Bay Shop	2 x Jung 25/251	2.6kW			
*Warren Place	2 x Jung 25/251	2.2kW			
* on telemetry					

B.2.7. Resource Consents

The NRSBU holds resource consents granted in 2003 for the wastewater treatment plant on Bell Island. Permits allow the discharge of treated effluent to sea, valid for a period of 15 years until 2018. Other permits include a discharge to air and consents for various upgrades to the treatment plant.

Refer to Appendix H for all remaining resource consents for this UDA.

B.2.8. Current and Future Demand

B.2.8.1 Wakefield / Brightwater

There are no significant issues identified with the capacity of the reticulation except for the existing trunk mains' capacity which was found to be inadequate when tested against the projected growth in these two townships.

Hydraulic modelling is currently underway to confirm whether the network can cope with the anticipated growth.

B.2.8.2 Richmond / Hope

Modelling of the Richmond/Hope reticulation network has confirmed the theoretical capacity of the pipes and has identified where significant capacity issues exist. Improvements in the network are being made to accommodate future growth in the UDA and new assets are been identified.

Capacity in Hope has been improved with the upgrading of the Richmond trunk main and should meet the long-term requirements for Hope.

B.2.8.3 Mapua / Ruby Bay

Current capacity is inadequate to meet the long-term growth projections and upgrades are required. Development in the Mapua area is currently been prevented by the lack of capacity in the wastewater system.

B.2.9. Strategic Studies

The key existing strategic studies and models within the UDA include:

- Hydraulic Models for Richmond, Hope, Brightwater, Wakefield and Mapua
- Mapua Wastewater Upgrade Strategy, MWH New Zealand Ltd, 2009
- Inflow and Infiltration: Assessment of Impacts and Drivers – Richmond Wastewater Catchment, MWH New Zealand Ltd, 2010
- CCTV reports.

B.2.10. Strategic Approach

The issues facing these schemes include:

- the rising costs of treatment through the NRSBU
- the high growth in all schemes which is taking the sewage flows beyond the system's trunk main capacities (notably Richmond South and West, Mapua/Ruby Bay).

The strategic approach to these schemes is to:

- continue to construct and upgrade the trunk main systems to alleviate overflows in affected areas and to provide capacity to accommodate growth in new areas
- continue to investigate reticulation systems to identify and repair defects and sources of wet weather inflow into the sewers
- review hydraulic models to confirm which LoS can be achieved
- growth allowance in the capital forecasts.

B.3 Motueka, Riwaka, and Kaiteriteri

B.3.1. System Description

These three schemes all discharge to the Motueka Wastewater Treatment Plant (WWTP).

B.3.1.1 Motueka

The Motueka Wastewater Scheme services the Motueka Urban Drainage Area that comprises the town area of Motueka.

The sewerage system was installed in the 1940's and retains the original treatment plant, which is located just south of the Motueka River mouth. The treatment plant comprises a mechanical inlet screen, an aeration lagoon (constructed in the early 1990's), followed by an oxidation pond from where effluent discharges to soakage beds and a wetland and then into groundwater adjacent to the Motueka River mouth and coast.

The area serviced by this scheme is flat and low lying, hence the need for many pump stations. Gravity reticulation feeds into the pump stations. The present system involves some pump stations injecting into the rising main to the treatment plant while other pump stations pass the effluent along from one to another until it is eventually pumped into the rising main by one of the main pump stations. The pump stations are fitted with duty and standby pumps operated by their respective float switches. Telemetry and alarm systems are included on all the larger pumping stations.

B.3.1.2 Kaiteriteri/Riwaka

The Kaiteriteri/Riwaka wastewater scheme consists of reticulation and pumping stations only. Wastewater is conveyed to the Motueka WWTP for treatment. The reticulation was designed in 1987 to cope with a fully developed UDA as per the current zoning so has no capacity issues.

The Kaiteriteri scheme is made up of a number of sub-catchments and these relate to the various bays plus the large motorcamp.

The reticulation in Kaiteriteri gravitates to the main pumping station at Martins Farm Road (wastewater is also pumped from Honeymoon and Breaker Bay into this system). Wastewater is pumped up to a vessel on the hill above Tapu Bay and then gravitates across Tapu Bay to Riwaka via a 215mm dia PE pipe. The existing 100mm dia main was abandoned but could also be used in an emergency. Valves on the pipelines from Tapu Bay are automatically opened/closed when the level in the vessel above Stephens Bay rises/falls to set points such that the wastewater gravitates to the Riwaka reticulation in a series of "pulses".

There are three other small boosted areas that pump into the trunk main from Stephens Bay, Tapu Bay and Little Kaiteriteri. From Riwaka the sewage is pumped to the WWTP at Motueka.

The pump stations and the Tapu Bay vessel are monitored via telemetry.

B.3.2. System Operation Overview

B.3.2.1 Motueka

Over-loading of the reticulation due to stormwater and groundwater infiltration has been a regular occurrence during wet weather, resulting in some pump stations running 24 hours a day for several days.

The remaining concrete rising main along Thorp Street is in poor condition. Some of the gravity mains are laid on very flat grades and are prone to blockages.

Several injection pump stations are not able to inject into the Thorp Street rising main, when the pipeline is running high.

There is insufficient capacity within the wastewater treatment plant disposal system to dispose of the treated effluent without overflows, particularly after rain events when the water table is high. The sand soakage beds have progressively clogged over the last 13 years due to flows exceeding the capacity of the soakage area and not allowing resting of beds between flooding events. As a result the soakage beds are permanently inundated and overflow to an adjacent back beach area (3.5ha) which has become a permanent wetland over the last six years.

During the peak summer period, significant portions of this wetland area dry out. However there is permanent water at the Motueka River end. During high rainfall events that combined with high effluent flows, there can be minor overflows from the wetland area to the Motueka River. As a result environmental monitoring of the river, estuary, and coastline is carried out on a monthly basis. To date this monitoring has not shown any measurable impact from the treatment plant discharge.

It is unknown how much trade waste enters the wastewater system.

B.3.2.2 Kaiteriteri/Riwaka

The trunk mains from Riwaka to the Motueka WWTP are susceptible to breakage. The 200mm-dia section from Tapu Bay to the Riwaka pump station through to the Motueka River has been replaced. However a section of pipe to, and upstream of, the Riwaka pump station has not been replaced and is susceptible to breaks.

Although the system capacity of Riwaka is sufficient to prevent overflows, the pumping hours are considered high for the population served. This indicates that infiltration is occurring. The School Road pump station often requires a wash down due to a buildup of solids within the wet well.

The Kaiteriteri system is totally reliant on the telemetry system to operate and is located in an environmentally sensitive area in which no wastewater discharge is acceptable. Therefore constant monitoring and maintenance is required. The Kaiteriteri vessel operation has become problematic with the deterioration in telemetry communication reliability. The downstream valve doesn't get signalled to open early enough and the vessel overflows. Until the telemetry system is upgraded the high level float has been lowered (reducing the storage volume in the vessel) to allow for the delay in the valve opening. The Little Kaiteriteri pump station is susceptible to infiltration.

Due to low off-peak flow into the Honeymoon Bay and Breaker Bay pump stations regular flushing with clean water is required to prevent stagnation. Neither pump station has telemetry and if the pump stations stop operating for any reason overflows often go unreported for days if no one is living in the bays. Over peak summer these systems cause nuisance odour, venting from the reticulation at the top of the Breaker Bay hill.

B.3.3. Schematic Drawings

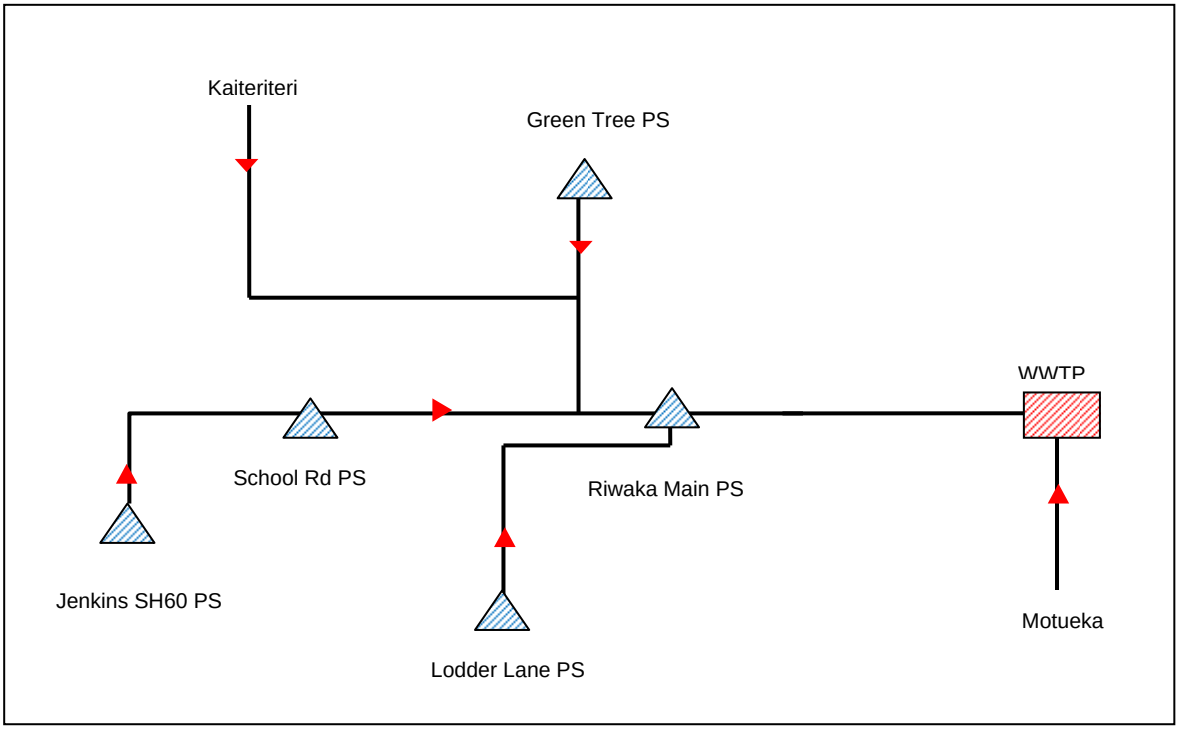


Figure B-4: Overall Schematic for Riwaka

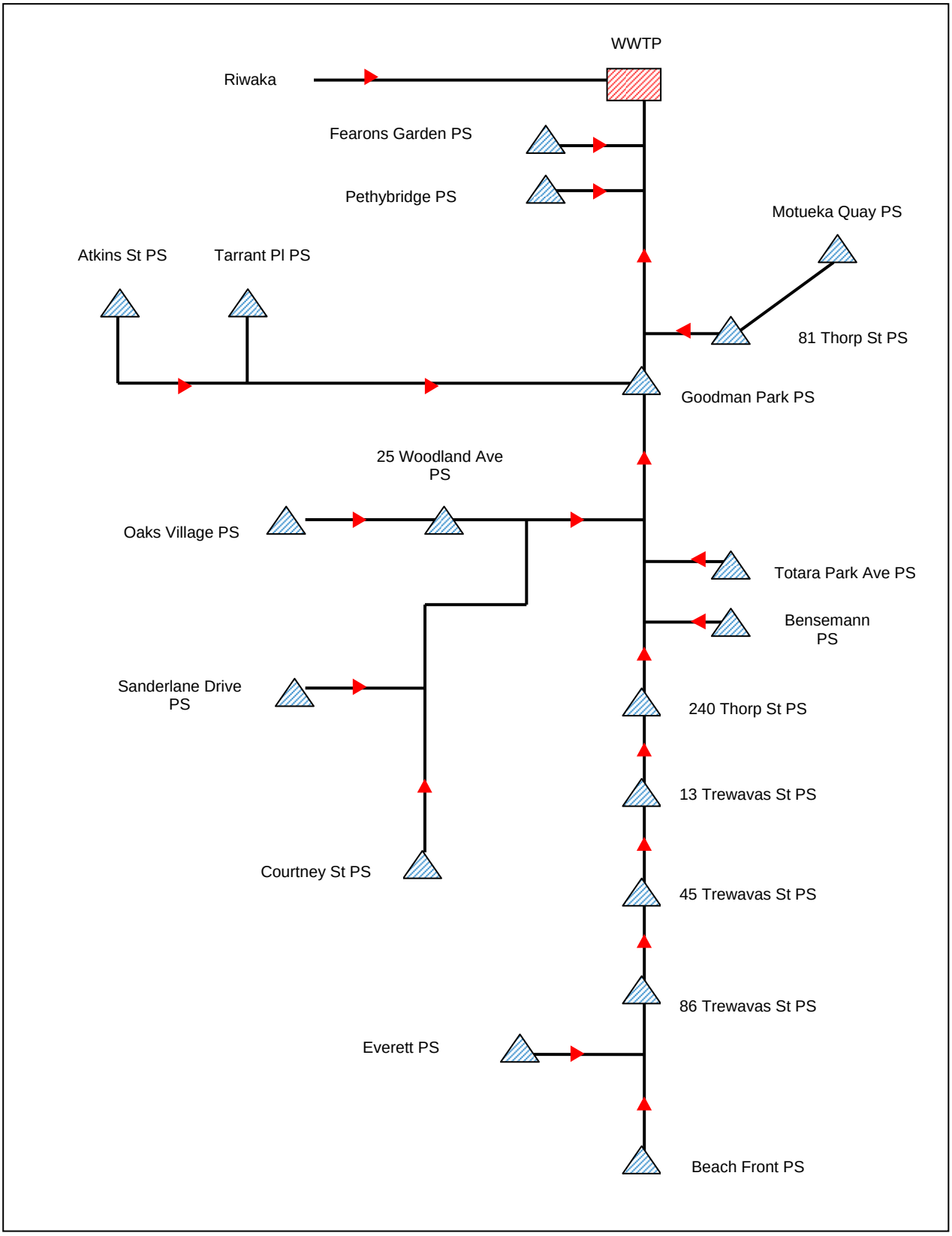


Figure B-5: Overall Schematic for Motueka

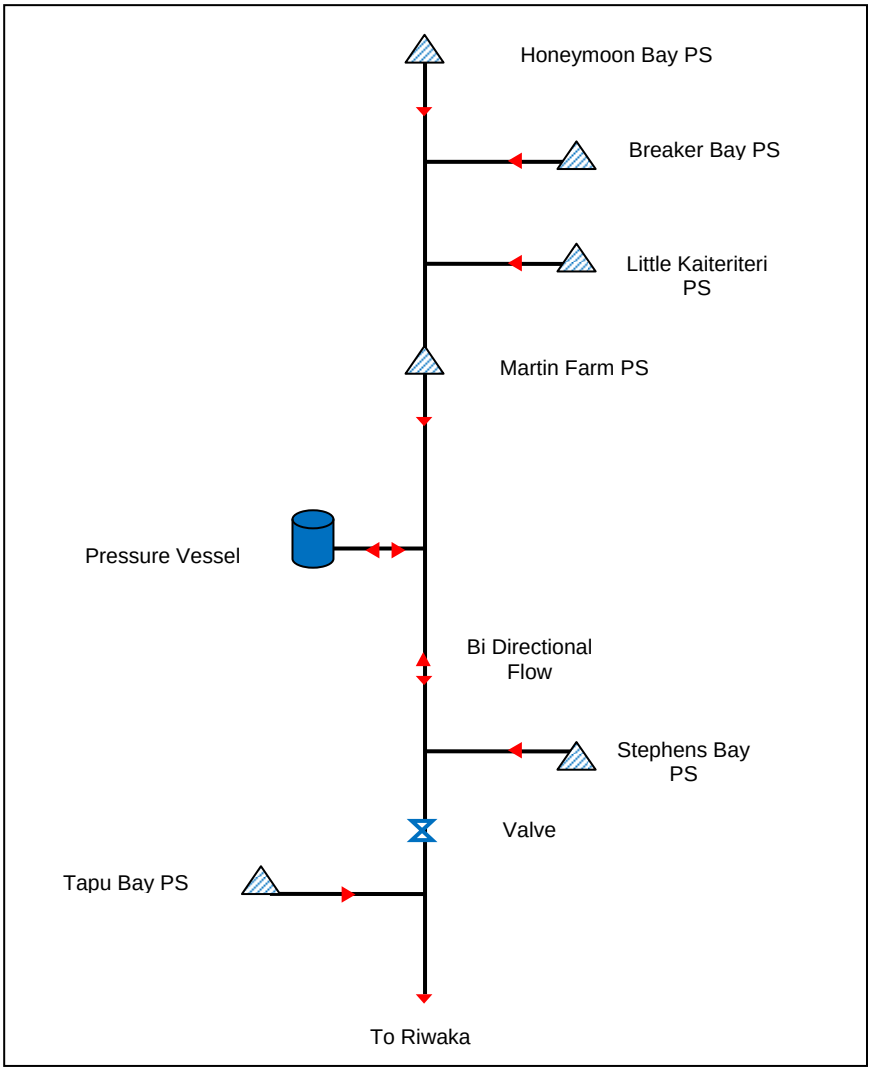


Figure B-6: Overall Schematic for Kaiteriteri

B.3.4. Key Lifelines

The Nelson Tasman Engineering Lifelines report, 2008, confirms sections of network identified from Vulnerability Assessment at critical risks are:

- Motueka WWTP is at extreme risk to flooding and/or inundation.
- Motueka WWTP ponds and pipelines at extreme risk due to earthquake, ground shaking and/or liquefaction.

B.3.5. Compliance with Levels of Service

LoS 1 – WWTP hold all the necessary resource consents.

- Motueka WWTP holds all necessary resource consents.

LoS 3 – Compliance with all effluent quality conditions stated in resource consents for WWTP

- Motueka WWTP is achieving 87% compliance.

LoS5 – Number of overflows resulting from Council system fault

- Three Overflows (2 Motueka, 1 Kaiteriteri/Riwaka). With a combined network of 94km, this equates to 0.032 overflows per km sewer.

LoS10 – All pump stations have standby pumps in case of mechanical failures

- Motueka and Kaiteriteri/Riwaka pump stations all have standby pumps.

LoS 11 – All pump stations have storage or standby electrical generators in case of power failure

- Motueka has one pump station with a generator and one pump station in Kaiteriteri/Riwaka has storage.

LoS 12 – All pump stations have telemetry to allow automatic communication of failures

- Motueka has nine pump stations with telemetry and Kaiteriteri/Riwaka has five pump stations with telemetry.

B.3.6. Asset Condition Overview

B.3.6.1 Motueka

A large proportion of the reticulation has undergone CCTV which has resulted in numerous repairs and renewal of damaged pipework. Much of the reticulation is very old (40 years +) and generally the concrete pipes from the original scheme are in the worst condition through degradation of the pipe material. The original earthenware pipes also suffer significant infiltration but this appears to be due more to the degradation of the rubber joints than the pipe material itself.

There are various issues with pump stations, from undersized wet well pipework, corrosion, delamination of wet well concrete, lack of telemetry, and pump stations located on private property.

The effluent flow from Motueka township is measured by a magflow meter as it enters the treatment plant.

Table B-4 below summarises the assets within the UDA.

Table B-4: Assets within the Motueka UDA

Pump Stations			Treatment Plants	Reticulation	Other Assets
*Goodman	2 x Flygt NP3201	30kW	Motueka WWTP, including:	Gravity pipes:	Generator 1
*Woodlands	2 x Flygt CP3102	4.4kW		75mm - 197m	
*Courtney Street	2 x Flygt NP3153	9kW		80mm - 69m	Cleaning eyes 156
Tarrant Place	2 x Flygt EMU FA 05-128	2.6kW	3mm mechanical inlet step screen	100mm - 2527m	
Pethybridge Street	2 x Flygt CP 3126 H1	7.4kW		150mm - 32739m	
Teece (81 Thorp St)	2 x Flygt C3102	3.1kW		160mm - 131m	Biofilter 1
169 Motueka Quay	2 x Jung UAK 25/2M	2.2kW	6,000m³ aeration pond with four 7.5kW aerators and a dissolved oxygen (DO) probe	200mm - 17m	
Totara Park	2 x Jung UAK 35	3.7kW		225mm - 4027m	Manholes: 587
Thorp St (Bensemann)	2 x Pumpex PX1-70-2-33	5.5kW		250mm - 2m	
240 Thorp Street	2 x Jung UAK 25/2M	2.6kW		300mm - 1680m	
*13 Trewavas St	2 x Pumpex K83	3.8kW		375mm - 39m	
*45 Trewavas St	2 x Lowara DLV120	1.85kW			
*86 Trewavas St	2 x Lowara DLV140			Laterals:	
*Beach Front	2 x Lowara DLV120	1.85kW	Penstock and motorised valve	100mm - 5955m	
*Everett Street	1 x Jung UAK 35/251	3.7kW		150mm - 121m	
	1 x Jung UAK 35/2M	3.2kW			
Oaks Village	Type and size unknown			Pressure pipes:	
Atkins Street	Jung UAK 25/2M	2.6kW	5 hectare oxidation pond	40mm - 40m	
Sanderlane	2 x Flygt 3102.180	3.1Kw		50mm - 749m	
*Fearon Gardens	2 x Grundfos SEV 80.80.40.2 .50B			70mm - 95m	
				80mm - 885m	
* on telemetry			Datran telemetry system	100mm - 712m	
				150mm - 2136m	
				200mm - 1040m	
			Land soakage beds,	225mm - 2290m	
				375mm - 2835m	
				Total 58,300m	
			Overflow wetland area.		

B.3.6.2 Kaiteriteri/Riwaka

No formal assessment of the reticulation condition has been undertaken. However, there are no known specific concerns regarding the condition of these assets. Most of the infrastructure is of an age (approximately 15 years old) where condition problems are not expected. Inspections by Council staff, maintenance contractors and consultants have not identified any specific problems.

Table B-5 below summarises the assets within the UDA.

Table B-5: Assets within the Kaiteriteri/Riwaka UDA

Pump Stations			Treatment Plants	Reticulation		Miscellaneous Assets
Honeymoon Bay	2 x Flygt MP3102-170	4.4kW	Motueka WWTP	Gravity pipe		Cleaning eyes 137
Breaker Bay	1 x Jung UAK 35/251	3.7kW		80mm	2	
	1 x Jung UAK 35/2 M5	3.7 kW		100mm	6005m	
*Martin Farm Road	2 x Flygt CP3201SH263	30kW		150mm	13663m	Control Vessel 1
*Little Kaiteriteri	2 x Pumpex K85	11kW		160mm	244m	
*Stephens Bay	2 x Homa V2346-P122	25.2kW		200mm	11m	Manholes 207
*Tapu Bay	2 x Homa A70-160E 11/2a	11kW		225mm	13m	
*Riwaka Main	1 x Homa A70–160E 11/2a	11kW		250mm	1077m	
	1 x Grundfos S1124AH	12.5kW		300mm	24m	
Jenkins SH60	2 x Sarlin SV014BL	1.65kW				
School Road	1 x Sarlin SV014BL	1.65kW		Lateral	1326m	
	1 x Pumpex K80	2.7kW		100mm	1309m	
Green Tree Lane	2 x Sarlin SV014B	1.65kW		150mm	17m	
Lodder Lane	1 x Sarlin SV014B and	1.65kW				
	1 x Pumpex K80 Vortex	2.7Kw		Pressure pipe		
				80mm	1118m	
* on telemetry				100mm	3832m	
				150mm	342m	
				200mm	5696m	
				246mm	304m	
				250mm	2067m	
				Total	**35,700m**	

B.3.7. Resource Consent

The Motueka WWTP currently has a treated effluent discharge consent, which expired on 20 March 2009. A renewal application was lodged in December 2008 which has allowed the WWTP to continue to operate under the existing consent while the upgrade of the WWTP is finalised. This application was for a short six year term to allow for investigations, design and new consents to be completed for an upgraded WWTP.

The operative discharge consent permits the maximum daily discharge of 10,000 cubic metres.

Consent conditions require:

- preparation of a management plan for the land disposal system and any extension
- preparation of a contingency plan detailing alarms and emergency procedures
- monitoring of groundwater upstream and downstream of the disposal beds to determine the impact of the effluent discharge.

The consent sets out several limits for compliance but does not specifically require monitoring of the effluent or state a monitoring frequency. The following limits apply to effluent sampled at the oxidation pond discharge:

- <80 g/m^3 BOD5
- <150 g/m^3 total suspended solids
- <500,000 cfu/100ml.

A System Operating Plan has been developed for this site that describes all the environmental and plant performance monitoring, checks and inspections, and fulfils the role of the management and contingency plans required by the consent.

The oxidation pond effluent is usually well below consent limits, however high suspended solids often occur in summer. The high suspended solids are the result of high algae concentrations (blooms) due to the warm, fine summer weather. Algal growth is necessary part of the treatment process.

The Tapu Bay pipeline has a series of consents associated with it, all expiring in October 2018:

- NN010307C – Coastal Permit
- NN010406L – Land Disturbance Permit
- NN010407L – Land Use Permit.

As a result of an Environment Court Decision relating to these consents Council entered a Memorandum of Agreement between Council and local iwi. This formed the basis for the Motueka Wastewater Task Group responsible for making recommendations to Council concerning the future of wastewater services between Motueka and Marahau. One of the recommendations of the Task Group was the replacement of the Tapu Bay pipeline with a land based system prior to the current consents' expiry. Council has included for this in its 10 year financial plan.

Refer to Appendix H for all remaining resource consents for these UDAs.

B.3.8. Current and Future Demands

B.3.8.1 Motueka

There is significant development planned in Motueka West, new infrastructure is required to allow for this to happen. The WWTP is currently scheduled to be upgraded, this will combat growth in the short to middle term future.

B.3.8.2 Kaiteriteri and Riwaka

The reticulation was designed in 1987 to cope with a fully developed UDA as per the current zoning so has no capacity issues. Due to the high tourist population the peak summer flows far exceed the average flows.

B.3.9. Strategic Studies

The key existing strategic studies within the UDA include:

- Inflow and Infiltration: Assessment of Impacts and Drivers – Motueka Wastewater Catchment, MWH New Zealand Ltd, July 2010
- Motueka Hydraulic Model
- CCTV reports.

B.3.10. Strategic Approach

The issues facing these schemes are as follows:

- the Motueka reticulation system is old and is known to have high wet weather flows
- the Motueka treatment plant, which also serves Kaiteriteri and Riwaka needs to be upgraded
- the final stage of replacing the defective pressure main from Kaiteriteri to the Motueka treatment plant is planned
- the Tapu Bay pipeline resource consent expires in 2018 and the pipeline will need to be replaced with a land based system
- the Motueka treatment plant accommodating all anticipated growth in the long term.

The strategic approach to these schemes is to:

- continue field investigations and modelling of the reticulation to identify and repair system defects
- upgrade the treatment plant to improve the treatment capacity and the disposal system
- continue to involve iwi and other stakeholders by providing input to the treatment plant upgrade decision-making process.
- determine a long term strategy for managing Motueka's wastewater infrastructure and WWTP.

B.4 Takaka, Pohara and Ligar Bay/Tata Beach

B.4.1. System Description

The original Takaka township sewerage scheme was constructed in the mid 1980's. Wastewater from the central township area gravitates and pumps to either the Waitapu Road pump station at the northern end of town or Hiawatha Lane pump station in the northern end of the CBD. Wastewater is pumped from Waitapu Road along SH 60 and Haldane Road to the Takaka WWTP from the north. Wastewater is pumped from Hiawatha Lane via Roses Road to the WWTP from the south.

A large part of the Takaka township lies within the flood plain of the Takaka River and is located close to Golden Bay. The rest of the service area is a prominent and high profile tourist region, comprising a number of coastal settlements to the north forming the gateway to Abel Tasman National Park.

During 1994 and 1995 Pohara Valley Road, Pohara campground and Richmond Road were connected to the Takaka sewerage scheme via a pumping/gravity main along Abel Tasman Drive. In 1995 and 1996 further outlying areas were connected to the Takaka scheme including Clifton, Pohara township, Tarakohe, Ligar Bay, and Tata Beach. In 2006 a further reticulation extension was completed to the both the north and south of Takaka township, including Park Avenue, Dodson Road, Central Takaka, Motupipi and Three Oaks. This was completed with subsidy from the Ministry of Health and included four new pump stations.

Flows from the settlement of Rototai to the northeast of Takaka are intercepted and pumped into the Waitapu pump station in Takaka. The coastal community is served by nine major pumping stations, which transfer wastewater along a distance of approximately 11km from Tata Beach.

Pumps stations are fitted with duty and standby pumps and 11 pump stations are now connected to Council's telemetry system.

The original treatment plant had one oxidation pond which discharged initially via sand filter infiltration basins into gravels in the Takaka River flood plain. A second oxidation pond and eight artificial wetlands were constructed in 1995 to service the extended system. The bases of the wetlands were not sealed and were designed to allow infiltration into the underlying gravels. Any excess effluent was designed to discharge from the wetlands into infiltrations pipes in the northern bunds of the wetlands. These bunds were constructed from highly permeable gravels and during high flows had insufficient capacity and effluent leaked out the side. Infiltration ditches were constructed adjacent to the bunds to collect the excess effluent and allow it to filter into the ground or overflow into a nearby drainage ditch.

Electricity was supplied to the site to provide for further increases in treatment capacity via aeration. The inlet to the ponds is screened with a manual bar screen and there is a flow meter, which measures the total in flow. There is no telemetry at the treatment plant.

B.4.2. System Operation Overview

The system has inherent operational difficulties given the large distances to transfer wastewater flows and the relatively small population. Difficulties are mostly in terms of odour and septicity and large increases in average daily flows from the seasonal impact of tourism in this area.

The Pohara pump stations have a history of unreliability with frequent call outs to pump overloads and burst pipelines. Improvements to deal with heat and moisture have not completely cured the problems. Telemetry has been installed at many of the Pohara/Tata Beach pump stations as the visual flashing light alarms were vulnerable to vandalism.

The Pohara Holiday Camp creates problems at peak season with high volumes of fat and sand reaching the pump station and the Pohara Valley has been identified as having infiltration issues.

Parts of the Takaka gravity reticulation were poorly laid with areas where grades are flat resulting in blockage problems. Access into the reticulation is poor due to a high number of cleaning eyes rather than manholes. This is an issue when trying to CCTV the pipeline.

Stormwater infiltration in the older Takaka township section is a problem that has resulted in numerous overflows in the past. Pump station and rising main upgrades have resulted in a significant reduction in overflows. However this has led to increased flows at the treatment plant which combined with the reduced infiltration capacity of the wetlands has resulted in a permanent discharge into the drainage ditch.

The wetlands are occasionally flooded when the Takaka River is in flood.

There are continued problems with the quality of the effluent meeting resource consent requirements at the treatment ponds which will not be resolved until the upgrade is completed and new consents are in place.

B.4.3. Schematic Drawing

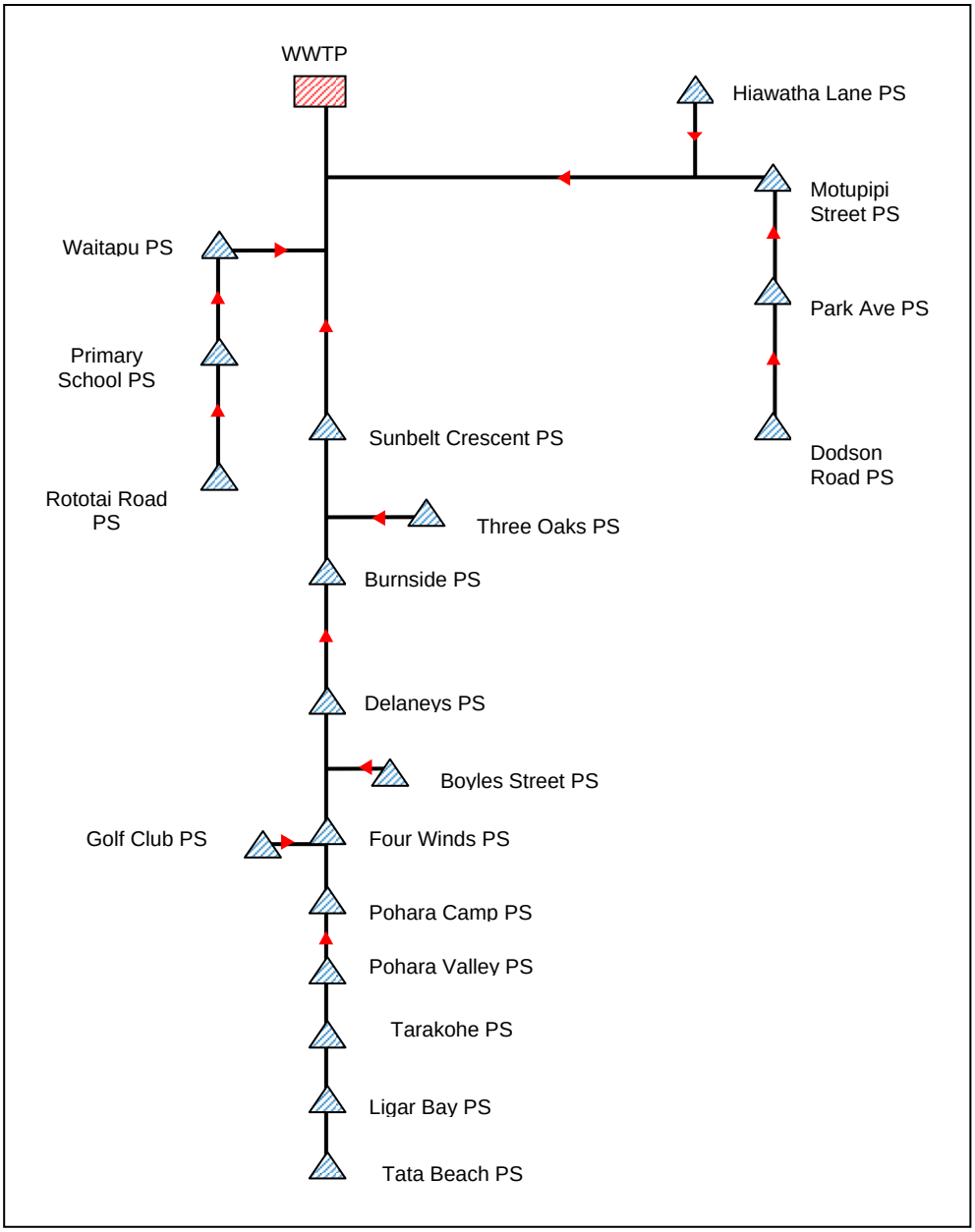


Figure B-7: Overall Schematic for Takaka/Pohara/Ligar Bay/Tata Beach

B.4.4. Key Lifelines

The Nelson Tasman Engineering Lifelines report, 2008, confirms sections of network identified from Vulnerability Assessment at critical risks are:

- Takaka WWTP is at extreme risk to flooding and/or inundation
- pump stations and the trunk main system between Takaka and Pohara are at a high risk of failure/overflow due to flooding/inundation/power failure.

B.4.5. Compliance with Levels of Service

LoS 1 – WWTP hold all the necessary resource consents

- Takaka WWTP holds all necessary resource consents.

LoS 3 – Compliance with all effluent quality conditions stated in resource consents for WWTP

- Takaka WWTP is achieving 76% compliance.

LoS 5 – Number of overflows resulting from Council system fault

- 12 overflows (five Takaka, two Tata Beach and five Pohara). With a combined network of 54.8km, this equates to 0.219 overflows per km sewer.

LoS 10 – All pump stations have standby pumps in case of mechanical failures

- Takaka and Pohara pump stations and beyond all have standby pumps.

LoS 11 – All pump stations have storage or standby electrical generators in case of power failure.

- four pump stations in Takaka and Pohara have storage.

LoS 12 – All pump stations have telemetry to allow automatic communication of failures.

- 11 pump stations in Takaka and Pohara have telemetry.

B.4.6. Asset Condition Overview

Table B-6 below summarises the assets within the UDA.

Table B-6: Assets within the Takaka, Pohara and Ligar Bay/Tata Beach UDA

Pump Stations			Treatment Plants	Reticulation		Miscellaneous Assets
Takaka			Takaka WWTP	**Takaka/Pohara/Ligar Bay/ Tata Beach**		Manholes: 376
*Waitapu Road (School Shop)	2 x Grundfos S1224H1B					**Takaka**
*Hiawatha Lane	2 x Grundfos SV152H1	15kW	0.93 hectare oxidation pond (Pond No 1)	Gravity pipes:		Biofilters 3
	1 x Grundfos SQE 5-50 (BP)	1.06kW		100mm	4038m	Cleaning eyes 127
*Motupipi Street	2 x Grundfos 212H1	21kW		110mm	1064m	
	1 x Grundfos SQE 5-50 (BP)	1.06kW		150mm	25664m	
*Primary School	2 x Grundfos Sev65.65.40.2			160mm	1687m	**Pohara**
Rototai Road	2 x Pumpex KL81/2130	3.0kW		180mm	59m	Biofilters 4
Park Avenue	2 x Pumpex K87	6.3kW	0.82 hectare oxidation pond (Pond No 2)	225mm	731m	Cleaning eyes 86
Dodson Road	2 x Pumpex K63	2.2kW		300mm	1146m	
*Sunbelt Crescent	2 x Grundfos S1504H1	50kW		Laterals:		**Ligar Bay/Tata Beach**
	1 x Grundfos SQE 5-50 (BP)	1.06kW		100mm	1789m	Cleaning eyes 27
Pohara				110mm	54m	
Three Oaks	2 x Pumpex KL83	3.8kW	2 sets of four wetland cells	150mm	125m	
*Burnside	2 x Grundfos S1404H1A					
*Delaneys	2 x Flygt NP 3202.180 HT	37kW		Pressure pipes:		
Boyle Street	2 x Jung UAK 08M	1.2kW		50mm	343m	
Golf Club	2 x Pumpex KL81-2130	3.0kW	2 soakage infiltration ditches	80mm	3458m	
*Four Winds Corner	2 x Pumpex KL85 FF80	7.0kW		100mm	5657m	
*Pohara Camp	2 x Pumpex KL 81 KLF	3.0kW		110mm	644m	
*Pohara Valley	2 x Pumpex KL 81 KLF	3.0kW		125mm	544m	

Pump Stations			Treatment Plants	Reticulation		Miscellaneous Assets
Tarakohe	2 x Pumpex KL 81-2150	3.0kW		150mm	1254m	
				225mm	2257m	
Ligar Bay/Tata Beach				250mm	4328m	
*Ligar Bay	2 x Pumpex KL 85-2185	7.0kW				
Tata Beach	2 x Pumpex KL 81-2150	3.0kW		Total	54,800m	
* on telemetry						

B.4.7. Resource Consents

The operational discharge permit for the treatment plant expired on 31 August 2008, however a new consent application was lodged in February 2008 therefore allowing the WWTP to continue operating under the original permit until the new consents are granted.

The discharge permit allows the maximum daily discharge of 1,680 cubic metres and consent conditions require:

- recording of daily influent volume, biennial flowmeter calibration, and weekly rainfall
- twice weekly inspections
- environmental and performance monitoring (limits apply)
- maintaining an incident register.

The consent monitoring conditions and limits are extensive and complex. Limits apply to marsh cell discharge, groundwater and surface water.

Analysis of the monitoring results indicates that the treatment plant regularly fails to comply with consent limits for groundwater and the marsh cells. An upgrade to the treatment plant is planned for 2012 to 2014 to address treatment and disposal deficiencies. This upgrade has been anticipated in the application lodged for the new discharge permits.

There have been several instances in 2010/11 where the discharge from the WWTP is likely to have exceeded the maximum discharge limit. The increased flows are directly related to the upgrading of pump stations and rising mains in the catchment, with all flows now being pumped to the WWTP. There has been a corresponding reduction in sewer overflows as a result.

Refer to Appendix H for all remaining resource consents for these UDAs.

B.4.8. Current and Future Demands

The capacity of the existing systems is known. Due to recent significant population growth in the coastal settlements, the rising mains and pump stations in these areas are generally under capacity. Council has been progressively upgrading pump stations and rising mains from Takaka towards Tata Beach.

B.4.9. Strategic Studies

The key existing strategic studies within the UDA include:

- Pohara/Tata Beach Sewerage Upgrade, MWH New Zealand Ltd, June 2006
- Pohara Central Sewer Upgrade, MWH New Zealand Ltd, May 2010
- CCTV reports.

B.4.10. Strategic Approach

The issues facing these schemes are as follows.

- The Takaka gravity reticulation is in a poor condition which is giving rise to high flows during wet weather.
- The Takaka WWTP wetlands disposal system is problematic causing difficulties in meeting resource consent conditions. It is noted that the plant is in a vulnerable location in a river channel and could be damaged during a significant flood event.
- Odour issues along the Pohara scheme.
- The Pohara scheme pumping mains were constructed using pipe that has been found to be unsuitable for this application, resulting in high number of bursts.
- The growth along the Pohara/Tata Beach coast is threatening to overload the system,
- High nutrients from suspected trade waste.

The strategic approach to these schemes is to.

- Major upgrades are planned for the whole Pohara scheme, this should assist with combating growth, odour and reliability.
- CCTV pipelines within Takaka and make improvements where necessary.
- An upgrade of the WWTP is planned for 2012 to 2014 to address quality and capacity issues.

B.5 Collingwood

B.5.1. System Description

This scheme was constructed in 1989 and services the Collingwood Urban Drainage Area.

Wastewater from the lower end of Beach Road drains into the Beach Road pump station, which discharges into a manhole further up Beach Road towards Elizabeth Street. This plus the remainder of the township drains into the Motel pump station (upgraded in 2010), which pumps on to the Wally's Rest pump station (upgraded in 2009). The hospital and adjoining subdivision drains into the Wally's Rest pump station.

All pump stations have one duty and one standby pump with float actuated controls. Wally's Rest and the Motel pump stations have telemetry, additional storage and flow meters whilst Beach Road pump station only has telemetry.

All wastewater from Collingwood is pumped from the Wally's Rest pump station onto the WWTP. The treatment plant is located approximately 1.5km west of the town on the Collingwood-Bainham Main Road and comprises an inlet screen, aerated oxidation pond followed by constructed wetlands with UV disinfection and telemetry, and final discharge to the Burton Ale Creek.

This system does not receive trade waste.

B.5.2. System Operation Overview

Collingwood is very close to an estuary and the sea, and the risk of a sewage overflow or malfunction of the treatment ponds and pump stations have potentially significant effects that must be mitigated against and managed.

This scheme appears to operate reasonably well although there are issues with periodic high storm flows that cause overflows from pump stations and floods the wetlands at the treatment plant. However since the upgrade of the Motel and Wally's Rest pump stations, there have been no overflows of the pump stations.

B.5.3. Schematic Drawings

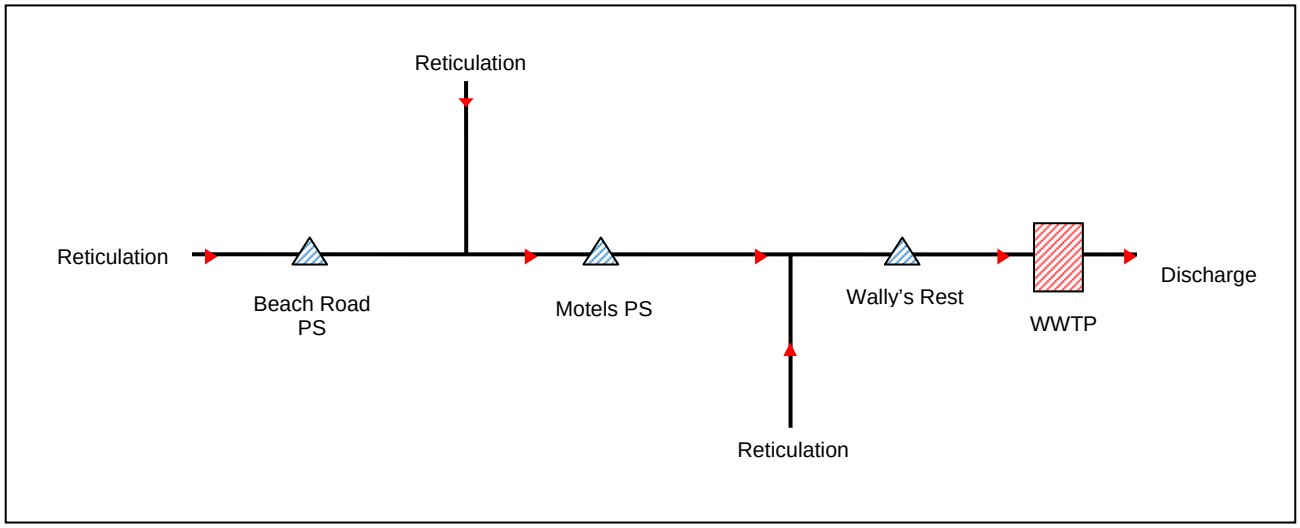


Figure B-8: Overall Schematic for Collingwood

B.5.4. Key Lifelines

The Nelson Tasman Engineering Lifelines report, 2008 has not highlighted any key asset as being vulnerable to earthquake, ground shaking and liquefaction, flooding and overflow.

B.5.5. Compliance with Levels of Service

LoS 1 – WWTP hold all the necessary resource consents.

- Collingwood WWTP holds all necessary resource consents.

LoS 3 – Compliance with all effluent quality conditions stated in resource consents for WWTP.

- Collingwood WWTP is achieving 89% compliance.

LoS5 – Number of overflows resulting from Council system fault.

- Zero overflows were recorded in Collingwood.

LoS10 – All pump stations have standby pumps in case of mechanical failures.

- All Collingwood pump stations have standby pumps.

LoS 11 – All pump stations have storage or standby electrical generators in case of power failure.

- Two pump stations in Collingwood have storage.

LoS 12 – All pump stations have telemetry to allow automatic communication of failures.

- Three pump stations in Collingwood have telemetry.

B.5.6. Asset Condition Overview

No recent formal assessment of the reticulation condition has been undertaken. The current accuracy of the asset information for Collingwood is good.

Table B-7 following summarises the assets within the UDA.

Table B-7: Assets within the Collingwood UDA

Pump Stations			Treatment Plants	Reticulation		Miscellaneous Assets
*Beach Road	2 x Sarlin SV072 BH	1.65kW	Collingwood WWTP	Gravity pipes:		Cleaning eyes 34
*Motel	2 x Pumpex K87	6.3kW		100mm	1407m	
*Wally's Rest	2 x Grundfos SEV.80	12.6kW	A 3mm mechanical inlet screen,	150mm	3434m	Biofilter 1
				175mm	10m	
* On Telemetry			0.32 hectare oxidation pond,			Manholes: 47
				Laterals:		
			2 x 7.5kW aspirator aerators	100mm	621m	
				Pressure pipes:		
			5 constructed wetlands,	80mm	292m	
				100mm	1888m	
			UV disinfection system with recirculation pump and flow meter,	125mm	127m	
				150mm	880m	
			Discharge pipe and diffuser in Burton Ale Creek.	**Total**	**8,600m**	

B.5.7. Resource Consents

The WWTP has three resource consents:

- RM070652 – Discharge of odour to air from WWTP, expires 6 December 2019
- RM080703 – Discharge of treated wastewater to water, expires 1 July 2034
- RM080704 – For discharge pipe in waterway, expires 1 July 2034.

The current treated wastewater discharge consent permits the maximum daily discharge of 1,070m^3 to Burton Ale Creek.

Consent conditions require:

- recording of daily discharge volume
- environmental and performance monitoring (limits apply)
- maintaining a complaints register
- submission of an annual monitoring report
- monitor the UV transmittance and UV dose continuously
- operation and maintenance shall be carried out as described in the Collingwood Wastewater System Operating Plan
- review and updating of Collingwood Wastewater System Operating Plan.

The following limits apply to the wetland discharge:

- faecal coliforms shall not exceed 500 cfu/100mLs
- the geometric mean concentration of *E.coli* shall not exceed 100 cfu/100mL over any 12 month period
- unfiltered total suspended solids shall not exceed 50 g/m^3
- unfiltered BOD_5 shall not exceed 15 g/m^3 more than 50% of the time, nor 45 g/m^3 more than 10% of the time.

The limits that apply to Burton Ale Creek are for:

- dissolved oxygen
- ammonia nitrogen
- periphyton cover
- macroinvertebrates.

Analysis of the monitoring results indicates that the treatment plant consistently meets consent requirements except for the faecal coliforms over peak summer. Assessment by the Cawthron Institute of Burton Ale Creek as part of the consent requirements has found that the treated effluent discharge has little or no impact on the creek.

Refer to Appendix H for all remaining resource consents for this UDA.

B.5.8. Current and Future Demands

No recent formal assessment of the reticulation condition has been undertaken. However, due to population growth, deficiencies in wastewater storage at pump stations had been identified and subsequently improved. The capacity of the rising main from Wally's Rest to the treatment plant was increased to account for future growth. The treatment plant is approaching its design capacity but should be able to accommodate the current growth predictions.

B.5.9. Strategic Studies

The key existing strategic studies within the UDA include:

- CCTV reports.

B.5.10. Strategic Approach

The main issues facing Collingwood sewerage system are:

- the treatment plant is approaching its design capacity but should be able to accommodate the current growth predictions
- the pipework connecting the wetlands does not have sufficient capacity for high wet weather flows
- the reticulation network suffers from high wet weather flows in intense rainfall
- the shellfish industry, and the high social, environmental and cultural value of the environment makes it very sensitive to overflows from wastewater assets
- an overflow can enter the coastal marine environment and the response to any failure of the system can take some time

The strategic approach for this system is to:

- increase treatment capacity if population exceeds the predicted value
- improve hydraulic capacity of wetland pipework
- investigate the network to identify then repair sources of inflow/infiltration.

B.6 Upper Takaka

B.6.1. System Description

The original sewerage scheme servicing the Upper Takaka village (which housed staff operating the Cobb Power Station) was operated under the ownership and control of Electricorp (previously NZ Electricity Department) since the early 1950s. In 1991 Electricorp upgraded the sewerage scheme and handed ownership over to Tasman District Council.

Wastewater gravitates to the only pump station on the north east corner of the village where it was originally treated in an Imhoff tank. In 1991 Electricorp replaced the Imhoff tank with a pump station which now pumps wastewater to a treatment plant 600m to the north of the village. This plant comprises treatment in an oxidation pond followed by a wetland before discharging via overland seepage into the ground.

The wetland was replanted in 2008/09 and the soakage slope was extended and renovated in 2008. The oxidation pond was desludged in 2008.

The pump station operates on float switches with a duty and a standby pump. Telemetry was installed at the pump station in 2007 replacing the audio visual fault alarm that relied on public notification of an alarm.

The pump station, and treatment plant are on Council land although surrounded by private farmland. Access to the treatment plant is via a right-of-way which passes through a ford. If the ford is flooded there is an alternative route to the treatment plant through the farm but the landowner must be consulted prior to use. The rising main passes through the farm and has been accidentally dug up by the farmer on occasion.

There is no trade waste generated by this village.

B.6.2. System Operation Overview

The sewerage scheme is around 40 years old, and Council has replaced most of earthenware pipes with uPVC because of significant infiltration through pipe joints. There are still significant amounts of infiltration from groundwater when the water table rises after prolonged rainfall. Most of the on-going infiltration is suspected to come from private house connections which are still the original earthenware pipes. Council completed further infiltration investigations in 2008 and is currently working to eliminate the major sources of the infiltration.

The wetland area needs to be kept free of weeds at all times and the soakage area mown by hand mower or weed eater because no vehicles are permitted to drive across the soakage area as this compacts the soil, reducing its permeability.

During the oxidation pond desludging operation it was noted that there were large volumes of pine needles in the pond. As a result the pine trees adjacent to the WWTP were removed in late 2008 and the embankment replanted with natives.

During the extension of the soakage slope in 2008 an iron pan was discovered in the embankment above the WWTP which creates a perched water table that is intercepted by the extended soakage slope. Therefore when the pine trees were removed a cut-off drain was constructed across the embankment to prevent groundwater ponding on the soakage slope.

B.6.3. Schematic Drawings

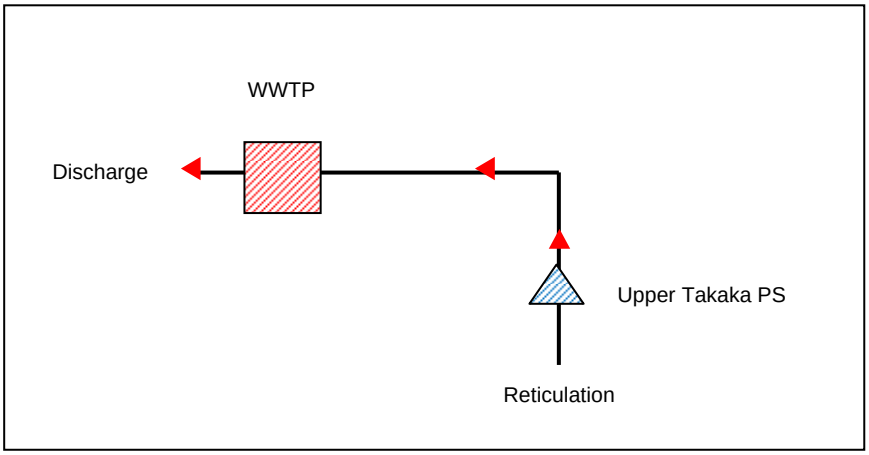


Figure B-9: Overall Schematic for Upper Takaka

B.6.4. Key Lifelines

The Nelson Tasman Engineering Lifelines report, 2008 confirms Upper Takaka WWTP is at extreme risk to flooding and/or inundation.

B.6.5. Compliance with Levels of Service

LoS 1 – WWTP hold all the necessary resource consents.

- Upper Takaka WWTP holds all necessary resource consents.

LoS 3 – Compliance with all effluent quality conditions stated in resource consents for WWTP.

- Upper Takaka WWTP is achieving 100% compliance.

LoS 5 – Number of overflows resulting from Council system fault.

- Zero Overflows were recorded in Upper Takaka.

LoS 10 – All pump stations have standby pumps in case of mechanical failures.

- Upper Takaka pump station has a standby pump.

LoS 11 – All pump stations have storage or standby electrical generators in case of power failure.

- The pump station in Upper Takaka does not have storage or a standby generator.

LoS 12 – All PS have telemetry to allow automatic communication of failures.

- Upper Takaka pump station has telemetry.

B.6.6. Asset Condition Overview

Table B-8 below summarises the assets within the UDA.

Table B-8: Assets within the Upper Takaka UDA

Pump Stations	Treatment Plants	Reticulation	Other Assets
*Upper Takaka (Harwood Place) 2 x Jung UAK 25/2m 1.3kW * On Telemetry	Upper Takaka WWTP 0.04 hectare oxidation pond 290m² wetland 225m² land soakage area with containment bund	Gravity pipes: 100mm 253m 150mm 168m Laterals: 100mm 51m Pressure pipes: 50mm 546m **Total 1,000m**	Cleaning eyes 2 Manholes: 11

B.6.7. Resource Consents

The discharge consents (treated effluent to land and odour to air) for this treatment plant became effective on 30 August 2007 and expires on 11 July 2042.

NN010258 permits the maximum discharge of 35m³/day of treated wastewater to land with the 30 day average dry weather flow of not more than 12m³/day.

The consent sets out several limits for compliance including:

- the dissolved oxygen level in the oxidation pond shall exceed 1 g/m³ on 9 out of 10 sampling occasions
- effluent sampled at the wetland discharge shall not exceed the following:
    - 5000 cfu/100ml
    - 50 g/m³ BOD_5
    - 50 g/m³ total suspended solids.

Refer to Appendix H for all remaining resource consents for this UDA.

B.6.8. Current and Future Demands

There is sufficient capacity within the existing reticulation network for the current and future population.

B.6.9. Strategic Studies

No recent strategic studies have been undertaken in Upper Takaka.

B.6.10. Strategic Approach

The main issue facing Upper Takaka is:

- high inflow and infiltration from private sewer laterals.

The strategic approach to this system is to:

- work with the community to resolve this issue.

The Upper Takaka scheme is small. The treatment plant is operating satisfactorily now and the strategic approach is to maintain this performance. The public reticulation system has recently been investigated and the majority of defects have been addressed.

B.7 Tapawera

B.7.1. System Description

The Tapawera wastewater scheme was originally installed by the Forestry Service in 1973. It services the residential area between Matai Crescent and Main Road Tapawera, including properties along Main Road Tapawera to the treatment plant.

The Tapawera sewerage scheme comprises a gravity reticulation system which discharges to the treatment plant to the west of the town. The treatment plant was upgraded in 2008 with the final treatment process consisting of a mechanical inlet screen, an HDPE lined oxidation pond with two baffles followed by a pumped discharge to rapid infiltration basins. Telemetry was installed as part of the upgrade along with a flow meter on the discharge pipe.

The Tapawera treatment plant does not receive trade wastes.

B.7.2. System Operation Overview

The Tapawera treatment plant is located on the upper terraces of the Motueka River, and any failure of the system may have a negative effect on the surrounding groundwater. The plant must, therefore, be managed to mitigate this risk.

Another potential risk is that the vehicle access way to the WWTP is not owned by Council, however Council has an easement and right-of-way across the land.

The aerator within the WWTP is often breaking down.

Due to flat grades the gravity main, especially along Main Road Tapawera to the ponds, requires regular flushing to reduce the risk of blockages.

The Tapawera Area School swimming pools are connected to the sewerage scheme and have historically been emptied without warning, generally in the spring. The volume of water discharged can be significant at over three times the average daily flow. This impact on the treatment performance and Council is currently working with the school to manage the discharge in the future.

B.7.3. Schematic Drawing

Due to there being no pump stations within Tapawera, no schematic drawing has been produced.

B.7.4. Key Lifelines

The Nelson Tasman Engineering Lifelines report, 2008 confirms that Tapawera WWTP and pipelines are at extreme risk due to earthquake, ground shaking and/or liquefaction.

B.7.5. Compliance with Levels of Service

LoS 1 – WWTP hold all the necessary resource consents.

- Tapawera WWTP holds all necessary resource consents.

LoS 3 – Compliance with all effluent quality conditions stated in resource consents for WWTP.

- Tapawera WWTP is achieving 100% compliance.

LoS 5 – Number of overflows resulting from Council system fault.

- Zero overflows were recorded in Tapawera.

LoS 10 – All pump stations have standby pumps in case of mechanical failures.

- There is no pump station in Tapawera.

LoS 11 – All pump stations have storage or standby electrical generators in case of power failure.

- There is no pump station in Tapawera.

LoS 12 – All pump stations have telemetry to allow automatic communication of failures.

- There is no pump station in Tapawera.

B.7.6. Asset Condition Overview

The reticulation network is nearly all 30 years old or older and no formal assessment of the reticulation condition has been undertaken. However, there are no known specific concerns regarding the condition of these assets.

The accuracy of the asset location reference data is very good due to Council using Tapawera as a pilot area for the implementation of the Confirm asset information management system.

Table B-9 below summarises the assets within the UDA.

Table B-9: Assets within the Tapawera UDA

Pump Stations	Treatment Plants	Reticulation	Other Assets
No pump stations on this scheme	Tapawera WWTP 3mm mechanical inlet screen 0.4 hectare lined oxidation pond and 1kW aerator 2 pond baffles 1 disposal pump station 4 rapid infiltration basins 6 groundwater monitoring wells.	Gravity pipes: 100mm 25m 150mm 3259m 200mm 822m Laterals: 100mm 111m 150mm 9m Total 4,100m	Cleaning eyes 5 Manholes: 64

B.7.7. Resource Consents

There are two current discharge consents for the Tapawera WWTP:

- for the discharge of treated wastewater to land
- for the discharge of odour.

Both consents were granted on 12 February 2008 and expire on 31 July 2042.

The treated wastewater discharge permit allows the following maximum discharges:

- 500 m^3/day (wet weather flow excluding rain falling on the pond)
- the groundwater quality measured in the compliance bore MW6 shall meet drinking water standards for 9 out of 10 sampling rounds.

The odour discharge permit for has the following restrictions:

- there shall be no offensive or objectionable odour discharged beyond the WWTP property boundary
- during temporary desludging operations the discharge may be offensive or objectionable out to a distance of 150m beyond the WWTP property boundary
- the dissolved oxygen concentration in the oxidation pond shall not fall below 1g/m^3 at a depth of 50mm below the water surface.

Monitoring of the groundwater downstream of the treatment plant has shown little or no impact on the groundwater to date. Monitoring of the treatment process has shown good performance.

B.7.8. Current and Future Demands

The theoretical capacity of the pipes has not been established. However, there are no known issues with the capacity of the reticulation.

B.7.9. Strategic Studies

The key existing strategic studies within the UDA include:

- CCTV reports.

B.7.10. Strategic Approach

The treatment plant was upgraded on the basis that there would be little growth in population in Tapawera. The upgrade was aimed at improving environmental outcomes rather than increasing treatment capacity of the plant and this is the strategic approach going forward.

B.8 St Arnaud

B.8.1. System Description

The St Arnaud wastewater scheme was built in 1999 and services the St Arnaud township. The scheme covers the township, the campground at Kerr Bay and the Department of Conservation (DoC) campground at West Bay. Reticulation drains by gravity to three pump stations. The Kerr Bay pump station (No.1) pumps up the hill to Rotoiti Street where it discharges into the gravity network draining to the Alpine Lodge pump station (No.2). The Beechnest pump station pumps into the reticulation which drains to Alpine Lodge pump station. From there the entire catchment is pumped to the treatment plant at Teetotal Flats.

Kerr Bay and Alpine Lodge pump stations have duty and standby pumps controlled by probes and are linked via telemetry to the Council's Datran system. Each pump station has six hours storage at peak occupancy of 1000 people.

Beechnest pump station has recently become a council owned asset. It is also linked to the Council's Datran system and has 10 hours storage at normal flows.

A mobile generator is stored in St Arnaud in case of power failure, so the pump stations can be operated to prevent overflows into Lake Rotoiti.

The wastewater treatment plant is located on 17.9 hectares owned by the DoC. This land is held as a local purpose reserve specifically for wastewater treatment and the Council is appointed to control and manage the reserve. The treatment plant consists of an oxidation pond and two marsh cells. Effluent is treated in an aerated oxidation pond followed by surface flow wetlands with ground disposal via a subsurface pressure system into gravels. The disposal pump station doses each soakage trench, in order, utilising an automated sequencing valve. Should there be a fault with the pump station, or a power failure, there is a gravity emergency bypass of the sequencing valve and pump station to one soakage trench only. The oxidation pond aerator is controlled by a dissolved oxygen probe.

B.8.2. System Operation Overview

A gravel trap exists prior to pump stations No. 1 and No. 2. This requires regular checking and cleaning out. "Pigging" of rising mains is also required regularly.

The potential of a sewage overflow into Lake Rotoiti is rated as an extreme risk that needs careful management. The pump station closest to the lake was located above known high lake levels and has an overflow storage tank next to the pump station, with a mobile generator available locally in the event of power failure.

B.8.3. Schematic Drawing

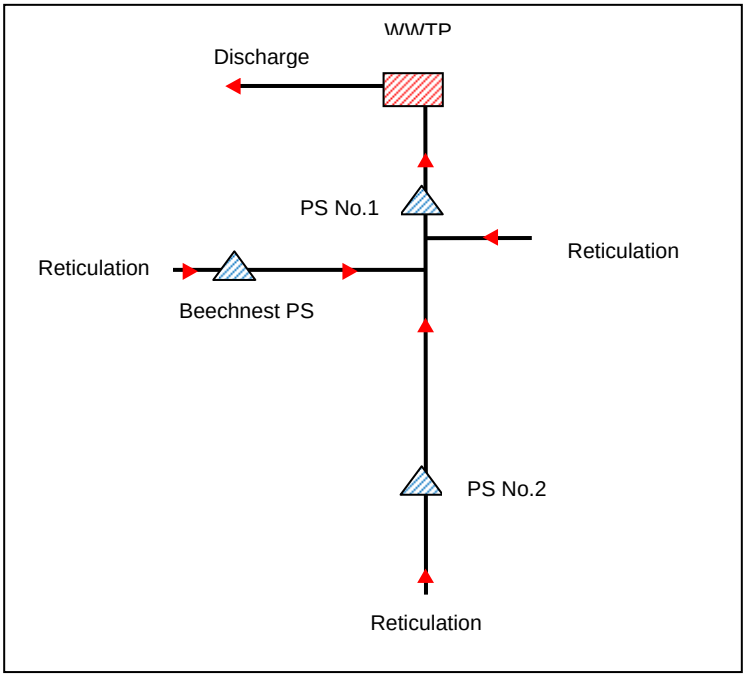


Figure B-10: Overall Schematic for St Arnaud

B.8.4. Key Lifelines

The Nelson Tasman Engineering Lifelines report, 2008 confirms that St Arnaud WWTP and pipelines are at extreme risk due to earthquake, ground shaking and/or liquefaction.

B.8.5. Compliance with Level of Service

LoS 1 – WWTP hold all the necessary resource consents

- St Arnaud WWTP holds all necessary resource consents.

LoS 3 – Compliance with all effluent quality conditions stated in resource consents for WWTP

- St Arnaud WWTP is achieving 98% compliance.

LoS5 – Number of overflows resulting from Council system fault

- Two overflows were recorded in St Arnaud.

LoS10 – All pump stations have standby pumps in case of mechanical failures

- All pump stations in St Arnaud have standby pumps.

LoS 11 – All pump stations have storage or standby electrical generators in case of power failure.

- The pump stations in St Arnaud do not have storage, a mobile standby generator is available.

LoS 12 – All pump stations have telemetry to allow automatic communication of failures

- All pump stations in St Arnaud have telemetry.

B.8.6. Asset Condition Overview

Accuracy of asset information is very good because the scheme is only 12 years old.

Table B-10 below summarises the assets within the UDA.

Table B-10: Assets within the St Arnaud UDA

Pump Stations			Treatment Plants	Reticulation	Other Assets
*Station No.1 (Kerr Bay)	1 x Jung UAK 75/2M 1 x Flygt MP3127 LT210	6.8kW 7.4kW	St Arnaud WWTP	Gravity pipes: 50mm 194m 65mm 154m 100mm 4721m 150mm 5458m	Cleaning eyes 112
*Station No. 2 (Alpine Lodge)	2 x Flygt CP3127 HT250	7.4kW	0.85 hectare oxidation pond with 4kW aspirator aerator and manual inlet bar screen		Generator 1
*Beechnest	Flygt MP 3068 HT 170		2 surface flow wetlands	Laterals: 100mm 767m	Biofilters 3
* On Telemetry			1 disposal pump station		Manholes 117
			1 sequencing valve set	Pressure pipes: 50mm 145m 63mm 314m 125mm 422m 140mm 2732m	
			4 subsurface disposal trenches		
			4 groundwater monitoring bores	**Total 14,907m**	
			Weather station		
			Rainfall collection system and water supply		

B.8.7. Resource Consents

St Arnaud WWTP has two discharge permits, one for the discharge of treated sewage to ground (NN980167) and the other for a discharge to air (NN980118). These permits expire in August 2013. There is a third permit (land use) legalising the use of land within the Conservation Zone for the wastewater treatment plant and pipe stream crossings.

NN980167 permits the following maximum discharges from the treatment plant:

- maximum discharge rate of 5.2l/s
- maximum hourly discharge of 18.72 cubic metres.

Consent conditions require:

- recording of daily influent and discharge volume, weekly rainfall, aerator use, and biennial flow meter calibration checks
- environmental and performance monitoring (limits apply)
- maintaining an incident and complaints register
- submission of an annual monitoring report
- biennial review and updating of Operation and Maintenance and Contingency Plans.

Limits for total suspended solids, biological oxygen demand, and bacteria apply to the wetland discharge, while limits for similar parameters, including nutrients, apply to groundwater.

Analysis of the monitoring results indicates that the treatment plant usually meets consent conditions although duck weed growing in the wetlands has caused non-compliance with suspended solid limits during summer months. Some minor changes were made to the wetland outlets in 2010 which seem to have resolved this issue. The low water table (greater than 14m below ground) has not allowed regular sampling of groundwater.

Refer to Appendix H for all remaining resource consents for this UDA.

B.8.8. Current and Future Demands

The wastewater system was designed for the maximum population of the UDA in 1999. However the wastewater loading from the settlement has never exceeded 65% of the design, likely due to the low permanent population in St Arnaud.

B.8.9. Strategic Studies

No recent strategic studies have been undertaken in St Arnaud.

B.8.10. Strategic Approach

The St Arnaud scheme is a relatively new scheme and was only designed to cater for the population as at 1999. Generally the treatment system performs well.

This scheme does not suffer from infiltration, due to the age of the scheme, however with recent development the need for increased pumping and pipe capacity needs to be assessed.

Application for resource consent renewal will also be required by February 2013.

B.9 Murchison

B.9.1. System Description

The Murchison Wastewater Scheme was built around 1989 and services the Murchison Urban Drainage Area. The reticulation consists of two pump stations and a wastewater treatment plant on the western side of the Matakitaki River.

The wastewater pump station in Hotham Street collects flows from the lower levels in Hotham Street and discharges into the gravity system at the corner of Hotham and Fairfax Streets. The remaining system gravitates to the main pump station in Waller Street.

Waller Street pump station pumps all Murchison wastewater to the treatment plant. Both pump stations are controlled by float switches operating duty and standby pumps and are monitored by telemetry.

The treatment plant was upgraded in 2006 where an aeration lagoon with mechanical inlet screen was added prior to the existing oxidation pond. The oxidation pond was desludged and two HDPE baffles installed across the pond.

The original gravel filter was upgraded and a second filter added with a pump station alternately dosing the gravel filters. The disposal mechanism remains the same with treated effluent from the gravel filters discharged to ground via subsurface disposal beds.

B.9.2. System Operation Overview

The disposal trenches at the WWTP were recently replaced with disposal beds.

The two pump stations were recently upgraded. The rising main from the Waller Street pump station to the oxidation pond requires "pigging" at least once a year to reduce the likelihood of pipe blockages and is subject to frequent breaks. The rising main crossing the Matakitaki River on the State Highway bridge was recently replaced.

The reticulation network was constructed with cleaning eyes on bends in pipework rather than manholes. This causes maintenance difficulties trying to investigation and clear blockages.

B.9.3. Schematic Drawing

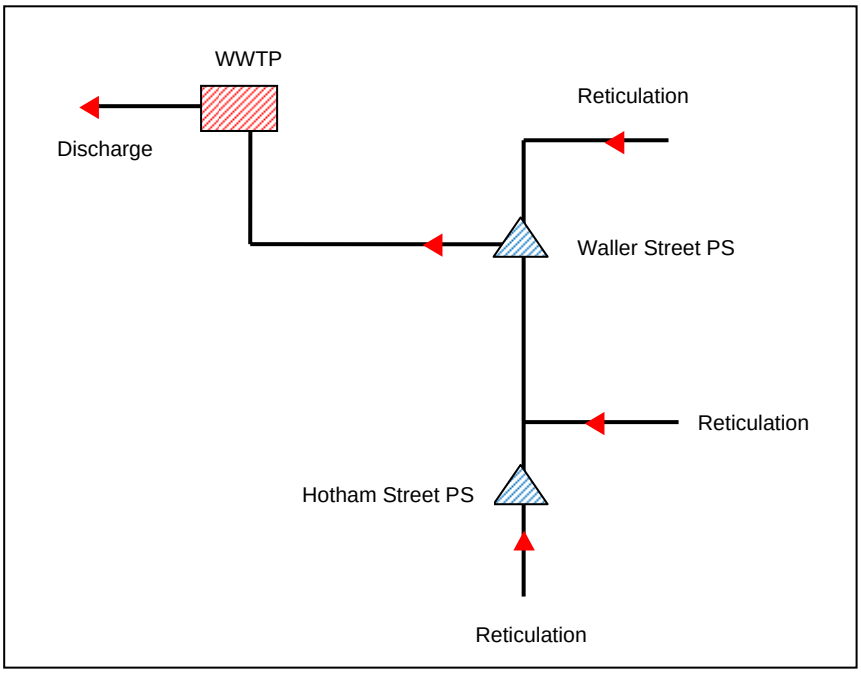


Figure B-11: Overall Schematic of Murchison

B.9.4. Key Lifelines

The Nelson Tasman Engineering Lifelines report, 2008 has not highlighted any key asset as being vulnerable to earthquake, ground shaking and liquefaction, flooding and overflow.

B.9.5. Compliance with Levels of Service

LoS 1 – WWTP hold all the necessary resource consents.

- Murchison WWTP holds all necessary resource consents.

LoS 3 – Compliance with all effluent quality conditions stated in resource consents for WWTP.

- Murchison WWTP is achieving 95% compliance.

LoS 5 – Number of overflows resulting from Council system fault.

- One overflow was recorded in Murchison.

LoS 10 – All pump stations have standby pumps in case of mechanical failures.

- All pump stations in Murchison have standby pumps.

LoS 11 – All pump stations have storage or standby electrical generators in case of power failure.

- One pump station in Murchison has storage.

LoS 12 – All pump stations have telemetry to allow automatic communication of failures.

- All pump stations in Murchison have telemetry.

B.9.6. Asset Condition Overview

Accuracy of the information is relatively good.

Table B-11 below summarises the assets within the UDA.

Table B-11: Assets within the Murchison UDA

Pump Stations			Treatment Plants	Reticulation		Other Assets
*Waller Street	2 x Pumpex K87	6.2kW	Murchison WWTP	Gravity pipes:		Cleaning eyes 37
*Hotham Street	2 x Jung UAK 25/2M	2.6kW	3mm mechanical step screen	100mm	2877m	
			aeration basin with 4 x 4kW aspirator aerators	150mm	3189m	Biofilter 2
* On Telemetry			0.5 hectare oxidation pond with 2 baffles	175mm	10m	
			1 disposal pump station	200mm	17m	Manholes 36
			2 gravel filters	300mm	95m	
			2 subsoil soakage trenches.	375mm	15m	
			14 groundwater monitoring bores	Laterals:		
			1 water supply bore and water pump	100mm	48m	
				150mm	20m	
				Pressure pipes:		
				50mm	473m	
				80mm	151m	
				100mm	678m	
				Total 7,700m		

B.9.7. Resource Consents

The Murchison WWTP has two discharge permits, one for the discharge of treated effluent to land (RM050617) and the other for the discharge of odour to air (RM050618). These consents expire in June 2041.

Permit RM050617 allows a maximum discharge of 500m³/day (excluding rainfall) measured at Waller Street pump station flowmeter. Other limits outlined in the consent relate to a compliance groundwater bore where the water quality must meet the NZ Drinking Water Standards.

Other consent conditions require:

- monitoring of groundwater at various bores
- submitting an annual report
- recording and investigating complaints
- regular updating and complying with the System Operating Plan.

Monitoring over the past year has shown consistent compliance with resource consent limits.

Refer to Appendix H for all remaining resource consents for this UDA.

B.9.8. Current and Future Demands

The capacity of the reticulation network is unknown, however few overflows occur and future growth is minimal in the UDA.

B.9.9. Strategic Studies

Existing strategic studies within the UDA include:

- CCTV reports.

B.9.10. Strategic Approach

No formal assessment of the reticulation condition has been undertaken, but there are no known specific concerns regarding the condition of these assets. Most of the infrastructure is of an age (approximately 18 years old) where condition problems are not expected.

Due to the isolated nature of Murchison, a mobile generator will be purchased to allow the operation of both water and wastewater assets in the case of a significant power failure.

Council intends to continue operating the asset to minimise its impact on the community and the environment.

APPENDIX C. ASSESSMENT OF ALL WASTEWATER SYSTEMS IN THE DISTRICT

Tasman District Council performed the Water and Sanitary Services Assessments (WSSA) in 2005 and evaluated all Council owned, community and some private wastewater services. The WSSA documents consist of two volumes:

Volume 1: An overview of the water and sanitary services in Tasman District with recommendations and priority rankings for future improvements

Volume 2: The detailed assessments.

The WSSA documents were made available to the public for consultation purposes and a special meeting was held in June 2005 to review public submissions.

Council approved the WSSA documents in June 2005 and therefore met the requirements of the Local Government Act 2002 that the first assessment be adopted before 30 June 2005.

Recent changes to the Local Government Act 2002 now require Council to identify in the Long Term Plan any significant variation between the proposals in that plan and Council's assessment of water and sanitary services and its waste management and minimisation plan (clause 6 of Schedule 10 of the Act).

Sections 126 – 129 of the Local Government Act have been repealed. This means that while Council still need to undertake water and sanitary services assessments within the district, the process for undertaking the assessments and the extent of information required are no longer dictated.

An amendment to Section 125 of the Act now means that an assessment may be included in the Council's long-term plan, but, if it is not, Council must adopt the assessment using the special consultative procedure. The majority of information in the WSSA, in respect of Council owned and operated services, is now included in Appendix B of this Activity Management Plans. Council is under an obligation to assess privately owned services from time to time. There is no guidance to the timelines associated with these assessments, however, Council has made financial provision in this 10 year forecast to carry out assessments in 2015/2016.

Key variations since the adoption of the WSSA in 2005 are noted below:

- Council is progressing with the upgrade to the Motueka and Takaka Wastewater Treatment Plants and will continue to undertake improvements to Council's systems as identified in this AMP.

- The WSSA identified and prioritised non-reticulated communities. The priority ranking was based on the ability of the systems to treat and dispose of the wastewater into the environment in a manner that meets environmental compliance criteria; and minimises risk to public health, and the impact to the environment. Council has made provisions for reticulating Marahau in this AMP, a Priority 1 community, but this is beyond the 10 year period covered by the Long Term Plan.

APPENDIX D. ASSET VALUATIONS

D.1 Background

The Local Government Act 1974 and subsequent amendments contain a general requirement for local authorities to comply with Generally Accepted Accounting Practice ("GAAP").

The Financial Reporting Act 1993 sets out a process by which GAAP is established for all reporting entities and groups, the Crown and all departments, Offices of Parliament and Crown entities and all local authorities. Compliance with the New Zealand Equivalent to International Accounting Standard 16; Property, Plant and Equipment (NZ IAS 16) and IAS 36 (Impairment of Assets is the one of the current requirements of meeting GAAP.

The purpose of the valuations is for reporting asset values in the financial statements of Tasman District Council.

Council requires its infrastructure asset register and valuation to be updated in accordance with Financial Reporting Standards and the AMP improvement plan.

The valuations summarised below have been completed in accordance with the following standards and are suitable for inclusion in the financial statements for the year ending June 2009.

- NAMS Group Infrastructure Asset Valuation Guidelines – Edition 2.0.
- New Zealand Equivalent to International Accounting Standard 16; Property, Plant and Equipment (NZ IAS 16) and IAS 36 (Impairment of Assets).

D.1.1. Depreciation

Depreciation of assets must be charged over their useful life.

- *Depreciated Replacement Cost* is the current replacement cost less allowance for physical deterioration and optimisation for obsolescence and relevant surplus capacity. The Depreciated Replacement Cost has been calculated as:

$$\frac{\text{Remaining useful life}}{\text{Total useful life}} \times \text{replacement cost}$$

- *Depreciation* is a measure of the consumption of the economic benefits embodied in an asset. It distributes the cost or value of an asset over its estimated useful life. Straight-line depreciation is used in this valuation.
- *Total Depreciation to Date* is the total amount of the asset's economic benefits consumed since the asset was constructed or installed.
- *The Annual Depreciation* is the amount the asset depreciates in a year. It is defined as the replacement cost minus the residual value divided by the estimated total useful life for the asset.
- *The Minimum Remaining Useful Life* is applied to assets which are older than their useful life. It recognises that although an asset is older than its useful life it may still be in service and therefore have some value. Where an asset is older than its standard useful life, the minimum remaining useful life is added to the standard useful life and used in the calculation of the depreciated replacement value.

D.1.2. Revaluation

The revaluations are based on accurate and substantially complete asset registers and appropriate replacement costs and effective lives.

(a) The lives are generally based upon NZ Infrastructure Asset Valuation and Depreciation Guidelines – Edition 2. In specific cases these have been modified where in our, and Council's opinion a different life is appropriate. The changes are justified in the valuation report.

(b) The component level of the data used for the valuation is sufficient to calculate depreciation separately for those assets that have different useful lives.

D.2 Overview of Asset Valuations

Assets were previously valued every three years, but Council has now moved to a two year revaluation cycle. Historic asset valuations reports are held with Council.

Council was due to revalue their assets as at end June 2011, however the small number of changes made to the networks since the 2009 valuations, the decision was made to defer the valuation until the end of June 2012.

D.3 2009 Valuation- Wastewater

The wastewater supply assets were last re-valued in June 2009 and are reported under separate cover[1]. Key assumptions in assessing the asset valuations are described in detail in the valuation report.

D.3.1. Asset Data

The majority of information for valuing the assets was obtained from Council's Confirm database. This is the first time the database has been used to revalue Council's assets. In the past, asset registers based on excel spreadsheets have been used. The data confidence is detailed in Table D-1 below.

Table D-1: Data Confidence

Asset Description	Confidence	Comments
Wastewater Assets	B - Reliable	The asset registers provide all the physical assets that make up each scheme. However attribute information could be more detailed such as pipe and manhole depths, surface types etc.

Based on NZ Infrastructure Asset Valuation and Depreciation Guidelines – Edition 2, Table 4.3.1: Data confidence grading system.

D.3.2. Asset Lives

The *Base Useful Lives* for each asset type as published in the NZIAVDG Manual were used as a guideline for the lives of the assets in the valuation. Generally lives are taken as from the mid-range of the typical lives indicated in the Valuation Manual where no better information is available. Lives used in the valuation are presented in Table D-2 following.

Table D-2: Asset Lives

Item	Life (years)	Minimum Remaining Life (years)
Pipelines		
AC, Cu pipe, unknown pipe	60	5
Concrete pipe (stormwater)	120	5
Concrete pipe (wastewater)	80	5
EW pipe	60	5
PVC pipe	80	5
PE pipe	80	5
DI, CI Steel pipe	80	5

[1] Infrastructural Asset Revaluation, June 2009 – MWH New Zealand Ltd report for Tasman District Council

Item	Life (years)	Minimum Remaining Life (years)
Miscellaneous pipeworks and fitting associated with treatment plants and pump stations	50	5
Valves, hydrants	50	5
Manholes	80	5
Water meters, restrictors	15	2
Non Pipeline Civil Assets		
Borewells	60	5
Civil pump chambers	80	5
Civil concrete structures	80	5
Civil buildings (all materials)	50	5
Civil pipework and fittings	50	5
Soakpit	80	5
Reservoirs (all materials)	80	5
Tanks (concrete, plastic, fibreglass)	50	5
Landscaping/fencing	20	5
Oxidation pond earthworks	Not depreciated	
Mechanical Assets		
Small plant – pumps, blowers, chlorinating/UV equipment, aerators, screens	20	2
Electrical and Telemetry Assets		
Electrical/Controls	20	2
Telemetry/SCADA	20	2

D.3.3. 2009 Valuation

The optimised replacement value, annual depreciation and optimised depreciated replacement value of the wastewater assets are summarised in Table D-3, Table D-4 and Table D-5.

Table D-3: Wastewater Asset Valuation Summary 30 June 2009

	Optimised Replacement Value ($)	Optimised Depreciated Replacement Value ($)	Total Depreciation to Date ($)	Annual Depreciation ($/yr)
Wastewater Pipes	71,458,377	51,854,482	19,603,895	906,807
Wastewater Surface features	27,195,296	18,939,034	8,256,262	544,554
Resource Consents	1,063,000	493,176	569,824	197,277
Total	**99,716,673**	**71,286,693**	**28,429,981**	**1,648,637**

Table D-4: 2007 / 2009 Wastewater Valuation Comparison

	Optimised Replacement Value ($)	Optimised Depreciated Replacement Value ($)	Total Depreciation to Date ($)	Annual Depreciation ($/yr)
Wastewater 2007	79,847,135	58,103,766	21,743,368	1,237,241
Wastewater 2009	99,716,673	71,286,693	28,429,981	1,648,637
% Increase	24.88%	22.69%	30.75%	33.25%

Overall the optimised replacement value has increased by 24.88% since the 2007 valuations. The increase in the replacement values is due to the following reasons:

- inflation over the two year period (ie. % as calculated by the construction fluctuation adjustment)
- the addition of new assets to the utilities since 2007
- migration of data from asset registers contained in spreadsheets into the Confirm database and subsequent updating of the data resulting in the improved accuracy of the captured data.

Table D-5: 2009 Asset Valuation by Supply Area

	Optimised Replacement Value ($)	Optimised Depreciated Replacement Value ($)	Total Depreciation to Date ($)	Annual Depreciation ($/yr)
Brightwater	6,146,239	4,617,161	1,529,078	89,448
Collingwood	2,070,896	1,453,768	617,129	35,049
Hope	3,535,756	2,659,612	876,144	46,477
Kaiteriteri/Riwaka	9,006,835	7,021,057	1,985,778	133,862
Mapua/Ruby Bay	7,852,223	5,749,138	2,103,085	123,745
Motueka	16,646,957	9,924,597	6,722,360	249,627
Murchison	2,763,663	2,002,603	761,061	61,306
Richmond	27,368,662	18,755,105	8,613,557	349,890
St Arnaud	3,448,848	2,873,250	575,598	59,323
Takaka/Pohara	13,900,463	11,621,152	2,279,311	215,040
Tapawera	1,591,047	714,427	876,620	26,465
Upper Takaka	312,869	257,392	55,477	6,266
Wakefield	3,874,425	3,095,677	778,749	48,430
Tasman District Non-UDA	134,789	48,580	86,209	6,432

APPENDIX E. MAINTENANCE AND OPERATING ISSUES

E.1 Maintenance Contract

The operation and maintenance of the wastewater systems has been incorporated into a single performance based contract, C688. The current maintenance contractor is Downer NZ Ltd (awarded in 2007). The initial contract duration is six years with up to an additional four years potential extension, provided the contractor meets the performance requirements of the contract. 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.

The implementation of the routine proactive maintenance work is managed in the following way.

1. The Contractor prepares an Annual Maintenance Programme that consists of a variety of programmes of all routine proactive maintenance and reporting deadlines.
2. The Engineer to the Contract (Council's consultant) in conjunction with the Council reviews the programme against the budgets and then negotiates with the Contractor to agree any deferrals or amendments.
3. The Contractor then implements the work according to the schedules.

There are two other areas of maintenance; "Non Routine Proactive Maintenance" and "Reactive Maintenance". Budgets for these have been set based on historical spending sums and projected future system maintenance requirements.

The Non Routine Proactive Maintenance covers maintenance such as, mains flushing and checks on mechanical equipment. These are programmed and carried out annually with a report submitted to the Engineer on completion.

The Reactive Maintenance covers all wastewater reticulation repairs including, pipes and pump stations through to and inclusion of the treatment plants.

The maintenance contract also covers works related to new facilities such as new manholes, pipe work and other related wastewater assets. These new facilities are usually related to minor system improvements and extensions.

E.1.1. Maintenance Standards

The maintenance and operation standards for all work activities are specified in the maintenance contracts, with performance measures including response times. The Asset Manager may vary these depending on changes to the level of service or budgeting constraints.

All work is performed, and materials used, to comply with the latest edition of the following standards:

- this AMP
- Contract 688 – Water Utilities Operations and Maintenance
- Tasman District Council Engineering Standards and Policies 2008.

E.1.2. Deferred Maintenance

Deferred maintenance is defined as follows:

- the shortfall in rehabilitation or refurbishment work required to maintain the service potential of the asset
- maintenance and renewal work that was not performed when it should have been, or when it was scheduled to be and which has therefore been put off or delayed for a future period.

The current budget levels are believed to be sufficient to provide the intended level of service and therefore no maintenance work has been deferred. This however is subject to the changes in Levels of Service and expectations of customers.

E.1.3. Increase in Network Size through Development

When new developments such as subdivisions are constructed any new wastewater assets constructed by the developer must be accepted as being built to Council standards. Once vested as Council assets they are included in the wastewater network and routine maintenance is undertaken through the operations contract. The maintenance budgets have some allowance for network growth where applicable.

E.1.4. Database

MWH New Zealand Ltd (Council's professional services consultant) manages the Operations Contract C688 on behalf of Council. Customer Service Requests (CSR) and Work Orders (WO) are sent to the contractor via the Confirm database.

Local Operators receive WOs via laptops and mobile handheld devices. WOs are loaded against individual assets (where possible) and processed for payment with the monthly progress claim. All CSRs and WOs are time stamped depending on the contract timeframe. Response times and resolution times are monitored with Contractor performance as part of their monthly claim.

E.2 Engineering Studies

A number of studies and activities have been allocated to the Operations and Maintenance Budget. These are summarised in Table E-1 below. A detailed forecast is shown in Table E-2.

Table E-1: Summary of Engineering Studies included in this AMP

Study Name	Brief Description
Water and Sanitary Services	The Water and Sanitary Services Assessment, is a council/community review o how the council provide water, wastewater, stormwater, solid waste (refuse), public toilets and cemeteries and explores options for doing them more sustainably. This assessment is completed periodically.
District Reticulation – Root Cutting and Cleaning Pipelines	This work allows for root cutting and cleaning of pipelines throughout the district. Highlighting which pipes require work is determined through Customer Service Request (CSR), CCTV footage, historical knowledge and the problematic sewer schedule database (part of C688).
Trade Waste Implementation	This study involves determining a better understanding of tradewaste throughout the district. This will involve developing a database that will assist with ensuring there is full cost recovery from the trade waste producers.
Trade Waste Bylaw Review	In accordance with the Local Government Act 2002, this bylaw will need to be reviewed no later than 10 years after Council last reviewed it.
Sludge Management	Developing a strategy to manage sludge from all WWTPs.
District Model Maintenance	The hydraulic models assist with assessing the capacity and deficiencies within the reticulation networks, this includes pipes and pump stations.

Study Name	Brief Description
	Hydraulic models exist for Hope, Brightwater, Wakefield, Motueka, Mapua and Richmond. This study allows for maintaining these models.
System Operating Plan Updates	Developing and maintaining System Operating Plans for each wastewater region. These plans provide details on existing assets, mitigation measures in the event of an emergency and the day to day running of the network.
Annual WWTP Report	The annual WWTP report is required for each WWTP (excluding NRSBU Bell Island WWTP). This report is a resource consent requirement and also provides the council with an annual performance report on these assets.
I & I Regional Reduction	Inflow and infiltration is an issue in many UDAs across the district. Reducing I & I will reduce the flow demand at the WWTP, reduce overflows and increase the capacity of the pipe. This budget allows for better understanding of where I & I is occurring and undertaking minor repairs where necessary. This knowledge will also feed into capital projects.
Regional CCTV	CCTV will be undertaking around the district and will feed into a variety of sources including, renewal of sewers, hydraulic modelling and root cutting and jetting.

E.3 2012 – 2032 Wastewater Operation and Maintenance Forecast

Twenty-year forecasts for operations and maintenance costs are shown in Figure E-1 and Table E-2 and Table E-3.

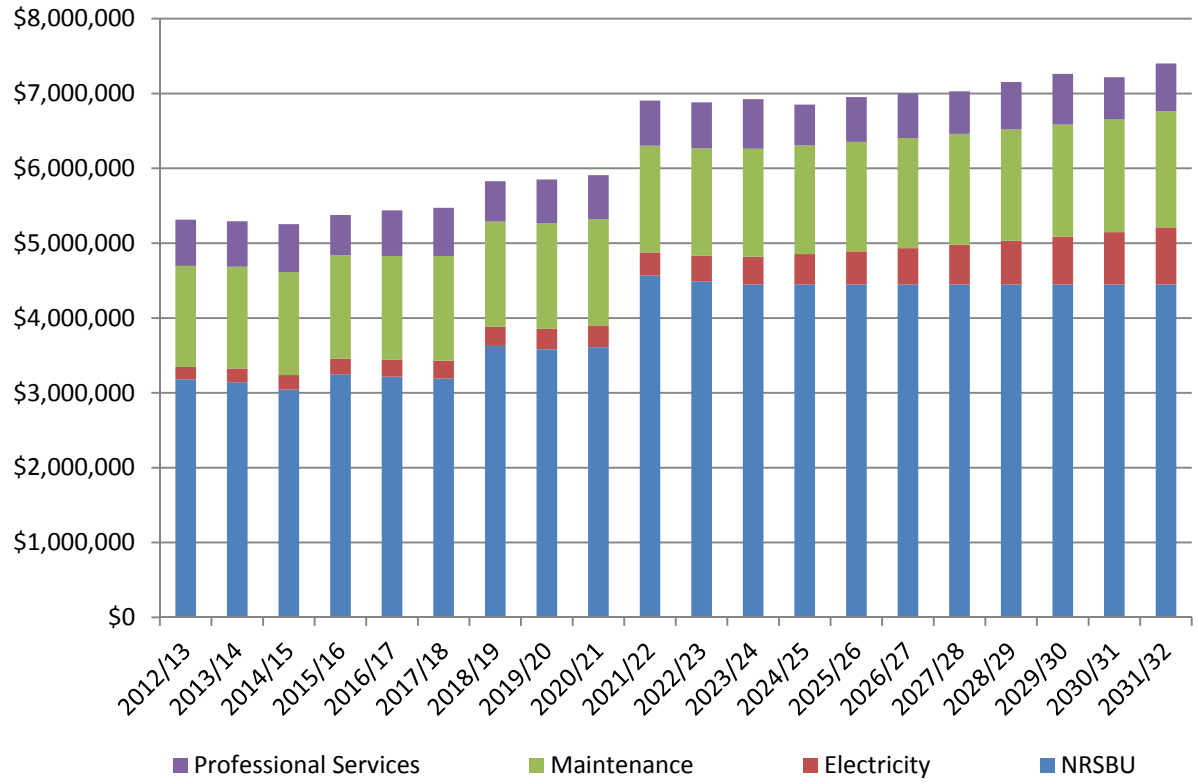


Figure E-1: 2012 – 2032 Wastewater Operation and Maintenance Forecast

Table E-2: 2012 – 2032 Wastewater Engineering Strategic Studies

Item	Study Name	Description	TOTAL	2012 / 13	2013 / 14	2014 / 15	2015 / 16	2016 / 17	2017 / 18	2018 / 19	2019 / 20	2020 / 21	2021 / 22	2022 / 23	2023 / 24	2024 / 25	2025 / 26	2026 / 27	2027 / 28	2028 / 29	2029 / 30	2030 / 31	2031 / 32
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
1	Water and Sanitary Services Assessments	3 yearly reviews	140,000				40,000						40,000						40,000				
2	AMP Review and Update	3 yearly reviews (20yr forecast)	576,000		36,000	54,000		36,000	54,000		36,000	54,000		36,000	54,000		36,000	54,000		36,000	54,000		36,000
3	AMP Improvement Plan Activities	Annual allowance	520,000	10,000	50,000		10,000	50,000		10,000	50,000		10,000	50,000		10,000	50,000		10,000	50,000		10,000	50,000
4	O&M Contract Tender	Retender allowance	345,000						100,000						100,000						100,000		
5	Valuations	3 yearly reviews	215,000		20,000		20,000		20,000		20,000		20,000		20,000		20,000		20,000		20,000		20,000
6	District Reticulation	Root Cutting and Cleaning Pipelines	450,000	45,000		45,000		45,000		45,000		45,000		45,000		45,000		45,000		45,000		45,000	
17	Trade Waste Implementation	Survey and data capture	25,000	25,000																			
18	Trade Waste Bylaw Review	Review of Bylaw	40,000										20,000										20,000
22	Sludge Management	Look at options for sludge management district wide	60,000	30000									30,000										
38	District Model Maintenance	Maintain all existing hydraulic models	350,000	25,000	15,000	25,000	15,000	25,000	15,000	25,000	15,000	25,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
39	System Operating Plan Updates	Producing all 8 System Operating Plans and maintaining them	350,000	50,000	50,000	80,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
40	Annual WWTP Report	Regional Report for all WWTP	900,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
41	I&I Regional Reduction	I&I Investigation and repair across the district	3,000,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000
43	CCTV Regional	CCTV reticulation and capturing data	1,600,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000
			Total	460,000	446,000	479,000	370,000	441,000	474,000	365,000	406,000	409,000	420,000	431,000	474,000	355,000	406,000	399,000	370,000	431,000	474,000	355,000	426,000

Table E-3: 2012 – 2032 Wastewater Operation and Maintenance Forecast

General Ledger Code		WASTEWATER GENERAL OPERATING & MAINTENANCE	Total	2012/13 Year 1	2013/14 Year 2	2014/15 Year 3	2015/16 Year 4	2016/17 Year 5	2017/18 Year 6	2018/19 Year 7	2019/20 Year 8	2020/21 Year 9	2021/22 Year 10	2022/23 Year 11	2023/24 Year 12	2024/25 Year 13	2025/26 Year 14	2026/27 Year 15	2027/28 Year 16	2028/29 Year 17	2029/30 Year 18	2030/31 Year 19	2031/32 Year 20
Wastewater																							
Combined Account																							
0901 2401	Richmond	SEW RICHMOND MAINTENANCE	2,344,799	106,542	107,141	107,739	108,782	109,824	110,867	111,909	112,952	113,994	115,114	116,664	118,235	119,827	121,441	123,076	124,733	126,413	128,116	129,841	131,589
0901 2401 02	Motueka	SEW MOTUEKA MAINTENANCE	3,088,423	138,853	139,975	147,053	148,401	149,750	151,099	152,447	153,796	155,145	156,539	157,078	157,619	158,163	158,708	159,255	159,803	160,354	160,907	161,461	162,018
0901 2401 03	Takaka	SEW TAKAKA MAINTENANCE	1,036,710	48,416	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016	52,016
0901 2401 04	Brightwater	SEW WAIMEA BASIN MAINTENANCE	1,326,491	56,633	57,491	58,264	59,379	60,409	61,439	62,468	63,498	64,528	65,300	66,407	67,532	68,677	69,841	71,025	72,229	73,454	74,699	75,965	77,253
0901 2401 05	Mapua Ruby Bay	SEW MAPUA/RUBY BAY MAINTENANCE	1,392,676	59,699	60,290	63,215	64,101	64,919	65,806	66,624	67,511	68,397	69,147	70,047	70,959	71,883	72,819	73,767	74,727	75,700	76,685	77,684	78,695
0901 2401 06	Kaiteriteri	SEW KAITERITERI/RIWAKA MAINTEN	701,361	34,429	34,429	34,429	34,501	34,501	34,501	34,574	34,574	34,574	34,647	34,821	34,996	35,172	35,349	35,527	35,706	35,886	36,066	36,248	36,430
0901 2401 07	Murchison	SEW MURCHISON MAINTENANCE	1,068,310	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416	53,416
0901 2401 08	Collingwood	SEW COLLINGWOOD MAINTENANCE	903,756	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188	45,188
0901 2401 09	Tapawera	SEW TAPAWERA MAINTENANCE	561,906	27,090	27,282	27,474	27,474	27,474	27,474	27,474	27,474	27,474	27,474	27,704	27,937	28,171	28,408	28,646	28,887	29,129	29,373	29,620	29,868
0901 2401 10	General District	SEW UPPER TAKAKA MAINTENANCE	320,556	15,158	15,253	15,347	15,438	15,528	15,618	15,708	15,798	15,888	15,978	16,068	16,159	16,251	16,343	16,436	16,529	16,623	16,717	16,812	16,907
0901 2401 11	Pohara/Tata/Ligar/Tarakohe	SEW POHARA MAINTENANCE	1,659,177	80,693	80,693	80,693	80,693	80,693	80,693	80,693	80,693	80,693	80,693	81,492	82,300	83,116	83,940	84,772	85,612	86,461	87,318	88,183	89,058
0901 2401 12	General Network	SEW GENERAL MAINTENANCE	7,852,105	367,905	370,084	372,215	374,930	377,582	380,265	382,933	385,601	388,268	390,936	393,714	396,476	399,239	402,001	404,763	407,523	410,282	413,040	415,797	418,551
0901 2401 13	St Arnaud	SEW ST ARNAUD MAINTENANCE	538,355	26,898	26,898	26,898	26,898	26,898	26,898	26,898	26,898	26,898	26,898	26,905	26,912	26,920	26,927	26,934	26,942	26,949	26,956	26,964	26,971
0901 2401 16	Marahau	SEW MARAHAU	35,000																				35,000
0901 2401 14	General Network	SEW DATRAN MAINTENANCE	1,270,193	59,514	59,866	60,211	60,650	61,079	61,513	61,945	62,377	62,808	63,240	63,689	64,136	64,583	65,030	65,476	65,923	66,369	66,815	67,261	67,707
0901 2401 17		I/I INVESTIGATIONS AND REPAIR	3,000,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000
0901 2401 15		SEW CCTV INSPECTIONS	1,600,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000
		SUBTOTAL	28,699,817	1,350,433	1,360,019	1,374,155	1,381,865	1,389,275	1,396,790	1,404,291	1,411,788	1,419,285	1,426,582	1,435,209	1,443,882	1,452,620	1,461,424	1,470,296	1,479,233	1,488,238	1,497,311	1,506,454	1,550,665
ELECTRICITY																							
0901 2505	Total	WASTEWATER ELECTRICITY	7,623,682	166,337	184,880	195,614	210,029	224,058	240,539	256,767	273,639	291,430	308,931	339,505	371,408	406,308	444,488	486,256	534,380	584,595	639,528	699,624	765,366
NRSBU																							
0901 2608	Total	SEW NRSBU TREATMENT COSTS	78,917,259	3,179,586	3,140,926	3,042,681	3,248,362	3,215,922	3,190,661	3,626,802	3,582,742	3,610,061	4,566,662	4,490,322	4,446,948	4,446,948	4,446,948	4,446,948	4,446,948	4,446,948	4,446,948	4,446,948	4,446,948
PROFESSIONAL SERVICES																							
0901 2203	General Network	SEW GEN P/S CONSULTANTS	6,138,607	287,621	289,324	290,990	293,112	295,185	297,283	299,369	301,454	303,540	305,625	307,797	309,957	312,116	314,275	316,435	318,593	320,750	322,906	325,061	327,214
0901 2203 01	General Network	SEW RESOURCE CONSENTS P/S	2,134,273	100,000	100,592	101,171	101,909	102,630	103,360	104,085	104,810	105,535	106,260	107,015	107,766	108,517	109,267	110,018	110,768	111,518	112,268	113,017	113,766
0901 2203 10		AMP/LTP (3 YEARLY REVIEW/UPDATE)	996,000	10,000	86,000	54,000	10,000	86,000	54,000	10,000	86,000	54,000	10,000	86,000	54,000	10,000	86,000	54,000	10,000	86,000	54,000	10,000	86,000
0901 2526 01		SEWERAGE MODELLING	350,000	25,000	15,000	25,000	15,000	25,000	15,000	25,000	15,000	25,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
0901 2526 03		ASSET REVALUATIONS	200,000	0	20,000	0	20,000	0	20,000	0	20,000	0	20,000	0	20,000	0	20,000	0	20,000	0	20,000	0	20,000
0901 2526 04		TRADE WASTE BYLAW	65,000	25,000	0	0	0	0	0	0	0	0	20,000	0	0	0	0	0	0	0	0	0	20,000
0901 2526 05		O&M CONTRACT RETENDER	300,000	0	0	0	0	0	100,000	0	0	0	0	0	100,000	0	0	0	0	0	100,000	0	0
0901 2526 06		SANITARY SERVICES ASSESSMENTS	120,000	0	0	0	40,000	0	0	0	0	0	40,000	0	0	0	0	0	40,000	0	0	0	0
0901 2526 13		SITE OPERATION PLAN	350,000	50,000	50,000	80,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
0901 2626 14		ROOT CUTTING AND CLEANING PIPELINE	450,000	45,000	0	45,000	0	45,000	0	45,000	0	45,000	0	45,000	0	45,000	0	45,000	0	45,000	0	45,000	0
0901 2526 07		WW REPORTING REQUIREMENTS	960,000	75,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	75,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
		SUBTOTAL	12,063,879	617,621	605,916	641,161	535,021	608,815	644,643	538,453	582,264	588,075	601,885	615,813	661,723	545,633	599,543	595,453	569,361	633,268	679,174	563,078	636,980
		TOTAL	**48,387,378**	**5,313,977**	**5,291,740**	**5,253,611**	**5,375,277**	**5,438,070**	**5,472,633**	**5,826,314**	**5,850,433**	**5,908,851**	**6,904,060**	**6,880,849**	**6,923,960**	**6,851,509**	**6,952,403**	**6,998,953**	**7,029,922**	**7,153,049**	**7,262,962**	**7,216,103**	**7,399,959**

N.B. does not include inflation

APPENDIX F. DEMAND AND FUTURE NEW CAPITAL REQUIREMENTS

F.1 Growth Demand and Supply Model (GDSM)

F.1.1. Model Summary

A comprehensive Growth Demand and Supply Model (GDSM or growth model) has been developed to provide predictive information for population growth and business growth, and from that, information about dwelling and building development across the district and demand for infrastructure services. The GDSM underpins the Council's long term planning through the Activity Management Plans, Long Term Plans and supporting policies (eg. Development Contributions Policy).

This 2011 GDSM is a third generation growth model with previous versions being completed in 2005 and 2008.

In order to understand how and where growth will occur, the GDSM is built up of a series of Settlement Areas which contain Development Areas (DA). A Settlement Area (SA) is defined for each of the main towns and communities in the district. There are 17 Settlement Areas for the present version of the GDSM. Each Settlement Area is subdivided into a number of Development Areas. Each Development Area is defined as one continuous polygon within a Settlement Area that if assessed as developable, is expected to contain a common end-use and density for built development.

The GDSM organises and integrates the assessments of demand and supply of built development. The development is categorised as either residential or, business demand and supply. For residential demand and supply:

- the 'demand' for residential buildings (dwellings) is assessed from population and household growth forecasts
- the 'supply' of lots for future dwellings is assessed from analysis of the Development Areas in each Settlement Area and how many lots could feasibly be developed for residential end use, after accounting for a number of existing characteristics of the Development Area.

For business demand and supply:

- the 'demand' for business premises is assessed from economic and employment growth forecasts, and associated land requirements
- the 'supply' of lots for future business premises is assessed from analysis of the Development Areas in each Settlement Area in a similar way as that for future dwellings.

The Development Areas and Settlement Areas are the building blocks that allow the GDSM to spread demand for new dwellings and business premises, and assess where there is capacity to supply that demand.

The GDSM is not just an isolated tool that calculates a development forecast. It is a number of linked processes that involve assessment of base data, expert interpretation and assessment, calculation and forecasting. The key input data, assessment and computational processes, and outputs of the GDSM are captured in a database called the Growth Model Database.

The outputs of the GDSM are located on a shared browser site that all Council staff have access to. The browser contains:

- all the various input data sets and calculated outputs
- maps defining the Settlement Areas and Development Areas
- a model description describing the model working in detail, assumptions and planned improvements
- a peer review by a qualified urban planner and designer.

F.1.2. Population Projection

The population projection in the GDSM has been taken from Statistics New Zealand 2009 population projections derived from the 2006 census data. The Statistics NZ "medium" projection has been taken for all Settlement Areas. As a result of the recession and general slowdown in development since 2008, Council has adopted the Statistics NZ "medium" projection for all Settlement Areas (in 2008 the Statistics NZ "high" projection was used for Motueka and Richmond). The population projections for each Settlement Area and the district as a whole are shown in Table F-1.

The population projections are used to determine a demand for new dwellings in each Settlement Area.

Table F-1: Population Projection Used in the GDSM

Settlement Area	Population Adjusted 2006	2009	2012	2016	2021	2031
Brightwater	1,931	2,016	2,097	2,195	2,327	2,581
Coastal Tasman Area	2,032	2,096	2,157	2,228	2,308	2,438
Collingwood	203	207	211	216	220	225
Kaiteriteri	320	323	326	332	336	332
Mapua Ruby Bay	1,911	1,981	2,049	2,135	2,242	2,427
Marahau	120	121	123	125	127	125
Motueka	6,309	6,417	6,510	6,600	6,660	6,634
Murchison	414	409	404	398	382	366
Pohara/Tata/Ligar/Tarakohe	558	570	581	594	606	619
Richmond	13,173	13,612	14,039	14,577	15,179	16,305
Riwaka	562	577	591	606	619	625
St Arnaud	81	81	81	81	80	77
Takaka	1,154	1,160	1,164	1,164	1,144	1,054
Tapawera	299	311	323	334	341	355
Tasman	168	173	177	182	187	194
Upper Moutere	147	152	156	162	169	181
Wakefield	1,911	1,992	2,067	2,152	2,258	2,499
Ward Remainder (Golden Bay)	3,244	3,315	3,381	3,455	3,523	3,600
Ward Remainder (Lakes Murchison)	2,475	2,538	2,596	2,659	2,738	2,870
Ward Remainder (Motueka)	3,313	3,417	3,516	3,632	3,763	3,975
Ward Remainder (Moutere Waimea)	3,988	4,114	4,232	4,372	4,530	4,785
Ward Remainder (Richmond)	1,487	1,522	1,588	1,756	1,966	2,405
Total for District	45,800	47,104	48,369	49,955	51,705	54,672

F.1.3. Business Forecast

In the GDSM 2008 for the LTP 2009 – 2019, three economic demand assessments were used to build a quantitative picture of business growth in terms of employment growth and linked growth in demand for business space. Each study provided different datasets, but an aggregate picture of estimated business land demand in the Tasman district, including, Motueka and Environs, Golden Bay, and Tasman district balance including Richmond.

For the GDSM 2011, a high level consideration of business growth opportunities showed that in the two main demand areas (Richmond as part of the eastern subregional demand catchment of Nelson-Tasman, and at Motueka as the centre of the western subregional demand catchment), there is a large business land supply capacity becoming available for business development. This includes the current deferred business zonings in both the Richmond West Development Area, and draft deferred zonings in Motueka west development area. It was considered this amount of supply capacity will meet the expected needs of business growth for at least 50 years (well beyond the 20 year projection). On this basis the 2011 review of the GDSM simply adopted the data and assumptions in the 2008 GDSM but updated the datasets by extrapolation for a further three years (2029 to 2032).

Looking ahead, there are three main difficulties with relying on the historical demand assessments as the basis for business growth demand forecasts:

- the economic modelling by the consultants' assessments used two different sets of now-dated census data for economic and employment growth
- the demand assessment methods have yielded results of limited reliability at the level of individual SAs, as the areas assessed yielded aggregate results from an undisclosed simulation economic modelling routine, that have then been apportioned and subject to a number of simplifying assumptions
- the consultant work done is not in a Council managed information system and does not provide a confident results in a regional (Nelson-Tasman) context especially for future Nelson-Richmond urban area forecasting.

What is required is the development of a regional (Nelson-Tasman) economic simulation model capable of yielding results at the SA level, and suitably populated with current data, to yield more reliable segmented business land demand estimates, for each SA. This is a strategic priority for further work after the completion of the GDSM 2011 review.

F.1.4. Rollout Assessment

Once the analysis of demand for residential dwellings and buildings in each Settlement Area has been completed, and when the supply potential for new subdivision and dwelling/building construction has been assessed for each Development Area. The rollout analysis is done. This seeks to forecast when and if the demand for dwelling and business premises will be met and if so where and when. This results in a forecast for each Development Area of:

- the number of new residential dwellings that will be created through subdivision or building on vacant lots
- the number of new business buildings that will be created through subdivision or building on vacant lots.

This information can then be used to plan how and where network infrastructure needs to be developed and to what capacity.

F.2 Projection of Demand for Wastewater Services

F.2.1. Forecast Growth in Demand from GDSM

The forecast growth in demand from the GDSM growth forecasts is shown in the following tables, (F-2 to F-4).

Table F-2: Forecasted New Connections per UDA

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Urban Drainage Area (UDA)	Parameter	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Brightwater	Forecasted new connections	14	17	16	18	16	17	16	16	16	17
Collingwood	Forecasted new connections	1	3	2	2	0	1	0	1	1	2
Kaiteriteri	Forecasted new connections	5	6	6	4	1	3	1	1	1	1
Mapua/Ruby Bay	Forecasted new connections	17	19	18	20	18	20	18	20	20	18
Motueka	Forecasted new connections	37	39	37	38	38	38	38	38	38	37
Murchison	Forecasted new connections	1	3	2	2	0	2	0	2	2	1
Pohara/Tata Beach/ Ligar Bay	Forecasted new connections	9	11	10	6	4	5	4	4	4	6
Richmond	Forecasted new connections	55	58	57	75	75	75	75	75	75	78
Riwaka	Forecasted new connections	1	2	1	3	3	3	3	3	3	2
St Arnaud	Forecasted new connections	2	4	3	3	1	2	1	2	2	4
Takaka	Forecasted new connections	6	7	6	2	0	1	0	0	0	1
Tapawera	Forecasted new connections	1	3	3	3	1	2	1	2	2	3
Upper Takaka	Forecasted new connections	0	0	0	0	0	0	0	0	0	0
Wakefield	Forecasted new connections	12	14	14	13	11	12	11	11	11	9

Table F-3: Total New Connections

New Connections	Parameter	Year 1 2012/13	Year 2 2013/14	Year 3 2014/15	Year 4 2015/16	Year 5 2016/17	Year 6 2017/18	Year 7 2018/19	Year 8 2019/20	Year 9 2020/21	Year 10 2021/22
Total	First water closet or urinal	161	186	175	189	168	181	168	175	175	179
Total	2 to 10	130	180	162	144	74	111	74	88	88	121
Total	11 plus	66	93	83	73	38	57	38	45	45	61

Table F-4: Total Pans

Total Pans	Parameter	Year 1 2012/13	Year 2 2013/14	Year 3 2014/15	Year 4 2015/16	Year 5 2016/17	Year 6 2017/18	Year 7 2018/19	Year 8 2019/20	Year 9 2020/21	Year 10 2021/22
Total	First water closet or urinal	12,277	12,438	12,624	12,799	12,988	13,156	13,337	13,505	13,680	13,855
Total	2 to 10	2,711	2,841	3,021	3,183	3,327	3,401	3,512	3,586	3,674	3,762
Total	11 plus	1,229	1,295	1,388	1,471	1,544	1,582	1,639	1,677	1,722	1,767

F.2.2. Effect of Population Growth on Wastewater Systems

The population growth anticipated in the district will have a significant impact on the sewerage system assets. Concentration of population growth in particular areas in the district will put pressure on the existing sewerage systems. In terms of the major components, the potential effects are as follows.

- Reticulation Systems: Many reticulation systems are already suffering from high inflow and infiltration problems that reduce the available capacity to cater for additional growth. The implications are that either larger assets are required, or inflow and infiltration needs to be reduced. The Council is continuing to focus on reducing inflow and infiltration.
- Treatment Plants: Several treatment plants have on-going problems in terms of consistently meeting performance levels, particularly during high rainfall events and to a lesser extent during the peak summer period. Adding higher loads to the treatment plants adversely affects performance.

As a result of this projected growth, Council has included within the forward programme the following projects:

- the trunk mains between Wakefield, Brightwater and Richmond will be upgraded
- pump stations and rising mains will be upgraded in Ruby Bay and Mapua
- upgrades at the Motueka and Takaka WWTPs will be undertaken within the next five years
- upgrade of the wetlands in Collingwood WWTP
- the pumping system through Pohara, Ligar Bay and Tata Beach will be upsized and modified
- increase capacity of numerous pump stations around the district
- increased capacity is needed in various gravity mains throughout Richmond and Motueka.

F.2.3. New or Expanded Schemes

Projection for future growth in demand for wastewater schemes must take into account not only new developments but also existing residents from un-serviced areas connecting to Council services.

Anticipated new developments and asset creation include the following significant schemes.

Richmond West	The development of Richmond West was staged with the first new sewer pump station (Headingly Lane), this was constructed in 2010. The second pump station (Lower Queen Street) is planned to be constructed beyond Year 20 but will be timed to fit with subdivision developments.
Seaton Valley	Although this is a relatively recent subdivision for rural residential development many private septic systems are failing due to the characteristics of the Moutere clay soil. There is currently no council-owned wastewater service for this area, although it is anticipated that there may be pressure to provide a system that connects into the Mapua/Ruby Bay reticulation network, connecting to Bell Island. Provision for this is not currently in the plan. Future upgrading of the Mapua reticulation will include additional capacity in the design to cater for Seaton Valley.
Motueka West	Allowance has been made within this AMP for a new pump station (Motueka West) to service the future development in Motueka West. A report for managing new infrastructure and a strategy for managing the whole UDA of Motueka will be undertaken in Year 1 of this AMP.

F.2.4. Implications of Changes in Community Expectations

Community expectations vary geographically and over time. Key trends in community expectations that the Council recognises include those listed in Table F-5.

Table F-5: Trends in Community Expectations

Trends in Community Expectations	Implications for Wastewater Systems	How Council Plans to Address the Issues
Environmental awareness is leading to a demand for higher treatment standards.	Resulting in higher number of complaints. Need to improve treatment. Council will need to be seen as a leader in sustainable practices and wastewater treatment.	It is not anticipated that public expectation will exceed legislative requirements in the near future. Continue to identify opportunities for preventing breaches of resource consent.
Increased demand for public wastewater services.	On-site treatment and disposal may not meet future quality standard. Public systems may be demanded as an alternative.	Explore subsidies to provide wastewater services to such communities when they are available.
Customers are becoming more aware of the need for better water conservation.	Better water conservation by the public will in turn lead to a reduction in wastewater flows per connection.	Council should promote water conservation.
Customers and communities are becoming less tolerant of sewage overflows, odours or mechanical noise at pump stations and treatment plants.	Upgrades needed to defer/reduce overflows and odours. Also need to take steps to improve assets in order to minimise the number of shutdowns, service faults.	Increase storage capacities, increase system inter-connectedness and flexibility to convey wastewater and increase the robustness of the system in general.
Residents have expressed interest in alternative systems such as composting toilets.	Reduce flows in existing systems. Reduce need for rural extensions and offer an alternative to conventional on-site systems.	Council to develop policy on the use of composting toilets.

F.2.5. Implications of Industrial Demand

The major industries in the district are serviced by their own on-site treatment facilities (eg. Fonterra, at Takaka) or discharged to the NRSBU owned Bell Island WWTP (eg. Nelson Pine Industries, at Richmond).

All industries are affected by the Trade Waste Bylaw which came into effect in 2005. There is not expected to be any significant change in industrial demand on the wastewater system.

F.2.6. Implications of Technological Change

Technological change has the ability to impact on the demand for a service. These changes can reduce or increase the demand for wastewater infrastructure. It has been assumed that the predicted technological changes will not have a significant effect on the assets in the medium-term. However, relevant examples are:

- new or different treatment processes that provide a higher quality and more reliable discharge quality
- better technology to measure flow and analyse system performance
- better technology to rehabilitate pipelines (trenchless technology etc.)
- improved telemetry technology for monitoring asset operation and performance
- low flush/alternative toilet systems
- new, water efficient, industrial processes
- biofuel manufacture from oxidation pond algae.

It is important to be aware of continued technological changes to adequately predict demand trends and the effect on infrastructure requirements.

The potential impact of these technologies is currently unquantifiable, so no direct allowances have been made for them in this AMP.

F.2.7. Implications of Legislative Change

Legislative change can significantly affect the Councils ability to meet minimum levels of service, and can require improvements to infrastructure assets. There has been no significant legislation changes since the last updated AMP.

F.3 Assessment of New Capital Works

During May to July 2011, a number of workshops with the asset managers, programme managers, Council consultants and operations and maintenance team were held to identify new works requirements.

New works were identified by operations and maintenance staff:

- reviewing levels of service and performance deficiencies
- reviewing risk assessments
- reviewing previously completed investigation and design reports
- using the collective knowledge and system understanding of the project team.

Each project identified was developed with a scope and a project cost estimate. Common project estimating templates were developed to ensure consistent estimating practices and rates were used. This is described in Appendix Q.

The project estimate template includes:

- physical works estimates
- professional services estimates
- consenting and land purchase estimates
- contingencies for unknowns.

All estimates are documented and filed in an Estimates file to be held by Council. The information from the estimates has then been entered into the Capital Forecast spreadsheet/database that enables listing and summarising of the Capital Costs per project, per scheme, per project driver and per year. This has been used as the source data for input into Council's financial system for financial modelling.

F.4 Determination of Project Drivers and Programming

All expenditure must be allocated against at least one of the following project drivers.

Operation and Maintenance:	operational activities which have no effect on asset condition but are necessary to keep the asset utilised appropriately and on-going day-to-day work required to keep assets operating at required service levels[2].
Renewals:	significant work that restores or replaces an existing asset towards its original size, condition or capacity[3].
Increase Level of Service:	works to create a new asset to upgrade or improve an existing asset beyond its original capacity or performance to improve the level of service provided to existing customers.
Growth:	works to create a new asset to upgrade or improve an existing asset beyond its original capacity or performance to provide for the anticipated demands of future growth.

[2] Definition from International Infrastructure Management Manual – Version 3.0, 2006, pg 3.114
[3] Definition from International Infrastructure Management Manual – Version 3.0, 2006, pg 3.114

This is necessary for two reasons as follows:

a) Schedule 13(1) (a) of the Local Government Act requires the local authority to identify the total costs it expects to have to meet relating to increased demand resulting from growth when intending to introduce a Development Contributions Policy.

b) Schedule 10(2)(1)(d)(l)-(iv) of the Local Government Act requires the local authority to identify the estimated costs of the provision of additional capacity and the division of these costs between changes to demand for, or consumption of, the service, and changes to service provision levels and standards.

All new works have been assessed against these project drivers. Some projects may be driven by a combination of these factors and an assessment has been made of the proportion attributed to each driver. A guideline was prepared to ensure a consistent approach to how each project is apportioned between the drivers.

Some projects may be driven fully or partly by needs for renewal. These aspects are covered in Appendix I.

The projects have been scheduled out across the 20 year period, primarily based on their drivers. They were then loaded into Mapinfo along with projects from all other engineering activities to allow programme managers to assess any programme clashes or optimisation opportunities.

F.5 Project Prioritisation

All projects identified as potential solutions to meet future demand, increase levels of service, or as renewal were discussed in workshops during May to July 2011. These workshops were attended by key council staff, key members of the MWH team, and representatives from council's contractors. Each project identified was assigned an initial project priority of either non-discretionary or discretionary where:

A non-discretionary investment is one that relates to:

- a critical asset, that without investment is likely or almost certain to fail within the next three years, with a medium, major or extreme impact
- any asset that has a regulatory requirement to make the proposed investment.

A discretionary investment is one that relates to:

- a non-critical asset with no regulatory requirement to make the proposed investment
- a critical asset where asset failure is possible, unlikely or very unlikely to occur within the next three years with no regulatory requirement to make the proposed investment
- a critical asset where asset failure has only a negligible or minor impact with no regulatory requirement to make the proposed investment.

Council is currently reviewing the way that they prioritise their work programmes; the outcome of this review will be developed over the coming year to be implemented for the next Activity Management Plan update.

F.6 Developer Created Assets

Private developers generally construct new subdivisions with consent from the Council. It is very seldom that the Council itself constructs new subdivisions to service growth. Council is normally responsible for the upgrading/upsizing of existing assets to provide for increased volumes associated with growth.

Council does oversee the subdivision process, from consenting through to construction and handover to the Council. Council's engineers inspect design plans and finished works to ensure the assets meet the required standards and are in an acceptable condition to be accepted as a Council owned asset. Should any work not meet the required standards the Council will require the developer to remedy the issue prior to accepting ownership.

F.7 2012 – 2032 New Capital Works Forecast

The capital programme that has been forecast for this activity where the primary driver is classed as New Works (ie. growth or levels of service) is shown in the following figures.

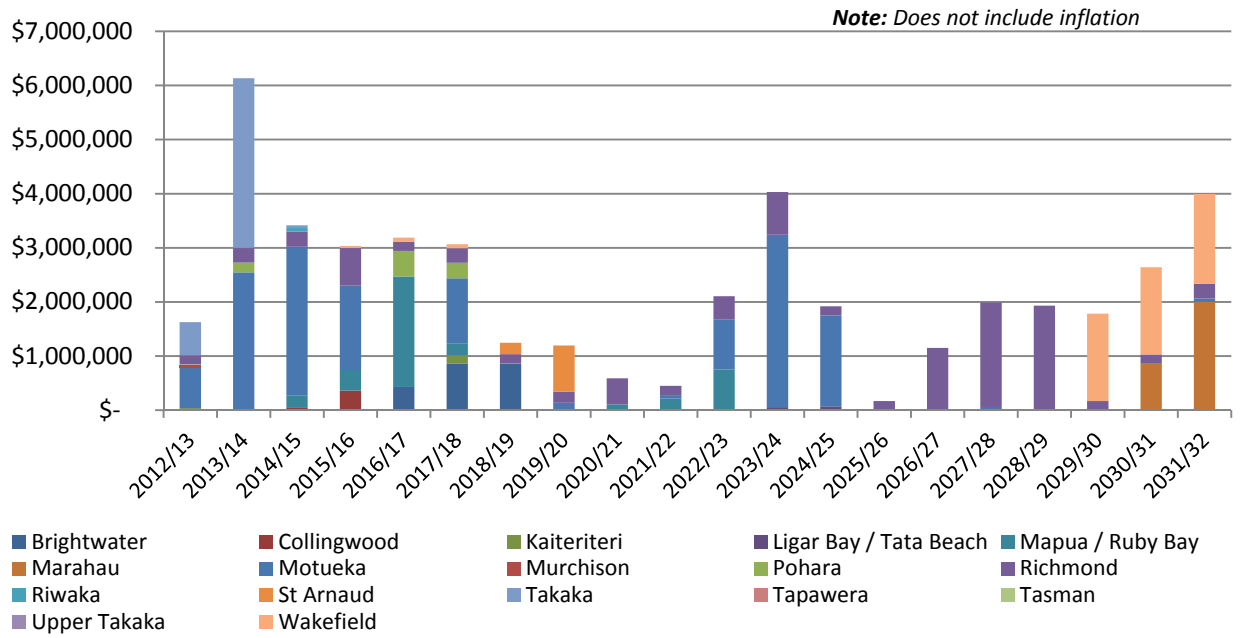


Figure F-1: 2012 – 2032 Wastewater New Capital Expenditure by Scheme

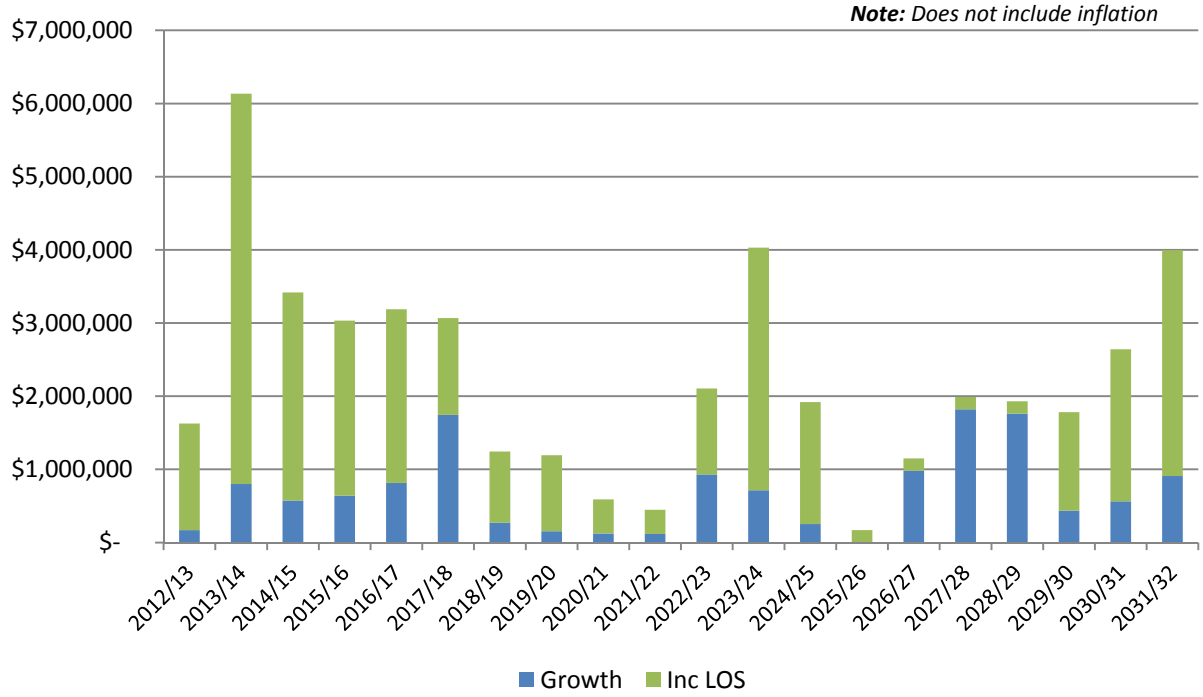
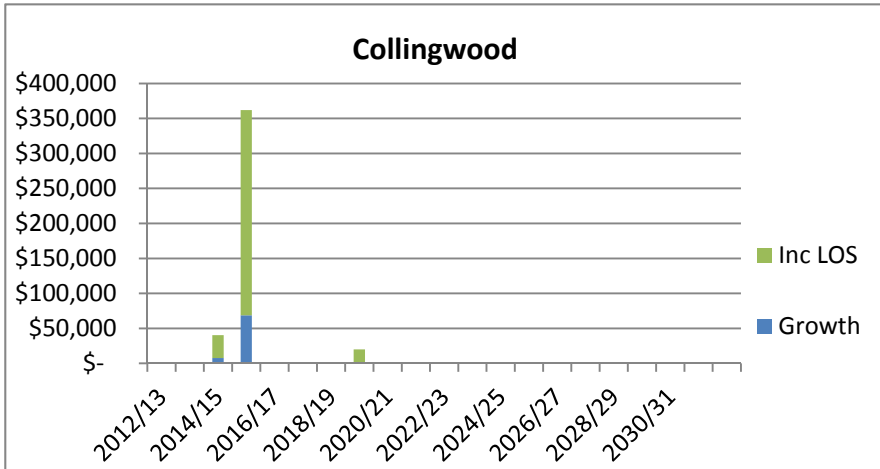
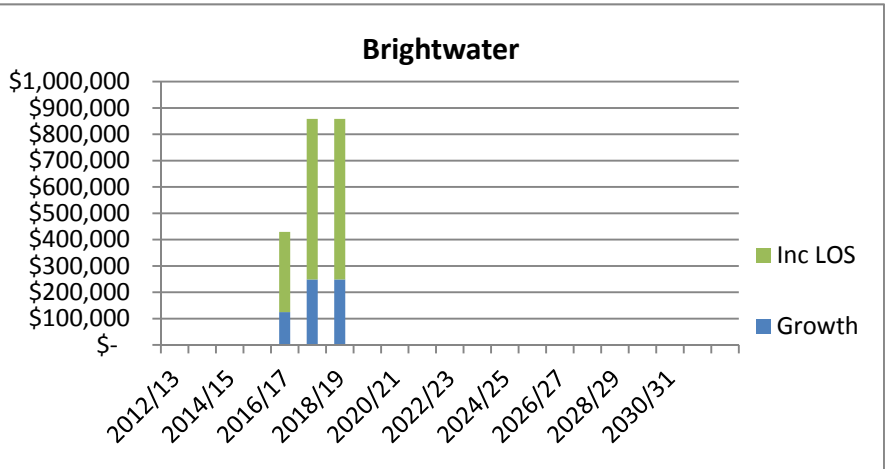


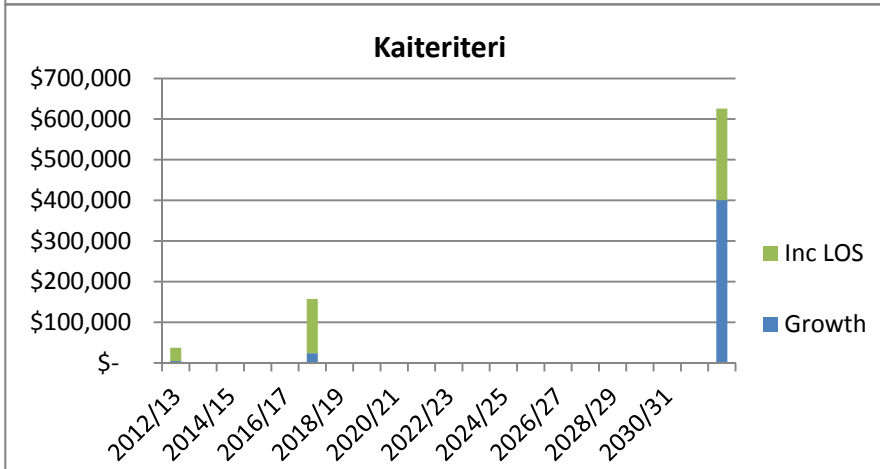
Figure F-2: 2012 – 2032 Wastewater New Capital Expenditure by Driver



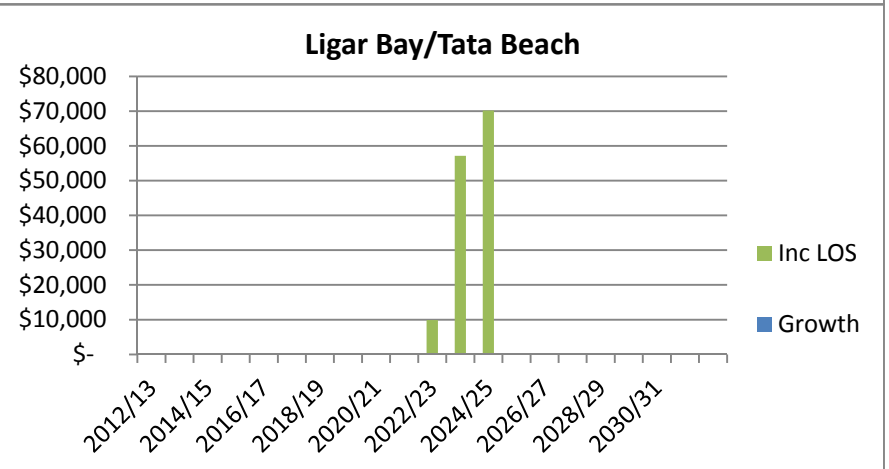
Major Capital Works:
- Upgrade to Wetlands at WWTP, yrs 2014 - 2016



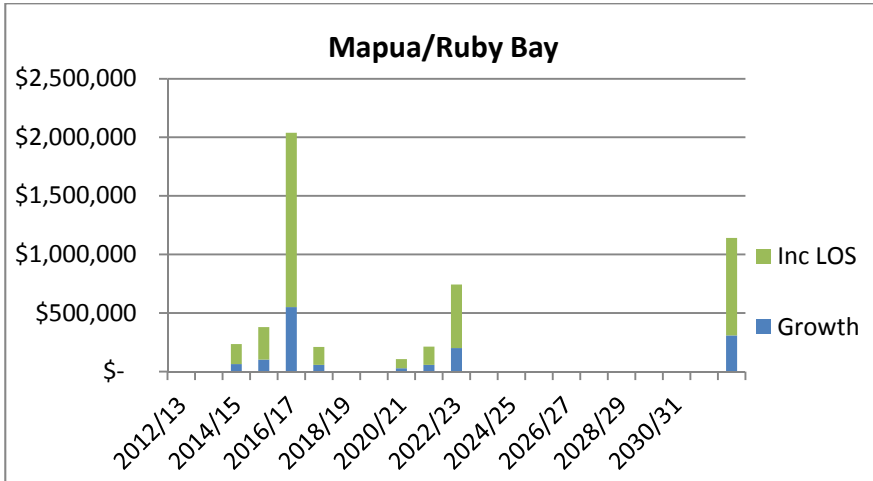
Major Capital Works:
- Brightwater to Burkes Bank PS and Main Replacement, yrs 2016 - 2019



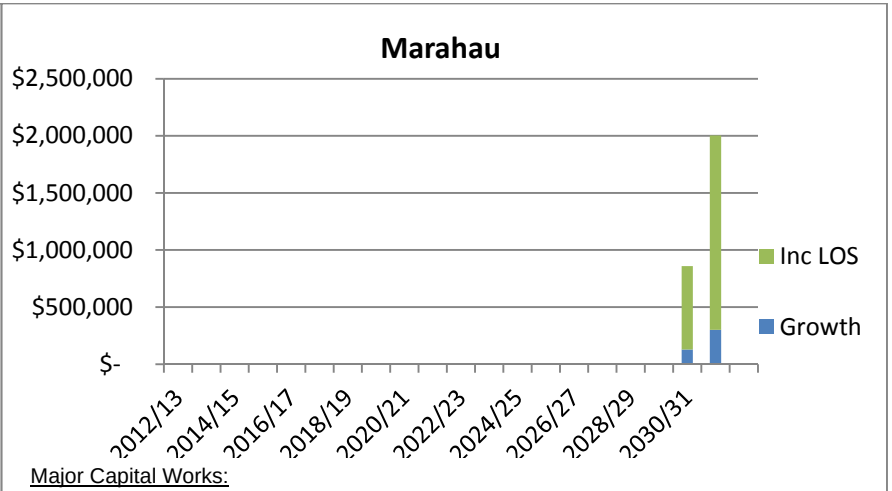
Major Capital Works:
- Martins Farm PS Upgrade, 2017/18
- Stephens Bay PS, yrs beyond 2032



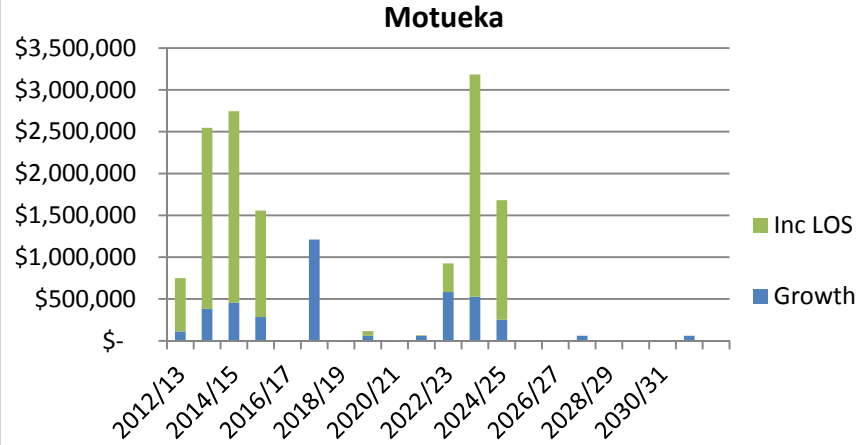
Major Capital Works:
- Ligar Bay PS and RM Upgrade, yrs 2022-2024
- Tata Beach PS and RM Upgrade, yrs 2023-2025



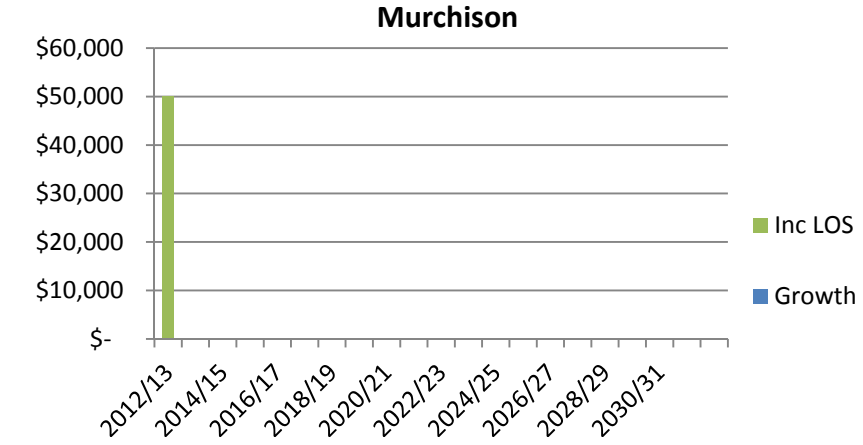
Major Capital Works:
- Mapua Sewerage Strategy, yrs 2014 - 2023
- Seaton Valley PS, yrs beyond 2032



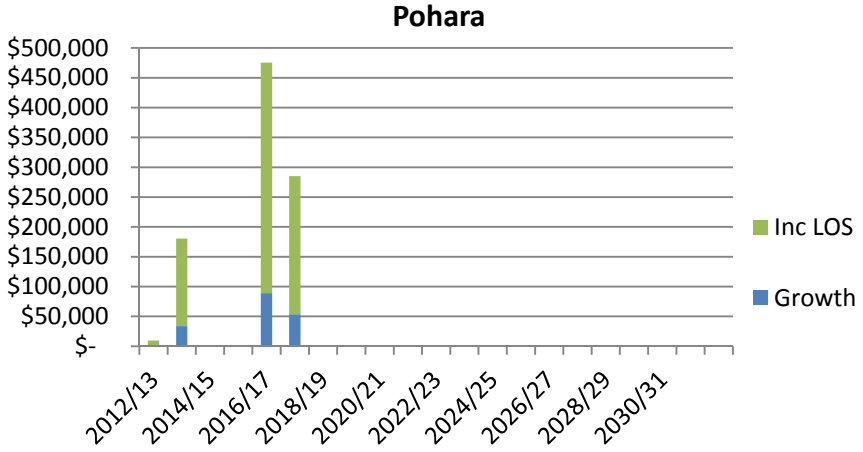
Major Capital Works:
- New WWTP and Reticulation, yrs 2030 - 2032



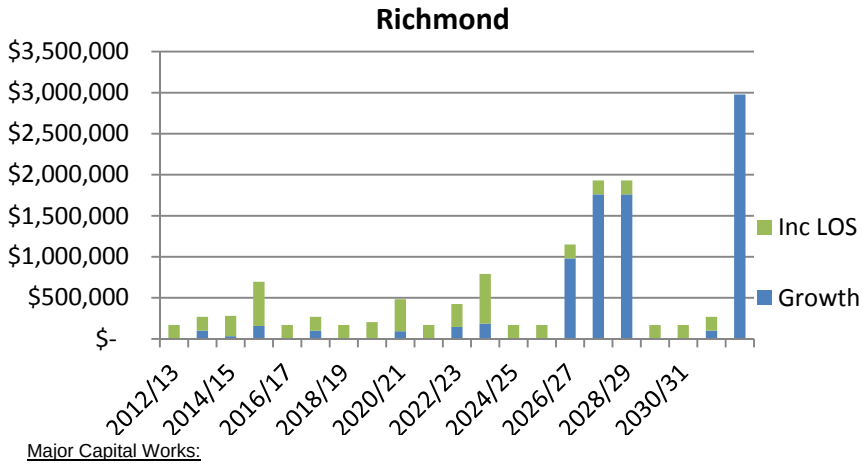
Major Capital Works:
- WWTP Upgrade, yrs 2012 - 2016
- Motueka West PS New, yrs 2017/18
- Thorp Street Pipeline upgrade, yrs



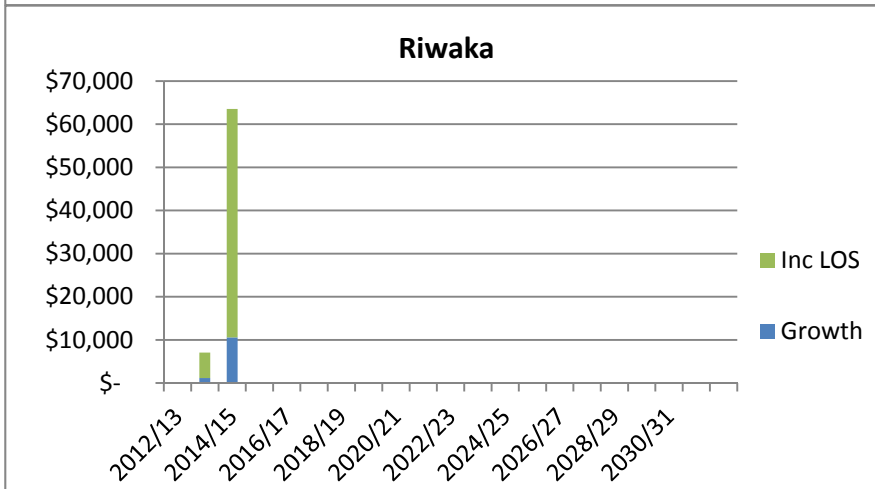
Major Capital Works:
- Mobile Generator, yrs 2012/13



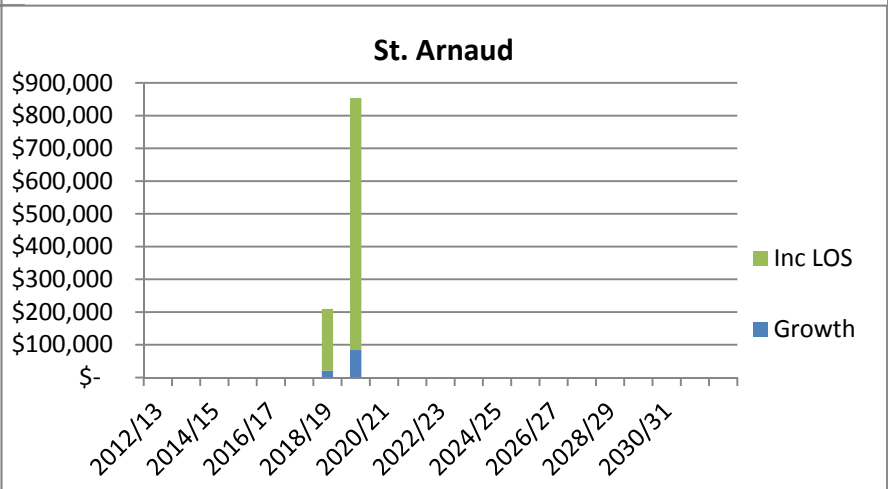
Major Capital Works:
- Pohara/Tata Beach Upgrade, yrs 2012 - 2018



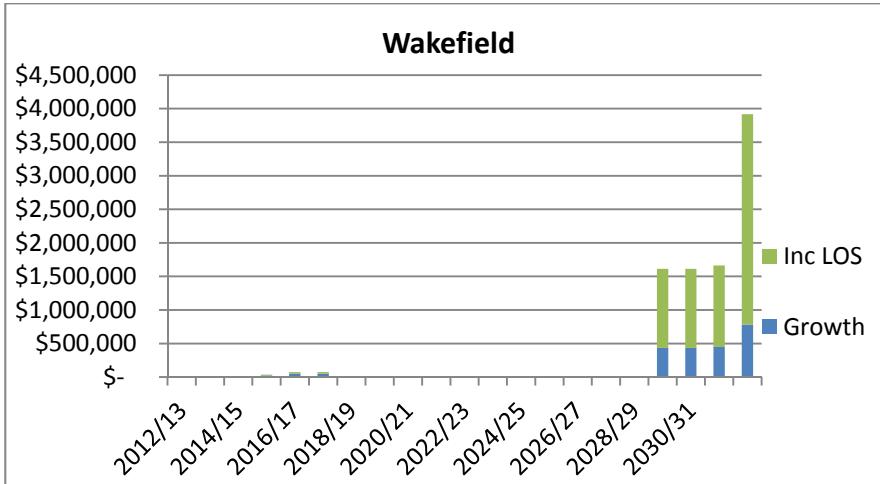
Major Capital Works:
- Burkes Bank - Hope Upgrade, yrs 2026 - 2029
- Gladstone Road Pipeline, yrs 2019 - 2021
- Oxford St Pipeline, yrs 2022 - 2024
- Queen St Pipeline, yrs 2014 - 2016
- Wensley Road, yrs 2014 - 2016
- McShane Road PS, yrs beyond 2032
- Lower Queen St PS, yrs beyond 2032



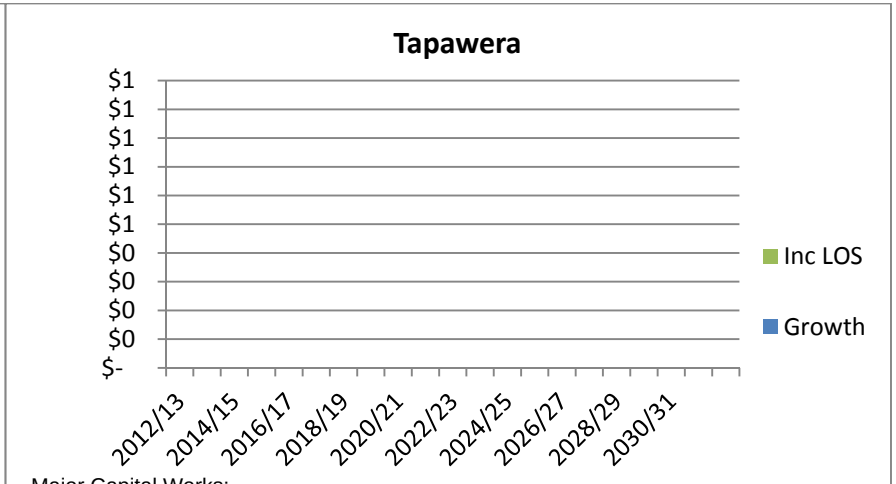
Major Capital Works:
- Motueka Bridge - Ponds, yrs 2013-2015



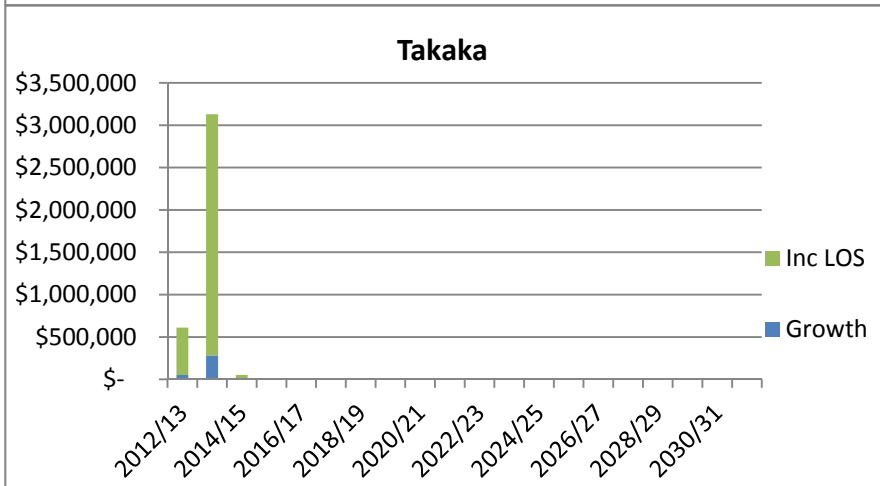
Major Capital Works:
- Rising main upgrade to WWTP, yrs 2018 - 2020



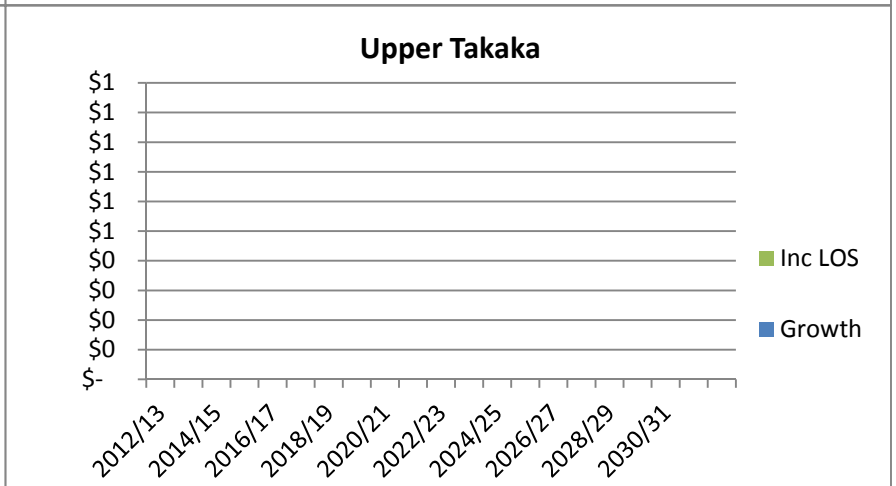
Major Capital Works:
- 88 Valley Extension, yrs beyond 2032
- Wakefield to Brightwater Trunk Main, yrs



Major Capital Works:
- None



Major Capital Works:
- WWTP Upgrade, yrs 2012 - 2015



Major Capital Works:
- None

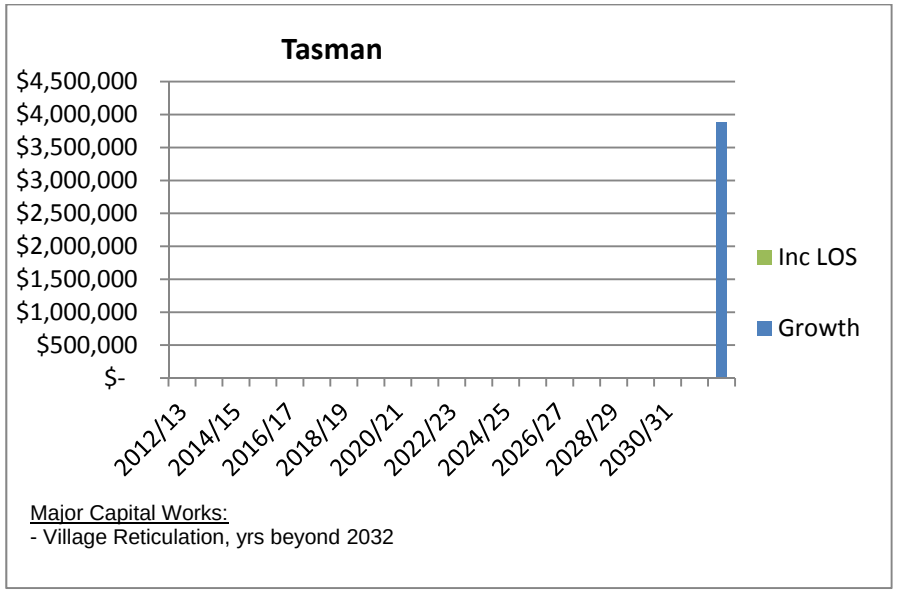


Figure F-3: 2012 – 2032 Wastewater New Capital Expenditure individual Schemes

Table F-6: 2012 – 2032 Wastewater New Capital Expenditure Forecast

Item	Scheme	Project Name	Description	GL Code	Total Project Cost	Total New Capital	2012/13 Year 1	2013/14 Year 2	2014/15 Year 3	2015/16 Year 4	2016/17 Year 5	2017/18 Year 6	2018/19 Year 7	2019/20 Year 8	2020/21 Year 9	2021/22 Year 10	2022/23 Year 11	2023/24 Year 12	2024/25 Year 13	2025/26 Year 14	2026/27 Year 15	2027/28 Year 16	2028/29 Year 17	2029/30 Year 18	2030/31 Year 19	2031/32 Year 20	Beyond Year 20
1	Brightwater	Brightwater - Burkes Bank	Brightwater Main PS & Rising Main Replacement	09256200001	$2,146,200	$2,146,200					$429,240	$858,480	$858,480													
12	Collingwood	WWTP	Improve the hydraulics of the wetlands and embankments, possibly one bed.	09266200004	$402,200	$402,200			$40,220	$361,980																
13	Collingwood	WWTP - Landscaping	Landscape planting at WWTP	09266200007	$20,000	$20,000								$20,000												
17	Kaiteriteri	Little Kaiteriteri PS	Bigger lids needed as access is poor.	09286200028	$14,500	$5,800	$5,800																			
19	Kaiteriteri	Martin Farm Road PS Upgrade	New storage tank, replace pumps & electrics	09286200009	$320,000	$188,800	$31,341					$157,459														
23	Kaiteriteri	Stephens Bay PS Upgrade	New PS, storage tank and vessel	09286200014	$625,849	$625,849																				$625,849
27	Ligar Bay / Tata Beach	Ligar Bay Upgrades	Ligar Bay PS & RM Upgrades	09626200001	$1,649,100	$49,473											$9,895	$39,578								
28	Ligar Bay / Tata Beach	Tata Beach Upgrade	Tata Beach PS & RM Upgrade	09626200002	$1,096,657	$87,733												$17,547	$70,186							
29	Mapua / Ruby Bay	Aranui Combined PS Upgrade	Upgrade PS and storage	09296200001	$1,062,198	$1,062,198									$106,220	$212,440	$743,538									
30	Mapua / Ruby Bay	Aranui-Higgs Rd PS Upgrade & Storage	PS upgrade	09296200002	$98,658	$98,658					$9,866	$88,792														
31	Mapua / Ruby Bay	Higgs Rd PS 1 Upgrade & Storage	Upgrade PS and 14m³ storage	09296200003	$154,280	$154,280			$15,428	$138,852																
37	Mapua / Ruby Bay	Ruby Bay PS Upgrade & Storage	PS upgrade and 16m³ storage	09296200010	$151,844	$151,844					$30,369	$121,475														
38	Mapua / Ruby Bay	Seaton Valley Pump Station	Construct new PS inc. gravity sewer from Seaton Valley Rd	09296200011	$1,141,022	$1,141,022																				$1,141,022
39	Mapua / Ruby Bay	Taits PS & RM Upgrade	New PS and 33m³ storage, RM upgrade	09296200012	$2,307,000	$2,307,000			$219,165	$226,086	$1,861,749															
40	Mapua / Ruby Bay	Toru St PS Upgrade & Storage	PS upgrade and storage	09296200013	$152,859	$152,859				$15,286	$137,573															
42	Marahau	Marahau Reticulation and WWTP	New reticulation system and WWTP for Marahau	09326200001	$2,861,590	$2,861,590																		$858,477	$2,003,113	
53	Motueka	Courtney Street PS Upgrade	Additional storage, biofilter and capacity	09206200015	$666,855	$666,855										$66,686	$600,170									
56	Motueka	New P.S. Motueka West	New PS and rising main from cnr of King Edwards/High St to tie in with Thorp Street	09206200021	$1,262,000	$1,262,000			$50,480			$1,211,520														
61	Motueka	Motueka WWTP Upgrade	WWTP Upgrade	09206200026	$7,488,158	$7,488,158	$748,816	$2,545,974	$2,695,737	$1,497,632																
62	Motueka	Oaks Village PS (Naumai Street) Upgrade	Replace Oaks Village PS (Naumai Street)	09206200027	$687,000	$61,830							$6,183	$55,647												
69	Motueka	Thorp Street Pipe Replacement	Replacement of main from 13 Trewavas Street PS to WWSF5168.	09206200033	$1,867,905	$1,867,905												$186,790	$1,681,114							
70	Motueka	Thorp Street Pipe Replacement	Replacement of main from WWSF5168 to Motueka WWTP	09206200032	$3,262,464	$3,262,464											$326,246	$2,936,217								
74	Murchison	Mobile Generator	Mobile generator is needed	09336200010	$50,000	$50,000	$50,000																			
84	Pohara	Pohara/Tata Beach Upgrade	Four Winds, Pohara Camp, Tarakohe, Pohara Valley PS & RM Upgrades	09626200010	$5,941,600	$950,656	$9,507	$180,625			$475,328	$285,197														
90	Richmond	Burkes Bank - Hope	Burkes Bank - 3 Brothers Corner Gravity Main	09226200002	$4,403,476	$4,403,476															$880,695	$1,761,390	$1,761,390			
92	Richmond	Gladstone Rd Pipeline Upgrade	Pipeline upgrade from WWSF2131 to WWSF2126	09226200004	$348,247	$348,247								$34,825	$313,422											
93	Richmond	Growth allowance for pipelines	Growth allowance for pipelines	09226200018	$500,000	$500,000		$100,000				$100,000					$100,000				$100,000				$100,000	
95	Richmond	Lower Queen St PS	Construct new PS	09226200005	$1,369,534	$1,369,534																				$1,369,534
96	Richmond	McShane Rd PS	Construct new PS	09226200006	$1,609,054	$1,609,054																				$1,609,054
97	Richmond	Oxford St Pipeline Upgrade	Pipeline upgrade	09226200007	$776,983	$776,983											$155,397	$621,586								
98	Richmond	Queen St Pipeline Upgrade	202-230 Queen St pipeline upgrade	09226200008	$163,000	$163,000			$16,300	$146,700																
101	Richmond	Wensley Rd Pipeline Upgrade	Pipeline upgrade between WWSF1709 and WWSF1708	09226200012	$474,900	$474,900			$94,980	$379,920																
105	Riwaka	Motueka Bridge - Motueka Ponds	Motueka Bridge - Motueka Ponds Rising Main	09286200022	$588,400	$70,608		$7,061	$63,547																	
111	St Arnaud	Risingmain Upgrade to WWTP	Replace 140mm PN4 with PN12 rising main	09556200003	$1,048,307	$1,048,307							$209,661	$838,646												
113	St Arnaud	St Arnaud WWTP	A valve at the inlet screen is needed as well as a flow meter	09556200016	$15,000	$15,000								$15,000												
119	Takaka	Mobile Generator	Mobile generator required	09246200013	$50,000	$50,000	$50,000																			
128	Takaka	Takaka WWTP Upgrade	Full Upgrade	09246200011	$3,744,899	$3,744,899	$561,735	$3,130,736	$52,429																	
132	Tasman	Tasman Village Wastewater Reticulation	Tasman Village Wastewater Reticulation	09316200001	$3,883,441	$3,883,441																				$3,883,441
134	Wakefield	88 Valley Extension	Reticulate 88 Valley	09376200001	$3,917,088	$3,917,088																				$3,917,088
135	Wakefield	Pipeline Easement	Easement of Trunkmain from Wakefield to Richmond	09376200005	$250,000	$187,500				$37,500	$75,000	$75,000														
137	Wakefield	Wakefield to Brightwater Trunk Main	Replace Wakefield to Brightwater Trunk Main	09376200004	$4,888,443	$4,888,443																		$1,613,186	$1,613,186	$1,662,071
138	Motueka	Growth Allowance	Allowance for Pipeline upgrades due to growth	09206200052	$300,000	$300,000				$60,000				$60,000				$60,000				$60,000			$60,000	
139	Richmond	Telemetry	Installing Telemetry at sites and renewal existing sites	09226200020	$4,512,000	$3,384,000	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	$169,200	
				TOTALS	$91,289,999.20	$58,199,851.60	$1,626,398	$6,133,595	$3,417,486	$3,033,155	$3,188,325	$3,067,123	$1,243,524	$1,193,317	$588,842	$448,325	$2,104,445	$4,030,919	$1,920,500	$169,200	$1,149,895	$1,990,590	$1,930,590	$1,782,386	$2,640,863	$3,994,383	$12,545,989

Note: Does not include inflation

APPENDIX G. DEVELOPMENT CONTRIBUTIONS / FINANCIAL CONTRIBUTIONS

Information on Council's Development Contribution Policy can be found in Part 5 of the Long Term Plan (LTP). The Policy is adopted in conjunction with the LTP and will come into effect on 1 July 2012.

The Policy sets out the development contributions payable by developers, how and when they are to be calculated and paid, and a summary of the methodology and rationale used in calculating the level of contributions.

The key purpose of the Development Contribution Policy is to ensure that growth, and the cost of infrastructure to meet that growth, is funded by those who cause the need for and the benefit from the new or additional infrastructure, or infrastructure of increased capacity.

There is one Wastewater Development Contribution in place (as shown in Table G-1below).

Table G-1: Current Development Contributions

Activity	Development Contribution per HUD $ (incl GST)*
Water	$6,596
Wastewater	$8,118
Transportation	$894
Stormwater	$5,149
TOTAL	$20,756

HUD = Household Unit of Demand

* The value of the Development Contribution shall be adjusted on 1 July each calendar year using the annual change in the Construction Cost Index.

A forecast of the income from Wastewater Development Contributions expected over the 10 year period of the Long Term Plan has been prepared by Council's Corporate Services based on the forecast residential and business growth projections of the Growth Demand and Supply Model (GDSM – refer Appendix F). The forecast income is included as a line item in the Cost of Service Statement included in Appendix L.

APPENDIX H. RESOURCE CONSENTS AND PROPERTY DESIGNATIONS

H.1 Introduction

The statutory framework defining what activities require resource consent is the Resource Management Act (RMA) 1991. The RMA deals with:

- the control of the use of land
- structures and works in river beds and in the coastal marine area
- the control of the taking, use, damming and diversion of water, and the control of the quantity, level and flow of water in any water body, including:
    - the setting of any maximum or minimum levels or flows of water
    - the control of the range, or rate of change, of levels or flows of water.
- the control of discharges or contaminants into water and discharges of water into water.

The RMA is administered locally by Tasman District Council, a Unitary Authority, through the Tasman Resource Management Plan (TRMP) which sets out Policies, Objectives and Rules controlling activities to ensure they meet the Purpose and Principles of the RMA.

A very important aspect of the wastewater activity is to ensure that any discharge of contaminants to the district's land, air and natural water resources is managed responsibly.

Council's wastewater reticulation and treatment plants have an essential role in ensuring that wastewater produced in urban areas is properly collected, treated and disposed of in ways that meet community and cultural expectations and avoid causing significant adverse effects on the environment.

Under the RMA and TRMP, resource consents in the form of discharge permits are required for all discharges of treated wastewater and odours associated with wastewater activities. Other resource consents may also be required for installation and operation of wastewater infrastructure (eg. pipelines across rivers and streams, and in coastal areas, monitoring or water supply bores for wastewater activities).

Council has designated most of the WWTP sites, which is an alternative way provided for in the RMA of authorising the land use aspects of public works. Outline plans are usually required to be prepared prior to the installation of wastewater facilities on designated sites.

Generally Council holds resource consents or designations for its wastewater activities to the extent required by the RMA and current rules in the TRMP. For some wastewater infrastructure installed prior to the RMA being enacted in 1991, such as pipelines across rivers and streams and seabed, previous authorisations are relied on.

Environmental and treatment plant performance monitoring is required by many of the treatment plant discharge consents. Limits and standards also apply to most discharges. This information is held by Council in consent registers, System Operating Plans, and monitoring programmes which are updated as necessary.

Short-term consents are required from time to time for construction activities including:

- the installation of bores for monitoring wells or water sources at pump stations
- dewatering of groundwater during construction
- discharge of water containing contaminants from dewatering to land or other water ways.

H.2 Schedule of Resource Consents

The number and type of resource consents relating to wastewater assets has increased significantly over recent years so a database (NM2) has been developed. NM2 includes a register of all resource consents, active or expired, associated with Council's wastewater systems. NM2 holds electronic copies of the consents and actions are loaded into the database so they can be tracked and completed.

NM2 allows the accurate programming of all actions required by the consents including renewal prior to consent expiry.

A summary of the active resource consents held for the Council's wastewater networks is provided in Table H-1. As the TRMP is a living document and subject to change, the list is only accurate at the time of compilation (September 2011).

Table H-1: Wastewater Register of Resource Consents for WWTPs

Scheme	Consent Number	Consent Type	Granted	Expiry Date
Collingwood	RM080703	Discharge to water	27 July 2009	1 Jul 2034
	RM080704	Land use (creek bed)	27 July 2009	1 Jul 2034
	RM070652V1	Discharge to air (odour)	14 Jan 2008	6 Dec 2019
Mapua	RM090462	Land use (structure within 100m of Mean High Water Spring)	27 Oct 2009	unlimited
	RM090461	Land use (construct pipeline in open space zone)	27 Oct 2009	unlimited
	RM090459	Coastal permit to occupy	27 Oct 2009	27 Oct 2029[3]
	RM090460	Coastal permit to disturb Coastal Marine Area	27 Oct 2009	27 Oct 2029[3]
	RM090455	Land use (archaeological area)	27 Oct 2009	27 Oct 2029[3]
	RM090328	Discharge permit	27 Oct 2009	27 Oct 2029[3]
	RM090458	Land use works exceeding 1000m²)	27 Oct 2009	27 Oct 2029[3]
Motueka	880460	Discharge into land (soakage)	20 March 1989	20 Mar 2009[2]
	RM041050	Land disturbance (earthworks)	17 Jan 2005	20 Mar 2009
	NN010307C	Coastal Permit (Tapu Bay pipe)		1 Oct 2018
	NN010406L	Land use (Riwaka River bed)		1 Oct 2018
	NN010407L	Land use (Tapu Bay pipe)		1 Oct 2018
Murchison	RM050617V3	Discharge into land	2 March 2011	2 Jun 2041
	RM050618	Discharge to air (odour)		2 Jun 2041
	RM050811	Land use (earthworks)		2 Jun 2041
	RM050843	Discharge to air (desludging)	6 Mar 2006	9 Feb 2041
Pohara	RM090560	Take Groundwater – water supply	13 Nov 2009	13 Nov 2014
St Arnaud	NN980167D	Discharge into land	24 Aug 1998	24 Aug 2013
	NN980144	Land use (WWTP site and reticulation stream crossings)		
	NN980118D	Discharge to air (odour)		
Takaka	NN960204	Discharge into land (soakage)	12 May 1999	31 Aug 2008[1]
	RM071078V1	Discharge to air (desludging)	14 Jan 2008	6 Dec 2042
	RM041177	Land use- structure in bed of a river (wastewater pipe)	28 Oct 2004	28 Oct 2038
	RM110484	Construction of trial rapid infiltration basin	14 Jul 2011	28 Jun 2012
	RM110485	Discharge of treated wastewater to land		
	RM110492	Discharge to air (odour)		

Scheme	Consent Number	Consent Type	Granted	Expiry Date
	RM110493	Construct new monitoring bores		
	RM071184V1	Water take (WWTP use)	28 Apr 2008	28 Apr 2014
	RM071185V2	Discharge (WWTP use)	28 Apr 2008	28 Apr 2014
Tapawera	RM050391	Discharge to land (soakage)	12 Feb 2008	31 Jul 2042
	RM070634	Discharge to air (odour)	12 Feb 2008	31 Jul 2042
Upper Takaka	RM010258V3	Discharge onto land	1 Aug 2007	11 Jul 2042
	RM070404	Discharge to air (odour)	1 Aug 2007	11 Jul 2042

Notes to Table H-1:

1. An application for new discharge permits for the Takaka WWTP was lodged in February 2008.
2. An application for new discharge permits for the Motueka WWTP was lodged in December 2008.
3. Consents were for the new rising main from Rabbit Island to Bell Island. This work has been completed.

Where permits for discharges, water or coastal activities, or consents for river beds are required, the RMA restricts those consents to a maximum term of 35 years only. Hence there needs to be an on-going programme of "consent renewals" for those components of Council's wastewater systems, as well as a monitoring programme for compliance with the conditions of permitted activities or resource consents.

Council will ensure the use of processes/programming for lodging applications for new consents will be achieved in plenty of time before the existing consents expire; and for monitoring and reporting the Council's actual performance against the relevant conditions of each consent. Many of the discharge permits have reporting requirements that will be adhered to.

Council has developed a full and comprehensive reporting programme covering all consents.

Council has invested in a programme, Samplyzer, which is used by Council staff and their consultant to produce chain of custody forms for all wastewater monitoring. This allows Council, the operation and maintenance contractor, Council's consultants, and Cawthron Institute to all use the same sample identifiers. Samplyzer also allows the automated input of monitoring data direct from Cawthron's electronic laboratory reports into Hilltop, Council's database for storing monitoring data.

Hilltop can be viewed by Council staff and Council's consultants. While this database has the ability to store data it has not proven useful for viewing, managing, or manipulating data. Council's consultants continue to maintain a duplicate set of all monitoring data and use alternative software for managing the data.

H.3 Resource Consent Reporting and Monitoring

Council aims to achieve minimum compliance with all consents and / or operating conditions. The achievement of wastewater activities to meet consent requirements is reported on in a number of different ways as detailed below.

H.3.1. Environmental Reporting and Monitoring

Environmental monitoring conditions are reported on quarterly, six monthly and / or annual as determined by the consent conditions. Any non-compliance incidents are recorded, notified to Council's Compliance Officer, and mitigation measures put in place to minimise any potential impacts.

H.3.2. NM2

MWH New Zealand Ltd has developed a database (NM2) of all refuse, roading, stormwater, water, and wastewater resource consents. The management of this database allows the accurate programming of all actions required by the consents including renewal prior to consent expiry. NM2 is actively updated to ensure all consent conditions are complied with and that all relevant reporting requirements are adhered to.

H.3.3. KPI Inspections

Monthly site inspections are undertaken by MWH New Zealand Ltd at each site as part of C688. During these site investigations the performance of the contractor and the general compliance of the site is measured against a number of Key Performance Indicators (KPI's). These assessments are provided to Council on a monthly basis.

H.3.4. Council Annual Report

The extent to which the Council has been able to meet all of the conditions of each permit is reported in its Annual Report each year.

A summary of how Council is performing against this Level of service is also provided in Appendix R.

H.3.5. State of the Environment Report

As part of its obligations under the RMA, the Council monitors the state of surface water quality and river health at sites throughout the district.

A report titled *River Water Quality in Tasman District 2010* was jointly produced by the Cawthron Institute (Report Ref. 1893) and Tasman District Council (Report Ref. R10001). This report is also available on the Council's website (www.tasman.govt.nz).

H.4 Property Designations

Council has designations for all WWTP sites, except for the one at St Arnaud. The other six WWTPs and two sewer pump stations at Richmond and Brightwater are all designated for "sewerage disposal purposes" in the TRMP, Appendix 1. The explanation for designating the sites is that they form essential elements for the sewage disposal systems. The nature of the facilities, as described in the TRMP, as.

- Sewer pump station sites consist of an in-ground concrete well finishing flush with ground surface with access hatches and above-ground vents and electrical control cabinets. The main Brightwater site also contains an equipment shed.
- Sewage treatment pond sites contain oxidation ponds varying in size from 0.3 ha to 5.3 ha with some sites also containing aeration ponds and soakage beds or marsh cells for disposal of effluent.

A site has been designated at Patons Rock for a future WWTP for that locality. In April 2008 Council issued proposed designations for two pump stations and sewer mains required to serve the Richmond West Development Area.

All of Council's designations associated with the wastewater systems are summarised in Table H-2 below.

Table H-2: Summary of Wastewater Designations

ID	Location of Site	Site Name	Area	Effective From	Expiry Date
D176	121 Beach Road, Richmond	Beach Road Pump Station and Tanks	0.240 ha		
D177	Tapawera-Glenhope Road	Tapawera Sewage Treatment Pond	2.2027 ha	1 Nov 2008	1 Nov 2013
		RM070699 Outline Plan			Unlimited
D178	SH 6, Murchison	Murchison Sewage Treatment Pond	4.70 ha	1 Nov 2008	1 Nov 2013
D179	Thorp Street, Motueka	Motueka Sewage Treatment Pond	60.7028 ha	1 Nov 2008	1 Nov 2013
D180*	Haldane Road, Takaka	Takaka Sewage Treatment Pond	7.9677 ha	1 Nov 2008	1 Nov 2013

ID	Location of Site	Site Name	Area	Effective From	Expiry Date
D181	Collingwood/Bainham Road	Collingwood Sewage Treatment Pond	1.70 ha	1 Nov 2008	1 Nov 2013
D182	Patons Rock	Future Sewage Treatment Pond	0.490ha	1 Nov 2008	1 Nov 2013
D203	3 Spencer Place, Brightwater	Brightwater Main Sewer Pump Station	0.0450 ha	1 Nov 2008	1 Nov 2013
D204	SH 60, Upper Takaka	Upper Takaka Sewage Treatment Pond	0.2788 ha	1 Nov 2008	1 Nov 2013
D243	Headingly Lane, Richmond	Wastewater pipemain	0.216ha	28 Sep 2009	28 Sep 2029
D244	Lower Queen Street and McShane Road, Richmond	Wastewater disposal	1.03ha	28 Sep 2009	28 Sep 2029

** An Outline Plan and alteration to D180 are pending for the proposed upgrade of the Takaka WWTP.*

It is not always necessary to retain the designations for sites where wastewater facilities have been developed, unless there is a likelihood of future expansion or other upgrades being required. Alterations to some designation boundaries may be required, and outline plans prepared for proposed new works on the designated sites. Also, designations do not negate the on-going need for regional resource consents (eg. discharge permits) for existing facilities or future upgrades, as outlined in Section H.2 above.

APPENDIX I. CAPITAL REQUIREMENTS FOR FUTURE RENEWALS

I.1 Introduction

Renewal expenditure is major work that does not increase the asset's 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.

I.2 Renewal Strategy

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.

- 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 activities – 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.

I.3 Delivery of Renewals

A rolling programme of CCTV investigation is currently in place, progressing through each catchment. It targets lengths of main for investigation based on the age and known problems. Prioritisation of the renewal programme takes into account the results from the CCTV investigations, but also considers the linkages with other activity programmes (eg. roading). This allows a set programme of renewals to be carried out in the following financial year.

The renewal of assets including all the mechanical, electrical, and small scale civil renewal works were identified from the Asset Valuations. The assets and associated timings and costs were transferred into the AMPs. To smooth the expenditure profile the timing of some of these assets have been deferred and grouped together in a logical manner, to minimise the cost of the renewal. Prior to the asset being renewed, the operations and maintenance contractor will inspect these assets to confirm whether renewal is actually necessary. In the event it does not need to be renewed, a recommended date of renewal is then inputted back into Confirm. This new date will then be included in the next AMP update.

The Council are considering using a new purpose built asset and data management system which aims to improve the decision making process when identifying renewals. This GIS based system will use information from the overarching data management system Confirm, CCTV data and a variety of other sources to assist with the decision making process.

I.4 Renewal Standards

The work to be performed and materials to be used shall comply with the current Council Engineering Standards and Policies.

I.5 Deferred Renewals

Deferred renewals is the shortfall in renewals required to maintain the service potential of the assets. This can include:

- renewal work that is scheduled but not performed when it should have been and which has been put off for a later date (this can often be due to cost and affordability reasons)
- an overall lack of investment in renewals that allows the asset to be consumed or run-down, causing increasing maintenance and replacement expenditure for future communities.

MWH have prepared a draft renewals strategy for Council which is summarised below. For further information refer to Tasman District Wastewater Pipeline Renewals Strategy Draft Report – October 2011.

I.5.1. Assessment of Deferred Renewals

Figure I – 1 shows a comparison of the amount being spent on renewals with the amount of depreciation recognised annually. If the renewals expenditure starts falling behind the accumulative depreciation then the asset are not being replaced or renewed at the rate at which they are being consumed. If this continues unchecked for too long, future communities will inherit a run-down asset, high maintenance costs and high capital costs to renew failing infrastructure.

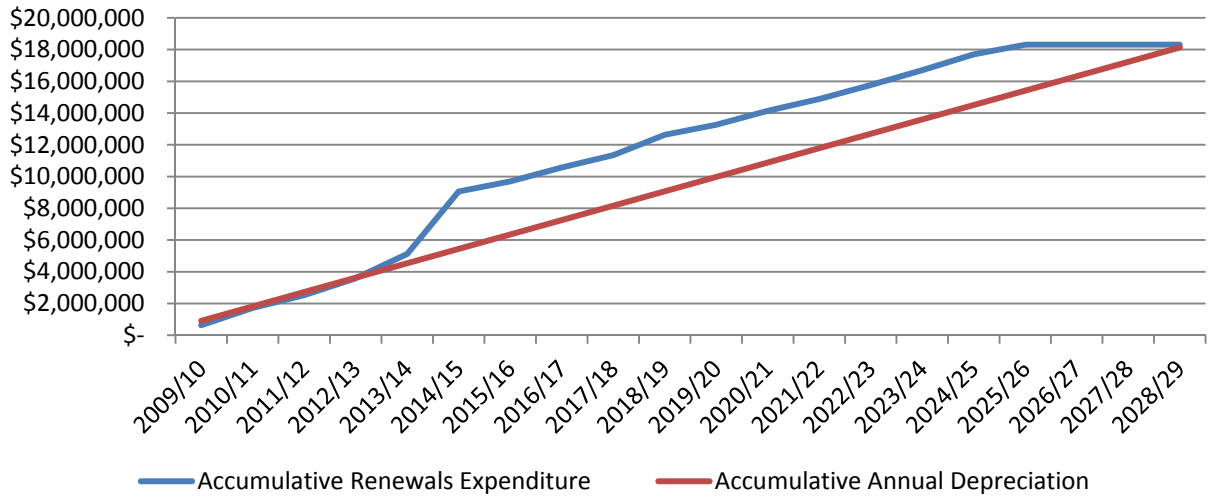


Figure I-1: Comparison of Accumulative Renewals Expenditure vs Annual Depreciation

Figure I-1 shows Council is investing in renewals at a rate that matches depreciation so the asset is not being consumed.

I.5.2. Management and Mitigation of Renewals

To improve the information base for the renewals strategy and replacement programme, Council should focus on the following improvements:

- Updating their wastewater asset valuation, using the more up-to-date and complete database in confirm and more critically assessing remaining life of pipelines with known condition problems – especially in the light of the increasing database of CCTV imagery.

- Capturing asset data to reduce the amount of pipelines that have “Unknown” construction material.
- Using a risk based approach to identifying pipeline replacement programmes.
- Improving condition knowledge of some of the “high risk” pipelines, especially to identify:
    - o Asset condition may be worse than expected
    - o Situations where remaining life is under-estimated.

Some of the particular areas where Council need to improve their knowledge include:

- inspecting the AC and Earthenware pipelines in Richmond to assess remaining life and whether the pipelines will reliably provide the 60 years of service life
- inspecting the pre-1960 concrete pipelines in Richmond to assess remaining life and whether the pipelines will reliably provide another 30 or so years of service life
- reflecting on the outcomes of CCTV inspections in Motueka and associated replacement and rehabilitation work that has been done, and determine the preferred on-going strategy for replacing or renewing pipelines
- inspecting the AC in Tapawera to assess remaining life and whether the pipelines will reliably provide the 60 years of service life
- inspecting the PVC gravity pipelines in Takaka to assess remaining life and whether the pipelines will reliably provide the 80 years of service life
- reviewing remaining life assessments where it is known replacements are planned – eg. Kaiteriteri to Motueka pressure main, Pohara rising mains.

I.6 2012 – 2032 Wastewater Renewal Expenditure

Figure I-2 shows a summary of the expenditure forecast for renewals over the next 20 years. The expenditure is detailed scheme by scheme. The spreadsheets at the end of this appendix provides a total breakdown of the Expenditure Forecast for Renewals over the next 20 years.

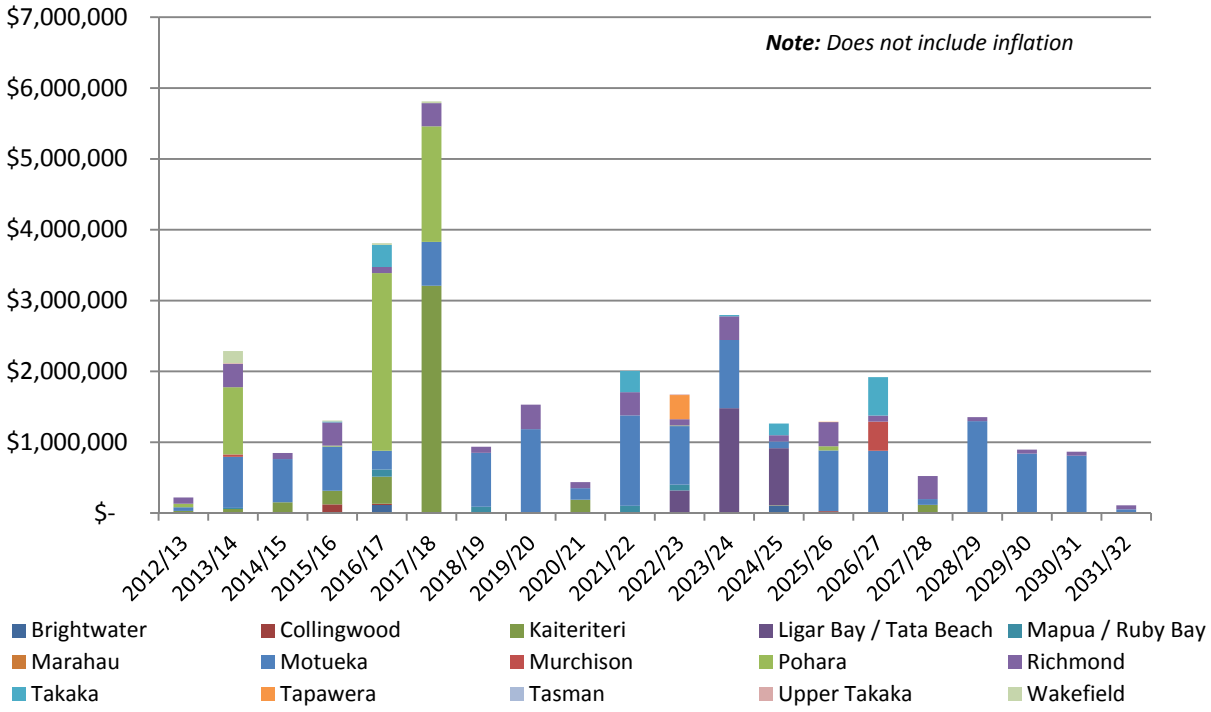


Figure I-2: 2012 – 2032 Wastewater Renewal Expenditure Forecast

Table I-1: 2012 – 2032 Wastewater Renewals Expenditure Forecast

Item	Scheme	Project Name	Description	GL Code	Total Project Cost	Total Renewals	2012/13 Year 1	2013/14 Year 2	2014/15 Year 3	2015/16 Year 4	2016/17 Year 5	2017/18 Year 6	2018/19 Year 7	2019/20 Year 8	2020/21 Year 9	2021/22 Year 10	2022/23 Year 11	2023/24 Year 12	2024/25 Year 13	2025/26 Year 14	2026/27 Year 15	2027/28 Year 16	2028/29 Year 17	2029/30 Year 18	2030/31 Year 19	2031/32 Year 20	Beyond Year 20
5	Brightwater	Bryant Road PS	Renewal of Pumps and Electrics	09256200003	$19,468	$19,468		$2,842												$16,626							
6	Brightwater	Malthouse Crescent Sewer PS	Renewal of Pump	09256200004	$13,546	$13,546						$13,546															
7	Brightwater	Pipeline Renewals	Pipeline Renewals	09256200005	$203,000	$203,000					$101,500								$101,500								
8	Brightwater	Waimea West Road Sewer PS	Renewal of Pump	09256200008	$11,098	$11,098					$11,098																
9	Collingwood	Beach Road Sewer PS	Renewal of Pumps	09266200002	$19,766	$19,766					$19,766																
10	Collingwood	Collingwood WWTP	Renewal of UV, Flowmeter, Pumps, UV Chamber	09266200003	$113,210	$113,210				$103,361										$9,849							
11	Collingwood	Motels PS	Renewal of Pumps	09266200005	$19,766	$19,766				$19,766																	
15	Kaiteriteri	Breaker Bay PS Upgrade	Renewal of Pumps	09286200002	$3,937	$3,937															$3,937						
16	Kaiteriteri	Honeymoon Bay Sewer PS	Renewal of Pumps	09286200027	$16,094	$16,094		$16,094																			
17	Kaiteriteri	Little Kaiteriteri PS	Bigger lids needed as access is poor.	09286200028	$14,500	$8,700	$8,700																				
18	Kaiteriteri	Little Kaiteriteri PS Pumps	Renewal of Pumps	09286200005	$25,753	$25,753									$25,753												
19	Kaiteriteri	Martin Farm Road PS Upgrade	New storage tank, replace pumps & electrics	09286200009	$320,000	$131,200	$21,779					$109,421															
21	Kaiteriteri	Pipeline Renewals	Renewal of Pipelines	09286200029	$116,436	$116,436																$116,436					
22	Kaiteriteri	Rising main through Girvins	Replace RM through Girvins	09286200012	$132,356	$132,356									$132,356												
24	Kaiteriteri	Stephens Bay PS	Renewal of Pumps	09286200030	$30,428	$30,428									$30,428												
25	Kaiteriteri	Tapu Bay Pipeline	Replace estuary pipeline with land based pipeline	09286200015	$3,812,200	$3,812,200		$38,122	$152,488	$190,610	$381,220	$3,049,760															
26	Kaiteriteri	Tapu Bay PS	Renewal of Flowmeter, Pumps	09286200031	$42,805	$42,805						$35,699							$7,106								
27	Ligar Bay / Tata Beac	Ligar Bay Upgrades	Ligar Bay PS & RM Upgrades	09626200001	$1,649,100	$1,599,627											$319,925	$1,279,702									
28	Ligar Bay / Tata Beac	Tata Beach Upgrade	Tata Beach PS & RM Upgrade	09626200002	$1,096,657	$1,008,924												$201,785	$807,139								
32	Mapua / Ruby Bay	Higgs Rd PS 2 Upgrade	Replace pumps & electrics	09296200004	$44,292	$44,292							$44,292														
33	Mapua / Ruby Bay	Higgs Rd PS 3 Upgrade	Replace pumps & electrics	09296200005	$44,292	$44,292							$44,292														
34	Mapua / Ruby Bay	Leisure Park PS Upgrade	Replace pumps, multitrode, electrics & telemetry	09296200007	$79,535	$79,535											$79,535										
36	Mapua / Ruby Bay	Mapua/Ruby Bay Pipeline Renewa	Pipeline Renewals	09296200009	$203,000	$203,000					$101,500					$101,500											
41	Mapua / Ruby Bay	Warren Place Sewer PS	Renewal of Pumps	09296200019	$14,845	$14,845		$14,845																			
44	Motueka	13 Trewavas St PS (Price) Upgrad	Relocate PS & install telemetry	09206200002	$825,906	$825,906							$82,591		$82,591	$660,724											
45	Motueka	217 Thorp Street PS (Bensemann)	Renewal of Pumps	09206200043	$19,766	$19,766																$19,766					
46	Motueka	45 Trewavas Street Sewer PS	Renewal of Pumps	09206200004	$12,248	$12,248								$12,248													
47	Motueka	81 Thorp St PS (Teece) Covers	Replace PS and valve chamber covers	09206200007	$14,500	$14,500					$14,500																
48	Motueka	81 Thorp Street Sewer PS (Teece)	Renewal of Pumps, valves and miscellaneous items	09206200008	$102,301	$102,301					$58,618								$43,683								
50	Motueka	86 Trewavas Street Sewer PS	Renewal of Pumps	09206200009	$28,917	$28,917														$28,917							
51	Motueka	Atkins Street Sewer PS	Renewal of Pumps	09206200044	$12,248	$12,248						$12,248															
52	Motueka	Beachfront Sewer PS	Renewal of Pumps	09206200045	$12,248	$12,248									$12,248												
54	Motueka	Everett Street Sewer PS	Renewal of Pumps	09206200017	$16,691	$16,691		$7,942														$8,749					
55	Motueka	Flushing Tanks Renewal	Renewal of Flushing Tanks	09206200046	$98,861	$98,861					$98,861																
57	Motueka	Ledger Goodman Park Sewer PS	Renewal of PS and AC filter	09206200019	$157,511	$157,511							$7,876					$92,774					$56,861				
58	Motueka	Manhole Renewal	Renewal of Manholes	09206200047	$411,532	$411,532																	$411,532				
59	Motueka	Motueka Isolation Valve	Replace valve	09206200048	$40,300	$40,300					$40,300																
60	Motueka	Motueka Quay PS Upgrade	Renewal of Pumps	09206200022	$15,011	$15,011				$15,011																	
62	Motueka	Oaks Village PS (Naumai Street) U	Replace Oaks Village PS (Naumai Street)	09206200027	$687,000	$625,170							$62,517	$562,653													
63	Motueka	Pethybridge Street Sewer PS	Renewal of PS, Pumps, Valves	09206200049	$68,152	$68,152		$20,191													$47,961						
64	Motueka	Pipeline Renewals and Manholes	Pipeline Renewals	09206200028	$10,353,000	$10,353,000	$51,765	$610,827	$608,756	$608,756	$51,765	$608,756	$608,756	$608,756	$51,765	$608,756	$828,240	$828,240	$51,765	$828,240	$828,240	$51,765	$828,240	$828,240	$809,605	$51,765	
65	Motueka	Sanderlane Drive PS Upgrade	Renewal of Pumps	09206200050	$15,011	$15,011									$15,011												
66	Motueka	Tarrant Place Sewer PS	Renewal of Pumps	09206200030	$14,845	$14,845		$14,845																			
67	Motueka	Thorp Street	Renewal of Valve Chamber	09206200051	$9,870	$9,870																		$9,870			
68	Motueka	Thorp Street (South End) PS Upgra	Renewal of Pumps	09206200031	$15,011	$15,011		$15,011																			
71	Motueka	Totara Park PS Pumps	Renewal of Pumps	09206200038	$17,499	$17,499		$8,749								$8,749											
73	Motueka	Woodlands Avenue PS Upgrade	Renewal of Storage Chamber, Flowmeter, Pumps	09206200040	$83,305	$83,305		$43,645										$39,660									
75	Murchison	Murchison WWTP Renewals	Renewal of Aerator, Biofilter, Electrical, Flowmeter, Pumps	09336200003	$445,191	$445,191		$35,525													$409,666						
79	Pohara	Abel Tasman Drive / Nyhane Drive	Renewal of Biofilter, Fan	09626200014	$19,996	$19,996						$10,150					$9,846										
80	Pohara	Boyle Street Sewer PS	Renewal of Pump	09626200004	$6,859	$6,859														$6,859							
81	Pohara	Golf Club Sewer PS	Renewal of Pumps	09626200006	$14,845	$14,845				$14,845																	
83	Pohara	Pohara Valley Reticulation Upgrad	Upgrade 220m of reticulation	09626200009	$137,330	$137,330					$13,733	$123,597															
84	Pohara	Pohara/Tata Beach Upgrade	Four Winds, Pohara Camp, Tarakohe, Pohara Valley PS & RM Upgrades	09626200010	$5,941,600	$4,990,944	$49,909	$948,279			$2,495,472	$1,497,283															
86	Pohara	Three Oaks PS Upgrade	Renewal of Electrical, Pumps	09626200013	$52,246	$52,246														$52,246							
88	Richmond	423 Hill Street Sewer PS	Renewal of Pumps	09226200017	$13,718	$13,718														$13,718							
94	Richmond	Hugh Brown Place	Renewal of Flowmeter	09226200019	$9,947	$9,947												$9,947									
99	Richmond	Richmond Pipeline Renewals	Pipeline renewals	09226200015	$2,400,000	$2,400,000	$30,000	$270,000	$30,000	$270,000	$30,000	$270,000	$30,000	$270,000	$30,000	$270,000	$30,000	$270,000	$30,000	$270,000	$30,000	$270,000					
100	Richmond	Sunview Heights PS Upgrade	Renewal of Pumps	09226200011	$19,766	$19,766								$19,766													
102	Riwaka	Green Tree Road PS Upgrade	Renewal of Pumps	09286200018	$13,546	$13,546			$13,546																		
103	Riwaka	Jenkins SH 60 Sewer PS	Renewal of Pumps	09286200032	$13,546	$13,546			$13,546																		
104	Riwaka	Lodder Lane Sewer PS	Renewal of Pumps	09286200033	$15,086	$15,086						$15,086															
105	Riwaka	Motueka Bridge - Motueka Ponds	Motueka Bridge - Motueka Ponds Rising Main	09286200022	$588,400	$517,792		$51,779	$466,013																		
106	Riwaka	Riwaka Main Sewer PS	Renewal of Flowmeter, Pumps, Pressure Gauge	09286200024	$58,442	$58,442			$48,506								$9,935										
107	Riwaka	School Road Sewer PS	Renewal of Pumps	09286200025	$14,325	$14,325			$6,773									$7,552									
108	St Arnaud	76 Main Road St Arnaud	Renewal of Generator	09556200014	$30,450	$30,450								$30,450													
109	St Arnaud	Beachnest PS	A water pump is needed for Beechnest P.S.	09556200015	$12,000	$12,000	$12,000																				
110	St Arnaud	Kerr Bay Road PS No 1	Renewal of Biofilter, Flowmeter, Pumps	09556200001	$81,988	$81,988							$81,988														
112	St Arnaud	SH63 PS No 2	Renewal of Biofilter, Flowmeter, Pumps	09556200004	$79,195	$79,195							$79,195														
114	St Arnaud	St Arnaud WWTP	Renewal of Aerator, Flowmeter, Pumps	09556200017	$50,318	$50,318								$50,318													
115	St Arnaud	St Arnaud WWTP Desludge	Desludge oxidation pond	09556200009	$304,500	$304,500								$304,500													

Item	Scheme	Project Name	Description	GL Code	Total Project Cost	Total Renewals	2012/13 Year 1	2013/14 Year 2	2014/15 Year 3	2015/16 Year 4	2016/17 Year 5	2017/18 Year 6	2018/19 Year 7	2019/20 Year 8	2020/21 Year 9	2021/22 Year 10	2022/23 Year 11	2023/24 Year 12	2024/25 Year 13	2025/26 Year 14	2026/27 Year 15	2027/28 Year 16	2028/29 Year 17	2029/30 Year 18	2030/31 Year 19	2031/32 Year 20	Beyond Year 20
116	St Arnaud	St Arnaud WWTP Resource Conse	Resource Consent Renewals	09556200010	$20,300	$20,300	$20,300																			
117	Takaka	Dodson Road Sewer PS	Renewal of Electrical, Pumps	09246200001	$52,246	$52,246													$52,246							
118	Takaka	Hiawatha Lane PS	Renewal of Electrical, Flowmeter, Pumps	09246200003	$52,342	$52,342															$52,342					
120	Takaka	Motupipi Street PS	Renewal of Electrical, Flowmeter, Pumps	09246200004	$47,200	$47,200															$47,200					
121	Takaka	Park Avenue PS	Renewal of Biofilter, Pumps, Electrical	09246200006	$101,677	$101,677													$101,677							
122	Takaka	Primary School Sewer PS	Renewal of Pumps	09246200008	$11,447	$11,447													$11,447							
123	Takaka	Rototai Road Sewer PS	Renewal of Pumps	09246200009	$14,845	$14,845				$14,845																
124	Takaka	Sunbelt Crescent Sewer PS	Renewal of Biofilter, Electrical, Flowmeter, Pumps	09246200014	$141,310	$141,310															$141,310					
125	Takaka	Takaka Pipeline Renewals	Pipeline Renewals	09246200007	$913,500	$913,500					$310,590					$301,455					$301,455					
129	Takaka	Waitapu Road Sewer PS	Renewal of Pumps	09246200012	$17,435	$17,435												$17,435								
130	Tapawera	Flushing Tanks Renewal	Renewal of Flushing Tanks	09346200005	$5,583	$5,583														$5,583						
131	Tapawera	Tapawera WWTP	Renewal of Aerator, Flowmeter, Outlet Weir, Oxidation Pond	09346200002	$340,807	$340,807											$340,807									
133	Upper Takaka	Upper Takaka Sewer PS - Harwoo	Renewal of Flowmeter, Pumps	09366200001	$22,195	$22,195		$12,248									$9,947									
135	Wakefield	Pipeline Easement	Easement of Trunkmain from Wakefield to Richmond	09376200005	$250,000	$62,500				$12,500	$25,000	$25,000														
136	Wakefield	Wakefield Pipeline Renewals	Pipeline Renewals	09376200002	$172,550	$172,550		$172,550																		
139	Richmond	Telemetry	Installing Telemetry at sites and renewal existing sites	09226200020	$4,512,000	$1,128,000	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	$56,400	
	Note: Does not include inflation			TOTALS	$91,289,999.20	$33,090,147.60	$250,854	$ 2,339,894	$1,396,030	$1,306,094	$3,810,324	$5,826,947	$1,097,907	$1,915,092	$436,550	$2,007,585	$1,684,635	$2,803,495	$1,262,962	$1,288,438	$1,918,511	$523,116	$1,353,033	$894,510	$866,005	$108,165	

APPENDIX J. DEPRECIATION AND DECLINE IN SERVICE POTENTIAL

J.1 Depreciation of Infrastructural Assets

Depreciation is provided on a straight line basis on all infrastructural assets at rates which will write off the cost (or valuation) of the assets to their estimated residual values, over their useful lives.

The remaining useful lives and associated rates for the wastewater infrastructure have been estimated detailed in Appendix D – Asset Valuations.

The following wastewater asset components have not been depreciated:

- Oxidation pond earthworks
- Detention Dams earthworks

J.2 Decline in Service Potential

The decline in service potential is a decline in the future economic benefits (service potential) embodied in an asset.

It is Council policy to operate the wastewater activity to meet a desired level of service. Council will monitor and assess the state of the wastewater infrastructure and upgrade or replace components over time to counter the decline in service potential at the optimum times.

J.3 Council's Borrowing Policy

Council's borrowing policy is that it only funds capital and renewal expenditure through borrowing, normally for 20 years, but shorter or longer terms are used for some assets depending on how long they are expected to last before they need to be replaced. Council has adopted this approach instead of setting aside funds to replace assets as they wear out, i.e. funding depreciation. By the time the asset needs to be replaced Council would normally have repaid the loan for the original asset and can borrow for the replacement asset.

This method of funding capital expenditure provides intergenerational equity, this means that those people that receive the benefit from the asset generally pay for the asset. Notwithstanding this, Council is investigating whether other means of funding assets is more appropriate. Any change is likely to result in an increase in rates and charges in the immediate time period, but might provide longer term benefits.

APPENDIX K. PUBLIC DEBT AND ANNUAL LOAN SERVICING COSTS

K.1 General Policy

The Council borrows as it considers prudent and appropriate and exercises its flexible and diversified funding powers pursuant to the Local Government Act 2002. The Council approves, by resolution, the borrowing requirement for each financial year during the annual planning process. The arrangement of precise terms and conditions of borrowing is delegated to the Corporate Services Manager.

> *The Council has significant infrastructural assets with long economic lives yielding long term benefits. The Council also has a significant strategic investment holding. The use of debt is seen as an appropriate and efficient mechanism for promoting intergenerational equity between current and future ratepayers in relation to the Council's assets and investments. Debt in the context of this policy refers to the Council's net external public debt, which is derived from the Council's gross external public debt adjusted for reserves as recorded in the Council's general ledger.*

Generally, the Council's capital expenditure projects, with their long term benefits, are debt funded. The Council's other district responsibilities have policy and social objectives and are generally revenue funded.

The Council raises debt for the following primary purposes.

- Capital to fund development of infrastructural assets.
- Short term debt to manage timing differences between cash inflows and outflows and to maintain the Council's liquidity.
- Debt associated with specific projects as approved in the Annual Plan or LTP. The specific debt can also result from finance which has been packaged into a particular project.

In approving new debt, the Council considers the impact on its borrowing limits as well as the size and the economic life of the asset that is being funded and its consistency with Council's long term financial strategy.

The Borrowing Policy is found in Volume 2 of Council's Long Term Plan.

K.2 Loans

Loans to fund capital projects over the next 10 years add up to the following costs detailed in Table K-1.

Table K-1: Projected Capital Works Funded by Loan

Wastewater	2012/13 Year 1	2013/14 Year 2	2014/15 Year 3	2015/16 Year 4	2016/17 Year 5	2017/18 Year 6	2018/19 Year 7	2019/20 Year 8	2020/21 Year 9	2021/22 Year 10
Loans Raised **(x 1,000)**	1,620	8,658	5,029	4,350	7,495	10,241	2,416	3,764	1,148	3,406
Opening Loan Balance **(x 1,000)**	26,797	25,808	31,546	33,411	34,543	38,542	44,959	43,409	43,964	40,083

Note: Figures do not include for inflation and are in thousands of dollars (ie. x1000)

K.3 Cost of Loans

Council funds the principal and interest costs of past loans and these are added to the projected loan costs for the next 10 years as shown in Table K-2.

Table K-2: Projected Annual Loan Repayment Costs for Next 10 Years

Wastewater	2012/13 Year 1	2013/14 Year 2	2014/15 Year 3	2015/16 Year 4	2016/17 Year 5	2017/18 Year 6	2018/19 Year 7	2019/20 Year 8	2020/21 Year 9	2021/22 Year 10
Loan Interest **(x 1,000)**	1,578	1,749	2,046	2,242	2,485	2,923	3,269	3,066	3,031	2,919
Loan Principal **(x 1,000)**	1,716	1,789	2,029	2,183	2,356	2,686	2,901	3,076	3,173	3,278

Note: Figures do not include for inflation and are in thousands of dollars (ie. x1000)

APPENDIX L. SUMMARY OF FUTURE OVERALL FINANCIAL REQUIREMENTS

Table L-1 presents a summary of the overall future financial requirements for the Wastewater activity in the Tasman district.

Table L-1: Summary of Project Costs and Income for the Next 10 years

Wastewater and Sewage Disposal	2011/2012 Budget $	2012/2013 Budget $	2013/2014 Budget $	2014/2015 Budget $	2015/2016 Budget $	2016/2017 Budget $	2017/2018 Budget $	2018/2019 Budget $	2019/2020 Budget $	2020/2021 Budget $	2021/2022 Budget $
SOURCES OF OPERATING FUNDING											
General rates, uniform annual general charges, rates penalties	-	-	-	-	-	-	-	-	-	-	-
Targeted rates (other than a targeted rate for water supply)	8,593,832	9,328,103	9,789,801	10,402,075	11,059,617	12,085,606	13,038,605	14,182,583	14,287,895	14,665,106	16,250,274
Subsidies and grants for operating purposes	-	-	-	-	-	-	-	-	-	-	-
Fees, charges and targeted rates for water supply	-	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads recovered	-	-	-	-	-	-	-	-	-	-	-
Local authorities fuel tax, fines, infringement fees, and other receipts	975,167	673,954	721,670	717,232	748,916	730,256	761,677	753,370	777,684	792,163	814,228
TOTAL OPERATING FUNDING	9,568,999	10,002,057	10,511,471	11,119,307	11,808,533	12,815,862	13,800,282	14,935,953	15,065,579	15,457,269	17,064,502
APPLICATIONS OF OPERATING FUNDING											
Payments to staff and suppliers	5,297,804	5,846,404	6,009,249	6,159,511	6,515,029	6,824,398	7,106,086	7,791,483	8,098,900	8,485,064	10,171,577
Finance costs	1,753,887	1,578,161	1,749,300	2,046,149	2,242,487	2,484,882	2,922,554	3,269,635	3,066,246	3,031,237	2,918,858
Internal charges and overheads applied	927,148	1,146,266	1,154,345	1,190,909	1,202,470	1,240,881	1,295,290	1,310,465	1,359,419	1,419,778	1,441,754
Other operating funding applications	-	-	-	-	-	-	-	-	-	-	-
TOTAL APPLICATIONS OF OPERATING FUNDING	7,978,839	8,570,831	8,912,894	9,396,569	9,959,986	10,550,161	11,323,930	12,371,583	12,524,565	12,936,079	14,532,189
SURPLUS (DEFICIT) OF OPERATING FUNDING	1,590,160	1,431,226	1,598,577	1,722,738	1,848,547	2,265,701	2,476,352	2,564,370	2,541,014	2,521,190	2,532,313

Wastewater and Sewage Disposal	2011/2012 Budget $	2012/2013 Budget $	2013/2014 Budget $	2014/2015 Budget $	2015/2016 Budget $	2016/2017 Budget $	2017/2018 Budget $	2018/2019 Budget $	2019/2020 Budget $	2020/2021 Budget $	2021/2022 Budget $
SOURCES OF CAPITAL FUNDING											
Subsidies and grants for capital expenditure	-	-	-	-	-	-	-	-	-	-	-
Development and financial contributions	707,130	613,282	654,168	629,636	973,075	932,189	964,897	932,189	940,366	940,366	940,366
Increase (decrease) in debt	417,609	(95,921)	6,868,206	2,999,914	2,167,389	5,138,412	7,555,287	(485,830)	687,429	(2,024,477)	127,586
Gross proceeds from sale of assets	-	-	-	-	-	-	-	-	-	-	-
Lump sum contributions	-	-	-	-	-	-	-	-	-	-	-
TOTAL SOURCES OF CAPITAL FUNDING	1,124,739	517,361	7,522,374	3,629,550	3,140,464	6,070,601	8,520,184	446,359	1,627,795	(1,084,111)	1,067,952
APPLICATIONS OF CAPITAL FUNDING											
Capital expenditure											
- to meet additional demand	-	-	107,641	56,130	126,472	119,113	1,745,190	-	80,468	-	97,758
- to improve the level of service	44,541	1,753,463	6,353,306	3,735,927	3,440,087	3,209,378	1,930,284	1,663,557	1,520,947	904,299	642,149
- to replace existing assets	2,676,124	195,124	2,660,004	1,560,231	1,422,452	5,007,811	7,321,062	1,347,172	2,567,394	532,780	2,860,358
Increase (decrease) in reserves	(5,766)	-	-	-	-	-	-	-	-	-	-
Increase (decrease) in investments	-	-	-	-	-	-	-	-	-	-	-
TOTAL APPLICATIONS OF CAPITAL FUNDING	2,714,899	1,948,587	9,120,951	5,352,288	4,989,011	8,336,302	10,996,536	3,010,729	4,168,809	1,437,079	3,600,265
SURPLUS (DEFICIT) OF CAPITAL FUNDING	(1,590,160)	(1,431,226)	(1,598,577)	(1,722,738)	(1,848,547)	(2,265,701)	(2,476,352)	(2,564,370)	(2,541,014)	(2,521,190)	(2,532,313)
FUNDING BALANCE	-	-	-	-	-	-	-	-	-	-	-

N.B. Figures do include inflation.

APPENDIX M. FUNDING POLICY, FEES AND CHARGES (INCLUDING TRADE WASTE FEES)

M.1 Schedule of Fees and Charges

Council sets a targeted rate for the purpose of meeting the operating costs of the general wastewater account. This charge is based on the number of water closets or urinals connected either directly or through a private drain, to a public wastewater drain. In respect of rating units used primarily as a residence for one household, no more than one water closet will be liable for this charge. The rates (in dollars per water closet or urinal) are detailed in Table M-1.

Table M-1: Proposed Annual 'Pan' Charge per Property (incl GST)

Category	2011/12 $	2012/13 $
First water closet or urinal	$633.56	$691.93
Second to tenth water closet or urinal	$475.08	$520.89
Eleventh and subsequent water closet or urinal	$316.71	$346.96

M.1.1. Capital Charges

Council sets a targeted rate for the purpose of meeting loan repayments for the capital costs of the Pohara Stage 3 Wastewater Schemes. This rate will be based on the provision or availability of service and where the land is situated. The proposed rate will be set in relation to each rating unit in the Pohara Urban Drainage Area which has not elected to make a lump sum contribution to the capital cost of the scheme. The rates (in dollars per rating unit) are detailed in Table M-2.

Category	2011/12 $	2012/13 $
Connected Rating Units		
Pohara Stage 3 Wastewater	$255.50	$255.50
Serviceable Rating Units		
Pohara Stage 3 Wastewater	$127.78	$127.78

Table M-2: Proposed Target Rate for the Pohara Stage 3 Wastewater Schemes (incl GST)

Where the rating unit is non-residential and connected a charge is made for the second and subsequent water closets or urinals. Residential rating units with more than one separately used or inhabited part are charged for the second and subsequent water closets or urinals but not for more than one water closet per part. The rates (in dollars per water closet or urinal) are detailed in Table M-3

Table M-3: Proposed Target Rates for Water Closet or Urinal in Pohara

Category	2011/12 $	2012/13 $
Non-residential Connected Rating Units (for second and subsequent W/Cs or urinals)		
Pohara Stage 3 Wastewater	$85.20	$85.20
Residential Connected Rating Units (for second and subsequent W/Cs or urinals)		
Pohara Stage 3 Wastewater	$85.20	$85.20

M.1.2. New Connection Charges

Table M-4: Wastewater Connection Fees

District-wide connection fees for new connections outside existing wastewater UDAs.	$3,014.00 at building consent plus outwork plus admin

Table M-5: Wastewater Connection Fees for New Connections within UDAs

Richmond, Hope, Wakefield, Brightwater	$1,496.00 at building consent plus outwork plus admin
Mapua, Ruby Bay	$1,496.00 at building consent plus outwork plus admin
Murchison	$1,496.00 at building consent plus outwork plus admin
Takaka	$1,496.00 at building consent plus outwork plus admin
Tapawera	$1,496.00 at building consent plus outwork plus admin
Kaiteriteri, Riwaka	$1,496.00 at building consent plus outwork plus admin
Motueka	$1,496.00 at building consent plus outwork plus admin
Collingwood	$1,496.00 at building consent plus outwork plus admin
St Arnaud	$1,496.00 at building consent plus outwork plus admin
Pohara	Rated for Capital Costs plus outwork plus admin

Table M-6: Wastewater Trade Waste Charges

Conveying Based on rate of discharge	$8.55 per annum per litre per second
Treatment based on BOD_5	$960 per annum per kilogram BOD per day
Wastewater pan charge	Equate to wastewater – operation and maintenance charge as set out in the Annual Plan
Method B – Definition 'C'. Cost to convey and treatment of sewage.	Equate to wastewater – operation and maintenance charge as set out in the Annual Plan

Table M-7: Administration Charge Items and Terms

Trade Waste Discharges	Rate	Terms
Temporary discharge charge	$370.00	A charge payable prior to receipt of temporary discharge
Trade waste application charge	$370.00	A charge payable on an application for a trade waste discharge
Annual trade waste consent charge	$370.00	Annual management charge for holders of trade waste consents to cover Council's costs associated with: Administration Compliance monitoring Inspection of consents.

APPENDIX N. DEMAND MANAGEMENT

N.1 Introduction to Wastewater Demand Management

The objective of demand management (sometimes called non-asset solutions) is to actively seek to modify customer demands for services in order to:

- optimise utilisation and performance of existing assets
- reduce or defer the need for new assets
- meet the organisation's strategic objectives (including social, environmental and political)
- deliver a more sustainable service
- respond to customer needs.

N.2 Councils Approach for Demand Management

There are currently no initiatives aimed at reducing domestic demand for wastewater services. However, 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.

Historically, the Council has not aggressively targeted cost recovery from industrial trade waste. The Trade Waste Bylaw, which came into effect on 1 July 2006, has helped align the Tasman district with Nelson city trade waste regulations. The aim of the bylaw is to ensure full cost recovery from trade waste producers for collecting and treating their waste. Full cost recovery encourages trade waste producers to reduce their impact on the wastewater network. The largest trade waste producers now have permits in place and Council will now look at targeting medium trade waste producers throughout the district.

N.3 Climate Change

The RMA 1991 states, in Section 7, that a local authority shall take account of the effects of climate change when developing and managing its resources. To assist local authorities, the Ministry for the Environment (MfE) prepared a report[4] to support councils' assessing expected effects of climate change, and to help them prepare appropriate responses when necessary.

This section summarises information presented in the MfE report and a report by NIWA on Climate Change and Variability in the Tasman district. This section aims to explore the impacts of expected climate changes for the Tasman-Nelson region and will conclude with anticipated impacts on this activity.

[4] Climate Change Effects and Impacts Assessment A Guidance Manual for Local Government in NZ (MfE, May 2008)

N.3.1. Temperature Change

Table N-1 shows that the mean annual temperatures in Tasman-Nelson are expected to increase in the future.

Table N-1: Projected Mean Temperature Change (Upper and Lower Limits) in Tasman-Nelson (in ^{0}C)

	Summer	Autumn	Winter	Spring	Annual
Projected changes 1990-2040	0.2 - 2.2	0.2 - 2.3	0.2 - 2.0	0.1 - 1.18	0.2 – 2.0
Projected changes 1990-2090	0.9 – 5.6	0.6 – 5.1	0.5 – 4.9	0.3 – 4.6	0.6 – 5.0

Source: Climate Change and Variability – Tasman District (NIWA, June 2008)

It is the opinion of NIWA[5] scientists that the actual temperature increase this century is very likely to be more than the 'low' scenario given here. Under the mid-range scenario for 2090, an increase in mean temperature of 2.0^{0}C would represent annual average temperature in coastal Tasman in 2090.

N.3.2. Rainfall Patterns

Table N-2 shows an expected increase in mean annual precipitation in Tasman-Nelson from 1990 to 2090.

Table N-2: Projected Mean Precipitation Change (Upper and Lower Limits) in Tasman-Nelson (in %)

	Summer	Autumn	Winter	Spring	Annual
Projected changes 1990-2040	-14, 27	-2, 19	-4, 9	-8, 9	-3, 9
Projected changes 1990-2090	-13, 30	-4, 18	-2, 19	-20, 19	-3, 14

Source: Climate Change and Variability – Tasman District (NIWA, June 2008)

N.3.3. Heavy Rainfall

A warmer atmosphere can hold more moisture (about 8% more for every 10C increase in temperature), so there is an obvious potential for heavier extreme rainfall under climate change.

More recent climate model simulations confirm the likelihood that heavy rainfall events will become more frequent.

N.3.4. Evaporation, Soil Moisture and Drought

From their report, NIWA conclude that there is a risk that the frequency of drought (in terms of low soil moisture conditions) could increase as the century progresses, for the main agriculturally productive parts of Tasman district.

N.3.5. Climate Change and Sea Level

NIWA report that a revised guidance manual for local government on coastal hazards and climate change is currently in preparation. For the interim, NIWA's report suggests:

1. For planning and decision timeframes out to the 2090s (2090-2099) use.

- A base mean sea-level rise of 0.5m relative to the 1980-1999 average.
- An assessment of the sensitivity of the issue under consideration to possible higher mean sea-levels taking account of possible additional contributions. This level is currently under discussion, but is likely to be no less than 0.8m.

2. For planning and decision timeframes beyond 2100 where, as a result of the particular decision, future adaptation options will be limited, an allowance for mean sea-level rise of 10mm/year beyond 2100 is recommended (in addition to the above recommendation).

These projections are for mean sea levels. Less information is available on how extreme storm sea levels will change with climate change.

N.3.6. Potential Impacts on Council's Infrastructure and Services

Table N-3 lists the potential impacts on Council's infrastructure and services.

[5] Climate Change and Variability – Tasman District (NIWA, June 2008)

Table N-3: Local Government Functions and Possible Climate Change Outcomes

Function	Affected Assets or Activities	Key Climate Influences	Possible Effects
Water supply and irrigation.	Infrastructure.	Reduced rainfall, extreme rainfall events and increased temperature.	Reduced security of supply (depending on water source) Contamination of water supply.
Wastewater.	Infrastructure.	Increased rainfall.	More intense rainfall (extreme events) will cause more inflow and infiltration into the wastewater network. Wet weather overflow events will increase in frequency and volume. Longer dry spells will increase the likelihood of blockages and related dry weather overflows.
Stormwater.	Reticulation. Stopbanks.	Increased rainfall. Sea-level rise.	Increased frequency and/or volume of system flooding. Increased peak flows in streams and related erosion. Groundwater level changes. Saltwater intrusion in coastal zones. Changing flood plains and greater likelihood of damage to properties and infrastructure.
Roading.	Road network and associated infrastructure (power, telecommunications, drainage).	Extreme rainfall events, extreme winds, high temperatures.	Disruption due to flooding, landslides, fallen trees and lines. Direct effects of wind exposure on heavy vehicles. Melting of tar.
Planning/policy development.	Management of development in the private sector. Expansion of urban areas. Infrastructure and communications planning.	All.	Inappropriate location of urban expansion areas. Inadequate or inappropriate infrastructure, costly retro-fitting of systems.
Land management.	Rural land management.	Changes in rainfall, wind and temperature.	Enhanced erosion. Changes in type/distribution of pest species. Increased fire risk. Reduction in water availability for irrigation. Changes in appropriate land use. Changes in evapotranspiration.
Water management.	Management of watercourses/ lakes/wetlands.	Changes in rainfall and temperature.	More variation in water volumes possible Reduced water quality. Sedimentation and weed growth. Changes in type/distribution of pest species.

Function	Affected Assets or Activities	Key Climate Influences	Possible Effects
Coastal Management.	Infrastructure. Management of coastal development.	Temperature changes leading to sea-level changes. Extreme storm events.	Coastal erosion and flooding. Disruption in roading, communications. Loss of private property and community assets. Effects on water quality.
Civil defence and emergency management.	Emergency planning and response, and recovery operations.	Extreme events.	Greater risks to public safety, and resources needed to manage flood, rural fire, landslip and storm events
Bio security.	Pest management.	Temperature and rainfall changes.	Changes in the range of pest species
Open space and community facilities management.	Planning and management of parks, playing fields and urban open spaces.	Temperature and rainfall changes. Extreme wind and rainfall events.	Changes/reduction in water availability Changes in biodiversity Changes in type/distribution of pest species Groundwater changes Saltwater intrusion in coastal zones Need for more shelter in urban spaces
Transport.	Management of public transport. Provision of footpaths, cycleways etc.	Changes in temperatures, wind and rainfall.	Changed maintenance needs for public transport infrastructure. Disruption due to extreme events
Waste management.	Transfer stations and landfills.	Changes in rainfall and temperature.	Increased surface flooding risk. Biosecurity changes. Changes in ground water level and leaching.
Water supply and irrigation.	Infrastructure.	Reduced rainfall, extreme rainfall events and increased temperature.	Reduced security of supply (depending on water source). Contamination of water supply.

Source: Climate Change Effects and Impacts Assessment (MfE, May 2008)

Council have incorporated the potential impacts of climate change in the 2008 update of the Engineering Standards and Policies.

APPENDIX O. NOT RELEVANT TO THIS ACTIVITY

APPENDIX P. POTENITAL SIGNIFICANT EFFECTS

The potential significant negative and positive effects on the community of undertaking the wastewater activity are detailed in Table P-1 and Table P-2.

Table P-1: Potential Significant Negative Effects

Activity	Effect on Community Wellbeing	Significance	Current Controls
Construction of future schemes	Social Installation of wastewater schemes can cause a disruption to the local community. The works can impact on traffic flow, noise, dust and a visual impact. Disruption to the community if the service is not available for prolonged periods. Economic Installation of wastewater schemes do cause a disruption to the local community. The works can impact on traffic flow, noise, dust and a visual impact. This may result in customers avoiding the works and therefore nearby business may lose out. Disruption to the community if the service is not available for prolonged periods. Environmental Construction of wastewater contracts typically creates greater noise and dust. The TRMP and specific resource consents must be followed. Projects can involve acts such as de-watering, which requires the groundwater to be discharged. Potential risk to the environment.	Medium	Consulting the public and key affected parties prior to undertaking works identifies ways to minimise the disruption and helps affected parties make alternative plans.
Sewage Overflows	Social Some residence has council sewers located within the property. These can overflow and cause distress. Gully traps can also overflow if the main sewer is overflowing. Environmental Sewage entering into the environment is linked into the LoS, this could result in beach closures and threaten the ecology of a waterway.	Major	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.
Sewage Odour	Social Odour can cause distress to local residence, as the smell often lingers for several days Economic Odour can cause distress to local businesses and tourists as the smell often lingers for several days.	Medium	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 neutralizing the hydrogen sulphide.

Activity	Effect on Community Wellbeing	Significance	Current Controls
Discharged water from WWTP not meeting consent conditions	Social May result in the degrading of water quality, preventing the use of groundwater, nearby rivers and beaches for 'all year round bathing', preventing the collection of shellfish and detrimentally affecting marine farms. Economic May result in the degrading of water quality, preventing the use of groundwater, nearby rivers and beaches for 'all year round bathing', preventing the collection of shellfish and detrimentally affecting marine farms. Environmental May result in the degrading of water quality, preventing the use of groundwater, nearby rivers and beaches for 'all year round bathing', preventing the collection of shellfish and detrimentally affecting marine farms.	Major	Upsizing WWTP to meet high flows, and upgrading current facilities.
The Cost of Providing the Services	Economic – The cost of providing services is resulting in increases in rates	Major	Council uses competitive tendering processes to achieve best value for money for works it undertakes.
Historic and Wahit Tapu Sites	Cultural – Construction of wastewater assets can potentially affect historic and wahi tapu sites	Medium	Council undertakes consultation with affect parties prior to undertaking works. Council also maintains a record of known heritage sites.

Table P-2: Potential 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.

APPENDIX Q. SIGNIFICANT ASSUMPTIONS, UNCERTAINTIES AND RISK MANAGEMENT

Q.1 Assumptions and Uncertainties

This AMP and the financial forecasts within it have been developed from information that has varying degrees of completeness and accuracy. In order to make decisions in the face of these uncertainties, assumptions have to be made. This section documents the uncertainties and assumptions that Council consider could have a significant effect on the financial forecasts, and discusses the potential risks that this creates.

Q.1.1. Financial Assumptions

- all expenditure is stated in dollar values as at 1 July 2011, with no allowance made for inflation over the planning period
- all costs and financial projections are GST exclusive

Q.1.2. Asset Data Knowledge

While the Council has asset registers and many digital systems, processes and records, Council does not have complete knowledge of the assets it owns. To varying degrees the Council has incomplete knowledge of asset location, asset condition, remaining useful life and asset capacities. This requires assumptions to be made on the total value of the assets owned, the time at which assets will need to be replaced and when new assets will need to be constructed to provide better service.

Notwithstanding this, Council considers these assumptions and uncertainties constitute only a small risk to the financial forecasts because:

- significant amounts of asset data is known
- asset performance is well known from experience
- there are plans to upgrade significant extents of poorly performing assets.

The assumptions that have been made that are considered significant include.

- The majority of wastewater reticulation is in satisfactory condition. The known exceptions to this are inflow and infiltration (I&I) which is an issue throughout most of the district, and the disposal capacity of the Motueka WWTP. Council have allocated expenditure to investigate the extent and significance of the I&I problem, including CCTV surveys and modelling projects. Council has also made provision for some pipe rehabilitation works. Council has allocated expenditure for a major upgrade of the Motueka WWTP and the Takaka WWTP.
- As more knowledge is gained, a better forecast of capital expenditure will be incorporated into future forecasts.

Q.1.3. Growth Forecasts

Growth forecasts are inherently uncertain and involve many assumptions. The growth forecasts also have a very strong influence on the financial forecasts, especially in Tasman district where population growth is higher than the national average. The growth forecasts underpin and drive:

- the asset creation programme
- Council income forecasts including rates and development contributions
- funding strategies.

Thus the financial forecasts are sensitive to the assumptions made in the growth forecasts. 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.

The significant assumptions in the growth forecasts are covered in the explanation on method and assumptions in Appendix F: Demand and Future New Capital Requirements.

Q.1.4. Network Capacity

The Council has a growing knowledge and understanding of network capacity, however, the knowledge is not complete. Council is collecting wastewater asset data and modelling the networks to enhance the understanding of system capacity.

System capacity upgrades have been planned where shortfalls are known or where growth is expected. The models will provide new information that may create a need for new projects and/or re-prioritisation of existing projects. If the network capacity is lower 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 impacts.

Q.1.5. Timing of Capital Projects

The timing of many capital projects can be well defined and accurately forecast because there are few limitations on the implementation other than the community approval through the LTP/Annual Plan processes. However, the timing of some projects is highly dependent on some factors which are beyond the Council's ability to fully control. These include factors like:

- obtaining resource consent, especially where community input is necessary
- obtaining the community consent
- obtaining a subsidy from central government
- securing land purchase and / or land entry agreements.

Where these issues may become a factor, allowances have been made to complete in a reasonable timeframe, however these plans are not always achieved. The effect of this will be to defer expenditure. The impact of this on the forward projections is not considered significant.

Q.1.6. Funding of Capital Projects

Funding of capital projects is crucial to a successful project. When forecasting projects that will not occur for a number of years, a number of assumptions have to be made about how the scheme will be funded.

Funding assumptions are made about:

- whether projects will qualify for subsidies
- whether major beneficiaries of the work (for example a 'wet' factory that gets a connection) will contribute to the scheme, and if so, how much will they pay
- whether the scheme has compulsory connections or voluntary connections
- whether and how much should be funded from development contributions
- whether Council will subsidise the development of the schemes.

The correctness of these assumptions has major consequences on the affordability especially of new schemes. Council has considered each new scheme proposal individually and concluded for each a funding strategy. The funding strategy will form one part of the consultation process as these schemes are advanced toward construction.

Q.1.7. Accuracy of Capital Project Cost Estimates

The financial forecasts contain many projects, each of which has been estimated from the best available knowledge. The level of uncertainty inherent in each project is different depending on how much work has been done in defining the problem and determining a solution. In many cases, only a rough order cost estimate is possible because little or no preliminary investigation has been carried out. It is not feasible to have all projects in the next 20 years advanced to a high level of accuracy. However, it is preferable to have projects in the next three years advanced to a level that provides reasonable confidence about the accuracy of the estimate.

To get consistency and formality in cost estimating, the following practices have been followed:

- all expenditure is stated in dollar values as at 1 July 2011 with no allowance made for inflation over the planning period
- all costs and financial projections re GST exclusive
- a project estimating template has been developed that provides a consistent means of preparing estimates
- where practical, a common set of rates has been determined
- specific provisions have been included to deal with non-construction costs like contract preliminary and general costs, engineering costs, Council staff costs, resource consenting costs, land acquisition costs
- specific provisions have been included to deal with estimate accuracy.

These are described as follows:

- A 15% provision has been included to get a "Base Project Estimate" to reflect the uncertainties in the unit rates used. A further provision has been added to reflect the uncertainties in the scope of the project – ie. is the solution adopted the right solution. Often detailed investigation will reveal the need for additional works over and above that initially expected. The amount added depends on the amount of work already done on the project. Each project has been assessed as being at the project lifecycle stage as detailed below, and from this an estimate accuracy assessed. The estimate accuracy is added to the Base Project Estimate to get the Total Project Estimate – the figure that is carried forward into the financial forecasts.

Table Q-1: Life Cycle Estimate Accuracies

Stage in Project Lifecycle	Estimate Accuracy
Concept / Feasibility	± 30% (±25% for projects >$1m)
Preliminary Design / Investigation	± 20% (±15% for projects >$1m)
Detailed Design	± 10%
Construction	± 5%
Commissioning	± 0%

Q.1.8. Significant Assumptions and Uncertainties for Projects Assigned over the Next Three Years

The following table (Table Q-2) details significant uncertainties and percentage accuracies for major projects in the next three years of this AMP.

Table Q-2: Major Schemes Assigned to the First Three Years of this AMP

Project	Project Stage and Estimate Accuracy	Project Value in First 3 years	Factors that Could affect Estimate Accuracy
Pohara Tata Beach PS Upgrade	Preliminary Design	$1,188,320	Ground conditions and services could affect the estimate accuracy.
Motueka Bridge Rising Main to WWTP Ponds	Preliminary Design	$588,400	Consultation with iwi and ground conditions.
Motueka WWTP Upgrade	Preliminary Design	$5,990,526	Increase cost in mechanical equipment, ground conditions.
Motueka Pipeline Renewals and Manholes	Preliminary Design	$1,271,348	Ground conditions and services could affect the estimate accuracy.
Richmond Pipeline Renewals	Preliminary Design	$330,00	Ground conditions and services could affect the estimate accuracy.
Takaka WWTP	Preliminary Design	$3,744,899	Increase cost in mechanical equipment, ground conditions.

Q.1.9. Changes in Legislation and Policy

The legal and planning framework under which local government operates is ever changing. This can significantly affect the feasibility of projects, how they are designed, constructed and how they are funded. To date, there have not been any significant changes in legislation and policy which have led to changes in this AMP. If significant changes occur it is likely to have a significant impact on the required expenditure. Council has not mitigated the effect of this.

Q.1.10. Resource Consents

It has been assumed 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.

Q.1.11. 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.

Q.1.12. Motueka and Takaka WWTP

It has been assumed that Council will be able to purchase sufficient land for disposal purposes for Motueka WWTP within a suitable time period.

Council will be able to obtain resource consents with appropriate conditions within a suitable time period.

The level of treatment identified in the project estimating will meet resource consent conditions and environmental requirements

These assumptions underpin the cost estimate and timing of these projects and 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.

Q.1.13. 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.

Q.1.14. 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.

Q.1.15. 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.

Q.2 Risk Management

Council has adopted an Integrated Risk Management (IRM) framework and process as the means for managing risk within the organisation. The process integrates with the LTP process as illustrated in Figure Q-1.

The strategic goal of integrated risk management is: "*To integrate risk management into Council's organisational decision making so that it can achieve its strategic goals cost effectively while optimising opportunities and reducing threats.*"

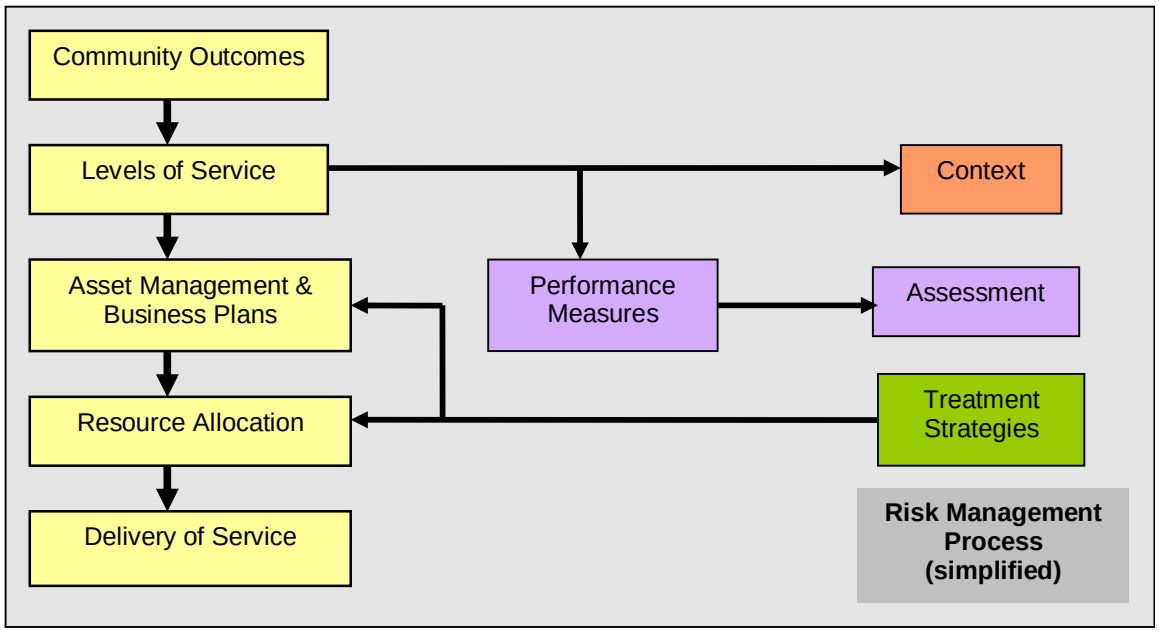


Figure Q-1: Integration of Risk Management Process into LTP Process

The IRM process and framework is intended to:

- to demonstrate responsible stewardship by Council on behalf of its customers and stakeholders
- to act as a vehicle for communication with all parties with an interest in Council's organisational and asset management practices
- provide a focus within Council for on-going development of good management practices
- demonstrate good governance
- meet public expectations and compliance obligations
- manage risk from an organisational perspective
- facilitate the effective and transparent allocation of resources to where they will have most effect on the success of the organisation in delivering its services.

The risk management framework adopted by Council is consistent with AS/NZS 4360:2004 Risk Management and assesses risk exposure by considering the consequence and likelihood of each risk which is identified as having an impact on the achievement of organisational objectives (Figure Q-2).

Whilst the IRM framework has been adopted within Council, it is primarily used as a process within the individual activities. Council are working towards developing it into a more formally integrated process throughout the whole organisation.

Risk Management

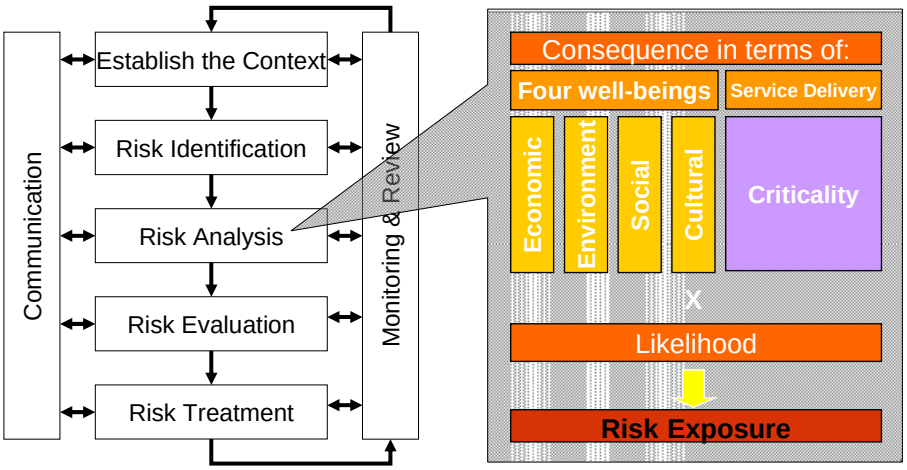


Figure Q-2: Integrated Risk Management Process

Consequence categories (see Table Q-3) have been developed to reflect the impact of risk events on the four well-beings and each consequence category is scored as either “extreme”, “major”, “medium”, “minor”, or “negligible”. These categories address common consequences across any asset or project, however, they do not specifically account for the differences in assets. Therefore an additional category “Service Delivery” is used to reflect the essential reason for the ownership or management of any asset within the local authority – the delivery of a service. This means that the consequence of failure to deliver the service in question (the criticality of the service) can be used to weight the consequences to reflect the relative importance of the asset to the community and in turn to Council.

Table Q-3: Consequence Categories

Category		Description
Service Delivery		Assessment based on the asset’s compliance with Performance Measures and value in relation to outcomes and resource usage.
Social/ Cultural	Health and Safety	Assessment of impact as it relates to death, injury, illness, life expectancy and health.
	Community Safety and Security	Assessment of impact based on perceptions of safety and reported levels of crime.
	Community / Social / Cultural	Assessment of impact based on damage and disruption to community services and structures, and effect on social quality of life and cultural relationships.
	Compliance / Governance	Assessment of effect on governance and statutory compliance of Council.
	Reputation / Perceptions of Council	Assessment of public perception of Council and media coverage in relation to Council.
Environment	Natural Environment	Effect on the physical and ecological environment, open space and productive land.
	Built Environment	Effect on the amenity, character, heritage and cultural, and economic aspects of the built environment and level of satisfaction with the amenity of the built environment.
Economic	Direct Cost / Benefit	Direct cost (or benefit) to Council.
	Indirect Cost / Benefit	Direct cost (or benefit) to wider community.

Similarly, the likelihood of the risk occurring is scored on a scale from “almost certain” to “unlikely” with associated probabilities and frequencies provided for guidance.

The risk exposure is then determined for each identified risk by multiplying the consequence and likelihood, and is presented using semantic descriptions ranging from “extreme” to “negligible”.

Treatment strategies, or strategic plans, that mitigate each risk can then be identified, and prioritised based on the risk exposure.

The consequence, likelihood scoring and risk matrix tables are all located in a separate report. This document also contains the outputs from the Level 1 and Level 2 Risk Assessments.

There are essentially three levels of risk assessment that should be considered for each activity within Council:

- Level 1 - Organisational Risk Assessment
- Level 2 - Activity Management Risk Assessment
- Level 3 - Critical Asset Risk Assessment.

Q.2.1. Level 1 - Organisational Risk Assessment

Organisational Risk Assessment focuses on identification and management of significant operational risks that will have an impact beyond the activity itself and will affect the organisation as a whole. This approach allows the Integrated Risk Management framework to address risks at the organisational level, as well as at both the management and operational levels within the particular Council activities.

During the process of developing the integrated risk management process, Council identified a number of risk events and issues at organisational level. These are relatively generic across all activities, but have been reviewed against each particular activity to ensure relevance and adjusted to suit. The decision to implement the treatment measures identified will be at an organisational level, not activity level.

Q.2.2. Level 2 – Activity Management Risk Assessment

Activity Management Risk Assessment uses the same principal and consequence tables, but the focus has been at more detailed level. During this process, specific risk events were identified which would affect the operational ability or management of the activity as a whole. If an individual system within the activity was identified as being at a greater risk or would need to be managed in a different way to the rest of the systems, then it was highlighted for separate consideration.

The outcome from this process is summarised below, Table Q-4. Reduced Risk Profile shows the Current Risk Profile of the wastewater activity. By undertaking the Asset Management Activities and Projects detailed Council will reduce the Risk Profile to that is shown in Table Q-5, Reduced Risk Profile.

Table Q-4: Current Risk Profile

RISK MATRIX - WASTEWATER CURRENT RISK						
		CONSEQUENCE				
		Negligible (+/-1)	Minor (+/-10)	Medium (+/-40)	Major (+/-70)	Extreme (+/-100)
LIKELIHOOD	Almost Certain (5)					
	Likely (4)		7			
	Possible (3)		39	9	1	
	Unlikely (2)		18		4	
	Very Unlikely (1)		10	8	1	

By undertaking the projects and asset management activities detailed below, Council can reduce their risk profile to that shown in Table Q-5.

Asset Management Activity

- Test Emergency Management Plan
- Alignment of Tradewaste Agreement with NRSBU and NCC
- Designs to minimise fire potential
- Produce System Operating Plans
- Identify Critical Assets
- Audit/review against consent conditions
- Improve HAZOPs

Strategic Study

- Catchment Modelling

Capital Project

- Construct additional storage at pump stations where needed
- Install Rapid Infiltration Beds at Takaka and Motueka WWTP

Operational Project

- Review existing fire controls at sites
- Improve overflow notification procedure in Tasman Bay
- Reduce I&I
- Ensure redundancy allowance for critical plant
- Increase inspection frequency of critical infrastructure assets
- Review maintenance log and plans of UV plant.

Table Q-5: Reduced Risk Profile

RISK MATRIX - WASTEWATER TARGET RISK						
		CONSEQUENCE				
		Negligible (+/-1)	Minor (+/-10)	Medium (+/-40)	Major (+/-70)	Extreme (+/-100)
LIKELIHOOD	Almost Certain (5)					
	Likely (4)		4			
	Possible (3)		31	1		
	Unlikely (2)		34		2	
	Very Unlikely (1)		10	14	1	

During the risk assessment process, it was noted that there are some risk events which will remain with a Target Risk of High (detailed in Table Q-6). This is a result of either no proposed controls identified, or those that are identified would not achieve the requisite reduction in risk. The Risk Events remaining with a High Target Risk need to be monitored to determine either; that Council remain comfortable with the Target Risk Level or; if there are any additional proposed controls which could be implemented to reduce the Target Risk Level further.

Proposed controls falling under the Operational Project, Capital Project or Strategic Study categories have been included within the Financial Forecasts. Those identified as Asset Management Activities will need to form part of the Council's general asset management and have been included in the Improvement Plan to ensure they are not overlooked.

Table Q-6: Target Risk Level Remaining High

Risk	Risk Description	Scope	Current Control	Current Risk Level	Proposed Control	Target Risk Level
Integration						
Iwi	Ineffective relationship impacts operations and maintenance and renewal works.	Coastal / Culturally sensitive areas.	Regular meetings. Overflow procedure of notification. Involvement in application stage of RCs.	HIGH	Monitor.	HIGH
Natural Hazards						
Earthquake (1:400)	Significant damage to infrastructure (Reticulation).	District.	Reticulation planning. Hazard register. Lifelines Planning. Design for fault lines.	HIGH	Review planning. Undertake work as required	HIGH
River Floods (1:400)	Impacts networks conveyance.	District.	No controls in place to this level.	HIGH	Undertake work as required.	HIGH
River Floods (1:400)	Impacts ability to discharge.	District.	No controls in place.	HIGH	Undertake work as required.	HIGH

Q.2.3. Level 3 – Critical Assets Risk Assessment

Critical assets and those assets considered to be significant within each wastewater supply scheme have been identified. A high level risk assessment was undertaken to determine the issues arising from each asset group that may prevent delivering of the required service. Treatment strategies that mitigate each risk for the asset groups were then identified.

Individual risk assessments have not been carried out for each of the assets; however, they have been assessed against the set of mitigation measures. At this level of risk assessment, the risk events considered are physical events only as the management and organisational risk events formed part of the earlier stages of risk assessment.

Table Q-7 lists the critical and significant assets for each wastewater supply scheme. Where a mitigation measure is felt to be necessary, a capital or operational project has been identified and included in the financial forecasts.

Table Q-7: Critical and Significant Assets

Asset Key	Identified as Critical Main in C688

Key	
	Measure to be considered
	Measure in place
	No measure in place - not necessary
	No measure in place - Project needed

Wastewater Scheme	Asset Group	Critical & Significant Asset	Project ID	Project Name	Telemetry System	Generators	Storage/Containment	Duty/Standby pumps	Signage/Access Control	Improve Connectivity / Hydraulics	Duplicate Main	Relocate Main	Regulatory Consents	Environmental/Performance Monitoring	System Operating Plans	Geotechnical Assessments	Health & Safety Assessments	24hr Customer Response	Asset Management System/Confirm	Maintenance & Professional Service Contracts	Design Standards	Bylaws	CD Emergency Management
District			SS 18	Trade Waste Bylaw Review																			
Wakefield / Brightwater	General Area		SS 39	System Operating Plan Updates																			
	Rising/Trunk Mains	**Eves Valley - Waimea West PS**																					
		Brightwater Main PS - Hope	135	Pipeline Easement																			
		Malthouse Crescent PS - Waimea West PS																					
		Waimea West Road PS - Bryant Road PS																					
		Bryant Road PS - Brightwater Main PS																					
		Wakefield - Brightwater Main PS	137	Trunk main replacement																			
		Arrow Street																					
		Pitfure Road																					
		Whitby Road - Brightwater																					
	Pump Stations	Brightwater Main PS	1 2	Main PS & RM Replacement Isolation Valves																			
		Bryants Road PS																					
		Waimea West Road PS																					
		Malthouse Crescent PS	139	Telemetry																			
	Treatment Plant	NRSBU																					
Richmond / Hope	General Area		SS 39	System Operating Plan Updates																			
	Rising/Trunk Mains	Rising Main from Brightwater	1	Brightwater - Burkes Bank rm replacement																			
		Gravity Main from Brightwater - Richmond	90	Burkes Bank - Hope Gravity Main																			
		RM from Sunview Heights PS																					
		RM from Hill St PS - Gladstone Rd																					
		Bateup Rd																					
		Gladstone Rd	92	Gladstone Rd pipeline upgrade																			
		Oxford Street	97	Oxford Street pipeline upgrade																			
		Queen Street	98	Queen Street pipeline upgrade																			

		Hill St - Beach Road			
		Headingly Lane PS - Beach Road PS			
	Pump Stations	Hill Street PS			
		Sunview Heights PS			
		Headingly Lane PS			
	Other Assets	Beach Rd Penstock	139	Telemetry	
	Treatment Plant	NRSBU			
Mapua / Ruby Bay	General Area		SS 39	System Operating Plan Updates	
	Rising/Trunk Mains	to Stafford Drive PS			
		Stafford Drive PS - Taits PS			
		Taits PS - Warren Place PS	39	PS & RM upgrade	
		Warren Place PS - 102 Aranui Rd PS			
		Aranui Rd PS - Aranui/Higgs PS			
		Aranui /Higgs PS - Mapua Wharf PS			
		Mapua Wharf PS - Rabbit Island			
		Mapua Leisure Park PS - Iwa Street PS			
		Iwa Street PS - Mapua Wharf PS			
		Higgs Rd PS3 - Higgs Rd PS 2			
		Higgs Rd PS 2 - Lionel Place PS			
		Lionel Place PS - Aranui Road			
	Pump Stations	Mapua Wharf PS			
		Aranui - Higgs Road PS	30	PS upgrade and storage	
		Leisure Park PS			
		Toru Street PS	40	PS upgrade and storage	
		Higgs Road No. 1 PS	31 139	PS upgrade and storage Telemetry	
		Higgs Road No. 2 PS	139	Telemetry	
		Higgs Road No. 3 PS	139	Telemetry	
		Aranui Road PS	29	Aranui combined PS upgrade	
		Stafford Drive (Tait) PS	39	PS & RM upgrade	
		Ruby Bay Shop PS	37	PS upgrade and storage	
		Warren Place PS			
	Treatment Plant	NRSBU			
Motueka	General Area		SS 39	System Operating Plan Updates	
	Rising/Trunk Mains	from Riwaka - Motueka WWTP	105	Motueka Bridge - Motueka WWTP	
		Everett Street PS - Trewavas Street PSs			
		Trewavas Streets PS - Thorp Street PS	69	Thorp Street pipe replacement	
		Thorp Street PS - Motueka WWTP	70	Thorp Street pipe replacement	
		Motueka Quay PS - Thorp Street PS			
		Courtney Street PS - Thorp Street PS			
		High Street			
		Tudor Street			
	Pump Stations	Goodman PS			
		Woodlands PS	73	PS upgrade	

		Courtney Street PS	53	PS upgrade, storage, biofilter and capacity	
		Tarrant Place PS			
		Teece PS			
		Motueka Quay PS			
		Totara Park PS			
		Thorp Street (Benseman) PS			
		240 Thorp Street PS			
		13 Trewavas Street PS	44	Relocate PS & install telemetry	
		45 Trewavas Street PS			
		86 Trewavas Street PS			
		Fearons Garden			
		Beach Front PS			
		Everett Street PS			
		Oaks Village PS	62	PS upgrade, storage, biofilter and capacity	
		Atkins PS			
		Sanderlane PS			
	Treatment Plant	Motueka WWTP	61	WWTP upgrade	

Riwaka / Kaiteriteri	General Area		SS 39	System Operating Plan Updates	
	Rising/Trunk Mains	Honeymoon Bay PS - Breaker Bay PS			
		Breaker Bay PS - Martin Farm PS			
		Little Kaiteriteri PS - Martin Farm Road PS			
		Martin Farm Rd PS - Kaiteriteri Vessel			
		Martin Farm Rd - Martin Farm Rd PS			
		Kaiteriteri Vessel - Stephens Bay PS			
		Stephens Bay PS - Tapu Bay PS			
		Main across Tapu Bay - Riwaka	25	Tapu Bay pipeline	
		Green Tree PS - Riwaka Main PS			
		Jenkins SH60 PS - School Rd PS			
		School Rd PS - Riwaka Main PS			
		Lodder Lane PS - Riwaka Main PS			
		Riwaka Main PS - Motueka WWTP	22	Replace rising main through Girvins	
	Pump Stations	Honeymoon Bay PS			
		Breaker Bay PS	14	Improve access to PS	
		Martin Farm Road PS	19	PS upgrade	
		Little Kaiteriteri PS	17	Bigger lids needed for access	
		Stephens Bay PS	23	PS upgrade	
		Tapu Bay PS			
		Riwaka Main PS			
		Jenkins SH60 PS			
		School Road PS			
		Green Tee Lane PS			
		Lodder Lane PS			
		Kaiteriteri Vessel			
	Treatment Plant	Motueka WWTP			

Takaka	General Area		SS 39	System Operating	

				Plan Updates																					
	Rising/Trunk Mains	Three Oaks PS - Sunbelt Crescent PS																							
		Sunbelt Crescent PS - Waitapu Rd PS																							
		Waitapu Rd PS - WWTP																							
		Rototai Rd PS - Primary School PS																							
		Primary School PS - Waitapu Rd PS																							
		Dodson Rd PS - Park Avenue PS																							
		Park Avenue PS - Motupipi St PS																							
		Motupipi St PS - Hiawatha Lane PS																							
		Hiawatha Lane PS - WWTP																							
	Pump Stations	Waitapu Rd PS	119	Mobile Generator																					
		Hiawatha Lane PS	119	Mobile Generator																					
		Motupipi Street PS	119	Mobile Generator																					
		Primary School PS	119	Mobile Generator																					
		Rototai Road PS	119 139	Mobile Generator																					
		Park Ave PS	119 139	Mobile Generator																					
		Dodson Road PS	119 139	Mobile Generator																					
		Sunbelt Crescent PS	119	Mobile Generator																					
		Takaka RRC PS	119 139	Mobile Generator																					
		Takaka Transfer Station PS	119 139	Mobile Generator																					
	Treatment Plant	Takaka WWTP	128	WWTP upgrade																					
Pohara	General Area		SS 39	System Operating Plan Updates																					
	Rising/Trunk Mains	Tarakohe PS - Pohara Valley Rd PS	84	PS & RM upgrades																					
		Pohara Valley Rd PS - Pohara Camp PS	84	PS & RM upgrades																					
		Pohara Camp PS - Four Winds PS	84	PS & RM upgrades																					
		Golf Club PS - Four Winds PS																							
		Four Winds PS - Boyle Street PS	84	PS & RM upgrades																					
		Boyle St PS - Delaneys PS																							
		Delaneys PS - Burnside PS																							
		Burnside PS - Three Oaks PS																							
	Pump Stations	Three Oaks PS	119 139	Mobile Generator Telemetry																					
		Burnside PS	119	Mobile Generator																					
		Delaneys PS	119	Mobile Generator																					
		Boyle Street PS	119 139	Mobile Generator Telemetry																					
		Golf Club PS	119 139	Mobile Generator Telemetry																					
		Four Winds PS	84	PS & RM upgrades																					
		Pohara Camp PS	84	PS & RM upgrades																					
		Pohara Valley PS	84	PS & RM upgrades																					
		Tarakohe PS	84	PS & RM upgrades																					
	Treatment Plant	Takaka WWTP	119 139 128	Mobile Generator Telemetry WWTP Upgrade																					
Ligar Bay / Tata Beach	General Area		SS 39	System Operating Plan Updates																					
	Rising/Trunk Mains	Tata Beach PS - Ligar Bay PS	28	PS & RM upgrades																					

		Ligar Bay PS - Tarakohe PS	27	PS & RM upgrades
	Pump Stations	Ligar Bay PS	27	PS & RM upgrades
		Tata Beach PS	28 139	PS & RM upgrades Telemetry
	Treatment Plant	Takaka WWTP	119 139	Mobile Generator Telemetry
Collingwood	General Area		SS 39	System Operating Plan Updates
	Rising/Trunk Mains	Beach Road PS - Elizabeth Street PS		
		Elizabeth Street PS - Wallys Rest PS		
		Wallys Rest PS - WWTP		
	Pump Stations	Beach Road PS	119	Mobile Generator
		Motels PS	119	Mobile Generator
		Wallys Rest PS	119	Mobile Generator
	Treatment Plant	Collingwood WWTP	12 119	WWTP hydraulics improvement Mobile Generator
Upper Takaka	General Area		SS 39	System Operating Plan Updates
	Rising/Trunk Mains	Upper Takaka PS - WWTP		
	Pump Stations	Upper Takaka PS	119	Mobile Generator
		Harwood Place PS	119	Mobile Generator
	Treatment Plant	Upper Takaka WWTP	119 139	Mobile Generator Telemetry
Tapawera	General Area		SS 39	System Operating Plan Updates
	Rising/Trunk Mains	Main Road - WWTP		
		Motueka Valley Highway - WWTP		
		WWTP - Distribution		
	Pump Stations	-		
	Treatment Plant	Tapawera WWTP		
St Arnaud	General Area		SS 39	System Operating Plan Updates
	Rising/Trunk Mains	Kerr Bay Rd PS - WWTP	111	Rising main upgrade
		Beech Nest PS - WWTP		
	Pump Stations	PS 1 (Lake)		
		PS 2 (Alpine Lodge)		
		Beech Nest PS		
	Treatment Plant	St Arnaud WWTP	113 115	WWTP upgrade Desludge oxidation pond
Murchison	General Area		SS 39	System Operating Plan Updates
	Rising/Trunk Mains	Riverview Camp - Grey Street		
		Hotham Street PS - Waller Street PS		
		Waller Street PS - WWTP		
		Landfill Leachate PS - WWTP		
	Pump Stations	Waller Street PS	74	Mobile generator
		Hotham Street PS	74	Mobile generator
	Treatment Plant	Murchison WWTP	74	Mobile generator

Q.2.4. Projects to Address Risk Shortfalls

The specific risk mitigation measures that have been planned within the 20 year wastewater programme include:

- updating System Operating Plans
- a programme of telemetry installation and upgrade
- 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 WWTPs, to satisfy growth and resource consents
- on-going Inflow and infiltration investigation and minor repairs across the district.

Q.2.5. Asset Insurance

Tasman District Council has various mechanisms to insure assets against damage. These include:

1. Tasman District Council insures its above ground assets, like buildings, through private insurance which is arranged as a shared service with Nelson City and Marlborough District Councils.
2. Tasman District Council is a member of the Local Authority Protection Programme (LAPP) which is a mutual pool created by local authorities to cater for the replacement of some types of infrastructure assets following catastrophic damage by natural disasters like earthquake, storms, floods, cyclones, tornados, volcanic eruption, tsunami. These infrastructure assets are largely stopbanks along rivers and underground assets like water and wastewater pipes and stormwater drainage.
3. Taman District Council has a Classified Rivers Protection Fund, which is a form of self-insurance. The fund is used to pay the excess on the LAPP insurance, when an event occurs that affects rivers and stopbank assets.
4. Tasman District Council has a General Disaster Fund, which is also a form of self-insurance. Some assets, like roads and bridges, are very difficult to obtain insurance for or it is prohibitively expensive if it can be obtained. For these reasons Council has a fund that it can tap into when events occur which damage Council assets that are not covered by other forms of insurance. Some of the cost of damage to these assets is covered by central government, for example the New Zealand Transport Agency covers around half the cost of damage to local roads and bridges.

Q.2.6. Civil Defence Emergency Management

The Civil Defence Emergency Management Act 2002 was developed to ensure that the community is in the best possible position to prepare for, deal with, and recover from local, regional and national emergencies. The Act requires that a risk management approach be taken when dealing with hazards including natural hazards. In identifying and analysing these risks the Act dictates that consideration is given to both the likelihood of the event occurring and its consequences. The Act sets out the responsibilities for Local Authorities. These are:

- ensure you are able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency
- plan and provide for civil defence emergency management within your own district.

Tasman District Council and Nelson City Council deliver civil defence on a joint basis as the Nelson Tasman Civil Defence Emergency Management (CDEM) Group. The vision of the CDEM Group is to build “A resilient Nelson Tasman community”.

Civil Defence services are provided by the Nelson Tasman Emergency Management Office. Other council staff are also heavily involved in preparing for and responding to civil defence events. For example, Council monitors river flows and rainfall, and has a major role in alleviating the effects of flooding.

At the time of writing the Nelson Tasman Civil Defence Emergency Management Group released its Draft Regional Plan for community consultation. The Plan sets out how Civil Defence is organised in the region and describes how the region prepares for, responds to and recovers from emergency events.

Q.2.7. Engineering Lifelines

The Nelson Tasman Engineering Lifelines (NTEL) project commenced in 2002 and concluded in 2009 with a report and risk assessments titled *Limiting the Impact*. The purpose of the report was:

- to help the Nelson Tasman region reduce its infrastructure vulnerability and improve resilience through working collaboratively
- to assist Lifeline Utilities with their risk reduction programmes and in their preparedness for response and recovery
- to provide a mechanism for information flow during and after an emergency event.

The project was supported and funded by the two controlling authorities, Nelson City Council and Tasman District Council. Following the initial start-up forum in 2002, a Project Steering Group was formed and initial project work was completed. In 2008, the NTEL Group was formed. The initial work to investigate risks and assess vulnerabilities from natural hazard disaster events was divided amongst five task groups:

- Hazards Task Group
- Civil Task Group
- Communications Task Group
- Energy Task Group
- Transportation Task Group.

These groups were then tasked with assessing the risk and vulnerability of segments of their own networks against the impacts of major natural hazard disaster events. These natural hazards included:

- earthquake
- landslide
- coastal / flooding.

The Nelson Tasman region is geotechnically complex with high probabilities of earthquake, river flooding and landslides.

By identifying impacts that these hazards may have on the local communities, NTEL aim to have processes in place to allow the community to return to normal functionality as quickly as possible after a major natural disaster event.

To date the project has identified the impacts of natural hazards and the critical lifelines of the regions service networks including communication, transportation, power and fuel supply, water, sewerage, and stormwater networks.

The initial NTEL assessment work is the first stage of an on-going process to gain a more comprehensive understanding of the impacts of natural hazards in the Nelson Tasman region.

The review date of the NTEL assessments is not rigidly set in place, but it is envisaged that a five-yearly on-going review period is appropriate with more frequent reviews and updates necessary and beneficial as new or updated relevant information becomes available.

Q.2.8. Recovery Plans

These plans are designed to come into effect in the aftermath of an event causing widespread damage and guide the restoration of full service.

The Recovery Plan for the Nelson Tasman Civil Defence and Emergency Management Group (June 2008) identifies recovery principles and key tasks, defines recovery organisation, specifies the role of the Recovery Manager, and outlines specific resources and how funds are to be managed.

Information about welfare provision in the Nelson-Tasman region is contained in a Welfare Plan (December 2005), which gives an overview of how welfare will be delivered during the response and recovery phases of an emergency.

The plan is a coordinated approach to welfare services for both people and animals in the Nelson Tasman region following an emergency event:

Q.2.9. Business Continuance

Council has a number of processes and procedures in place to ensure minimum impact to Wastewater services in the event of a major emergency or natural hazard event.

- Council has limited business continuity plans that were developed around the influenza pandemic planning in 2006
- Council's wastewater contractors have up to date Health and Safety Plans in place
- Council's professional services consultant (MWH New Zealand Ltd) has an Emergency Response and Business Continuity Plan.

APPENDIX R. LEVELS OF SERVICE, PERFORMANCE MEASURES AND RELATIONSHIP TO COMMUNITY OUTCOMES

R.1 Introduction

A key objective of this AMP is to match the level of service provided by the wastewater activity with agreed expectations of customers and their willingness to pay for that level of service. The Levels of Service provide the basis for the life cycle management strategies and works programmes identified in the AMP.

The Levels of Service for Wastewater have been developed to contribute to the achievement of the stated Community Outcomes that were developed in consultation with the community, but taking into account:

- the Council's statutory and legal obligations
- the Council's policies and objectives
- the Council's understanding of what the community is able to fund.

R.2 How do our Wastewater Activities Contribute to the Community Outcomes?

Through consultation, the Council identified eight Community Outcomes. These Community Outcomes are linked to the four well beings and Council Objectives as shown in Table R-1.

Table R-1: Community Wellbeings, Outcomes, Council Objectives, Groups and Activities

Community Outcomes	Council Objectives	Council Groups of Activities	Council Activities
Community Wellbeing - Environmental			
Our unique natural environment is healthy and protected Our urban and rural environments are pleasant, safe and sustainably managed.	To ensure sustainable management of natural and physical resources and security of environmental standards.	Environment and Planning	• Resource Policy • Environmental Information • Resource Consents and Compliance • Environmental Education, Advocacy and Operations • Regulatory services • Rivers and Flood Management
Our infrastructure is safe, efficient and sustainably managed.	To sustainably manage infrastructural assets relating to Tasman district.	Transportation	• Regional Cycling and Walking Strategy • Land Transportation • Coastal Structures • Aerodromes
		Sanitation, drainage and water supply	• Solid Waste • Wastewater • Stormwater • Water Supply
Community Wellbeing - Social and Cultural			

Community Outcomes	Council Objectives	Council Groups of Activities	Council Activities
Our communities are healthy, resilient and enjoy their quality of life.	To enhance community development and the social, natural, cultural and recreational assets relating to Tasman district.	Cultural services and grants.	• Cultural services and community grants
Our communities respect regional history, heritage and culture.		Recreation and leisure	• Community recreation • Camping grounds • Libraries • Parks and Reserves
Our communities have access to a range of cultural, social, educational and recreational services.			
Our communities engage with Council's decision-making processes.		Community support services	• Community facilities • Emergency management • Community housing • Governance
Community Wellbeing - Economic			
Our developing and sustainable economy provides opportunities for us all.	To implement policies and financial management strategies that advance. To promote sustainable development in the Tasman district.	Council Enterprises	• Forestry • Property • Council controlled organisations.

Table R-2 below describes how the wastewater activities contribute to the Community Outcomes.

Table R-2: Contribution of Wastewater Activities to the 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.

R.3 Level of Service

Levels of service are attributes that Tasman District Council expects of its assets to deliver the required services to stakeholders.

A key objective of this plan is to clarify and define the levels of service for the wastewater assets, and then identify and cost future operations, maintenance, renewal and development works required of these assets to deliver that service level. This requires converting user's needs, expectations and preferences into meaningful levels of service.

Levels of service can be strategic, tactical, operational or implementation and should reflect the current industry standards and be based on.

- ***Customer Research and Expectations:*** Information gained from stakeholders on expected types and quality of service provided.
- ***Statutory Requirements:*** Legislation, regulations, environmental standards and Council By-laws that impact on the way assets are managed (ie. resource consents, building regulations, health and safety legislation). These requirements set the minimum level of service to be provided.
- ***Strategic and Corporate Goals:*** Provide guidelines for the scope of current and future services offered and manner of service delivery, and define specific levels of service, which the organisation wishes to achieve.
- ***Best Practices and Standards***: Specify the design and construction requirements to meet the levels of service and needs of stakeholders.

R.3.1. Industry Standards and Best Practice

The AMP acknowledges Council's responsibility to act in accordance with the legislative requirements that impact on Council's wastewater activity. A variety of legislation affects the operation of these assets, as detailed in Appendix A.

R.3.2. Prioritisation related to available resources

With wastewater assets, there are often higher levels of maintenance and renewal requirements proposed (increased Levels of Service etc) than the resources allow for. Tradeoffs then have to be made as to what impacts on the ability of an asset to provide a service against the nice to have aspects.

R.3.3. What Level of Service Do We Seek to Achieve?

The Levels of Service that the Council has adopted for this AMP have been developed from the Levels of Service prepared in the July 2006 and July 2009 AMPs. They take in account feedback from various parties including Audit New Zealand, industry best practice and ease of measuring and reporting of performance measures.

Council has decided to reduce the number of levels of service reported in the LTP, showing only those that are considered to be customer focussed. The AMP extends the levels of service and performance measures to include the more technical associated with the management of the activity.

Table R-3 details the levels of service and associated performance measures for the Wastewater Activity. Those shaded are the customer focussed measures which are included in the LTP. The table sets out Councils current performance and the targets they aim to achieve within the next three years and by the end of the next 10 year period.

The Levels of Service and performance measures are consulted on and adopted as part of the Long Term Plan consultation process.

R.3.4. What Plans Have Council Made to Meet the Levels of Service?

In preparing the future financial forecasts, Council has included specific initiatives to meet the current or intended future Levels of Service. A summary of these is included below.

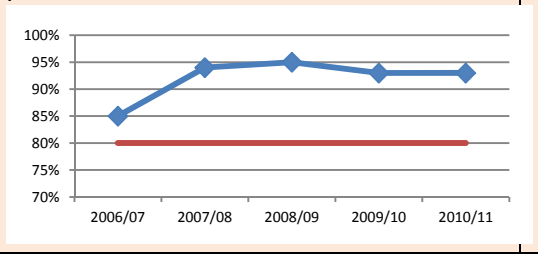
- Council is making a capital works investment of $91 over the next 20 year period to upgrade existing wastewater assets and improve levels of service in the wastewater systems. This includes:
    - installing new digital telemetry at numerous pump stations or other wastewater facilities
    - adding storage at several existing pump stations to meet current Engineering Standards and prevent overflows
    - purchasing two new mobile generators, to service Murchison and Golden Bay
    - increasing capacity of existing reticulation networks to meet current Engineering Standard requirements
    - upgrading two WWTPs to improve environmental and health outcomes.
- Of the above sum, the Council plans to invest $33 million over the next 20 years to renew wastewater assets including:
    - a major gravity pipeline renewals programme for Motueka to reduce infiltration, reduce overflows and improve treatment plant performance
    - upgrading analogue telemetry with digital telemetry at numerous pump stations or other facilities as they become due for renewal or are upgraded.
- The Council have allocated an annual budget of $5.3 million increasing to $7.4 million over 20 years for the Operation and Maintenance (O&M) of its wastewater assets. O&M costs include:
    - day to day operation and maintenance of all wastewater assets
    - electricity supply
    - NRSBU charges
    - professional services for investigative and modelling work/studies
    - CCTV of reticulation throughout the district
    - sludge management
    - root cutting and cleaning pipelines
    - hydraulic modelling
    - developing and updating System Operating Plans (SOPs).

Council has a budget provision on average of $150,000 per year over the next 20 year period to investigate and reduce infiltration within its wastewater networks.

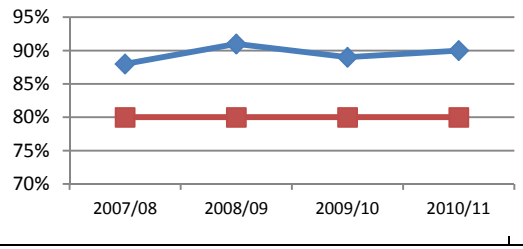
The WWTP at Bell Island is managed by a joint venture with Nelson City Council which is called the Nelson Regional Sewerage Business Unit (NRSBU). This is not a Council owned asset and therefore its performance is not measured or reported within Councils Level of Service.

Table R-3: Assessment of Current Performance against Levels of Service and Intended Future Performance

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	*In place*	*In place*	*In place*	*In place*
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		*Compliance with all effluent quality conditions stated in resource consents for wastewater treatment plants.* *As measured by laboratory analysis.*	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 (0.097km) 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		*Number of overflows of private property resulting from Council system fault.* *As recorded in Confirm.*	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		*Number of overflows from pump stations.* *As recorded in Confirm.*	Actual = 1 (Hill St 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 3	
				2012/13	2013/14	2014/15	
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 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 timeframe. 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.*	Actual = 100% 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.*	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		*Our pump stations have telemetry to allow automatic communication of failures.* *As detailed in the Asset Register.*	Actual = 60% 46 of the 76 pump stations have telemetry.	60%	65%	70%	100%
13		*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
14		*Assets are operated, maintained and repaired to a high standard.* *As measured through audits carried out by the Engineer.*	Actual = 90.	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 3	
				2012/13	2013/14	2014/15	
							

APPENDIX S. COUNCIL'S DATA MANAGEMENT, ASSET MANAGEMENT PROCESS AND SYSTEMS

S.1 Introduction

This Activity Management Plan has been developed as a tool for Council to describe how they intend to manage their assets, meet the levels of service agreed with the community and to explain the expenditure and funding requirement. It forms part of Council's Asset Management Process which is in general alignment with the International Infrastructure Management Manual (IIMM) as shown below in Figure S-1.

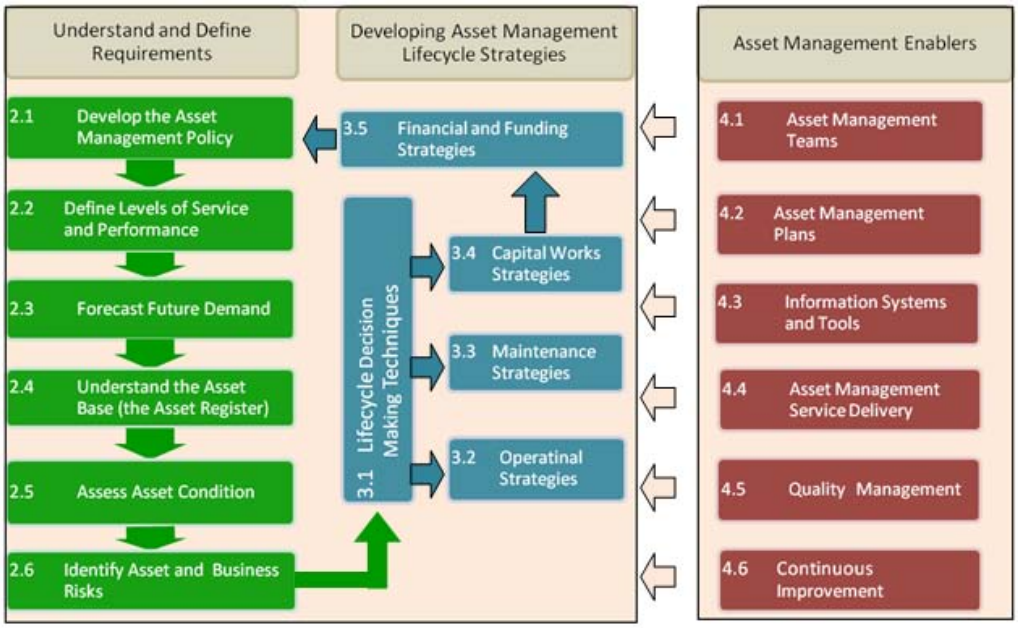


Figure S-1: Tasman District Council Organisation Structure

S.2 Understanding and Defining Requirements

S.2.1. Develop the Asset Management

S.2.1.1 Selecting the Appropriate Level of Asset Management

The Asset Management Policy provides the direction as to the level of Asset Management expected and can differ between activities. Council underwent a process in 2010 with asset management consultants Waugh Infrastructure Management Ltd in which they identified the appropriate level of asset management to target for their engineering activities. During this process, Council and consultant staff assessed a range of parameters to establish the base level of asset management to provide the community for each activity including:

- district and community populations
- issues affecting the district and each activity
- the costs and benefits to the community
- legislative requirements
- the size, condition and complexity of the assets
- the risk associated with failures
- the skills and resources available to the organization
- customer expectation.

IIMM (2006) identified two levels of asset management; Core and Advanced. Waugh Infrastructure Management Ltd classed the transition between the two as being Core Plus. Core Plus is above Core asset management but below being fully compliant with Advanced asset management and can vary between Core with one or two Advanced categories, through to being substantially or fully compliant with most of the Advanced categories. In the IIMM (2011), Core Plus is now classified as 'intermediate'.

Upon completion of the process, Council have set **Core Plus** as the target level at which they want to be managing the wastewater activity**.** The detail of required category compliance is under separate cover (Selecting the Appropriate Asset Management Level, Waugh August 2010).

S.2.1.2 Performance Review of Wastewater Supply Activity Management Practices

Council underwent a process at the end of the 2009 AMP to undertake a high level review of the AMPs and associated activity management processes against good practice asset management as described in the IIMM and in accordance with the Office of Auditor General. During this process, the AMP and associated practices were scored to give a snap shot of the current status and then set targets as to where Council wished to head. The 2009 AMP Improvement Plan was assessed in its effectiveness to close the gap between actual and target compliance levels and new items added to the Improvement Plan where gaps were identified.

The results of the review are detailed under separate cover (Performance Review of Wastewater Activity Management Processes, MWH New Zealand Ltd, February 2010).

The two reviews described above were carried out independently of each other however the outputs from both were compared to ensure consistency of recommendations. Whilst both reviews focused on slightly different aspects of asset management practices, there was no conflict between the recommendations made. The table below (Table S-1) shows analysis undertaken to link the two reviews to identify the compliance gaps and actions that should be undertaken to address them.

Table S-1: Analysis of Asset Management Reviews

	Three Waters		
	CORE PLUS	**Compliance Status**	**Compliance Gaps to address to meet CORE PLUS**
Description of Assets	Advanced	Substantially Compliant	**Action:** improve level of performance data in Confirm.
Levels of Service	Core	Higher level of compliance than suggested	There is substantial communication of LoS with the public.
Managing Growth	Advanced	Substantially Compliant	**Action:** Improve level of demand strategies for wastewater and stormwater.
Risk Management	Advanced	Substantially Compliant	**Action:** Improve integration with maintenance and replacement strategies.
Lifecycle Decision Making	Advanced (with the exception of predictive modelling)	Partially Compliant	**Action:** Improve evaluation tools. Unlikely to achieve Fully Compliant by LTP 2012.
Financial Forecasts	Advanced (with the exception of sensitivity testing of forecasts)	Compliant	No plans to undertake sensitivity testing of forecasts.
Planning Assumptions and Confidence Levels	Advanced	Substantially Compliant	**Action:** Improve confidence and accuracy of asset data and performance.
Outline Improvement Programmes	Advanced	Substantially Compliant	**Action:** Identify timeframes, priorities and resources for Improvement Plan actions.
Planning by Qualified Persons	Core	Compliant	Intending to achieve Advanced by undertaking Peer Review.
Commitment	Advanced	Substantially Compliant	**Action:** More emphasis and commitment needed to Improvement Plan.

S.2.2. Define Level of Service and Performance

Levels of Service have been reviewed since the 2009 AMP, taking account of Community Outcomes, legislative requirements, financial constraints and knowledge of asset performance. Community Outcomes, Levels of Service, Performance Measures and current performance are detailed in Appendix R of this AMP.

S.2.3. Forecast Future Demand

Population and demand forecasting has been updated since the 2009 AMP and is described in Appendix F.

Demand Management has been undertaken as described in Appendix N.

S.2.4. Understand the Asset Base

Council has a wealth of information on their assets which is collected, recorded and stored through a number of different systems. Data is graded for accuracy and completeness as shown in Table S-2.

Table S-2: Asset Data Accuracy and Completeness Grades

Grade	Description	Accuracy	Grade	Description	Completeness
1	Accurate	100%	1	Complete	100%
2	Minor inaccuracies	± 5%	2	Minor Gaps	90 – 99%
3	50% estimated	± 20%	3	Major Gaps	60 – 90%
4	Significant Data estimated	± 30%	4	Significant Gaps	20 – 60%
5	All data estimated	± 40%	5	Limited Data Available	20% or less

Table S-3 summarises the various data types, data source and how they are managed within Council. It also provides a grading on data accuracy and completeness where appropriate. Council is constantly improving the accuracy and completeness of their data.

Councils corporate Asset Management System (AMS) is Confirm Enterprise. The Engineering department uses Confirm to record and track customer enquiries, maintain its asset register and for tracking non-routine maintenance of assets. Valuations of assets is also run from Confirm.

The Asset Information team, Asset Managers, Councils consultants and contractors all have access to the system with levels of access appropriate to their needs.

Council's Confirm system is the primary asset management system and data management tool for the engineering activities. Confirm is a modular system and is a powerful tool used for the storage, interrogation and reporting of asset data.

Table S-3: Council Asset Data Types and Confidence

Information System	Data Type	Management Strategy	Data Confidence	
			Accuracy	Completeness
Confirm	Asset Location (point data)	Point data is provided in Confirm. All spatial data will be migrating to GIS in 2011/12 so will no longer be held in Confirm.	2	2
	Asset Description	Council's Asset Register is held in Confirm. It contains information on asset extent, age, remaining life, condition etc. Asset hierarchy capability is available in Confirm but Council do not see the need to implement this function at this stage.	2	2
	Customer Service	All customer enquiries and service requests are logged and can be assigned, tracked and analysed. The Customer Service Requests help drive the day to day reactive maintenance programme	2	2
	Asset Condition data	Condition data on non-pipe assets at major installations is collected through the maintenance contract on a three yearly basis, the most recent being in 2011/12. Asset condition data is also collected through the maintenance contract when undertaking works at an installation or asset.	2	2
	Historical data	Confirm holds data on jobs and maintenance for approximately five years. This allows the interrogation of the system for historical data on specific assets.	2	2
	Asset Performance	A significant amount of asset performance data relating to assets such as flow meters and pumps is collected on a regular basis by Council's contractors and consultants. This information has previously been held in other information systems but is now being recorded into Confirm.	2	2
	Critical Assets	The critical assets have been identified as part of the Activity Management Plan process and are shown in Appendix Y as part of the schematics and are also covered in Appendix Z in relation to risk assessments. These assets have not yet been separately identified within Councils Confirm system. There is an item in the Improvement Plan to ensure that the critical assets are separately identified with Confirm to allow easier assessment and reporting.	n/a	0
	Valuation	Council now undertakes it Asset Valuations through the Confirm system	2	2
	Maintenance Information	All newly collected maintenance information is recorded in Confirm. The contractor is now able to collect and record all maintenance information in the field through the use of mobile devices which link to Confirm. Historical information sits with CMS and also with the	3	3

Information System	Data Type	Management Strategy	Data Confidence	
			Accuracy	Completeness
		Contractors SETI system. Council intend to migrate this historical data into a SQL database accessible from Confirm. Tracking repairs and response times is carried out and reported to ensure key performance measures are being achieved.		
	Wastewater Connections	Wastewater connections are held within Confirm for billing purposes.	2	2
Infonet	CCTV	CCTV results and reports are currently stored on DVD and held by MWH New Zealand Ltd. Council are in the process of establishing Infonet as a suitable repository for CCTV information to aid in their optimised decision making process for renewals prioritisation.	1	3
Infoworks	Hydraulic Modelling	Hydraulic models have been developed for a number of schemes and catchments and are maintained and updated as required. A copy of the final model is held by Council in Infoworks.	2	2
NM2	Resource Consents	NM2 is owned and managed by Council's consultants, MWH New Zealand Ltd. It holds all resource consents for water, wastewater, stormwater, solid waste and roading. NM2 is used to manage the accurate programming of actions required by the consents.	2	2
NCS	Financial Information	Council Accounting and Financial systems are based on Napier Computer Systems (NCS) software and GAAP Guidelines. Long term financial decisions are based on the development of 20-year financial plans.	2	2
SCADA	Telemetry	Database which is used to monitor the performance of key assets. The system acts as a data logger.	2	2
CMS	Operational Performance	A database containing data information about pump types and operational performance (totalised flow etc.) is maintained. It is intended that this will be transferred eventually into Confirm. CMS is being phased out and the process will be replaced by Confirm (anticipated for 2011/12).	2	2
Hilltop	Environmental Monitoring	Holds records and results of consent monitoring for wastewater treatment plants and for resource recovery centres. Hilltop is not suitable for viewing, managing or manipulating data, so this is done through alternative software.	2	2
GIS	Asset location	GIS is compiled from as-built information and should be the first port of call for asset location. However, there is a short time delay with importing the data into GIS so it is sometimes necessary to refer to the as-builts.	2	2
SilentOne	As Builts	As-builts are the primary source of asset location data. As-built plans of all new assets are scanned and incorporated into SILENTONE. This allows digital retrieval of as-builts from the	2	2

Information System	Data Type	Management Strategy	Data Confidence	
			Accuracy	Completeness
		GIS system. Early as-builts are to a lesser quality, however in recent years as-builts quality has been significantly improved and are now prepared to specific standards and reviewed/audited on receipt.		
CITRIX	Growth and Demand Supply Model (GDSM)	The GDSM underpins Council's long term planning. It is not an isolated tool that calculates a development forecast, it is a number of linked processes that involve assessment of base data, expert interpretation and assessment, calculation and forecasting.	2	2
Trifecta	Road Corridor forward programmes	Council uploads their forward programme for Council activities, along with other service providers such as Telecom in order to identify programme clashes and opportunities.	2	3
Tenderlink	Tenders	Council upload all Request for Tender documents onto the Tenderlink system which allows Contractors to download for tender. The system also holds key information for tenderers. Tenderlink is a national database.	1	1
Various	Other Data Types	A large amount of information is not yet stored centrally within Council and is held and updated by Council's consultants or contractors. Council is moving towards Confirm being the primary source for all asset information, so these data sources will eventually migrate to Confirm.	2	2
	Asset Photos	Council's intention is that a library of asset photos will be stored within Confirm. At present however, electronic asset photographs are held by MWH New Zealand Ltd.	2	2

S.2.5. Assess Asset Condition

Council undertook a comprehensive condition assessment of its Wastewater assets in a valuation exercise in 1998. Subsequent valuations have used the pre-existing condition assessment, but reviewing and amending with the asset management knowledge and experience gained through operation of the assets. This draws from knowledge based on.

- Pipe break reports where pipe condition and nature of break is recorded by service in the field and logged into digital loggers that record the information against the asset and the customer service request. Ultimately this will be held in Confirm for analysis of condition.
- Pipe break history where all pipe breaks are located by GPS to allow mapping on an annual basis to establish trends

An above ground asset condition assessment is performed by the maintenance contractor on a three yearly basis, this was last carried out in 2008.

S.2.6. Identify Asset and Business Risks

Council have adopted an Integrated Risk Management framework to manage risks, both at corporate and activity level. This is detailed further in Appendix Q.

S.3 Developing Asset Management Strategies

There are many different types of decision making techniques that have been applied by Council during the development of the management plans. These are better described in relevant appendices, but are summarised in Table S-4.

Table S-4: Asset Management Strategies Summary

Strategy	Processes and Systems
Renewals Management (Appendix I)	• Renewals first identified from valuation data in Confirm – when remaining life expires • Forecast renewals are then field justified by reviewing with operations staff and asset management staff to confirm renewal requirements from valuation information and add to where there is specific knowledge of additional renewal requirements. • Optimising review undertaken to identify opportunities for: o "bundling" with other projects – across assets and services – eg. roading, wastewater, power, telecom o optimised replacement – ie. whether the replacement asset should be the same size, capacity or manufacture, or are there justifications to replace with something different o smoothing of expenditure. • On an annual basis renewal work is programmed for implementation and managed as a programme – either through the Operations and Maintenance contract, or through specific tendered construction projects.

Strategy	Processes and Systems
Asset Creation Management (Appendix F)	• Asset creation forecasts are developed every three years when updating this AMP. • The 10 year forecast from the last update of the AMP is taken as a starting point, and then the outcomes of growth and demand forecasts, level of service and performance review, the risk management and a workshop with asset managers are used to identify upgrade projects needed. • All capital projects identified are listed and a cost estimate developed. For consistency, a cost estimating spreadsheet has been developed and a series of base rates developed after consultation with suppliers and recent contract prices for the more common work elements. The cost estimating spreadsheets require: o assessment of construction and non-construction costs (ie. engineering, consenting costs, land costs) o an assessment of contingency needed – on a consistent basis between estimates o an evaluation of the project drivers – increased level of service, growth or renewal. o an evaluation of a programme of implementation – spanning years to ensure appropriate time allowed for developing the project o a statement of the scope of the upgrade and a statement of risks and assumptions made in preparing the estimate • Once estimated the forecasts are combined in a capital expenditure forecast database that records the outcomes of the estimate in a manner that allows summation of the work value against various criteria – scheme, project driver (growth, increased LOS or renewal), year or project. It is also used as an input into Council's financial system. • The funding of the capital forecast is modelled in Council's financial system NCS, and the implications for the forecast review at Council officer level and Councillor level. Any changes made to the projection in terms of deferring, adding or deleting projects is recorded and the implications on risk, growth or level of service stated. • The records of the individual project estimate sheets and the overall capital forecast spreadsheet are filed and retained.
Operational and Maintenance (Appendix E)	• Includes Strategic Studies such as CCTV, hydraulic modelling, demand management.

S.4 Asset Management Enablers

The Asset Management Enablers are the aspects that underpin the whole asset management decision making at each stage of the Asset Management Process. These are summarised here, but detailed further throughout this AMP.

Asset Management Teams – consists of Asset Managers and their consultants

Asset Management Plans – this AMP is a key part of the asset management process and is updated on a regular basis.

Information Systems and Tools – these are detailed in Table S-3.

Asset Management Service Delivery – includes the procurement strategies that ensure Council delivers the asset management activities in the most cost-effective way. This is primarily managed through a professional services contract with MWH New Zealand Ltd for consultation services, operation and maintenance contract C688 and through a special procurement and tender process for construction work.

Quality Management – there are a variety of rigorous quality assurance processes involved in management of the wastewater activity.

Continuous Improvement – covered by Appendix V. The Improvement Programme shown in this document is a snapshot of the programme in its current state. The Improvement Programme is reviewed and updated on a regular basis.

APPENDIX T. BYLAWS

The following bylaws have been adopted by Council:

- Consolidated Bylaws 2006 - Introduction
- Control of Liquor in Public Places 2007
- Dog Control Bylaw 2009
- Freedom Camping Bylaw 2011
- Navigation Safety Bylaw 2006
- Speed Limits Bylaw 2004
- Stock Control and Droving Bylaw 2005
- **Trade Waste Bylaw 2005**
- Trading in Public Places Bylaw 2010
- Traffic Control Bylaw 2005
- Water Supply Bylaw 2009.

In accordance with the Local Government Act 2002, these bylaws will be reviewed no later than 10 years after they was last reviewed.

***The Trade Waste Bylaw is the only bylaw with relevance to this activity.**

The Trade Waste Bylaw 2005 is expected to be reviewed and updated in 2011/12. Provision has been made in the Operations budget to update the Trade Waste Bylaw again in 2021/22.

APPENDIX U. STAKEHOLDERS AND CONSULTATION

U.1 Stakeholders

There are many individuals and organisations that have an interest in the management and / or operation of Council's assets. Council underwent a process whereby they identified an extensive list of these stakeholders and what aspects they value in the activity. The outcomes of that process are summarised below in Table U-1.

A full list is detailed under separate cover in Levels of Service Gap Analysis MWH New Zealand Ltd, December 2010.

Table U-1: Stakeholders

Stakeholder Group	Core Values
Customers / users	Customer service Quality Environmental sustainability Compliance Accessibility
Regulatory	Compliance
Service providers / suppliers	Customer service Reliability / responsiveness
Council internal	Compliance Risk mitigation
Elected members	Customer service
Media	Customer service
Approval authority (funding)	Affordability Customer service Compliance
Funder	Affordability
Others (industry bodies, lobby groups, government departments, other affected parties	Customer service

U.2 Consultation

U.2.1. Purpose of Consultation and Types of Consultation

Council consults with the public to gain an understanding of customer expectations and preferences. This enables Council to provide a level of service that better meets the community's needs.

The Council's knowledge of customer expectations and preferences is based on:

- feedback from surveys
- public meetings
- feedback from elected members, advisory groups and working parties
- analysis of customer service requests and complaints
- consultation via the Annual Plan and Long Term Plan (LTP) process.

Council commissions customer surveys on a regular basis, usually every three years, from the National Research Bureau Ltd[6], but more recently on an annual basis. These Communitrak™ surveys assess the levels of satisfaction with key services, including wastewater services, and the willingness across the community to pay to improve services.

Council at times will undertake focussed surveys to get information on specific subjects or projects.

U.2.2. Consultation Outcomes

The most recent NRB Communitrak™ survey was undertaken in May/June 2011. This asked whether residents were satisfied with the wastewater system and included residents that had a Council service and some that were not on a Council service. The results from this survey are summarised in.

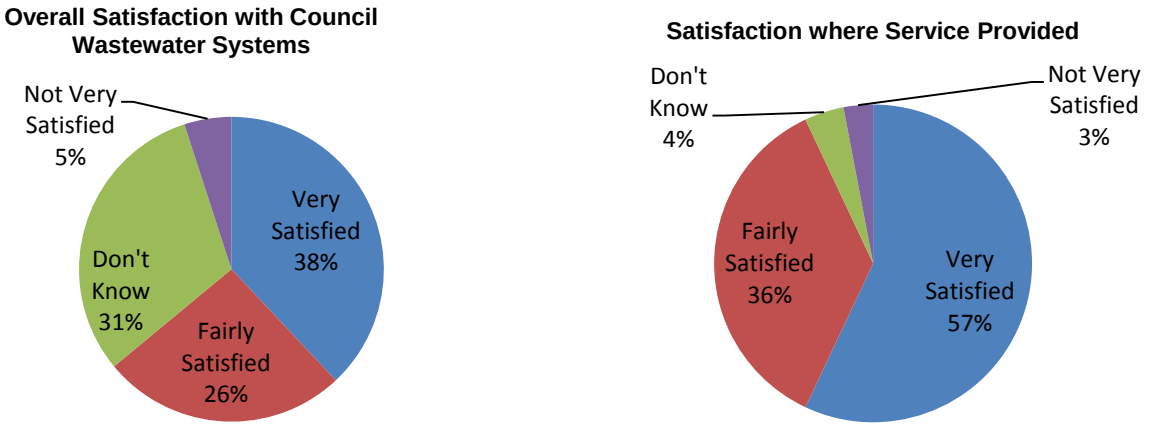


Figure U-1: Public opinion of Wastewater Systems Communitrak™ Survey 2011

The level of satisfaction is on a par with the Peer Group but is below the national average.

A large percent (31%) were unable to comment on their satisfaction with the Council's wastewater system and that is probably due to 36% of residents saying they are not provided with a wastewater system. Of the residents who are provided with a wastewater system, 93% are satisfied with it, showing a fairly static trend over the last few years, see Figure U-2.

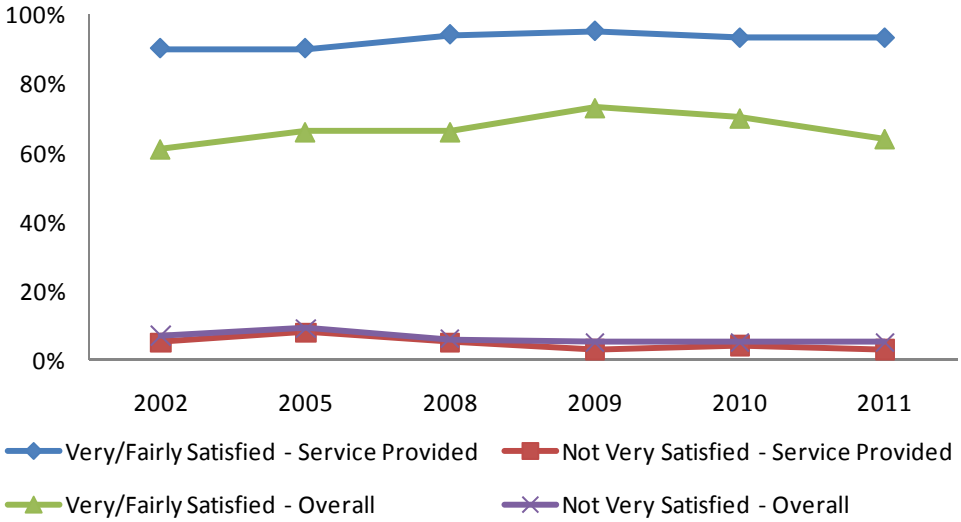


Figure U-2: Trend in Customer Satisfaction

[6] Communitrak™: Public Perceptions and Interpretations of Council Services / Facilities and Representation, NRB Ltd May/June 2011.

The main reasons residents are not very satisfied with the wastewater systems are:

- cost issues
- problems with smells
- no sewerage system.

Figure U-3 shows the overall satisfaction with Council wastewater systems by ward.

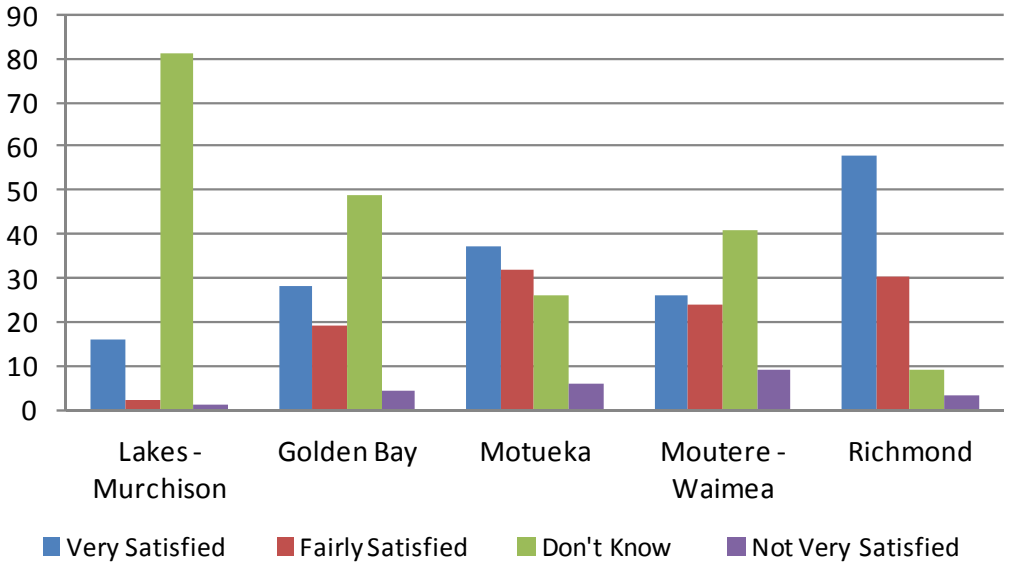


Figure U-3: Satisfaction with Wastewater Service by Ward

Residents were also asked if they would like to spend more (11%) about the same (71%), or less (1%) on wastewater given that Council cannot spend more without increasing rates or user charges. The outcome is shown in Figure U-4.

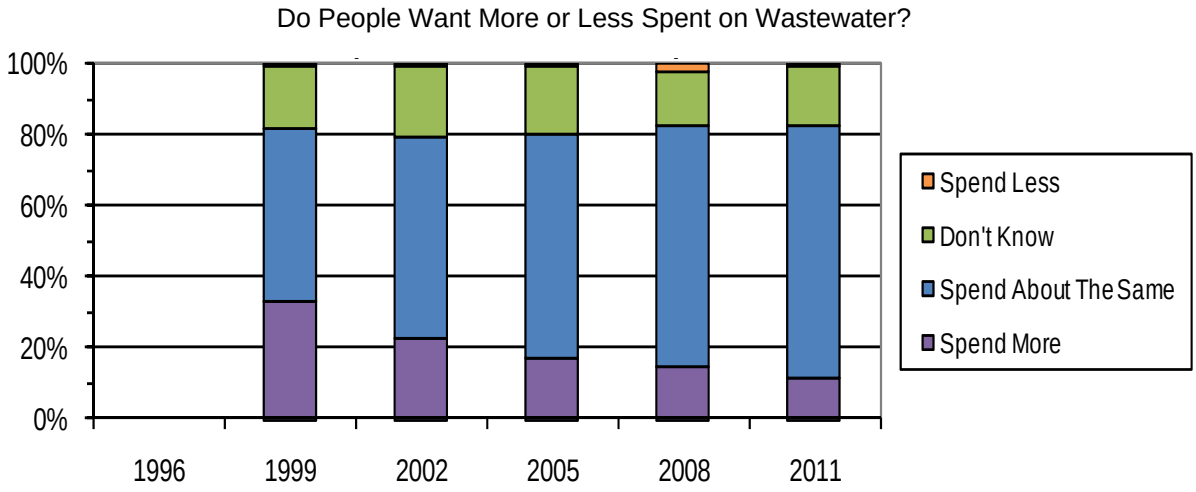


Figure U-4: Spend Emphasis on Wastewater

APPENDIX V. IMPLEMENTATION AND IMPROVEMENT PROGRAMME

V.1 Process Overview

The Activity Management Plans have been developed as a tool to help Council manage their assets, deliver the levels of service and identify the expenditure and funding requirements of the activity. Continuous improvements are necessary to ensure Council continues to achieve the appropriate (and desired) level of activity management practice; delivering services in the most sustainable way while meeting the community's needs.

Establishment of a robust, continuous improvement process ensures Council is making the most effective use of resources to achieve an appropriate level of asset management practice.

The continuous improvement process includes:

- identification of improvements
- prioritisation of improvements
- establishment of an improvement programme
- delivery of improvements
- on-going review and monitoring of the programme.

All improvements identified are included in a single improvement programme encompassing all activities managed by Council's Engineering Services. In this way, opportunities to identify and deliver cross-activity improvements can be managed more efficiently, and overall delivery of improvement can be monitored across this part of Council's business.

V.2 Strategic Improvements

In April 2010 Council identified the key cross activity improvement actions within Engineering Services for implementation prior to development of the AMPs for the 2012 to 2022 long term plan period. These were:

- update the growth strategy for the changed economic climate
- review levels of service to ensure they adequately cover core customer values
- implement Council's integrated risk management approach to activity level

These actions were all completed and have fed into the development of the current Activity Management Plan.

V.3 Training

Council do not have a formal schedule of required training, however both Council's staff and its consultants participate in training on a regular basis to ensure that best practice is maintained. This also helps to maintain a good asset management culture.

Council and its consultants are structured in a way that encompasses succession planning to prevent the loss of knowledge in the event of staff turnover. This AMP document also prevents loss of knowledge by documenting practices and process associated with this activity.

V.4 Asset Management Practice Reviews

Since the last AMP review, Council has undertaken a performance review of all Engineering Services activity management practices to compare how they align with the requirements of the Local Government Act 2002, Office of Auditor General (OAG) and industry best practices. This review process has been applied to identify improvement actions, and to monitor achievement of improvements against industry practice areas and Council priorities.

The results of reviews in 2009 and 2011 are shown on Figure V-1 below for this activity. Overall the targeted level (hollow bars) of improvement has been achieved or exceeded (results are shown as solid colour bars).

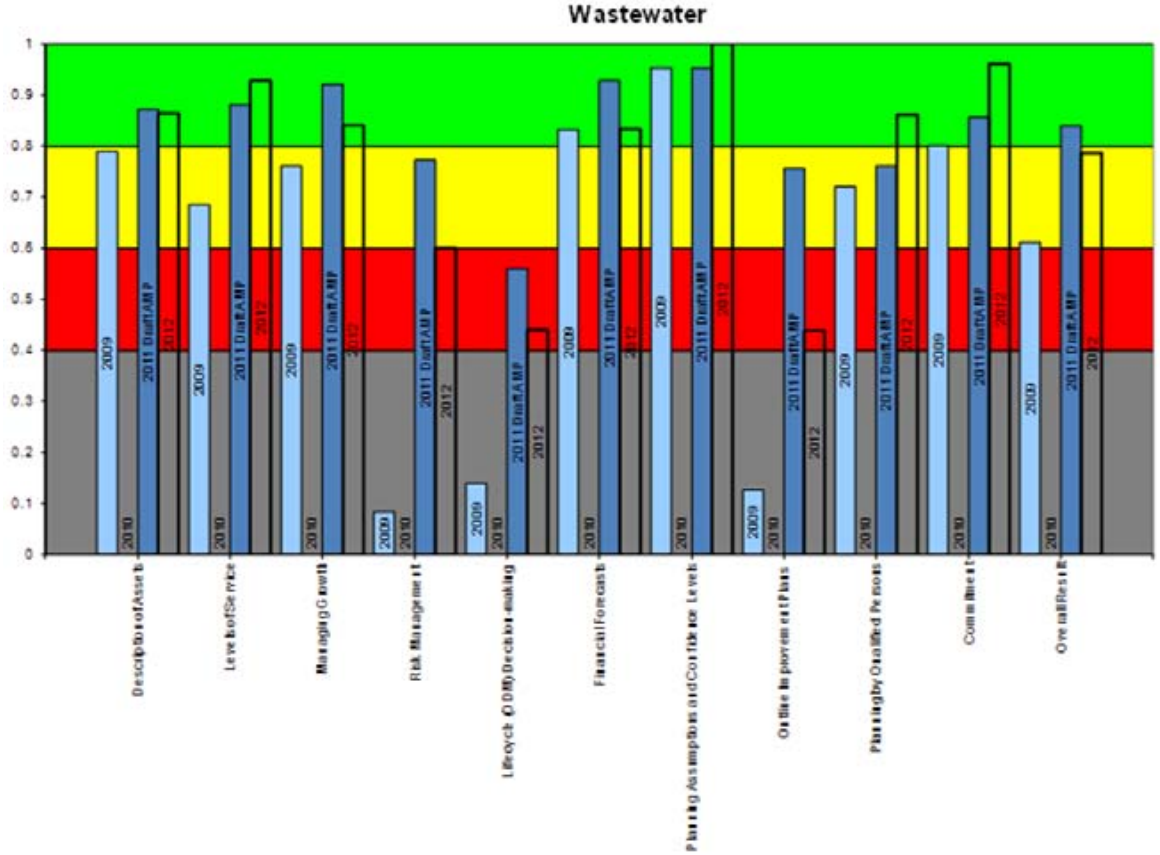


Figure V-1: Results of Benchmarking Review in Draft AMP

The methodology and the findings from the review are detailed in a separate report (*Performance Review of Wastewater Activity Management Practices*; MWH New Zealand Ltd, February 2010, and separate benchmarking review tables completed September 2011).

Council also sought consultation on selecting the appropriate level of activity management (*Selecting the Appropriate AM Level*; Waugh, August 2010).

Improvement actions identified in both of these review processes were included in the improvement programme.

Council will review the currency of the performance review checklist used to identify improvement actions as a result of the recent update to the International Infrastructure Management Manual (NAMS, 2011), and will update this checklist as appropriate. This is an Engineering Services improvement item encompassing all activities and is therefore not identified on the improvements list for this activity.

V.5 Peer Review

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 from the review indicated a need to present further discussion or evidence in the AMP to support the practices and processes in place in the operation, management and administration of the activity.

The findings and suggestions were assessed and prioritised by the asset management team. Those items that proved to be of sufficiently high value and efficiency to address were included in the Draft for Consultation (Version 4) of the document. The remainder were added to the Improvement Plan where necessary.

Version 4 of this document was then reviewed a final time by Waugh Infrastructure Management Ltd in May 2012. The report produced has been included at the end of this Appendix.

V.6 Improvement Programme Status

A summary on the status of all improvement items related to this activity are shown in Table V-1, and are split by the year that they were identified.

Table V-1: Improvements to Activity Management Systems since the 2005 AMP

Practice Area (year improvement action identified)	In Progress	Not Started	Complete	Grand Total
2008			**1**	**1**
4 - Risk Management			1	1
2009	**5**	**4**	**2**	**11**
1 - Description of Assets	2	1		3
2 - Levels of Service	1	2		3
4 - Risk Management			1	1
5 - Lifecycle (Optimised) Decision-making	1	1		2
6 - Financial Forecasts			1	1
7 - Planning Assumptions & Confidence Levels	1			1
2010	**6**		**16**	**22**
1 - Description of Assets			4	4
10 - Commitment			4	4
2 - Levels of Service			4	4
3 - Managing Growth			1	1
5 - Lifecycle (Optimised) Decision-making	4			4
7 - Planning Assumptions & Confidence Levels	1		1	2
8 - Outline Improvement Programmes	1			1
9 - Planning by Qualified Persons			2	2
2011	**2**	**26**		**28**
1 - Description of Assets		3		3
10 - Commitment	1			1
2 - Levels of Service		1		1
3 - Managing Growth		3		3
4 - Risk Management		4		4
5 - Lifecycle (Optimised) Decision-making		8		8
6 - Financial Forecasts		2		2
7 - Planning Assumptions & Confidence Levels	1	2		3
8 - Outline Improvement Programmes		2		2
9 - Planning by Qualified Persons		1		1
Grand Total	**13**	**30**	**19**	**62**

The Improvement Programme will be adopted in line with the adoption of the Long Term Plan and this Activity Management Plan. It will be continuously monitored with a full review on an annual basis and the status of the improvement items assessed and reported.

V.7 Improvement Actions Status

Improvement items completed for the period are shown in Table V-2 below:

Table V-2: Improvement Actions Completed

AMP Action Reference	Improvement action	Further Information	Status	Year that Improvement Action was Identified
A.002	**Links to Overarching Council Plans:-** Document linkages to the Regional Plan in the AMP.	Due for Draft version complete by Oct 2011.	Complete	2010
A.003	**Links to Activity Related Plans:** Improve documentation in the AMP of linkages to the Regional Policy Statements.	Due for Draft version complete by Oct 2011.	Complete	2010
A.004	**Links to Other Council Plans:-** There are clear linkages to the Water and Stormwater AMPs that need to be identified in the AMP (were identified internally but hasn't been documented).	Due for Draft version complete by Oct 2011.	Complete	2010
A.005	**Links to Other Council Plans:** Document linkages to procurement policies in the AMP.	Documenting - standard paragraph detailing AMP links to procurement policies.	Complete	2010
D.001	**Asset Valuations:** Review and update the water Asset Valuation on a 3 yearly cycle. Next review due in 2010.	Financial provision made in the O&M budget. Item 5 on the Strategic Studies list.	Complete	2009
F.001	**The Level and Impact of New Capital Works on the Network:** Improve documentation of selection criteria for new capital.	Documenting - standard paragraph detailing selection criteria for new capital.	Complete	2010
I.001	**Asset Renewals:** Improve documentation of the framework for renewals in the AMP.	Due for Draft version complete by Oct 2011.	Complete	2010
I.002	**Asset Renewals:** Improve documentation of the extent of deferred renewals.	Due for Draft version complete by Oct 2011.	Complete	2010
I.003	**Asset Renewals:** Improve documentation of how renewals are delivered.	Due for Draft version complete by Oct 2011.	Complete	2010
N.001	**Commonality of Approach:** Review demand management approach between each activity related to water (e.g. water, possibly also stormwater) for linkages.	May require minor project work to enable documenting.	Complete	2010
Q.001	**Risk Management:** Council intends to apply a consistent approach to risk management across all asset groups. Three levels of risk assessment will carried out; Organisation, Asset Group and Critical Assets.	Financial provision made in the O&M budget. Item 21 on the Strategic Studies list.	Complete	2009
Q.002	**Risk Management:** Introducing Risk at an activity level.	Activity Level	Complete	2008
R.002	**LOS Development:** Document how LOS have been developed internally within Council in the AMP (currently stated in LTP).	Due for Draft version complete by Oct 2011.	Complete	2010
R.003	**LOS Development:** Develop LOS for the next AMP in conjunction with the results of customer surveys and document this in the AMP to show how LOS have been developed with customers/users.		Complete	2010
R.004	**LOS Development:** - AMP should document that wastewater from Richmond goes to a WWTP run by a joint venture with Nelson City Council which is called the Nelson Regional Sewerage Business Unit (NRSBU), i.e. the WWTP is not a Council owned asset so is currently not addressed in the AMP.	Due for Draft version complete by Oct 2011.	Complete	2010

AMP Action Reference	Improvement action	Further Information	Status	Year that Improvement Action was Identified
R.006	**Gap Analysis:** Provide more detail in Appendix R on the gaps where current LoS is less than the desired LoS and identify how these will be addressed (this should be mostly addressed through the WSSA).		Complete	2010
S.004	**Asset Data:** Document completeness of physical data (currently only documented in Valuation report) in AMP.		Complete	2010
Z.001	**AMP Development:** Document in the AMP all the departments who provided input to the AMP (e.g. Finance).	Documenting - Standard paragraph on AMP development and input.	Complete	2010
Z.002	**Guidance and Upskilling:** Improve documentation in the AMP on how review of previous audits is incorporated.- Document response to Audit NZ report in next version.	Due for Draft version complete by Oct 2011.	Complete	2010

Table V-3 details the improvements to the activity management practices that need to be carried out in the future.

Table V-3: Current Improvement Actions

Amp Action Reference	Improvement Action	Further Information	Priority (High, Medium, Low)	Status	Year That Improvement Action Was Identified	Forecast Completion Date	Procurement / Delivery Strategy	Council Person Responsible for Managing to Close	Cost Estimate for Years 1 - 3
A.001	**AMP Update:** Review and update AMP on a 3 year cycle. Next due in 2015.	Financial provision made in the O&M budget. Item 2 on the Strategic Studies list.	H	In Progress	2011	31-Oct-14	Consultant	Jeff Cuthbertson	$90,000
B.001	**Strategic Studies Database:** Develop a database for strategic studies carried out throughout the district.		L	Not Started	2011	31-Oct-14	Consultant	Jeff Cuthbertson	$5,000
C.001	**WSSA:** Identify areas where communities want a higher level of service through completing a Water and Sanitary Services Assessment every 3 years. Next due 2016.	Financial provision made in the O&M budget. Item 1 on the Strategic Studies list.	M	In Progress	2009	1-Jun-16	Consultant	Jeff Cuthbertson	$40,000
E.001	**Asset Condition Assessment:** Completion of CCTV surveys to inspect the condition of wastewater pipes.	Financial provision made in the O&M budget. Items 43 on the Strategic Studies list.	H	In Progress	2009	31-Oct-14	Consultant	Jeff Cuthbertson	$240,000
E.002	**Lifecycle Decision Making:** Detail how options have been identified for asset maintenance to achieve optimal costs over life.		M	Not Started	2011	2014	Consultant	Jeff Cuthbertson	$0
E.003	**System Operating Plans:** Further develop and update System Operating Plans for all UDAs	Financial provision made in the O&M budget. Item 39 on the Strategic Studies list.	H	In Progress	2009	31-Oct-15	Consultant	Jeff Cuthbertson	$180,000
E.004	**Review Routine Reporting Practice:** Ensure that the number of wastewater connections (residential and non-residential) is collected recorded and can be reported on for each UDA.	Financial provision made in the O&M budget. Items 16/19/20/22/26 on the Strategic Studies list.	H	Not Started	2009	31-Oct-14	Consultant	Jeff Cuthbertson	$10,000
G.001	**Financial Assessment:** Collate historic and new information on Development Contributions to allow analysis of DCs paid vs forecasts and trending.		H	Not Started	2011	2014	In-House	Peter Thomson	$0

Amp Action Reference	Improvement Action	Further Information	Priority (High, Medium, Low)	Status	Year That Improvement Action Was Identified	Forecast Completion Date	Procurement / Delivery Strategy	Council Person Responsible for Managing to Close	Cost Estimate for Years 1 - 3
H.001	**Resource Consent Database:** Expand database to include all resource consents related to the wastewater network.	Review current status and develop further.	M	In Progress	2009	31-Oct-14	Consultant	Jeff Cuthbertson	$0
K.001	**Financial Assessment:** Explore if Councils policy around debt funding is specific enough.		M	Not Started	2011	2014	In-House	Peter Thomson	$0
N.002	**Demand Management:** Collate historical information on demand to enable demand trending and analysis.		M	Not Started	2011	2014	Consultant	Jeff Cuthbertson	$0
N.003	**Demand Management:** Provide greater detail on the effects of changing demographics rather than population growth.		L	Not Started	2011	2014	Consultant	Jeff Cuthbertson	$0
N.004	**Demand Management:** Undertake sensitivity analysis on growth and demand and the effect on activity requirements.		M	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0
P.001	**Sustainability:** Explore the need to develop a Council-wide sustainability Policy.		M	Not Started	2011	2014	In-House	Peter Thomson	$0
P.002	**Sustainability:** Expand detail on sustainability for the activity. Develop KPIs for environmental, economic and social aspects of sustainable development.		M	Not Started	2011	2014	In-house with consultant support	Peter Thomson	$0
Q.003	**Risk Management:** Implement IRM across Council. Currently being used within individual activities.		M	Not Started	2011	2014	In-House	Peter Thomson	$0
Q.004	**Risk Management:** Detail and demonstrate how asset criticality and risk analysis is used to develop maintenance strategies.		M	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0
Q.005	**Risk Management:** Detail and demonstrate how asset criticality and risk analysis is used to develop renewals strategies.		M	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0

Amp Action Reference	Improvement Action	Further Information	Priority (High, Medium, Low)	Status	Year That Improvement Action Was Identified	Forecast Completion Date	Procurement / Delivery Strategy	Council Person Responsible for Managing to Close	Cost Estimate for Years 1 - 3
Q.006	**Lifecycle Decision Making:** Further develop and detail process for decision making with regards to O&M, renewals, capex and disposals .		M	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0
Q.007	**Assumptions & Uncertainties:** Identify the uncertainty level of the more significant assumptions and detail the possible effects.		L	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0
Q.008	**Asset Data:** Identify and document process for updating/reporting on confidence levels of asset condition and performance.		M	Not Started	2011	2014		Jeff Cuthbertson	$0
Q.009	**Assumptions & Uncertainties:** Identify and state the confidence levels for the growth/demand forecasts.		M	In Progress	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0
Q.010	**Cost/Benefit Analysis:** Detail and demonstrate the level of cost/benefit analysis undertaken for projects within the activity.		M	Not Started	2011	2014	Consultant	Jeff Cuthbertson	$0
R.001	**Alternate Waste Treatment:** Past public consultation shows there is a strong desire for Council to consider composting toilets instead of, or included in new reticulation systems, especially in more rural areas.	Has been in the AMP Improvement Plan for over 6 years now, raised following community interest in golden bay.	L	Not Started	2009	31-Oct-14	Consultant	Jeff Cuthbertson	$10,000
R.005	**Levels of Service:** Develop and incorporate sustainability strategies and operations into Levels of Service and performance measures.		M	Not Started	2011	2014	In-house with consultant support	Peter Thomson	$0
S.001	**Asset Management System Development:** Develop Council's Asset Management System and integration with its related asset information systems, GIS, SilentOne etc.	To be reviewed and progressed by the Asset Information System department.	H	Not Started	2009	31-Oct-14	In-house	Jeff Cuthbertson	$10,000
S.002	**Hydraulic Models:** Maintain hydraulic models for main catchments.	Financial provision made in the O&M budget. Item 38 on the Strategic Studies list.	H	In Progress	2009	31-Oct-14	Consultant	Jeff Cuthbertson	$65,000

Amp Action Reference	Improvement Action	Further Information	Priority (High, Medium, Low)	Status	Year That Improvement Action Was Identified	Forecast Completion Date	Procurement / Delivery Strategy	Council Person Responsible for Managing to Close	Cost Estimate for Years 1 - 3
S.003	**Asset Systems:** Ensure that other asset registers are consistent with TDC's Confirm database.	Develop one asset register that is consistently used. Currently have various versions.	H	In Progress	2010		In-house	Jeff Cuthbertson	$10,000
S.005	**Decision Making & Prioritisation:** Use results of hydraulic models to assess criticality of remaining wastewater assets to improve prioritisation for renewals and document this in AMP.	Link to hydraulic modelling projects and Infonet.	H	In Progress	2010	31-Oct-14	Consultant	Jeff Cuthbertson	$0
S.006	**ODM Approach:** Formalise and document the processes for decision making in the AMP.		M	In Progress	2010	31-Oct-14	Consultant	Jeff Cuthbertson	$2,000
S.007	**ODM Tools and Techniques:** Improve and document the processes for selection of pipe material in the AMP.		L	In Progress	2010	31-Oct-14	Consultant	Jeff Cuthbertson	$2,000
S.008	**ODM Integration:** Document the links between ODM decisions making in cross-infrastructure work planning in the AMP.		L	In Progress	2010	31-Oct-14	Consultant	Jeff Cuthbertson	$0
S.009	**Description of Assets:** - consider adding asset hierarchy into the Confirm system. The capabilities are there, but not yet used by Council.		L	Not Started	2011	2014	In-House	Peter Thomson	$0
S.010	**Description of Assets:** Improve information on the level of recording, monitoring and reporting of asset information.		M	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0
S.011	**Critical Assets:** Create ability to separately identify Critical Assets in Confirm. Be able to report on this information easily.		H	Not Started	2011	2014	In-house	Jeff Cuthbertson	$0
S.012	**Asset Information:** Collate and provide information on how asset condition is monitored.		M	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0
S.013	**Asset Condition Data:** Detail how asset condition is monitored and reported for key asset types.		H	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0

Amp Action Reference	Improvement Action	Further Information	Priority (High, Medium, Low)	Status	Year That Improvement Action Was Identified	Forecast Completion Date	Procurement / Delivery Strategy	Council Person Responsible for Managing to Close	Cost Estimate for Years 1 - 3
S.014	**Asset Performance Data:** Detail how asset performance is monitored and reported for key asset types.		H	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0
S.015	**Lifecycle Decision Making:** detail and demonstrate how trade-offs are made between renewals and maintenance expenditure.		L	Not Started	2011	2014	Consultant	Jeff Cuthbertson	$0
U.001	**Public Information Brochure:** Prepare a brochure setting out the Council's and landowner's responsibility for wastewater management and maintenance. This will also be put on the TDC website.		L	Not Started	2009	31-Oct-14	In-house	Jeff Cuthbertson	$5,000
V.001	**Gap Analysis and Improvement Programme:** Improve this improvement programme particularly: timelines, required resources and approval of resources.		L	In Progress	2010	31-Oct-14	In-house	Jeff Cuthbertson	$5,000
V.002	**Improvement Plans:** formalise timeframes and budgets for improvement actions.		H	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0
V.003	**Improvement Plans:** develop and implement process for monitoring and reporting against the Improvement Plan.		M	Not Started	2011	2014	In-house with consultant support	Jeff Cuthbertson	$0

V.8 AMP Peer Review

Infrastructure Management

Tasman District Council

Water, Wastewater, Stormwater, Solid Waste, Aerodromes, Transport, Rivers and Coastal Structures AMPs Peer Review

October 2011 & May 2012

WAUGH

ideas | analysis | solutions

WAUGH

Quality Record Sheet

Tasman District Council

Water, Wastewater, Stormwater,

Solid Waste, Transport, Aerodromes, Rivers

and Coastal Structures

AMP Peer Review

October 2011 and May 2012

Issue Information	
Issue Purpose	Final
Issue Date	8th May 2012
Version Number	1.1

Authorisation	
Tasman District Council	Peter Thomson
Prepared by	Andrew Iremonger
Internal Reviewed by	Ross Waugh
Date	8th May 2012
Report Number	64-065-1002

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The purpose of this report is to:

- Provide a regulatory review of the October 2011 Tasman District Council (TDC) Water, Wastewater, Stormwater, Solid Waste, Aerodromes, Transport, Rivers and Coastal Structures Asset Management Plans for compliance with the primary legislation driving local government, this being the Local Government Act 2002
- Considers associated legislation and standards such as Financial Reporting Standards, Resource Management Act and Health Act as well as industry appropriate practice

1.2 Methodology

Waugh Infrastructure Management Ltd assessed in October 2011 the eight individual draft AMP's content in comparison to; the 12 assessment criteria and a number of elements for each assessment criteria, and to an assessed appropriate asset management level for Tasman District Council. These elements generally follow the Appropriate AM (from IIMM 2006: Section 2.2.4). The assessment criteria are:

- Description of Assets
- Levels of Service
- Managing Growth
- Risk Management
- Lifecycle Decision Making
- Financial Forecasts
- Planning Assumptions and Confidence Levels
- Outline Improvement Programmes
- Councils Commitment
- Planning by Qualified Persons
- Sustainability within the activity by using the Councils sustainability objectives
- The AMP Format (presented in a way that can be readily utilised by the required audience)

Following this review TDC made amendments to the AMP's that encompassed the inclusion of financial details, significant additions to the improvement program along with other items.

In May 2012 the amendments to the October AMPs were assessed by Waugh Infrastructure and the compliance status was reassessed. It should be noted that the May 2012 assessment only considered the items shown in the "Peer review improvement table" provided by MWH in their letter dated 3rd April 2012.

1.3 Overall Conclusion of Asset Management Plans Assessment

The AMP's indicate that TDC has developed good practices and processes in the operation, management and administration of their activities but the discussion or evidence presented within the individual AMP's is often insufficient to substantiate this.

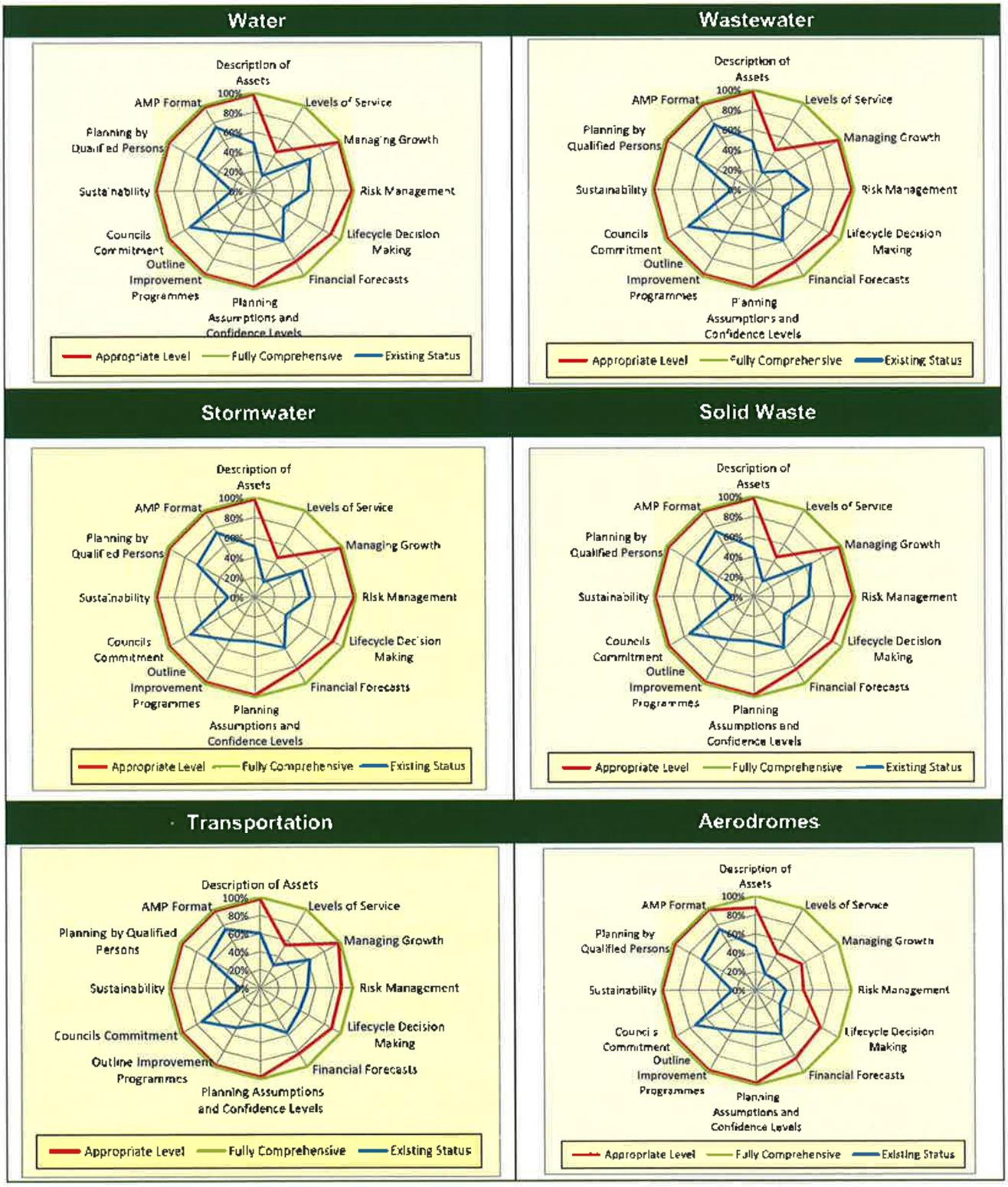
The AMP's provided in May 2012 indicates that many of the issues raised in the October review have been addressed in the subsequent version of the AMPs as amendments or improvement plan items. Competition of these actions would assist to achieve the Councils targeted asset management level.

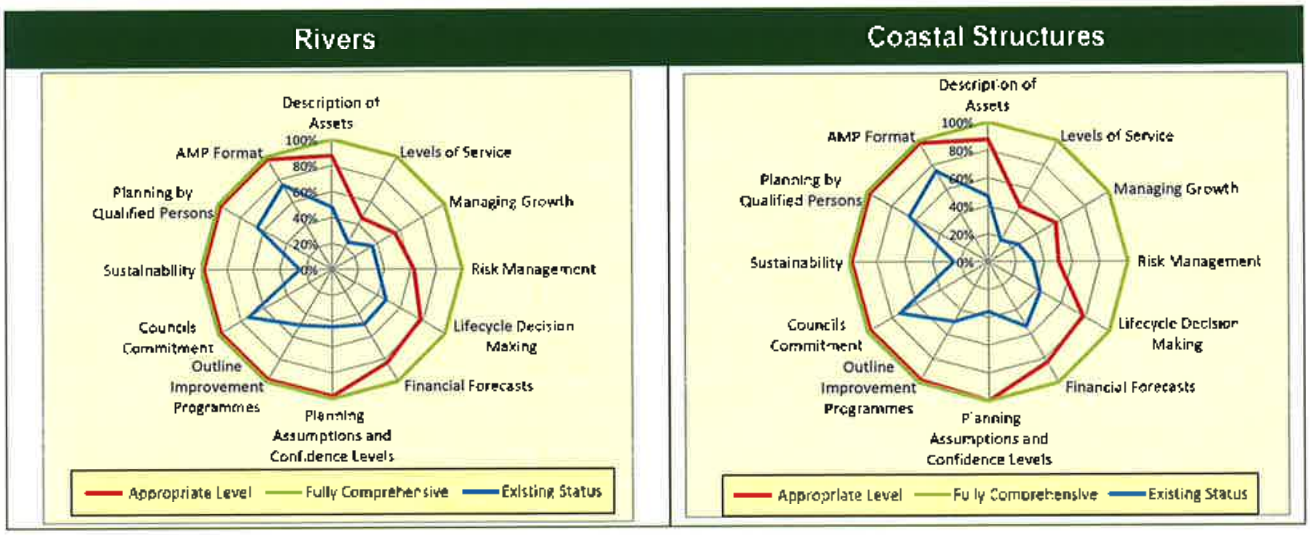
The AMPs assessed in May 2012 do provide Council with an adequate basis on which to make decisions between competing priorities for infrastructure funding and to understand the impact on

service levels in the longer term. On-going commitment is required to complete the actions identified to progress to the high levels of Asset Management practice.

An overview of the AMP Compliance status of the eight AMP's (dated February 2012) is provided in a graphical manner below.

Figure 1-1: AMP Compliance Status Graphs





1.4 Peer Review Limitations and Disclaimer

This Peer Review has been undertaken by Waugh Infrastructure Management Limited, based solely on the information presented in the Tasman District Council Water, Wastewater and Stormwater, Solid Wastes, Transportation, Aerodromes, Rivers and Coastal Structures Asset Management Plans. This report has been prepared solely for the benefit of the Tasman District Council. Waugh Infrastructure Management Limited does not warranty statements made in the eight Asset Management Plans subject to this peer review

This Peer Review represents the experienced opinion of the Reviewers, based on the available information and standards of practice extracted from the information.

This Peer Review makes no representation to reflect the views or standards of Audit NZ, nor does it warrant or certify (in any way) any compliance with possible Audit NZ and/or Office of the Auditor General requirements for Asset Plans.

2.0 RECORD OF PEER REVIEW ENGAGEMENT

Council Name	Tasman District Council
AMP Titles	Water, Wastewater, Stormwater, Solid Wastes, Transportation, Aerodromes, Rivers and Coastal Structures Asset Management Plans
Plan Sponsor	Peter Thomson, Engineering Manager
AMP Prepared By (Plan Writer)	Council Staff - Water: David Light - Wastewater: David Light - Stormwater: Katie Henderson - Solid Waste: Katie Henderson - Transportation: Jenna Viogt - Aerodromes: Jenna Viogt - Rivers: Jenna Viogt - Coastal Structures: Jenna Viogt
AMP Publish Date	October 2011 and February 2012
Peer Reviewer (Waugh Infrastructure Management Ltd)	Ross Waugh Andrew Iremonger Grant Holland
Internal Review (Waugh Infrastructure Management Ltd)	Ross Waugh
Peer Review Dates	26 October 2011 and 4th May 2012 (review of additions from October 2011 to February 2012)

3.0 SCOPE AND USE OF PEER REVIEW

The Scope of the Peer Review is to provide a regulatory review of the Tasman District Council (TDC) Water, Wastewater, Stormwater, Solid Wastes, Transportation, Aerodromes, Rivers and Coastal Structures Asset Plans (dated October 2011 and February 2012) for compliance with the primary legislation driving local government, this being the Local Government Act 2002.

The Peer Review also considers associated legislation and standards such as Financial Reporting Standards, Resource Management Act and Health Act as well as industry appropriate practice as set by the International Infrastructure Management Manual.

The Peer Review is to comment on the Plan in relation to the following aspects in keeping with the following guidelines of the Office of the Auditor General:

- Transparency
- Inclusivity
- Sustainable Development Approach
- Completeness
- Neutrality
- Comparability
- Accuracy

The intended use of this Peer Review is for the Tasman District Council.

4.0 ASSESSMENT METHODOLOGY

Waugh Infrastructure Management Ltd assessed in October 2011 the eight individual draft AMP's content in comparison to; the 12 assessment criteria and a number of elements for each assessment criteria, and to an assessed appropriate asset management level for Tasman District Council. These elements generally follow the Appropriate AM (from IIMM 2006: Section 2.2.4). The assessment criteria are:

- Description of Assets
- Levels of Service
- Managing Growth
- Risk Management
- Lifecycle Decision Making
- Financial Forecasts
- Planning Assumptions and Confidence Levels
- Outline Improvement Programmes
- Councils Commitment
- Planning by Qualified Persons
- Sustainability within the activity by using the Councils sustainability objectives
- The AMP Format (presented in a way that can be readily utilised by the required audience)

Following this review TDC made amendments to the AMP's that encompassed the inclusion of financial details, significant additions to the improvement program along with other items.

In May 2012 the amendments to the October AMPs were assessed by Waugh Infrastructure and the compliance status was reassessed. It should be noted that the May 2012 assessment only considered the items shown in the "Peer review improvement table" provided by MWH in their letter dated 3rd April 2012.

4.1 Scoring Methodology

The marking of each question area ranges from nil (no reference shown) to 5 (fully compliant) as shown in Table 4-1 below. Following the Fulfilment marking the comments field will indicate any issue considered relevant.

Table 4-1: Scoring Methodology

Fulfilment Requirements	AMP Details
Nil (0)	Not shown or no reference to
Minimal and fragmented (1)	20% compliant - Disjointed
Basic alignment (2)	30% compliant -
Partially (3)	50% compliant -
High level of alignment (4)	80% compliant - minor defects or admissions
Fully Compliant (5)	All areas within this section are fully compliant

The sum of each Assessment area score was then compared to the maximum score required using the Appropriate Practice for the component area i.e. description of assets, LoS etc. This data is shown in the overall AMP Compliance Status excel tables and the AMP Compliance Status graphs.

It should be noted that where there is no information or reference for any question area the score assigned is zero; this will result in a low overall score.

4.2 Appropriate Practice for Tasman District Council Asset Management

Objective of the Asset Management Policy

The objective of the Tasman District Council's Asset Management Policy for the eight utility Activities is to ensure that Council's service delivery is optimised to deliver agreed community outcomes and levels of service, manage related risks, and optimise expenditure over the entire life cycle of the service delivery, using appropriate assets as required.

The Asset Management Policy requires that the management of assets be in a systematic process to guide planning, acquisition, operation and maintenance, renewal and disposal of the required assets.

Delivery of service is required to be sustainable in the long term and deliver on Council's economic, environmental, social, and cultural objectives.

The Councils Asset Management Policy sets the appropriate level of asset management practice for Council's Activity as:

- Transportation: Core Plus with demand management and resource availability drivers
- 3 Waters: Core Plus with demand and risk management drivers
- Solid Waste: Core with risk management drivers
- Coastal structures: Core
- Rivers: Core
- Aerodromes: Core

The appropriate practice status analysis for all eight services is shown in the following table as highlighted green.

Table 4-2: Utilities Asset Management Appropriate Practice Assessment

Assessment Criteria (as outlined in IIMM 2006)		Appropriate Practice Status Analysis							
		Water	Wastewater	Stormwater	Solid Waste	Transportation	Aerodromes	Rivers	Coastal Structures
Description of Assets									
Core	Adequate Description of Asset								
	Financial Description of Asset								
	Remaining useful life								
	Aggregate & Disaggregate Information								
Advanced	Reliable Physical inventory								
	- Physical attributes (location, material, age etc.)								
	- Systematic monitoring of condition								
	- Systematic measurement performance- Utilisation/capacity								
Levels of Service									
Core	Define LOS or performance								
	Linkage to strategic/community outcomes								
	Links to other planning documents								
	Levels of consultation identified and agreement								
	Service life of network stated								
Advanced	For Significant Services								
	- Evaluating LOS Options								
	- Consult LOS options with community								
	- Adoption LOS & Standards after consultation								
	- Public communication of service level								
	- Monitoring & public reporting								
	AMP's reflect agreed LOS & how service is delivered								
Managing Growth									
Core	Demand Forecasts (10 year)								
	Demand Management drivers								
	Demand Management strategies								
	Sustainability Strategies								
Advanced	Forecasts include factors that comprise demand								
	Sensitivity of asset development (Capital Works) to demand changes								

Assessment Criteria (as outlined in IIMM 2006)		Appropriate Practice Status Analysis							
		Water	Wastewater	Stormwater	Solid Waste	Transportation	Aerodromes	Rivers	Coastal Structures
	Asset Utilisation/ Demand Modelling								
Risk Management									
Core	Identify critical assets								
	Identify significant negative effects								
	Identify associated risks and RM strategies								
Advanced	Recognition & application of principles of integrated risk management to assets								
	Apply standards & industry good practice (e.g. NZS4360 and Local Government Handbook)								
	RM integrated with Lifelines, disasters recovery, Continuity plans,.								
	Integrate with maintenance and replacement strategies								
Lifecycle Decision Making									
Core	Lifecycle and Asset Management Practices								
	Service capacity gap analysis								
	Evaluation and ranking based on criteria of options for significant capital invest decisions for								
	Maintenance Outcomes, Strategies, Standards and Plan								
Advanced	Identify options for asset maintenance to achieve optimal costs over life of asset								
	· Apply agreed evaluation tools to prioritise work programmes								
	- Predictive modelling to support long-term financial forecasts for maintenance, renewals & new capital								
Financial Forecasts									
Core	10 year Financial plan Maintenance, Renewals, New Capital (LOS and demand).								
	Validate the Depreciation/Decline in Service Potential								
Advanced	Translate operational, planned maintenance, renewal & new work into financial terms over period of strategic plan								
	Provide consistent financial forecasts & Substantiate								
	Sensitivity of forecasts								
Planning Assumptions and Confidence Levels									
Core	List all assumptions and possible effects								
	Confidence level on asset condition, performance								
	Accuracy of asset inventory								

Assessment Criteria (as outlined in IIMM 2006)		Appropriate Practice Status Analysis							
		Water	Wastewater	Stormwater	Solid Waste	Transportation	Aerodromes	Rivers	Coastal Structures
	Confidence level demand/growth forecasts								
	Confidence level on financial forecasts								
Advanced	List all assumptions including organisations strategic plan that support AM – linkages with other planning doc								
	Confidence levels (IIMM 4.3.7)								
	- Inventory Data Critical Assets (Grade 1)Non Critical Assets (Grade 2)								
	- Condition Data Critical Assets (Grades 1 or 2)Non Critical Assets (Grades 1, 2 or 3)								
	- Performance Data Critical Assets (Grades 1 or 2) Non Critical Assets (Grades 1, 2 or 3)								
Outline Improvement Programmes									
Core	Identify improvements to AM processes & techniques								
	Identify weak areas & how they will be addressed								
	Timeframes for improvements								
	Identify resources required (human & financial)								
Advanced	Improvement programmes are monitored against KPI's								
	Previous improvements identified and formally reported against KPI's								
Planning by qualified persons									
	AM Planning should be undertaken by a suitably qualified person								
Core & Advanced	Process should be Peer reviewed								
Commitment									
Core	Plan adopted by Council including improvement programme								
	Plan key tool to support LTCCP								
	AM Plan regularly updated and should reflect progress on improvement plan								
Advanced	AM Plan requirements are being implemented and discrepancies formally reported								
	AM Plans evolving as AM systems provide better information								
	AM Plans updated every 3 years along with organisations strategic planning cycles								
	Council has defined the Appropriate AM Practice it is adopting								

5.0 OUTCOMES AND RESULTS OF REVIEW

5.1 Compliance Status Key Findings

The AMP Compliance Status is summarised in Table 5-1 below with an overview of the AMP Compliance status provided in a graphical manner in Figure 5-1. The individual AMP assessments are shown in an excel spreadsheet to allow an alternative viewing method.

The AMP's indicate that TDC has developed good practices and processes in the operation, management and administration of their activities but the discussion or evidence presented within the individual AMP's is often insufficient to substantiate this.

The AMP's provided in May 2012 indicates that many of the issues raised in the October review have been addressed in the subsequent version of the AMPs as amendments or improvement plan items. Competition of these actions would assist to achieve their targeted asset management level.

The AMPs assessed in May 2012 do provide Council with an adequate basis on which to make decisions between competing priorities for infrastructure funding and to understand the impact on service levels in the longer term. On-going commitment is required to complete the actions identified to progress to the high levels of Asset Management practice.

The areas that we consider will have most impact on the AMPs are those that have lower scores over all AMPs. These are:

- Description of assets – More information on the range of assets within each activity's asset register, the asset groups and the practices and processes that are associated with these along with a greater understanding of the condition and performance of the critical assets
- Levels of Service:
    - Levels of Service changes from 2009 (AMP and LTP) should be shown along with reasons and effects of these changes
    - While the Levels of Service listed in the AMP's may be appropriate for Council, there is little demonstration of how they were developed and the linkage with the community's priorities. Trends for performance to date should be shown along with a discussion on any Levels of Service gaps and link the initiatives proposed to close those gaps
- Lifecycle – Need to demonstrate the practices and processes carried out by TDC and those shown in the AMP are used on an on-going basis for the successful operation and renewal of the assets
- Growth – Additional information on utilisation especially at a higher level to enable a district wide assessment and the effects of the change in growth rates on infrastructure requirements
- Sustainability: All AMP's scored very low in this area
- Improvement Plan:
    - Improvement Program that details the requirements to achieve the appropriate AM level over the long term

5.2 General Comments

Water, Wastewater and Stormwater

These three services with appropriate AM practice set as Core Plus with demand and risk management drivers. AMP strengths in risk management in the 3Waters and growth for water services.

Solid Waste

An important Council asset and activity with appropriate AM practice set as Core. AMP provides good analysis of future growth and regional integration. AMP weakness in asset description, levels of

service, and asset lifecycle decision making are reflective of the entire AMP suite and the template approach.

Transportation

Given the extended of the asset involved in the AMP provided, very limited details are provided to support the narrative of the plan. The maintenance and renewal programmes represent a considerable investment for Council and these are examined or explained in the AMP. There may be issues or challenges such as changes in demand in the rural area, impacts of severe weather, metal availability which are not discussed.

Aerodromes

Asset and activity with appropriate AM practice set as Core. AMP weakness in asset description, levels of service, and asset lifecycle decision making are reflective of the entire AMP suite and the template approach

Rivers

Asset and activity with appropriate AM practice set as Core. AMP weakness in asset description, levels of service, and asset lifecycle decision making are reflective of the entire AMP suite and the template approach.

Coastal Structures

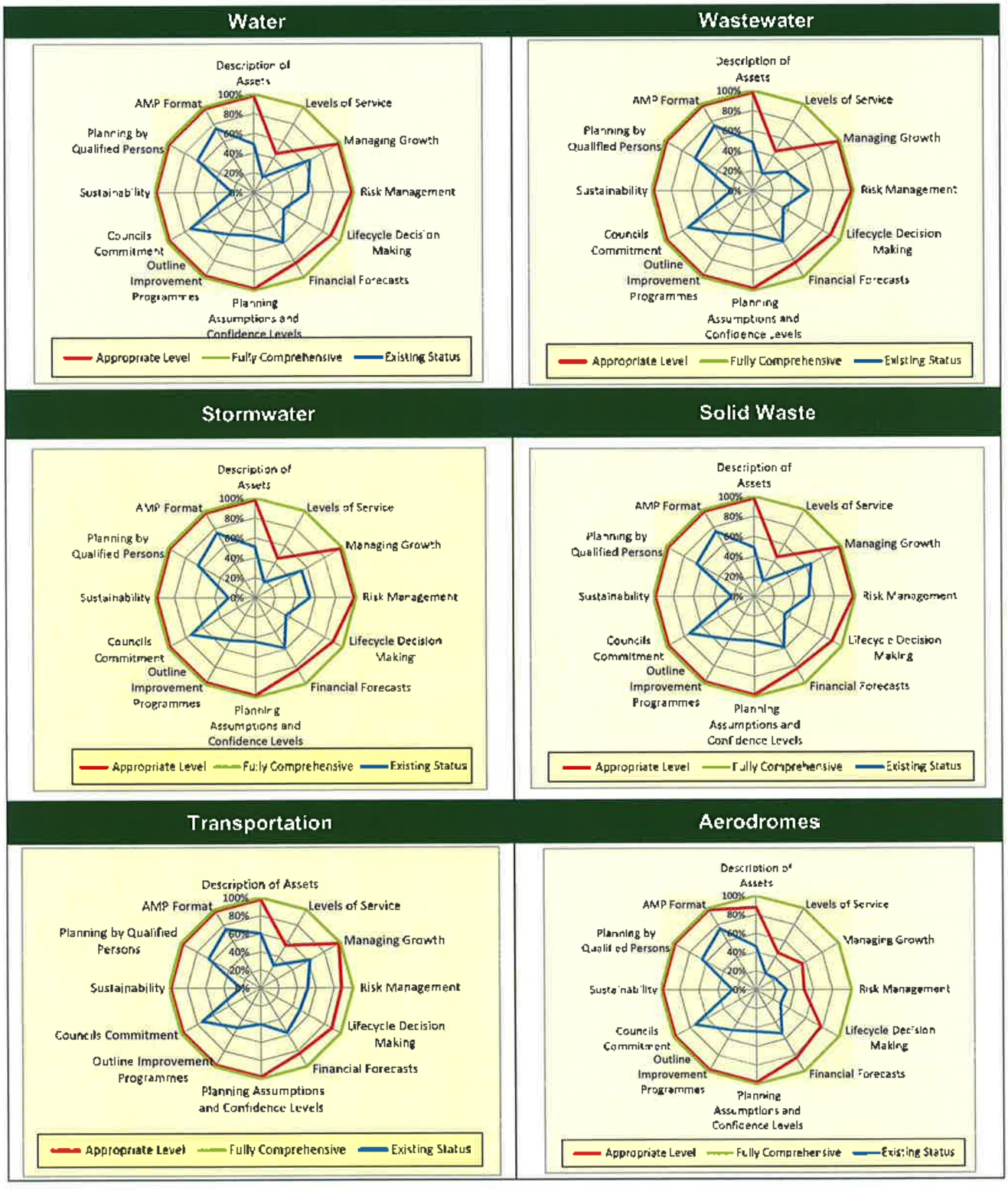
Asset and activity with appropriate AM practice set as Core. An important Council activity with relatively minor expenditure. AMP weakness in asset description, levels of service, managing growth and asset lifecycle decision making are reflective of the entire AMP suite and the template approach.

Table 5-1: AMP Compliance Status

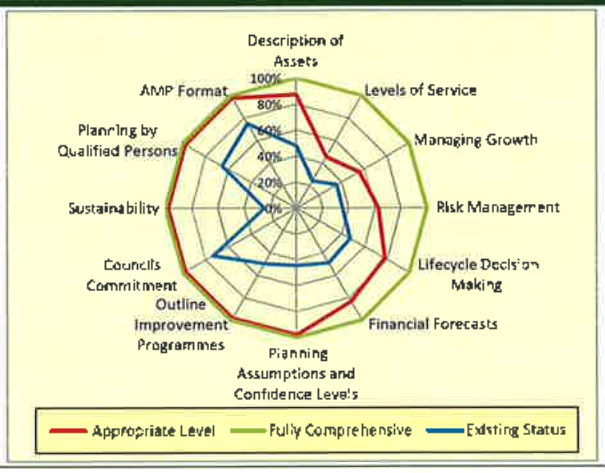
Service		Description of Assets	Levels of Service	Managing Growth	Risk Management	Lifecycle Decision making	Financial Forecasts	Planning Assumptions & Confidence Levels	Outline Improvement Programmes	Councils Commitment	Sustainability	Planning by Qualified Persons	AMP Format
Water	Existing Status	49%	18%	65%	54%	35%	58%	44%	49%	74%	22%	65%	75%
	Appropriate AM Level	100%	45%	100%	100%	89%	83%	100%	100%	100%	100%	100%	100%
Wastewater	Existing Status	48%	20%	38%	55%	35%	58%	44%	49%	74%	21%	65%	75%
	Appropriate AM Level	100%	45%	100%	100%	89%	83%	100%	100%	100%	100%	100%	100%
Stormwater	Existing Status	51%	18%	54%	54%	35%	58%	44%	49%	74%	26%	65%	75%
	Appropriate AM Level	100%	45%	100%	100%	89%	83%	100%	100%	100%	100%	100%	100%
Solid Waste	Existing Status	51%	20%	53%	55%	20%	53%	51%	49%	74%	57%	65%	75%
	Appropriate AM Level	100%	45%	67%	75%	44%	83%	100%	100%	100%	100%	100%	100%
Transportation	Existing Status	60%	29%	62%	51%	49%	57%	40%	50%	74%	23%	65%	75%
	Appropriate AM Level	100%	55%	100%	88%	89%	83%	100%	100%	100%	100%	100%	100%
Aerodromes	Existing Status	46%	20%	24%	32%	29%	53%	44%	49%	74%	25%	65%	75%
	Appropriate AM Level	88%	45%	56%	50%	78%	83%	100%	100%	100%	100%	100%	100%
Rivers	Existing Status	48%	24%	36%	36%	48%	49%	44%	49%	74%	25%	65%	75%
	Appropriate AM Level	88%	45%	56%	63%	78%	83%	100%	100%	100%	100%	100%	100%
Coastal Structures	Existing Status	47%	18%	25%	32%	43%	53%	36%	49%	74%	25%	65%	75%
	Appropriate AM Level	88%	45%	56%	50%	78%	83%	100%	100%	100%	100%	100%	100%

Note: The Existing Status and Estimated Appropriate AM level are expressed as a % of compliance

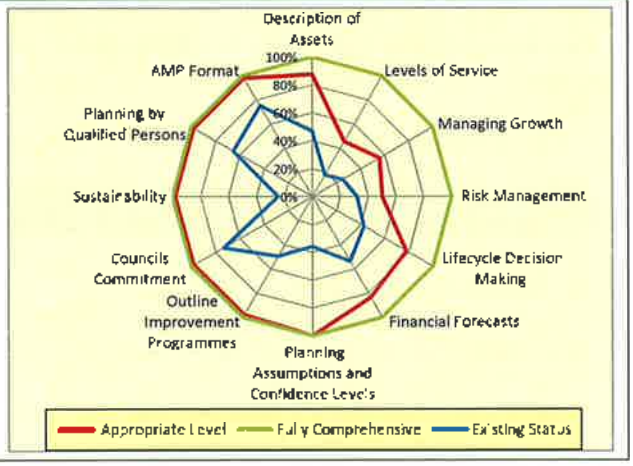
Figure 5-1: AMP Compliance Status Graphs



Rivers



Coastal Structures



6.0 ASSESSMENT OF LINKAGES AND IMPLEMENTATION OF PLAN

This Peer Review has been undertaken in terms of, and limited to the instructions provided to Waugh Infrastructure Management Limited.

In the course of the review the documents considered in or excluded from the review are as follows:

Documents considered in the review	Context/Comment
Tasman Water, Wastewater, Stormwater, Solid wastes, Transportation, Aerodromes, Rivers and Coastal structures Asset Management Plans (October 2011 and February 2012). Peer review improvement table provided by MWH in their letter dated 3rd April 2012	Document for Peer Review
INGENIUM Code of Ethics	Reference and guidance
IPENZ Code of Ethics	
NAMs Infrastructure Asset Management Manual 2006	
Local Government Act 2002	Reference
Resource Management Act 1991	
Health Act 1956 and Health (Drinking water) Amendment Act 2007	
Financial Reporting Standards (FRS 3)	

Documents Referred to within this AP and Excluded from the Review	Comment
Tasman District Council Long Term Council Community Plan 2009-2019	Reference to, or abbreviated versions of these documents are included within the Asset Management Plan. Consistency between the Asset Management Plan and the documents listed was not examined as part of this review. It is assumed that the core consistencies exist between the Management Plan and the Long Term Council Community Plan; Water and Sanitary Assessments; and the current Infrastructure Valuation. Linkages between these documents beyond those described within the Asset Management Plan were not examined.
Tasman District Council Assessment of Water and Sanitary Services	
Valuation of Infrastructure of Assets Report 2010	
Tasman District Council General and Strategic Policies not included within the Management Plan	
Tasman District Council Asset Registers	
Tasman District Council Operating Manuals	

The implementation of the Asset Management Plan was not evaluated as part of the Peer Review. An evaluation of the implementation would require interviews with a number of Tasman District Council staff to ascertain the integration of the Asset Management Plan throughout the organisation.

7.0 RECORD OF METHODOLOGY OF PEER REVIEW

Following is the methodology followed by Waugh Infrastructure Management Ltd to carry out the Peer Reviews of the Asset Management Plans:

1. Agree scope and Plans to be reviewed
2. Check for any Peer Reviewer conflicts of interest
3. Arrange for Plan and any other significant documents to be provided to the Peer Reviewer
4. Complete Peer Review of Plan as per Standard Questions/Criteria
5. Carry out Waugh Infrastructure Management internal review of Peer Review Report
6. Provide Draft Peer Review Report to Client
7. Discuss feedback from Client
8. Prepare and issue final Peer Review Report

8.0 STATEMENT OF CODE OF ETHICS

In undertaking this Peer Review, Waugh Infrastructure Management Limited Management, Staff and Associates recognise the professional responsibilities integral to undertaking a review of another professional's work.

The review has been undertaken with particular regard to the following:

INGENIUM Code of Ethics

Clause 2 PROFESSIONALISM AND INTEGRITY

INGENIUM members shall undertake their duties with professionalism and integrity, and shall work within their levels of competence.

Guidelines - Members need to:

- Exercise initiative, skill and judgement to the best of their ability at all times for the benefit of their employer and/or client
- Give decisions, recommendations or opinions that are honest, objective and factual. If these are ignored or rejected they should ensure that those affected are made aware of the possible consequences
- Accept personal responsibility for their work and work done under their supervision or direction
- Ensure that they do not misrepresent their areas or levels of experience or competence
- Take care not to disclose confidential information relating to their work or knowledge of their employer or client without the agreement of those parties
- Disclose any financial or other interest that may, or may be seen to, impair their professional judgment
- Ensure that they do not promise to, give to, or accept from any third party anything of substantial value by way of inducement
- First inform another member before reviewing their work and refrain from criticising the work of other professionals without due cause
- Uphold the reputation of INGENIUM and its members, and support other members as they seek to comply with the Code of Ethics

IPENZ Code of Ethics

Obligations owed to other engineers:

Clause 11: Not review other Engineers' work without taking reasonable steps to inform them and investigate

Waugh Infrastructure Management Limited acknowledges the cooperation of the Plan Sponsor and the Plan Writers in undertaking this Peer Review.

9.0 APPENDICES

9.1 Appendix A – Statement of Experience of Reviewers

Andrew Iremonger

Andrew is a utilities engineer and asset management specialist with 30 years experience in Local Government Asset Management and Engineering. Andrew specialises in strategic Asset Management, specifically the development and updating of Activity and Asset Management Plans, Water and Sanitary Assessments and also Lifeline Utility Plans.

Ross Waugh

Ross is a strategic asset management and systems integration specialist with over 25 years experience in Local Government Asset Management and Engineering. Major consulting strengths include Strategic Asset Management Analysis, Asset Management Planning and the integration of asset management principles into Council processes and operations.

Grant Holland

Grant is an Asset Management specialist with a wide variety of experience in local government asset management and engineering. Grant's interest in supporting communities shows through his development of models for developing Levels of Service and long term planning through to the preparation of Strategic Plans, Activity Management Plans and Maintenance Contracts.

Grant has a broad background in surveying & land development, asset management system development, and community infrastructure and amenities management.

10.0 GLOSSARY OF TERMS

Term	Definition
Peer Review	A Peer Review is an impartial and professional review of another practitioner's work. The review is undertaken in a rigorous and systematic manner with due regard to ethics and confidentiality
Peer Reviewer	A suitably qualified person who may be a staff member of a local authority, or a consultant engaged by a local authority who undertakes or coordinates the review of another organisation or consultant's plan
Plan Sponsor	The staff member of a local authority or utility provider responsible for ensuring a plan is produced. The Plan Sponsor may also fulfil a role in coordinating contributions of staff and consultants towards the development of the plan. This person may be described as the Asset Management Coordinator in the Infrastructure Asset Management Manual
Plan Writer	The author of the plan who may be a staff member of a local authority or utility provider, or a consultant engaged by a local authority. Where a plan is prepared by a number of contributors the editor who compiles the contributions may be identified as the Plan Writer

APPENDIX W. ASSET DISPOSAL

W.1 Asset Disposal Strategy

The Council does not have formal strategy documents relating to asset disposals. When any such assets reach a state where disposal needs to be considered, the Council will treat each case individually.

There are no current, or planned areas of operation that the Council wishes to divest itself of. Asset disposal therefore is a by-product of renewal or upgrade decisions that involve the replacement of assets.

Assets may also become surplus to requirements for any of the following reasons:

- under utilisation
- obsolescence
- provision exceeds required level of service
- uneconomic to upgrade or operate
- policy change
- service provided by another means (eg. private sector involvement)
- potential risk of ownership (financial, environmental, legal, social, vandalism).

Depending on the nature and value of the assets they are either:

- made safe and left in place
- removed and disposed to landfill
- removed and sold.

W.2 Disposal Standards

Council follows a practice of obtaining best available return from the disposal or sale of assets within an infrastructural activity and any net income is credited to that activity.

APPENDIX X. GLOSSARY OF ASSET MANAGEMENT TERMS

Acronyms and Abbreviations

AMP	Activity Management Plan
LGA	Local Government Act
LTP	Long Term Plan
PS	Pump Station
TRMP	Tasman Regional Management Plan
TDC	Tasman District Council
UDA	Urban Drainage Area
DC	Development Contribution
AMS	Asset Management System

Activity	An activity is the work undertaken on an asset or group of assets to achieve a desired outcome.
Activity Management Plan (AMP)	Activity Management Plans are key strategic documents that describe all aspects of the management of assets and services for an activity. The documents feed information directly in the Council's LTP, and place an emphasis on long term financial planning, community consultation, and a clear definition of service levels and performance standards.
Advanced Asset Management	Asset management which employs predictive modelling, risk management and optimised renewal decision making techniques to establish asset lifecycle treatment options and related long term cashflow predictions. (See Basic Asset Management).
Annual Plan	The Annual Plan provides a statement of the direction of Council and ensures consistency and co-ordination in both making policies and decisions concerning the use of Council resources. It is a reference document for monitoring and measuring performance for the community as well as the Council itself.
Asset	A physical component of a facility which has value, enables services to be provided and has an economic life of greater than 12 months.
Asset Management (AM)	The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.
Asset Management System (AMS)	A system (usually computerised) for collecting analysing and reporting data on the utilisation, performance, lifecycle management and funding of existing assets.
Asset Management Plan	A plan developed for the management of one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost effective manner to provide a specified level of service. A significant component of the plan is a long term cashflow projection for the activities.
Asset Management Strategy (AMP)	A strategy for asset management covering, the development and implementation of plans and programmes for asset creation, operation, maintenance, renewal, disposal and performance monitoring to ensure that the desired levels of service and other operational objectives are achieved at optimum cost.
Asset Register	A record of asset information considered worthy of separate identification including inventory, historical, financial, condition, construction, technical and financial information about each.

Basic Asset Management	Asset management which relies primarily on the use of an asset register, maintenance management systems, job/resource management, inventory control, condition assessment and defined levels of service, in order to establish alternative treatment options and long term cashflow predictions. Priorities are usually established on the basis of financial return gained by carrying out the work (rather than risk analysis and optimised renewal decision making).
Benefit Cost Ratio (B/C)	The sum of the present values of all benefits (including residual value, if any) over a specified period, or the life cycle of the asset or facility, divided by the sum of the present value of all costs.
Business Plan	A plan produced by an organisation (or business units within it) which translate the objectives contained in an Annual Plan into detailed work plans for a particular, or range of, business activities. Activities may include marketing, development, operations, management, personnel, technology and financial planning.
Capital Expenditure (CAPEX)	Expenditure used to create new assets or to increase the capacity of existing assets beyond their original design capacity or service potential. CAPEX increases the value of an asset.
Condition Monitoring	Continuous or periodic inspection, assessment, measurement and interpretation of resulting data, to indicate the condition of a specific component so as to determine the need for some preventive or remedial action.
Critical Assets	Assets for which the financial, business or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non-critical assets.
Current Replacement Cost	The cost of replacing the service potential of an existing asset, by reference to some measure of capacity, with an appropriate modern equivalent asset.
Deferred Maintenance	The shortfall in rehabilitation work required to maintain the service potential of an asset.
Demand Management	The active intervention in the market to influence demand for services and assets with forecast consequences, usually to avoid or defer CAPEX expenditure. Demand management is based on the notion that as needs are satisfied expectations rise automatically and almost every action taken to satisfy demand will stimulate further demand.
Depreciated Replacement Cost (DRC)	The replacement cost of an existing asset after deducting an allowance for wear or consumption to reflect the remaining economic life of the existing asset.
Depreciation	The wearing out, consumption or other loss of value of an asset whether arising from use, passing of time or obsolescence through technological and market changes. It is accounted for by the allocation of the historical cost (or revalued amount) of the asset less its residual value over its useful life.
Disposal	Activities necessary to dispose of decommissioned assets.
Economic Life	The period from the acquisition of the asset to the time when the asset, while physically able to provide a service, ceases to be the lowest cost alternative to satisfy a particular level of service. The economic life is at the maximum when equal to the physical life however obsolescence will often ensure that the economic life is less than the physical life.
Facility	A complex comprising many assets (eg. swimming pool complex, etc.) which represents a single management unit for financial, operational, maintenance or other purposes.

Geographic Information System (GIS)	Software which provides a means of spatially viewing, searching, manipulating, and analysing an electronic database.
Infrastructure Assets	Stationary systems forming a network and serving whole communities, where the system as a whole is intended to be maintained indefinitely at a particular level of service potential by the continuing replacement and refurbishment of its components. The network may include normally recognised 'ordinary' assets as components.
I.M.S.	Infrastructure Management System - computer database.
Level of Service	The defined service quality for a particular activity (ie. water) or service area (ie. water quality) against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability and cost.
Life	A measure of the anticipated life of an asset or component; such as time, number of cycles, distance intervals etc.
Life Cycle	Life cycle has two meanings: • The cycle of activities that an asset (or facility) goes through while it retains an identity as a particular asset ie. from planning and design to decommissioning or disposal. • The period of time between a selected date and the last year over which the criteria (eg. costs) relating to a decision or alternative under study will be assessed.
Life Cycle Cost	The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.
Life Cycle Maintenance	All actions necessary for retaining an asset as near as practicable to its original condition, but excluding rehabilitation or renewal.
Long Term Plan (LTP)	The Long Term Plan is the primary strategic document through which Council communicates its intentions over the next 10 years for meeting community service expectations and how it intends to fund this work. The LTP is a key output required of Local Authorities under the Local Government Act 2002. The LTP supersedes the Long Term Council Community Plan (LTCCP).
Maintenance Plan	Collated information, policies and procedures for the optimum maintenance of an asset, or group of assets.
NPV	Net Present Value – Standard method for evaluating long-term projects in capital budgeting.
Objective	An objective is a general statement of intention relating to a specific output or activity. They are generally longer-term aims and are not necessarily outcomes that managers can control.
Operation	The active process of utilising an asset which will consume resources such as manpower, energy, chemicals and materials. Operation costs are part of the life cycle costs of an asset.
Optimised Renewal Decision Making (ORDM)	An optimisation process for considering and prioritising all options to rectify performance failures of assets. The process encompasses NPV analysis and risk assessment.

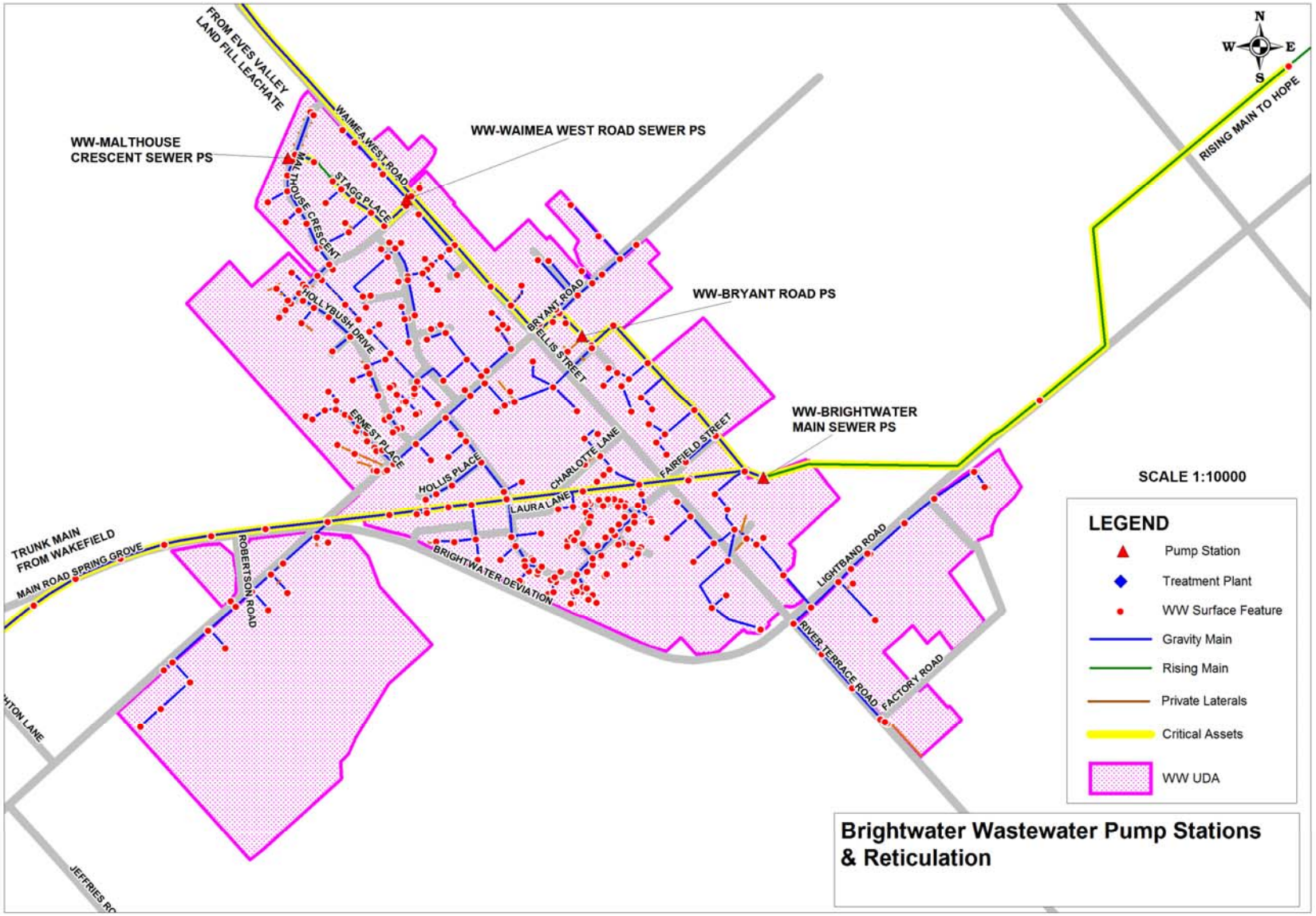
Performance Measure (PM)	A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance measures commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction.
Performance Monitoring	Continuous or periodic quantitative and qualitative assessments of the actual performance compared with specific objectives, targets or standards.
Planned Maintenance	Planned maintenance activities fall into three categories : • Periodic – necessary to ensure the reliability or sustain the design life of an asset. • Predictive – condition monitoring activities used to predict failure. • Preventive – maintenance that can be initiated without routine or continuous checking (eg. using information contained in maintenance manuals or manufacturers' recommendations) and is not condition-based.
Recreation	Means voluntary non-work activities for the attainment of personal and social benefits, including restoration (recreation) and social cohesion.
Rehabilitation	Works to rebuild or replace parts or components of an asset, to restore it to a required functional condition and extend its life, which may incorporate some modification. Generally involves repairing the asset using available techniques and standards to deliver its original level of service without resorting to significant upgrading or replacement.
Renewal	Works to upgrade, refurbish, rehabilitate or replace existing facilities with facilities of equivalent capacity or performance capability.
Renewal Accounting	A method of infrastructure asset accounting which recognises that infrastructure assets are maintained at an agreed service level through regular planned maintenance, rehabilitation and renewal programmes contained in an AMP. The system as a whole is maintained in perpetuity and therefore does not need to be depreciated. The relevant rehabilitation and renewal costs are treated as operational rather than capital expenditure and any loss in service potential is recognised as deferred maintenance.
Repair	Action to restore an item to its previous condition after failure or damage.
Replacement	The complete replacement of an asset that has reached the end of its life, so as to provide a similar, or agreed alternative, level of service.
Remaining Economic Life	The time remaining until an asset ceases to provide service level or economic usefulness.
Risk Cost	The assessed annual cost or benefit relating to the consequence of an event. Risk cost equals the costs relating to the event multiplied by the probability of the event occurring.
Risk Management	The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence.
Routine Maintenance	Day to day operational activities to keep the asset operating (replacement of light bulbs, cleaning of drains, repairing leaks, etc.) and which form part of the annual operating budget, including preventative maintenance.
Service Potential	The total future service capacity of an asset. It is normally determined by reference to the operating capacity and economic life of an asset.

Strategic Plan	Strategic planning involves making decisions about the long term goals and strategies of an organisation. Strategic plans have a strong external focus, cover major portions of the organisation and identify major targets, actions and resource allocations relating to the long term survival, value and growth of the organisation.
Unplanned Maintenance	Corrective work required in the short term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity.
Upgrading	The replacement of an asset or addition/ replacement of an asset component which materially improves the original service potential of the asset.
Valuation	Estimated asset value that may depend on the purpose for which the valuation is required, ie. replacement value for determining maintenance levels or market value for life cycle costing.

APPENDIX Y. MAPS OF UDA BOUNDARIES

The area boundaries are correct as at July 2012. The boundaries are revised periodically.

The current version is located in the LTP.


FROM EVES VALLEY LAND FILL LEACHATE
WW-MALTHOUSE CRESCENT SEWER PS
WAIMEA WEST ROAD
WW-WAIMEA WEST ROAD SEWER PS
MALTHOUSE CRESCENT
STAGG PLACE
HOLLYBUSH DRIVE
WW-BRYANT ROAD PS
BRYANT ROAD
ELLIS STREET
ERNEST PLACE
WW-BRIGHTWATER MAIN SEWER PS
HOLLIS PLACE
CHARLOTTE LANE
FAIRFIELD STREET
LAURA LANE
RISING MAIN TO HOPE
TRUNK MAIN FROM WAKEFIELD
MAIN ROAD SPRING GROVE
ROBERTSON ROAD
BRIGHTWATER DEVIATION
LIGHTBAND ROAD
RIVER TERRACE ROAD
FACTORY ROAD
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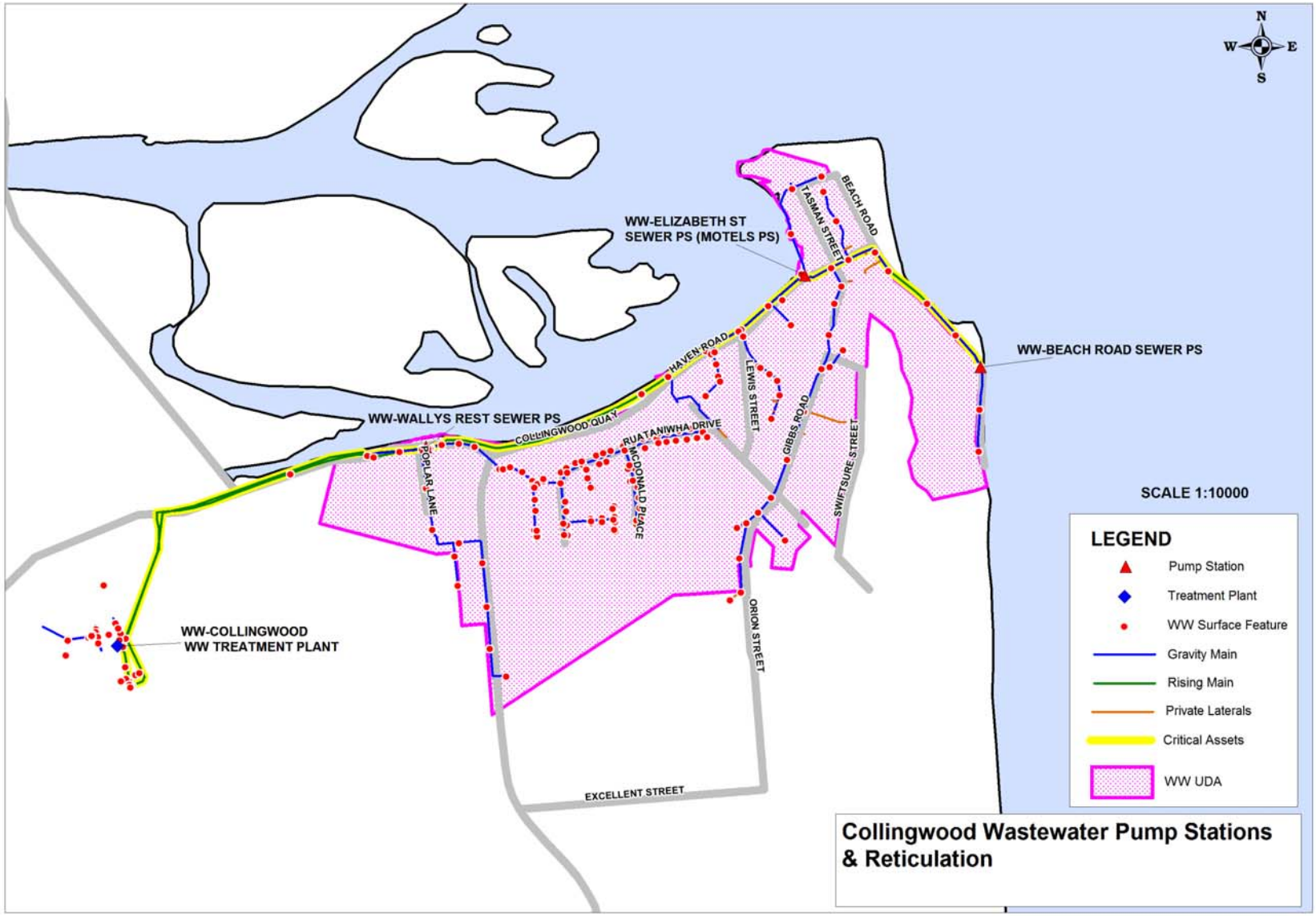
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Private Laterals
Critical Assets
WW UDA
Brightwater Wastewater Pump Stations & Reticulation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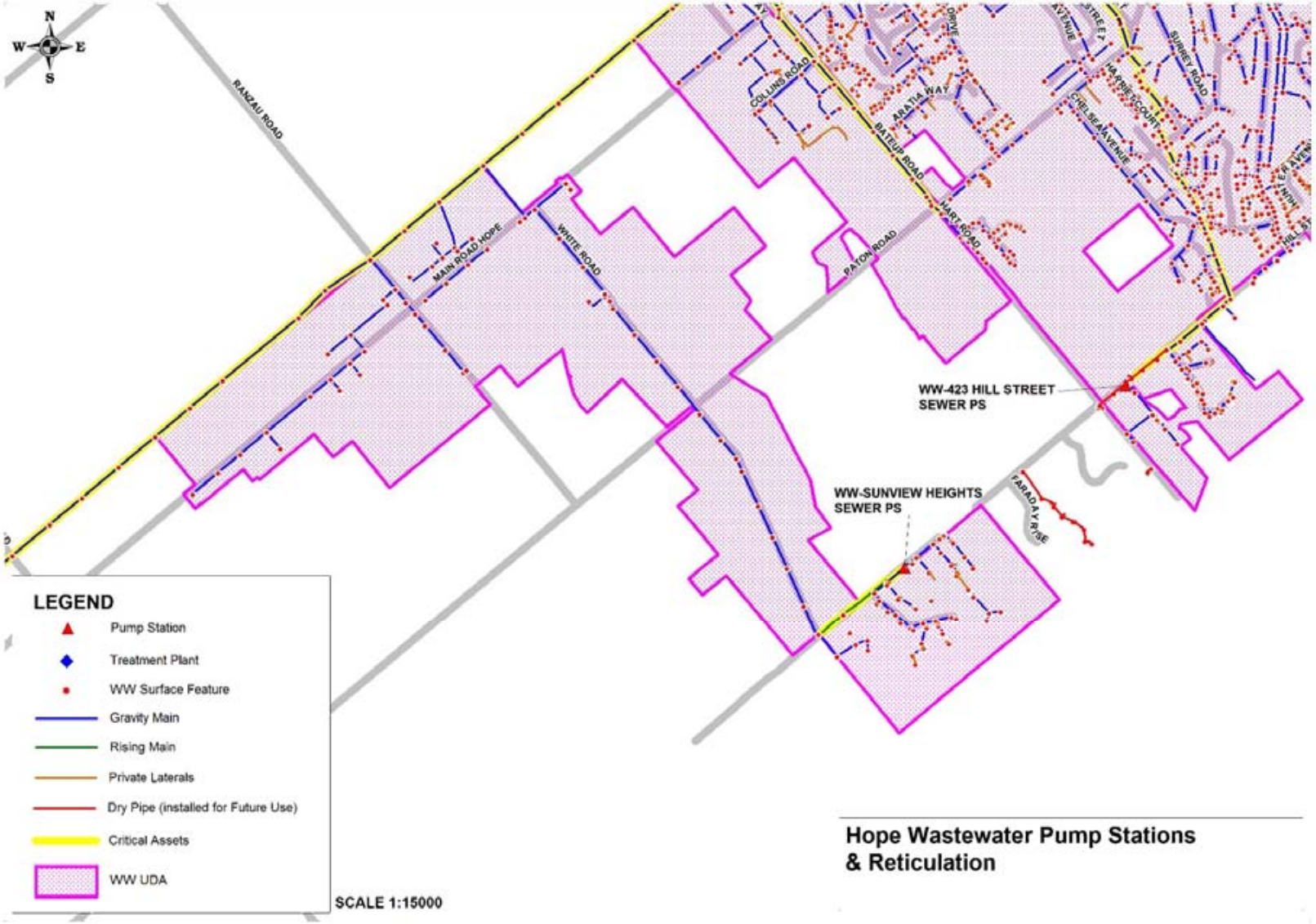
WW-ELIZABETH ST
SEWER PS (MOTELS PS)
WW-BEACH ROAD SEWER PS
WW-WALLYS REST SEWER PS
WW-COLLINGWOOD
WW TREATMENT PLANT
BEACH ROAD
TASMAN STREET
HAVEN ROAD
COLLINGWOOD QUAY
RUATANIWHA DRIVE
LEWIS STREET
GIBBS ROAD
SWIFTSURE STREET
POPLAR LANE
MCDONALD PLACE
ORION STREET
EXCELLENT STREET
SCALE 1:10000
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Private Laterals
Critical Assets
WW UDA
Collingwood Wastewater Pump Stations
& Reticulation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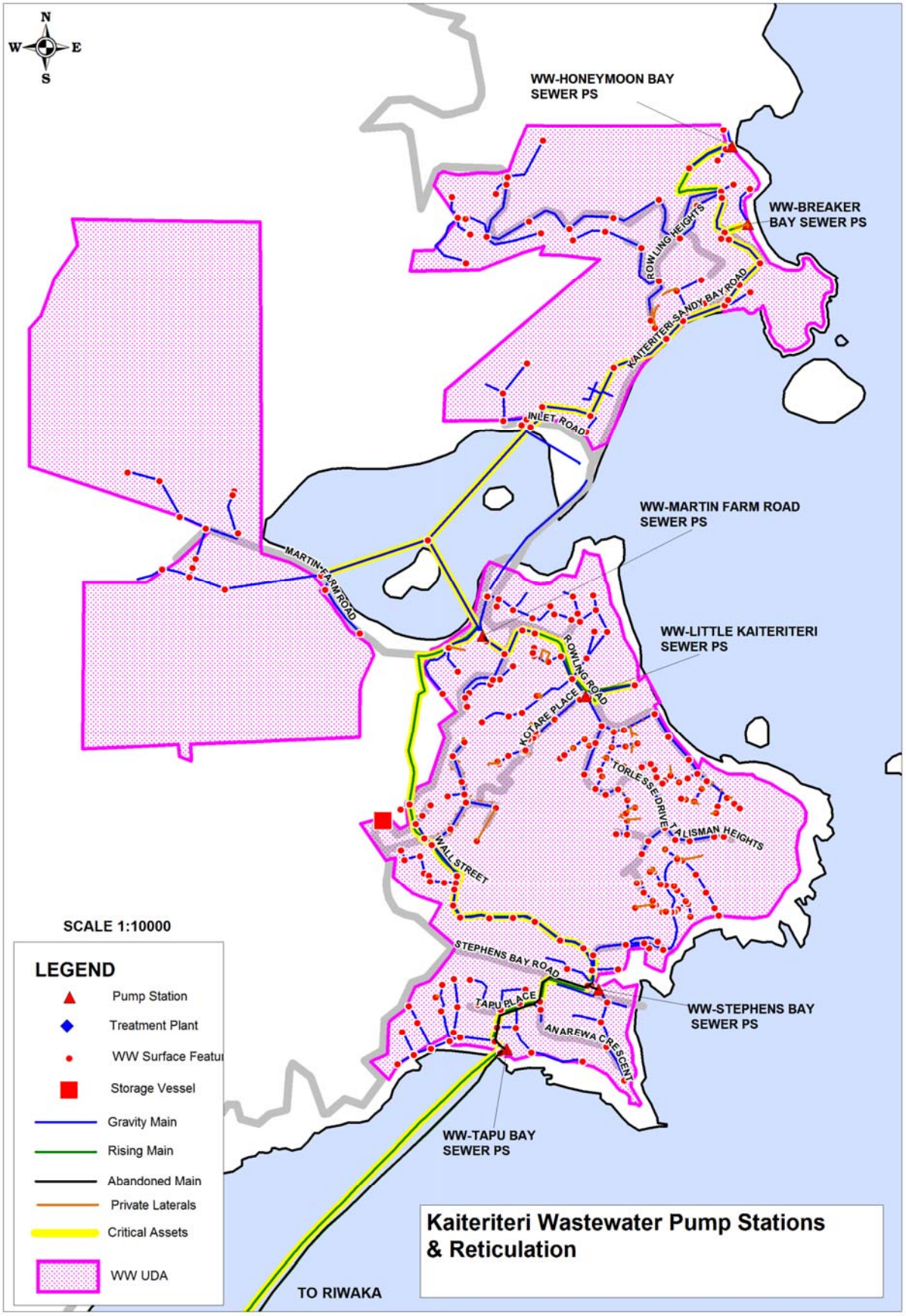
MAIN ROAD HOPE
WHITE ROAD
PATON ROAD
HART ROAD
BATEUP ROAD
COLLINS ROAD
ARATIA WAY
CHELSEA AVENUE
SURREY ROAD
WW-423 HILL STREET SEWER PS
WW-SUNVIEW HEIGHTS SEWER PS
FARADAY RISE
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Private Laterals
Dry Pipe (installed for Future Use)
Critical Assets
WW UDA
SCALE 1:15000
Hope Wastewater Pump Stations & Reticulation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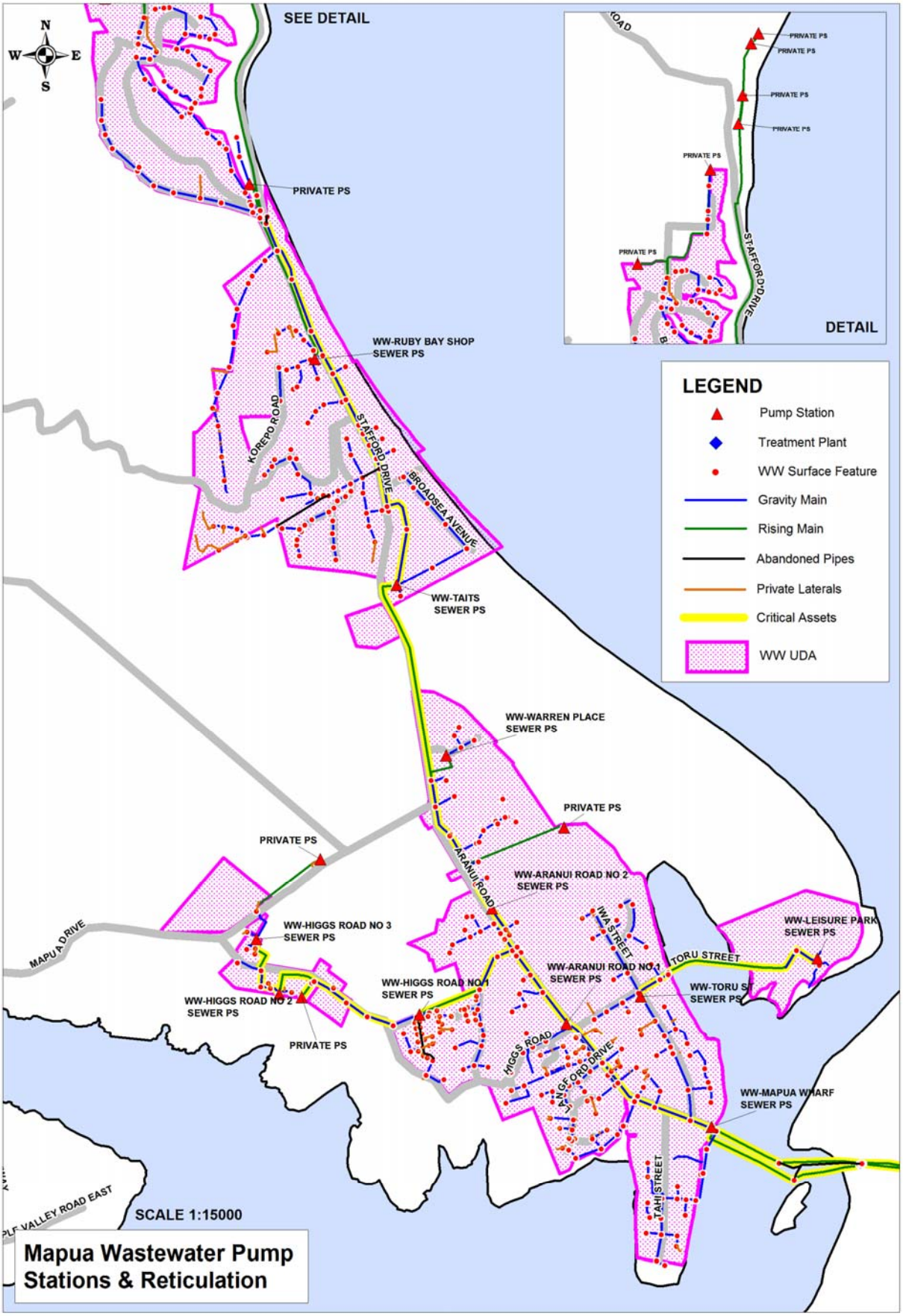
WW-HONEYMOON BAY SEWER PS
WW-BREAKER BAY SEWER PS
ROWLING HEIGHTS
KAITERITERI-SANDY BAY ROAD
INLET ROAD
WW-MARTIN FARM ROAD SEWER PS
MARTIN FARM ROAD
WW-LITTLE KAITERITERI SEWER PS
ROWLING ROAD
KOTARE PLACE
TORLESSE DRIVE
TALISMAN HEIGHTS
WALL STREET
STEPHENS BAY ROAD
TAPU PLACE
ANAREWA CRESCENT
WW-STEPHENS BAY SEWER PS
WW-TAPU BAY SEWER PS
SCALE 1:10000
LEGEND
Pump Station
Treatment Plant
WW Surface Featu
Storage Vessel
Gravity Main
Rising Main
Abandoned Main
Private Laterals
Critical Assets
WW UDA
TO RIWAKA
Kaiteriteri Wastewater Pump Stations & Reticulation


SEE DETAIL
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PRIVATE PS
WW-RUBY BAY SHOP SEWER PS
KOREPO ROAD
STAFFORD DRIVE
BROADSEA AVENUE
WW-TAITS SEWER PS
WW-WARREN PLACE SEWER PS
PRIVATE PS
PRIVATE PS
ARANUI ROAD
WW-ARANUI ROAD NO 2 SEWER PS
IWA STREET
TORU STREET
WW-LEISURE PARK SEWER PS
WW-ARANUI ROAD NO 1 SEWER PS
WW-TORU ST SEWER PS
MAPUA DRIVE
WW-HIGGS ROAD NO 3 SEWER PS
WW-HIGGS ROAD NO 1 SEWER PS
WW-HIGGS ROAD NO 2 SEWER PS
PRIVATE PS
HIGGS ROAD
ANGELFORD DRIVE
WW-MAPUA WHARF SEWER PS
TAHI STREET
PLF VALLEY ROAD EAST
SCALE 1:15000
Mapua Wastewater Pump Stations & Reticulation
PRIVATE PS
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PRIVATE PS
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STAFFORD DRIVE
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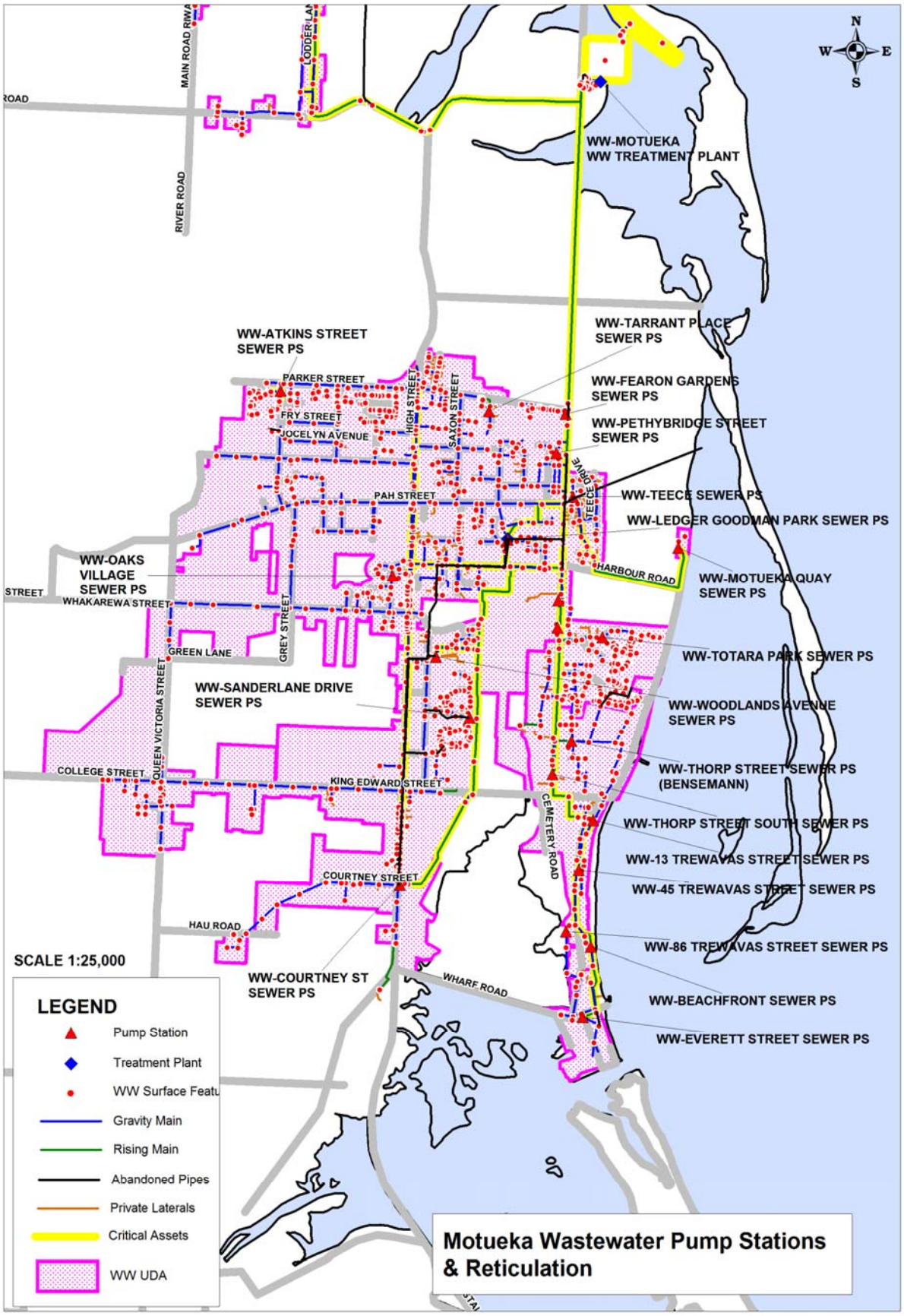
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
WW UDA


N
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WW-MOTUEKA
WW TREATMENT PLANT
WW-ATKINS STREET
SEWER PS
WW-TARRANT PLACE
SEWER PS
WW-FEARON GARDENS
SEWER PS
WW-PETHYBRIDGE STREET
SEWER PS
WW-TEECE SEWER PS
WW-LEDGER GOODMAN PARK SEWER PS
WW-MOTUEKA QUAY
SEWER PS
WW-TOTARA PARK SEWER PS
WW-WOODLANDS AVENUE
SEWER PS
WW-THORP STREET SEWER PS
(BENSEMANN)
WW-THORP STREET SOUTH SEWER PS
WW-13 TREWAVAS STREET SEWER PS
WW-45 TREWAVAS STREET SEWER PS
WW-86 TREWAVAS STREET SEWER PS
WW-BEACHFRONT SEWER PS
WW-EVERETT STREET SEWER PS
WW-COURTNEY ST
SEWER PS
WW-SANDERLANE DRIVE
SEWER PS
WW-OAKS
VILLAGE
SEWER PS
PARKER STREET
FRY STREET
JOCELYN AVENUE
HIGH STREET
SAXON STREET
TEECE DRIVE
PAH STREET
HARBOUR ROAD
WHAKAREWA STREET
GREEN LANE
GREY STREET
QUEEN VICTORIA STREET
COLLEGE STREET
KING EDWARD STREET
CEMETERY ROAD
COURTNEY STREET
HAU ROAD
WHARF ROAD
RIVER ROAD
MAIN ROAD RIWA
LODDER LA
ROAD
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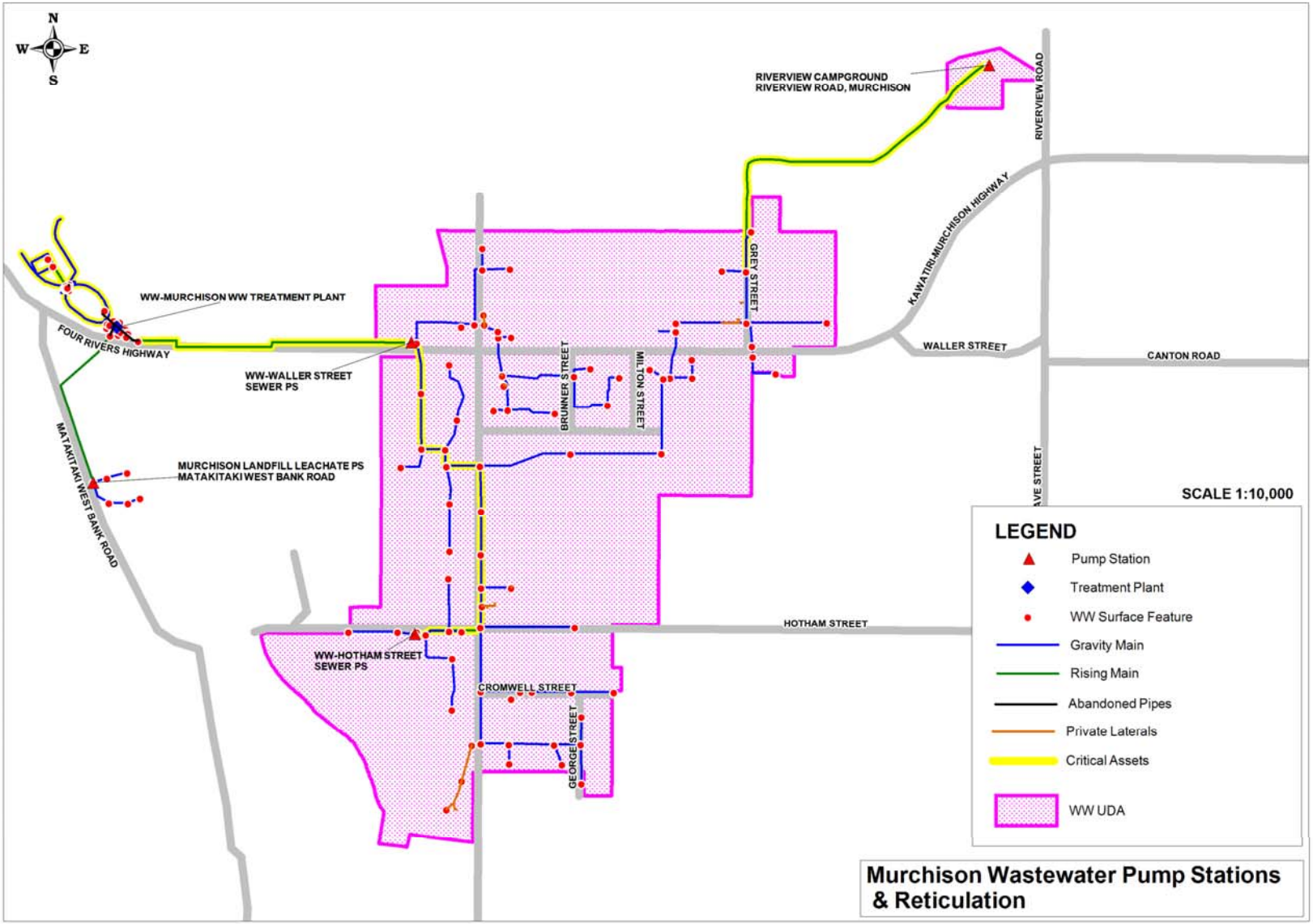
SCALE 1:25,000
LEGEND
Pump Station
Treatment Plant
WW Surface Featu
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
WW UDA
Motueka Wastewater Pump Stations
& Reticulation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RIVERVIEW CAMPGROUND
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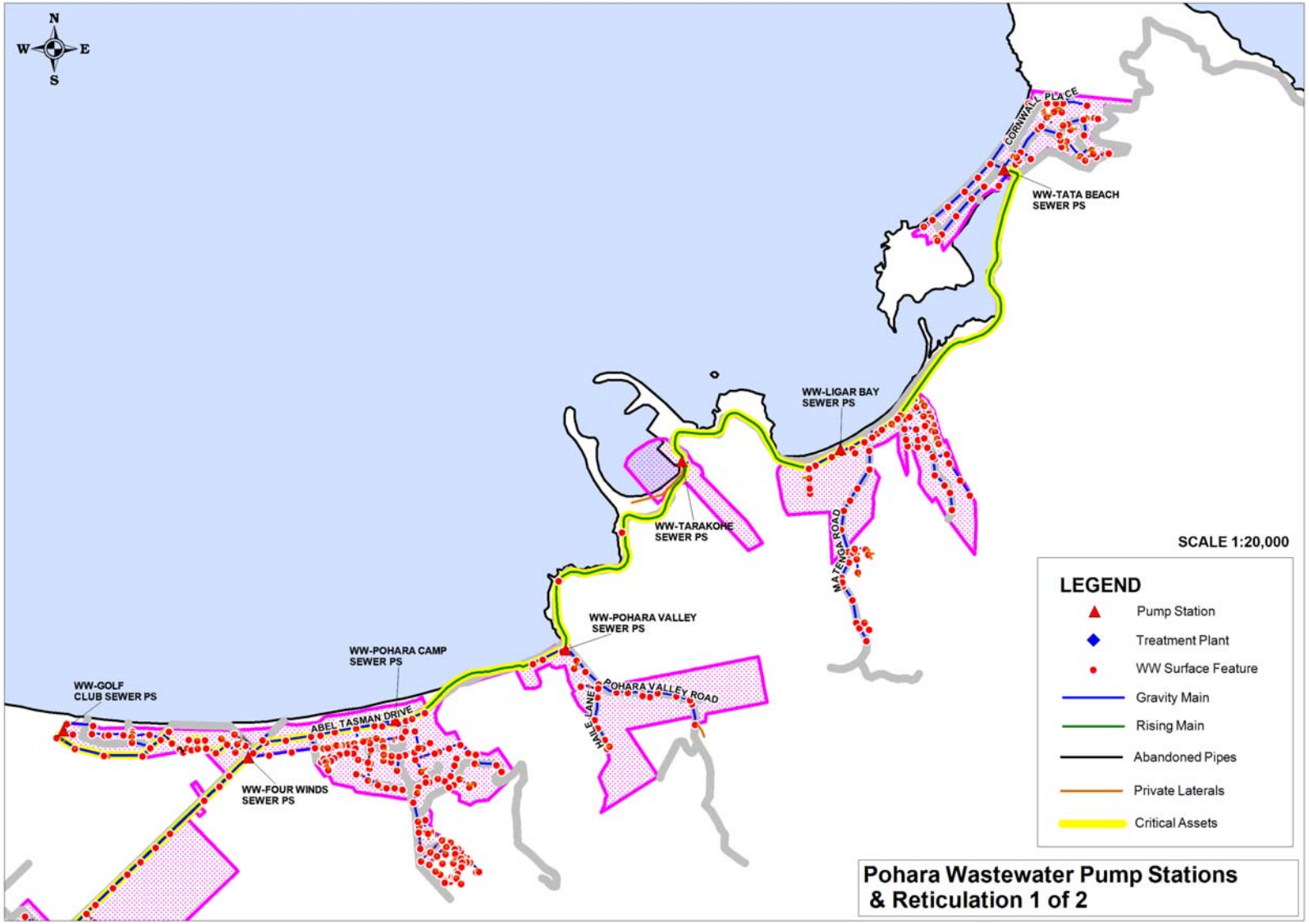
RIVERVIEW ROAD
KAWATIRI-MURCHISON HIGHWAY
GREY STREET
WW-MURCHISON WW TREATMENT PLANT
FOUR RIVERS HIGHWAY
WW-WALLER STREET
SEWER PS
WALLER STREET
CANTON ROAD
BRUNNER STREET
MILTON STREET
MATAKITAKI WEST BANK ROAD
MURCHISON LANDFILL LEACHATE PS
MATAKITAKI WEST BANK ROAD
SCALE 1:10,000
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
WW UDA
HOTHAM STREET
WW-HOTHAM STREET
SEWER PS
CROMWELL STREET
GEORGE STREET
Murchison Wastewater Pump Stations
& Reticulation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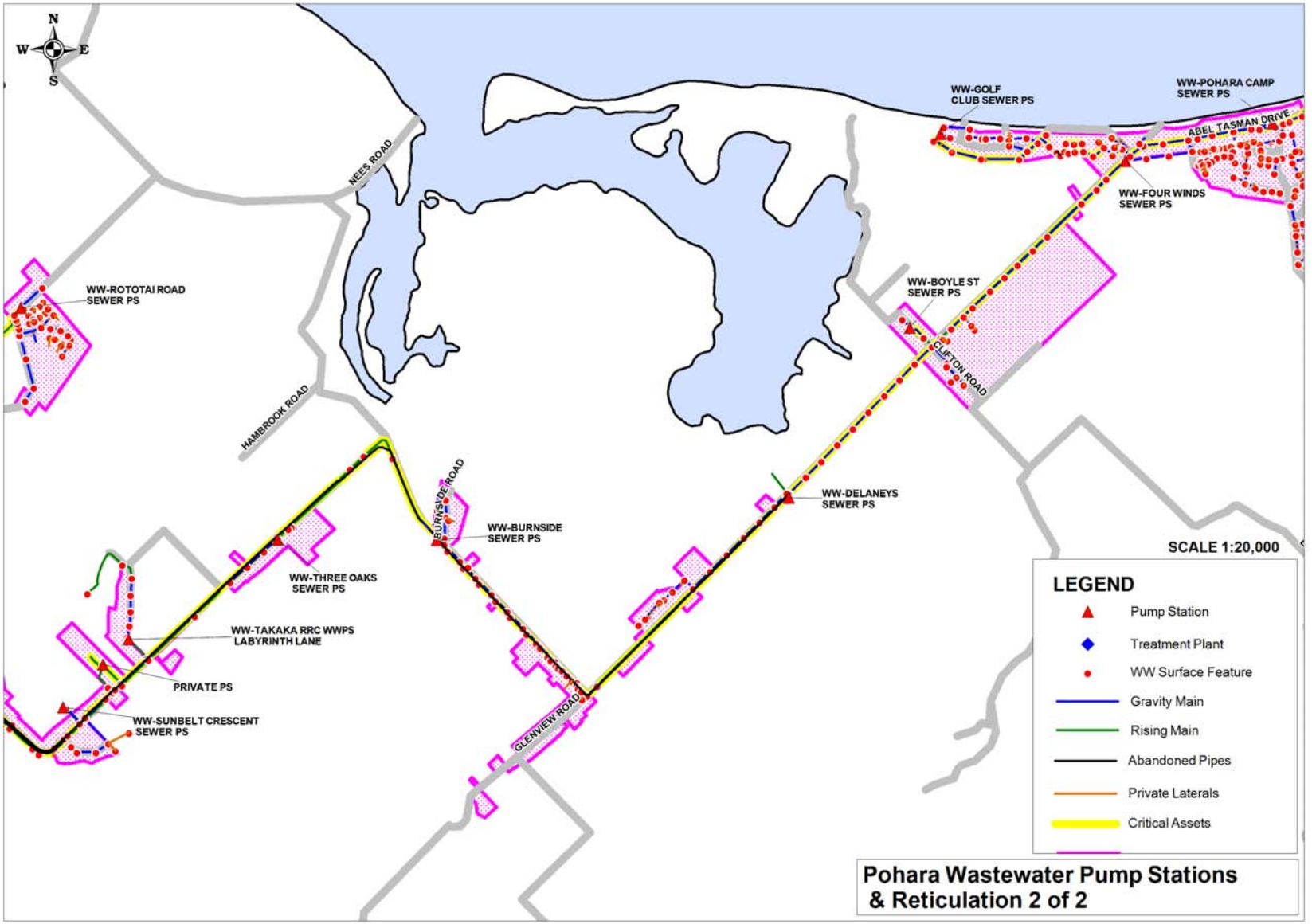
WW-LIGAR BAY SEWER PS
WW-TARAKOHE SEWER PS
MATENGA ROAD
WW-POHARA VALLEY SEWER PS
WW-POHARA CAMP SEWER PS
WW-GOLF CLUB SEWER PS
ABEL TASMAN DRIVE
HALL LANE
POHARA VALLEY ROAD
WW-FOUR WINDS SEWER PS
SCALE 1:20,000
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
Pohara Wastewater Pump Stations & Reticulation 1 of 2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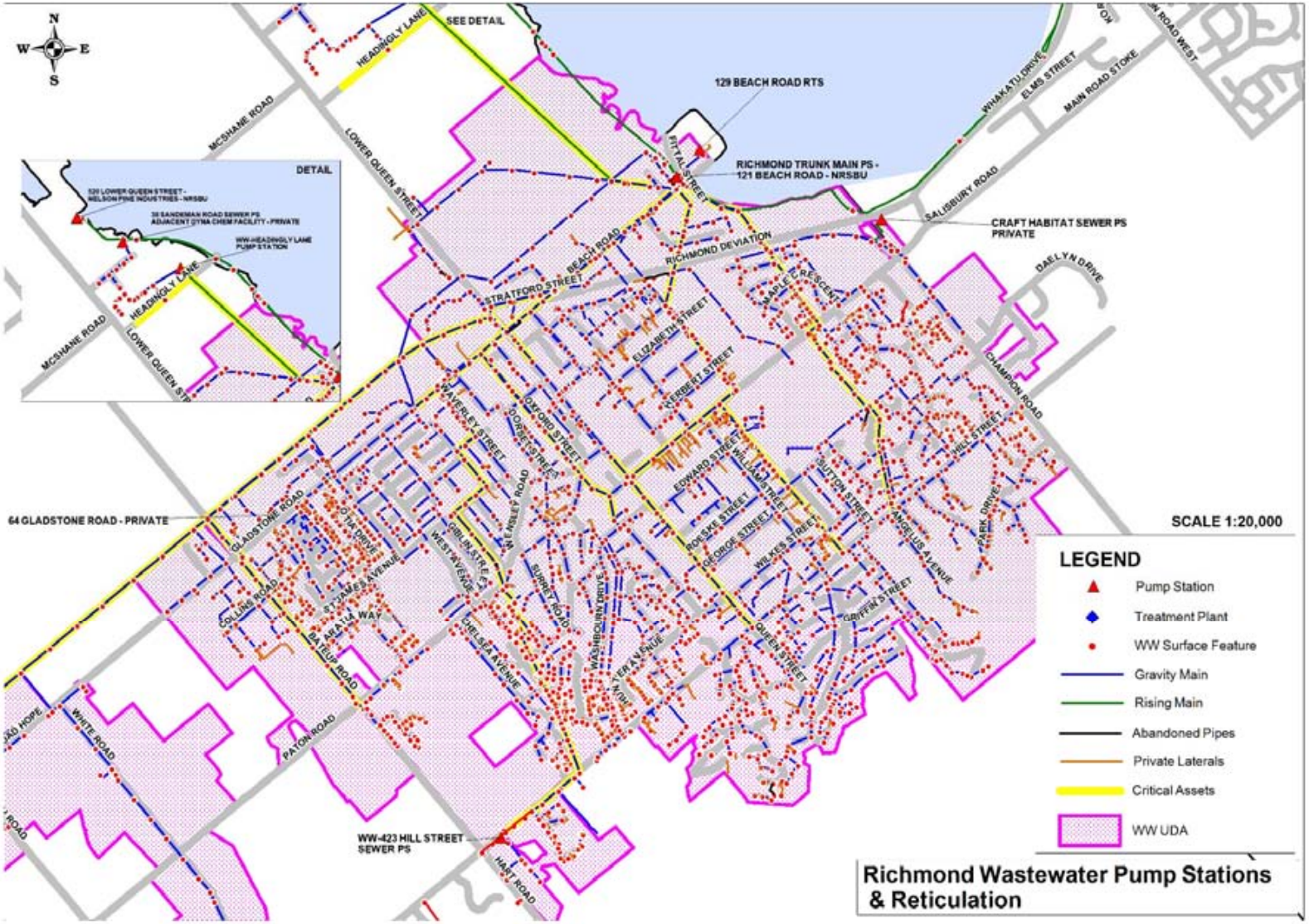
WW-GOLF CLUB SEWER PS
WW-POHARA CAMP SEWER PS
ABEL TASMAN DRIVE
WW-FOUR WINDS SEWER PS
NEES ROAD
WW-ROTOTAI ROAD SEWER PS
WW-BOYLE ST SEWER PS
CLIFTON ROAD
HAMBROOK ROAD
BURNSIDE ROAD
WW-BURNSIDE SEWER PS
WW-DELANEYS SEWER PS
WW-THREE OAKS SEWER PS
WW-TAKAKA RRC WWPS LABYRINTH LANE
PRIVATE PS
WW-SUNBELT CRESCENT SEWER PS
GLENVIEW ROAD
SCALE 1:20,000
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
Pohara Wastewater Pump Stations & Reticulation 2 of 2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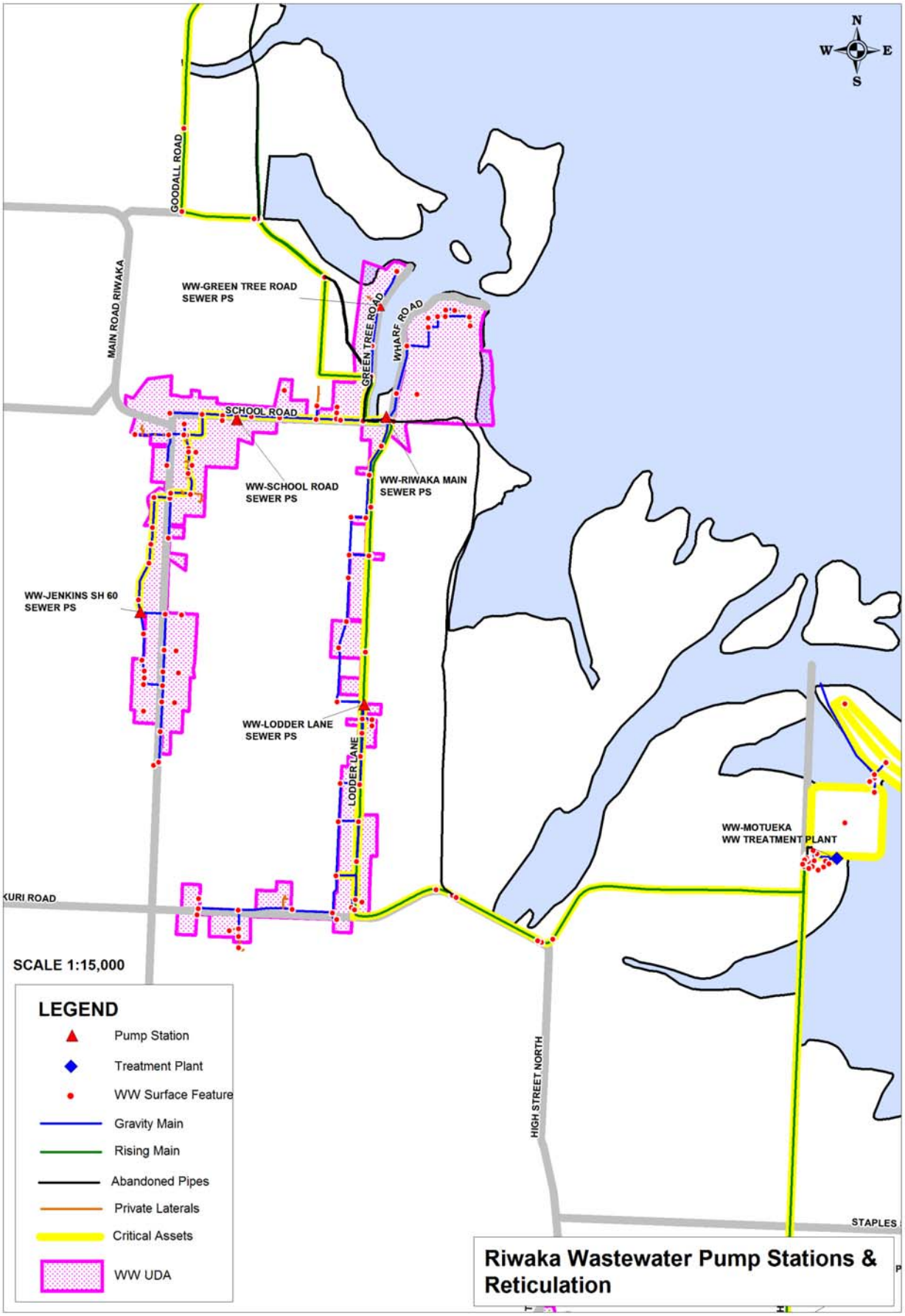
SEE DETAIL
HEADINGLY LANE
129 BEACH ROAD RTS
MCSHANE ROAD
LOWER QUEEN STREET
RICHMOND TRUNK MAIN PS -
121 BEACH ROAD - NRSBU
WHAKATU DRIVE
ELMS STREET
MAIN ROAD STOKE
SALISBURY ROAD
CRAFT HABITAT SEWER PS
PRIVATE
DAELYN DRIVE
RICHMOND DEVIATION
BEACH ROAD
STRATFORD STREET
MAPLE CRESCENT
ELIZABETH STREET
KERBERT STREET
CHAMPION ROAD
WAVERLEY STREET
OXFORD STREET
GORDON STREET
HILL STREET
EDWARD STREET
WILLIAMS STREET
SUTTON STREET
ROOKE STREET
GEORGE STREET
WILKES STREET
ANGELUS AVENUE
PARK DRIVE
64 GLADSTONE ROAD - PRIVATE
GLADSTONE ROAD
OLIVE DRIVE
EASTERN ARTERIAL ROAD
WEST AVENUE
GIBLIN STREET
ST JAMES AVENUE
COLLINS ROAD
MATATU WAY
SURREY ROAD
WASHBOURN DRIVE
TYLER AVENUE
QUEEN STREET
GRIFFIN STREET
BATEUP ROAD
CHELSEA AVENUE
HOPE
WHITE ROAD
PATON ROAD
WW-423 HILL STREET
SEWER PS
HART ROAD
DETAIL
121 LOWER QUEEN STREET -
NELSON PINE INDUSTRIES - NRSBU
38 SANDEMAN ROAD SEWER PS
ADJACENT QYNA CHEM FACILITY - PRIVATE
WW-HEADINGLY LANE
PUMP STATION
SCALE 1:20,000
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
WW UDA
Richmond Wastewater Pump Stations
& Reticulation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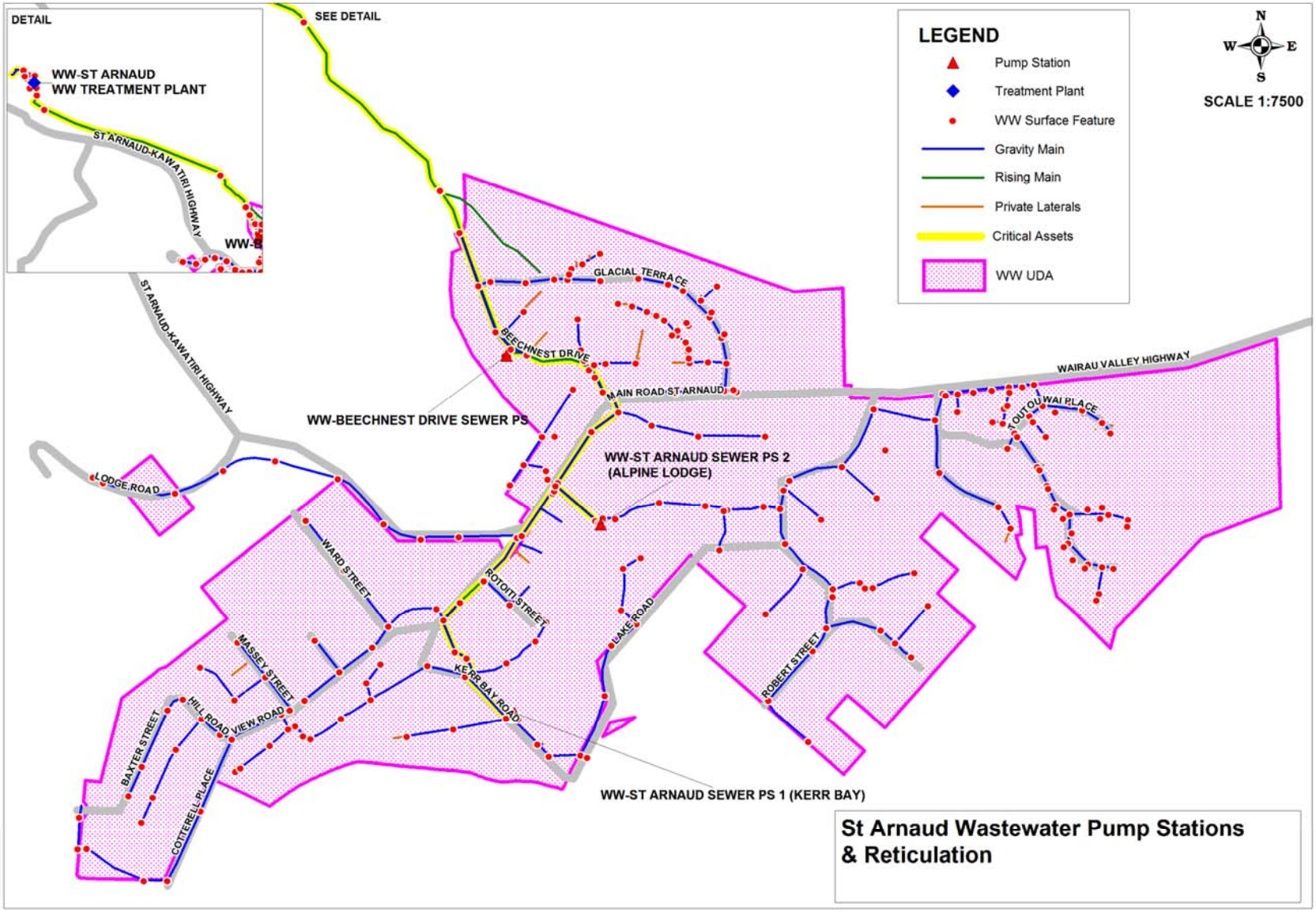
GOODALL ROAD
MAIN ROAD RIWAKA
WW-GREEN TREE ROAD SEWER PS
GREEN TREE ROAD
WHARF ROAD
SCHOOL ROAD
WW-SCHOOL ROAD SEWER PS
WW-RIWAKA MAIN SEWER PS
WW-JENKINS SH 60 SEWER PS
WW-LODDER LANE SEWER PS
LODDER LANE
WW-MOTUEKA WW TREATMENT PLANT
KURI ROAD
HIGH STREET NORTH
STAPLES
SCALE 1:15,000
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
WW UDA
Riwaka Wastewater Pump Stations & Reticulation


DETAIL
WW-ST ARNAUD
WW TREATMENT PLANT
ST ARNAUD-KAWATIRI HIGHWAY
SEE DETAIL
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Private Laterals
Critical Assets
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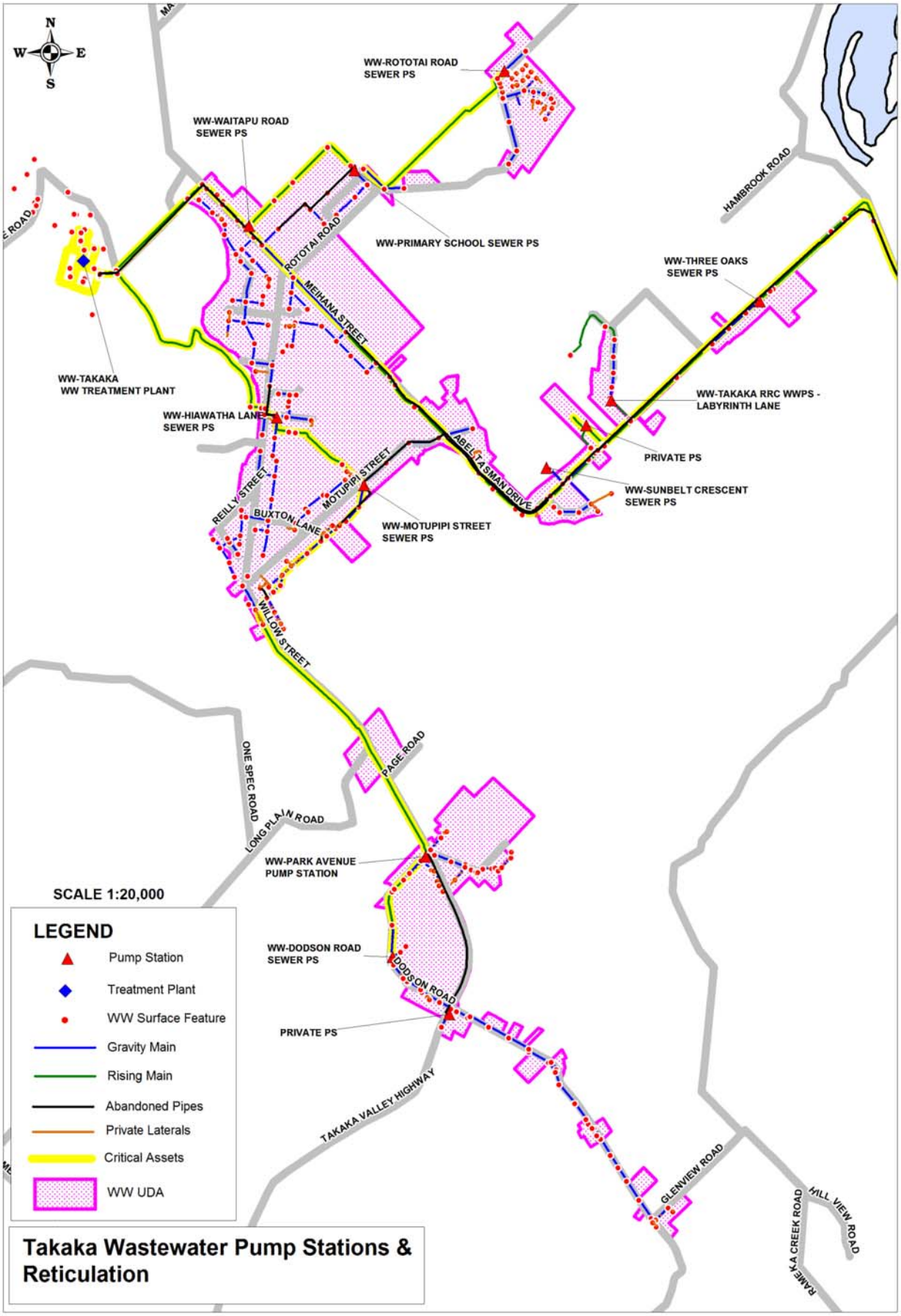
GLACIAL TERRACE
BEECHNEST DRIVE
MAIN ROAD ST ARNAUD
WAIRAU VALLEY HIGHWAY
WW-BEECHNEST DRIVE SEWER PS
WW-ST ARNAUD SEWER PS 2
(ALPINE LODGE)
LODGE ROAD
WARD STREET
ROTOITI STREET
LAKE ROAD
MASSEY STREET
KERR BAY ROAD
HILL ROAD VIEW ROAD
BAXTER STREET
COTTERELL PLACE
ROBERT STREET
WW-ST ARNAUD SEWER PS 1 (KERR BAY)
St Arnaud Wastewater Pump Stations
& Reticulation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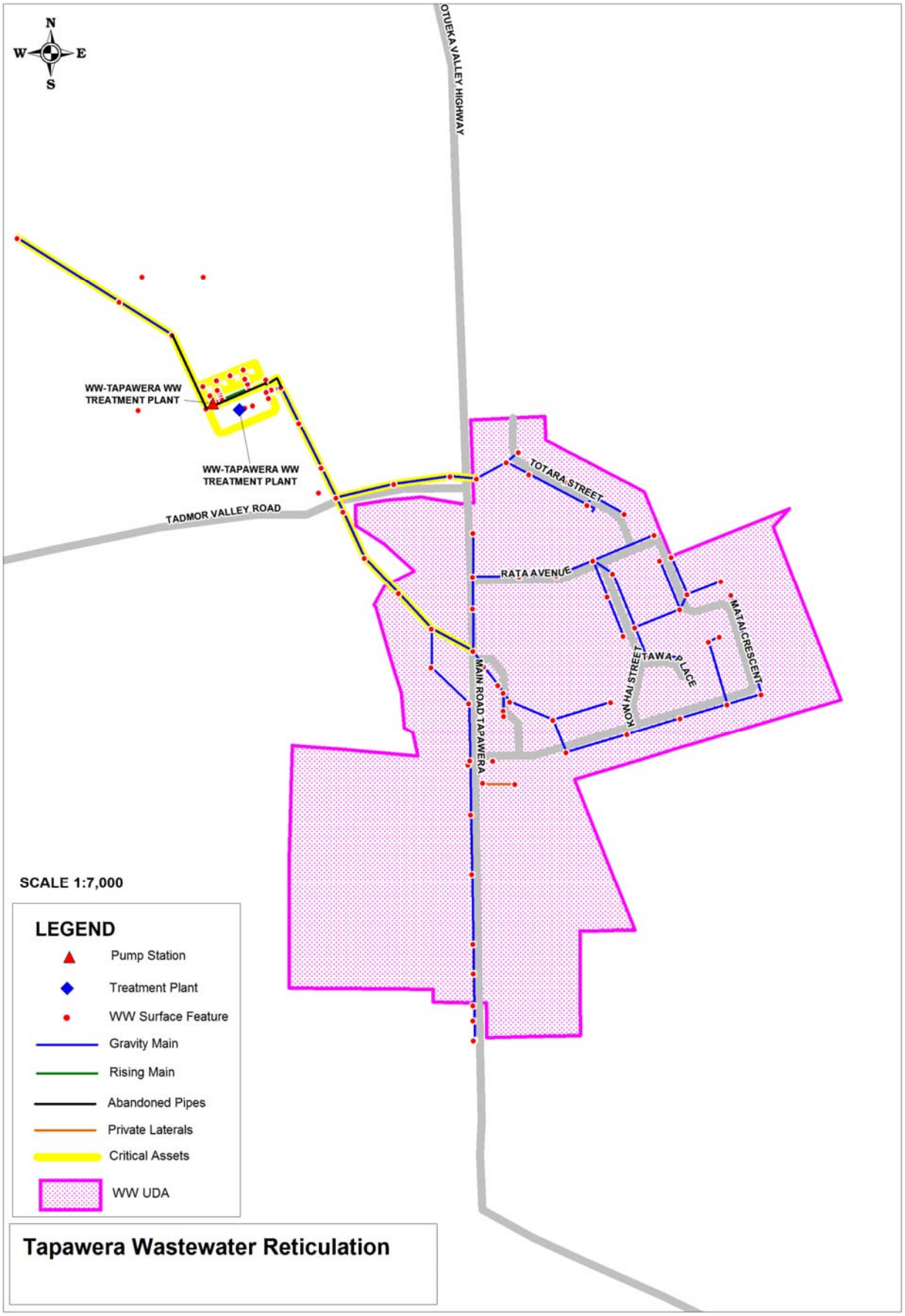
WW-ROTOTAI ROAD SEWER PS
WW-WAITAPU ROAD SEWER PS
WW-PRIMARY SCHOOL SEWER PS
ROTOTAI ROAD
MEIHANA STREET
HAMBROOK ROAD
WW-THREE OAKS SEWER PS
WW-TAKAKA WW TREATMENT PLANT
WW-HIAWATHA LANE SEWER PS
WW-TAKAKA RRC WWPS - LABYRINTH LANE
PRIVATE PS
ABEL TASMAN DRIVE
WW-SUNBELT CRESCENT SEWER PS
REILLY STREET
BUXTON LANE
MOTUPIPI STREET
WW-MOTUPIPI STREET SEWER PS
WILLOW STREET
PAGE ROAD
ONE SPEC ROAD
LONG PLAIN ROAD
WW-PARK AVENUE PUMP STATION
SCALE 1:20,000
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
WW UDA
WW-DODSON ROAD SEWER PS
DODSON ROAD
PRIVATE PS
TAKAKA VALLEY HIGHWAY
GLENVIEW ROAD
HILL VIEW ROAD
RAMEKA CREEK ROAD
Takaka Wastewater Pump Stations & Reticulation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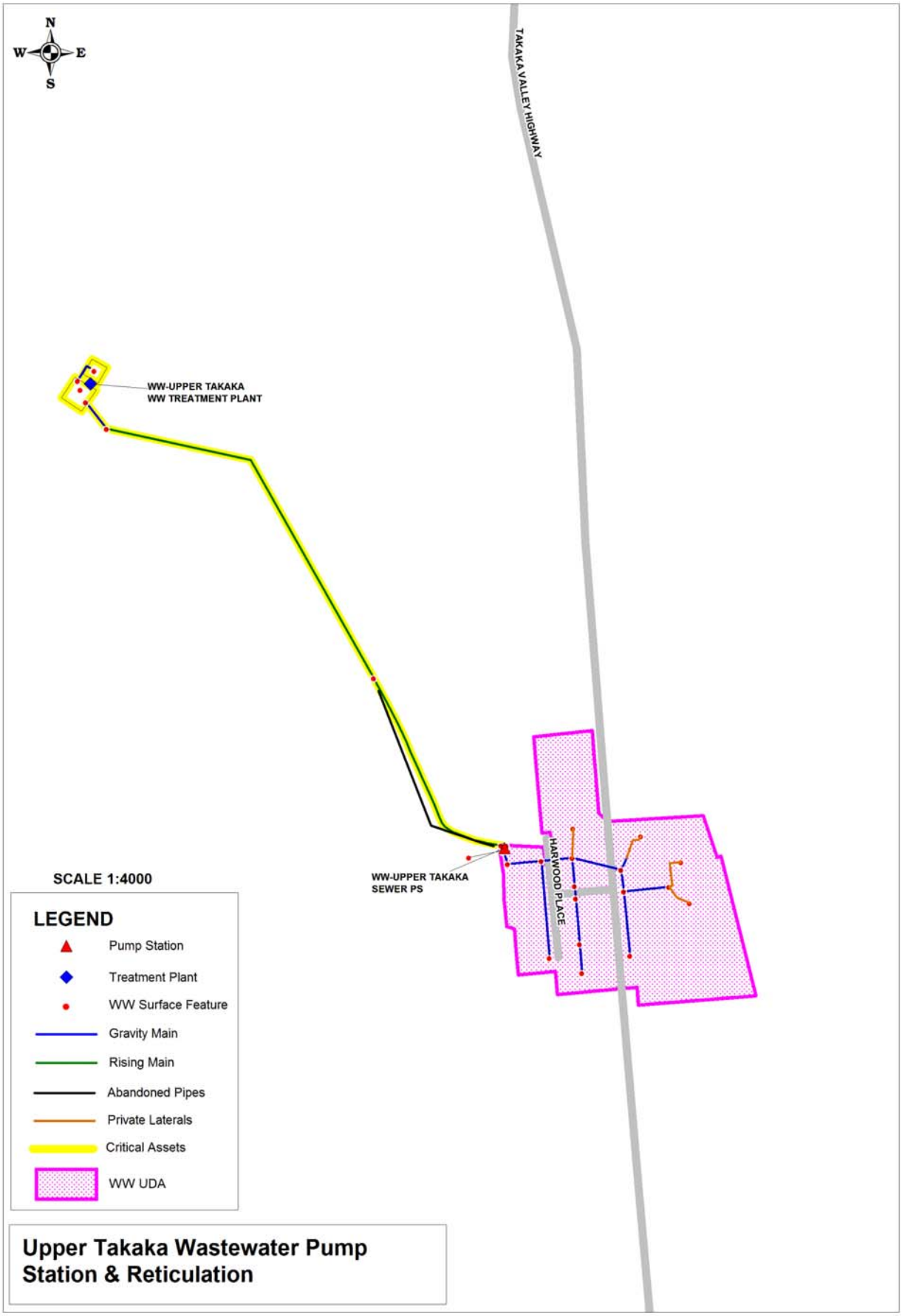
OTUEKA VALLEY HIGHWAY
WW-TAPAWERA WW TREATMENT PLANT
WW-TAPAWERA WW TREATMENT PLANT
TADMOR VALLEY ROAD
TOTARA STREET
RATA AVENUE
MATAI CRESCENT
KOWHAI STREET
MAIN ROAD TAPAWERA
SCALE 1:7,000
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
WW UDA
Tapawera Wastewater Reticulation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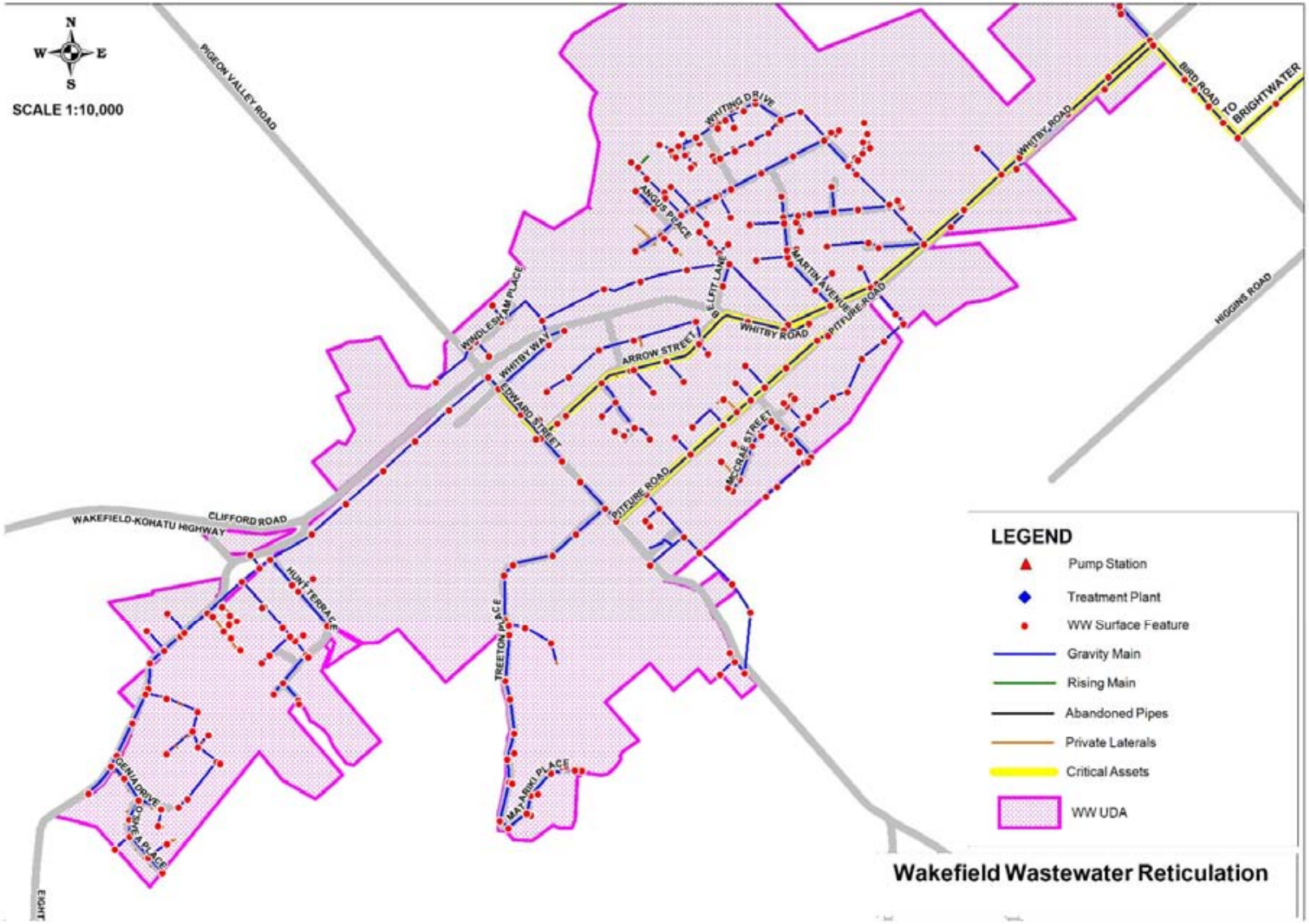
TAKAKA VALLEY HIGHWAY
WW-UPPER TAKAKA
WW TREATMENT PLANT
WW-UPPER TAKAKA
SEWER PS
HARWOOD PLACE
SCALE 1:4000
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
WW UDA
Upper Takaka Wastewater Pump Station & Reticulation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SCALE 1:10,000
PIGEON VALLEY ROAD
WHITING DRIVE
ANGUS PLACE
WINDLESHAM PLACE
WHITBY WAY
ELFIT LANE
MARTIN AVENUE
WHITBY ROAD
PITFURE ROAD
HIGGINS ROAD
BIRD ROAD
TO BRIGHTWATER
ARROW STREET
EDWARD STREET
McCRAE STREET
WAKEFIELD-KOHATU HIGHWAY
CLIFFORD ROAD
HUNT TERRACE
TREETON PLACE
MATARIKI PLACE
GENIA DRIVE
LEGEND
Pump Station
Treatment Plant
WW Surface Feature
Gravity Main
Rising Main
Abandoned Pipes
Private Laterals
Critical Assets
WW UDA
Wakefield Wastewater Reticulation

APPENDIX Z. AMP STATUS AND DEVELOPMENT PROCESS

Z.1 AMP Status

Version	Status	Document Approval	Signature	Date
1	Working Draft			
2	Draft for Council Officer Review	Name: Becky Marsay Authority: Project Technical Lead		17 Feb 2012
3	Draft for Council Review	Name: Jeff Cuthbertson Authority: Asset Manager		
4	Draft for Public Consultation through LTP	Name: Peter Thomson Authority: Engineering Manager		
5	Final Plan Adopted by Council Council Resolution	Name: Richard Kempthorne Authority: Mayor Reference: _____		

Z.2 AMP Development Process

Project Sponsor:	Peter Thomson
Asset Manager:	Jeff Cuthbertson
Project Manager:	Stephen Sinclair
Project Technical Lead:	Becky Marsay
AMP Author:	David Light
Project Team:	Jeff Cuthbertson, Avik Halder, Michael Hanselmann Sebastian Head, Shane Jellyman, James Tomkinson, Juliet Westbury Paul Barratt – Operations and Maintenance Richard Lester, Denis O'Brien, Dugall Wilson

Z.3 Quality Plan

This quality plan comprises three parts.

1. Quality Requirements and Issues – identification of the quality standards required and the quality issues that might arise.
2. Quality Assurance – the planned approach to ensure quality requirements are pro-actively met – ie. get it right first time.
3. Quality Control – the monitoring of the project implementation to ensure quality outcomes are met.

Z.4 Quality Requirements and Issues

	Issues and Requirements	Description
1	Fitness for Purpose	The AMP has to be "fit for purpose". It has to comply with Audit NZ expectations of what an AMP should be to provide them the confidence that the Council is adequately managing the Council activities.
2	AMP Document Consistency	Council want a high level of consistency between AMPs so that a reader can comfortably switch between plans.
3	AMP Document Format	The documents need to be prepared to a consistent and robust format so that the electronic documents are not corrupted (as happens to large documents that have been put together with a lot of cutting and pasting) and can be made available digitally over the internet.
4	AMP Text Accuracy and Currentness	The AMPs are large and include a lot of detail. Errors or outdated statements reduce confidence in the document. The AMPs need to be updated to current information and statistics.
5	AMP Readability	The AMPs in their current form have duplication – where text is repeated in the "front" section and the Appendices. This needs to be rationalised so that the front section is slim and readable and the Appendix contains the detail without unnecessary duplication.
6	Completeness of Required Upgrades/Expenditure Elements	The capital expenditure forecasts and the operations and maintenance forecasts need to be complete. All projects and cost elements need to be included.
7	Accuracy of Cost Estimates	Cost estimates need to be as accurate as the data and present knowledge allows, consistently prepared and decisions made about timing of implementation, drivers for the project and level of accuracy the estimate is prepared to.
8	Correctness of Spreadsheet Templates	The templates prepared for use need to be correct and fit for purpose.
9	Assumptions and Uncertainties	Assumptions and uncertainties need to be explicitly stated on the estimates.
10	Changes Made After Submission to Financial Model	If Council makes decisions on expenditure after they have been submitted into the financial model, the implications of the decisions must be reflected in the financial information and other relevant places in the AMP – eg. Levels of service and performance measures, improvement plans etc.
11	Improvement Plan Adequate	Improvements identified, costed, planned and financially provided for in financial forecasts.

Z.5 Quality Assurance

	Issues and Requirements	Quality Assurance Approach	Responsible Person
1	Fitness for Purpose	Conduct various reviews of critical elements up front and plan to upgrade the plans to specific requirements: 1. Scoping of AMP Upgrade Project 2. Review of Levels of Service 3. Review of Document Upgrade Needs.	Becky Marsay
		Conduct a Peer Review.	Peter Thomson
2 3	AMP Document Consistency AMP Document Format	Review documents in advance and prepare instructions to authors on how to upgrade.	Becky Marsay
4	AMP Readability	Central review of AMP document deliverables.	Becky Marsay
5	AMP Text Accuracy and Currentness	Authors to review each AMP in detail.	AMP authors
6	Completeness of Required Upgrades/Expenditure Elements	AMP authors to workshop with relevant project team members to ensure all projects/cost elements covered.	AMP authors
		Central list of issues (called a "Parking Lot") that need to be considered in each AMP.	AMP authors
7	Accuracy of Cost Estimates	Independent review of all cost estimates.	AMP authors
8	Correctness of Spreadsheet Templates	Independent review of all templates.	Becky Marsay
9	Assumptions and Uncertainties and Risk Assessments	Independent review of all cost estimates.	AMP authors
10	Changes Made After Submission to Financial Model	Protocol prepared to ensure Teamsite is used and all parties follow instructions on how changes are made.	Becky Marsay
		Ensure there is a place in the AMP documents to record any changes made and the implications of changes.	Becky Marsay
		AMP authors to manage a change log for changes after submission.	AMP Authors
11	Improvement Plan Adequate	Prepare template in advance to ensure consistent approach.	Becky Marsay
		Central review of Improvement Plans.	Becky Marsay

Z.6 Quality Control

Quality control checks and reviews are scheduled on the attached table. These shall be progressively completed as the AMP is developed and incorporated in the final AMP Plan in Appendix Z.

Check or Review	Person Responsible	Authority	Signature	Date
Scope of AMP Upgrade Project complete	Peter Thomson	Engineering Manager		
Levels of Service prepared to instructions	Becky Marsay	Project Technical Lead		16 Feb 2012
Levels of Service Asset Manager acceptance	Jeff Cuthbertson	Asset Manager		
AMP document prepared to instructions	Becky Marsay	Project Technical Lead		16 Feb 2012
AMP text accuracy and currentness	David Light	AMP Author		
Capital Upgrade List complete	Dugall Wilson	Programme Manager		
Capital Upgrade List complete - Asset Manager acceptance	Jeff Cuthbertson	Asset Manager		
All issues on “Parking Lot” addressed	David Light	AMP Author		
Capex Expenditure spreadsheet template reviewed	Becky Marsay	Project Technical Lead		16 Feb 2012
Project Estimate spreadsheet template reviewed	Dugall Wilson	Programme Manager		
All Capex Estimates reviewed and including assessment of Programme, Project Drivers, Levels of Accuracy and assumptions/uncertainty	David Light	AMP Author		
Opex Costs spreadsheet arithmetic review	David Light	AMP Author		
Opex Cost forecast – fitness for purpose	Jeff Cuthbertson	Asset Manager		
Improvement Plan prepared to instructions	Becky Marsay	Project Technical Lead		16 Feb 2012
Improvement Plan Asset Manager acceptance	Jeff Cuthbertson	Asset Manager		
Capital Forecast accepted for input to NCS	Jeff Cuthbertson	Asset Manager		
Change log complete and changes appropriately dealt with – after Council review	David Light	AMP Author		
Change log complete and changes appropriately dealt with – after Public consultation	Jeff Cuthbertson	Asset Manager		
Peer Review completed	Peter Thomson	Engineering Manager		