

Council Briefing Agenda

Date: Tuesday, 30 June, 2020

Time: 9:00 am

Location: Council Chamber
Forum North, Rust Avenue
Whangarei

Elected Members: Her Worship the Mayor Sheryl Mai
(Chairperson)

Cr Gavin Benney

Cr Vince Cocurullo

Cr Nicholas Connop

Cr Ken Couper

Cr Tricia Cutforth

Cr Shelley Deeming

Cr Jayne Golightly

Cr Phil Halse

Cr Greg Innes

Cr Greg Martin

Cr Anna Murphy

Cr Carol Peters

Cr Simon Reid

For any queries regarding this meeting please contact
the Whangarei District Council on (09) 430-4200.

1. Apologies

2. Reports

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3. Closure of Meeting

2.1 Activity Briefings – Water Services

Meeting: Council Briefing
Date of meeting: 30 June 2020
Reporting officer: Andrew Venmore (Manager Water Services)

1 Purpose

To provide elected members an overview of the **Water Services** activity. This includes the following:

- What we do
- the key assets and levels of service
- the key issues facing this activity

2 Background

Elected members will receive briefings on the key activities of Council. Through these briefings, staff will provide an overview of the activity. Staff will also provide information on the key issues facing that activity over the next 3 and 10 years as well as into the long term. The intent is to give elected members clear visibility and knowledge of the activity.

These briefings will also help to identify common issues which may impact on multiple activities and set the scene for direction setting for the 2021 – 31 Long Term Plan.

3 Discussion

3.1 What we do

The significant legislative requirements for Water Supply under the Health Drinking-water Amendment Act, in which the Water Supplier has specific responsibilities related to:

- Source water protection
- Providing a potable water supply
- Compliance with the Drinking-water Standards of New Zealand
- Approved Water Safety Plans (formally Public Health Risk Management Plans)

Water Supply is primarily a public health protection activity run within a risk management framework.

Water Services produce quality drinking water that meets the New Zealand Drinking Water Standards. To achieve this, we need to understand the potential contamination and continuity risks to the supply. This is done through the Water Safety Plans which are based on quality assurance principles that:

- Look at all elements - Source, Treatment and Distribution systematically
- Do risk assessments (likelihood x consequence = risk) of all possible events and changes including contamination, severe weather, power outage, equipment/process failures, errors etc.

- Include mitigation, improvement schedules, training and contingency planning
- Plans are approved and audited by the District Health Board with 5 yearly reviews.

Water Safety Plans feed into the Activity Management Plan as the mechanism for reducing the likelihood and/or consequence of those risks where practicable to do so. The events of Havelock North and the subsequent inquiry have highlighted the importance of understanding the level of risk for each supply. Once the risks are understood it is necessary to determine the appetite for risk of the organisation supplying the water. The multi barrier approach allows more barriers to be installed reducing the overall risk. This means that several issues would need to occur simultaneously to have a major impact. The Ministry of Health has issued a new framework for Water Safety Plans. Water Services is in the process of updating our Water Safety Plans to comply with the new framework. Most of the major new capital projects have already been identified and include in the current LTP. However, it is possible that operational changes will need to be made which may have associated costs.

3.2 Our key assets

Our water is supplied to four geographically distinct Water Supply Areas (WSA) as detailed below:

Water Supply Areas	Whangarei	Bream Bay	Maungakaremea	Mangapai
Population supplied*	60,393	10,600	244	94
Connected properties	23,228	4,077	94	36
Main treatment plant	Whau Valley	Ruakaka	Maungakaremea	Mangapai
Source	Whau Valley Dam	Wilson's Dam	Mk Bores 1 and 2	Tauraroa Stream
Secondary source	Hatea River	Ruakaka River		
Second treatment plant	Poroti	Ahuroa		
Source	Poroti springs	Ahuroa River		
Third treatment plant	Ruddells			
Source	Maunu Springs			
Total production in 2018/ 19 [m ³ /yr]	6,698,538	2,834,805	36,864	9,305

* data calculated from connected properties times 2.6 people per household

The make-up of the water assets in terms of overall value is below:

Water Asset groups	Number of Asset	Replacement value	Current value	Ave life remaining
Water treatment plants	7	\$33.2M	\$17.0M	52%
Reservoirs	84	\$75.7M	\$39.6M	56%
Reticulation network incl. hydrants, valves and service connections	873km	\$249.7M	\$124.0M	58%
Water meters	27,435	\$11.0M	\$6.7M	60%
Total		\$369.6M	\$187.3M	58%

3.3 Our level of service

The current levels of service are:

- We provide safe high-quality drinking water to all our customers
- The water supplied is continuous and the pressure is adequate for customers' use
- In times of emergency there is available supply
- We manage the water supply system in a sustainable way that also caters for growth

4 Key issues for the next 3 Years

The key issues being addressed in the first 3 years of the plan are drought resilience, capacity/growth improvements and some renewals of aging assets. The Wairua River Source and treatment at Poroti will be the key focus over the next LTP period. The projects are shown below in the table below.

Project	Date	Driver	Risk
Onerahi Trunk Main – Replacement Stage 1	2022-24	Supply Security/Growth	Med
Poroti Trunk Main Renewal	2022-24	Supply Security	Med
Reticulation Renewals/Upgrades	2021-24	End of Life	High
Station Road Trunk main – extra capacity	2021-23	Growth	Med
Kamo Rd – additional capacity	2021/22	Level of Service	Med
Water Meter Renewals	2021-24	Lost revenue	Med
Minor Projects – emergency works	2021-24	Renewal	Med
Vinegar Hill trunk main	2022-24	Growth	Med
Water Tanker Filling Station – additional sites	2021-23	Level of Service	Med
Pyle Rd East Fire main and capacity upgrade	2021/22	Capacity/Growth	Med
Kamo Reservoir (Dip Rd)	2021-24	Capacity/Growth	Med
Three Mile Bush Reservoir – new location	2021-23	Growth	Med
Waipu reservoir extra capacity	2023/24	Capacity/Growth	Med
Wairua River Source and Treatment at Poroti	2021-24	Drought Supply	High
Water Treatment Plant and Equipment	2021-24	Poor performance	High
Ruddells Treatment Upgrade	2021/22	Level of Service	High
WTP and reservoir security upgrade	2021/22	Security	Med
SH1 Maungakarama to Loop Rd Renewal/Upgrade	2021/22	Performance	Med

5 Key issues for the next 10 Years

Longer term the major issues are likely to be related to aging assets and renewals. Some of our critical trunk mains will be reaching capacity and will need upgrading. Some unknowns like changes to the Drinking Water Standards may yet influence other projects and require additional funding. It is also possible that new legislation requiring Council's to assist with private supplies may lead to additional projects, although it is hoped that external funding would be made available for this.

6 Key issues for the long term

Climate Change and the growth, or otherwise, of in particular Ruakaka, along with an increasing focus on renewals will be the longer-term areas of interest. Climate change could bring forward the need for new water sources, particularly if coupled with high growth and water intensive industries. The future of the Refinery will play an important role in the water requirements for the Bream Bay area along with other potential major industrial developments. Other areas not currently supplied with water may become candidates for town water supplies such as the Ngunguru Coast and Mangawhai.

2.2 Activity Briefings – Wastewater

Meeting: Council Briefing
Date of meeting: 30 June 2020
Reporting officer: Simon Charles (Manager Waste and Drainage)

1 Purpose

To provide elected members with an overview of the Wastewater activity. This includes the following:

- What we do
- the key assets and levels of service
- the key issues facing this activity

2 Background

Elected members will receive briefings on the key activities of Council. Through these briefings, staff will provide an overview of the activity and provide information on the key issues facing that activity over the next 3 and 10 years, as well as into the long term. The intent is to give elected members clear visibility and knowledge of the activity.

These briefings will also help to identify common issues which may impact on multiple activities and set the scene for direction setting for Councils 2021 – 31 Long Term Plan.

3 Discussion

3.1 What we do

Wastewater management is all about keeping our District safe, healthy and clean. The wastewater system provides an important public health function while preserving environmental values. It conveys wastewater from domestic and public toilets, and commercial and industrial wastes to wastewater treatment facilities, before final discharge to the environment.

- Collectively, our population produces an enormous amount of wastewater every year, with the average being 16 Million Litres/Day (ML/d) (the range for the Whangarei plant is 8.8 ML/d to 125 ML/d).
- Our job is to develop and manage the systems to collect this wastewater, and to treat and dispose of it in a way that meets a range of legal standards. This protects the health and wellbeing of our communities and the environment.

3.2 Our key assets

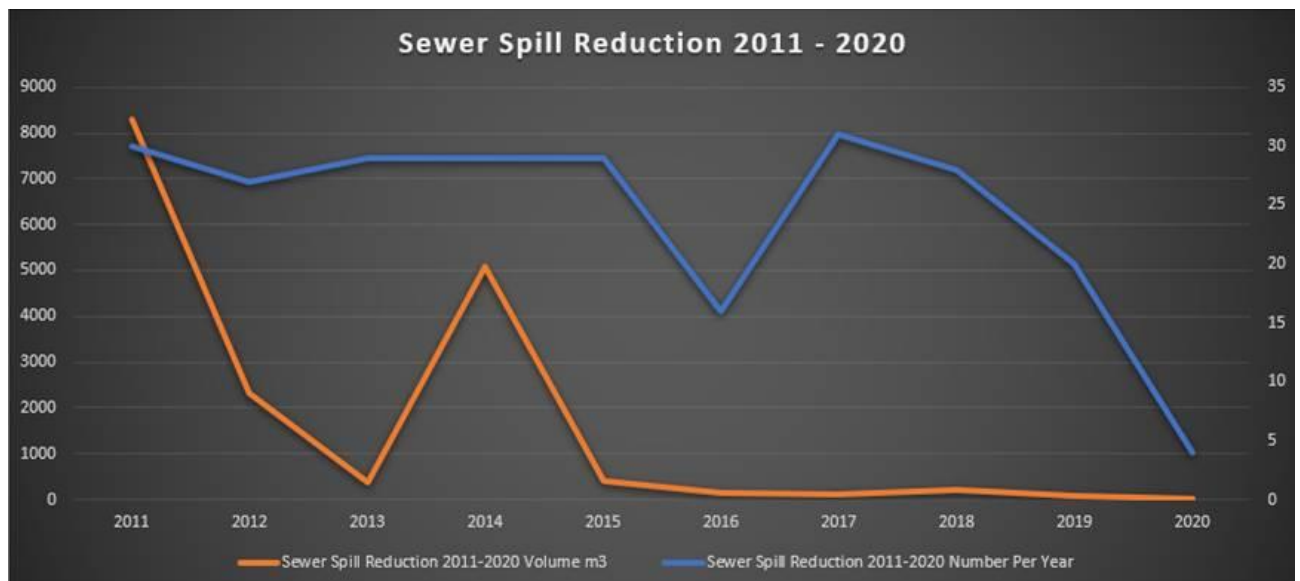
Our wastewater network (sewerage system) comprises nine wastewater systems and treatment plants, and processes wastewater from over 23,000 connections across the District. The wastewater system consists of over 50,000 assets comprising pipes, manholes,

pump stations and treatment plants. The pipework has a total length of 840 km. The overall replacement value of wastewater assets is \$374M, representing 14% of all WDC assets.

The key strategic assets are:

- The wastewater treatment plant in Kioreroa Road is the main treatment plant for Whangarei and treats the sewage from the city, including Onerahi and the Whangarei Heads area. The sewage is from both domestic and industrial sources with a peak capacity of 125ML/d
- Okara Park pump station
- Hatea Dr pump station storage and treatment facility
- Tarewa Park storage and treatment facility
- Ruakaka wastewater treatment plant
- Waipu Wastewater treatment plant
- Waiotoi Wastewater treatment plant
- Tutukaka Wastewater treatment plant
- Nugunguru Wastewater treatment plant
- Oakura Wastewater treatment plant

Over the past 10 years we have spent approximately \$60M upgrading and expanding our wastewater treatment network to reduce spills of raw sewage into the Whangarei harbour. The results of this investment are easy to recognise in the graph below which shows the reduction of sewer spills over time. This is a wonderful result and something to be proud of.



3.3 Our Levels of service

Below is an overview of how Wastewater contributes to the current Community Outcomes and the recently reintroduced four Well-beings. With our level of service statement and a commentary on how we are doing on reported performance against the mandatory performance measures and legislative requirements. The overall improved performance is the result of long-term capital investment in Wastewater treatment and storage and network upgrades.

Four Well-beings Our contribution to Community Outcomes	Wastewater Levels of Service	Mandatory Performance Measures MPM/ Legislative requirements	How we are doing against targets and comments
 Social Efficiency and Resilient core services HIGH - The management of wastewater is a core service. It supports our communities and our commercial, industrial and agricultural activities. Wastewater is managed and planned in a way that ensures it aligns with our District's growth and is supplied in an efficient way.	In defined service areas, Council will collect, treat and dispose of wastewater through a reliable wastewater network which is managed to ensure blockages, breaks or spillages are kept to a minimum.	LTP Residents' satisfaction with sewerage reticulation, treatment and disposal services	Target 70% result last year 85% a significant increase on previous year's - 69% & 75%. This positive trend is a reflection of the significant investment Council has made in the wastewater infrastructure and treatment plants, as well as the efforts of the team operating the network and pumping stations.
		MPM The total number of complaints received by the territorial authority about any of the following: a) sewage odour; b) sewerage system faults; c) sewerage system blockages; and d) the territorial authority's response to issues with its sewerage system, expressed per 1000 connections to the territorial authority's sewerage system.	Target <20. Result last year = 10, an improvement on the previous year's 19. Possibly due to improvement to wastewater network and improved response by the maintenance contractors.

 Economic Positive about the future MEDIUM - New technology will be used at our wastewater treatment plants, including waste-to-energy processes. The management of wastewater in appropriate locations across urban and rural areas of the District enables productivity.		MPM The number of dry weather sewerage overflows from the territorial authority's sewerage system, expressed per 1000 sewerage connections to that sewerage system	Target < 1.35 last year result 1.02 down from 2.40 & 2.22 in previous years due to network upgrades and renewals completed around the city and district-wide.
		MPM Where the territorial authority attends to sewerage overflows resulting from a blockage or other fault in the territorial authority's sewerage system, the following median response times measured: a) attendance time: from the time that the territorial authority receives notification to the time that service personnel reach the site; and b) resolution time: from the time that the territorial authority receives notification to the time that service personnel confirm resolution of the blockage or other fault.	Targets response times a) <1 hour and b) <7 hours. Results are 25mins and 1hour 10minutes respectively. The contractor's response time is monitored closely and is improving incrementally.

 Environmental Caring for the Environment HIGH - Managing wastewater to agreed standards, with discharges from wastewater treatment plants having no detrimental environmental impact.		MPM Compliance with the Council's resource consents for discharge from the wastewater system, measured by the number of: a) abatement notices b) infringement notices c) enforcement orders d) convictions	Target and result: Zero notices or convictions. Note: The consent for Whangarei WWTP due in 2022, see key issues.
 Cultural Proud to be local MEDIUM – Upholding the principles of Atawhaitanga and wai ora Mauri. The culturally appropriate disposal of treated wastewater via land-based systems before entering a waterbody. Minimising overflows of untreated sewerage to the Harbour.		Legislation summary • A water services assessment is required to satisfy <i>LG Act 2002</i> and <i>Health Act 1956</i> obligations and to inform LOS considerations. • We are required to report against the DIA mandatory performance measures. • Wastewater models need to be updated to support the water services assessment. • To meet the essential services benchmark, capital expenditure should match or exceed depreciation.	This assessment is on the Joint 3 Waters advisory group workplan with FNDC and Kaipara to get a consistent view of Northlands needs. Reported in Annual Plan as detailed above. An operational project to update models As per WDC Financial Policy and will be reported in AMP

4 Key issues for the next 3 years

4.1 Whangarei WWTP resource consent renewal

The current consent for the Whangarei Waste water treatment Plant expires in April 2022. The new consent will need to be lodged by October 2021 to ensure that the plant is still able to be operated under the existing consent conditions after April 2022 if the consent is not granted before then.

As the Proposed Regional Plan for Northland is likely to be operational by this time, there may be changes to the water quality discharge parameters, specifically around nutrient removal, that are more stringent than currently required. These changes are being worked through with the Northland Regional Council as part of the re consenting programme.

Work in underway in establishing baseline and trends for water quality and ecological data within the receiving environment to support the application as well as looking at potential capital enhancements to the treatment plant that may be required as a result of the changing discharge parameters.

Approximate cost to prepare the AEE and consent is \$200K. This includes technical reports and monitoring, consultation and assistance in preparing the consenting application documents.

Associated with the re consenting programme is the issue of Odour control.

The detailed design for covering, ventilating and extraction of foul air from the EQ basin, inlet works and sludge holding tanks has been completed, however it has been agreed that covering work should be delayed in the interim for the following reasons:

- If nutrient removal becomes a requirement of either the new Resource Consent or driven by more stringent discharge requirements resulting from the Governments Three Waters Review, it is likely that there will need to be a capital investment in equipment and changes made to our current processes and potentially, to the overall plant process configuration.
- Ongoing uncertainty around future discharge consent conditions. There is the potential for the EQ basin to become redundant due to required process changes.
- High cost of covering tanks and equipment.
- Operational challenges in terms of operations and maintenance and Health and Safety.

4.2 Wastewater network renewals, upgrades and sewer capacity increases

As signalled in the last LTP and AMP, significant upgrade and capacity increase projects are required within the following areas: Whangarei Heads network, Kamo, Maunu and stage 2 of the Maunu Lane-Keays Rd upgrade. These works have been modelled to determine capacity requirements for growth; options have been considered and preliminary costings undertaken, awaiting funding in years 1-3 of the next LTP.

Beyond years 1-3, capacity increase and rehabilitation projects in the Heretaunga Catchment and along Mill Road will be the focus.

In addition to these discrete projects an ongoing programme of asset renewals has been developed from either known issues, CCTV assessments or poor condition assets.

A condition assessment programme is also underway, using the recently developed Forward Works Viewer (an ArcGIS Online tool) that combines RAMM and GIS layers to determine asset renewals required prior to or conjunctively with Rooding works.

For this project to work effectively the selected Wastewater assets need to have CCTV done and renewals determined well in advance of the Rooding forward works programme.

The aim is to minimise costs of design, contract works, traffic management and/or road reinstatement with the benefit of reducing disruption to the community. The intent of past Local Government Act changes was that where possible these types of works should be undertaken together.

4.3 Asset Information and Condition Assessment

WDC is currently upgrading and migrating the Infrastructure Asset Management data system from Hansen to TechnologyOne's Asset Lifecycle Management (ALM). This brings about an opportunity to advance asset information and management practices. When fully integrated to the Customer Relationship Module and Purchasing Module it will be important that all network assets are correctly represented in the ALM. The call centre will task maintenance contractors who will need to record works and costs against the asset to get paid.

The current asset data system is missing some assets, location data and attributes such as depth. Verification of asset data, to our Environmental Engineering Standards, is labour intensive, requiring specialist contractors such as surveyors and traffic management.

The TechnologyOne ALM system comes with a mobility application for field data and import templates for automated data uploads. An asset data capture prioritisation program was developed for the last AMP and put on hold until the requirements of the new system were known. This will be an operational project early in the next LTP.

5 Key issues for the next 10 years

5.1 Changes to the regulatory environment

Potential upgrades to the Whangarei WWTP may be required to remove nutrients (Phosphates and Nitrates) and manage air quality as a result of the resource consent renewal. Similar upgrades may be required at other treatment plants when applying for future consents under the current Proposed Regional Plan for Northland.

Following the Havelock North inquiry, the Government has enacted Legislation and a new Regulatory body. There are further unknowns to be worked into the resource consent process due to the potential implementation of a regulator for all water and wastewater consents.

The National Policy Statement on Urban Development requires territorial authorities to ensure that sufficient development capacity and associated infrastructure is available in the short, medium and long term. WDC is working on formulating a detailed strategy to address this NPS.

5.2 Asset renewal and upgrade

In the future, as well as the continued renewal programme, the network will need upgrading in the One Tree Point - Ruakaka area including a trunk sewer, pump station and treatment plant upgrades. Improvements are required in the Waipu Cove/Langs Beach network and the Oakura network will likely be extended.

The treatment plants and pump stations have an on-going programme of asset maintenance and eventual replacement as required due to performance, failure or upgrade. This is managed through the asset data system to optimise whole of life cost for an asset.

5.3 Climate adaption

Climate change is expected to produce increased summer rainfall and reduced winter rainfall. Increased seasonal moisture variation may increase soil movement, with resultant pipe displacement. If pipe joints are damaged, exfiltration (leakage) may increase.

The Whangarei reticulation system already suffers significant infiltration. Storms are expected to become more intense, which will increase the volume of infiltration.

Rising sea levels may cause additional groundwater infiltration into the pipe network and inundate low-lying pump stations and manholes. In addition to infrastructure risk there is also some health and environmental risk relating to sewage overflows.

6 Key issues in the long term

6.1 Ruakaka WWTP discharge limits

The Ruakaka and One Tree Point area is expected to experience high growth in the foreseeable future. Growth is expected to result in a need for a discharge of 16,000m³/day of treated wastewater. Given the volume and the land area required, land disposal is not a feasible option.

The most likely scenario is to undertake a staged upgrade of the Ruakaka Wastewater Treatment Plant to keep pace with growth in the interim, with a major investment in a new ocean outfall from 2038.

6.2 Growth in Whangarei and plant/network capacity

The National Policy Statement on Urban Development requires territorial authorities to ensure that sufficient development capacity and associated infrastructure is available in the short, medium and long term. WDC is working on formulating a detailed strategy to address this NPS and to allow for growth in the Whangarei district.

2.3 Activity Briefing – Stormwater

Meeting:	Council Briefing
Date of meeting:	30 June 2020
Reporting officer:	Simon Charles (Manager Waste and Drainage)

1 Purpose

To provide elected members an overview of the Stormwater activity. This includes the following:

- What we do
- the key assets and levels of service
- the key issues facing this activity

2 Background

Elected members will receive briefings on the key activities of Council. Through these briefings, staff will provide an overview of the activity. Staff will also provide information on the key issues facing that activity over the next 3 and 10 years as well as into the long term. The intent is to give elected members clear visibility and knowledge of the activity.

These briefings will also help to identify common issues which may impact on multiple activities and set the scene for direction setting for the 2021 – 31 Long Term Plan.

Stormwater assets are significantly less developed than other district infrastructure eg. roading, water, wastewater. Investment within the 2018-2028 LTP commenced a programme to start rectifying this, however, it is expected to take decades before stormwater assets catch to the other asset categories.

3 Discussion

3.1 What we do

Our stormwater network prevents flooding to properties and roads. How we manage stormwater can contribute significantly to vibrant and thriving communities through initiatives such as the *Blue/Green Network Strategy*.

Stormwater management is a core service and needs to align with the following legislative requirements:

- Assess, from a public health perspective, the adequacy of stormwater services available to communities this includes the actual or potential consequences of discharges
- Preparing catchment management plans in accordance with the Northland Regional Plan and adhering to the freshwater quality objectives of the Northland Regional Plan.

3.2 Identified effects on the community

Inadequate stormwater services have the potential to increase flood damage to property, incurring costs and elevated insurance premiums. This can be mitigated through identification of flood-susceptible land through catchment management and district plans.

Insufficient treatment of stormwater has the potential to adversely affect our environment. This can be addressed through resource consents for stormwater discharges being monitored for compliance against consent conditions. Catchment management plans and environmental engineering standards identify issues and specify treatment, respectively, in relation to the stormwater activities.

3.3 Our key assets

Our stormwater network conveys water from parks, roads, houses and yards, to streams and the ocean, thereby preventing flooding of properties and roads in defined service areas. The stormwater system comprises over 31,000 pipes, channels, inlets and manholes throughout the district, with a total length of 579 km. The overall value of stormwater assets is \$271M, representing 14% of all WDC assets.

The key strategic assets are:

- CBD stormwater network
- CBD open drainage systems and streams
- Hatea River/Town Basin outlets
- Storage basins/Attenuation Dams

3.4 Our levels of service

Below is an overview of how Stormwater contributes to the current Community Outcomes and the recently reintroduced four Well-beings. With our level of service statement and a commentary on how we are doing on reported performance against the mandatory performance measures and legislative requirements. The overall improved performance is the result of long-term capital investment in Stormwater treatment and storage and network upgrades.

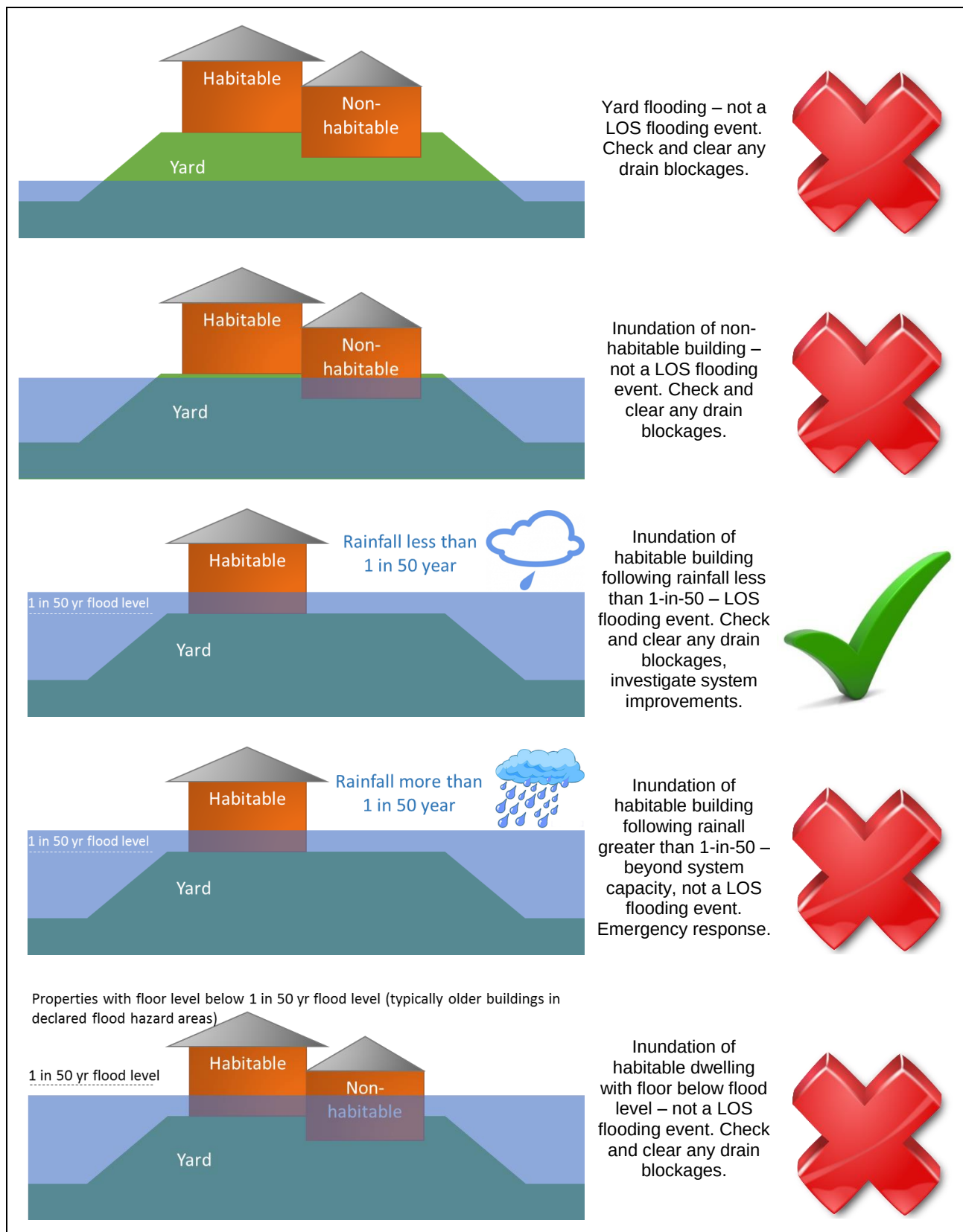
There are still significant issues related to stormwater, and this is continuing to grow as rural and urban subdivision development and infill housing become more prevalent. Many overland flow paths are being modified, transferring problems between neighbouring properties. Mediating and resolving historical issues in this space is time consuming and involves significant resource. This problem will take many years to rectify.

Four Well-beings Our contribution to Community Outcomes	Stormwater Levels of Service	Mandatory Performance Measures MPM/ Legislative requirements	How we are doing against targets and comments
 Social Efficiency and Resilient core services HIGH - The management of stormwater is a core service. It supports our communities as well as enabling commercial, industrial and agricultural activities.	Council will manage the stormwater network to minimise flood risks within defined service areas	LTP Residents' satisfaction with stormwater drainage services MPM The number of complaints received by Council about the performance of its stormwater system, expressed per 1000 properties connected to Council's stormwater system.	Target 70% result last year 80% an increase on previous year's 74% - due to a lack of storm events Target <16. Last year's result 3.1 a decrease on the previous year's 6.8 - mostly due to a drier than average period leading into winter.
 Economic Positive about the future HIGH - Stormwater is managed and planned in a way that ensures it aligns with our District's growth and is supplied in an efficient way. MEDIUM - The management of stormwater in appropriate locations across urban and rural areas of our District enables productivity and development.		MPM a) The number of flooding events that occur in the Whangarei District; and b) For each flooding event the number of habitable floors affected. Expressed per 1000 properties connected to the Council's stormwater system. MPM The median response time to attend a flooding event, measured from the time that the Council receives notification to the time that service personnel reach the site.	Target zero last year's result zero. 2017/18 had 3 events <i>Note: Only calls to Council were recorded. Calls to Fire and Emergency New Zealand and to other agencies were not captured in this measure.</i> Target response times <1 hour. Results are 0 mins due to no flood events. The contractor's response time is monitored closely and is improving incrementally.

 Environmental Caring for the Environment HIGH -Investment into infrastructure and natural systems seeks to minimise environmental effects of stormwater run-off into our waterways. Stormwater management through catchment management plans, resource consents and engineering standards mitigate and manage potential adverse environmental effects.	PROPOSED LOS Council will enhance and protect the stormwater receiving environment adjacent to defined service areas through sustainable management of the stormwater network	MPM Compliance with the Council's resource consents for discharge from the Stormwater system, measured by the number of: a) abatement notices b) infringement notices c) enforcement orders d) convictions	Target and result: Zero notices or convictions.
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 Cultural Proud to be local MEDIUM –Upholding the principles of Atawhaitanga and wai ora Mauri. Council will enhance and protect the stormwater receiving environment		Legislation summary Under the <i>Local Government Act</i>, stormwater services are a “core service” provided by Council to the community. • Under s130(2) of the <i>LG Act</i>, Council “<i>must continue to provide water services and maintain its capacity to meet its obligations</i>”. • A service assessment is required to inform LOS considerations. • We are required to report against the DIA mandatory performance measures. • Catchment Management Plans need to be updated to support the service assessment and to comply with the new Regional Plan. • If LOS are changed (e.g. to protect yards from flooding) then changes to the District Plan may be required. • To meet the essential services benchmark, capital expenditure should match or exceed depreciation.	While Council’s provision of stormwater services to defined services areas is discretionary, once this commitment is made it cannot be changed. This assessment is on the Joint 3 Waters advisory group workplan with FNDC and Kaipara to get a consistent view of Northlands needs. Reported in Annual Plan as detailed above. An operational project to update catchment management plans As per WDC Financial Policy and will be reported in AMP
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The diagram below shows what flooding events are included in the Level of Service.



4 Key issues for the next 3 years

4.1 Asset Information and Condition Assessment

WDC is currently upgrading and migrating the Infrastructure Asset Management data system (except for Roading assets) from Hansen to TechnologyOne's Asset Lifecycle Management (ALM). This brings about an opportunity to advance asset information and management practices. When fully integrated to the Customer Relationship Module and Purchasing it will be important that all network assets are correctly represented in the ALM. The call centre will task maintenance contractors who will need to record works and costs against the asset to get paid.

The current asset data system is missing some assets, location data and attributes such as depth. Verification of asset data, to our Environmental Engineering Standards, is labour intensive, requiring specialist contractors such as surveyors and traffic management.

Other areas where asset data is used and/or collected include:

The CCTV condition assessment programme.

Catchment Management Planning. This is being advanced with more LIDAR and data capture planned. Overland flow path and depression mapping has recently been completed and can be used to better target areas where flooding may be a risk.

A comprehensive hydraulic stormwater model of all the catchments still needs to be developed.

4.2 Stormwater network renewals

There is an ongoing programme of asset renewals which has been developed from known issues and CCTV assessments of poor condition assets.

Significant effort has been made in evaluating condition assessment data. So far, we've inspected 47 km of mains. Key findings are that we have physically identified operational stormwater mains currently in a failure condition requiring renewal. This is the basis of the replacement programme. Modelling using this condition data predicts up to 20% of operational mains to be at risk of failure or are in a failed condition.

A condition assessment programme is also underway, using the recently developed Forward Works Viewer (an ArcGIS Online tool) that combines RAMM and GIS layers, to determine asset renewals required prior to or conjunctively with Roading works.

For this project to work effectively the selected Stormwater assets need to have CCTV done and renewals determined well in advance of the Roading forward works programme.

The aim is to minimise costs of design, contract works, traffic management and/or road reinstatement. With the benefit of reducing disruption to the community. The intent of past Local Government Act changes was that where possible these types of works should be undertaken together.

5 Key issues for the next 10 years

5.1 Changes to the regulatory environment

Following the Havelock North inquiry, the Government has enacted Legislation and created a new regulatory body. Models for governance and funding of water and wastewater are being investigated but it is unclear whether stormwater will be included and if so to what extent. There are further unknowns regarding our Stormwater management.

The National Policy Statement on Urban Development requires territorial authorities to ensure that sufficient development capacity and associated infrastructure is available in the

short, medium and long term. This includes stormwater and an appropriate assessment and work programme will need to be developed.

The Government is also currently consulting on significant reforms regarding freshwater use and management in New Zealand.

These include proposed amendments to the National Policy Statement for Freshwater Management, including legislative and regulatory changes to support them.

If the proposals are implemented, they could have a significant impact on Councils three waters infrastructure and future plans. In particular, they include:

- requiring territorial authorities to place appropriate controls on the development and use of land to support the ongoing provision of safe drinking water;
- proposed direction to territorial authorities in the NPSFM to manage the effects of urban development on water;
- setting minimum standards for wastewater discharges and overflows; and
- requiring all operators to follow good practice risk management.

It is proposed that wastewater and stormwater discharges will be regulated through the introduction of a Wastewater NES and Water Services Act.

5.2 Asset renewal and upgrade

Stormwater treatment devices, mechanical assets and storage basins have an on-going programme of asset maintenance and eventual replacement as required due to performance, failure or upgrade. This is managed through the asset data system to optimise whole of life cost for an asset.

5.3 Growth in Whangarei and Bream Bay upgrades and capacity increases

In the future, as well as the continued renewal programme, the network will need upgrading in the One Tree Point – Ruakaka and Port areas to cater for projected growth.

However, we will need to prepare hydraulic models and have up to date catchment management plan so that we can identify discrete upgrade and capacity increase projects. Without identified growth projects for stormwater there is no development contribution which would fund upgrades downstream of new development.

5.4 Climate adaption

Climate change is expected to produce increased summer rainfall and reduced winter rainfall. Increased seasonal moisture variation may increase soil movement, with resultant pipe displacement. If pipe joints are damaged, tree root intrusion increases blocking pipes.

Climate projections suggest we will likely experience increased storm intensities, with the potential to reduce the effectiveness – or overwhelm – the existing stormwater system. A more than 20% increase in storm intensities is expected by 2090. Most of the network was not designed with an allowance for climate change. Open drainage channels, overland flow paths and systems such as the Blue/Green network will need to be designed to cater for these peak storm intensities.

As well as increased rainfall intensity, rising sea levels will increase the risk of coastal inundation and reduce our ability to discharge stormwater from urban systems, especially during high tides.

5.5 Water quality improvement

Ratepayers are increasingly expecting treatment of urban stormwater before it is discharged to natural water bodies. The *Draft Whangarei Harbour Catchment Plan* identifies that 40,000 litres of rubbish was removed by Sea Cleaners from the Whangarei Harbour over one month in 2014, and a further 68,000 litres of rubbish over two months in 2015. This document further identifies heavy metals and industrial compounds as contaminants of concern and recommends WDC investigate further deployment of stormwater filtration devices and gross pollutant traps.

Within the Whangarei urban area, we have 360 stormwater outlets discharging directly to streams, waterways and water bodies. Discharges from a further 1420 outlets eventually make their way to water bodies. Very few of these outlets provide any form of stormwater quality treatment.

To improve water quality, likely impacts on assets will be the need to retrofit stormwater treatment devices at strategic locations throughout the stormwater network.

6 Key issues in the long term

6.1 Contaminant loading and resource consents

There is a trend toward removing nitrates and phosphates from urban runoff, which both cause eutrophication and biological impacts on freshwater and marine systems. Suspended sediment in Storm Water causes blanketing of benthic vegetation and organisms and is a key factor in the mobilisation of phosphorus.

6.2 Sea level rise and Coastal Communities

Rising sea levels threaten low-lying and coastal communities with inundation. NRC has recently mapped coastal hazard zones and our seaside communities will be increasingly affected as sea levels continue to rise. Some of these affected communities will likely demand that Council provide some form of protection from inundation; this will require a considered response from WDC.

2.4 Activity Briefings: Flood Protection

Meeting:	Council Briefing
Date of meeting:	30 June 2020
Reporting officer:	Simon Charles (Manager Waste and Drainage)

1 Purpose

To provide elected members with an overview of the Hikurangi Flood protection activity. This includes the following:

- What we do
- the key assets and levels of service
- the key issues facing this activity

2 Background

Elected members will receive briefings on the key activities of Council. Through these briefings, staff will provide an overview of the activity. Staff will also provide information on the key issues facing that activity over the next 3 and 10 years as well as into the long term. The intent is to give elected members clear visibility and knowledge of the activity.

These briefings will also help to identify common issues which may impact on multiple activities and set the scene for direction setting for the 2021 – 31 Long Term Plan.

3 Discussion

3.1 What we do

The Hikurangi flood protection and control scheme provides flood management (not protection) to some 5,600 hectares of farmland and comprises 68 km of stop banks and spillways, 17 spillway sensors, 7 pump stations, and 20 pumps and related electrical and control equipment.

The scheme was designed to allow farming to occur on the flood plains without being impeded by the effects of flooding events in less than a 1 in 5 year return probability, although this service level has reduced over time such that the scheme now provides protection up to a 1 in 3.5 year return event.

The pumps are designed to remove water from the paddocks before it sits there for too long killing off the grass.

The scheme operates in three main ways:

1. Smaller events are contained within the stop banks adjacent to the River that prevent water flooding onto the paddocks. Rainfall collected within the pockets flow to pump stations that then lift the water out of the pocket into the River channel.

2. Medium sized events cause the River to reach a height that causes water to flow into the pockets via spillways. The spillways are set up such that the flood water is, as far as possible, spread evenly into each of the seven pockets. When the overflow stops the pumps operate to return the water back to the River.
3. In large flooding events the Spillways and the River banks over top and water flows into the pockets causing widespread flooding. When the River recedes, the pumps operate to remove water as fast as possible so that remediation of the paddocks can start.

The scheme is operated in consultation with the Hikurangi Food Scheme Working group that includes landowner representatives from each of the pockets, Iwi / hapu and organisations such as DOC, Fonterra, NRC and Fish and Game.

3.2 Our key assets

- Approximately 68 km of control & stop banks within the scheme, forming both boundaries between the scheme pockets and defining the floodway. These controls are functioning adequately, and earthworks have recently been completed to raise stop bank levels. Some concrete structures are showing signs of structural wear and will be costly to repair. It is proposed that these be maintained rather than replaced.
- Each pocket has a defined spillway built to tight level tolerances and lengths to facilitate controlled spills into the pockets, with 2 or 3 (depending on length) ultrasonic level sensors to monitor spills.
- There are 7 pump stations within the scheme housing between 1 pump and 5 pumps (20 pumps in total). Pump stations are in average condition for their age (1970's).
- All stations comprise of reinforced concrete cast in situ at the time of construction, with gravity channels, pump intakes and outlets, and buildings housing control and electrical equipment.

3.3 Our levels of service

Below is an overview of how Flood Protection contributes to the current Community Outcomes and the recently reintroduced four Well-beings. With our level of service statement and a commentary on how we are doing on reported performance against the mandatory performance measures and legislative requirements.

Four Well-beings Our contribution to Community Outcomes	Flood Protection Levels of Service	Mandatory Performance Measures MPM/ Legislative requirements	How we are doing against targets and comments
 Social Efficiency and Resilient core services HIGH - The management of The Hikurangi Flood Scheme is a core service. It supports our communities and our commercial, industrial and agricultural activities.	The major flood protection and control works that are maintained, repaired and renewed to the key standards are defined in the local authority's relevant planning documents (such as its, Asset Management plan, annual works programme or LTP)	LTP Hikurangi Food Scheme Working group satisfaction with operation and management of the scheme	Achieved
		LTP The number of infringement or abatement notices issued by Northland Regional Council in relation to the Scheme's consent.	Target = 0

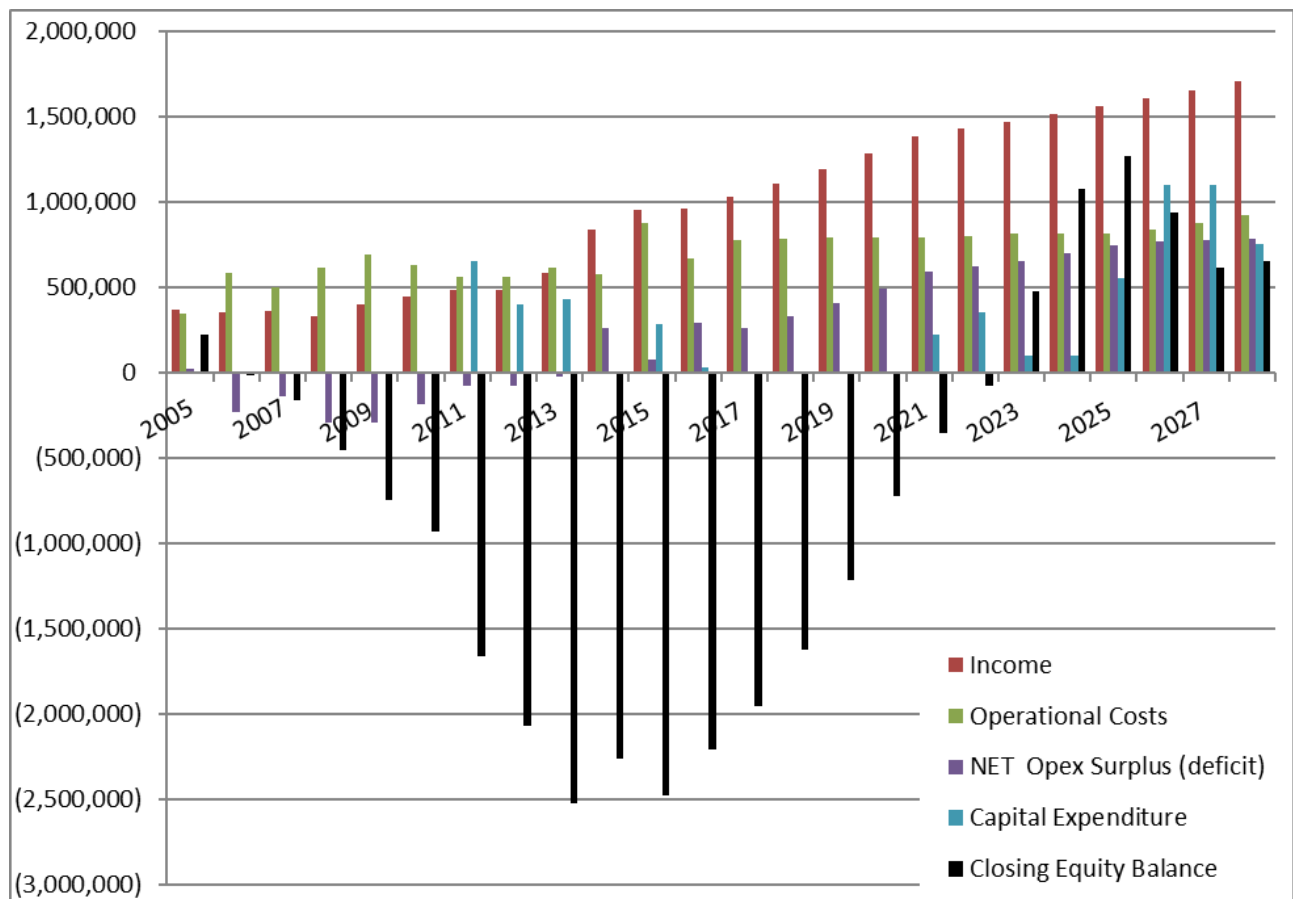
4 Key issues for the next 3 years

4.1 Environmental issues

- Little riparian cover – potential to increase sedimentation and nutrient loadings into waterways.
- Fish Barriers - Fish can find it difficult to move upstream of pump stations. Migrating tuna that pass-through pumps unlikely to survive. Pump operation in migration season is altered to minimise run time in short events – late summer/autumn.

4.2 Affordability – Targeted Rates

- As the scheme is funded through landowners it is dependent on farmers being able to afford the service. Frequent storm events reduce income and affects affordability.
- The current strategy is to minimise capital expenditure until the debt is paid back. The recent decision to reduce the rates rise will slow debt repayment.
- Make sure all existing assets are operating as effectively and reliably as possible – pump refurbishment and drain clearing. Fund through Opex.



- Proposed 30 Year Capex Plan

Table 9.3 Capital Works Programme

Note: For years 2028-2048 Expenditure is annual average per 5 year block.

Project Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Pump Station Replacement										
• Okarika									\$ 1,000,000	\$ 1,000,000
Stop/ Control Bank Renewals					\$ 250,000					
Level Sensor Renewals				\$ 120,000						
Jordan Valley Rd Flood Culverts								\$ 450,000		
Gravity Drainage Gates										
• Junction				\$ 100,000						
• Te Mata					\$ 100,000					
• Otonga						\$ 100,000				
• Tanekaha							\$ 100,000			
• Mountain								\$ 100,000		
• Ngaurararunua									\$ 100,000.00	
• Okarika										\$ 100,000
Total				\$ 220,000	\$ 350,000	\$ 100,000	\$ 100,000	\$ 550,000	\$ 1,100,000.00	\$ 1,100,000

Project Description	2028-2033	2033-2038	2038-2043	2043-2048
Pump Station Replacement				
• Ngaurararunua	\$2,000,000			
• Tanekaha	\$1,400,000			
• Otonga		\$1,800,000		
• Junction			\$ 800,000	
• Te Mata			\$1,400,000	
• Mountain				\$ 1,000,000
Stop/ Control Bank Renewals	-	\$ 250,000		\$ 250,000
Level Sensor Renewals	\$ 120,000	-	\$ 120,000	-
Total	\$ 3,520,000	\$ 2,050,000	\$ 2,320,000	\$ 1,250,000

4.3 Climate adaption

The long-term impact on the schemes level of service from climate change is unknown. More frequent large storms and longer summer droughts as currently indicated may reduce the schemes benefit.

4.4 Land settlement

Approximately 15% of the land protected by the scheme is peat soil. The peat has slowly been oxidising since the wetland was first drained. In some areas the land has dropped nearly 2 metres. The effect on this settlement needs to be considered when making long term decisions on investment in the scheme.