WAIMAKARIRI
DISTRICT COUNCIL

Activity Management Plan 2021

Ocean Outfall Wastewater Scheme

3 Waters | July 2021

Prepared by

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Document Acceptance

Action	Name		Signed	Date
Prepared by	Gavin Hutchison	Wastewater Asset Manager		17/02/2021
	Simon Collin	Infrastructure Strategy Manager		17/02/2021
	Chris Bacon	Network Planning Team Leader		17/02/2021
Reviewed by	Kalley Simpson	3 Waters Manager		17/02/2021
Approved by	Gerard Cleary	Manager Utilities and Roading		17/02/2021
Adopted by	Council			

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Tables

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1 Executive Summary

The following table provides a summary of the key asset management issues of the Ocean Outfall Wastewater Scheme identified through consideration of the levels of service, consents, asset condition, risk analysis, disaster resilience, growth projections, and capacity assessment:

Table 1: Key Asset Management Components

Resource Consents	**The** scheme **is operating well and generally complies with the resource consent conditions.**
Levels of Service	The scheme is meeting all levels of service.
Capacity & Performance	A recent review concluded that the scheme has the capacity for at least the next 50 years.
Asset condition	Assets are generally relatively new and are assumed to be in good condition. Recent exploratory inspections have confirmed this assumption, but maintenance issues relating to a build up of biofilm need addressing
Risk Assessment	The 2015 risk assessment identified wastewater overflows associated with pipeline damage from the earthquake and liquefaction hazards in the area as high risk. This is overstated as the pipelines are of PE material.
	These risks will be re-examined through review and comparison between the likelihood and consequence rating factors used in the Disaster Resilience and Risk Assessments. This will enable Council to more consistently and effectively reprioritise the high hazards on the Ocean Outfall.
Disaster Resilience	The Ocean Outfall drop structure and outlet are an extreme earthquake risk and high risk of wildfire or public sabotage/vandalism. Further resilience assessments and improvements are required.
Growth Projections	The number of connections on the scheme are projected to grow by 99% in the next 50 years
	The scheme (downstream of the treatment plants) was sized at the time of construction to accommodate 50 years of population and business growth. No major upgrades are currently programmed. A recent capacity assessment has confirmed that no upgrades are needed within a 50 year time horizon from 2020.

2 Introduction

The purpose of this Activity Management Plan (AMP) is to outline the significant issues associated with the Council's assets within the Ocean Outfall Wastewater Scheme and to show how the Council proposes to manage the schemes in the future.

This plan summarises the various components of the scheme, its condition and performance, and identifies future funding requirements including upgrades where necessary.

The data that has been relied upon to produce this document was taken at the end of the of the 19/20 financial year. i.e. 30 June 2020 . More up to date scheme statistics are available on document TRIM 121108078891 which is to be updated quarterly.

Further details of the asset management practices used by Council to manage this scheme are summarised in the District Wastewater AMP Overview document.

Projects identified to improve asset management processes for this scheme will also benefit the performance of other 3 waters schemes and are managed at a District level for efficiency.

Projects are also identified within this AMP that will maintain or improve levels of service.

Repair of wastewater supply asset damage from the Canterbury earthquake sequence has now been completed. No significant legacy effects are expected.

All figures within this AMP exclude inflation.

3 Related Documents

The following related documents have been used as reference documents or for guidance in the development of some of the sections in this Activity Management Plan

- Waimakariri District Plan
- Population in the Waimakariri District (TRIM 170328030077)
- New Projections for LTP 2021-2031 (TRIM 200908117997
- WDC Asset Management Policy (TRIM 180605062091)
- 2019 Customer satisfaction Survey (TRIM 200313034937)
- Development Contributions Policy 2021/22 (TRIM 200729095963)

4 Scheme Description (What Do We Have?)

The Ocean Outfall Wastewater Scheme includes the network of pump stations and pressure mains that transfer treated sewage effluent from the individual wastewater schemes in the Eastern District to the Ocean Outfall, which discharges through four diffusers in Pegasus Bay 1.5 km off the coastline.

The ocean outfall is a pipeline that is buried over the majority of its length, with four outlets at the end (diffusers) protruding above the sea floor. A high quality discharge is achieved by the secondary treatment of the wastewater through two principal wetlands at Woodend and Kaiapoi followed by UV treatment. Construction began on treatment plant upgrades in 2003 and the entire scheme was commissioned in May 2006.

This document is solely for the shared components of the Eastern District Wastewater Scheme (EDWS). Each individual sub scheme has a separate Activity Management Plan. Refer to the individual document for details of each sub scheme.

Some key statistics (2019/20 year) of the scheme are shown in Table 2 to 4. The extent of the currently serviced area and comprehensive flow data records are presented Figure 13 and Figure 14:.

A schematic view of the principal components of the whole EDWS system is presented on the following page Figure 1.

Table 2: Scheme Statistics for 2019/2020

Scheme Parameter	Statistics	Source
Length of Reticulation	26 km	Wastewater Asset Valuation Tables 8-3 to 8-6, pages 57 to 62
Total Replacement Value	$44.1 million	
Depreciated Replacement Value	$34.3 million	
Number of Connections	16,132	2019/20 Rating Query
Number of Rating Charges	19,406	
Average Daily Flow (5 year Average)	10,897 m3/day	Flow Data Analysis - Sewer
Average Daily Flow/connection (5 year average)	725 l/day/con	
Peak Daily Flow (5 year Average)	22,607 m3/day	
Peak Daily Flow/connection (5 year Average)	1,500 l/day/con	
Resource Consent Discharge Limit	57,000 cubic metres per day (expiry date 12/07/2039)	CRC041162.2

Table 3: Wastewater Pressure Pipe Data Summary

Wastewater Pressure pipe length (m) by diameter and pipe material													
Pipe Material	Pipe Diameter (mm)												
	50	100	150	200	250	300	375	450	600	710	800	900	Total
Asbestos Cement	0m	0m	0m	0m	0m	0m	0m	0m	0m	0m	0m	0m	0m
Polyethylene	0m	59m	4,007m	0m	0m	0m	0m	5,578m	0m	2,956m	1,062m	1,635m	15,297m
Polyvinylchloride	0m	0m	4m	0m	104m	0m	0m	10,503m	0m	0m	0m	0m	10,611m
OTHER	0m	7m	12m	0m	0m	9m	0m	10m	13m	0m	0m	0m	51m
Total	**0m**	**66m**	**4,023m**	**0m**	**104m**	**9m**	**0m**	**16,091m**	**13m**	**2,956m**	**1,062m**	**1,635m**	**25,960m**

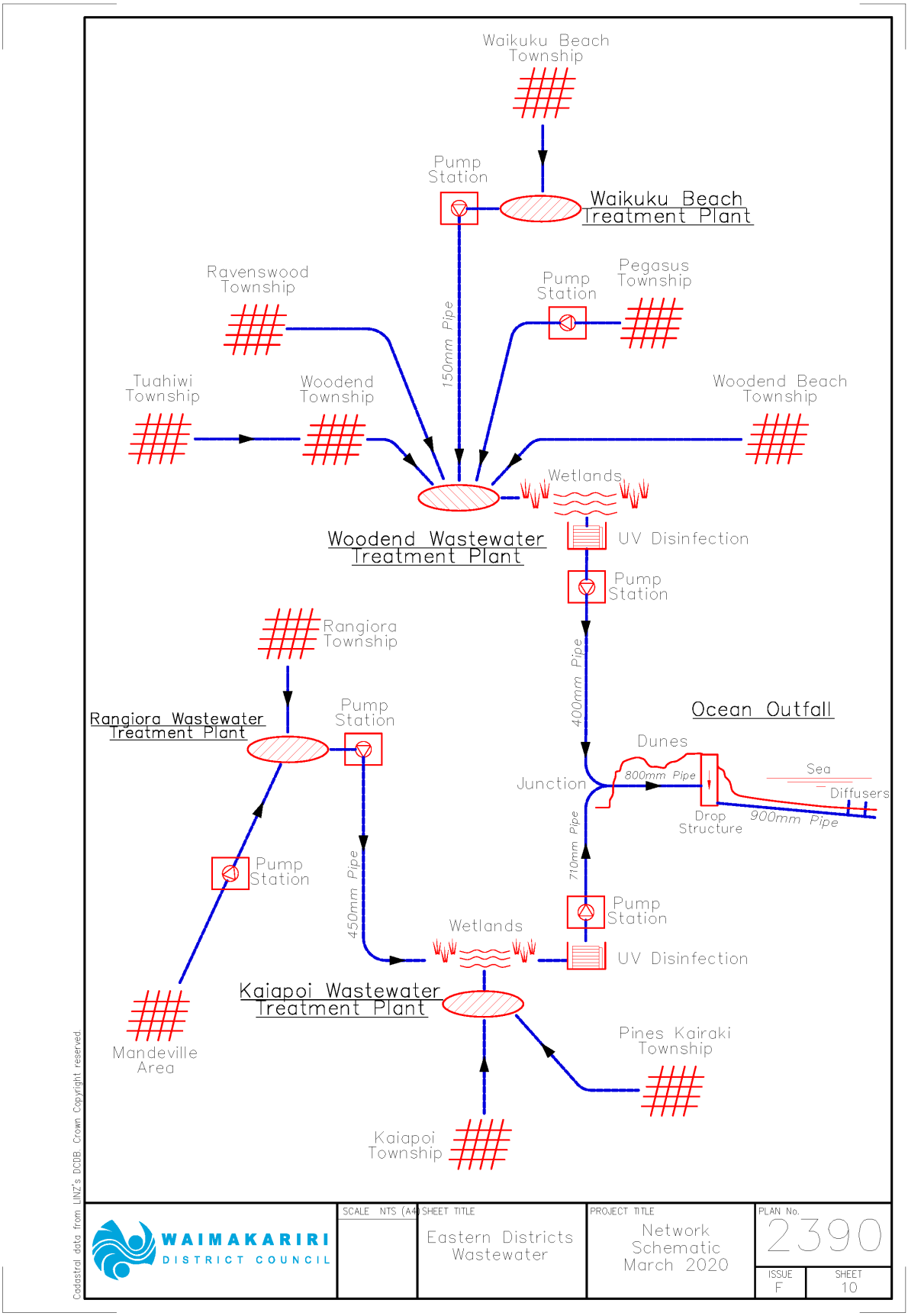
Table 4: Wastewater Valve Data Summary

Wastewater Valves	
Diameter (mm)	Count
50	17
100	44
150	8
200	1
250	0
300	2
375	0
450	1
600	0
700	1
750	1
Total	75

Table 5: Data References

Data Reference	Trim Reference
Sewer flow data analysis	121108078891
2020 3 Waters Asset Valuation	200824109857
2020 50 Year Water and Sewer Growth Forecast	200224024348

Figure 1: Network Schematic



5 Scheme Management Issues (What Do We Need to Consider?)

There are a number of key aspects to consider when managing a wastewater scheme, these include:

- Target & actual levels of service
- Asset condition & criticality
- Capacity & performance of the supply
- Risks associated with the supply
- Growth predictions for the scheme

These issues have been assessed in detail and are explained in the following sections. Section 3.8 provides a summary of the key points arising from the suite of assessments.

5.1 Levels of Service

Table 6 sets out the performance measures and targets for the scheme, and performance achievement against targets since 2008.

Mandatory performance measures are measured at the district wide level and are not included in the individual wastewater scheme AMPs. They are located in the District Overview Wastewater Activity Management Plan. However there is considerable overlap between the measures at Scheme and District levels. Mandatory measures cover overflows, consent compliance, time to respond to faults, and complaints. The Scheme LOS measures include more detail, and cover complaints, consent compliance, overflows and outages, but not response times, which are only measured at scheme level.

None of the WDC targets are planned to change over the 10 year LTP period, so only the one target value has been shown in this document

Performance is measured against the performance measures set in 2018, as part of the 2018-28 Long Term Plan process. Going forward from 2021 onwards, performance will be against the modified set of performance measures that were presented to the Council's Utilities and Roading Committee in 2020 (refer report 200406043184[v2]), and subsequently approved by Council. These revised levels and targets are detailed in the District Overview Water Supply Activity Management Plan.

Table 6: Elective (non-mandatory) Levels of Service Targets and Performance Measures as Assessed in 2020

** Note A "Y" indicates that the LOS has been met, and an "N" indicates it has not been met*

 # Details of performance measures may have been modified between various revisions of the AMP. The Previous Results reported are as assessed against the most relevant performance measure at the time of assessment.

Section	Level of Service	2018 – 2021 Performance Measure	2018 – 2021 Target	2020				Previous Results#			
				Result	Commentary	Status	Action to Address	2017	2014	2011	2008
Customer Complaints	Complaints - Odour - Reticulation	Number of events that lead to complaints about odour from the reticulation	Less than 5 per year	Nil	There were no complaints regarding odour.	Achieved	N/A	Y	Y	Y	Y
Resource Consents	Consent Breach - Action required	Number breaches of consent conditions that result in an ECan report that identifies compliance issues.	Nil per Year	Nil	No notices of consent breach were received.	Achieved	N/A	Y	Y	Y	Y

5.2 Asset Condition

The current assessment of asset condition is based on theoretical remaining useful life derived from component age and adopted useful life. Adjustments to the remaining life are made to individual components where information is available to suggest the theoretical remaining life is inappropriate.

Following reducing flow rates recently having been identified in the pressure mains that deliver the wastewater from the treatment plants to the ocean outfall, exploratory inspections were carried out to determine the cause. Pipe condition from these inspections has been observed to be good, but maintenance issues in the form of a build up of biofilm have been identified which need to be addressed.

Figure 2 below, shows the assessed pipe condition for all pipes within the scheme. Figure 3 summarises the theoretical asset condition for both the network and headworks in a graph, while Table 7 provides more detail about the value of the assets within different asset condition categories.

Figure 2: Pipe Condition Assessment Plan

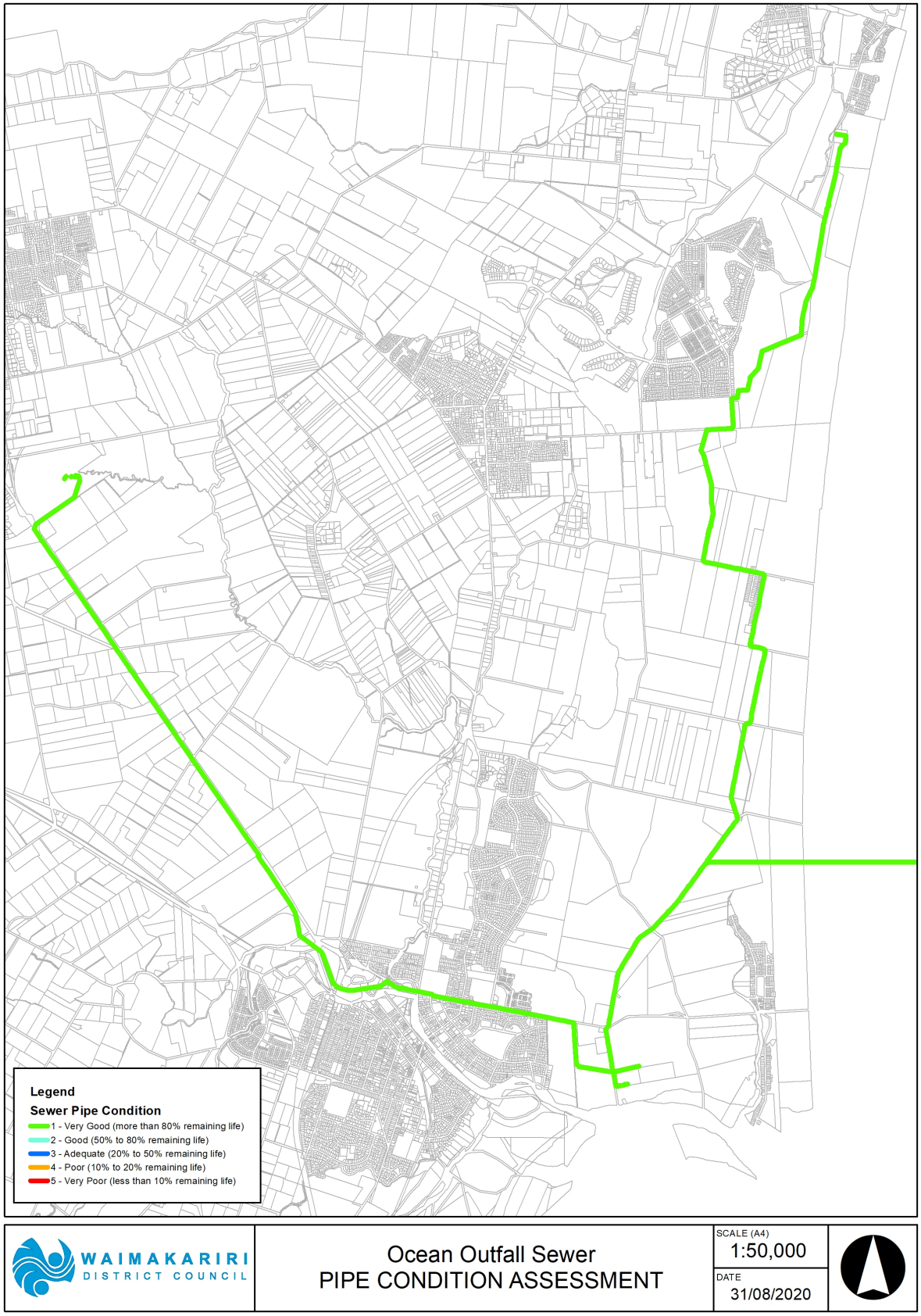


Figure 3: Asset Condition Summary

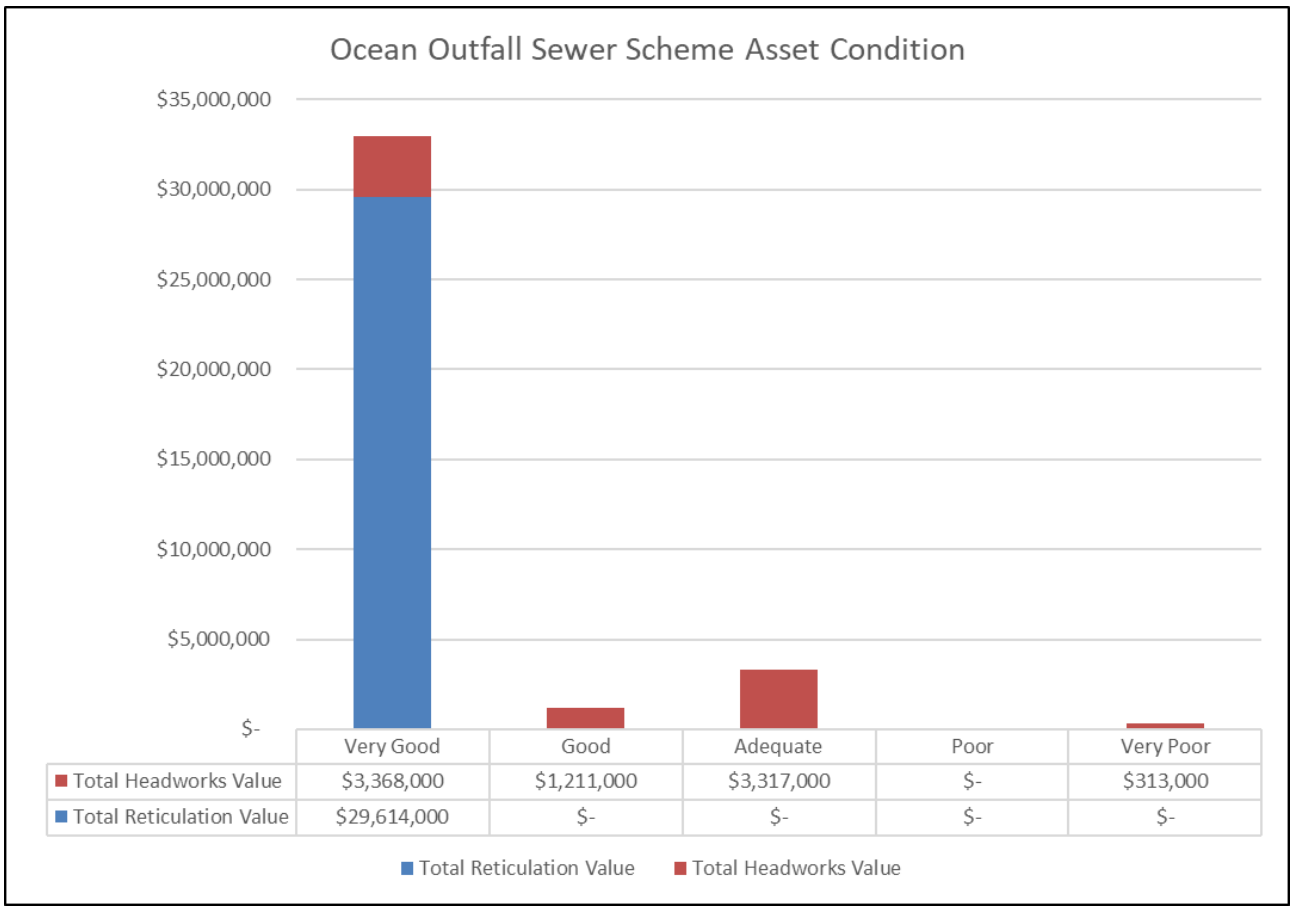


Table 7: Pipe Condition Summary

Condition Grade	Definition	Pipeline Quantity	Total Reticulation Value	Total Headworks Value	Total Value
1	Very Good *More than 80% of life remaining*	26km 100%	$29,614,000 100%	$3,368,000 41%	$32,982,000 87%
2	Good *Between 50% and 80% of life remaining*	0.0 km	$0	$1,211,000 15%	$1,211,000 3%
3	Adequate *Between 20% and 50% of life remaining*	0.0 km	$0	$3,317,000 40%	$3,317,000 9%
4	Poor *Between 10% and 20% of life remaining*	0.0 km	$0	$0	$0
5	Very Poor *Less than 10% of life remaining*	0.0 km	$0	$313,000 4%	$313,000 1%
Total		**26.0 km**	**$29,614,000**	**$8,209,000**	**$37,823,000**

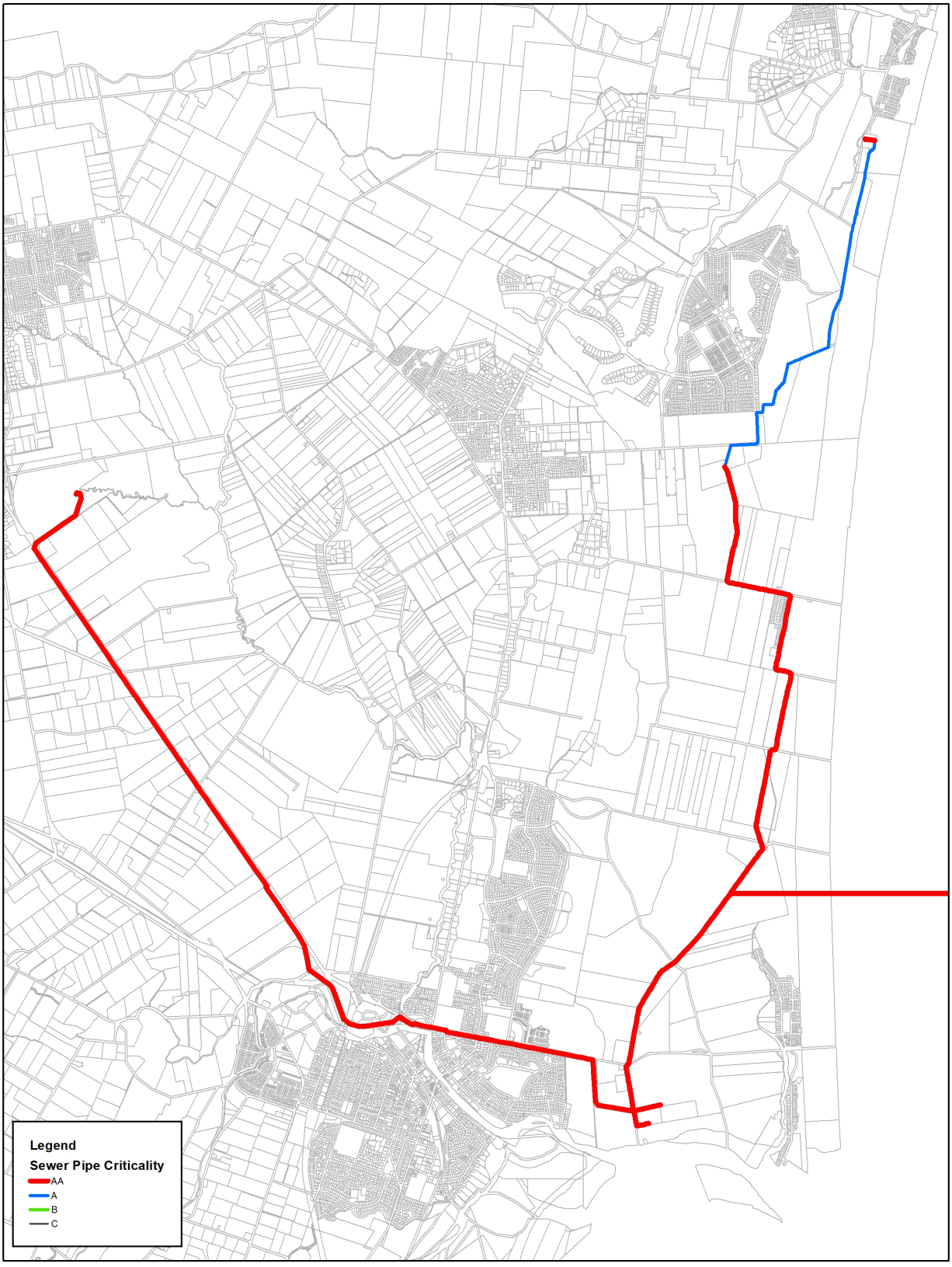
5.3 Asset Criticality

Asset criticality provides an indication of the importance of an individual asset and the corresponding impact on the service delivery should the asset fail for any reason. Criticality is used in risk based investment decisions to help decide when an asset should be replaced to avoid the consequences of failure. The Council has developed an assessment process which scores assets from most critical 'AA' to least critical 'C'. Further details of the criticality assessment methodology is covered in the WS Overview AMP.

The pipe criticality scoring process has been significantly improved through automation and dynamic links to GIS data layers for this AMP.

Figure 4 provides a spatial view of asset criticality for the scheme.

Figure 4: Criticality Assessment Eastern District Wastewater Scheme



5.4 Risk Assessment

An Operational Risk Assessment was first undertaken for the Eastern District's Wastewater Scheme in 2004, and it has been regularly updated since that time. It was last updated for the 2015 AMP review. At the last review four high risk item remained for the Eastern District's wastewater scheme.

The District Wide Overview details the risk events considered and includes a summary of the risk assessment results for all the wastewater supply schemes and is useful in indicating overall wastewater network priorities.

Table 8 summarises the number of events at each level of risk for the Eastern District's Wastewater Scheme.

Table 8: Number of Events per Level of Risk

Risk Level	2004	2008	2011	2014
Extreme risks	0	0	0	0
High risks	0	0	4	4
Moderate risks	0	17	6	6
Low risks	0	6	13	13
Not applicable	0	0	0	0
Total	**0**	**23**	**23**	**23**

Table 9 summarises the four identified high risks on this scheme. They all relate to wastewater discharge resulting from rising main damage as a consequence of earthquake induced liquefaction. The assessed risk is, however, largely erroneous as all the pipelines are of PE material, which is what would be used to mitigate this type of risk. This will be corrected with the planned update of the operational and disaster risk assessments in 2021

District wide, moderate risks are being deferred until extreme and high risks have been addressed.

Table 9: Summary of High & Extreme Risks

Risk Event & Cause	Reasoning	Solution	Project Details	Project Ref	2011	2014
Overflow or discharge of sewage from Woodend to Outfall rising main due to pipeline failure	Pipeline located in liquefaction prone area vulnerable to earthquake damage	Pipes are of PE material which is the most appropriate material to use to mitigate liquefaction risk Review/update risk assessment methodology and integrate with DRA	Risk Assessment Update	N/A	H	H
Overflow or discharge of sewage from Kaiapoi to Outfall rising main due to pipeline failure					H	H
Overflow or discharge of sewage from Drop structure & Outfall due to pipeline failure				IP045	H	H
Natural disaster & other due to pipeline failure					M	H

5.5 Disaster Resilience Assessment

The 2009 Disaster Resilience Assessment (DRA) is a desk top study that primarily considered the risks to above ground structures presented by natural hazard events across all Council operated 3 Waters schemes. The original assessment was updated in 2012 using revised hazard and asset behaviour information captured during the 2010-11 Canterbury earthquake sequence.

Risk from earthquake events that could induce liquefaction, on brittle pipes (AC and earthenware) is managed using a reticulation vulnerability score. This is used as an input to the risk based renewals assessment.

Above Ground Facilities

The above ground facilities were assessed for risk of failure against 13 natural and 2 manmade hazard scenarios. The following risk profile (Table 10) reflects the likelihood of the event occurring and the consequence on the community of the facility failing. Hazards classified as having 'No Known Risk' have been omitted from the table.

Table 10: Risks to Above Ground Facilities

Threat	Ocean Outfall
475 year Earthquake Induced Slope Hazard	L
Earthquake (50 year)	E
150 year Earthquake	E
475 year Earthquake	H
Wildfire	H
Snow 150 year	L
Wind 100 year	L
Lightning	M
Pandemic	M
Terrorism / Sabotage	H
E = Extreme, H = High, M = Moderate, L = Low	

As identified in the Operational Risk Assessment the most significant hazard for the Ocean Outfall is earthquake as the outfall drop structure sits within the zone of high liquefaction susceptibility.

The risk from wildfire has been scored as high however it is not felt that significant damage is likely based on the nature of the asset and its high resilience.

The Councils response to these risks is being managed at a district level via the DRA Action Plan and related projects. Refer to the District level AMPs for details.

5.6 Growth Projections

There are a number of factors that are likely to influence future demand on the EDWS, and the Ocean outfall infrastructure. These include:

- Population growth
- Changes in water use practices
- Changes in legislation
- Advancements in technology
- Changing Inflow & Infiltration volumes with asset condition

The overall district population growth scenario used for the 2021 AMP update was supplied by Council's Development Planning Unit, broken into towns and rural areas. Wastewater growth projections were calculated using the New Projections for LTP 2021-2031 (TRIM 200908117997), which was the basis for infrastructure planning.

Due to issues that have occurred with the Census 2018, the population projections that would normally be used as a basis for updating the work previously developed by the Council's Development Planning Unit have not been released by Stats NZ in time for the development of this assessment.

However, based on the historical growth patterns of new dwelling Building Consents over the last three years (636 in 2017/18, 661 in 2018/19 and 615 in 2019/20), the projections used for the previous LTP/infrastructure strategy remain valid to be used for infrastructure planning. As the timeframe for this infrastructure planning is for the thirty years between 2021 to 2051, the previous population projections have been extended out a further three years, as documented in New Projections for LTP 2021-2031 (TRIM200908117997)

It is important to provide a brief comment on COVID19 and the impact it could have on population projections. At the time of writing this paragraph (August 2020), New Zealand is currently in Level 3 restrictions in Auckland and Level 2 restrictions in the remainder of the country. While international migration is currently low arising from the COVID19 travel restrictions, a significant number of New Zealanders are returning home due to the impact of COVID19 on overseas countries. This has contributed to a high level of population growth nationally over the last six months, which has had a flow on effect to growth in the Greater Christchurch and Waimakariri Districts. How long this might continue for and when international migration (from other countries) might return to pre COVID levels is still to be determined. However the existing population projections remained the most appropriate to use for infrastructure planning at this time.

Demand on the Ocean Outfall wastewater scheme is expected to increase by 32%, by the end of the 2021-31 Long Term Plan (LTP) period. This projection is based on 453 connections being established from 2019/20 to 2030/31, as identified in the 2020 50 Year Water and Sewer Growth Forecast Report (TRIM reference number 200224024348).

The number of new residential connections are predicted to increase by 420 per year and commercial connections are predicted to increase by 33 per year, during the 2021-31 Long Term Plan (LTP) period to accommodate this demand. Demand beyond the 2021-31 LTP period (2030/31 to 2070/71) is forecast to transition to a slightly lower growth profile resulting in an average of 262 new connections per year.

Table 11 presents the 50 year growth projection for Eastern District Wastewater Scheme.

Table 11: Growth Projections

Ocean Outfall	Rates Strike July 2019	Years 1 - 3	Years 4 - 10	Years 11 - 20	Years 21 - 30	Years 31 - 50
	2019/20	2021/22 to 2023/24	2024/25 to 2030/31	2031/32 to 2040/41	2041-42 to 2050/51	2051/52 to 2070/71
Projected Connections	15,697	17,743	20,688	23,849	26,458	31,203
Projected Rating Units	18,887	21,285	24,517	28,045	30,654	35,399
Projected increase in Connections		13%	32%	52%	69%	99%
Projected Average Dry Weather Flow (m3/day)	16,602	17,857	19,739	21,741	23,502	26,705
Projected Peak Wet Weather Flow (m3/day)	196,811	203,081	212,492	222,505	231,308	247,325

** Assumes 2.5 persons per connection*

Note that the time frames have been chosen to reflect the periods 3, 10, 20 and 30 years from the AMP release date, however due to the time it takes to complete the analysis the base rates strike data used was from 2019/20.

Longer term, connections are projected to increase by 99%. This long term projection is lower than the 2017 growth projection, of 137% (used for the 2017 AMP). Both projections utilised the best data and information available to project the connections for the wastewater schemes at the time. The 2017 population projections generally had higher growth for the district in the long term, which is reflected in the growth projection difference for Ocean Outfall above.

Average Dry Weather Flow (ADWF) and Peak Wet Weather Flow (PWWF) projections have been based on the assumptions that for future development areas the Engineering Code of Practice (ECOP) ADWF or PWWF per person is added to the existing flow. The assumptions made to calculate the future ADWF were based on the ECOP, with the residential 0.675m3/prop/day and non-residential 0.2m3/Ha/day; and the future PWWF was based on the ECOP, at residential 3.375m3/prop/day and non-residential 1m3/Ha/day.

Projections

Figure 5 And Figure 6 present the projected growth and corresponding demand trends for the EDWS and outfall infrastructure.

Figure 5: Population Projections

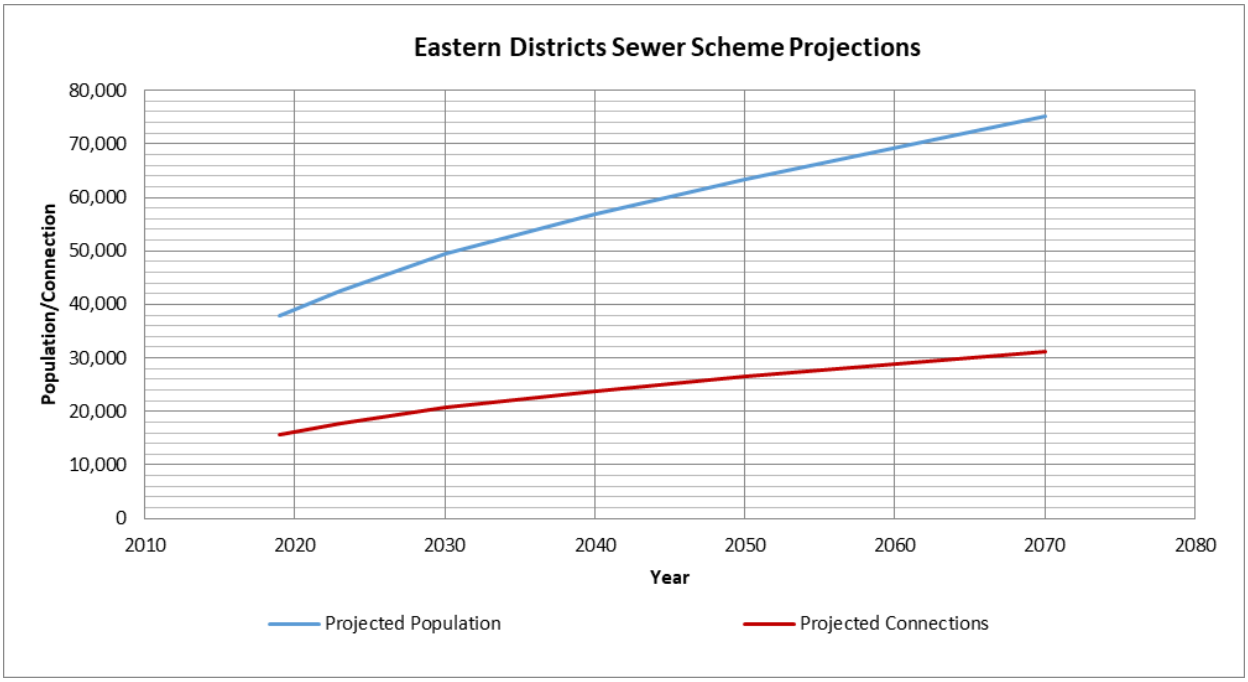
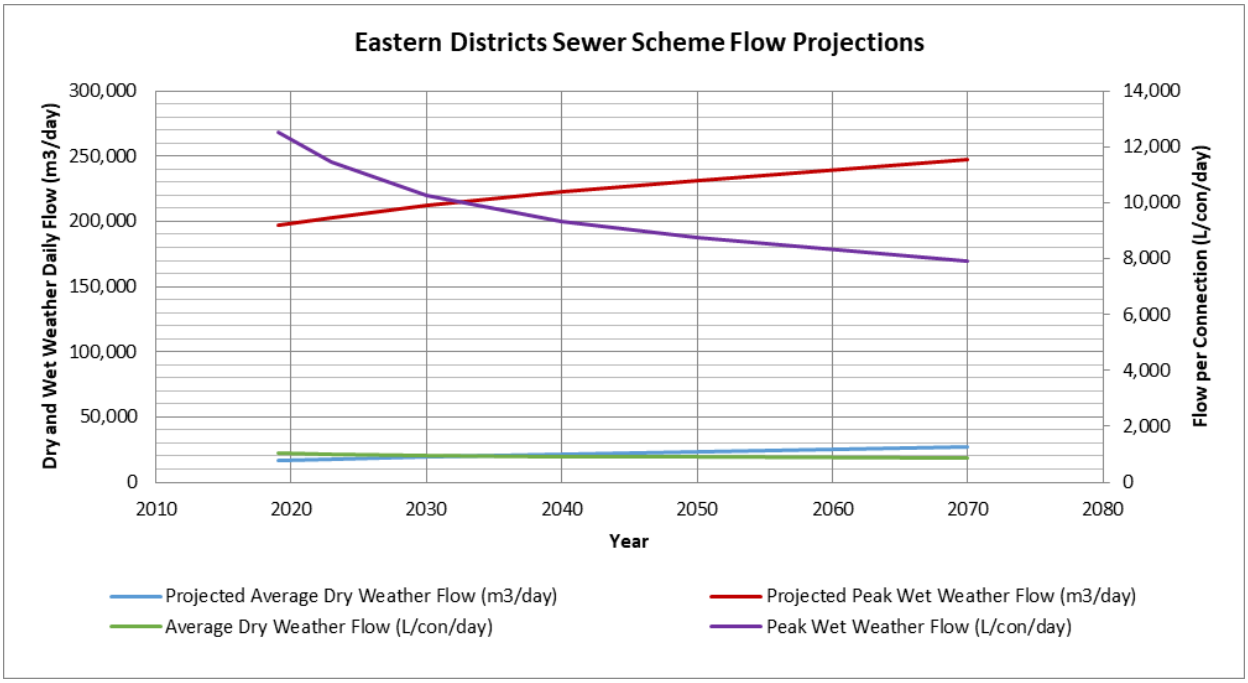


Figure 6: Flow Projections



5.7 Capacity & Performance

An assessment of the Ocean Outfall network capacity was completed in January 2020 (Trim 200214019934). There is sufficient capacity for the next 50 years.

6 Future Works & Financial Projections (What Do We Need To Do?)

This section covers the future works required to meet the target levels of service, maintain the asset in an acceptable condition, reduce the risks to an acceptable level and accommodate growth.

Financial forecasts do not include inflation.

6.1 Operation & Maintenance

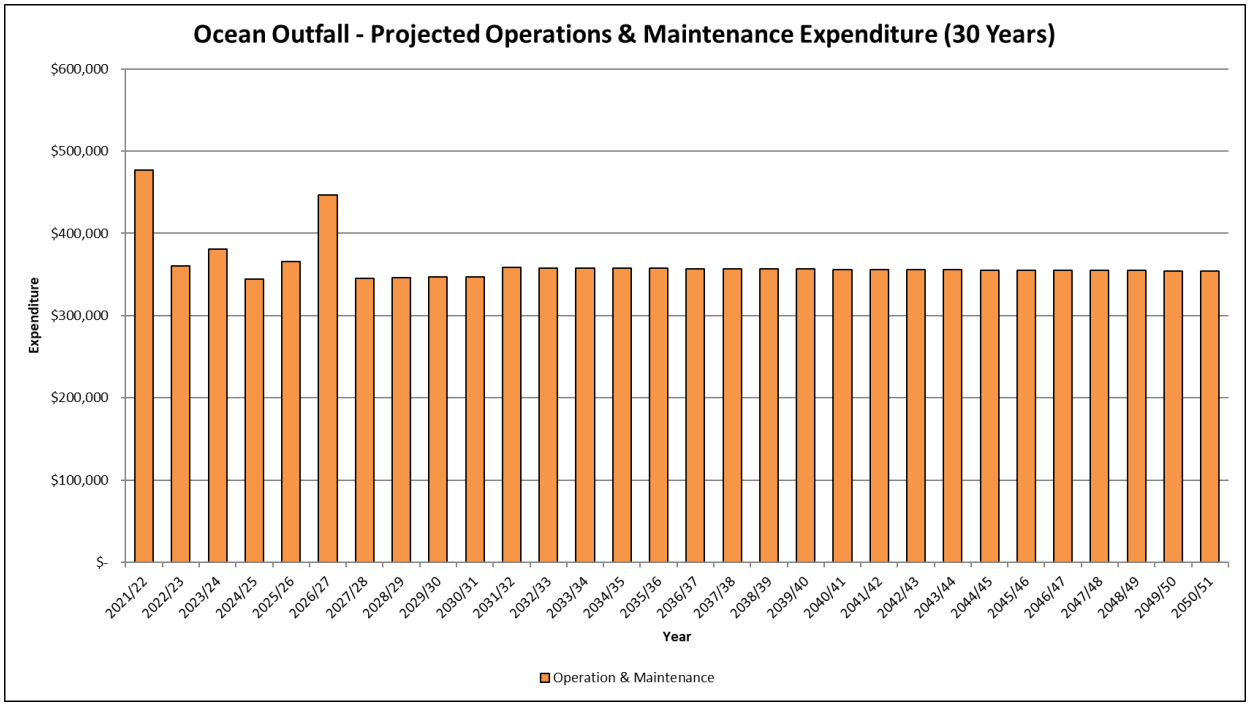
Operation and maintenance (O&M) expenditure incorporates the day to day running of the water supply network and allows the system to carry on functioning to deliver the agreed levels of service.

The O&M programme includes a combination of reactive and planned tasks. Examples of the differing nature of these tasks is summarised within the Overview document.

A significant reduction in flow capacity within the pressure mains has been recently identified. Investigations revealed a build up of biofilm inside the pipes as the cause, and preparations have been underway to enable a pigging operation to be carried out, with this expected to be completed by 2022. Advanced corrosion of some valve components within pipeline chambers has also been observed and a programme is in place to rectify this issue.

The planned O and M forward budget is shown in Figure 7.

Figure 7: Annual Operation & Maintenance 30-Year Budget



The spikes in 21/22 and 26/27 are the extra funds required to carry out the 5 yearly sea bed benthic surveys required by the consent.

6.2 Renewals Programme

The renewals programme is determined in two stages. The renewals model, details of which are provided in the overview document, provides a long term view of the funding required to ensure that a renewals fund is sufficient to enable future asset renewals, without needing to borrow.

For wastewater, for those schemes connected to it, or part of it, the model is operated at the Eastern Districts Sewer Scheme level. It provides Asset Managers, at a scheme level, prioritised candidates based on criticality, risk, and expected asset life on for consideration for inclusion in the LTP. Asset Managers consider other factors such other works that may be planned in the area, as well as local asset history, in determining final projects for the LTP.

Figure 8 shows the output from the model only and provides a broad brush spatial view of the likely timeframe for renewals.

Figure 8: Pipe Renewal Time Frames

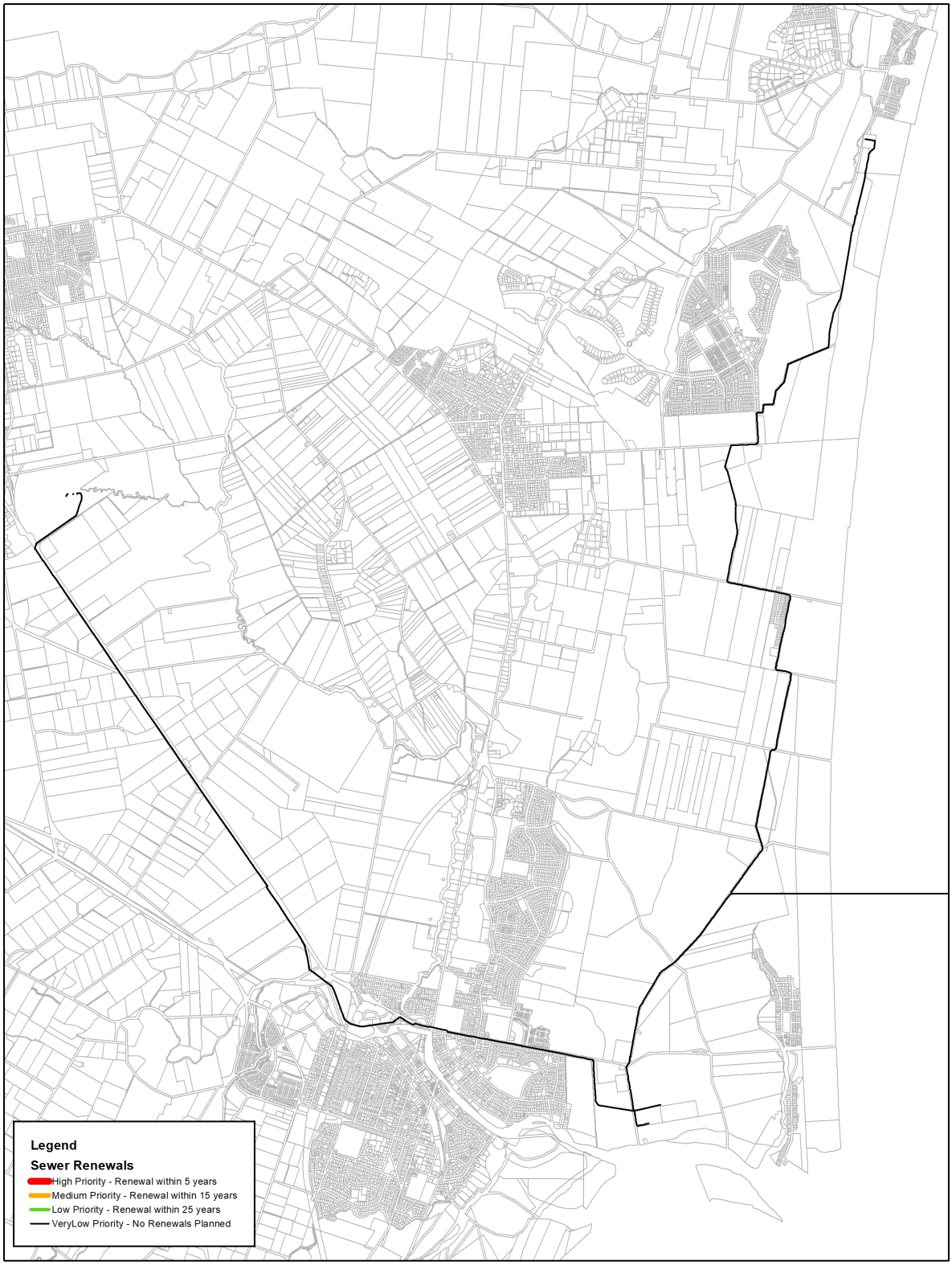
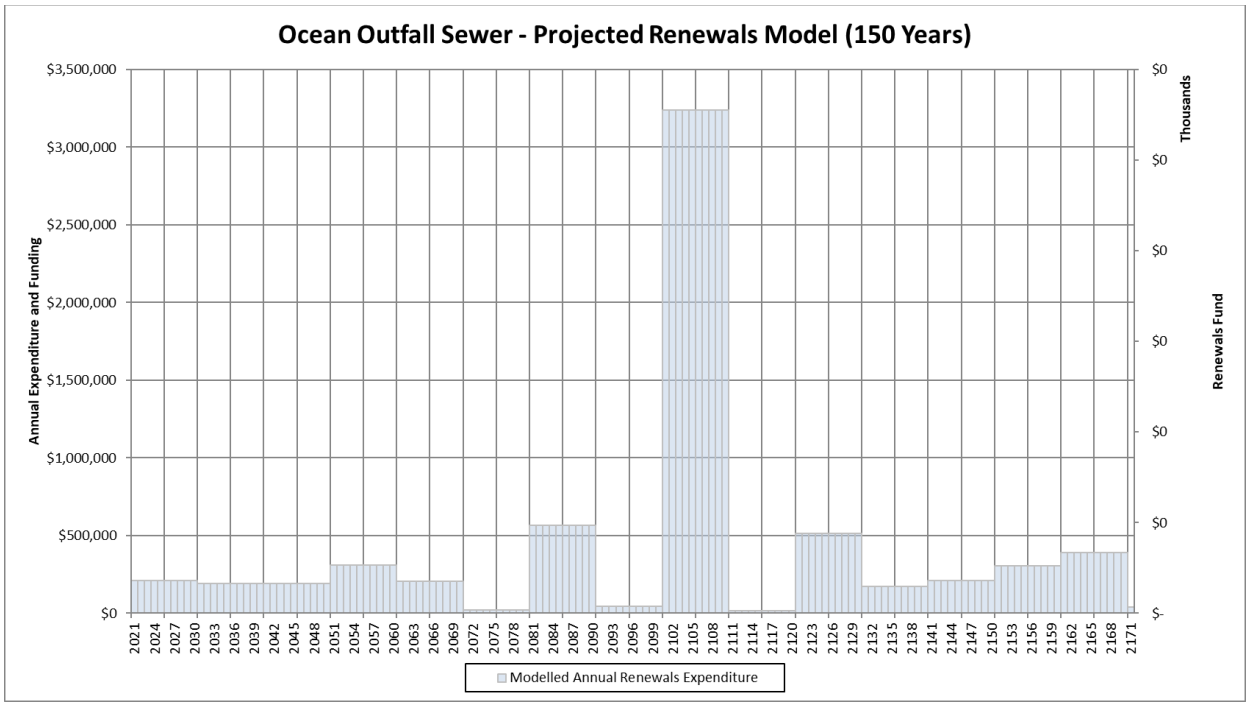


Figure 9 below shows the forecast renewals expenditure output from the model alone for the Ocean Outfall Scheme. Budgeted depreciation funding, modelled annual funding required, and the modelled renewals fund are not shown on this graph, but are shown on the equivalent graph in the Overview AMP. This is because all properties that are connected to the Eastern District Wastewater Scheme (EDWS) are charged using the same set of (differential) rates.

The figure only shows the output from the model, so expenditure shown in the graph for the first ten years may be different from the expenditure shown in the LTP, as adjustments may have been made by the Asset Manager from the direct renewals model outputs. The final renewals budget put forward into the draft LTP, is included in the capital works graph. There are no deferred renewals.

Figure 9: Ocean Outfall Sewer – Projected Renewals Expenditure, 150 Year Budget



6.3 Capital Works

The following graph shows the 50 year budget for all capital works, including projects driven by growth and levels of service. Renewals expenditure showing in the first ten years of the graph, includes the actual planned programme, not the model output.

The $150k in 2023/24 is for a 3rd pump at the Rangiora EDWS pump station to ensure redundancy in periods of high flow.

The $1.3M in 2030/31 is a consequence of the annual renewals budget produced by the model for the first ten years having been pushed out and aggregated in year ten, as there are no known actual replacement candidates at this stage.

Figure 10: Projected Capital Works Expenditure

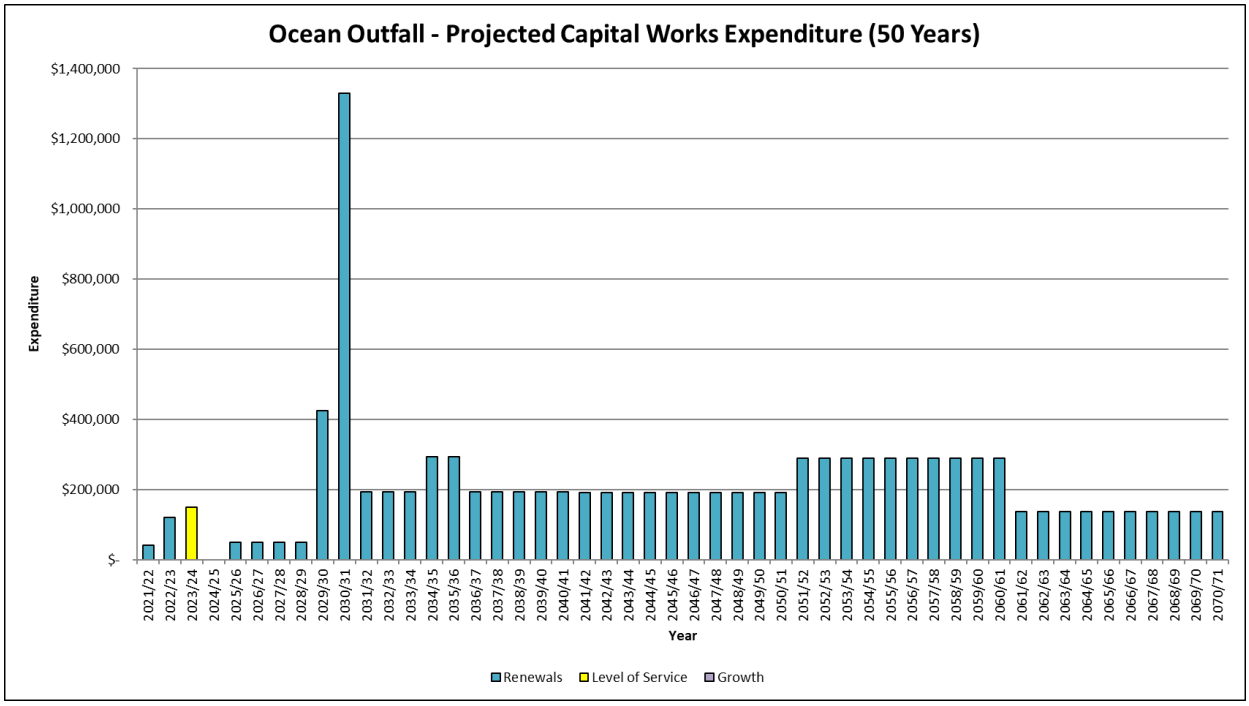


Table 12 on the following page summarises the projected capital works for the next 50 years, including renewals. Figure 11 shows the corresponding location of the projected capital upgrade works.

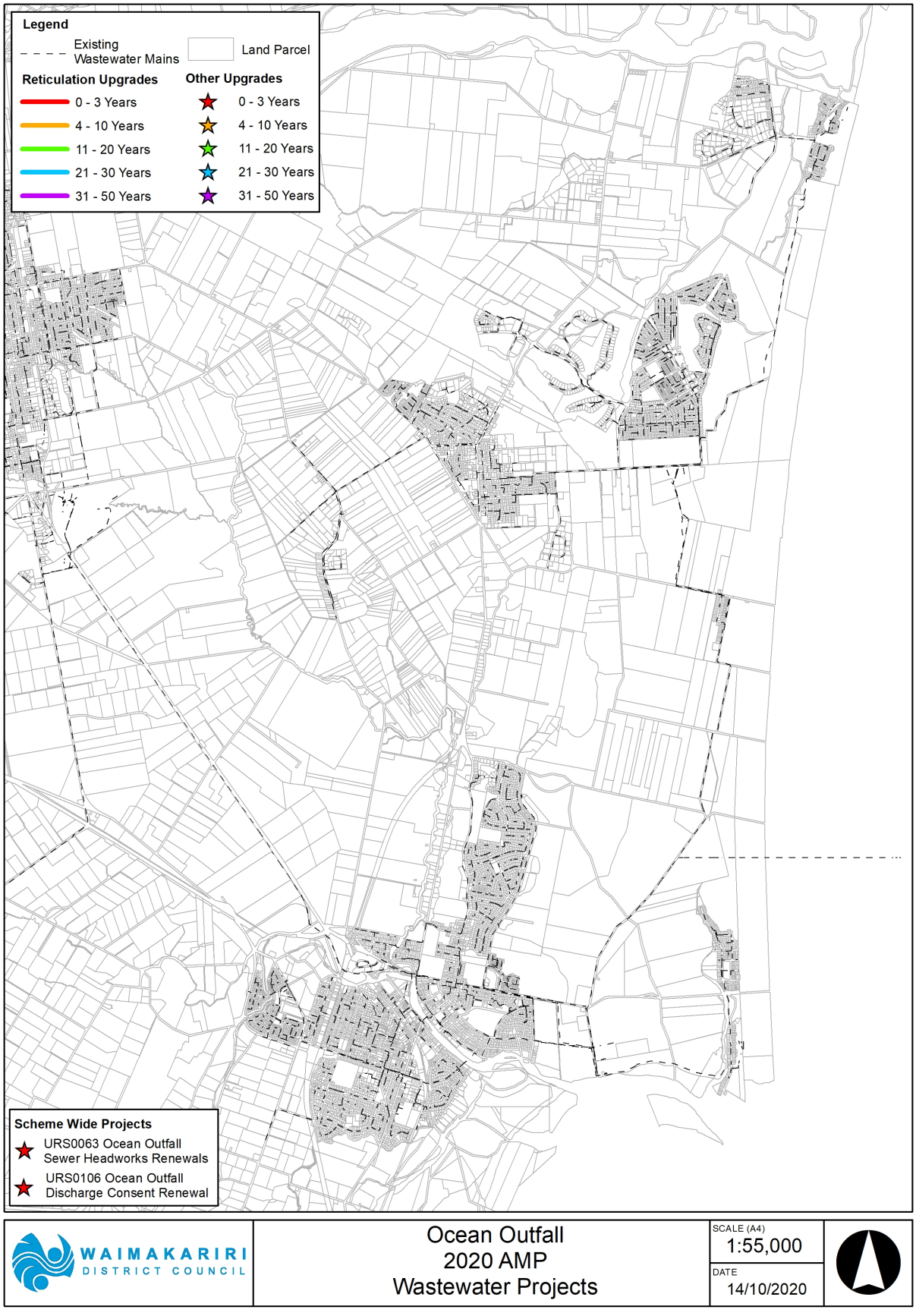
The level of confidence in the budget for the works (High / Medium / Low) is presented in the table. For a more complete discussion on the level of optimisation, refer to the introductory chapter of the AMP. The figures in the table are not adjusted for inflation.

Any programme or project that occurs over a number of years, such as the renewals programme, is only shown within the table for the first year in which it occurs. The Project Value indicates the projected full total cost of the project over the number of years it occurs.

Table 12: Summary of capital Works (Includes Renewals)

Year	Project ID	Project Name	Level of Confidence	Project Value	LOS Component	Renewals Component	Growth Component
Year 1 - 10							
2022	URS0063	Ocean Outfall Sewer Headworks Renewals	2 - Very Low	$ 10,207,817	$ -	$ 10,207,816	$ -
2024	URS0094	Rangiora EDWS Pump Station - 3rd Pump Installation	5 - Medium	$ 150,000	$ 150,000	$ -	$ -
Year 11 - 20							
2035	URS0106	Ocean Outfall Discharge Consent Renewal	1 - Coarse	$ 200,000	$ -	$ 200,000	$ -
Grand Total				**$ 10,557,817**	**$ 150,000**	**$ 10,407,816**	**$ -**

Figure 11: Projected Capital Upgrade Works (not to scale)



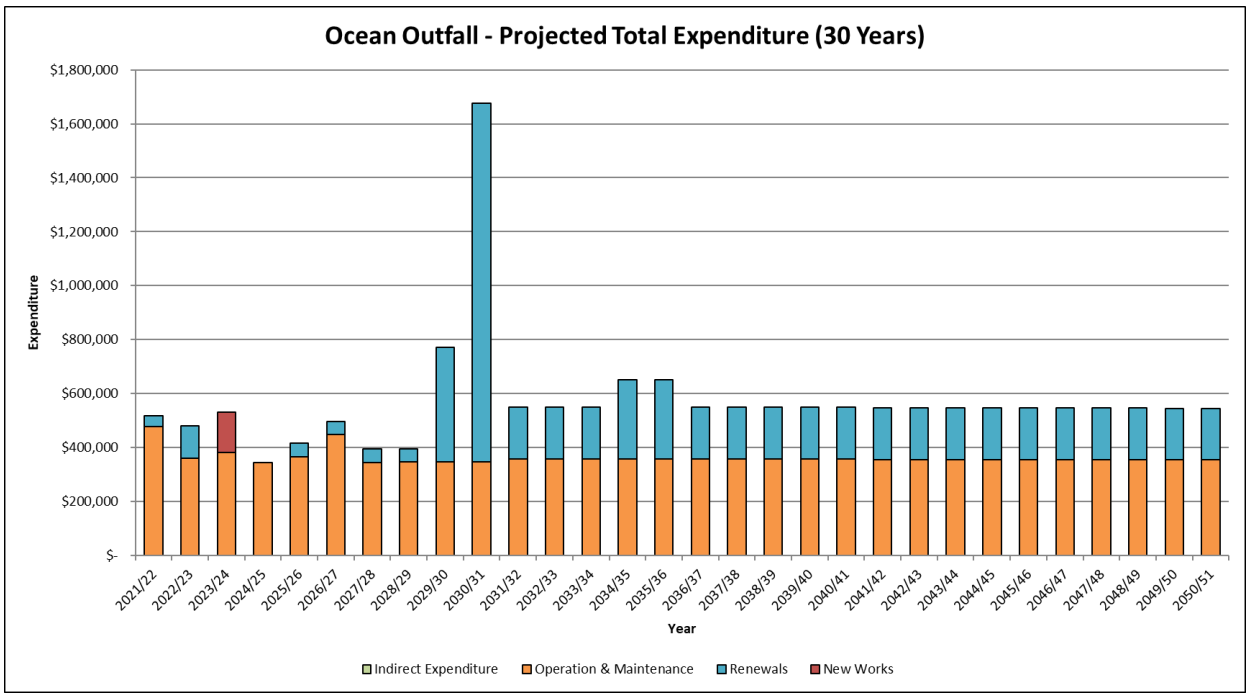
Financial Projections

The following graph summarises the breakdown of projected total expenditure over a 30 year time horizon. It includes both operational and capital expenditure. Operational costs include operations and maintenance, and indirect expenditure.

Indirect expenditure includes interest, rating collection costs, costs associated with maintaining the Asset Register, and other internal overhead costs. Indirect costs shown are the aggregate of all systems connected to the Ocean Outfall Wastewater Scheme.

Capital includes expenditure for growth, levels of service and renewals.

Figure 12: Projected Expenditure Ocean Outfall



6.4 Valuation

A full peer reviewed valuation of assets is carried out on a three yearly cycle, using the asset data in our asset management information system. Table 13 below provides a summary of the replacement cost, depreciated replacement cost and annual depreciation for this scheme

Table 13: Asset Valuation

Asset Type	Unit	Quantity	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Manhole	No.	0	$0	$0	$0
Valve	No.	75	$6,875,445	$4,706,366	$99,921
Main	m	25,960	$29,021,028	$24,707,812	$290,220
Service Line	properties	0	$0	$0	$0
Facilities			**$8,208,843**	**$4,971,002**	**$234,194**
Total			**$44,105,317**	**$34,388,180**	**$624,336**

6.5 Revenue Sources

Revenue is provided from two key sources; targeted rates and Development Contributions. Development contributions are calculated in accordance with Council's Development Contributions Policy (TRIM 191129168016), while targeted rates are charged in accordance with Council's Revenue and Financing Policy (TRIM 180522056008). All properties connected to the EDWS are charged using the same rating methodology

7 Improvement Plan

7.1 2021 Improvement Plan

Table 14 details the scheme specific improvements and relevant district wide improvements recommended to address the management issues identified in Section 3. Each improvement item has been tagged to either a capital project or, a process improvement project to help manage and track Councils response. Short term indicates within the first three years of the LTP, long term, out beyond 2021.

If the table is empty, this indicates that all improvements required are either district wide improvements (covered by the Overview AMP), or covered by a capital project or projects, covered in the Capital Works section.

Table 14: 2021 AMP Improvement Plan

Project Ref	AMP Section	Project Description	Priority	Status	Estimated Cost
NA	NA	NA	NA	NA	NA

8 Change to AMP as a result of Long Term Plan consultation

Some changes to budgets have arisen as a consequence of a staff submission report to Council during LTP hearings 25-26 May (TRIM 210506072970). For the Ocean Outfall the budget included $40,000 for replacement of the Rangiora EDSS PLC. This budget was previously put into the long term plan based on a high level assessment of the electrical control equipment across the district. A specific assessment of the PLC at the Rangiora WWTP has confirmed that the existing equipment does not need to be replaced immediately and can be effectively serviced in the medium term. The $40,000 has therefore been removed.

APPENDIX 'A'. PLANS

Figure 13: A1 - Plan of Service area

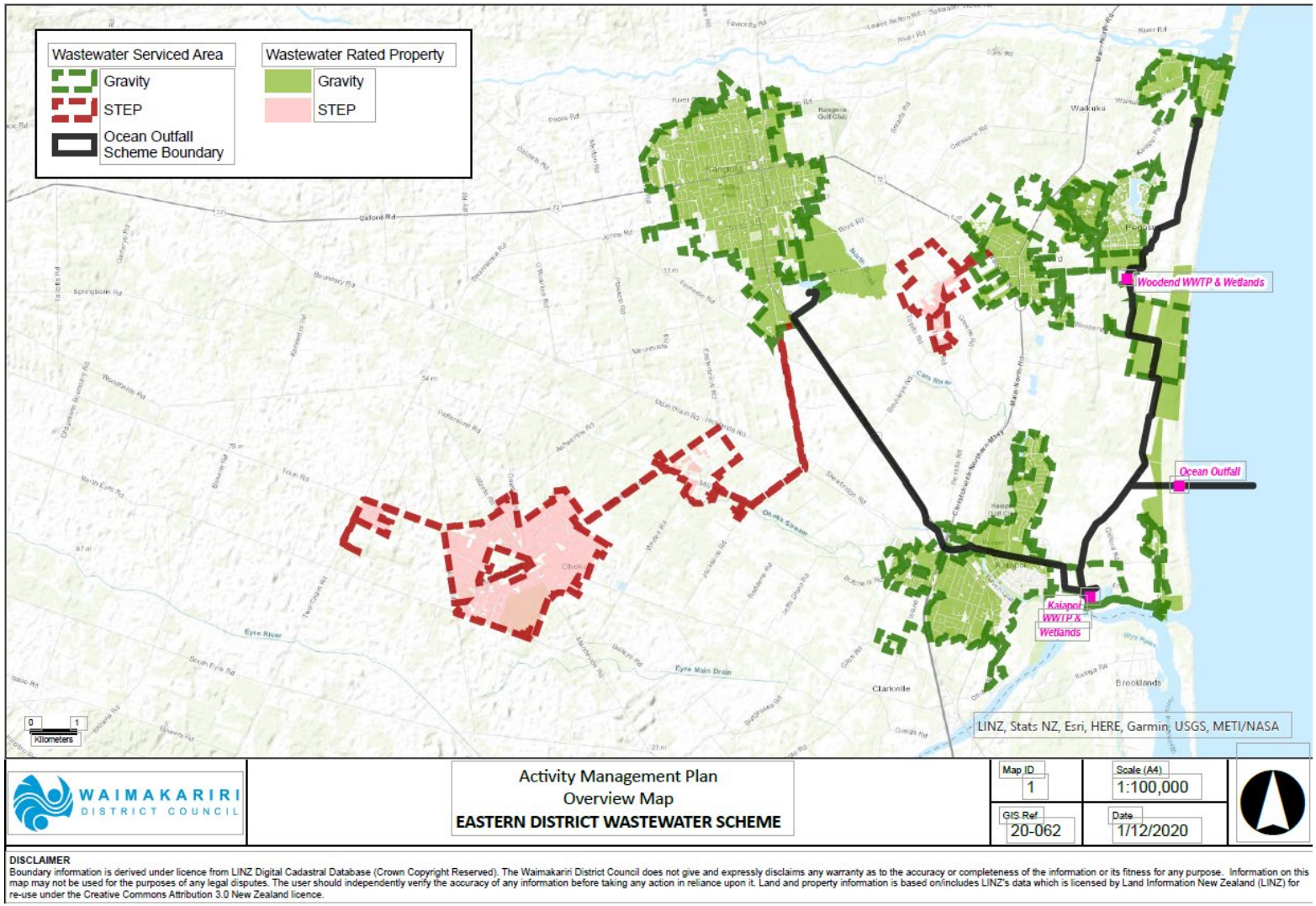


Figure 14: Eastern District's Waste Water Scheme Statistics

Eastern District Wastewater Statistics

Eastern District | 19/20 | Updated: Jun-20

Note that shading indicates the relative quantity measured for the ten year period (i.e. the lowest value has no shading, the highest has complete shading.)

		July '09 - June '10	July '10 - June '11	July '11 - June '12	July '12 - June '13	July '13 - June '14	July '14 - June '15	July '15 - June '16	July '16 - June '17	July '17 - June '18	July '18 - June '19	July '19 - June '20	5 yr Average	10 yr Average
Average Daily Flow	m^3/day	8,633	11,336	10,352	11,500	12,681	8,335	8,776	10,282	14,960	11,664	8,802	10,897	10,869
Average Dry Weather Flow	m^3/day	7,059	10,557	9,865	9,289	10,897	7,943	8,096	9,283	12,650	10,973	7,260	9,652	9,681
Peak Daily Flow	m^3/day	54,962	23,732	20,208	32,509	26,628	23,596	14,009	26,378	26,258	27,909	18,481	22,607	23,971
Peak Weekly Flow	m^3/day	22,588	19,764	15,619	28,595	25,097	16,102	12,419	21,795	23,634	22,949	14,662	19,092	20,064
Peak Monthly Flow	m^3/day	15,273	13,799	13,915	21,572	20,476	14,133	10,971	17,247	19,666	16,692	11,937	15,303	16,041
Peak Instantaneous Flow	L/s	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Month		Jun	Aug	Jun	Jun	Jun	Jul	Aug	Apr	Jun	Jul	Jul		
Peak Week		Week 23	Week 31	Week 25	Week 26	Week 25	Week 27	Week 23	Week 17	Week 31	Week 24	Week 30		
Peak Day		24/09/2009	24/07/2010	8/06/2012	21/06/2013	12/06/2014	1/07/2014	30/01/2016	14/04/2017	24/02/2018	5/06/2019	24/07/2019		
Peak Day Rainfall	mm	1	11	17.4	5.2	7	0	0.8	27.6	0	0.2	0.2		
Peak Day Weather		Wet	Storm	Storm	Wet	Storm	Dry	Wet	Storm	Wet	Wet	Wet		
Total Annual Volume	m^3	3,168,129	4,160,200	3,799,216	4,220,391	4,654,107	3,059,023	3,220,914	3,773,536	5,490,229	4,280,771	3,230,263	3,999,143	3,988,865
Rating Connections		11,736	11,730	11,964	11,864	12,622	13,259	13,794	14,633	15,027	15,610	16,132		
Rating Charges		13,673	13,559	13,951	-	14,735	15,552	16,209	17,486	17,995	18,781	19,406		
Average Daily Flow per Connection	L/con/day	736	966	865	969	1,005	629	636	703	996	747	546	725	806
Peak Daily Flow per Connection	L/con/day	4,683	2,023	1,689	2,740	2,110	1,780	1,016	1,803	1,747	1,788	1,146	1,500	1,784
Data Quality		high	high	high	high	very high	high	high	high	high	high	0		