4 Capital Expenditure

Central Coast Council

This technical paper provides the following information for the 2019 and 2022 determination period:

- Summary of capital investment objectives and drivers
- Comparison of Council's capital expenditure for the 2019 determination to IPART's capital expenditure allowance set in its 2019 determination
- Outline of proposed capital investments for the next price period
- Outline of Council's processes for the development and delivery of the capital program to ensure those investments are prudent and efficient

Note: Some figures contained within this paper may have slight variances due to rounding. All actual expenditure is stated as $nominal and forecast expenditure stated as $real 2021-22 unless otherwise specified.

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1 Key Points

- Council is forecasting 100% delivery of proposed capital expenditure in the 2019 determination period.
- Capital expenditure will moderately exceed IPART's 2019 allowance over the current period. Council expects to spend $205.6M over the three-year period.
- This is made up of $102.9M on water assets, $75.5M on sewer assets and $27.1M on stormwater assets.
- Most of Council's capital expenditure is driven by mandatory standards and asset and service reliability (58% in current period and 61% in the next).
- Council is proposing to spend $313M on the capital program over the next four-year price path. This is made up of $116M on water assets, $160M on sewer assets and $36M on stormwater assets.
- Council has made significant improvements in procurement and contract management to support investment delivery. Applying an Enterprise Risk Management (ERM) Framework and detailed asset management process ensures Council's investment is prudent, efficient and targeted.

2 Introduction

Central Coast Council (Council) is a regional provider of water, sewerage and stormwater drainage services. In order to meet regulatory obligations and customer expectations, Council strives to consistently improve and maintain its assets through prudent and efficient capital investment.

Through the delivery of its capital program, Council's key focus is to manage its assets effectively to ensure the continuity of reliable services to the community. Council monitors its service levels in defined key areas:

- Water pressure, quality, compliance, breaks and water continuity
- Sewage overflows (storm events and other), odour issues, breaks and chokes
- Compliance with EPL concentrations
- Flood protection and asset reliability

These are discussed in detail in Technical Paper 2.

Addressing population growth and system capacity is a further focus area Council is required to manage through its capital works program and asset delivery.

In response to IPART's last determination and financial challenges facing the business, Council has had to substantially reduce its capital investment over the current price path.

During this period, Council have had to review and reprioritise its program to ensure it could continue to operate the network effectively within Council's financial means. As a result, Council are pushing close to and exceeding, in many instances, its regulatory limits and breaching mandatory standards in a range of areas. This is expected to continue without the proposed necessary expenditure.

Council are proposing moderate increases in expenditure, primarily on sewer assets over the next period to target these critical areas. Most of this capital expenditure is driven by mandatory requirements including upgrades and renewals.

In this technical paper Council will:

- Describe the objectives and drivers of capital investment
- Compare actual regulated capital expenditure for the current price period with the regulated capital expenditure allowance set in IPART's 2019 Determination
- Explain the processes for planning and delivering Council's capital portfolio to ensure capital investments are prudent and efficient

3 Overview

An overview of historical capital expenditure for the Water Sewerage and Stormwater Drainage funds is provided in Figure 1.

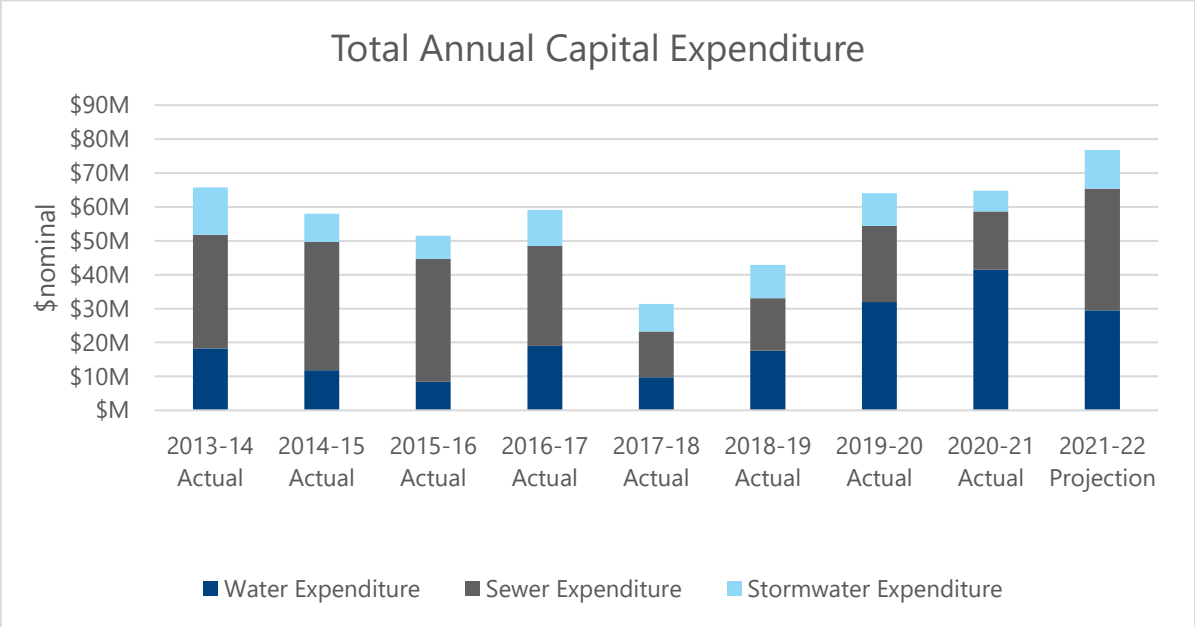

Figure 1: Historical and forecast capital investment for water, sewer and stormwater drainage (Nominal$)

2014-2018 figures contained within Councils historical AIR Submission. 2018-2020 figures CCC Actual expenditure. 2021-2022 CCC forecast expenditure.

Capital expenditure has been predominately made up of mandatory standards and asset and service reliability (see Figure 2). The recent increase in expenditure is attributed to the construction of the Mardi to Warnervale Pipeline and securing water and sewer infrastructure grants for both Gosford CBD and Warnervale Town Centre to support future development in the regions.

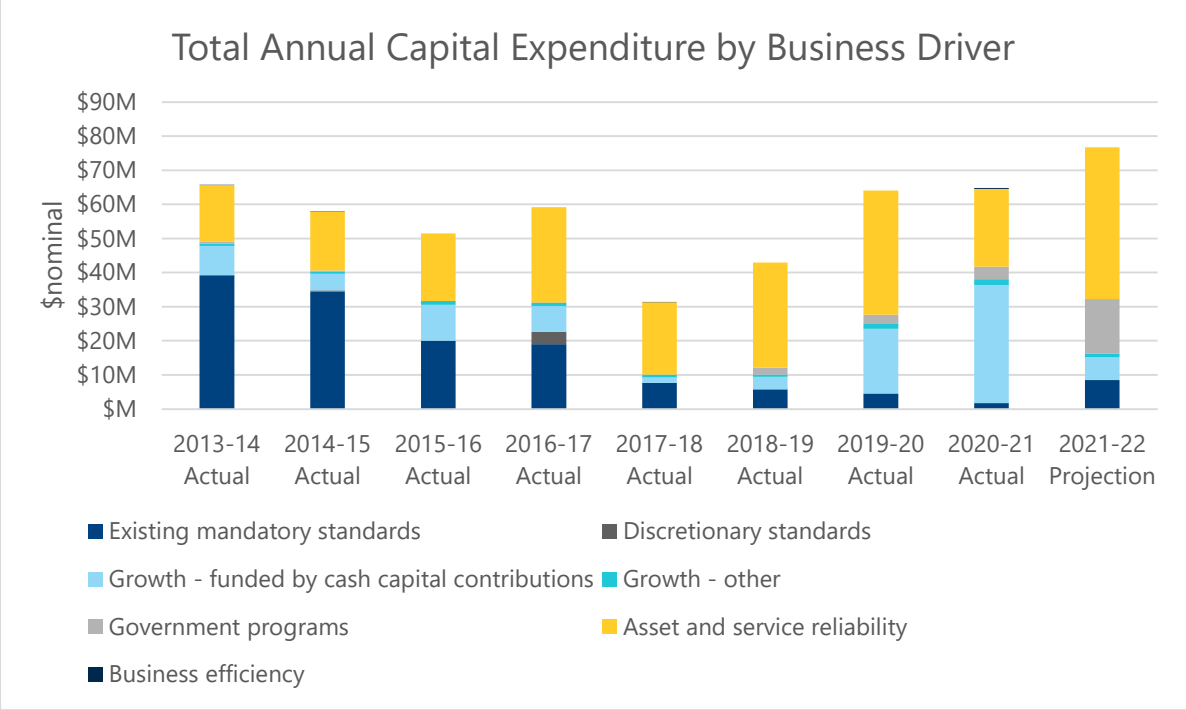

Figure 2: Total capital investment by business driver - ($nominal)

2014-2018 figures contained within Councils historical AIR Submission. 2018-2020 figures CCC Actual expenditure. 2021-2022 CCC forecast expenditure.

A summary of historical and forecast expenditure by fund and investment type is shown below in Table 1.

Table 1: Capital expenditure for water, sewer and stormwater drainage funds (excludes Developer Works in Kind Agreements)

$M	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	Total	Total
	$Nominal	$Nominal	$Nominal	$Nominal	$Nominal	$Nominal	$Nominal	$Nominal	$Nominal	$Nominal	Real $2021-22
Water Expenditure											
Renewals	6.2	10.3	11.9	5.1	13.3	3.5	11.6	9.6	14.2	85.7	87.4
Upgrades and New Assets	3.6	7.3	20.1	36.4	16.2	31.3	18.8	10.4	16.8	160.8	163.4
Sewer Expenditure											
Renewals	11.4	10.9	15.3	8.7	16.9	14.1	16.7	21.9	20.0	135.9	138.1
Upgrades and New Assets	2.1	4.7	7.2	8.4	19.0	20.5	22.4	27.1	17.6	129.0	129.9
Stormwater Drainage Expenditure											
Renewals	5.9	2.7	3.2	2.2	2.7	5.1	4.3	4.1	3.9	34.1	34.9
Upgrades and New Assets	2.2	7.1	6.4	4.0	8.6	3.3	5.2	4.8	5.7	47.3	48.2

4 Investment objectives and drivers

4.1 Capital investment objectives

Council's water business is unique. It must meet its regulatory obligations managing risk and ensuring service continuity while operating within a Local Government context.

Figure 3: Objectives

Council has made several improvements to its processes and systems in the 2019 determination period to help support and guide its investment decisions. These supporting systems, and a focus on IPART's capital works expenditure drivers, ensure that Council's capital investments are prudent.

Improvements and Supporting systems to Council's investment planning include:

- Capital Project Review Team Governance Process
- Community engagement for key projects and strategies
- Central Coast Water Security Plan to guide water resource investments
- Risk management processes (Pressure Main Risk and Criticality Assessment)
- Growth and development (DSP)
- Asset management systems (IPS)
- Procurement Delivery initiatives

IPART's guiding capital expenditure drivers are shown in Table 2. These drivers are considered as part of preparing any new capital project initiation template by the project proponent and Capital Project Review Team.

4.2 Investment drivers

4.2.1 Mandatory standards/regulatory requirements

Ongoing investment in new assets as well as upgrades and renewals is required to ensure ongoing compliance with mandatory standards and regulatory requirements. The main mandatory standards requiring capital investment include:

- Dams Safety NSW regulation
- WHS standards
- Australian Drinking Water Guideline and Recycled Water Guidelines
- Environmental Protection Licenses for Sewerage Schemes
- NSW Department of Health regulation
- IPART output measures

Table 2: IPART expenditure drivers

IPART driver	Definition
Existing mandatory standards	Asset expenditure because of an existing mandatory standard. Examples include expenditure to improve the reliability of assets to ensure compliance with existing mandatory standards.
New mandatory standards	Asset expenditure because of a new mandatory standard.
Asset and service reliability	Capital expenditure intended to enhance asset and service reliability.
Growth – funded by cash capital contributions	Asset expenditure to meet the requirements of new customers or increased requirements of existing customers in accordance with mandatory standards. Expenditure is funded through cash income from developer charges and should be verifiable through the DSP process.
Growth – other	Asset expenditure to meet the requirements of new customers or increased requirements of existing customers in accordance with mandatory standards. Expenditure is funded through cash income from charges other than developer charges.
Government programs	Asset expenditure to meet specific Government programs. The expenditure is driven by the

IPART driver	Definition
	Government program which may override other objectives such as commercial return.
Business efficiency	Asset expenditure that is wholly justified on the grounds of expected reductions in operating expenditure. The resulting savings should be reflected in the operating budget.
Discretionary standards	Asset expenditure because of a discretionary standard. Agencies may need to supply additional justification for this type of expenditure such as "community willingness to pay" analysis.

4.2.2 Risk Management

Council's commitment to developing and operating an Enterprise Risk Management (ERM) Framework will lead to improved provision of services to the community through utilising an overall enhanced management methodology, contributing directly to Council achieving the Central Coast Community Vision.

The purpose of the ERM Framework is to assist staff in developing a portfolio view of risks which threaten the achievement of the organisation meeting its objectives. The framework creates a top-down, enterprise view of all the significant risks that can impact the organisation. Responsibility for setting leadership within ERM resides with the Executive Leadership Team (ELT), ultimately responsible for understanding, managing and monitoring the most significant risks affecting Council.

The principles and practices of risk management which are detailed in Council's ERM Framework can be applied across the entire Council, to its Departments, Units and Sections, as well as to specific issues, functions, projects and activities.

Council's ERM is outlined in detail in Technical Paper 2.

4.2.3 Asset replacements

Council's asset base includes treatment plants, dams, pump stations, pipelines, channels and storages. The organisation's water, sewer and stormwater drainage businesses have a combined asset base of approximately $6.0B gross replacement cost (GRC) as at 30 June 2021[1].

[1] The asset values in the draft 2020-21 financial statements are unaudited and at the time of preparing the submission do not include the revalued asset values for water and sewer assets as the asset revaluation is work is in progress

Figure 4 and Figure 5 illustrate the 12 water and sewer and 10 stormwater drainage asset classes by GRC and condition rating:

- Condition 1 = Excellent/Very Good

New or as new condition. Only planned cyclic inspection and routine maintenance required.

- Condition 2 = Good

Good condition with minor defects. Minor routine maintenance along with planned cyclic inspection and maintenance.

- Condition 3 = Satisfactory

Average/fair condition with some significant defects requiring regular maintenance on top of planned cyclic inspections and maintenance.

- Condition 4 = Poor

Poor condition with asset requiring significant renewal/rehabilitation, or higher levels of inspection and substantial maintenance to keep the asset serviceable.

- Condition 5 = Very Poor

Very poor condition. Asset physically unsound and/or beyond rehabilitation. Renewal required.

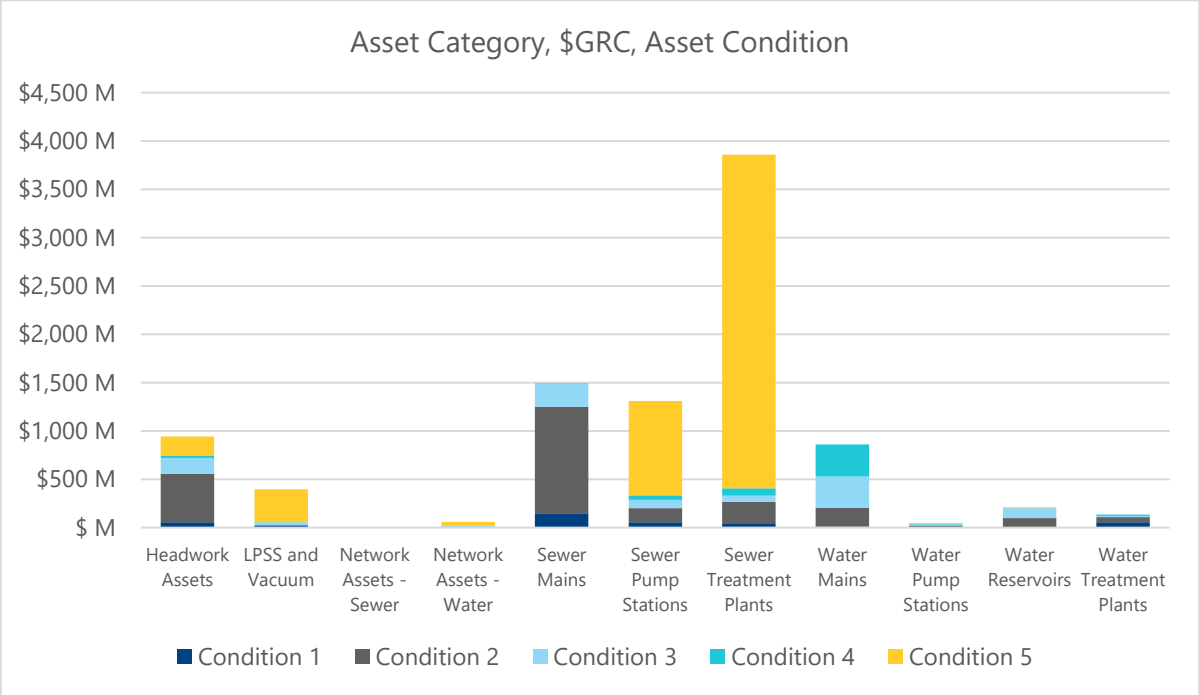

Figure 4: Asset Condition rating - water and sewer assets

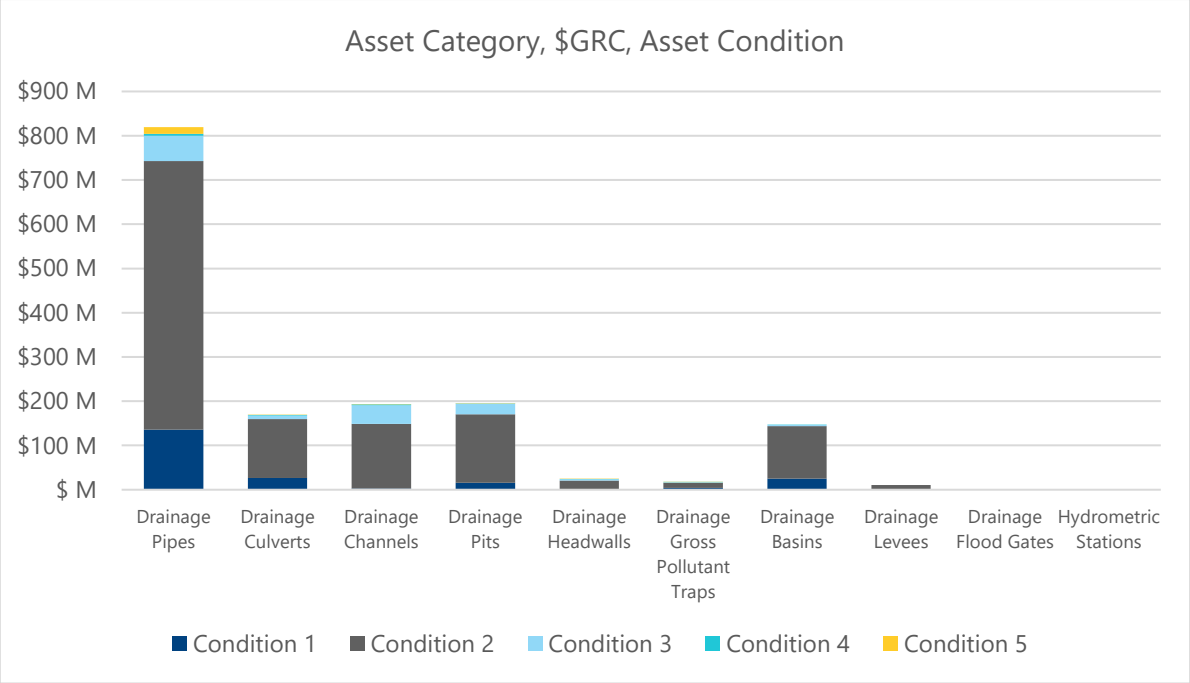

Figure 5: Asset Condition rating - stormwater drainage assets

Council monitor, maintain and replace assets through asset management processes combined with asset risk and criticality frameworks.

4.2.4 Growth and Development

The relationship between development and Council's capital works program is driven by:

- Provision of additional service capacity to water supply and sewerage networks to cater for planned growth. These include both greenfield and brownfield assets.
- Facilitating connections to existing Council assets for new or expanding customers
- Development and management of construction of new lead-in assets by developers under a Works in Kind Agreement (WIKA)

Council aims for 'just in time' asset delivery to cater for future growth to manage the uncertainty that surrounds the provision of new assets for future customers. The use of WIKAs where possible, ensures the timing risk of the asset is linked to the associated development and seeks to realise efficiencies with plant and labour already mobilised to construct a development's reticulation assets. The value of completed WIKAs are recognised in the adjustment of Council's Regulated Asset Base (RAB), through a reduction in the corresponding annual Developer Charges Revenue.

Council also seeks grant funding for new growth assets where available. Significant funding has been obtained during the 2019 pricing determination for water and sewerage works within the Gosford CBD and Warnervale Town Centre.

4.2.5 Funding and Delivery of water and sewerage growth infrastructure

Growth related assets and upgrades are either delivered by Council as part of its annual capital works program or by developers under a WIKA. A summary of the main asset types and the party typically responsible for the asset delivery phase is provided in Table 3.

Table 3: Asset delivery responsibility for growth driven assets

Asset Type	Party Responsible	Comments
Lead-in trunk and reticulation mains	Lead Developer	Exceptions for complex brownfield sites e.g. Gosford CBD
Regional Trunk Mains	Council	E.g. Mardi to Warnervale Pipeline
Greenfield Water or Sewage Pump Station	Developer	
Brownfield Sewage Pump Station Upgrade	Council	Higher level of interface with existing assets and asset condition drivers to address
Brownfield Treatment Plant Upgrades	Council	E.g. Charmhaven STP Upgrade
WICA Schemes	Developer and Private Water Authority	
New/upgraded connections to existing assets	Council	Developers can only provide connections to new assets during the delivery phase

During the 2019 determination period, Council has delivered a number of growth-related upgrades including:

- Mardi to Warnervale Pipeline (Approx. $44.3M)
- $3.4M in new water services and connections
- Over $17M in new and upgraded sewerage assets

4.2.6 Funding and delivery of stormwater drainage growth assets

Development Contribution Plans detail the charges that are required to be paid by developers towards the provision of existing and future stormwater drainage infrastructure. These charges are levied under Section 7.11/7.12 of the Environmental Planning and Assessment Act 1979.

The Contribution Plans, which include separate road, drainage and open space funding models and programs of work, are legacy planning documents from the former Council areas with significant contributions collected and commitments made for the delivery of specific stormwater drainage works.

Growth related stormwater drainage assets and upgrades are either delivered by Council as part of its annual capital works program or by developers as part of their adjacent development. During the 2019 determination period, Council delivered two priority stormwater drainage upgrades in Louisiana Road, Warnervale (approx. $4.3M in total) and commenced development on stormwater drainage upgrades in the Gosford CBD.

4.2.7 Business efficiency

Council is proposing business efficiency projects over the determination period. The main objective of these projects is to achieve catch-up operational efficiencies and reduce operational energy costs as recommended in the IPART 2019 Determination.

The projects will be preceded by a power onsite generation review operational project. The aim of the review is to analyse potential operational efficiencies through on-site power generation and identify suitable sites for construction including Solar Photovoltaic installations at sewage treatment plants (STP), water treatment plants (WTP) and other facilities, STP co-generation initiatives and to a lesser extent mini-hydro power generation. Council has already commenced the installation of roof solar PV installations at STPs and raw water pumping stations in 2020-21.

Council is also proposing to carry out a Biosolids Strategy operational project to achieve efficiency in the management of biosolids, providing greater certainty for planning of sludge management upgrades at existing STPs and WTPs, and better understanding of energy recoveries for STPs. One of the project objectives is to consider centralised on-site power generation recovery opportunities in conjunction with the Power onsite generation review. The outcomes of the two strategic planning projects above mentioned will determine the power onsite scope of works.

5 Actual regulated CAPEX compared with previous determination

5.1 Actual and forecast capital expenditure

Council's reported capital expenditure during the current price path comprises of actual expenditure from 1 July 2019 to 1 July 2020, with forecast expenditure for the remainder of the price path.

Council plans to invest $202M over the three-year period to meet regulatory requirements and investment objectives.

The composition of expenditure is shown by product in the table below.

Table 4: Capital expenditure in the current price period by product ($ million)

$M	2019-20 $nominal	2020-21 $nominal	2021-22 $nominal	Total $nominal	Total $2021-22
Water	32.0	41.5	29.5	102.9	105.5
Sewer	22.5	17.2	35.9	75.5	77.1
Stormwater Drainage	9.6	6.2	11.4	27.1	27.8
TOTAL	**64.0**	**64.8**	**76.7**	**205.6**	**210.4**

The following figure outlines the investment by asset category in the 2019 determination.

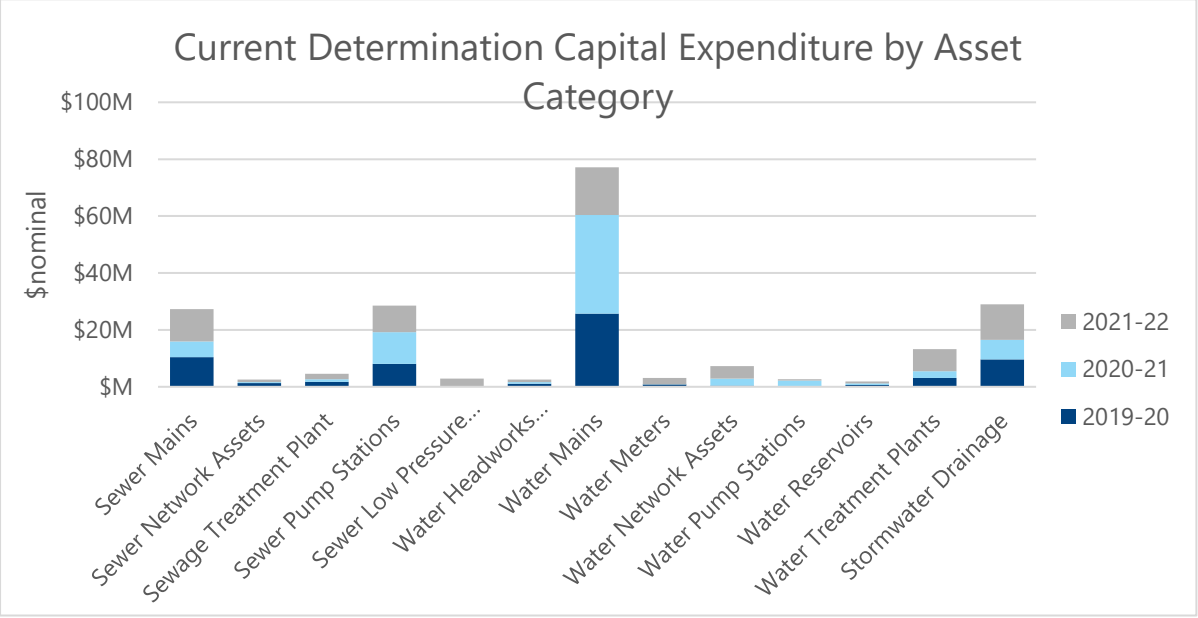

Figure 6: Investment by asset category

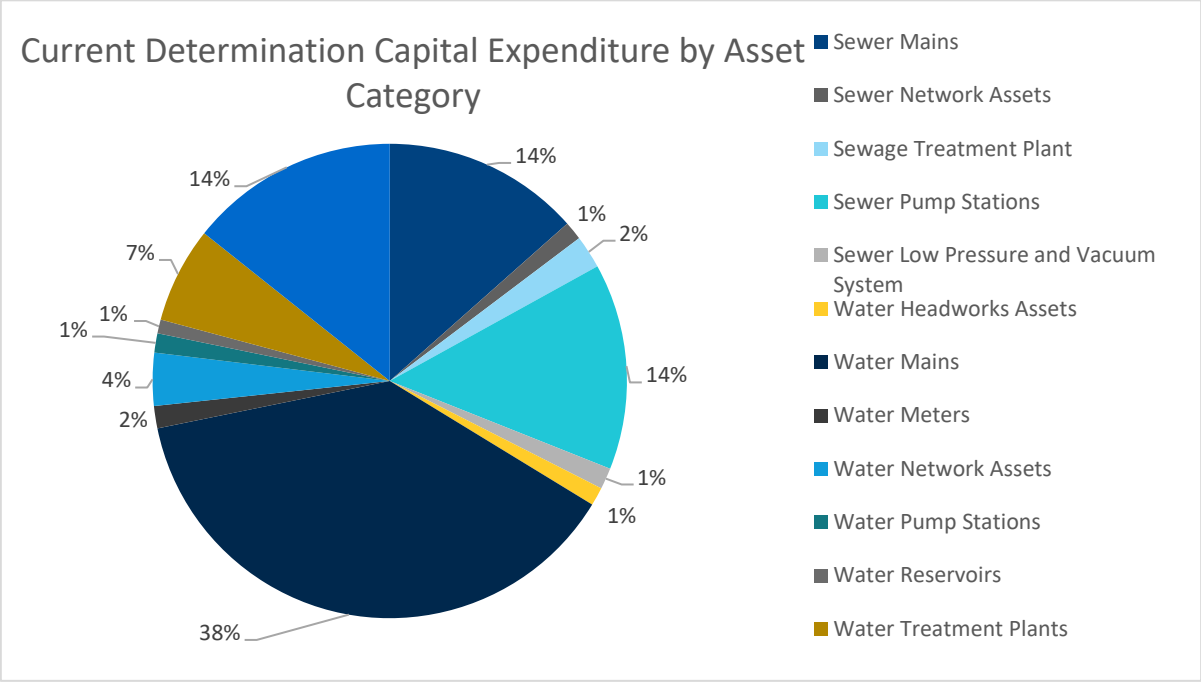

Figure 7: Total current determination investment by asset ($nominal)

The drivers of Council's capital expenditure in the current price period is shown below.

During the current price period, Council expects to spend $117M to meet mandatory standards and ensure asset and service reliability. $67M is expected to be spent on growth, primarily through capital contributions with the remaining $22M to be spent on government programs.

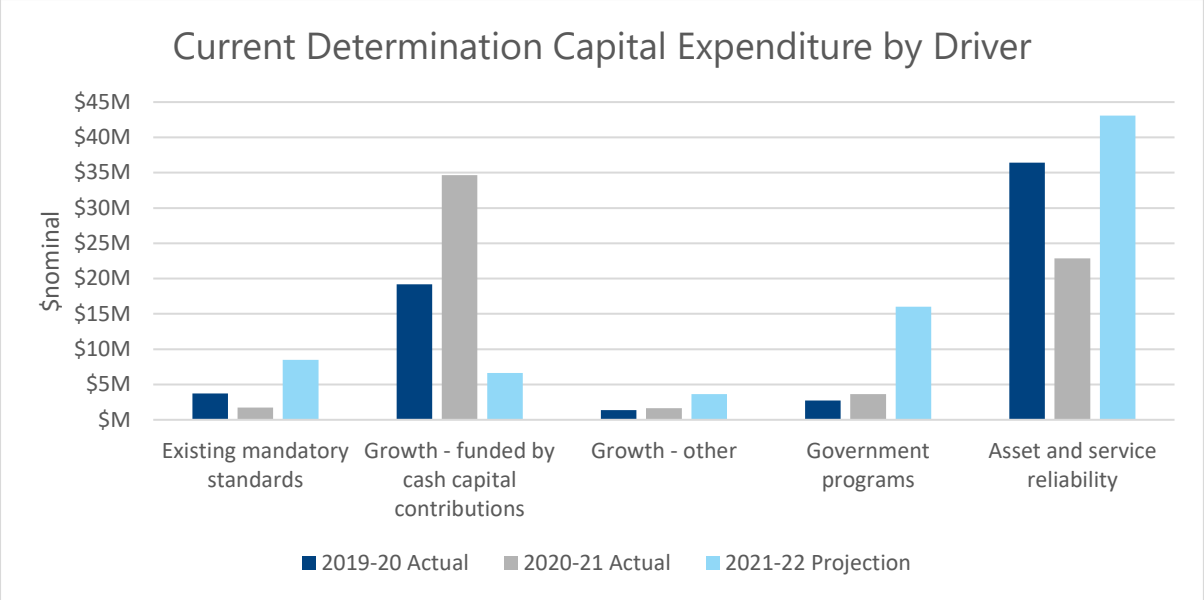

Figure 8: Capital expenditure in the current price path period, by driver ($millions)

5.2 Expenditure compared to IPART allowance

In its 2018 submission, Council proposed capital investment of $285M over the 2019 determination. IPART recommended an overall reduction to Council's proposal suggesting an allowance of $197M was a more reasonable target. IPART did not make recommendation on all individual projects within the program, advising;

> *"Our decision provides an allowance for all capital expenditure, rather than an allowance for specific projects. Our decision does not prevent the Council from re-prioritising and completing any individual projects it considers necessary to deliver its services."*

Following IPART's determination, Council conducted a review and reprioritisation of its proposed capital investment program to better align with IPART's recommendation.

During the determination period, Council has faced some delivery challenges. Council has been required to conduct further reprioritisation and reprofiling of several of its projects and programs throughout the 2019 determination period. Major causes for project and program reprofiling have been:

- Business risk and asset criticality
- Efficiency opportunities (packaging works)
- Resourcing and requirement for specialised expertise
- Grant and funding approvals
- November 2019 – January 2020, bushfires impacting access to Mangrove Water Catchment, pump station and dam

- March 2020 – ongoing, COVID-19 and contractor travel restrictions
- October 2020 – ongoing, corporate financial and resource constraints
- March 2021 – Major flooding

Despite the challenges Council has faced, it is forecasting to deliver its proposed capital program for the 2019 determination period. It is likely water expenditure will moderately exceed IPART's recommended level of expenditure. This is mainly due to the successful delivery of the Mardi to Warnervale pipeline within the 2019 determination period. Council considers its historical capital expenditure to have been prudent and efficient.

Total actual expenditure (note: 2021-22 is Council's forecast Operational Plan budget) and IPART's allowance for the determination period is provided in Figure 9, with an annual breakdown provided in Figure 10.

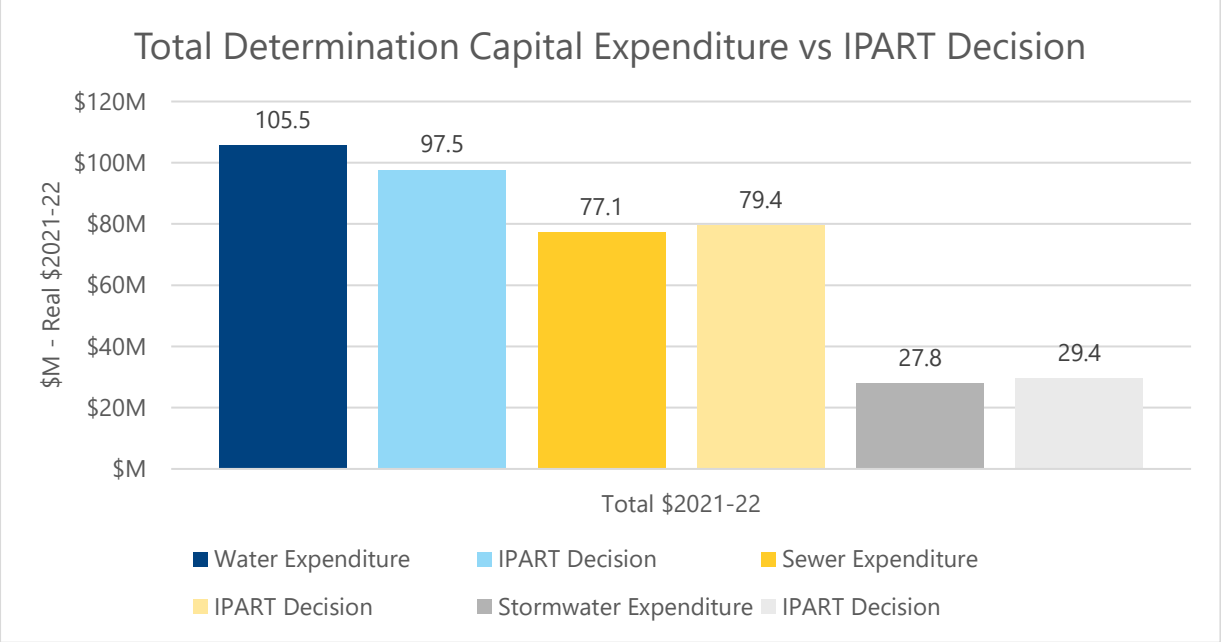

Figure 9: Total Determination comparison of expenditure to IPART Allowance

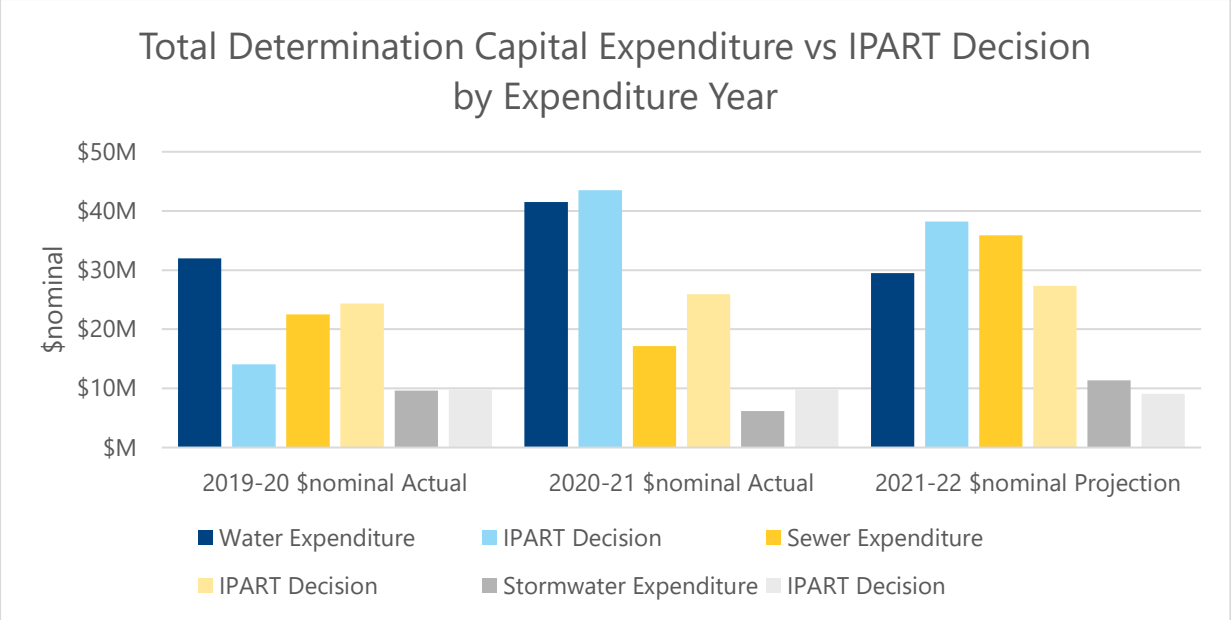

Figure 10: Annual comparison of expenditure to IPART allowance

Key trends visible in the above data include:

- Increased water expenditure associated with the delivery of the Mardi to Warnervale Pipeline within Council's original program
- A reduction in sewer and stormwater expenditure in 2020-21 due to requirements to reduce Council's overall expenditure, including water/sewer/stormwater drainage capital expenditure. This typically impacted projects that had not yet proceeded to contract award or transitioned from the design to construction phases.
- An increase in forecast sewer and stormwater drainage expenditure in 2021-22 to recover previous program slippages as a result of the reductions through 2020-21

The following table documents the actual and forecast expenditure compared to IPART 2019 Determination by Product.

Table 5: Expenditure compared to IPART Determination

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Water Expenditure					
IPART Decision	14.1	43.5	38.2	95.7	97.5
Actual Expenditure	32.0	41.5	29.5	102.9	105.5
Allowance Variance ($)	-17.9	2.0	8.7	-7.2	-8.0
Allowance Spent (%)	227%	95%	77%	108%	108%
Sewerage Expenditure					
IPART Decision	24.3	25.9	27.3	77.6	79.4
Actual Expenditure	22.5	17.2	35.9	75.5	77.1

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Allowance Variance ($)	1.8	8.8	-8.6	2.1	2.4
Allowance Spent (%)	92%	66%	131%	97%	97%
Stormwater Drainage Expenditure					
IPART Decision	9.8	9.8	9.1	28.7	29.4
Actual Expenditure	9.6	6.2	11.4	27.1	27.8
Allowance Variance ($)	0.2	3.6	-2.3	1.5	1.6
Allowance Spent (%)	98%	63%	125%	95%	94%
TOTAL					
IPART Decision	48.2	79.2	74.6	202.0	206.4
Actual Expenditure	64.0	64.8	76.7	205.6	210.4
Allowance Variance ($)	-15.9	14.4	-2.1	-3.6	-4.0
Allowance Spent (%)	133%	82%	103%	102%	102%

5.3 Water Expenditure

Council expects to invest $102M for the provision of water services in the current price period. This is $8.8M (9.5%) above IPART's 2019 allowance (see table and figure below).

Table 6: 2019 determination water expenditure

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Water Expenditure					
Council's Proposal	21.6	71.2	48.3	141.1	144.0
IPART Decision	14.1	43.5	38.2	95.7	97.5
Actual Expenditure	32.0	41.5	29.5	102.9	105.5
Allowance Variance ($)	-17.9	2.0	8.7	-7.2	-8.0

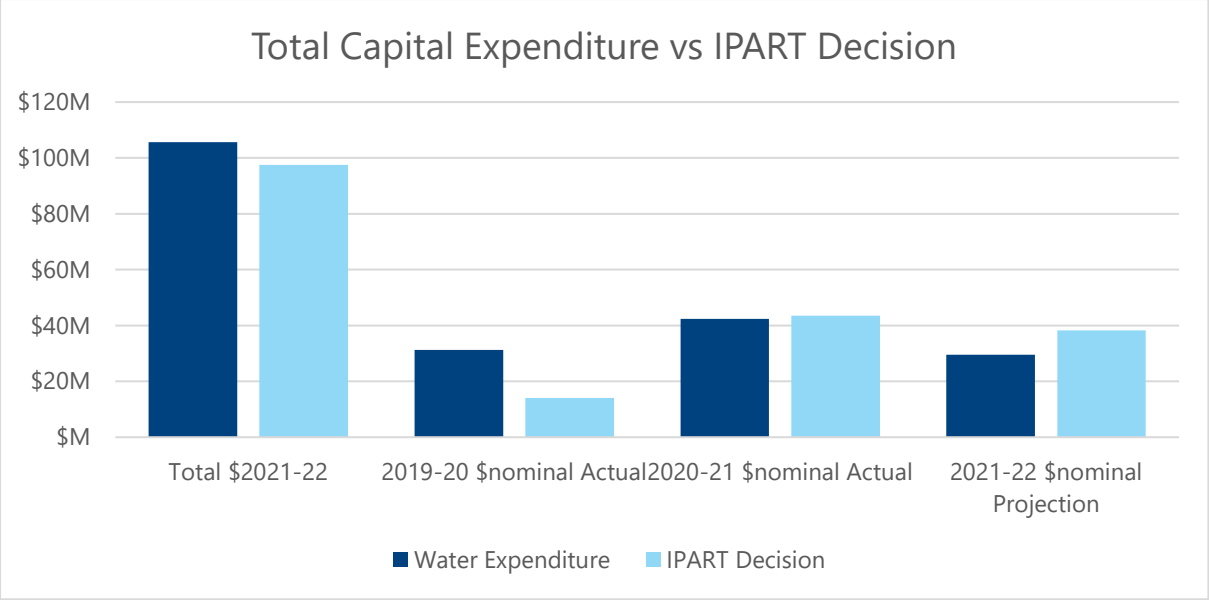

Figure 11: Comparison of water capital expenditure to IPART allowance

IPART recommended a 32.3% reduction to Council's proposed water expenditure over the 2019 determination period. This included a re-profiling of the Mangrove Creek Dam Spillway Upgrade, along with the Mardi to Warnervale pipeline, forecasting the project expenditure over a five-year period to 2024.

IPART explained the re-profiling in its final determination and report as follows:

> *"it is our best view of the level of capital expenditure the Council can efficiently deliver over the 2019 determination period."*

The pipeline project delivery was externally resourced, allowing Council to continue delivery of the remainder of its water program.

The M2WP Pipeline project was delivered in a significantly shorter timeframe than IPART recommended. IPART had raised concerns regarding the delivery timing of the Review of Environmental Factors (REF) and also concerns that timely onboarding of resources would impact on the delivery of the project within the timeframe identified in the Business Case.

Council was able to achieve the delivery and approval of the revised REF and onboarding of Project Team Resources as per the programme. This allowed for a concerted effort by the correct resources to refine the Tender Package to clearly and concisely identify scope and allocate risk to the most appropriate organisation whether that be Council or Contractor. The Tender was released, submitted, evaluated and awarded as per programme.

The successful tenderer's lump sum price was within budget and the programme provided a completion date for Construction in March 2021. The Project Team were meticulous in their management of the Contractor as per the terms set out in the contract.

Table 7: Major project: Mardi to Warnervale Pipeline

$M - Real $2021-22	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Mardi to Warnervale Pipeline						
Council's Proposal	4.2	40.9	14.4	0.0	0.0	59.5
IPART Decision	4.2	24.9	24.9	4.1	1.4	59.5
Actual Expenditure	15.1	30.2	0.6	0.0	0.0	45.8
Allowance Variance ($)	-10.9	-5.3	24.3	4.1	1.4	-13.6

There has been significant re-development of the Mardi Water Treatment Plant Upgrade project since the last IPART submission, including completion of multiple investigations and options studies, early works, a preliminary design and procurement activities.

In mid-2019, Mardi Dam experienced a significant blue-green algal bloom. This led to a decision to re-examine the risks and re-assess the project scope. Subsequently the project's:

- Completion date has been pushed back by approximately two years to March 2024
- Cost is now $46M (previously $24M) due to the increased scope (including bundling of additional approved projects into the upgrade scope to minimise cost and risks) and updated with detailed cost estimation and contingency analysis

Table 8: Major project, Mardi water treatment plant upgrade

$M - Real $2021-22	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Mardi Water Treatment Plant						
Council's Proposal	2.7	12.9	5.2	2.1	0.0	22.9
IPART Decision	2.7	12.9	5.2	2.1	0.0	22.9
Actual Expenditure	2.3	1.6	6.8	25.9	7.7	44.3
Allowance Variance ($)	0.4	11.3	-1.6	-23.8	-7.7	21.3

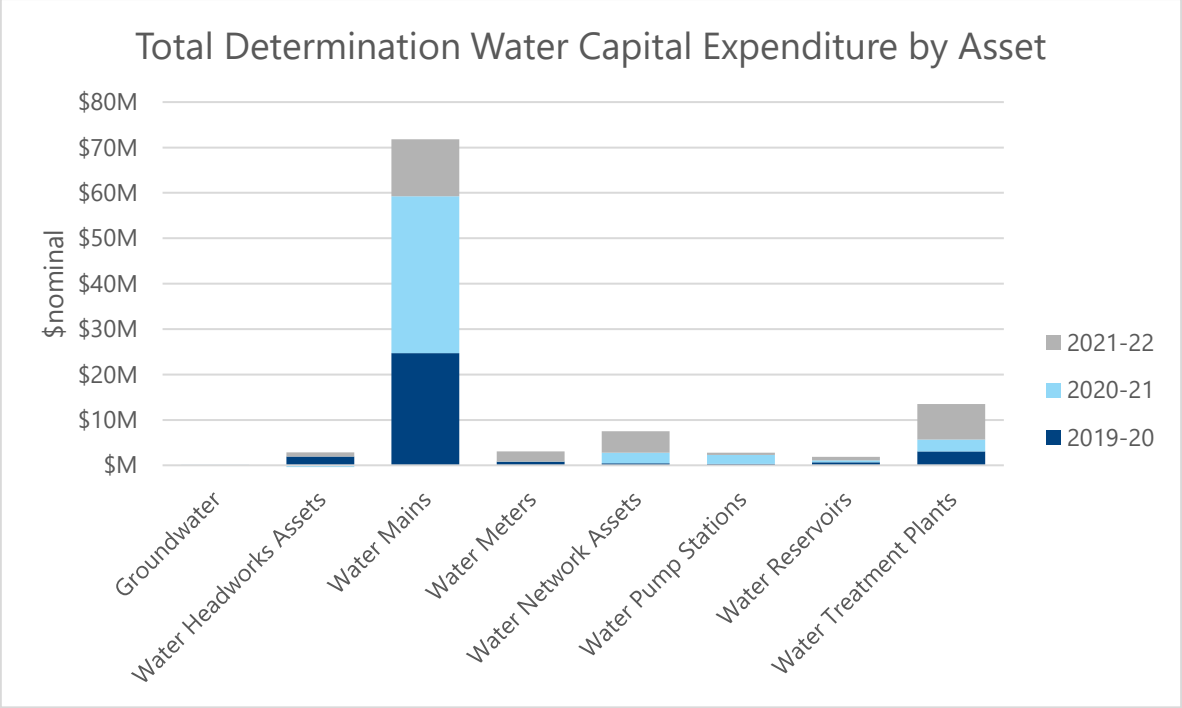

Figure 12: Capital expenditure over the 2019 determination by asset class

As shown in Figure 12, the majority of investments have been made in the Water Mains asset class. This mainly comprises the delivery of the Mardi to Warnervale Pipeline and the water main renewal program.

5.3.1 Water Renewals

Standard business renewals (business as usual - BAU), address the replacement of failed assets, planned refurbishments of assets reaching the end of their design life or where a condition assessment has identified defects.

Table 9: 2019 determination, water renewals

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Water BAU Renewals					
Council's Proposal	12.5	13.9	20.2	46.5	47.5
IPART Decision	5.5	5.6	5.8	16.9	17.3
Actual Expenditure	11.9	5.1	13.3	30.3	31.0
Allowance Variance ($)	-6.4	0.5	-7.5	-13.4	-13.7

Major renewal programs undertaken during the determination were:

Water Mains (trunk and reticulation) $19.2M

Council has replaced approximately 2.6kms of water mains since the start of the 2019 IPART Determination, with a forecast of 8km to be replaced in 2021-22 financial year. The typical annual investment for water main replacement is $4-$5M which includes replacement of both water trunk and water reticulation mains. Council has a water main replacement prioritisation criteria framework in place for determining annual renewal programs. The framework utilises several inputs such as the main section consequence of failure score (Criticality), three years and seven years recorded breaks (Likelihood of failure), as well as taking into consideration the benefit cost ratio. Only mains that meet a minimum score of five are identified for renewal.

Water Meters $3M

Council allows approximately $1M per annum. investment for the replacement of water meters. Meters are replaced every 13 years (on average) given the loss of accuracy overtime, as well as when they are identified as defective.

Mardi Water Treatment Plant – Electrical Renewals $2.4M

Following a condition assessment and audit carried out in late 2018, it was identified that many electrical assets have been in service for an excess of 35 years and have reached the end of their usable life. The electrical equipment at Mardi Water Treatment Plant has become unreliable, unrepairable and/or unsafe. The program allows for the staged replacement of critical electrical assets at the treatment plant while ensuring continuity of the plant's day to day operations.

The remainder of BAU renewals are typically attributed to smaller value (<$500k) projects and programs initiated to address asset service deficiencies or for the replacement of failed assets.

Table 10: Water renewals by asset class

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Water Minor Asset Renewals					
Groundwater	0.0	0.0	0.0	0.0	0.0
Water Headworks Assets	0.7	0.0	0.4	1.2	1.2
Water Mains	0.9	0.0	1.3	2.1	2.2
Water Network assets	0.0	0.0	0.0	0.0	0.0
Water Pump Stations	0.2	0.0	0.1	0.3	0.3
Water Reservoirs	0.5	0.0	0.0	0.5	0.6
Water Treatment Plants	0.2	0.0	0.0	0.2	0.2
TOTAL	**2.5**	**0.0**	**1.8**	**4.3**	**4.5**

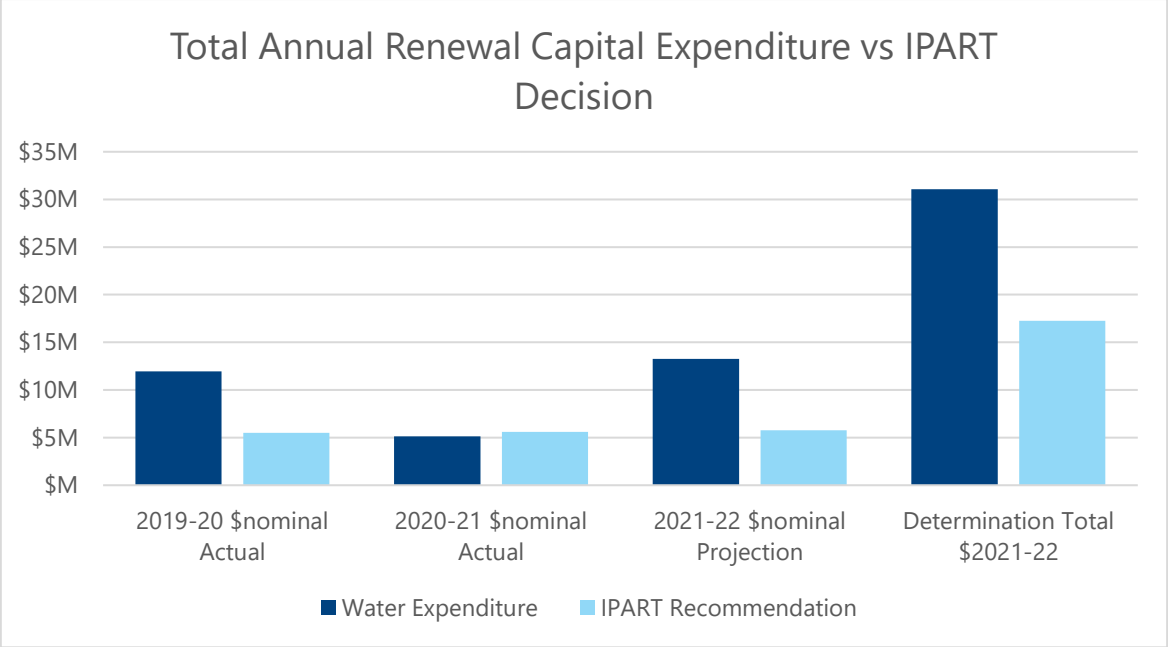

Figure 13: Comparison of water renewal expenditure to IPART allowance

Council has increased its annual investment in water main renewals from previous determinations in order to reduce the number of unplanned water supply interruptions to its customers and address water main break 'hot spots' noting the Council's region wide failure rate is trending within targeted performance (see Technical Paper 2). The renewal program has been undertaken in line with the prioritisation framework that IPART's consultants endorsed during its 2019 pricing review.

5.3.2 Water Expenditure Trends

Overall, water capital expenditure has increased in the 2019 determination period relative to IPART's capital allowance. This is largely due to investment in the Mardi to Warnervale Pipeline and increases to water main renewals. Projects contributing to an increase in 2021-22 projections are the Mardi Water Treatment Plant $6.8M (commencing construction phase), grant funded Gosford CBD and Warnervale Town Centre works $6M and catchup associated with water main renewals deferred through 2020-21. Annual investment is provided in Figure 14 with Figure 15 demonstrating water expenditure excluding major project Mardi to Warnervale pipeline expenditure and IPART allowance.

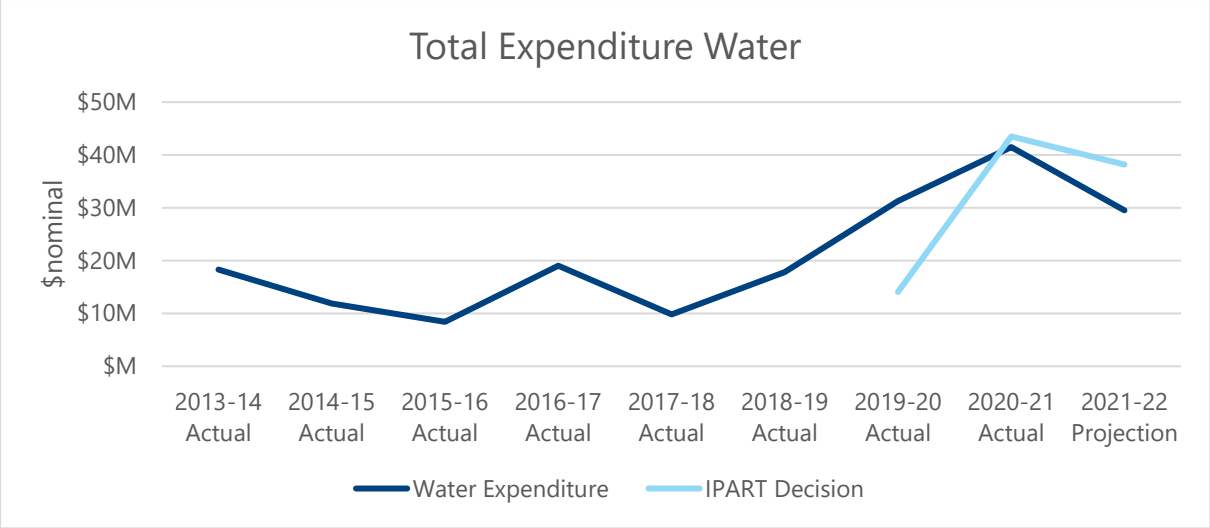

Figure 14: Annual water capital expenditure and comparison to IPART allowance

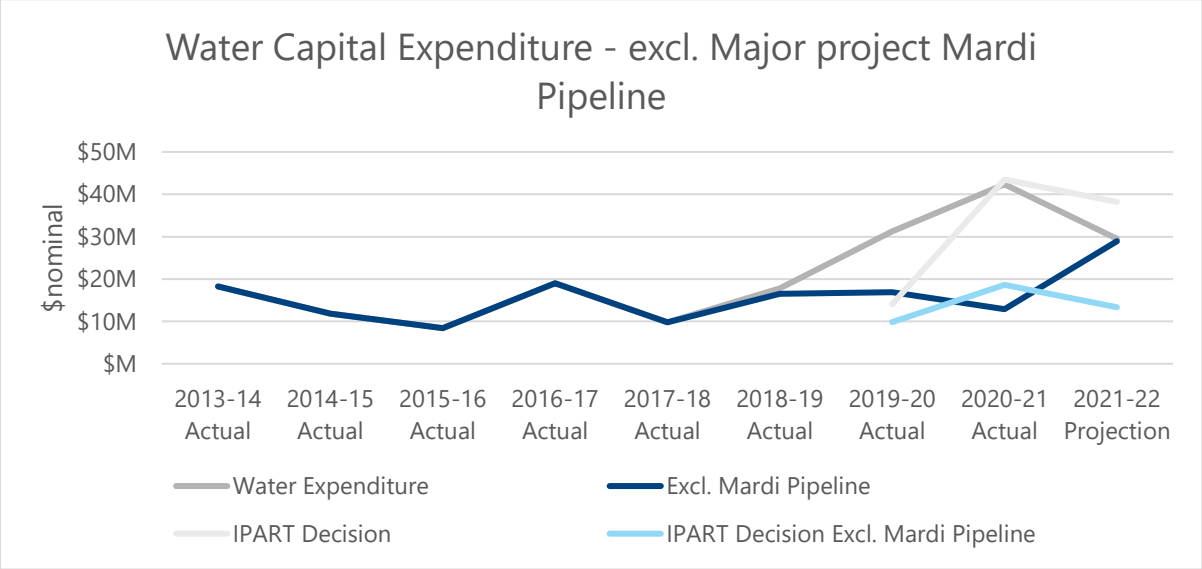

Figure 15: Annual water capital expenditure excluding Mardi to Warnervale Pipeline

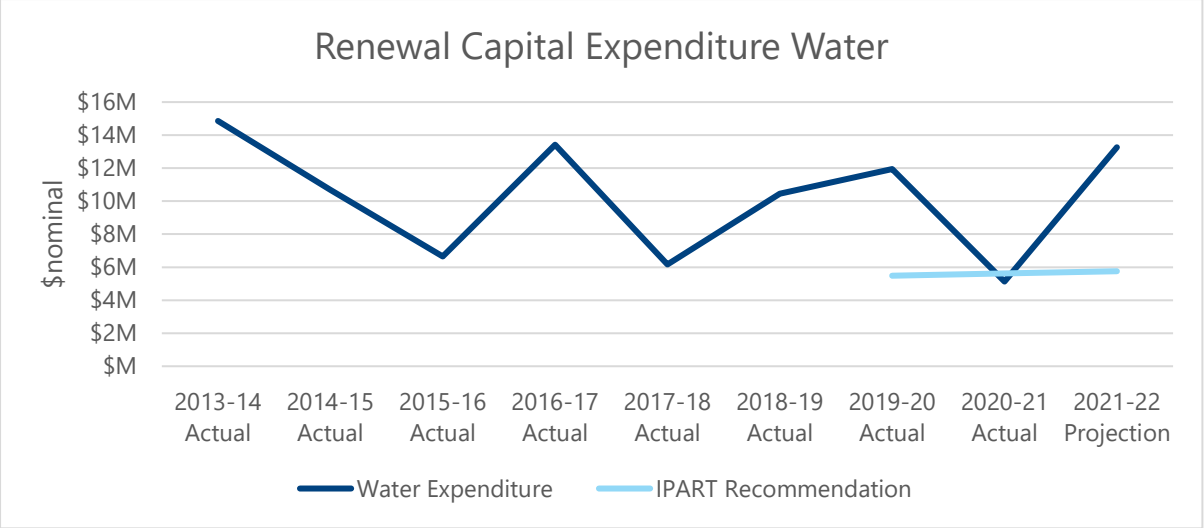

Figure 16: Comparison of water renewal capital investment to IPART allowance

Water projects are categorised by IPART drivers which justifies why the expenditure was required. Water projects are mainly driven by existing mandatory standards which improve the reliability of assets to ensure compliance with existing mandatory standards. This includes Australian Drinking Water Guidelines, growth funded generally by developer contributions to meet the requirement of new customers or increase requirements of existing customers and asset and service reliability required for mainly asset renewals and additional new assets to meet service levels.

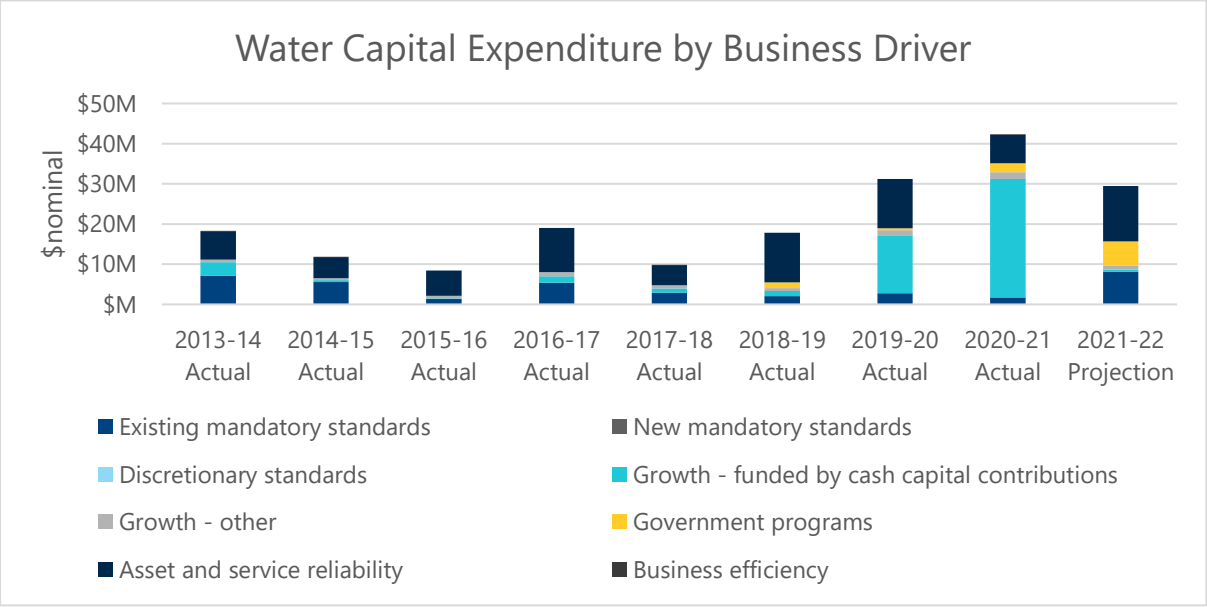

Figure 17: Water investment by business driver

5.4 Sewer Expenditure

Council expects to invest $77.5M for the provision of sewerage services in the current price period. This is $1.6M (2.1%) above IPART's 2019 allowance (see table and figure below).

Table 11: Sewer expenditure 2019 determination

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Sewerage Expenditure					
Council's Proposal	39.7	35.1	43.8	118.6	121.5
IPART Decision	24.3	25.9	27.3	77.6	79.4
Actual Expenditure	22.5	17.2	35.9	75.5	77.1
Allowance Variance ($)	1.8	8.8	-8.6	2.1	2.4

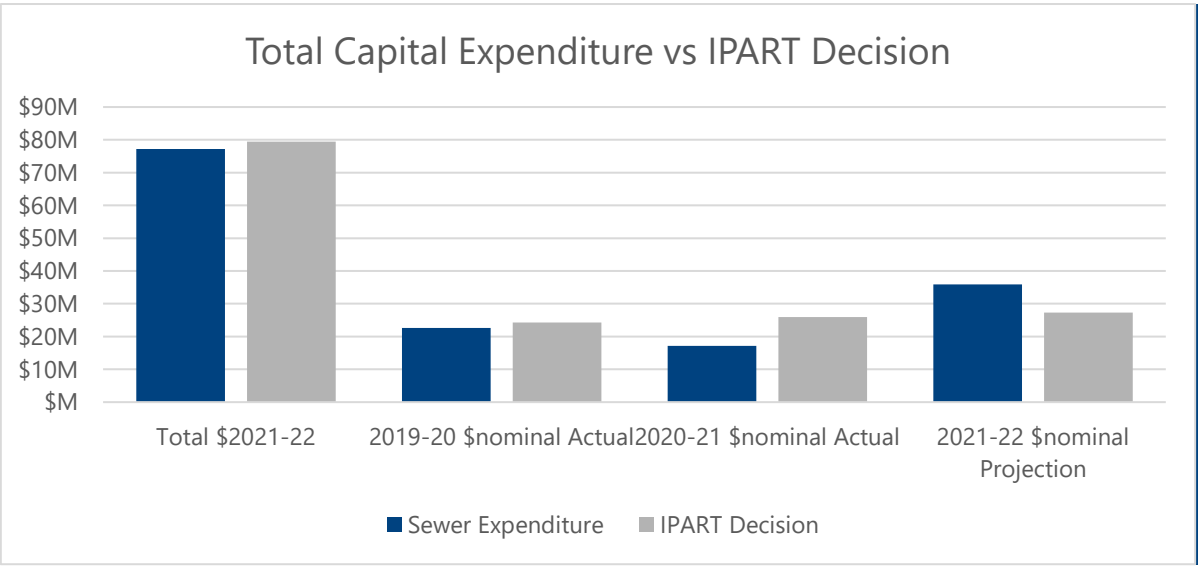

Figure 18: Comparison of sewer capital expenditure to IPART allowance

IPART recommended a 34.5% reduction in Council's proposed sewer expenditure over the 2019 determination period. IPART did not make any individual recommendations or re-profiling of specific sewer projects but instead outlined a lack of available condition assessment information to support the proposed increasing in renewal expenditure. Council has been able to reprioritise its proposed program to meet IPART's recommended level of sewer expenditure while also undertaking several targeted condition assessment programs to inform the next determination.

A summary of capital expenditure for major projects is provided below in Table 12 with additional commentary provided below the Table.

Table 12: Capital expenditure for major sewer projects

$M	2019-20	2020-21	2021-22	Total	Total	Type	Driver
	$nominal	$nominal	$nominal	$nominal	$2021-22		
Sewerage Expenditure							
Sewer Pump Station Upgrade - Toukley Catchment (TO1, TO06, TO9)	1.0	4.2	3.0	8.2	8.4	Upgrade	Growth - funded by cash capital contributions
Sewer Infrastructure Reinforcements - Gosford CBD	1.4	0.4	5.8	7.6	7.6	Upgrade	Government programs
Water and Sewer Infrastructure - Warnervale Town Centre	0.9	1.0	4.2	6.1	6.2	New and Strategic	Government programs
Sewer Pump Station Upgrade - Cadonia Rd Tuggerawong (TO19)	0.2	1.4	0.4	1.9	2.0	Upgrade	Asset and service reliability

Sewage Pump Station Upgrade - Toukley Catchment (TO1, TO06, TO9)

These sites were identified for upgrades as part of a prioritisation program for Sewage Pumping Station refurbishment and capacity upgrades which included condition assessment by various disciplines. It was established that these stations required refurbishment and upgrades to address capacity, civil, mechanical and electrical deficiencies and to reduce OH&S maintenance risks at each station.

It was determined that efficiencies could be gained by packaging three stations into a single tender. The outcome was to gain better efficiencies through reducing the effort during the tender process as less repetitive and ensure consistency of resources, design approach and construction practices. This in turn allowed for more streamlined client- side project management and construction supervision to manage the project.

Gosford CBD and Warnervale Town Centre Sewer

Council sought funding from the Housing Acceleration Fund (HAF) for water and sewage infrastructure for Gosford CBD and the new Warnervale Town Centre development. The HAF program is administered by the Department of Planning, Industry and Environment together with Infrastructure NSW and NSW Treasury for the purpose of funding critical infrastructure

projects which help accelerate the delivery of housing. Projects funded under the HAF include transport, water, sewer, stormwater drainage and community infrastructure. Detailed funding information is tabled in Appendix 11.4

Warnervale Town Centre

Warnervale Town Centre is located 6km to the north of Wyong within the district of Warnervale-Wadalba. It is a greenfield development comprising a mixture of existing and proposed residential, retail and commercial development.
This project will act as a catalyst for residential and commercial development in the Warnervale Town Centre development, thereby accelerating housing affordability and choice.
The proposed project involves water and sewage projects in the Warnervale Town Centre site. These projects will provide water and sewage services to the dwellings and commercial units to be built on the Warnervale Town Centre site.

The proposed infrastructure consists of:

- Two new sewage pump stations (SPS)
- Two new sewage mains to convey flows to the existing sewage network to the South of the site
- Two sewage railway under bores for gravity sewer mains to service the western most portion of the Warnervale Town Centre
- Water Distribution pipework to service the Warnervale Town Centre
- A Water rail under bore to service the western most portion of the Warnervale Town Centre

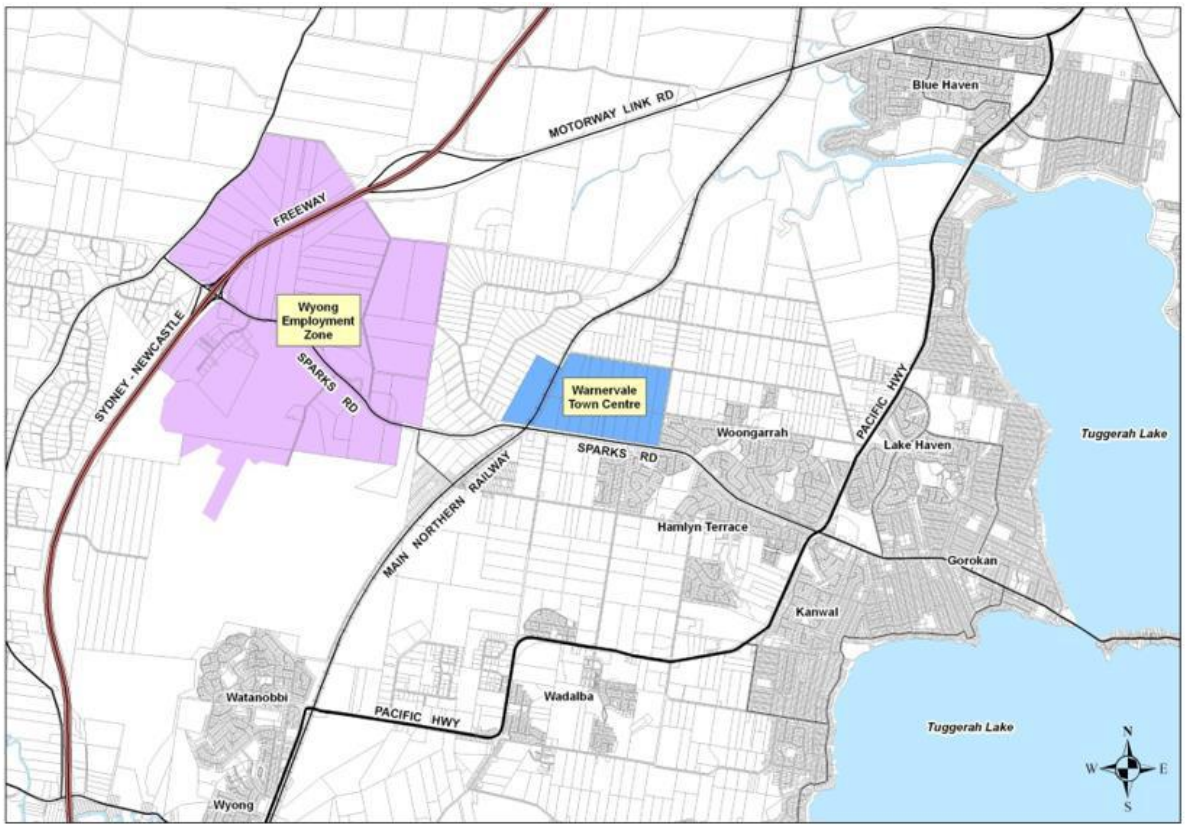

Figure 19: Map Warnervale Town Centre

Gosford Sewer CBD

Gosford is the major commercial and administrative centre for the Central Coast region and is located 80 kilometres north of the Sydney CBD. The Central Coast region is the third largest urban area in New South Wales after Sydney and Newcastle. The population of the Gosford Central District was 20,800 in 2018 out of a Central Coast population of 342,000. The Gosford Central District provides access to key population services, including:

- Gosford Hospital
- Several high schools and a TAFE
- Sporting and entertainment grounds
- Strong transport links, including the Sydney-Newcastle Freeway, the Central Coast Highway, the Pacific Highway and the Sydney-Newcastle railway line

The proposed project involves 21 sewer projects in the Gosford CBD identified in the Sewer Servicing Strategy for Gosford City Centre (2017). These sewer projects will accommodate population growth in Gosford CBD and address wet weather performance risks. These wet weather risks involve the potential for untreated sewage to overflow from maintenance holes or other structures during storm events.

The package of 21 projects includes:

- Approximately 6km of sewer main, including railway underbores.
- Two new sewage pumping stations

The Gosford Hospital was expanded in 2018 and is a key project to revitalise the Gosford CBD. Due to the critical need to accommodate increased flows from the Gosford Hospital upgrade and surrounding residential development, Council has progressed the construction of two individual sewerage projects. These projects are included in this funding proposal and will act as a catalyst for the revitalisation of Gosford CBD by facilitating large scale residential and commercial development.

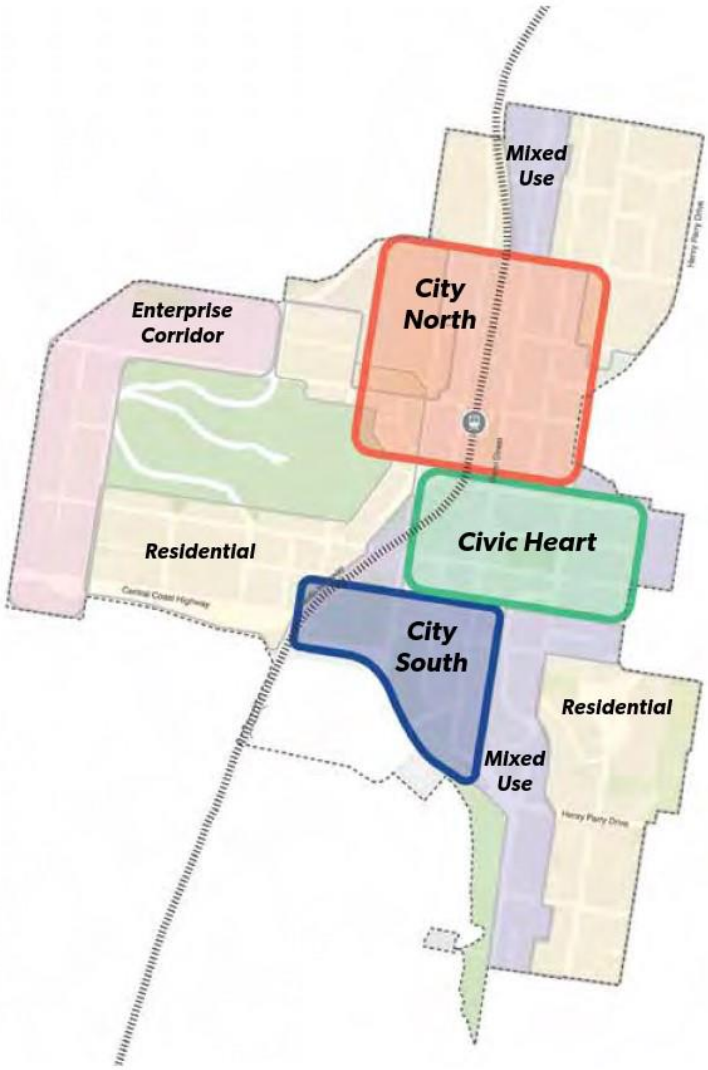

Figure 20: Map Gosford CBD

Sewage Pump Station Upgrade - Cadonia Rd Tuggerawong (TO19)

The site was identified for an upgrade as part of a prioritisation program for Sewage Pumping Station refurbishment and capacity upgrades which included condition assessment by various disciplines: fitters, electricians, pump station operators and planning engineers. It was established that the station required:

- New wet well with submersible pumps and external valve pit
- Realigned gravity pipework and manholes leading into new station
- New chemical dosing unit, bunded pavement and connections/associated works
- New switch room building
- New concrete driveway and turning bay
- Section of realigned rising main and new connection
- Construct overflow structure
- Demolish existing station and remove all the old infrastructure

Figure 21 provides an overview of sewer expenditure by asset category.

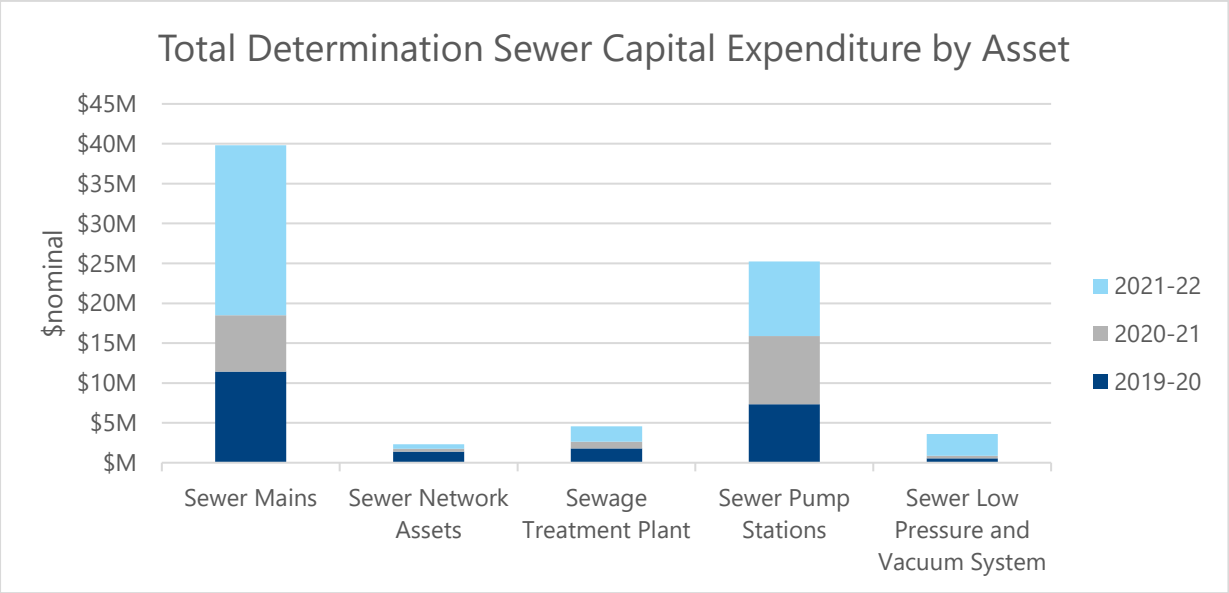

Figure 21: Expenditure by asset category

5.4.1 Sewer Renewals

Table 13: Sewer renewal expenditure

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Sewer BAU Renewals					
Council's Proposal	32.6	25.5	32.0	90.1	92.4
IPART Decision	18.2	18.7	19.2	56.1	57.5
Actual Expenditure	15.3	8.7	16.9	40.9	41.9
Allowance Variance ($)	3.0	10.0	2.3	15.2	15.6

Major Sewer renewal programs undertaken during the determination were:

Sewer gravity main relining $16.9M

Council has renewed approximately 38 km of sewer gravity mains from July 2019 to June 2021, with an estimated forecast of 20 kms to be renewed in 2021-22 financial year. The typical annual investment for sewer main relining has increased from the previous determinations from around $3M per annum, to an average of $5.7M per annum.
The main drivers for these investments are Asset and Service Reliability, largely due to Council's ageing infrastructure and Existing and New mandatory standards to comply with the EPL licenses and NSW EPA pollution prevention program requirements. In November 2019 EPA conditioned Pollution Reduction Program 7 (Investigation and Improvement Works for the Terrigal Sewerage Reticulation System) into EPL 1802.

The purpose of the program was for Council to investigate all potential sources of sewage contamination in the Terrigal Catchment from the sewerage reticulation system and connections to this system, prioritise actions for addressing all potential sources of sewage contamination in the Terrigal Catchment and implement a program of works to repair or replace those parts of the sewerage reticulation system. Council identifies sewer gravity mains for renewal based on asset performance, repeated sewage main chokes and overflows and asset condition assessment results, following Council's sewer gravity main renewal prioritisation criteria utilising water industry best practice guidelines and codes. The typical annual investment for sewer main relining has increased from the previous determinations from around $3M per annum to an average of $5.7M per annum.

Sewage Pump Station Renewals $6.1M

Council has a rolling program for sewage pump station renewals, which addresses mechanical, civil and electrical deficiencies in the asset following the 2019 sewage pumping station comprehensive condition assessment program. In the 2019 determination, Council will have completed the refurbishment of 10 pump stations and commenced preliminary

planning and scoping of a further 10 stations to be refurbished in the upcoming determination period.

Sewer Mechanical and Electrical Replacements $6.8M

The mechanical replacement program has been focused on replacing or refurbishing failed sewage pumps to return back into service, increasing the operational contingency of individual pump stations and thus the resilience of the overall sewer reticulation network. The catalyst for these works has been pump station alarms, indicating a failure or performance deficiency.

The electrical replacement program has been primarily driven by the 2019 condition assessment audit that was undertaken on Council's sewage pump stations. It was identified that a number of sites have high WHS risk due to potential contact with live terminals while conducting breakdown or preventive maintenance activities. Another area that was highlighted was the reliability of some switchboards due to their age. Sites selected for renewal were identified as not meeting minimum safety standards and/or were more than 25yrs old with Council no longer being able to source available spare parts because manufacturer's support no longer exists.

Other sites were selected due to Environmental Protection directives where all sewage pump stations need to have the ability to alert of potential sewage overflows. These sites typically did not have control systems or software that can perform this function and were required to undergo upgrades for compliance.

Critical Sewer Rising Main Renewals $3.5M

Council has a program for sewer rising main renewals based on asset performance and condition assessment results. In 2020, Council adopted the Pressure Mains Risk and Criticality analysis framework which governs the asset intervention including proactive and reactive renewals. The main drivers for these investments are Asset and Service Reliability which are largely due to Council's ageing infrastructure and compliance with EPA issued Environmental Protection Licences for sewage treatment processing. Council has received a letter from the EPA (Central Coast Wastewater Management Issues - Program of Works and Priorities) listing critical action/ works necessary to ensure compliance with Protection of the Environment Operations Act 1997, this identified pressure main upgrades and replacement to be of high priority:

- Sewer Rising Main partial replacement - Crystal St / Central Coast Highway, Forresters Beach (FB1): This rising main experienced a failure in 2019 resulting in a large sewage overflow into a SEPP wetland prompting an EPA enforceable undertaking. Condition

assessment of the main determined a 600m section of the rising main will require replacement. This main replacement was committed to the NSW EPA as part of the enforceable undertaking process. Council has completed the concept design for the replacement of the majority of the main in conjunction with Transport for NSW medium term plans to relocate the main as part of the Highway Upgrade. Construction is expected to be completed in 2021-22.

- Sewer Rising Main partial replacement - Mannering Park (MP06): This rising main experienced several recent failures within a 300m section, triggering a partial main replacement. The concept and detail design is complete and construction completion is expected by 2021-22.
- Sewer Rising Main partial replacement - Koowong Road, Gwandalan (GW02): This rising main experienced several recent failures within a 200 m section, triggering a partial main replacement. Concept design is complete, with construction completion expected by 2021-22.
- Sewer Rising Main partial replacement - Maitland Bay Dr, Ettalong Beach (E02): This rising main experienced several recent failures within a 500m section, triggering a partial main replacement. Concept and detail designs are being completed, with construction completion expected by 2021-22.
- Sewer Rising Main partial replacement – Bungary Road, Norah Head (TO08A): Sewer rising main and gravity main diversion given sewer system capacity constraints leading to repeated sewage overflows. This project involves the partial replacement/diversion of a 210m length of the rising main, as well 820m of sewer gravity mains. Concept and detail design are complete and construction completion is expected by 2021-22.

The remainder of BAU renewals are typically smaller value (<$500k) projects and programs initiated to address asset service deficiencies or for the replacement of failed assets.

Table 14: Sewer renewal expenditure by asset category

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Water Minor Asset Renewals					
Sewage Pump Stations	0.4	0.0	0.0	0.4	0.5
Sewage Treatment Plant	1.0	0.0	0.4	1.4	1.5
Sewer Mains	0.6	0.2	2.2	3.0	3.0
Sewer Network assets	0.8	0.0	0.0	0.8	0.9
TOTAL	**2.9**	**0.2**	**2.6**	**5.7**	**5.9**

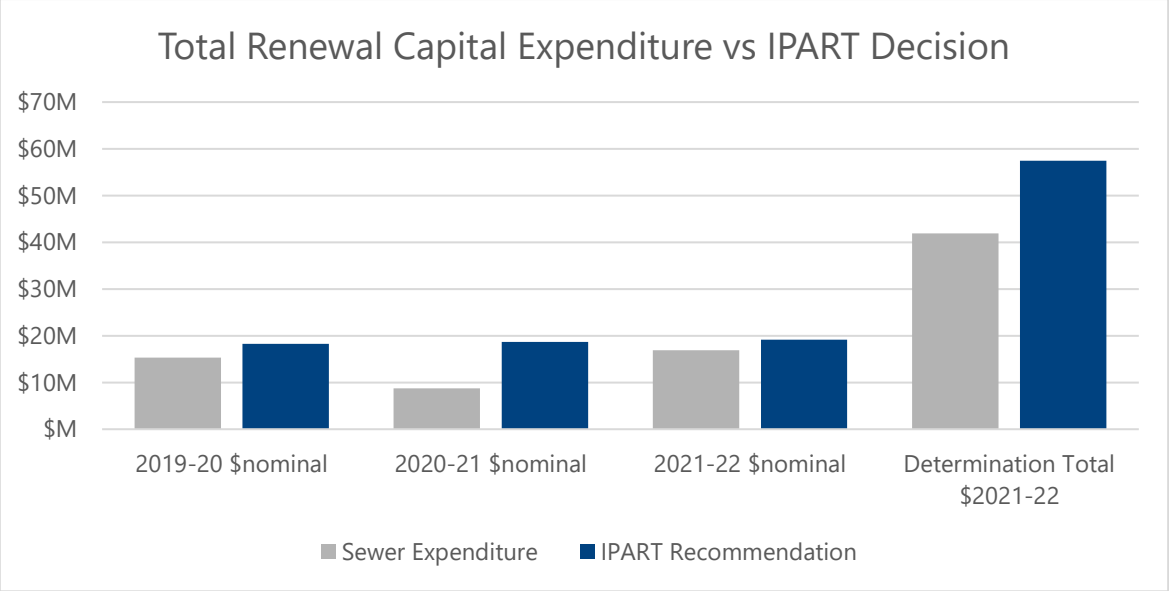

Figure 22: Comparison of sewer IPART allowance to expenditure per each year

Council had a slightly lower investment in sewer renewals compared to IPART's recommendation for the 2019 determination. The reduction in 2020-21 is attributed to required reductions in overall Council expenditure as outlined in the next section. Over the determination period the reduced expenditure on Charmhaven STP upgrade is also shown to have had a material impact.

5.4.2 Sewer Expenditure Trends

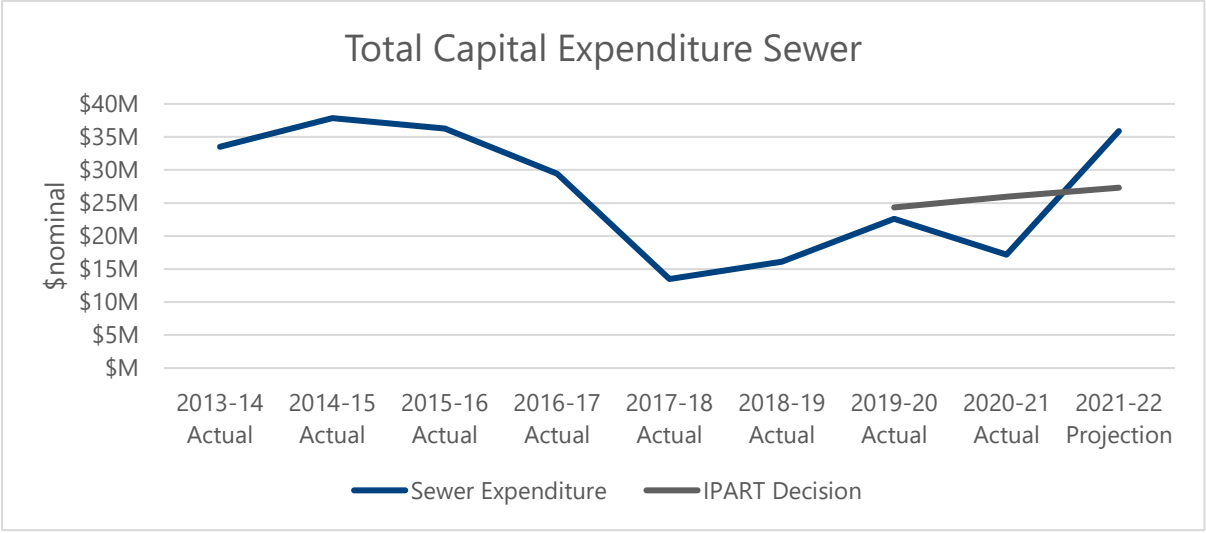

Figure 23: Total historical sewer expenditure

Sewer capital expenditure has seen a decrease in the 2020-21 financial year. This was largely due to Council's financial crisis. The sewer capital program had an initial operational plan budget of $27.2M for the 2020-21 financial year. Many sewer projects scheduled for this period were still in pre-contract phase at the time of Council's budget reduction. As these

projects were not committed, construction activities were required to be deferred to ensure delivery of projects that were already underway and the deferral of these projects to 2021-22 explains the forecast increase in expenditure for this year. On average, Council's annual investment is $25.8M, which is consistent with IPART's recommendation for the 2019 determination period.

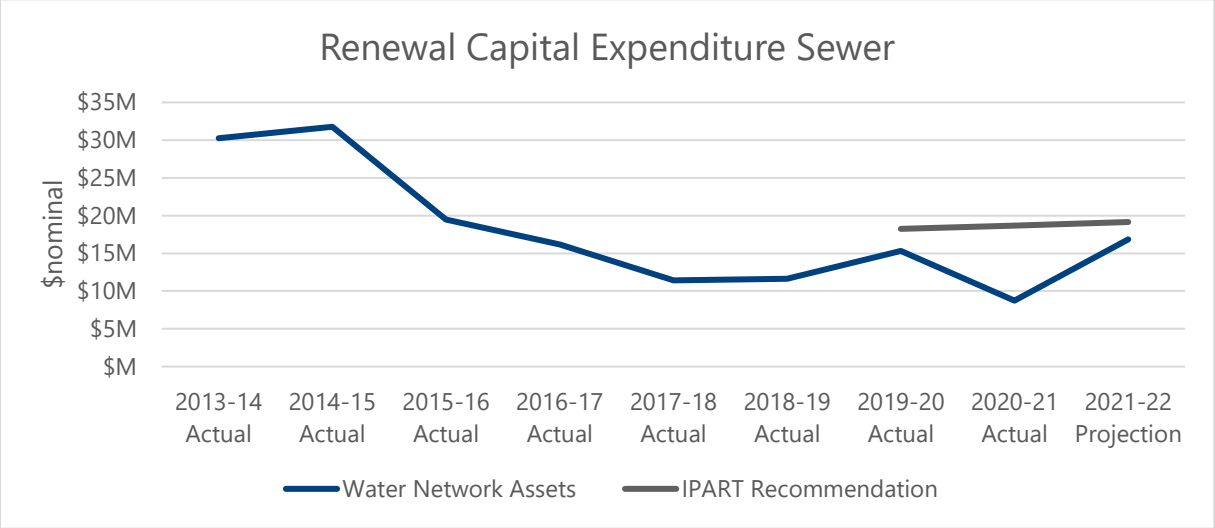

Figure 24: Historical sewer renewal expenditure

Due to the corporate expenditure cap, Council has been required to defer $12.3M of sewer renewal projects to occur in the 2022 determination period. Council will monitor and review the risk and criticality rating of all deferred projects.

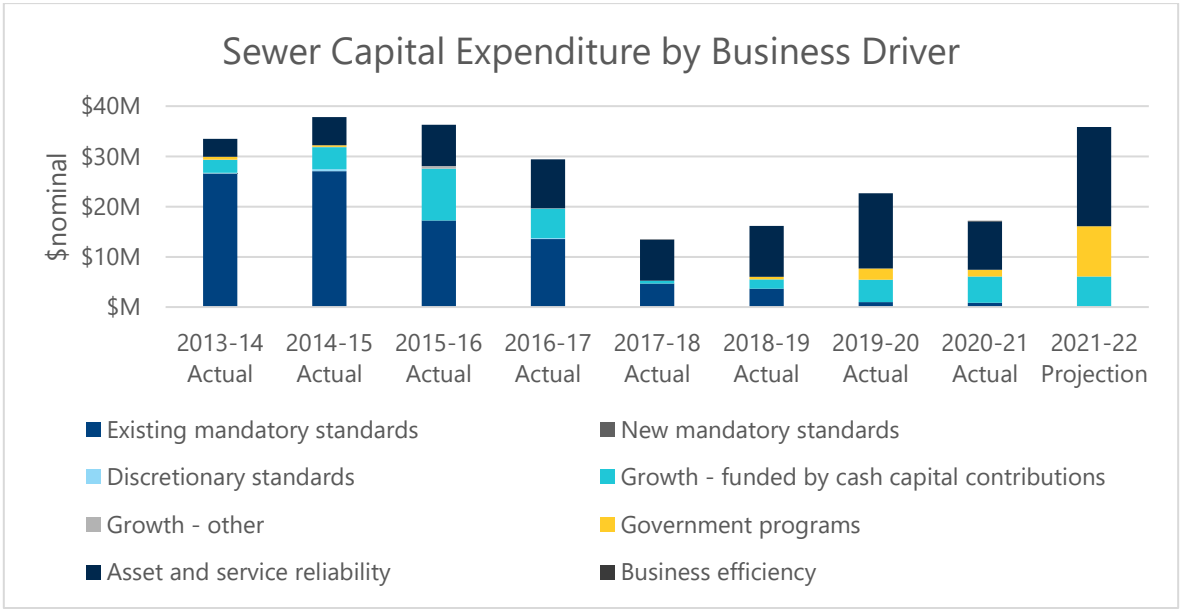

Figure 25: Historical sewer expenditure by driver

Sewer projects are categorised by IPART drivers, which justifies why the expenditure was required. Council's investment in sewer projects has predominantly been to improve the reliability of assets or to ensure compliance with existing mandatory standards, such as the environmental factors. Council has also seen a moderate investment in growth driven projects which are generally funded by developer contributions to meet the capacity requirements of additional new customers or increased demand requirements for existing customers.

5.5 Stormwater Drainage Expenditure

The table below summarises the stormwater drainage capital expenditure outcome from the last determination and compares Council's performance to date against the same.

Table 15: 2019 Determination - Stormwater drainage capital expenditure and budget

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Stormwater Drainage Expenditure					
Council's Proposal	10.4	10.6	11.1	32.1	32.9
IPART Decision	9.8	9.8	9.1	28.7	29.4
Actual Expenditure	9.6	6.2	11.4	27.1	27.8
Allowance Variance ($)	0.2	3.6	-2.3	1.5	1.6

As highlighted above, the last determination resulted in a 10.9% reduction in Council's proposed stormwater drainage capital expenditure, equating to $3.4M over the current period. Although no specific reference was made to individual stormwater drainage projects, improvements were recommended in relation to forecasting of asset renewal requirements. As such, Council's proposed renewal program was reduced in line with the outcome.

Figure 26 highlights the variance between Council's actual or planned expenditure against the expenditure approved in the last determination.

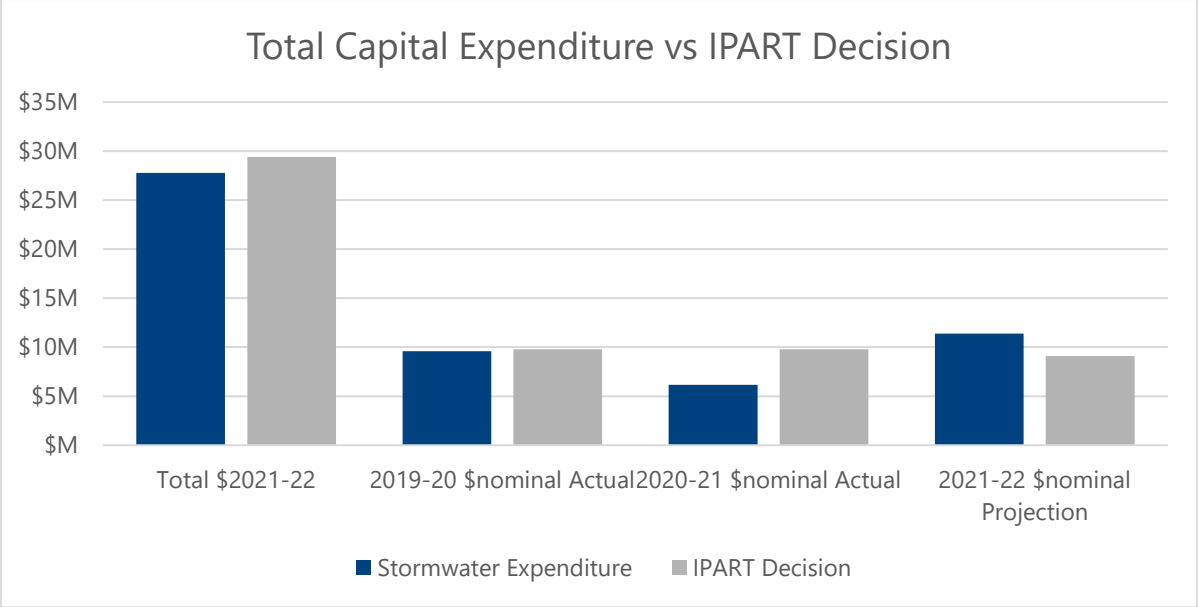

Figure 26: 2019 Determination - stormwater drainage expenditure vs IPART decision

The figure demonstrates a variance of $200,000 in 2019-20. This under-expenditure was planned to offset the reduction in stormwater drainage revenue forecast from delays in obtaining a new Drainage Area declaration. Council's revenue forecast for the last determination assumed a new Drainage Area would be declared, which would generate approximately $200,000 from properties west of the M1 in the former Wyong Council local government area. As this did not proceed, an offset reduction was made to the capital program.

A more significant variance is noted in both 2020-21 and 2021-22. This is related to Council's Financial Recovery Plan which required a reduction in capital expenditure in 20-21 as part of Council's immediate response to the situation. A corresponding increase has been planned in 2021-22 to ensure Council delivers on its stormwater drainage capital commitments over the current period.

The overall $0.9M variance in capital expenditure over the current period, is a result of new grant funding accepted since the 2019 determination came into effect. This grant funding was not known at the time of the last IPART submission.

5.5.1 Stormwater Drainage Upgrades

The top three stormwater drainage projects undertaken during the 2019 determination period are presented below.

Table 16: 2019 Determination – Drainage Upgrades at Louisiana Road, Warnervale

$M	2019-20	2020-21	2021-22	Total	Total	Type	Driver
	$nominal	$nominal	$nominal	$nominal	$2021-22		
Louisiana Road, Warnervale – Drainage Upgrades ($M)	0.5	1.6	2.5	4.6	4.6	Upgrade	Growth - funded by contributions

The above project involved the upgrade of two flood ways in Louisiana Road, Warnervale to support growth and development planned in the area and to mitigate the impact on existing customers. The first upgrade, between Rushmore Place and Clinton Way, was completed in 2019-20 and involved the construction of nine 2100mm wide by 1200mm high box culverts as well as associated creek widening, restoration and tie-in works. The second upgrade between Warnervale Road and Gleeson Parade is underway and forecast for completion in 2021-22.

Both project locations were strategically identified via growth planning and floodplain modelling, undertaken in support of the Warnervale Drainage Development Contribution Plan and as such, both have been partly funded by Developer Contributions. Following completion of the detailed design for the second floodway, Council was successful in obtaining State Voluntary Planning Agreement funding for part of this project.

Table 17: 2019 Determination – Drainage Upgrade at Avoca Drive, Avoca

$M	2019-20	2020-21	2021-22	Total	Total	Type	Driver
	$nominal	$nominal	$nominal	$nominal	$2021-22		
Avoca Drive, Avoca - Drainage Upgrade ($M)	0.4	0.1	1.4	1.9	1.9	Upgrade	Asset and service reliability

This ongoing multi-year project was strategically identified via the Avoca Bowl Catchment Study. The project involves progressively upgrading and expanding the existing drainage network from the foreshore back into the 'Avoca Bowl' to ensure that this popular residential and commercial precinct can continue to operate, grow and function as planned.

During the 2019 determination period, Council will have completed the stormwater drainage upgrade from the foreshore to Burns Street including construction of the ocean outlet. This complex project had to be delivered outside seasonal tourism peaks and involved management of significant environmental, heritage and utility constraints. The project was impacted by Council's financial situation which resulted in deferral of the 2020-21 stage of work.

Additional works are planned in the next determination period to complete this priority project, including further expansion and upgrade of the stormwater drainage system as well as the raising of surface levels to prevent flooding and support planned development.

Table 18: 2019 Determination – Drainage Upgrade at Eloora Road, Long Jetty

$M	2019-20	2020-21	2021-22	Total	Total	Type	Driver
	$nominal	$nominal	$nominal	$nominal	$2021-22		
Eloora Road, Long Jetty - Drainage Upgrade ($M)	1.5	0.0	0.0	1.5	1.6	Upgrade	Asset and service reliability

This multi-year project was strategically identified via the stormwater drainage catchment studies and engineering investigations due to flooding of adjacent properties in multiple locations. The projects involved upgrading the existing drainage network to increase the capacity of the existing drainage system and to manage stormwater surface runoff to ensure it enters the drainage system in a controlled manner.

During the 2019 determination period, Council completed stormwater drainage works in Eloora Road between Koonah Avenue and Boomerang Road at Long Jetty. These works completed the stormwater drainage catchment upgrade which commenced in the preceding determination period.

5.5.2 Stormwater Drainage Renewals

The table below summarises the stormwater drainage renewal expenditure outcome from the last determination and compares Council's performance to date against the same. The values in the table are from the Atkins Report recommendations.

Table 19: 2019 Determination – stormwater drainage renewal expenditure and budget

$M	2019-20	2020-21	2021-22	Total	Total
	$nominal	$nominal	$nominal	$nominal	$2021-22
Stormwater BAU Renewals					
Council's Proposal	3.4	3.3	4.2	10.8	11.1
IPART Decision	3.1	3.2	3.2	9.5	9.7
Actual Expenditure	3.2	2.2	2.7	8.2	8.4
Allowance Variance ($)	-0.1	1.0	0.5	1.3	1.4

As highlighted above, the last determination resulted in a 12.2% reduction in Council's proposed stormwater drainage renewal expenditure, equating to $1.3M over the current

period. Although IPART made no reference to individual stormwater drainage renewal projects, the proposed renewal program was reduced accordingly.

The top three stormwater drainage renewal projects undertaken during the 2019 determination period are presented below.

Table 20: 2019 Determination – Drainage Renewal in the Everglades Catchment, Woy Woy

$M	2019-20	2020-21	2021-22	Total	Total	Type	Driver
	$nominal	$nominal	$nominal	$nominal	$2021-22		
Everglades Catchment, Woy Woy - Drainage Renewal ($M)	0.9	0.1	0.9	1.9	1.9	Renewal	Asset and service reliability

This ongoing multi-year project was strategically identified via the Everglades Catchment Study, Woy Woy Floodplain Risk Management Plan and Woy Woy Peninsula Contribution Plan. The project involves progressively renewing the existing stormwater drainage network in the catchment to ensure that this key growth area can continue to function as planned. The existing pipe network has been inspected and confirmed as requiring replacement.

During the 2019 determination period, Council will have completed trunk drainage renewals from Shepard Street to Carpenter Street, Lovell Road to the Brisbane Water Secondary College and localised works in Mackenzie Avenue. Prior to these works the catchment, which includes highly trafficked collector roads, schools and medium density residential development, was flooded on a recurrent basis with access to the school and nearby hospital regularly impacted.

Additional works are planned in the next determination period to further mitigate flooding, support flood free access and improve the customer experience.

Table 21: 2019 Determination – Drainage Outlet Renewals

$M	2019-20	2020-21	2021-22	Total	Total	Type	Driver
	$nominal	$nominal	$nominal	$nominal	$2021-22		
Ocean Parade, The Entrance - Drainage Outlet Renewal ($M)	0.2	0.4	0.0	0.6	0.6	Renewal	Asset and service reliability
Kalakau Avenue, Forresters Beach - Drainage Outlet Renewal ($M)	0.0	0.0	0.5	0.5	0.5	Renewal	Asset and service reliability

These two stormwater drainage renewal projects were identified via proactive drainage condition inspections and engineering investigation. The stormwater drainage outlets, which are on high profile and highly accessible tourist beaches, were confirmed as being in very poor condition and at risk of failure with the potential to result in untenable public safety risks and significant foreshore erosion.

5.5.3 Stormwater Drainage Expenditure Trends

Since 2015, Council's investment in stormwater drainage capital works has remained relatively stable, with programs ranging from $8M-$10M depending on the amount of grant funding.

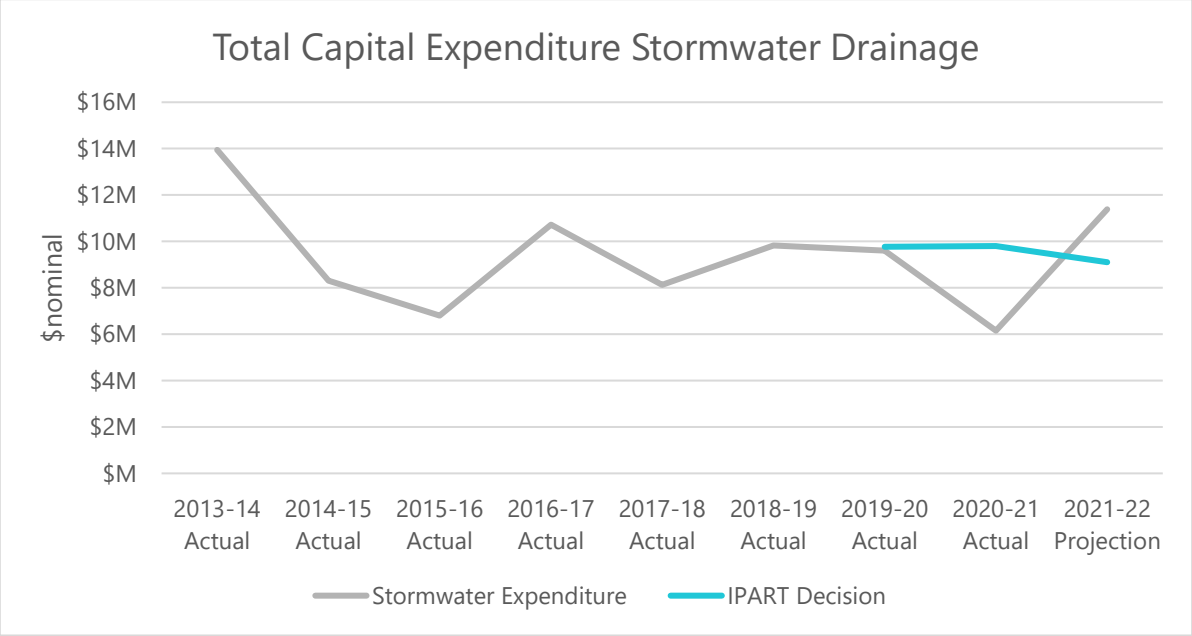

Figure 27: Stormwater drainage expenditure trends

A significant variance from the total approved stormwater drainage expenditure is noted in both 2020-21 and 2021-22. This is related to Council's Financial Recovery Plan which required a reduction in capital expenditure in 2020-21 as part of Council's immediate response to the situation. A corresponding increase has been planned in 2021-22 to ensure Council delivers on its stormwater drainage capital commitments over the current period.

The following table presents Council's stormwater drainage renewal investment since 2013. The renewal trend is much less consistent with expenditure peaks coinciding with major stormwater drainage renewal projects.

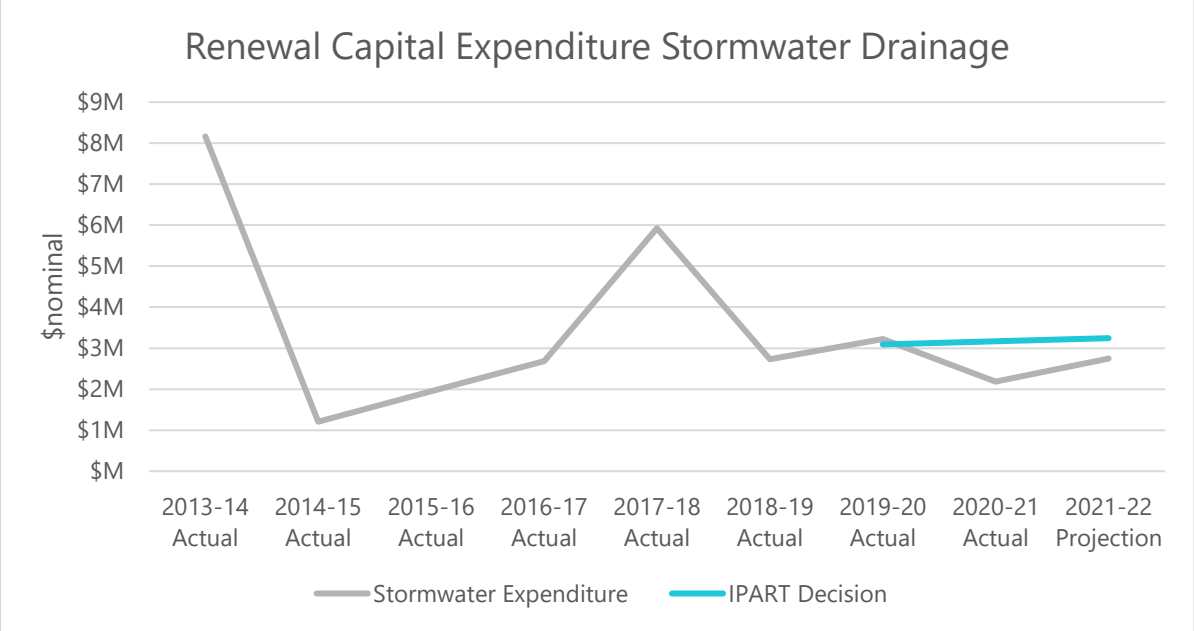

Figure 28: Stormwater drainage renewal expenditure trends

Council has listened to IPART's feedback and made significant improvements in how it identifies, prioritises and plans for stormwater drainage renewals, using physical condition assessments and itemising individual renewal projects as part of the next determination. An increase in proactive stormwater drainage condition assessment, to further improve longer-term planning, has also been proposed.

Based on the age of the stormwater drainage network and recent condition assessment results, it is forecast that the expenditure trend will increase and become more consistent across the next two determinations.

The next table explores stormwater drainage investment by IPART Business Drivers. The table demonstrates that most of the Stormwater Drainage Capital Works Program is driven by Asset Service and Reliability considerations. It is forecast that this will remain the case, although the proportion driven by Growth is forecast to increase as Council delivers the stormwater drainage infrastructure required to meet Regional growth targets.

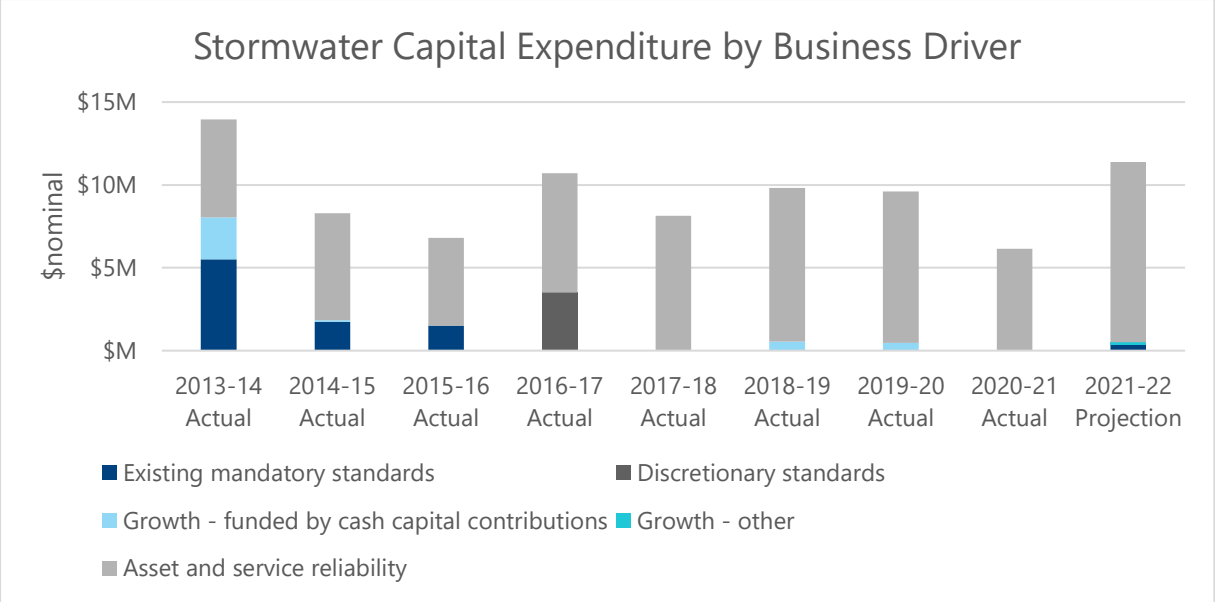

Figure 29: Stormwater drainage investment driver trends

5.6 Output Measures for the current price period

Table 22 shows the additional output measure for the Central Coast Council IPART determination 2019.

Table 22: Additional output measures for the Council's 2019 Determination

Output measure	Output	Status
Water		
Project milestone: Mangrove Creek Spillway Dam Upgrades	Mangrove Creek Spillway Dam Upgrade project to be 100% complete by 30 June 2024	Investigations complete, alternative more cost-effective
Project milestone: Mardi to Warnervale Trunk Main	Mardi to Warnervale Trunk Main project to be >75% complete by 30 June 2024	Project 100% complete ahead of schedule
Sewerage		
Project milestone: Charmhaven STP	Charmhaven STP upgrades to be 100% complete by 30 June 2024	Minor delays due to alternative lower risk option being considered

Sources: Atkins Cardno, *Central Coast Council Expenditure Review*, March 2019, Table 6-3; and IPART analysis.

5.6.1 Mangrove Creek Dam Spillway Upgrade

Table 23: Output measure project Mangrove Creek spillway

$M - Real $2021-22	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Mangrove Creek Dam Spillway upgrade						
Council's Proposal	0.5	1.0	3.9	2.0	0.0	7.4
IPART Decision	0.5	1.0	2.7	2.7	0.5	7.4
Actual Expenditure	0.9	0.6	0.0	0.0	0.0	1.4
Allowance Variance ($)	-0.3	0.4	2.7	2.7	0.5	-6.0

Council had proposed to undertake capital upgrades to resolve a dam safety limitation that prevented Council filling Mangrove Creek Dam (MCD) beyond 80% Full Supply Level (FSL). They also undertook a comprehensive risk assessment of the operation of MCD in line with the requirements of Dams Safety NSW (Established Nov 2019), as outlined in the new Dams Safety Regulation 2019. Under this framework, Council (via its specialist Consultant) undertook a 'risk-based' approach to management of the dam as opposed to a 'standards-based' approach which is typically more conservative.

The revised assessment methodology (independently peer reviewed) revealed that Council can operate the dam at the original 100% Full Supply Level (FSL) without any further upgrade to the existing spillway structure. Additional capital works may be required in support of any future raising of the dam, however the risk of operation at 100% FSL is within the relevant risk-based threshold. The project objective of resolving the Spillway capacity constraint is now resolved, with the associated expenditure now an operational expense and not added to Council's Regulated Asset Base.

5.6.2 Mardi to Warnervale Pipeline

Table 24: Output measure project Mardi to Warnervale pipeline

$M - Real $2021-22	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Mardi to Warnervale Pipeline						
Council's Proposal	4.2	40.9	14.4	0.0	0.0	59.5
IPART Decision	4.2	24.9	24.9	4.1	1.4	59.5
Actual Expenditure	15.1	30.2	0.6	0.0	0.0	45.8
Allowance Variance ($)	-10.9	-5.3	24.3	4.1	1.4	-13.6

The Mardi to Warnervale Pipeline reached practical completion in mid-2021, with additional optimisation works continuing into early 2022.

5.6.3 Charmhaven Sewage Treatment Plant

Table 25: Output measure project Charmhaven Sewage Treatment P*lant*

$M - Real $2021-22	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Charmhaven Sewage Treatment Plant						
Council's 2018 Proposal	0.5	1.3	4.7	3.9	0.0	10.3
Actual Expenditure	0.4	0.1	1.2	0.0	0.0	1.8
Updated Forecast	0.4	0.1	1.2	4.5	7.7	14.0

The delivery of the main project elements has been delayed since Council's submission in 2018. Council has undertaken key early works at the site including rehabilitation of existing distribution mains. The main scope of works has however been delayed due to a change in preferred upgrade strategy and program deferrals due to Council's financial issues through 2020-21.

Council's previous strategy for the upgrade aimed at increasing aeration capacity within the existing two aeration tanks, deferring the cost of constructing the third tank. Council has since undertaken a constructability review and operational risk assessment that identified constraints that prevent this approach due to the already high load at the STP. Council's revised strategy reverts to the construction of a third aeration tank, prior to undertaking the required upgrades within the remaining two.

Council is currently preparing an Investigation and Design contract for the revised upgrade strategy and is seeking to combine this work with similar planned activities for Gwandalan STP. These works will progress during the next determination period, however it is unlikely the works will be 100% complete by 30 June 2024 as per IPART's existing output measure.

6 Capex portfolio for next price path

Council is proposing $313M of capital investment over the coming four-year price path. This is a 16% increase from the 2019 determination's annual average allowance of $67M to a forecast annual average of $78M

Councils first draft proposed 4-year program totalled an average of $104M per annum. This included mandatory projects already committed in the current determination, forecast BAU renewal works, rectifying identified defects withing the network, growth driven upgrades, grant funded works and a forecast for assets predicted to fail within the proposed determination period. Council performed further refinements and reprioritised its program, focusing on deliverability, risk of projects not proceeding, refinement of budget estimates and smoothing of expenditure over the period. This resulted in the revised program displayed in Figure 30.

Forecast expenditure represented in figure 30 for the 2026-27 financial year, is inclusive of a portion of projects that were required to be deferred from the forecast 2023 determination period. Project deferrals were undertaken to ensure the business remained within the corporate depreciation cap for annual expenditure. This is discussed further in section 7.2.5. Council will regularly review the risk and criticality of these deferred projects. As a result of the risk review process, it is likely that some projects will be re-prioritised, either being brought forward into the 2023 determination period or re-profiled further into the 2027 determination period. Council will address any reprioritisations in the future submission.

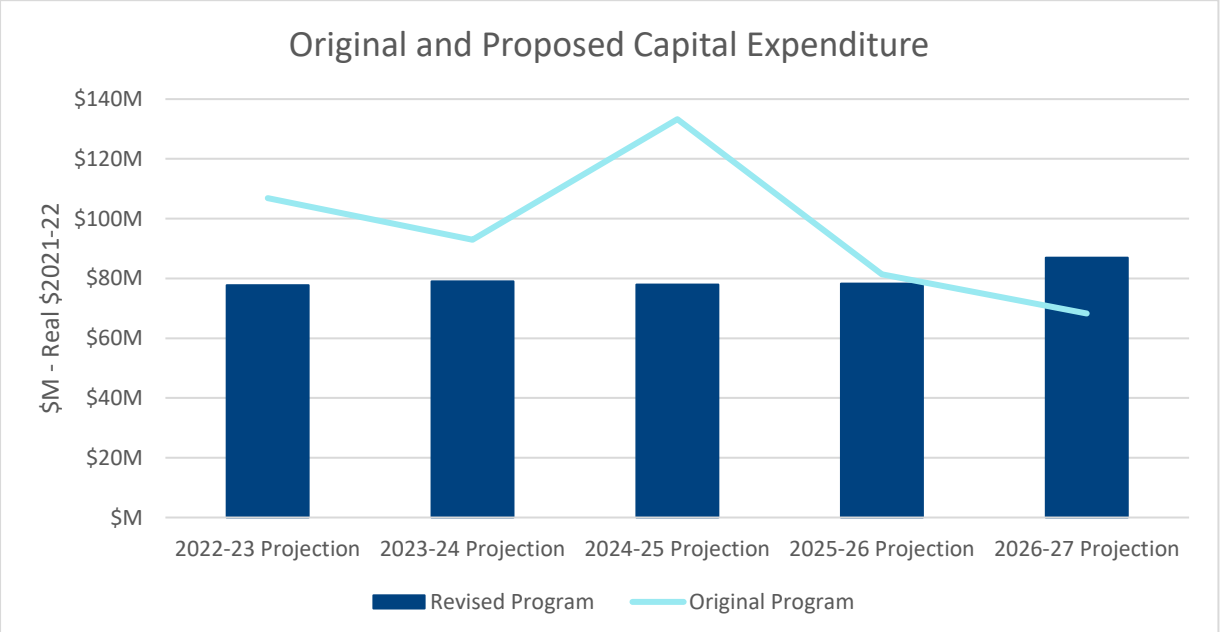

Figure 30: Original vs revised forecast capital

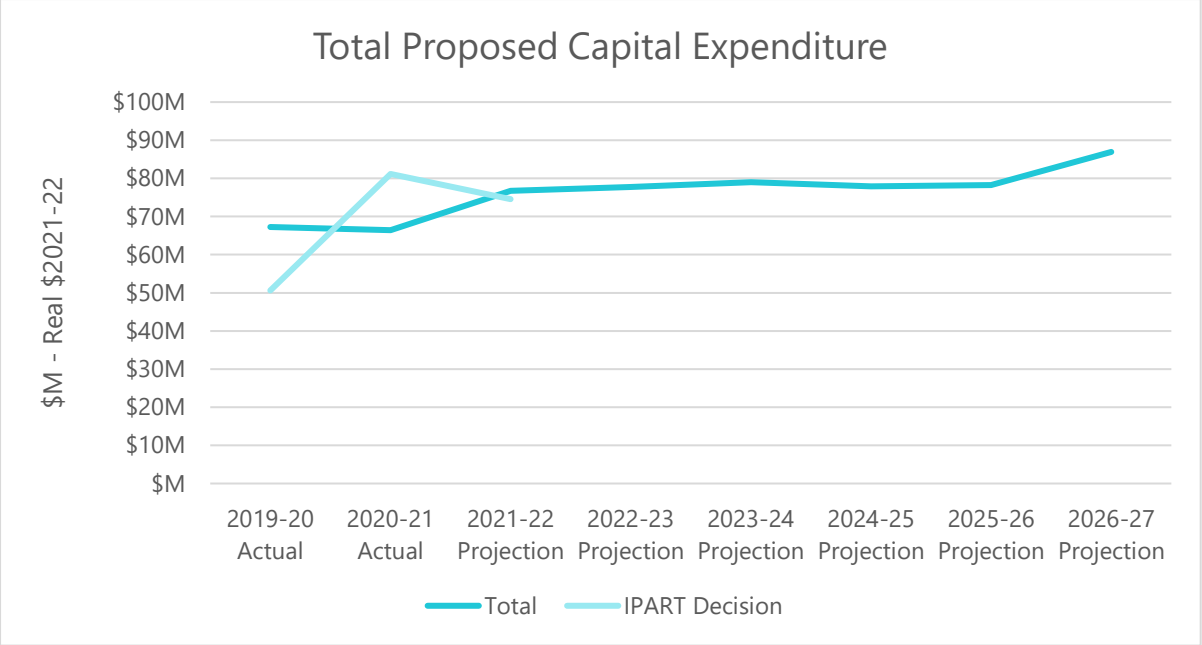

Figure 31: Total current and proposed expenditure

Council has investigated and developed strategies and investment plans to meet regulatory requirements and community expectations. The proposed investment aims to balance the competing challenges of maintaining affordable customer bills, while appropriately managing risks and realising appropriate strategic outcomes.

6.1 Water

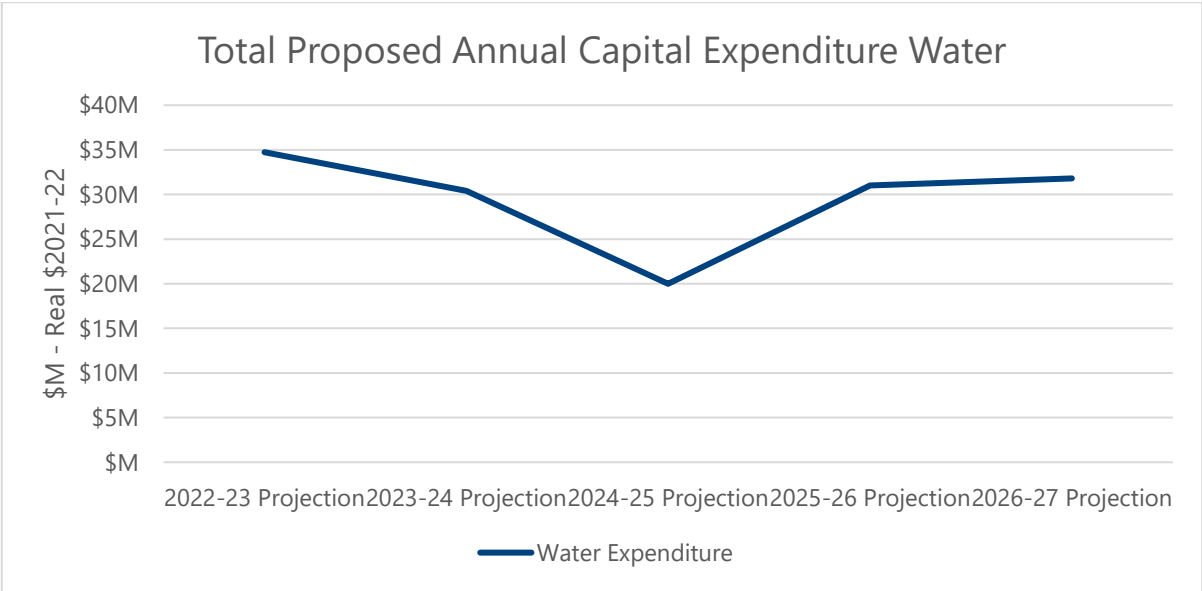

Figure 32: Total proposed water expenditure

Council proposes a $116M investment in water capital works over the determination period which is an average of $29M per annum and a slight decrease on the 2020-22 determination period.

The following summarises the capital works program by water asset classes and drivers:

Water meters:

- *Asset and service reliability:* An ongoing annual CAPEX replacement program is proposed to address water meter loss of accuracy overtime, where meters are replaced every 13 years.

Groundwater assets:

- *Asset and service reliability:* A renewal program of groundwater infrastructure is proposed in order to meet water quality and compliance with the ADWG guidelines. Groundwater assets are replaced based on performance and age.

Water pump stations:

- *Asset and service reliability:* Several water pump stations renewals projects and programs are proposed in order to meet water unplanned interruptions output targets. Water pump station renewals are prioritised based on the risk prioritisation framework. Council has implemented a risk and criticality framework for water pump stations. This framework defines criticality or consequence of failure using a multicriteria analysis, as well as a likelihood of failure assessment based on age and asset condition. Comprehensive condition assessments for water pump stations were completed in 2019 and will be completed on a four-year basis in order to update the risk.

Water reservoirs:

- *Asset and service reliability:* These projects and programs are proposed in order to meet compliance with ADWG guidelines, reduce water unplanned interruptions and reduce and address water quality complaints.

- *Asset renewals:* Several water reservoir renewal projects and programs are proposed, including renewals of reservoir components such as mechanical and electrical renewals or civil renewals (such as roofs), bird-proofing, internal or internal and external coating among others. Council has implemented a risk and criticality framework for water reservoirs. The framework defines criticality or consequence of

failure using a multicriteria analysis, as well as a likelihood of failure assessment based on age and asset condition. Comprehensive condition assessments for water reservoirs were completed in 2020 and will be completed on a four-year basis in order to update the risk.

- *Asset upgrades:* Several water reservoir upgrades projects and programs are proposed, including mixers, chlorination and water quality monitoring upgrades to address compliance with ADWG and water quality complaints. Council also proposes electrical upgrades, cathodic protection upgrades, security and safety upgrades or instrumentation and SCADA upgrades to increase the asset reliability.

- *Growth funded by cash capital developer contributions:* A new reservoir construction is proposed to meet the requirements of new customers or increased requirements of existing customers in accordance with mandatory standards. Growth projects are funded through cash income from developer charges and should be verifiable through the DSP process.

Water network assets:

- *Asset and service reliability:* These projects and programs are proposed in order to reduce unplanned water interruptions and reduce water main breaks.

- *Asset renewals:* Several water network asset projects and programs are proposed, including SCADA and instrumentation renewals, facilities building renewals at WTPs, WPS, Water headworks and Reservoirs, as well as asset and network security installations aiming at increasing the asset reliability of several asset classes.

- *Asset upgrades:* These programs include the mechanical, electrical and instrumentation upgrades of pressure reduction valves in order to increase asset reliability and reduce water main breaks, as well as the implementation of an Engineering Drawing Management System consolidating asset documentation data systems increasing asset and service reliability.

- *Growth other:* The Gosford CBD water infrastructure improvements program includes upgrades to the water network asset base. This includes the installation of new pressure reduction valves and other associated non return valve upgrades in order to meet the requirements of new customers and increase the requirements of existing

customers in accordance with mandatory standards. These growth projects will be 100% funded by the NSW DPIE through the Housing Acceleration Fund.

Water treatment plants:

- *Existing mandatory standards:* These projects and programs are mainly proposed in order to meet compliance with ADWG guidelines.

- *Asset renewals:* Several water treatment plant renewal projects are proposed, including civil, mechanical and electrical renewals at Somersby and Mardi WTPs aiming to meet the ADWG guidelines whilst ensuring asset and service reliability. Recycled water process improvements are also proposed at Bateau Bay and Toukley Sewage Treatment Plants, as well as at Hylton Moore Pack stormwater harvesting facility.

- *Asset upgrades:* Major water treatment plants civil, mechanical, electrical and instrumentation upgrades are proposed at Mardi Treatment Plant, required to secure the original design 160 ML/day plant capacity to ADWG. Other upgrades include process upgrades at Somersby STP required for meeting ADWG guidelines.

- *Business efficiency:* Council is proposing a continuation of the current program for on-site power generation entailing Solar Photovoltaic (PV) installations at water treatment plants. The program fits the business efficiency requirements, given the proposed reduction in energy operational costs at Water treatment plants and the relatively short payback periods of these solar PV installations – typically three to five years.

Water mains:

- *Asset and service reliability:* These projects and programs are proposed in order to reduce unplanned water interruptions and water main breaks and reduce and address water quality complaints.

- *Asset renewals:* Several projects and programs are proposed, including the ongoing annual water main renewal and critical valves replacements in order to address asset and service reliability. Water main renewals are prioritised based on the water mains renewal prioritisation framework and risk and criticality framework. The risk and criticality framework define criticality or consequence of failure using a multicriteria analysis, as well as a likelihood of failure assessment based on age and asset condition. Water mains condition assessments are carried out as required following the risk and criticality intervention strategy. Critical valves renewals are based on the

risk prioritisation (shut off blocks model) and condition with valve exercising carried out periodically. Other projects include the ongoing water service connections program in order to meet service reliability requirements.

- *Asset upgrades:* The program includes the construction of a critical water trunk main upgrade addressing asset and service reliability to three suburbs, as well as the construction of civil infrastructure to facilitate water trunk main mechanical cleaning.

- *Growth funded by cash capital developer contributions:* Several water main upgrade projects are proposed to meet the requirements of new customers or increased requirements of existing customers in accordance with mandatory standards. Growth projects are funded through cash income from developer charges and should be verifiable through the DSP process.

- *Growth – other:* The Gosford CBD and Warnervale Town Centre water infrastructure improvement programs include upgrades to the water network at those areas, entailing the construction of 7.7kms and 1.8kms of water reticulation mains. These growth projects will be 100% funded by the NSW DPIE through the Housing Acceleration Fund. Other programs include the extension of water services to un-serviced villages. These programs aim to meet the requirements of new customers and increase the requirements of existing customers in accordance with mandatory standards.

Water headworks:

- *Asset and service reliability:* These projects and programs are proposed in order to maintain the asset and service reliability of dams, dams' catchment, weirs, raw water pump stations and raw water tunnels.

- *Asset renewals:* Several water headworks asset renewals are proposed. These include dam electrical, instrumentation and civil (crest) renewals, dam catchment firetail and boundary fencing civil renewals, raw water pressure mains and tunnel civil renewals,

raw water pumping station mechanical and electrical renewals, weirs mechanical, electrical, instrumentation and civil renewals.

- *Asset upgrades:* Several water headworks asset upgrades are proposed, including drinking water catchment gauging upgrades, dam and raw water pumping station mechanical upgrades or water treatment plant raw pre-treatment upgrades.

- *Existing mandatory standards*: An upgrade project to the Dams Communications and Early Warning Systems is proposed to meet the Dams Safety NSW regulatory drivers.

- *Growth funded by cash capital developer contributions:* Several major augmentations and upgrades are proposed to increase water resources yield and improve water quality. Major projects include water supply augmentations for yield, raw water pump station capacity upgrades, as well as water trunk main upgrades to fully utilise the Hunter Water Corporation to Council transfer capacity (yield realisation). These projects are aiming to meet the requirements of new customers or increased requirements of existing customers in accordance with mandatory standards. Growth projects are funded through cash income from developer charges and should be verifiable through the DSP process.

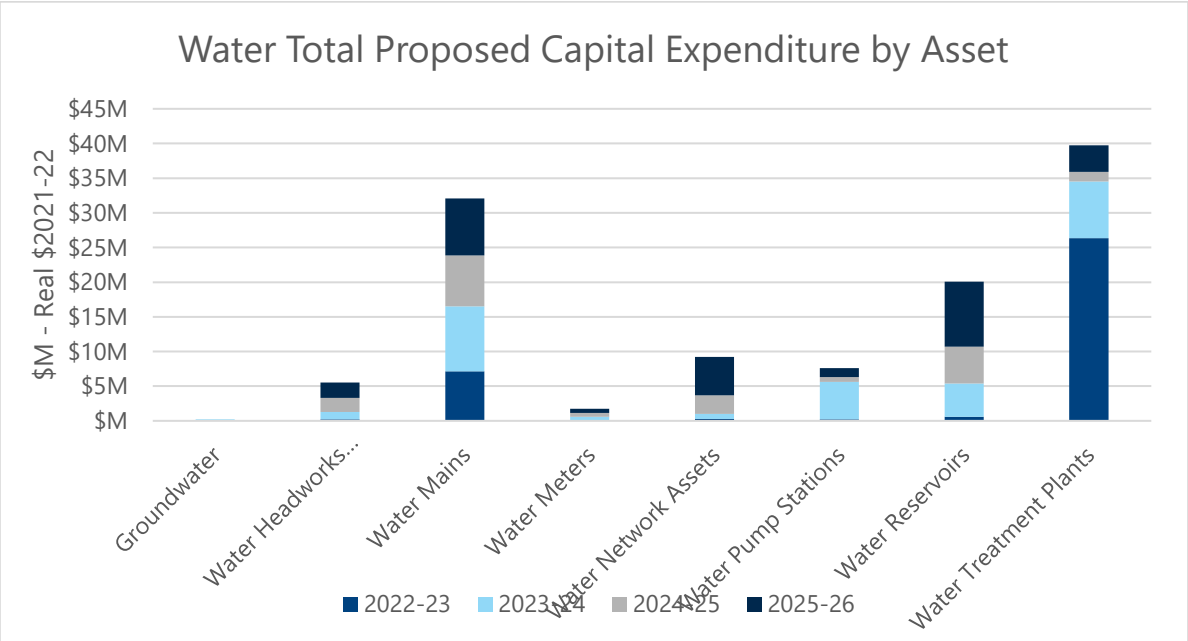

Figure 33: Water proposed expenditure by asset category

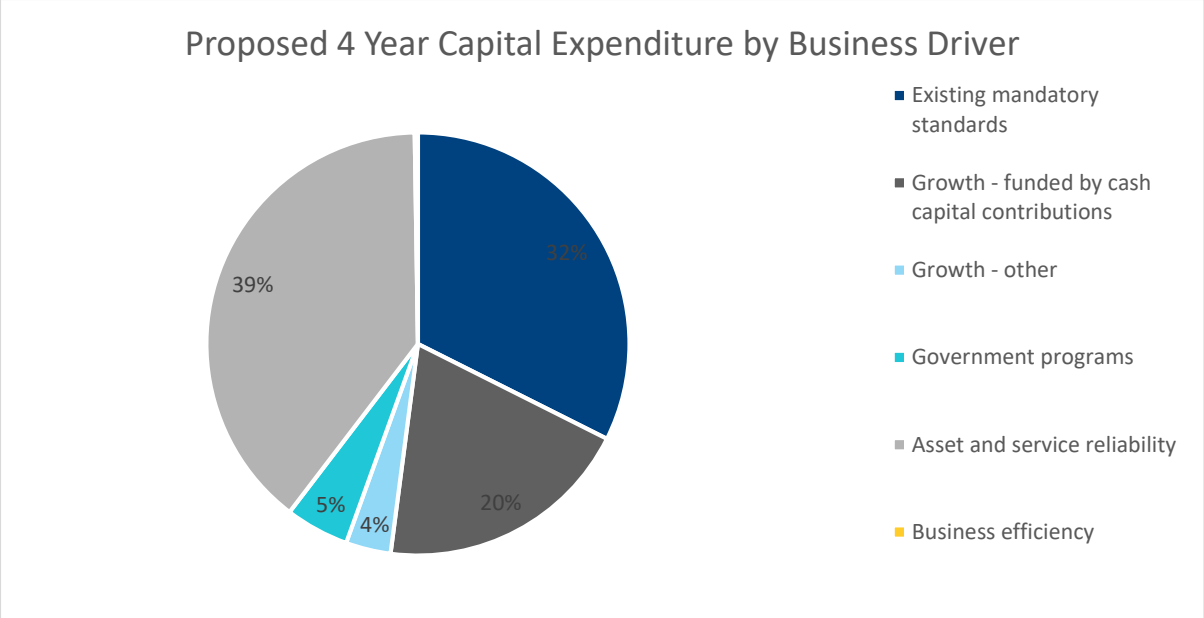

Figure 34: Water proposed expenditure by asset category - $M - Real $2021-22

6.1.1 Major projects

Table 26: Forecast major water expenditure

$M - Real $2021-22	2022-23	2023-24	2024-25	2025-26	Type	Driver
Water Expenditure						
Water Treatment Plant Major Upgrade - Mardi	25.9	7.7	0.0	0.0	Existing mandatory standards	Upgrade
Water Infrastructure - Gosford CBD	3.9	1.6	0.0	0.0	Government programs	Upgrade
Water Quality - Region Wide Chlorination and Mixers	0.0	0.8	0.4	1.2	Asset and service reliability	New and Strategic
Water Pump Station Capacity Upgrade - Mooney Mooney Dam Somersby	0.2	4.5	0.0	0.0	Asset and service reliability	Upgrade

Water Treatment Plant Major Upgrade – Mardi Water Treatment Plant

The upgrade of MWTP is required to secure the original design 160ML/day plant capacity to Australian Drinking Water Guidelines, for a contemporary raw water quality envelope which reflects changed water quality conditions in Mardi Dam following previous major water supply scheme yield augmentation projects. IPART considered the project to be prudent during its last determination.

Council has been required to change the preferred clarification technology and amend other scope items since IPART's review of the initial business case in 2018. This change has primarily been driven by an emerging algae risk within Mardi Dam as described within the revised business case. Procurement of a Design Development and Construct (DD&C) Contract is currently underway to deliver the upgrade.

Figure 35: 3D Model of proposed upgrades to Mardi Water Treatment Plant

Water Infrastructure Reinforcements - Gosford CBD

Council manage the water supply system within the Gosford City Centre Area. The City Centre area is expected to undergo heavy redevelopment both in the short and long term. In response to this, Council developed a Water Supply Strategy for Gosford City Centre in 2017.

The Capital works strategy addresses the performance requirements for minimum pressure, reservoir storage and mains velocity for the network under Peak Day Demand conditions from now up until ultimate catchment development level (approximately 2085). The program considers provision of a higher standard of service on a risk managed basis to clusters of high-density development in line with guidance in the Water Supply Code of Australia.

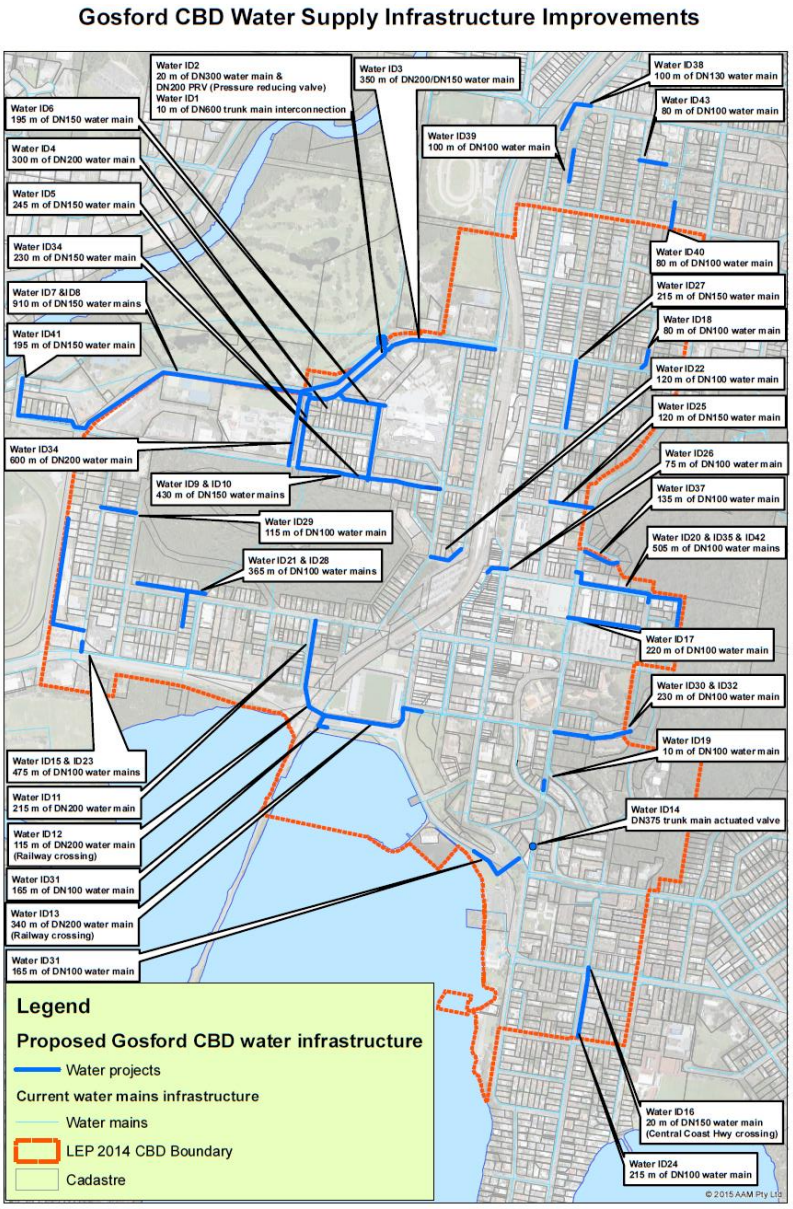

Figure 36: Gosford CBD map

The Gosford CBD water infrastructure improvement project consists of 43 main projects within the CBD covering:

- 7.8km of watermain projects increasing the size of the existing mains and providing link mains, including one railway crossing and three Transport for NSW Central Coast Highway crossings
- A pressure reducing valve
- A trunk main non-return valve
- A trunk main interconnection

Council has secured 100% funding by the NSW DPIE through the Housing Acceleration Fund (HAF) over a four-year program. The project objectives support the HAF and NSW Government's objectives for Gosford CBD, that is; Accelerate housing supply in Gosford and;

Provide a catalyst for residential and commercial development in Gosford. Detailed funding information is tabled in Appendix 11.4

Construction already commenced in 2019-20 and the remainder of works will be completed during the next determination period.

Water Quality – Region Wide Chlorination and Mixers

A Water Chlorination Strategy Project is currently underway. The project objective is to investigate potential options to improve the water quality in the network. Hence the level of chlorine residual, particularly at the extremities of the system, as well as automating the system chlorination to minimise current manual chlorine dosing. The strategy includes water quality modelling of chlorine for both the existing chlorination conditions and a proposed augmentation to the chlorination network as well as operational improvements. The project also includes the review of different automated chlorination systems, particularly at reservoir sites and the selection of the most appropriate system and associated infrastructure at each site followed by design.

Chlorination sites at water reservoirs will involve the installation of automated chlorination systems across the water network, coupled with a water quality station and a reservoir mixer to optimise water quality within each reservoir. Other water quality operational improvements include system enhancements to improve flow turnover, or mechanical upgrades to reservoirs operational configuration that enable fill and draw.

1. Water Pump Station Capacity Upgrade – Upper Mooney Dam to Somersby Water Treatment Plant

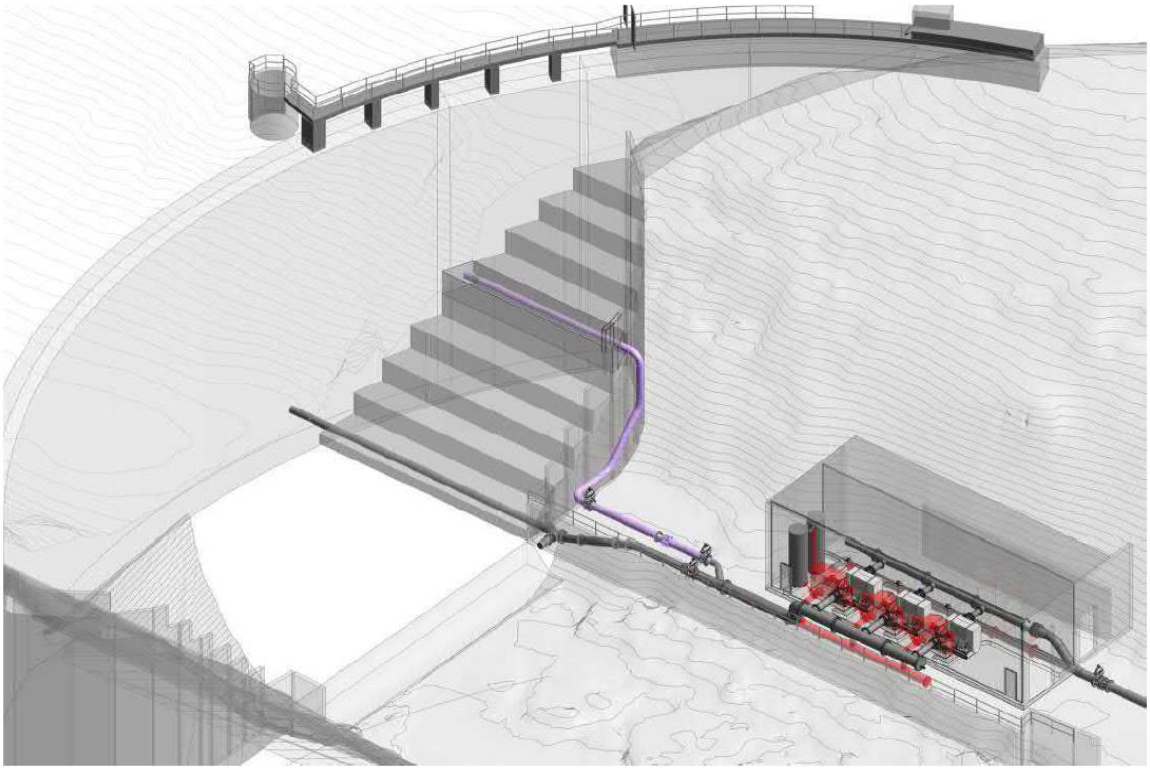

Figure 37: 3D Model of proposed upgrade to Upper Mooney Dam Water Pump Station

The existing Upper Mooney Dam Water Pump Station (WPS) transfers water from Mooney Dam to Somersby Water Treatment Plant (SWTP) to meet demand within the distribution network. The WPS is undergoing planned refurbishment of major mechanical and electrical assets within the next three to five years. This work will incorporate the upgrade of the WPS from 30ML/day to 60ML/day to achieve the following additional objectives:

- Increase drawdown rate of Mooney Dam to better utilise available inflows from its catchment for water supply
- Allow SWTP average day demand to be met from Mooney Dam WPS to improve treatment efficiency (as compared to selective mixing of Mangrove Creek Weir and Mooney water at SWTP)
- Provide improved security of supply to the southern parts of the Central Coast if Mangrove WPS is offline

Yield benefits of the upgrade have been included when assessing the current 'base case' scheme yield in the Central Coast Water Security Plan. The project has a completed concept design, including an assessment of options to achieve the increased transfer capacity undertaken by SMEC in 2020.

6.1.2 Water Forecast Renewals

Table 27: Forecast water renewals by asset category

$M - Real $2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Water BAU Renewals					
Groundwater	0.0	0.2	0.0	0.0	1.3
Water Mains	2.0	6.4	5.2	5.5	5.4
Water Meters	0.0	0.6	0.6	0.6	0.6
Water Network assets	0.3	0.4	0.5	0.6	1.3
Water Pump Stations	0.0	0.8	0.6	1.2	0.9
Water Reservoirs	0.6	2.1	1.1	2.4	1.7
Water Treatment Plants	0.5	0.1	0.0	1.8	6.9
Water Headworks Assets	0.2	1.1	1.7	2.0	1.6
Total	**3.5**	**11.6**	**9.6**	**14.2**	**19.7**

Water Main Renewals – four-year proposal of $19M

The proposed annual investment for priority and programmed water main renewals is $4.8M per year which is consistent with investment in the 2019 determination period. Water main renewals will have a reduction to $750k in the 2022-23 year in an attempt to manage the program within the expenditure cap. Critical mains in this period will be brought forward into the 2021-22 year to ensure continuity of service levels to the customer.

Council also proposes to invest approximately $2.2M to undertake the renewal of a critical section of trunk water main that feeds through Avoca Lagoon. Sections of the main have experienced multiple breaks in the past. The trunk water main is a critical supply feed to the suburbs of North Avoca, Avoca beach, Copacabana and MacMasters Beach.

Water Reservoirs – four-year proposal of $6.2M

Council proposes to invest $1.3M in the renewal of Kanangra Renewal - Pacific Hwy Crangan Bay, which is currently operating at reduced capacity due to structural deficiencies. The reservoir is required to operate at full capacity to service predicted growth in the area.

Council is proposing a further average of $1.2M per year to replace critical failing civil, mechanical and electrical assets at reservoir sites.

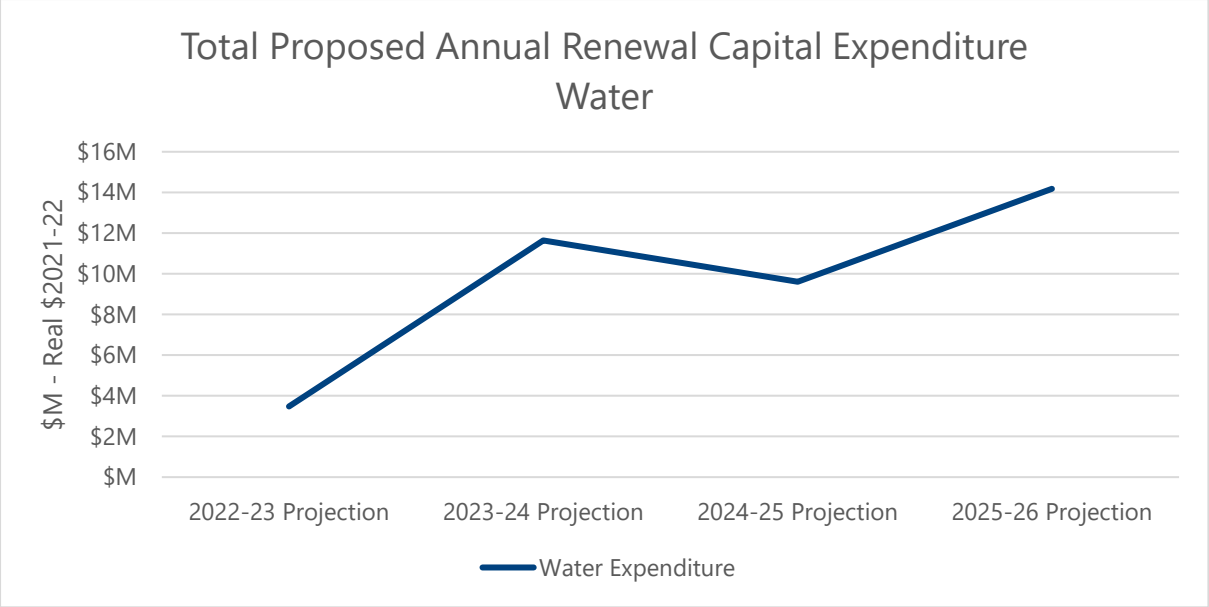

Figure 38: Proposed water renewal expenditure

6.2 Sewer

Council proposes a $160M investment in sewer capital works over the determination period which is an average of $40M per annum. This is an increase of 68% from the 2020-22 determination and is largely due to an increase forecast in growth and development driven sewer infrastructure upgrades of $40M over the determination period.

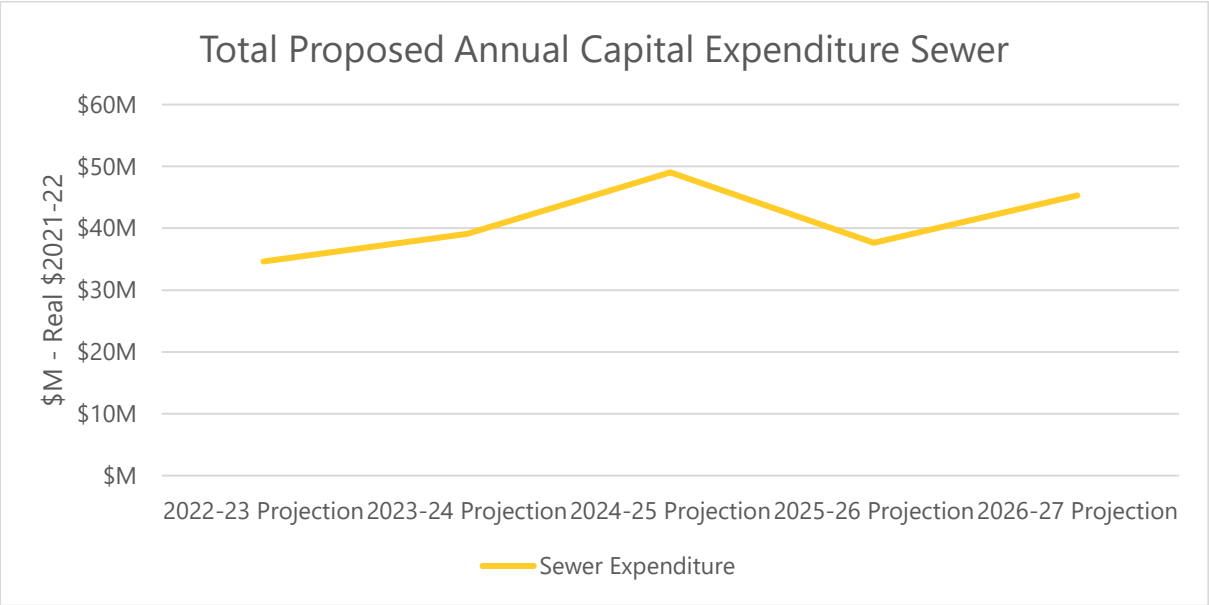

Figure 39: Total proposed sewer expenditure

Council has developed a Capital Works Program Portfolio for the 2022 IPART determination. The following summarises the capital works program by water asset classes and drivers:

Sewer mains:

- *Asset and service reliability:* These projects and programs are proposed in order to mainly meet sewage overflows and sewer main breaks output targets, as well as addressing odour complaints output targets.

- *Asset renewals:* Several projects and programs are proposed, including the ongoing annual sewer rising mains, sewer gravity mains, maintenance holes and odour vents renewal programs. Other programs include aerial sewer mains coating renewals, cathodic protection renewals, critical valve replacements, trunk mains and tunnels renewals and odour vent renewals. Sewer rising main renewals are prioritised based on the risk prioritisation framework This framework defines criticality or consequence of failure using a multicriteria analysis, as well as a likelihood of failure assessment based on age and asset condition. Rising mains condition assessment is carried out as required following the risk framework intervention strategy. Sewer gravity main and maintenance hole renewals are based on a combination or a risk prioritisation framework and asset performance (breaks, chokes and overflows). Gravity mains and maintenance hole condition assessment is carried out on an ongoing basis based on the risk and asset performance. Odour vent renewals are based on odour complaints and condition assessment carried out periodically. Sewer tunnel renewals are based on performance and condition assessment which is carried out on a four-year basis.

- *Asset upgrades:* A program for the installation of permanent flow monitoring and sewer gauges is proposed in order to increase the accuracy and reliability of the sewer hydraulic models.

- *Growth funded by cash capital developer contributions:* Several sewer gravity mains and rising main upgrade projects are proposed to meet the requirements of new customers or increased requirements of existing customers in accordance with mandatory standards. Growth projects are funded through cash income from developer charges and should be verifiable through the DSP process.

- *Growth – other:* The Gosford CBD and Warnervale Town Centre sewer infrastructure improvements programs includes upgrades to the sewerage network at those areas, entailing the construction of 6.2kms and 1.3kms of sewer mains (gravity and rising mains) for each area respectively. These growth projects will be 100% funded by the NSW DPIE through the Housing Acceleration Fund. Other programs include the extension of sewerage services to un-serviced villages. These programs aim at meeting the requirements of new customers and increase the requirements of existing customers in accordance with mandatory standards.

Sewer network assets

- *Asset and service reliability:* Several sewage pump station (SPS) renewals projects and programs are proposed in order to mainly meet sewage overflows output targets.

- *Asset renewals:* Several electrical control (SCADA) renewals, electrical switchboards and components, as well as buildings that house critical electrical equipment are proposed in order to increase the reliability of the system.

- *Asset upgrades:* Two upgrade projects and programs are proposed, including continuing with, as well as the implementation of, an engineering drawing management system consolidating asset documentation data systems increasing asset and service reliability.

- *Existing mandatory standards:* A project to continue the implementation of a proactive sewage overflow monitoring instrumentation upgrade program across all sewage catchments is proposed in order to address NSW EPA mandatory standards.

Sewage pump stations:

- *Asset and service reliability:* Several sewage pump station (SPS) renewals projects and programs are proposed in order to mainly meet sewage overflow output targets, as well as odour complaint targets.

- *Asset renewals:* Several renewal projects and programs are proposed, including ongoing SPS civil, mechanical, electrical and instrumentation renewals across the network, electrical and control renewals programs, SPS building renewals as well as SPS diversions and decommissioning projects. Sewage pump station renewals are prioritised based on the risk prioritisation framework. Council has a risk and criticality framework for sewage pump stations. This framework defines criticality or consequence of failure using a multicriteria analysis, as well as a likelihood of failure assessment based on age and asset condition. Comprehensive condition assessments for sewage pump stations were completed in 2019 and will be completed on a four-year basis in order to update the risk.

- *Asset upgrades:* Several upgrade projects are proposed, including SPS safety and site access improvement programs, SPS lids replacement programs and electrical upgrades aiming at meeting sewage overflows output targets. An SPS odour upgrade program is proposed following the implementation of the proposed Council odour and corrosion strategy.

- *Growth funded by cash capital developer contributions:* Several sewage pump station upgrade projects are proposed to meet the requirements of new customers or increased requirements of existing customers in accordance with mandatory standards. Growth projects are funded through cash income from developer charges and should be verifiable through the DSP process.

- *Growth – Other:* The Gosford CBD infrastructure improvements program includes upgrades to the sewerage network, entailing the construction of two (2) new SPSs. These programs aim to meet the requirements of new customers and increase the requirements of existing customers in accordance with mandatory standards. These growth projects will be 100% funded by the NSW DPIE through the Housing Acceleration Fund.

Sewage treatment plants:

- *Asset and service reliability:* These projects and programs are proposed in order to meet compliance with the Sewage Treatment Plants (STP) EPL licenses.

- *Asset renewals:* An instrumentation renewal at Bateau Bay STP is proposed.

- *Asset upgrades:* an upgrade to the aeration mixers at Kincumber STP.

- *Existing mandatory standards:* These process improvement projects and programs are proposed in order to meet compliance with the Sewage Treatment Plants (STP) EPL licenses.

- *Asset renewals:* Two mechanical and instrumentation renewal projects are proposed at Kincumber and Bateau Bay STPs respectively.

- *Asset upgrades:* Several projects are proposed, including a large process improvement project at Bateau Bay STP. This will address the EPL license requirements, upgrades to the public disposal point and sludge mechanical dewatering at Kincumber STP, operational odour control upgrades across all STPs following the implementation of the odour studies, as well as aeration process upgrades at Gwandalan STP.

- *Growth funded by cash capital developer contributions:* Several major STPs civil, mechanical, electrical and instrumentation upgrades are proposed at Charmhaven and Gwandalan STPs. Other projects include the commencement of process upgrades at Bateau Bay STP or Wyong South odour control augmentation. These projects aim to meet the requirements of new customers or increased requirements of existing customers in accordance with mandatory standards. Growth projects are funded

through cash income from developer charges and should be verifiable through the DSP process.

- *Business efficiency:* Council is proposing to continue with the current program for on-site power generation entailing Solar Photovoltaic (PV) installations at STPs and Kincumber STP co-generation plant installation. Both programs fit the business efficiency requirements proposed by IPART in the 2019 determination, given the proposed reduction in energy operational costs at water treatment plants and the relatively short payback periods, particularly for solar PV installations – typically three to five years. Council is also proposing to upgrade the STP instrumentation in order to monitor and report on greenhouse emissions.

Sewer low pressure and vacuum systems:

- *Asset and service reliability*: These projects and programs are proposed in order to reduce sewage overflows into the environment.

- *Asset renewals:* Several programs are proposed, including mechanical renewals at all four vacuum catchments, low pressure mechanical renewals, as well as two projects for the conversion of vacuum to low pressure systems addressing service reliability issues.

- *Asset upgrades:* A program is proposed to upgrade the existing low-pressure sewer system (LPSS) at Cockle Bay towns.

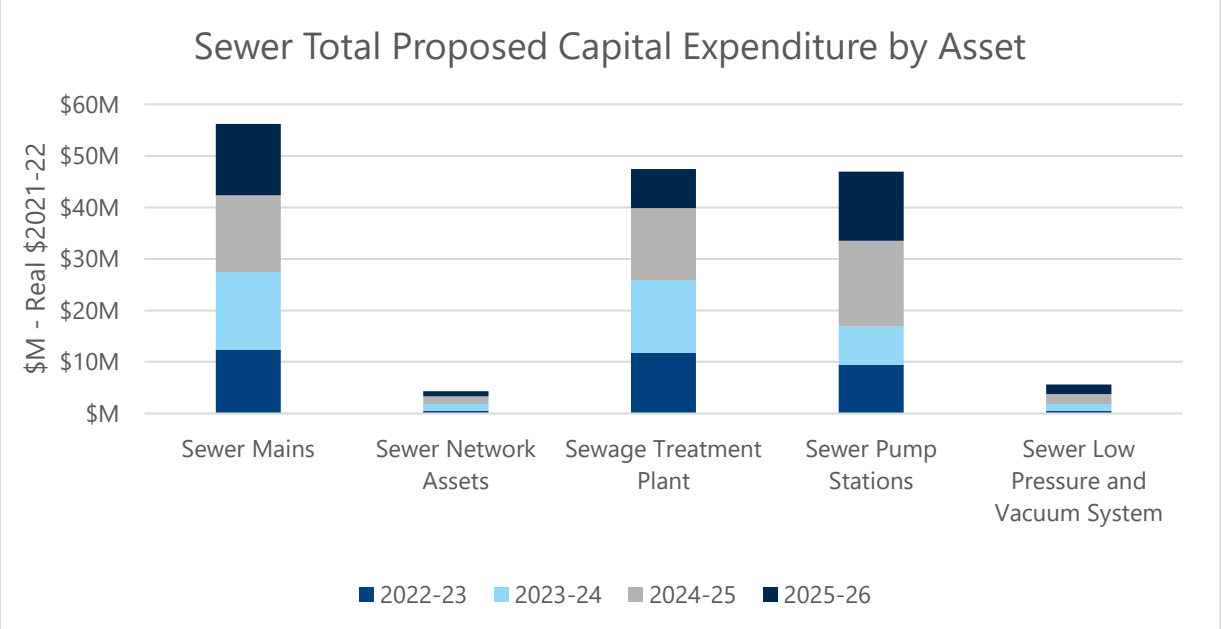

Figure 40: Total proposed sewer expenditure by asset category

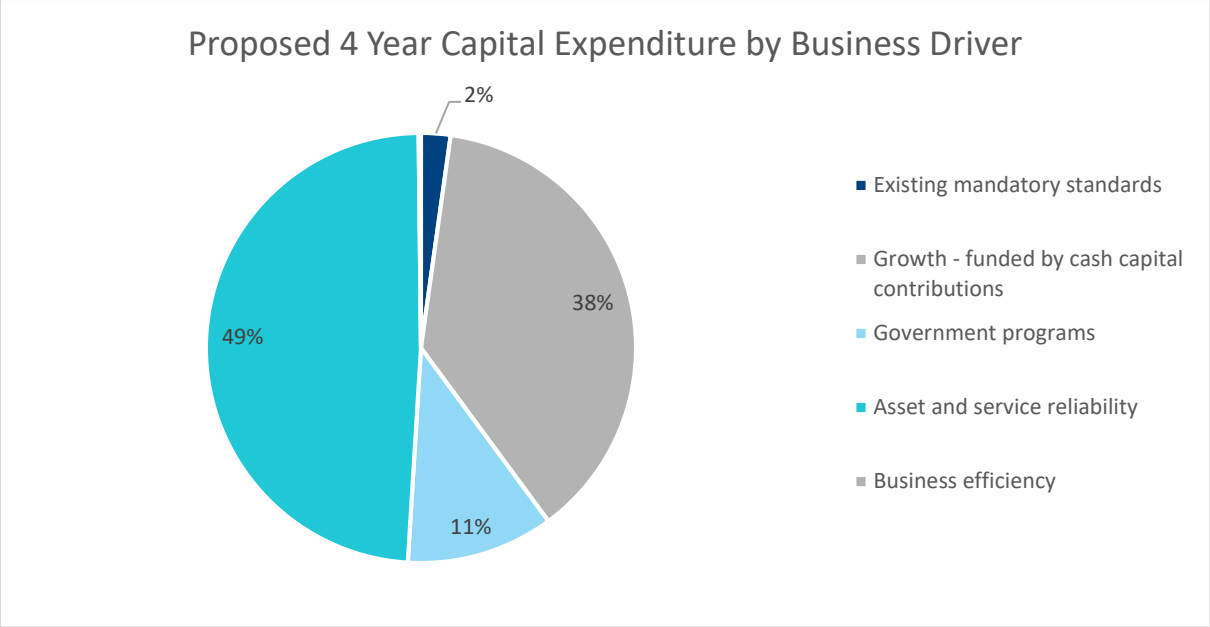

Figure 41: Total proposed sewer expenditure by driver - $M - Real $2021-22

6.2.1 Major projects

Table 28: Forecast major projects

$M - Real $2021-22	2022-23	2023-24	2024-25	2025-26	Type	Driver
Sewer Expenditure						
Sewer Infrastructure - Gosford CBD	12.5	4.8	0.0	0.0	Government programs	Upgrade
Sewage Treatment Plant Major Upgrade - Charmhaven	4.5	7.7	4.1	0.0	Growth - funded by cash capital contributions	Upgrade
Sewage Treatment Plant Improvements - Bateau Bay	3.3	2.5	2.0	0.0	Asset and service reliability	Upgrade
Gwandalan STP Capacity Upgrade	0.6	2.5	5.7	4.5	Growth - funded by cash capital contributions	Upgrade

Sewer Infrastructure - Gosford CBD

Council manage the sewerage system within the Gosford City Centre Area which is expected to undergo heavy redevelopment both in the short and long term. In response to this, Council developed a Water Supply Strategy for Gosford City Centre in 2017.

The Capital Works Strategy addresses both the performance requirements for the network under dry and wet weather flow conditions up to ultimate catchment development level

(approximately 2085). The strategy has been developed on the basis of containing a five-year average recurrence interval (ARI) storm with a high degree of reliability and a ten-year ARI storm with a lower degree of reliability.

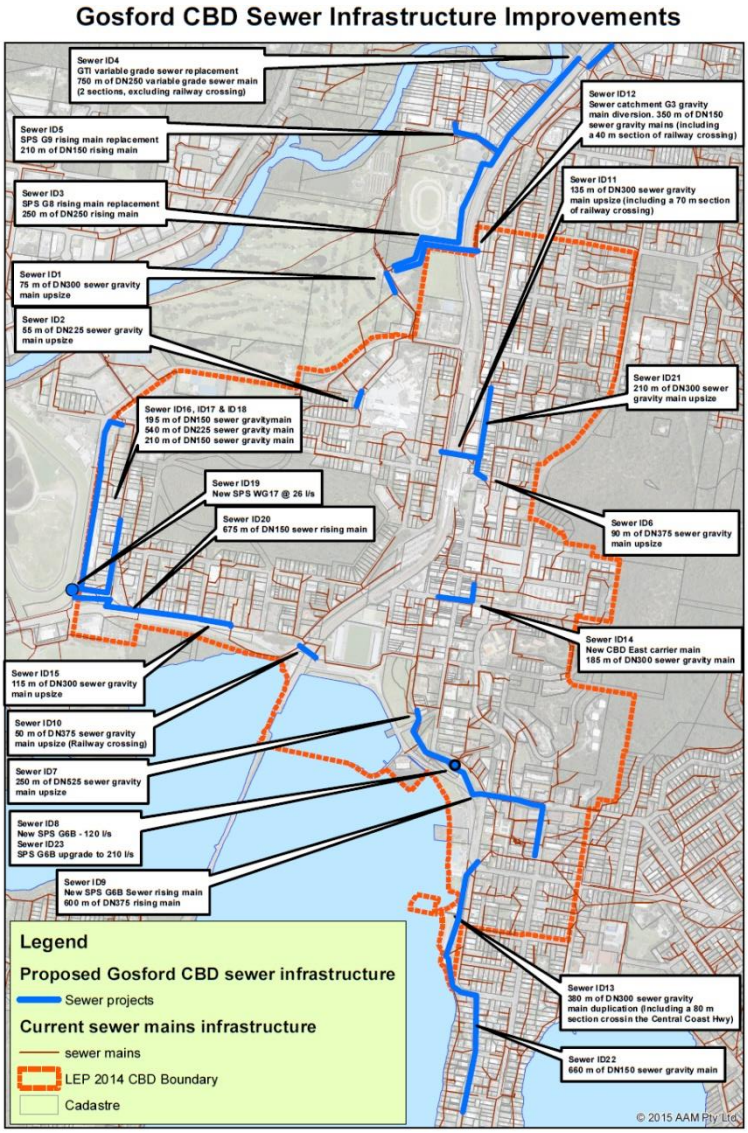

Figure 42: Gosford CBD map

The Gosford CBD sewer infrastructure improvements project consists of 23 main projects within the CBD covering:

- 3.7kms of sewer gravity main projects increasing the size of the existing mains as well as new mains, including three railway crossings and two Transport for NSW Central Coast Highway crossings
- 2.5kms of sewer rising main project increasing the size of or existing mains as well as new mains associated with sewage pumping stations
- Two new sewage pumping stations (SPS) of 210 l/s and 26 l/s capacity

Council has secured 100% funding by the NSW DPIE through the Housing Acceleration Fund (HAF) over a four-year program. The project objectives support the HAF and NSW Government's objectives for Gosford CBD, that is; Accelerate housing supply in Gosford, and; Provide a catalyst for residential and commercial development in Gosford. Detailed funding information is tabled in Appendix 11.4

Construction already commenced in 2019-20 and the remainder of works will be completed during the next determination period.

Sewage Treatment Plant Major Upgrade – Charmhaven

Charmhaven Sewage Treatment Plant is overdue for a capacity upgrade to manage ongoing growth within the catchment (Central Coast Regional Plan Northern Growth Corridor) within the limits set by the EPA within the schemes Environmental Protection Licence (EPL). Council had previously sought to delay the construction of a third aeration tank and increase capacity within the two existing aeration tanks.

Subsequent constructability reviews and risk assessments have determined this option is not feasible and Council will now proceed with the construction of the third tank prior to renewal of key assets within the existing two tanks. Details are provided in the associated Business Case.

Sewage Treatment Plant Improvements - Bateau Bay

Council is currently carrying out a Sewage Treatment Plant (STP) process optimisation at Bateau Bay STP, following the completion of a condition and capacity assessment investigation in 2017.

The STP process optimisation and refurbishment of key assets is aiming to provide the STP enough capacity and redundancy to operate up to a design horizon of 2030. The proposed works will allow Council to defer the major upgrade investment, while also properly planning for the major upgrade which will include negotiation with regulators to determine appropriate licence requirements for the upgraded plant.

Council is currently proceeding with the delivery of two elements of the process optimisation, Clarifier No.3 refurbishment and Primary Sedimentation Tank lauder covers and odour control system modifications trial.

The process optimisation project will involve the following steps:

- Undertake investigations and options analysis to determine the most appropriate secondary treatment process control arrangements
- Carry out a site odour audit and risk-based approach to identifying and controlling sources of odour pre and post process optimisation
- Prepare concept designs for the proposed process optimisation works
- Obtain NSW DPIE Section 292 approval for the concept design
- Prepare detail designs for the proposed process optimisation works including supporting the preparation of tender documentation,
- Assist with the construction delivery and commission as required

Figure 43: Bateau Bay sewage treatment plant aerial view

Gwandalan STP Capacity Upgrade

Gwandalan Sewage Treatment Plant requires a significant upgrade to manage ongoing growth within its catchment (Greenfield Subdivisions) within the limits set by the EPA within the schemes Environmental Protection Licence (EPL).

The upgrade involves the recommissioning of an offline aeration tank, construction of a new inlet works, construction of an additional sludge lagoon and various mechanical and electrical upgrades and renewals. Details are provided in the associated Business Case.

6.2.2 Sewer Forecast Renewals

Table 29: forecast renewals by asset category

$M - Real $2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Sewer BAU Renewals					
Sewage Treatment Plant	6.7	3.0	2.6	0.5	12.9
Sewer Low Pressure and Vacuum System	0.0	1.1	1.9	1.9	0.8
Sewer Mains	4.5	8.7	9.2	9.6	9.8
Sewer Network assets	0.3	0.3	0.5	0.6	0.4
Sewer Pump Stations	2.7	3.7	7.7	7.4	12.9
Total	14.1	16.7	21.9	20.0	36.8

Sewer Mains $32M

The annual proposed investment for priority and programmed sewer gravity main and maintenance holes renewals is $3.65M per year. This investment is slightly reduced from the current determination's average annual expenditure of $5.7M which had increased as part of addressing issues associated with the Terrigal sewerage reticulation system. This was in response to the Pollution Reduction Program (PRP) 7 imposed by NSW EPA within the Kincumber STP EPL license. The proposed level of investment aims to maintain current network performance in line with the IPART output measures for sewage overflows, chokes and breaks and addresses the requirements of the NSW EPA PRPs and enforceable undertakings, while managing ageing assets.

Council is proposing $10.26M in rising main ongoing renewals over the determination period. The program is comprised of prioritised partial sewer rising main renewals/replacements with high and very high risk of failure, according to the sewer pressure mains criticality framework. This framework defines criticality or consequence of failure using a multicriteria analysis, as well as a likelihood of failure assessment based on age and asset condition. Rising mains condition assessments, condition monitoring or proactive and reactive renewals are carried out as required according to the risk framework intervention strategy. The program addresses also the Enforceable Undertaking requirements and expectations from the NSW EPA.

Council is proposing a $1.25M investment in the renewal of critical sewer rising main valves. These valves are critical for the operation of the rising mains and are essential for the asset reliability of the mains.

Council is proposing a $1.24M investment in the renewal of sewer maintenance holes. The program aims are to renew critical sewer maintenance holes and poor performing assets in order to meet the sewer gravity mains output measure targets and address the NSW EPA PRP and Enforceable Undertaking requirements.

Council is proposing a $2.3M investment in the renewal of poor performing sewer trunk mains and tunnels in order to meet the sewer gravity mains output measure targets. Council is currently carrying out a comprehensive condition assessment of all sewerage tunnels, ocean outfalls and large trunk mains. The results of the condition assessment will determine the renewals extent over the period.

Sewage Pump Stations $21.5M

Sewage pump station proposed expenditure includes $5.4M for critical mechanical and electrical replacements. Electrical replacements predominantly relate to addressing safety deficiencies and replacing switchboards that have reached the end of their usable lives. Mechanical replacements address pumps and valves that have failed or have reached the end of their serviceable lives. This investment has decreased from Council's historical average investment of $2.28M per year.

$7.2M is proposed to be invested in the refurbishment of 10 Sewage Pump stations that have been identified as being in poor condition. These projects were initially raised in the 2019 determination but were required to be deferred due to Council's financial issues.

Sewage Treatment Plants $12.6M

The sewage treatment plant proposed program will address identified operational deficiencies within the treatment plants.

Larger replacements include the sewage treatment plant sludge mechanical dewatering renewal at Kincumber $3.38M and process replacements and improvements at Bateau Bay sewage treatment plant $7.8M. An additional $145,000 will be invested in replacing failing minor components within the plants.

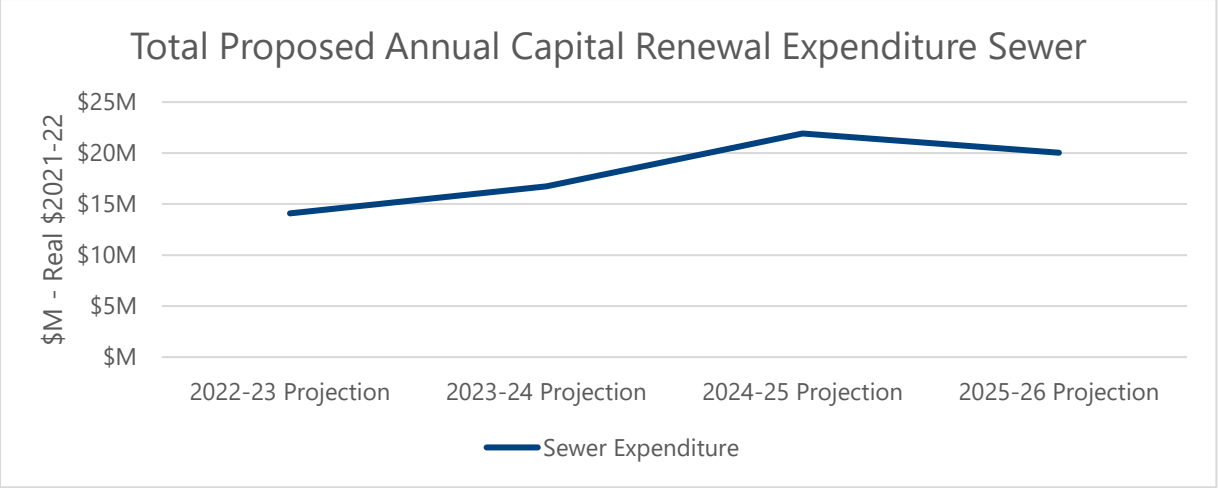

Figure 44: forecast sewer renewals

6.3 Stormwater Drainage

Stormwater drainage capital projects have been defined in line with Council's Drainage Asset Management Plan and include the following asset types. The definition of stormwater drainage remains unchanged from prior IPART Determinations. Stormwater drainage asset include:

- Stormwater drainage pits, pipes, culverts and headwalls
- Flood mitigation works such as levees, detention basins and open channels
- Water quality infrastructure such as gross pollutant traps and sediment basins

The proposed stormwater drainage capital program is based on a consistent level of revenue, on average $8.8M per annum, with increases on a year to year basis where Contributions are available to support Growth driven projects.

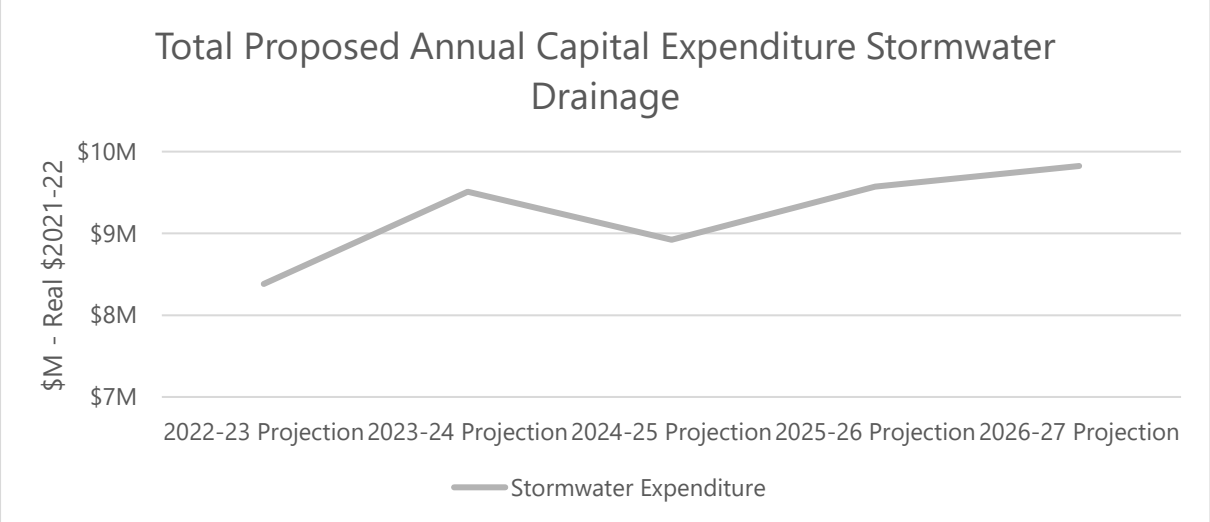

Figure 45: Total proposed stormwater drainage expenditure

The overarching objectives driving development of the stormwater drainage capital works program aligns with IPART Drivers, Council's Community Strategic Plan themes and prudent asset management. The projects fall into five main categories:

1. **Floodplain Risk Management projects** - identified via strategic floodplain management studies and plans to mitigate catchment level flooding and risk. These projects typically involve construction of major stormwater drainage and flood mitigation capital works.
2. **Stormwater drainage renewal projects** – identified via asset modelling or reactive/proactive inspections to address poor asset condition, reduce reactive maintenance requirements and minimise whole of life costs. These projects typically involve rehabilitating or replacing existing stormwater drainage infrastructure.
3. **Stormwater drainage growth projects** – identified via strategic growth studies and Contribution Plans to construct new or upgrade existing stormwater drainage infrastructure to support future growth areas.
4. **Stormwater drainage upgrade projects** – identified via engineering investigations and technical reports to address high risk property flooding. The management of stormwater runoff is a surface effect and as such these projects often involve a combination of stormwater drainage infrastructure as well as road formation and restoration work.
5. **Stormwater quality improvement projects** – identified via stormwater quality studies and catchment modelling to construct new stormwater treatment devices at strategic locations to improve stormwater quality and maintain the amenity of receiving waters.

The following table demonstrates that most of the stormwater drainage capital works program is driven by Asset Service and Reliability or Growth. It is forecast that this will remain the case although the proportion of the program driven by Growth is forecast to increase as Council delivers the stormwater drainage infrastructure required to meet Regional growth targets.

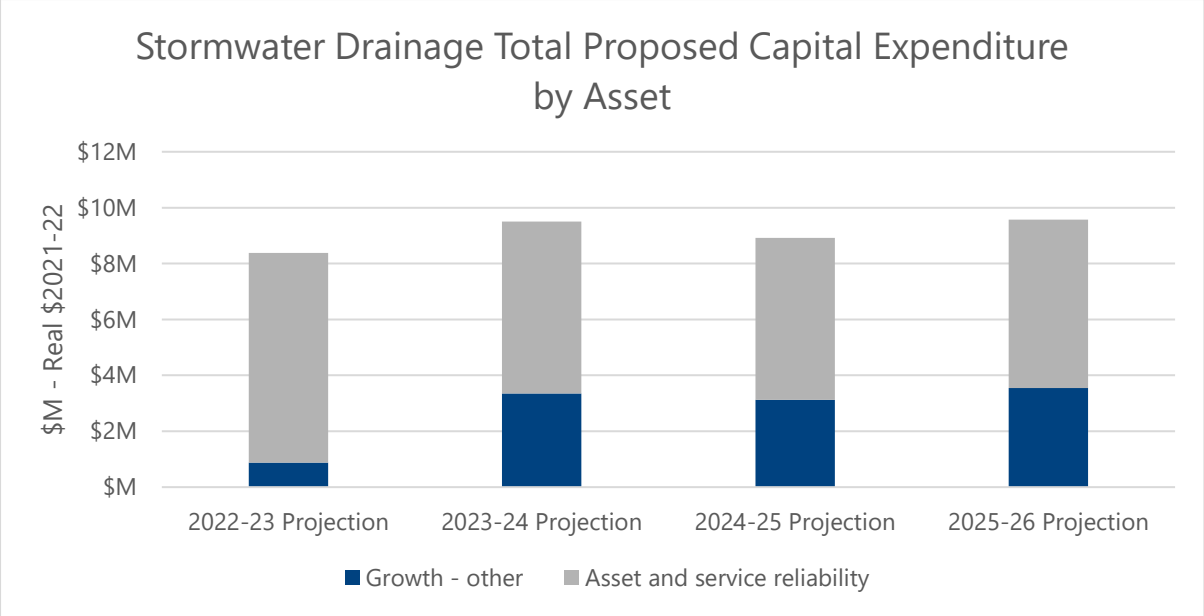

Figure 46: Stormwater drainage expenditure by business drivers

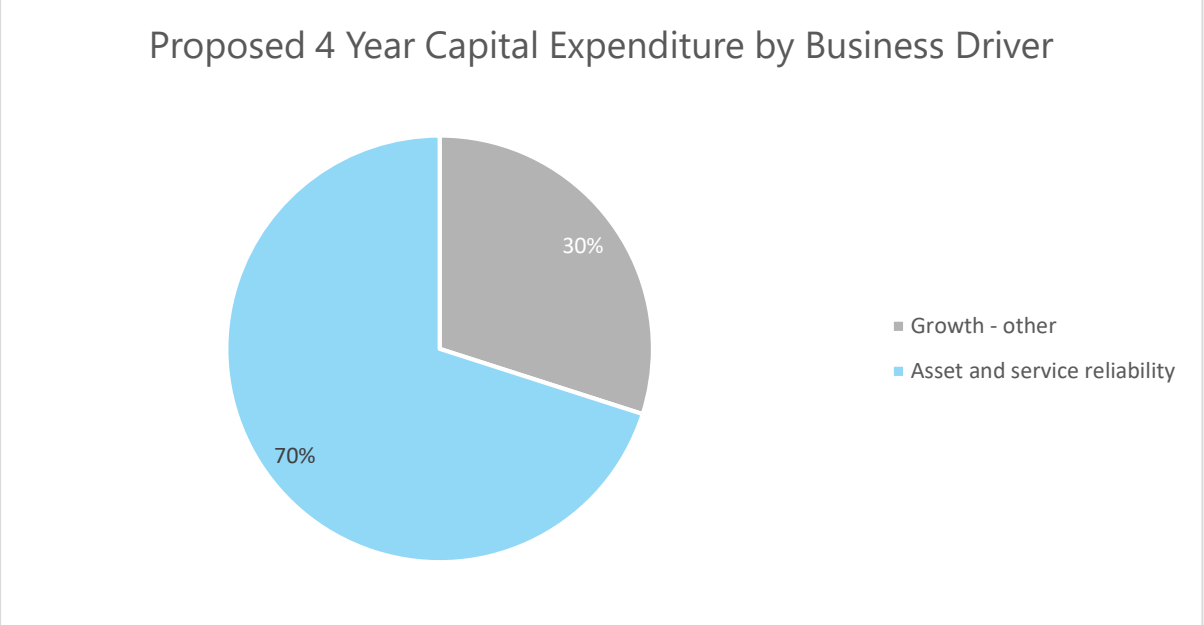

Figure 47: Stormwater Drainage four-year investment by business driver - $M - Real $2021-22

6.3.1 Major projects

The major stormwater drainage projects proposed during the 2022 determination period have been presented below.

Table 30: Drainage Upgrade at Lakedge Ave, Berkeley Vale

$M - Real $2021-22	2022-23	2023-24	2024-25	2025-26	Total	Type	Driver
Lakedge Ave from Jean Drive to Shannon Parade, Berkeley Vale – Drainage Upgrade	2.3	1.5	1.0	0.0	4.8	Upgrade	Asset and service reliability
Lakedge Ave from Aloha Drive to Platypus Drive, Berkeley Vale – Drainage Upgrade	0.0	0.0	1.3	2.0	3.2	Upgrade	Asset and service reliability

The two discrete projects in Lakedge Avenue were strategically identified via the engineering investigation due to flooding of adjacent properties in multiple locations. The projects involve upgrading the existing drainage network to increase the capacity of the existing drainage system and managing stormwater surface runoff to ensure it enters the drainage system in a controlled manner.

Table 31: Drainage Upgrade at Avoca Drive, Avoca

$M - Real $2021-22	2022-23	2023-24	2024-25	2025-26	Total	Type	Driver
Avoca Drive, Avoca - Drainage Upgrade	1.5	1.0	0.8	1.2	4.5	Upgrade	Asset and service reliability

The ongoing multi-year project is proposed to continue from the 2019 determination. The project has been strategically identified via the Avoca Bowl Catchment Study and involves progressively upgrading and expanding the existing drainage network from the foreshore back into the 'Avoca Bowl' to ensure that this popular residential and commercial precinct can continue to operate, grow and function as planned.

Table 32: Drainage Upgrade in Gosford CBD

$M - Real $2021-22	2022-23	2023-24	2024-25	2025-26	Total	Type	Driver
Mann Street and Vaughn Street to Brisbane Water, Gosford – Drainage Upgrade	0.9	1.4	0.4	0.0	2.7	Upgrade	Growth
Riou Street to Brisbane Water, Gosford - Drainage Upgrade	0.0	0.9	1.4	1.5	3.8	Upgrade	Growth

These multi-year growth projects are required to ensure existing and future customers in the Gosford CBD are not adversely impacted by the high-density growth planned in the city. Gosford CBD is listed in the State Government's Regional Plan as the number one priority for the Region. The projects involve the replacement and upgrade of existing poor condition and under capacity stormwater drainage systems from the Gosford CBD to the Brisbane Water foreshore.

The projects were strategically identified via the Gosford CBD Civic Improvement Plan and preceding Stormwater Drainage Study and as such, are partly funded by $0.44M in Developer Contributions in 2023-24.

Table 33: Drainage Upgrade in Warnervale Road, Hamlyn Terrace

$M - Real $2021-22	2022-23	2023-24	2024-25	2025-26	Total	Type	Driver
Warnervale Road, Hamlyn Terrace – Drainage Upgrade	0.0	1.1	1.3	0.2	2.6	Upgrade	Growth

This multi-year growth project is required to support growth and development planned in the Greater Warnervale area and to mitigate the impact on existing customers. The project involves the upgrade of a major flood way in Warnervale Road well including multi-cell box culverts, creek widening, restoration and tie-in works.

The project was strategically identified via growth planning and floodplain modelling undertaken in support of the Warnervale Drainage Development Contribution Plan and as such, is partly funded by $0.45M in Developer Contributions in 2023-24.

6.3.2 Stormwater Drainage Forecast Renewals

Figure 48 shows the stormwater drainage renewal expenditure proposed during the next Determination.

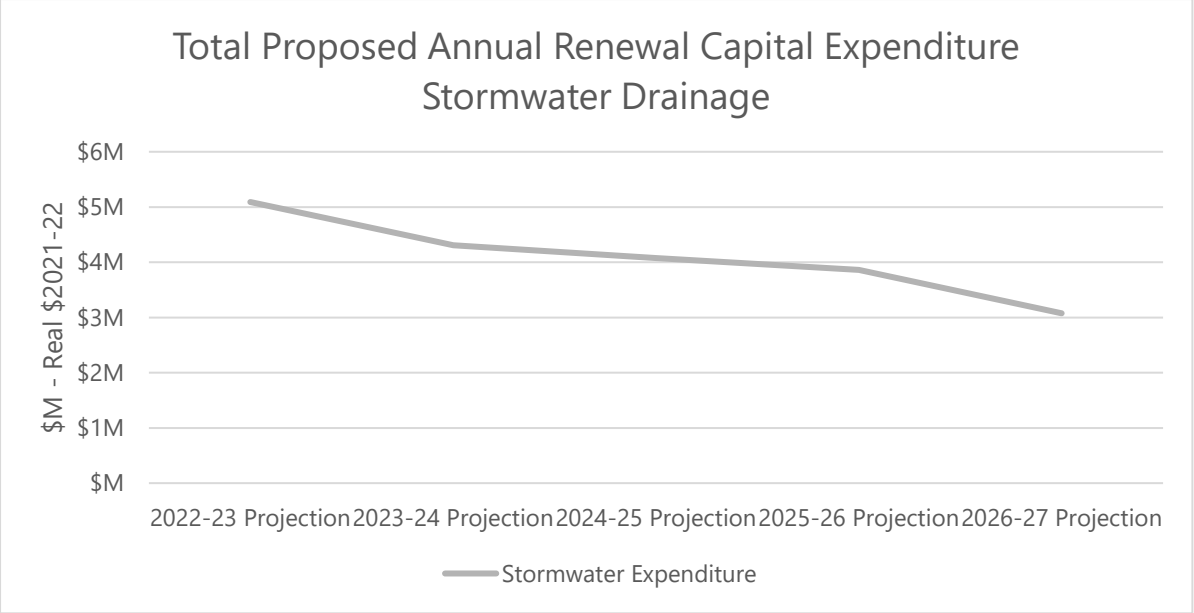

Figure 48: Stormwater drainage renewal expenditure trend

Council has listened to IPART's feedback and made significant improvements in how it identifies, prioritises and plans for stormwater drainage renewals. This includes:

- Improving and consolidating the stormwater drainage asset register and strategically investing in data capture to minimise information gaps
- Leveraging historic physical inspection records from across the organisation
- Undertaking asset criticality mapping to guide prioritisation of works and investment
- Forecasting asset renewals based on physical inspection outcomes and risk
- Itemising individual stormwater drainage renewal projects in line with the above

The proposed expenditure demonstrates a stable program of stormwater drainage renewal projects. Based on the age of the stormwater drainage network and recent condition assessment results, it is forecast that the expenditure trend will increase across the next two determinations.

6.4 Proposed output measures for the next price path

6.4.1 Water and Sewer Output Measures

Water and Sewer's proposed output measures displayed in Table 34 are aimed at ensuring Council delivers key projects and programs to effectively meet system capacity and demand, environmental targets and safety requirements.

Table 34: Councils proposed output measures for the forecast determination period

$M - Real $2021-22	2022-23	2023-24	2024-25	2025-26	Target completion date
Forresters Beach rising main renewal	1.7	0.0	0.0	0.0	Jun-24
Charmhaven STP upgrade	4.5	7.7	4.1	0.0	Jun-26
Mardi WTP upgrade	25.9	7.7	0.0	0.0	Jun-25
Mooney Raw WPS capacity upgrade	0.2	4.5	0.0	0.0	Jun-25

6.4.2 Stormwater Drainage Output Measures

In line with recommendations from the Determination, Council has developed a new Output Measure focused on stormwater drainage capital works. The new measure will report on the length of assets renewed, refurbished and upgraded each year. The proposed measure is documented in the table below.

Table 35: Output Measure Development – Stormwater Drainage Infrastructure Lengths

IPART output measure	Target for 2022-23	Target 2023-24	Target for 2024-25	Target for 2025-26	Target for 2026-27	Total Target
Stormwater Drainage Infrastructure Length	5.4km	6.3km	5.9km	6.2km	6.4km	30.3km

This new performance measure is indicative only and will vary subject to the type of stormwater drainage renewal works undertaken and final design outcomes.

7 Investment planning

7.1 Strategic investment planning

Council's investment planning processes ensure that investment decisions are aligned to IPART's drivers and strategic direction whilst managing risks to its operations.

The Water and Sewer Directorate seeks to align its outcomes within the overall Council community vision and objectives. Prioritisation of identified investment needs is undertaken to ensure that Council provides a value for money service to its customers.

Council's current strategic planning documents that guide Water and Sewerage capital works programs include:

- Asset Management Strategy – supported by Asset Class Management Plans
- Central Coast Water Security Plan (formally WaterPlan 2050)
- Development Servicing Plans
- Gosford Water and Sewerage Master Plan Strategy
- Various treatment and network master planning and strategy documents prepared by Wyong Shire Council

Council is also commencing the remaining planning studies to support the development of Council's broader Integrated Water Cycle Management (IWCM) Plan in accordance with DPIE regulatory requirements. The CCWSP forms a core pillar of the IWCM, with the remaining elements to include a consolidated treatment and network masterplan, updated long term financial plan and the 30-year Total Asset Management Plan.

There are also significant additional investment requirements that may be driven by external regulators outside of the actions contained in the above plans. These include changes in governing standards and legislation and directives from other regulatory agencies such as the Environment Protection Authority as outlined in Section Three.

7.2 Assessment and prioritisation of proposed investments

Council assesses and prioritises their Capital investment based on a variety or criteria:

- **Asset Renewals** are assessed and prioritised using the assets age, condition, criticality and failure rate. Council allows an allocation for reactive replacements for run to fail assets which is adjusted accordingly throughout the year.

- **Asset upgrades** are generally driven to meet capacity requirements utilising growth predictions, modelling data and service demand or to meet new or existing regulatory requirements.

- **The construction of new assets** may be proposed as a more efficient option to optimise the existing network. New developments and community growth drive the need to create new assets. In some cases, these assets will be constructed by the developer and gifted to Council as works in kind. These assets are usually reticulation assets constructed as part of new subdivisions and large development sites. Council may also construct required assets through developer contributed funding.

Council's first draft proposed IPART four-year program totalled $415M, an average investment of $104M per annum. This included mandatory projects already committed in the 2019 determination, forecast BAU renewal works, rectifying identified defects within the network, growth driven upgrades, grant funded works and a forecast for assets predicted to fail within the proposed determination period.

Council acknowledged this proposal was ambitious, taking into consideration the financial and resource challenges the organisation is currently is facing. Council performed further refinements and reprioritised its program, focusing on deliverability (with current internal resource constraints), risk of projects not proceeding, refinement of budget estimates and smoothing of expenditure over the period. This resulted in a revised program of $314M over four years.

Council is developing its Asset Management practices, and in particular, asset risk and criticality frameworks, having identified a means of achieving Asset Management best practices and requirements. These frameworks aim at identifying phased asset intervention activities such as proactive condition assessment and proactive renewals in order to manage the asset risks and are in line with the expected prudent and efficient practices and capital works expenditure.

Council has undertaken risk management activities for selected asset classes and processes. For example, Council continued to review the initial risk and criticality reviews for water pumping stations, sewage pumping stations, water reservoirs and sewer gravity mains asset classes prepared originally in 2014 and a comprehensive risk and criticality framework for water and sewer pressure mains in 2020. This 2020 framework categorised all water and sewer pressure main assets in terms of risk of failure, and an associated Intervention Framework, assisting Council with decisions regarding when and how to intervene during the asset life of pressure pipelines.

Council is proposing to increase its level of Asset Management Maturity in accordance with ISO 55001 – Asset Management, as included in the Asset Management Improvements operational step change and supporting business case. To transition to good practice Asset Management (AM), Council will firstly carry out an AM maturity assessment against the Institute of Asset Management (IAM) across 39 subject areas. The step change is required to

create and implement new practices, systems and technology to transition Council toward industry standard asset management practices such as AM risk and criticality frameworks across all asset classes. These initiatives aim to ensure Council's capital program investments are made in the correct areas and ensure prudency.

7.2.1 Prioritisation and Project Management framework

Council manages its investment portfolio through the compilation and adoption of Annual Operational Plans. The Operational Plan is contributed to by each Directorate within Council to form the overall delivery program with each Directorate having its own internal assessment and approval process to prioritise investment.

Each Directorate within Council has its own individual framework for managing project and program delivery. This is due to the diverse nature of each of the Council Directorates and their individual project delivery requirements. Corporately, contractual rules and policies exist to ensure each Directorate complies with contract, tender and service engagement regulations.

7.2.2 Water and Sewer

The Water and Sewer Directorate have formed a Project Review team and delivery framework to support its investment prioritisation. The Project Review Team (PRT) is a collaborative team, developed to review projects from each unit of the Water and Sewer Directorate for inclusion in the annual and future years Capital Works Program. This team's purpose is to support the business to ensure only valid and prudent projects are invested in and to ensure projects align with the Strategic Business Plan, IPART allowances and recommendations, Community Strategic Plan (One Coast), Assets Management plans and legislative requirements. The primary purpose of the PRT is to review projects for validity and prioritise (rank) proposed projects for the inclusion to the Capital Works Program, as part of the project initiation process.

Project approval is heavily weighted toward risk where the risk of not proceeding is seen as high or unacceptable.

Risk areas primarily considered are:

- Compliance
- Work Health and Safety and Public health
- Levels of service
- Loss of service property damage
- Internal property overflows

- Community/Economic Disruption
- Disruption to traffic
- Cultural/heritage impact
- Damage
- Repair and clean-up costs
- Reputation

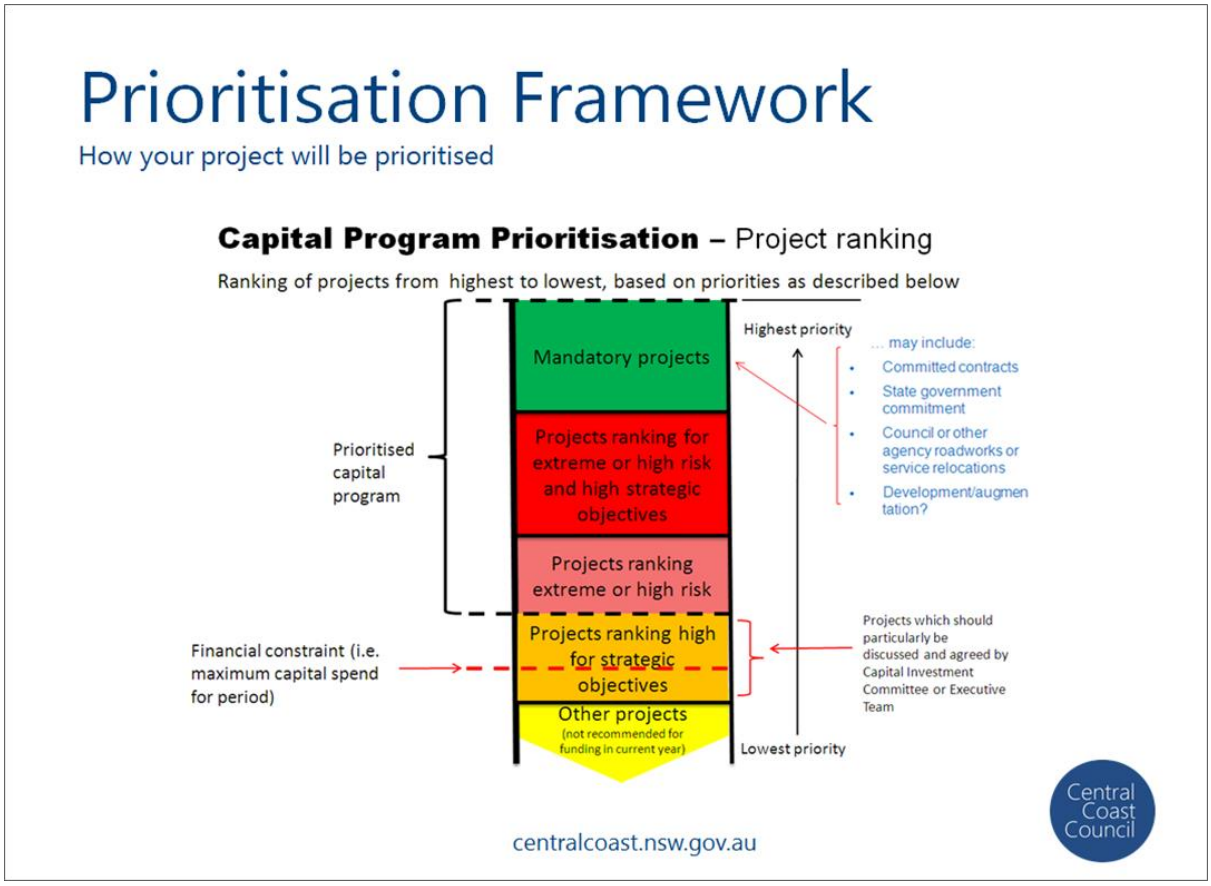

Figure 49: Project prioritisation framework

An investment initiation process governs the commencement of new capital works projects and the transition of major projects from planning to delivery and within key procurement milestones during the delivery process. The process aims to ensure efficient and prudent assessment of capital works, while providing flexibility to reprioritise capital projects as needs and contexts change. An overview of the process is provided in Figure 50.

Project approval is gated at key stages throughout the planning and delivery phases of major projects.

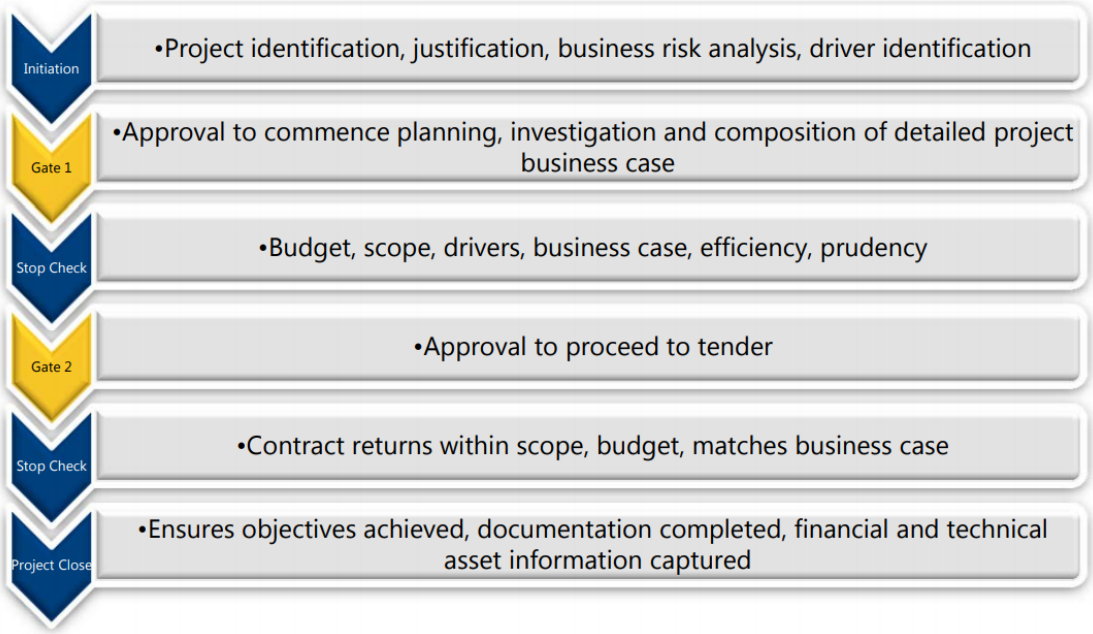

Figure 50: Water and Sewer capital works gateway approval process

The process presented is consistent with the risk management process as detailed in AS/NZS 4360:2004. This process is illustrated below in Figure 51 Risk Management Process.

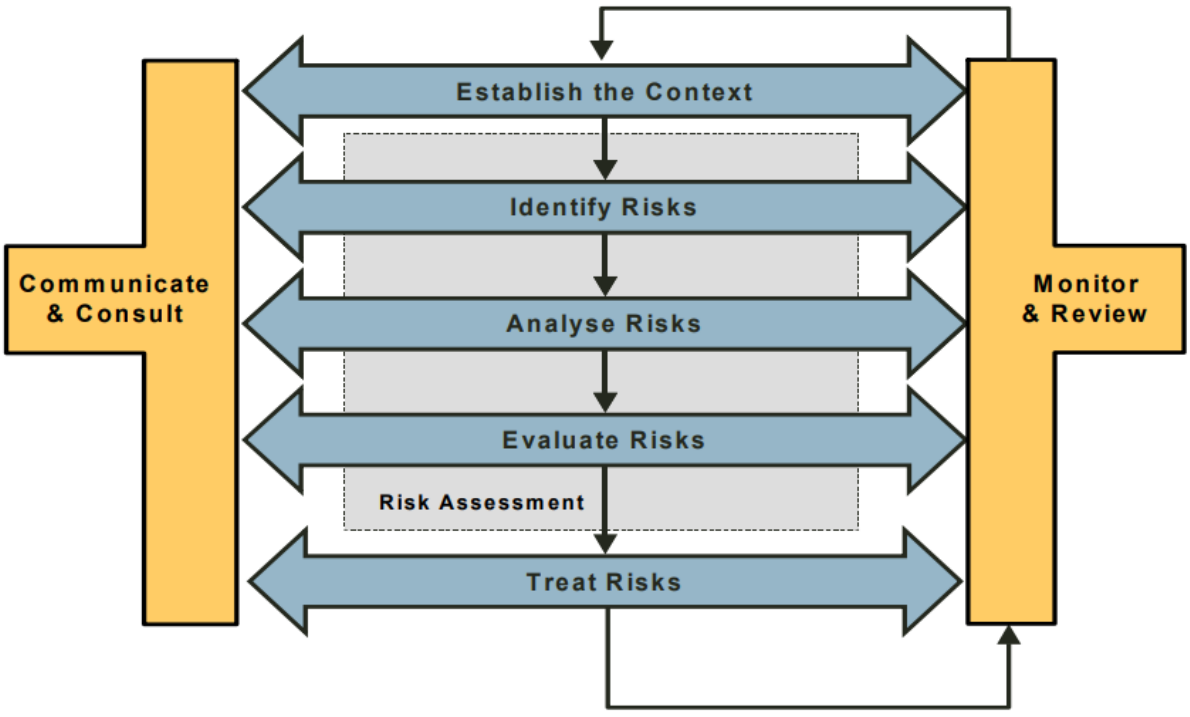

Figure 51: Risk Management Process

Establishing the risk informs management of the consequence and likelihood of failure. The scope of this risk management process involves the identification and evaluation of asset risks that have impacts on:

- Legal / regulatory outcomes
- Health and safety
- Service delivery (includes levels of service)
- Community impacts
- Environmental damage
- Financial loss

The risk management and reprioritisation process is applied at the asset category level to all capital works projects initiated by the Water and Sewer business. Council's combined asset management plan contains the methodology criticality and risk prioritisation for renewals and upgrade works to new and existing water and sewerage asset classes. The document also summarises procedures for capital and operational works and roles and responsibilities. A full description of this process is covered in Council Project Approval Process and project initiation template which can be provided to IPART and its consultants during the review processes. These documents are proprietary Council information.

Water and Sewer has an implemented project management framework which oversees the project lifecycle from initiation to completion.

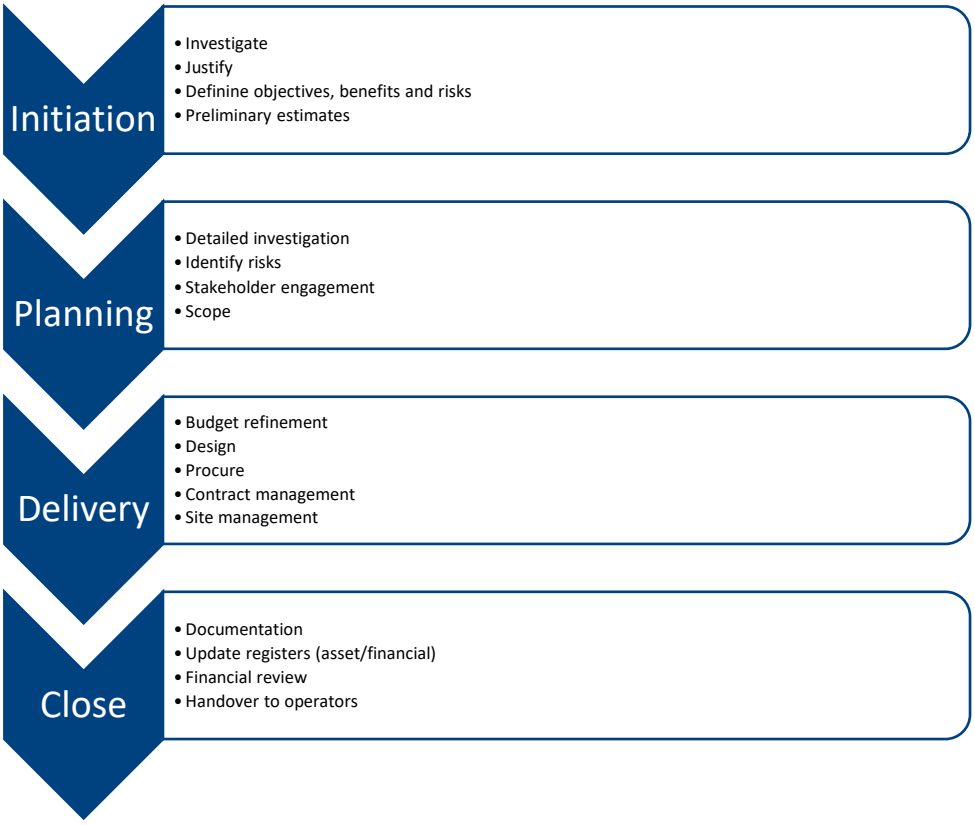

Figure 52: Project delivery phases

The project management framework and suite of complimentary templates is designed to be a one size fits all for project delivery. The templates guide project managers through the planning and delivery process and encompass monthly reporting and budget delivery KPI management.

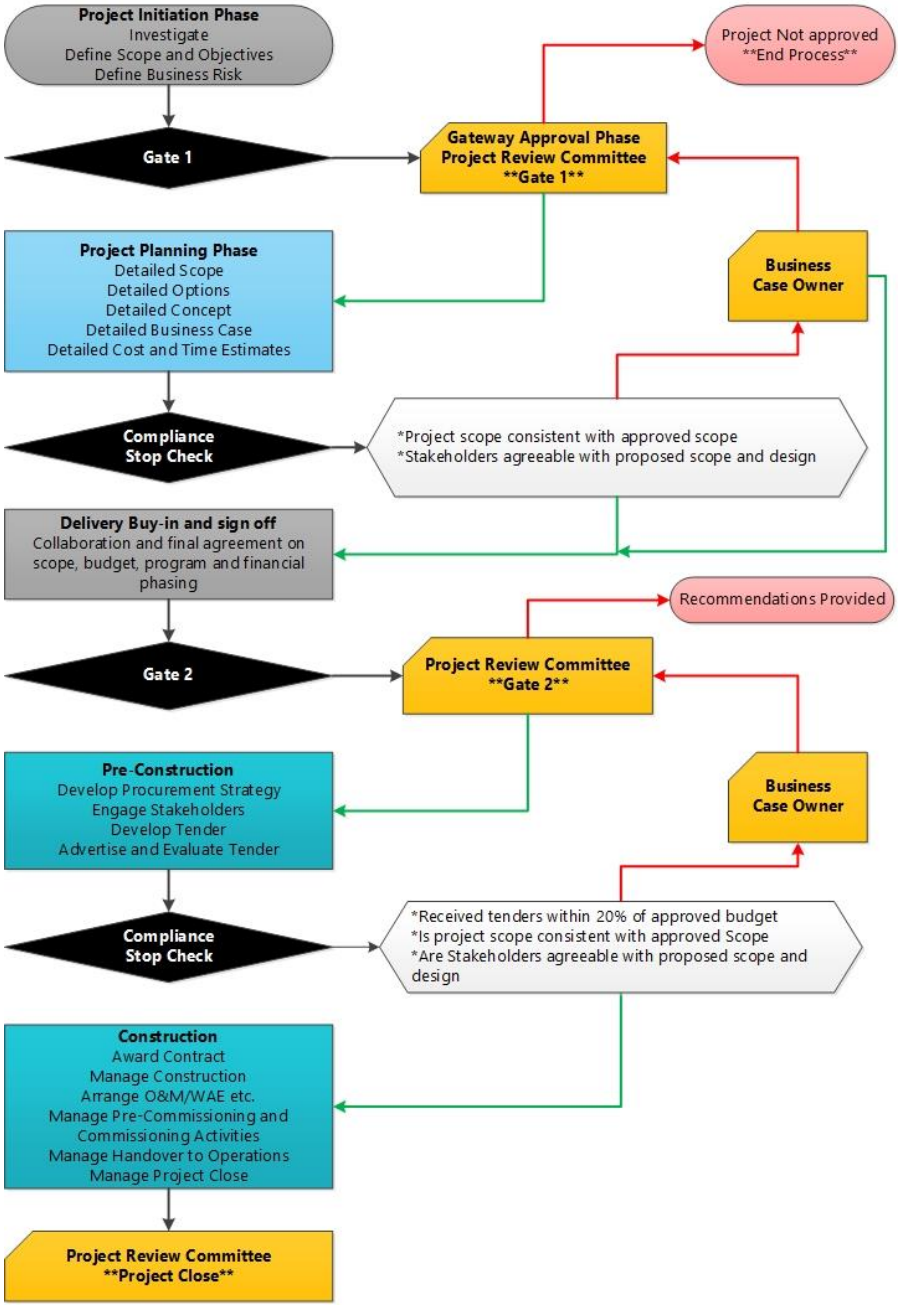

Figure 53: Water and Sewer Project Approval and Gateway Process

Council supplements this framework with additional support, monitoring and control for major projects such as the Mardi to Warnervale Pipeline and Mardi Water Treatment Plant Upgrade. These projects will also involve the establishment of Project Control Groups (PCG) with periodic reporting and risk/issue escalation (as required).

7.2.3 Stormwater Drainage

A similar process is undertaken for stormwater drainage projects. In line with the stormwater drainage project management framework, a preliminary stage gate approval is required for all new projects identified via strategic planning, engineering investigation or asset inspections.

Once a project is recognised and approved, it is assessed against a range of weighted criteria to establish an overall project rating and is then entered into the stormwater drainage capital works database for consideration of inclusion on a future works program. Additional gate approvals are also required prior to including the project in an adopted forward works program and prior to the commencement of formal project development and design.

The project prioritisation, budget and program adoption protocols are designed to ensure stormwater drainage investment is on prudent projects that align with IPART drivers, Community Strategic Plan, Drainage Asset Management Plan and legislative requirements. Whilst the processes are collaborative with involvement / validation by a range of stakeholders, there is clear ownership for approval of each gate stage to ensure accountability and consistent outcomes.

Infrastructure Services has implemented a similar project management framework to Water and Sewer to oversee the project lifecycle from initiation through to completion. The project management framework is based on the same approval gateways but has been tailored and expanded to accommodate the Infrastructure Services delivery model and the different type of project development and consultation required for stormwater drainage projects.

Table 36: Stormwater drainage – Project Management Framework

Gate		Description	Document
1	**A - Recognition**	Investigate, validate and register new stormwater drainage projects into the CAPEX database and confirm consultation requirements	Investigation Report
			CAPEX Database
			Initiation Form Part A
	B - Budget	Prepare and submit the one-year, four-year and ten-year stormwater drainage capital works program budget, phasing and funding source	Budget Template(s)
			Initiation Form Part B
	C - Initiation	Confirm stormwater drainage project scope, budget and scheduling and initiate project development/design	Initiation Form
2	**Planning**		Design Brief

Gate		Description	Document
		Develop stormwater drainage projects, consult and prepare concept/detail designs and provide design advice during construction	Construction Handover Part A
3	**Delivery**	Govern stormwater drainage capital works delivery, control scope and budget variation and prepare monthly reports	Construction Handover Part B
			Variation Request
4	**Closure**	Manage project closure including defect inspections, account closures, Work as Executed AE plans and project evaluation/review	Project Evaluation
			Work as Executed
			Asset Handover

The project management framework and suite of supporting templates is designed to be a one size fits all for project delivery. The templates guide project managers through the planning and delivery process and encompass everything from consultation protocols, monthly reporting, variation control, budget management and KPI delivery.

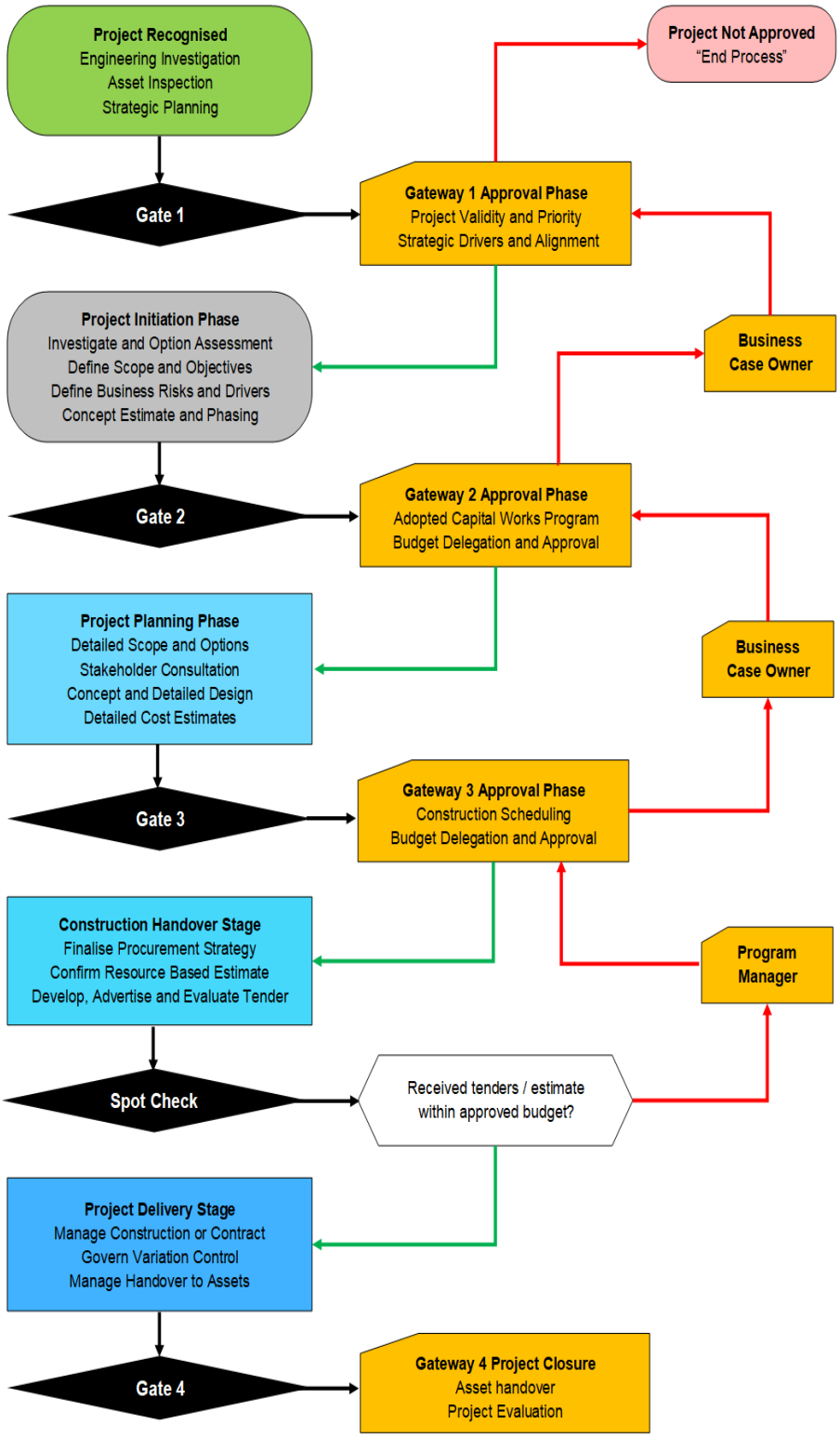

Figure 54: Stormwater Drainage Project approval and gateway process

7.2.4 Asset replacements

Assets requiring renewal or replacement are identified from one of three methods provided below, depending on the asset class management sophistication and maturity:

Method 1 – Asset register: Uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or

Method 2 – Capital renewal and condition assessment analysis: Uses capital renewal expenditure projections from failure instances and condition modelling analysis, or

Method 3 – Asset risk of failure: Uses an iterative asset failure risk analysis by determining the asset consequence of failure or criticality and the asset likelihood of failure. The asset risk score determines the asset intervention framework. Medium and high risks should be first confirmed with further data to increase decision-making confidence. With the confidence gained from the new data, evidence-based decisions can be made to determine the level of ongoing condition management or scheduled renewal priority.

The intervention framework is based on a staged approach and intervention stages are groups at a high level based on the quantified asset risk.

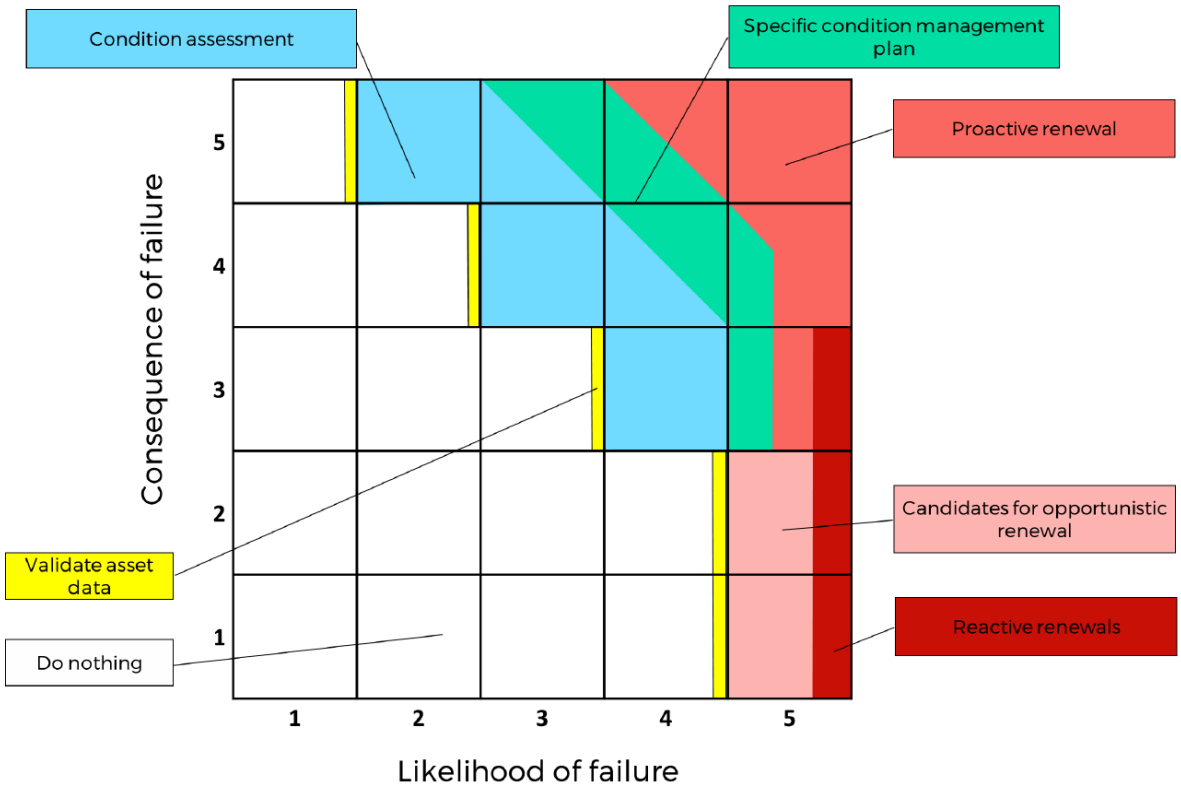

Figure 55: Asset risk of failure matrix

Since 2013, Council invests on average $32M per annum on renewing its water, sewer and stormwater drainage assets. Council's renewal program is comprised of both proactive and reactive renewals. Proactive renewals are typically identified through the analysis of asset management data, physical condition assessments and desktop risk and criticality assessments.

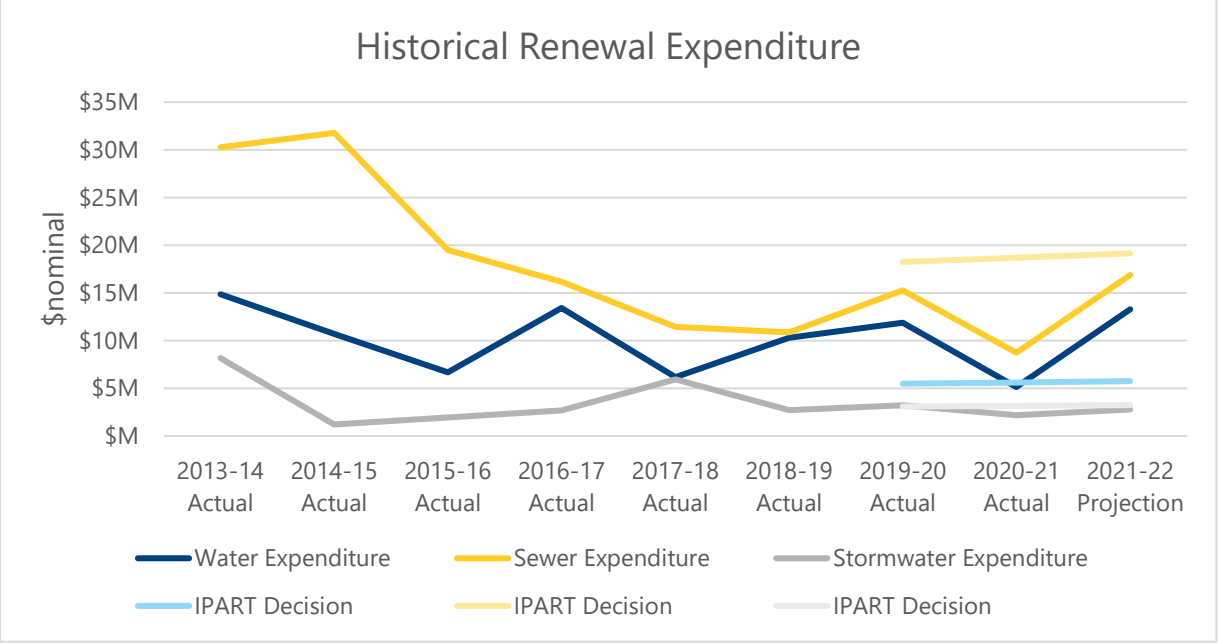

Figure 56: Historical renewal expenditure

7.2.5 Financial challenges impacting on capital expenditure planning

Due to the financial challenge that Council is currently facing, the water, sewer and stormwater drainage businesses have a corporately imposed annual capital expenditure limit. The limit is equal to the annual corporate depreciation amount each business incurs with the allowed limit inclusive of grant funded and developer contributed projects.

For the Water and Sewer Directorate, the forecast corporate depreciation for the upcoming determination period was slightly in excess of $70M per annum.

Stormwater drainage corporate depreciation is allocated to the Infrastructure Services Directorate, which also includes the management of roads, footpaths, waste management, wharves and bridges. Infrastructure Services has an annual corporate capital expenditure limit of approximately $65M per annum of which stormwater drainage corporate depreciation is approximately $16M. The Directorate is required to prioritise capital expenditure for stormwater drainage and all other assets it manages within this expenditure limit.

The corporate rationale for the capital expenditure cap is to assist Council to better manage and forecast long term cashflow and adhere to commitments made to lenders in order to secure external funding.

The water, sewer and stormwater drainage businesses are currently in the process of an asset revaluation, which will impact each business's annual deprecation. These impacts will be

finalised in about August/September 2021. Council has agreed that any variance in corporate depreciation will not pose further impacts to the current water, sewer and stormwater drainage capital expenditure forecasts.

The corporate annual capital expenditure cap has posed some challenges for the business in managing project timing and ensuring budget smoothing over each financial year. This is especially the case in the 2022-23 financial year where Council already has a $43M forecast for committed projects and a further $15M expected to commence construction in late 2021-22. This has seen the need to defer projects to later in the 2022 determination and into future determinations. Council acknowledges that asset condition and risk will fluctuate over the determination period which will require annual reprioritisation and a likely increase in reactive and emergency renewals for failing assets.

7.3 Infrastructure Risk Management Process

Council has developed a Risk Management Framework that is linked to the Corporate Risk Management Framework and has been tailored to be directly applicable to its water, sewer and stormwater drainage asset classes. The Council Corporate Risk Framework has been developed in accordance with the Australian/New Zealand Standard AS/NZS ISO 31000-2009 – Risk Management.

The risk assessments are completed using this framework will enable Council to complete the following:

- Quantify the relative risks of the assets to identify assets that may require corrective actions
- Prioritise assets for renewal within an asset class
- Prioritise projects across asset classes
- Report on asset risks at a corporate level

The purpose of establishing the risk context is to define the basic parameters within which risks must be managed and set the scope for the rest of the risk management process. The scope of this risk management process involves the identification and evaluation of asset risks that have impacts on:

- Legal/Regulatory Outcomes
- Health and Safety
- Service Delivery (includes Levels of Service)
- Community Impacts
- Environmental Damage
- Financial Loss

The risk management process is applied at the asset class level.

8 Investment delivery

8.1 Procurement

As the Water and Sewer Directorate is part of a Council, it is limited in its ability to find the same procurement efficiencies other utilities may achieve. The Water and Sewer Directorate is required to adhere to Council's procurement policies in relation to goods and services procured which includes the procurement of contractor engagement.

Council is required to undertake specified procurement in accordance with:

- The Local Government Act 1993 (LGA) [in particular section 55]
- The Local Government (General) Regulation 2005 (Regulation) [in particular Part 7 – Tendering]

8.2 Contract management

Council has a corporate contract management framework and supplementary manual staff must follow this for contract management. The Business Owner will nominate an individual within their area of responsibility to act as the Contract Manager for each contract.

As the value, risk and complexity of a contract increases, so does the contract management requirements. The Contract Manager is responsible for managing risks and seeking appropriate professional advice at an early stage where insurance, legal or governance issues arise. They must be adequately resourced and skilled to manage a contract and the particular requirements of the contract.

Council must ensure appropriate levels of resourcing and management are applied to the contract management process in line with the importance of the contract and risk. Contracts and related contractors may be segmented according to value and risk as follows:

Operational (low importance)
For the supply of commodity items or services that are deemed to be low risk, low volume, have multiple contractors, little or no front-line impact and are typically of a low value.

Tactical (low or medium importance)
For the supply of goods or services that are deemed to be low or medium risk. There may be multiple or stable vendors that can supply the required goods or services and the impact to the front line is typically minor.

Strategic (high importance)
For the supply of goods and or services that directly impact operations, are highly sensitive or are high risk. In most situations, issues with the supply of the goods or services will impact Council with varying degrees of severity. Generally, construction, as per the WHS Act is high risk when valued over $250K.

This legislation applies to all contracts for goods and services, unless a relevant exception applies. One exception is where the estimated expenditure for a contract is less than $250,000 (excluding GST). Section 23A of the LGA requires that Council consider the Tender Guidelines as part of any tendering process, whether that process is mandated by the LGA or not.

8.3 Program and Delivery Capability

There have been recent changes in Council's organisational structure in response to the organisation's financial challenges. Following the review of Council's workforce and organisational structure, a financially sustainable long-term structure aims to meet the needs of the community and Council's operations. Consideration is taken of essential services and programs of work and the necessary roles required to undertake these services.
This reduction in resourcing has changed the way the business will deliver projects and programs in the future which is heavily reliant on filling vacancies and using contract labour.

8.3.1 Procurement and contract strategies

The Water and Sewer Directorate has further implemented a range of contractor panels to achieve time efficiencies in the tendering, contract approval and award phases, to ensure capital works are delivered using the most efficient strategies available.

There has been an implementation of several long-term contracts for service provisions to deliver Capital projects and programs. These contracts negate the need to tender individually for services the business requires on an ongoing basis. Examples of these are:

Water Services and Construction
Single supplier arrangement, four-year contract with extension options for the provision of all water main renewal, water service and water meter installations

Sewer Rehabilitation and Construction
Single supplier arrangement, four-year contract with extension options for the provision of all sewer main lining, manhole rehabilitation along with the provisions for CCTV inspections, critical sewer and infiltration assessments.

Sewer Pump Supply Contract

Single supplier arrangement, term contract for the supply sewage pumps and associated equipment.

SCADA Integration and Control

Single supplier arrangement, term contract for the provision of electrical control and SCADA services, upgrades and replacements.

General Construction Panel

The General Construction Panel was implemented in 2019 and consists of a panel of 7 contractors who can be engaged to undertake and deliver general construction works in relation to Water and Sewer assets under a standing offer arrangement based on the AS2124 (Construction) Conditions of Contract. General Works means; works of a value greater than $150,000 but less than $1,000,000 ($1M) in total estimated Contract Award value plus any contingency funding (i.e. estimated Contract Award Value + Contingency = General Works estimated value)

General Construction work consists of routine capital works with a relatively low risk profile. Due to the commonalities involved in much of this work, Council saw an opportunity to streamline the tendering process with the potential to package works where synergies exist. The benefits of establishing the General Works panel includes lowering operational costs, delivering services through long term relationships and fostering collaboration and innovation amongst the Council and General Works panel suppliers. The proposed General Works Panels will enable an increase in collective works delivery maturity, talent and capability development. The proposed General Works panels will also lead to an internal shared understanding of risks and opportunities; with suitable controls and risk ownership assigned to parties best placed to manage the risk.

Phase two of this strategy is to include design activities and removal of the limiting contract value. Work is progressing and finalisation is early 2022

Engineering Services Panel

The Engineering Services Panel was established in 2021. It is a four-year contract, with extension options, with two firms for the provision of water and sewerage consultancy services. The proposed arrangement will streamline Council's ability to procure consulting services and enable Council to deliver its capital programs more efficiently than using a traditional project by project procurement approach.

The establishment of an engineering services agreement will reduce project initiation times and administration resourcing requirements and costs. The current practice with procuring these services is ad-hoc with a one to one relationship between a project and or contract with limited strategic overview.

Prior to the panel's establishment, W&S had approximately 18 firms undertaking active work under this proposed scope with approx. 90 separate contracts being executed at any one time. W&S technical teams are impacted by the amount of procurement activities and investment time required on an ongoing basis.
The implementation of the Engineering Services Contract will streamline procurement, enable rapid engagement of engineering services and reduce the administration for the W&S and Strategic Procurement Unit. This contract contributes to the strategic direction for W&S while developing a long-term partnership with successful proponents.

8.3.2 Project Delivery and Resourcing

Water and Sewer Project Delivery

In line with the organisation restructure, Water and Sewer has implemented refinements in the way capital works and planning are delivered and adopted a flexible operating model which has recently been implemented for the planning and delivery of capital works.

Historically, Water and Sewer's Asset Management section would lead project planning, scoping and the initial stakeholder management phase of each project taking the project up to the technical specification and tender document preparation.

Under the new operating model, the Asset Management section has moved into the focus area of strategic asset management, asset assessments and long-term investment planning. This has seen some time efficiencies gained due to asset delivery having more specialised skill sets, understanding the constructability and site constraints of proposed works and how stakeholders and the community will be impacted.

Water and Sewer Resourcing

Water and Sewer accommodates flexible resourcing strategies to accommodate specific project demands and needs. Currently, Water and Sewer is using a combination of traditional recruitment through Council's Talent Team (Fixed Term Contracts) and agency/contractor engagements through panel agency arrangements.

The business and People and Culture placed a strong focus last year on bringing these resources on internally so that these resources could be moved and grown within Council (utilise and transfer knowledge amongst the team). Due to both financial constraints and the nature of how project resources tend to want to move from project to project, keeping the right resources has proven difficult.

Additionally, Council's salary system tends to limit the quality of candidates that are attracted to roles and the ability to be competitive in the project space becomes more limited. Having the right resources and dedicated project teams certainly can make a difference to project outcomes which is highlighted by the success of the Mardi to Warnervale pipeline.

Recruitment options deployed:

1: Fixed Term Contracts

2: Outsourced to consultancy or engineering services panel

3: Contractors (Agency hires – inhouse) – 100% capitalisation against project and managed to project resourcing budget approvals

Utilisation of Council's current panel arrangements to facilitate this recruitment process ensures consistency and compliance with current practices. Whilst typically agency hires can be more expensive over the short-term, Water and Sewer manages approved budgets closely (compliant with business case approvals) and only recruit to the project's specific requirements.

The advantage of this strategy is that if Council has any funding issues or there are project overruns, contracted staff can be removed quickly as part of the corrective actions.

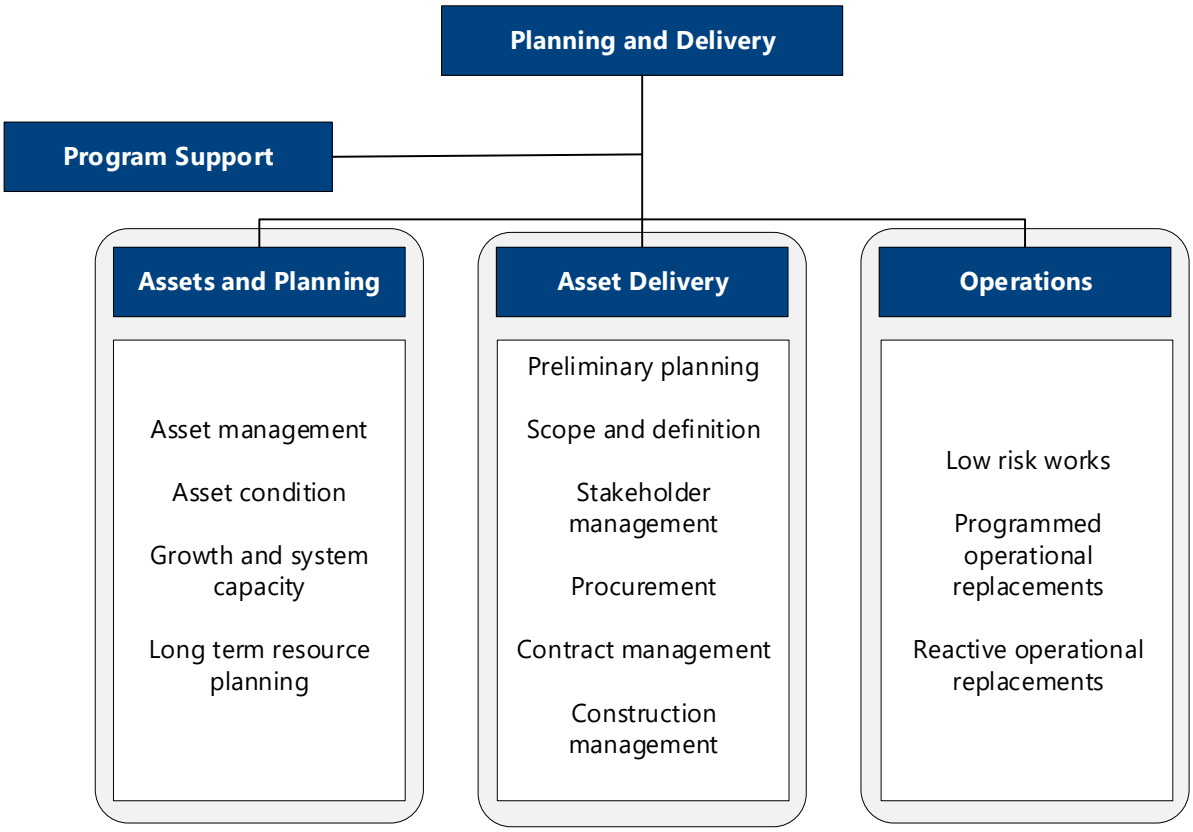

Figure 57: Water and Sewer Capital Planning and Delivery – high level functions

Stormwater Drainage project delivery

As a result of Council's recent financial situation, a number of significant structural changes have been made in the way in which stormwater drainage projects are delivered. The changes have been strategically planned to drive efficiencies, maintain service levels and minimise asset network or customer impacts. The main changes are summarised below:

Table 37: Stormwater drainage – Structural Changes and Efficiencies

Improvement	Detailed summary
Construction and Maintenance	The Maintenance and Construction Unit has been combined under a single Unit Manager. Previously there were separate managers for each. This reduces supervisory overheads, streamlines operational processes and routine reporting and provides improved opportunities to leverage maintenance resources to undertake minor capital works.
Design Team	Stormwater drainage design services have been centralised under a single Section Manager. Previously there were separate design managers for internal or externally delivered design projects. This reduces supervisory overheads, ensures consistency and accountability in delivery and supports streamlining of processes and reporting.

Improvement	Detailed summary
Day Labour Construction	The construction day labour section has been centralised under a single Section Manager. Previously there were separate construction managers for north and south precincts. This reduces supervisory overheads, ensures consistency and accountability in delivery and supports streamlining of processes and reporting.
	The day labour construction workforce has been reduced by approx. 30%. No reduction has been made in the contract management areas. While this reduces overall program delivery capacity, the reduction has been offset by a reduction in the capital works program value and as such it is considered current service levels in relation to project delivery, quality and cost will be maintained.
Program Value	The overall road and drainage capital works program have been reduced in line with organisational business recovery planning, however the reduction has been accommodated within the road asset portfolio and as such will not impact on stormwater drainage service levels.

The above changes have been implemented with a view to streamlining the delivery of stormwater drainage projects, reducing supervisory overheads and driving ongoing efficiencies.

A summary of the stormwater drainage capital delivery model is provided below. The overarching delivery model remains consistent with the 2019 determination, with stormwater drainage projects delivered, utilising a combination of day labour and contract or consultant resources where required.

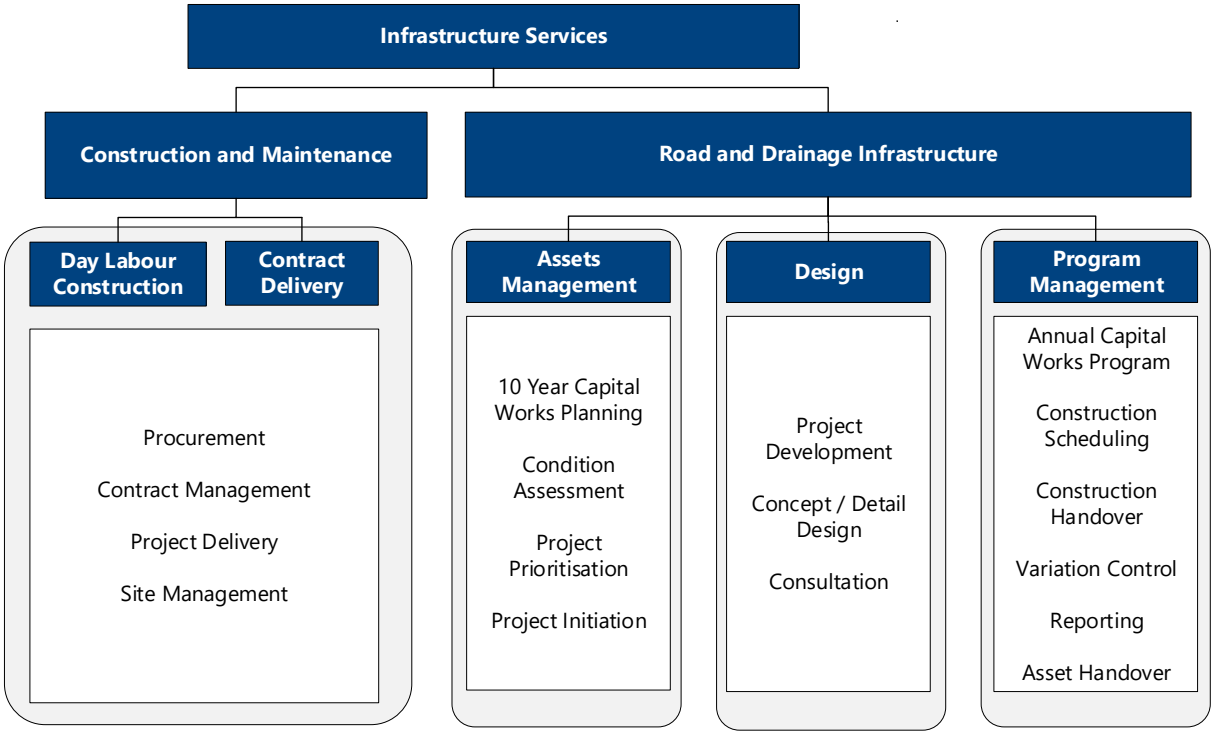

Figure 58: Stormwater Drainage Capital Planning and Delivery – high level functions

9 Abbreviations

ADWG	Australian Drinking Water Guidelines
AM	Asset Management
AMI	Asset Management Institute
AMS	Asset Management System
AS/NZS	Australian Standards/New Zealand Standards
BAU	Business as Usual
CBD	Central Business District
CAPEX	Capital Expenditure
CCC	Central Coast Council
CCWSP	Central Coast Water Sharing Plan
DD&C	Design Development and Construct
DPIE	NSW Department of Planning, Industry and Environment
DSP	Developer Servicing Plan
ELT	Executive Leadership Team
EPL	Environmental Protection Licence
EPA	Environment Protection Authority
ERM	Enterprise Risk Management
FSL	Full supply level
GRC	Gross Replacement Cost
HAF	Housing Acceleration Fund
IWCM	Integrated Water Cycle Management
ISO	International Organization for Standardisation
IPART	Independent Pricing and Regulatory Tribunal
IPS	Infor Public Sector
KPI	Key Performance Indicators
LGA	Local Government Area
LPSS	Low Pressure Sewer System
M2WP	Mardi to Warnervale Pipeline
MCD	Mangrove Creek Dam
ML	Mega litre
MWTP	Mardi Water Treatment Plant
OH&S	Occupational Health and Safety
PCG	Project Control Group
PRP	Pollution Reduction Program
PRT	Project review committee
PV	Photovoltaic
RAB	Regulated Asset Base
REF	Review of Environmental Factors
SCADA	Supervisory control and data acquisition
SPS	Sewage Pump Stations

STP	Sewage Treatment Plant
SWTP	Somersby Water Treatment Plant
WICA	Water Industry Competition Act 2006
WIKA	Works in Kind Agreement
WPS	Water Pump Station
WTP	Water Treatment Plant

10 References

- Atkins Cardno, Review of Central Coast Council's Expenditure, March 2019
- IPART Review of Central Coast Council's water, sewerage and stormwater prices to apply from 1 July 2019, May 2019
- Local Government Act 1993 (LGA) [in particular section 55]
- Local Government (General) Regulation 2005 (Regulation) [in particular Part 7 – Tendering]
- National performance report 2019–20: urban water utilities http://www.bom.gov.au/water/npr/docs/2019-20/National_Performance_Report_2019-20_urban_water_utilities.pdf

11 Appendix

11.1 Forecast Major Projects

Your forecast should include an appendix table listing major projects, their justification, an indication of delivery certainty and the basis for cost estimates.

Table 38: Proposed Major Projects

Project - $ Real $2021-22	Total 4 year	Investment driver	Project type	Output measure alignment	Cost estimate basis	Delivery certainty	Justification
Water Treatment Plant Major Upgrade - Mardi	$33,568,600	Existing mandatory standards	Upgrade	Compliance ADWG - Microbial & Chemical	Based on current market unit rates and preliminary cost estimate	90% delivery Confidence Level	Upgrade to address key water quality risks and reinstate treatment plant nameplate capacity for a contemporary raw water quality envelope.

Project - $ Real $2021-22	Total 4 year	Investment driver	Project type	Output measure alignment	Cost estimate basis	Delivery certainty	Justification
Water Mains Asset Renewal Program - Region Wide	$15,750,000	Asset and service reliability	Renewal	Water main breaks	Indicative – based on contract rates and historical costs	Continuing rolling program with resourcing already in place	Asset and Service Reliability driven program, addressing the output measures for water main breaks, using Council's water supply reticulation main infrastructure criticality and performance frameworks.
Water Infrastructure Reinforcements - Gosford CBD	$5,436,782	Government programs	Upgrade	Water unplanned interruptions	Indicative – Individual cost estimates developed on first principles, plus contingency escalation to provide P50 and P90 costs by Consultant as part of the Infrastructure NSW Business Case	Status: Concept design completed. Construction commenced and completed for multiple assets and individual projects within program. NSW DPIE HAF program commitment.	The project consists of 43 water supply upgrade projects within the Gosford CBD area to address growth. Council has secured 100% funding by the NSW DPIE through the Housing Acceleration Fund (HAF) over a four-year program.

Project - $ Real $2021-22	Total 4 year	Investment driver	Project type	Output measure alignment	Cost estimate basis	Delivery certainty	Justification
Water Pump Station Capacity Upgrade - Mooney Mooney Dam Somersby	$4,706,000	Asset and service reliability	Upgrade	Water quality complaints	Indicative – Consultant developed based on first principles during concept design stage.	Status: Concept design complete. Detail design and construction to follow.	Upgrade project to increase drawdown rate for Mooney Dam, allow Somersby WTP treatment efficiency, and provide improved security of supply to the Southern water supply areas of operation. Part of Central Coast Water Security Plan
Sewer Infrastructure Reinforcements - Gosford CBD	$17,316,105	Government programs	Upgrade	Wastewater overflows	Indicative – Individual cost estimates developed on first principles, plus contingency escalation to provide P50 and P90 costs by Consultant as part of the Infrastructure NSW Business Case	Status: Concept design completed. Construction commenced and completed for multiple assets and individual projects within program. NSW DPIE HAF program commitment.	The project consists of 23 sewerage upgrade projects within the Gosford CBD area to address growth. Council has secured 100% funding by the NSW DPIE through the Housing Acceleration Fund (HAF) over a four-year program.
Sewer Main Asset Renewal Program - Region Wide	$11,750,000	Asset and service reliability	Renewal	Wastewater main breaks and chokes	Indicative – based on historical renewal costs applied to a program of works	Continuing rolling program with resourcing already in place	Asset and Service Reliability driven program, addressing Council's ageing infrastructure and Existing and New mandatory standards to comply with the EPL licenses and NSW EPA pollution prevention program requirements.

Project - $ Real $2021-22	Total 4 year	Investment driver	Project type	Output measure alignment	Cost estimate basis	Delivery certainty	Justification
Sewage Treatment Plant Major Augmentation Works - Charmhaven	$16,260,000	Growth - funded by cash capital contributions	Upgrade		Indicative – Consultant developed based on first principles during STP capacity review.	Status: Options analysis, concept and detail design tender documentation preparation. Construction to follow.	Capacity upgrade to manage ongoing growth within the Catchment (Central Coast Regional Plan Northern Growth Corridor) within the limits set by the EPA within the schemes Environmental Protection Licence (EPL).
Sewage Pump Station Electrical and Control Switchboard Replacement Program - Region Wide	$8,000,000	Asset and service reliability	Renewal	Wastewater overflows	Indicative – based on historical renewal costs applied to a program of works	Continuing rolling program with resourcing already in place	Ongoing upgrade and renewal of electrical switchboards and equipment to resolve safety issues, equipment obsolescence and meet required capability to detect and alert of operational failures such as broken rising mains.
Sewage Treatment Plant Process Improvements - Bateau Bay	$7,800,000	Asset and service reliability	Renewal	Wastewater compliance with EPL	Indicative – Consultant developed based on first principles during STP capacity review.	Status: STP process improvements options analysis, concept and detail design underway. Construction to follow.	The project is aiming to provide the STP enough capacity and redundancy to operate up to the design horizon of 2030. The proposed works will allow council to defer the major upgrade investment, while planning for the major upgrade including NSW EPA licence negotiation.

Project - $ Real $2021-22	Total 4 year	Investment driver	Project type	Output measure alignment	Cost estimate basis	Delivery certainty	Justification
Sewer Rising Main Rehabilitation Program	$10,000,000	Asset and service reliability	Renewal	Wastewater overflows	Indicative – based on historical renewal costs applied to a program of works	Status: Ongoing program. Several individual full or partial rising main renewals options and concept design completed. Design and construction to follow.	Asset and Service Reliability driven program. The program addresses existing and new mandatory standards to comply with the EPL licenses and NSW EPA pollution prevention program requirements, using Council's sewer rising main infrastructure criticality and performance frameworks.
DSP Forecast Sewer Rising Main Upgrade - Warnervale (CH12)	$6,480,320	Growth - funded by cash capital contributions	Upgrade	Wastewater overflows	Indicative – costs currently based on unit rates at strategic planning stage	Status: Route selection and initial environmental investigation complete. Survey, design and construction to follow.	Capacity upgrade for regional sewage pumping station subject to growth within the Central Coast Regional Plan's Northern Growth Corridor.
Sewage Treatment Plant Sludge Mechanical Dewatering Renewal - Kincumber	$3,377,073	Asset and service reliability	Renewal	Wastewater compliance with EPL	Indicative – Consultant developed based on first principles during options and concept design stage	Status: Concept design completed. Design and construction to follow.	Project required to improve the operational reliability and redundancy of Kincumber STP, as well as complying with the objectives of the Environmental Protection License.

Project - $ Real $2021-22	Total 4 year	Investment driver	Project type	Output measure alignment	Cost estimate basis	Delivery certainty	Justification
Sewage Pump Station Emergency Overflow Prevention - Cochrone St Kincumber (KMJ)	$3,300,000	Growth - funded by cash capital contributions	Upgrade	Wastewater overflows	Indicative – Consultant developed based on first principles during options and concept design stage	Status: Options analysis completed in 2020-21. Concept design, detail design and construction to follow (deferred to 2022-23)	The project objectives are Compliance with the design intent of Kincumber Major Sewage Pumping Station, addressing EPA requirements to discharge at the designated emergency flow relief structure when the SPS is inoperable, as well as protection of the structural adequacy of the sewerage trunk system infrastructure.
Sewage Treatment Plant - Capacity Upgrade - Gwandalan	$13,338,000	Growth - funded by cash capital contributions	Upgrade	Wastewater compliance with EPL	Indicative – Consultant developed based on first principles during STP capacity review.	Status: Capacity review complete in 2020. Currently preparing tender documentation for options analysis, concept and detail design	Gwandalan Sewage Treatment Plant requires a significant upgrade to manage ongoing growth within its Catchment (Greenfield Subdivisions) within the limits set by the EPA within the schemes Environmental Protection Licence (EPL).
Avoca Drive - Drainage Upgrade	$4,450,000	Asset and service reliability	Upgrade	Length of drainage assets constructed each year	Based on current market unit rates and preliminary cost estimate	Low complexity given it's a continuation of an existing multi-year project	Continuation of multi-year project, high public safety risk, private and public property flood mitigation
Lakedge Ave from Jean Drive to Shannon Parade - Drainage Upgrade1	$4,770,000	Asset and service reliability	Renewal	Length of drainage assets constructed each year	Based on current market unit rates and preliminary cost estimate	Low complexity given it's a continuation of an existing multi-year project	Continuation of multi-year project, high public safety risk, private and public property flood mitigation and asset renewal

Project - $ Real $2021-22	Total 4 year	Investment driver	Project type	Output measure alignment	Cost estimate basis	Delivery certainty	Justification
Riou Street, Albany Street to Brisbane Water - Drainage Upgrade	$3,808,000	Growth - Other	Upgrade	Length of drainage assets constructed each year	Based on current market unit rates, studies and concept estimate	Medium complexity given the early stages of planning and existing urban environment	High public safety risk, private and public property flooding mitigation, future growth and development
Minor Drainage Improvement Program	$3,242,000	Asset and service reliability	Upgrade	Length of drainage assets constructed each year	Based on current market unit rates and tender panel rates	Low complexity given the small scale and tender panel nature of works	High public safety risk, private and public property flood mitigation, customer service and responsiveness
Lakedge Ave from Jean Drive to Shannon Parade - Drainage Upgrade	$3,230,000	Asset and service reliability	Renewal	Length of drainage assets constructed each year	Based on current market unit rates and preliminary cost estimate	Low complexity given it's a continuation of an existing multi-year project	Continuation of multi-year project, high public safety risk, private and public property flood mitigation and asset renewal

11.2 Water and Sewerage Development Servicing Plans

The Water Supply and Sewerage Development Servicing Plans (DSPs) detail the developer charges that are required to be paid by developers towards the provision of existing and future water supply and sewerage infrastructure. These charges are levied under the Water Management Act 2000 and are unrelated to Developer Contributions levied under Section 7.11/7.12 of the Environmental Planning and Assessment Act 1979. Developer Charges are levied on an Equivalent Tenement (ET) basis, where a proposed development is compared to an equivalent number of residential properties for the purpose of determining charges payable.

Council is required by the NSW Independent Pricing and Regulatory Tribunal (IPART) to review its Water Supply and Sewerage DSPs every five years. The DSPs are required to be revised using parameters issued by IPART in its determination on Maximum prices for connecting, or upgrading a connection, to a water supply, sewerage or drainage system – Sydney Water, Hunter Water and Central Coast Council (October 2018) and the recent determination on Central Coast Council Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2019.

A summary of how Water and Sewerage Developer Charges are calculated across New South Wales is provided in Figure 59.

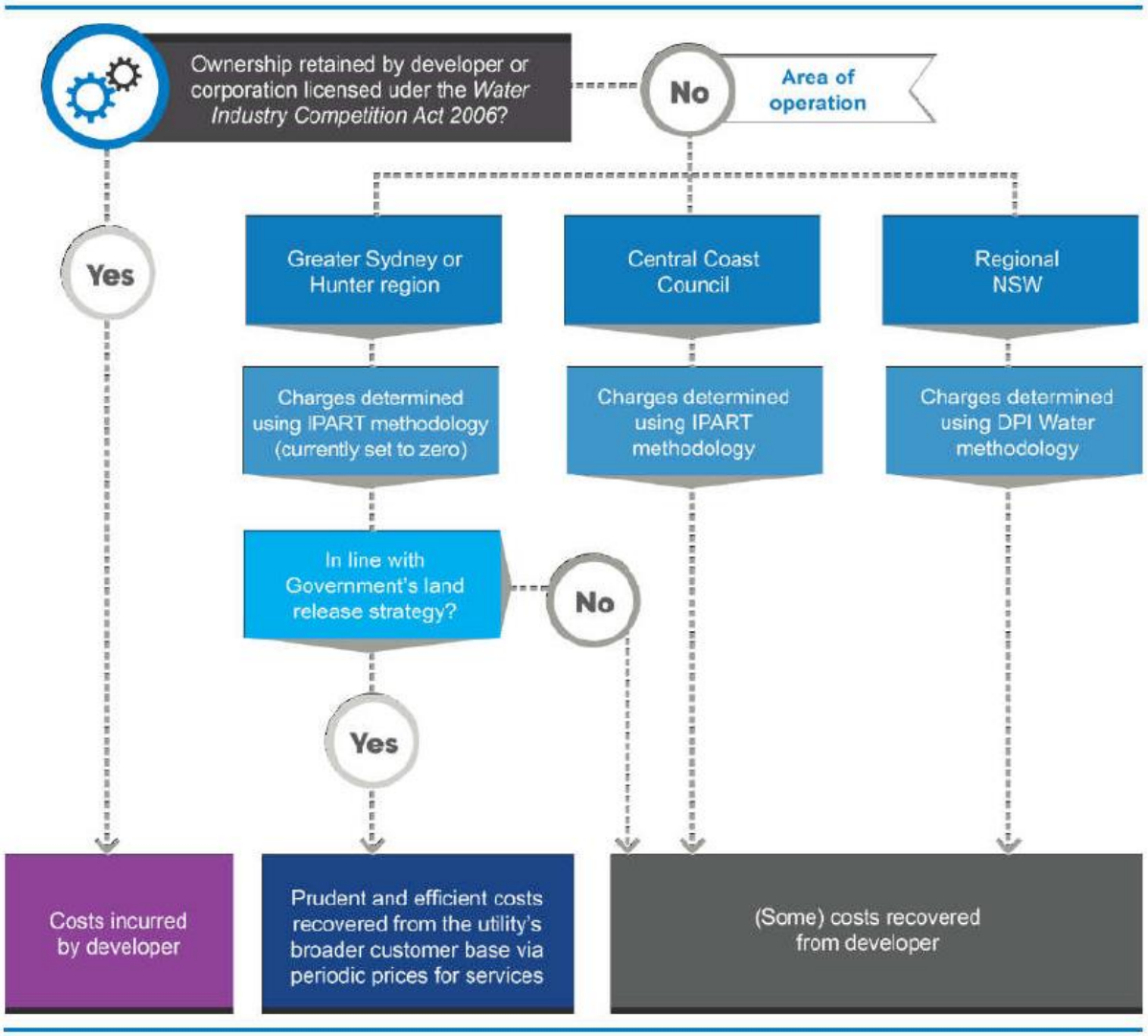

Figure 59: Methodologies for funding water and sewerage infrastructure for new development across NSW (supplied by IPART)

The DSPs provide both the overall servicing masterplan and a mechanism for the partial funding of the required assets. The remaining revenue is collected through water and sewerage under the IPART building block model. Details on Council's two existing DSPs is available via Council's website (https://www.centralcoast.nsw.gov.au/plan-and-build/plumbing-and-sewage/water-and-sewer-development).

11.3 Legislative changes

- Security of Critical Infrastructure act - reforms

The Security of Critical Infrastructure Act 2018 (the Act) commenced on 11 July 2018. Central Coast Council has been identified as a reporting entity for a critical water asset under the Act as there are greater than 100,000 connections to the water and sewer network.

The Act ensures the Australian Government knows who owns and operates Australian critical infrastructure assets and the asset owners operate in line with the legislation.

Currently, Department of Home Affairs are undertaking reforms to the act and the outcome from the reforms will see a set of rules for the water sector for the following categories:

- Cybersecurity
- Personnel Hazards
- Supply Chain Hazards
- Physical Hazards
- Natural Hazards – link to catchment management
- Material Risk rules

As these rules have not been ratified, it is difficult to understand or estimate the true implementation cost. However, based on initial workshops held by Department of Home Affairs, the main investment would likely be related to Cybersecurity, IT and OT and physical security on key sites.

Council has not included potential works in its forecast CAPEX due to the unknown nature of works required in the future. If Council is required to complete works related the Security of Infrastructure act, Council will seek IPART approval to have these costs added to its RAB at the conclusion of the forecast determination period.

11.4 Forecast Income

Table 39: Council's Forecast Developer Cash Contributions – $M - Real $2021-22

Total Forecast Developer Contributions	2022-23	2023-24	2024-25	2025-26	2026-27	Total
Water	6.8	5.6	3.7	6.3	7.0	29.4
Former Wyong Sewer	2.2	2.5	3.3	-4.8	2.0	5.1
Former Gosford Sewer	0.9	0.6	0.7	0.7	0.5	3.4
Stormwater Drainage	1.7	1.8	1.8	1.8	1.9	9.0
Total	**11.6**	**10.5**	**9.5**	**4.0**	**11.4**	**47.0**

Table 40: Council's Forecast Government Grant Income – $M - Real $2021-22

Total Forecast Grant Funding	2022-23	2023-24	2024-25	2025-26	2026-27	Total
Water	5.7	0.2	0.0	0.0	0.0	**5.9**
Sewer Former Wyong	1.2	0.0	0.0	0.0	0.0	**1.2**
Sewer Former Gosford	14.5	3.6	0.0	0.0	0.0	**18.1**
Stormwater Drainage	0.0	0.0	0.0	0.0	0.0	**0.0**
Total	**21.4**	**3.8**	**0.0**	**0.0**	**0.0**	**25.2**

11.5 Forecast 10 Year Capital Expenditure

Table 41 - Financial Asset Register Forecast End of Life Replacements

SS7 Forecast Replacements	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Groundwater Assets	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	1.4	0.0
Headwork Assets	0.0	0.0	0.0	0.7	11.3	0.0	0.0	0.1	0.0	0.0
LPSS and Vacuum	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network Assets Sewer	0.4	0.2	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Network Assets Water	0.5	0.8	1.1	1.1	4.1	1.4	0.8	0.9	0.4	0.7
Sewer Mains	0.0	0.0	0.0	0.4	2.0	0.0	0.0	0.0	0.0	0.0
Sewer Pump Stations	1.4	1.3	3.8	1.5	34.9	1.9	3.1	4.3	5.1	3.4
Sewer Treatment Plant	3.5	0.1	0.4	7.2	72.4	16.4	0.2	5.6	3.1	11.7
Water Mains	0.0	0.0	9.6	0.0	1.6	0.1	0.0	0.0	2.3	0.0
Water Pump Stations	0.2	0.0	0.0	0.3	18.4	0.2	0.3	0.1	0.0	0.0
Water Reservoirs	0.0	0.0	0.0	1.0	5.8	0.0	0.0	0.1	1.6	0.1
Water Treatment Plant	0.1	0.6	0.5	0.0	16.0	0.0	0.9	0.2	3.2	0.0
Total	6.1	3.0	16.4	12.3	166.6	23.1	5.2	11.5	17.1	15.9

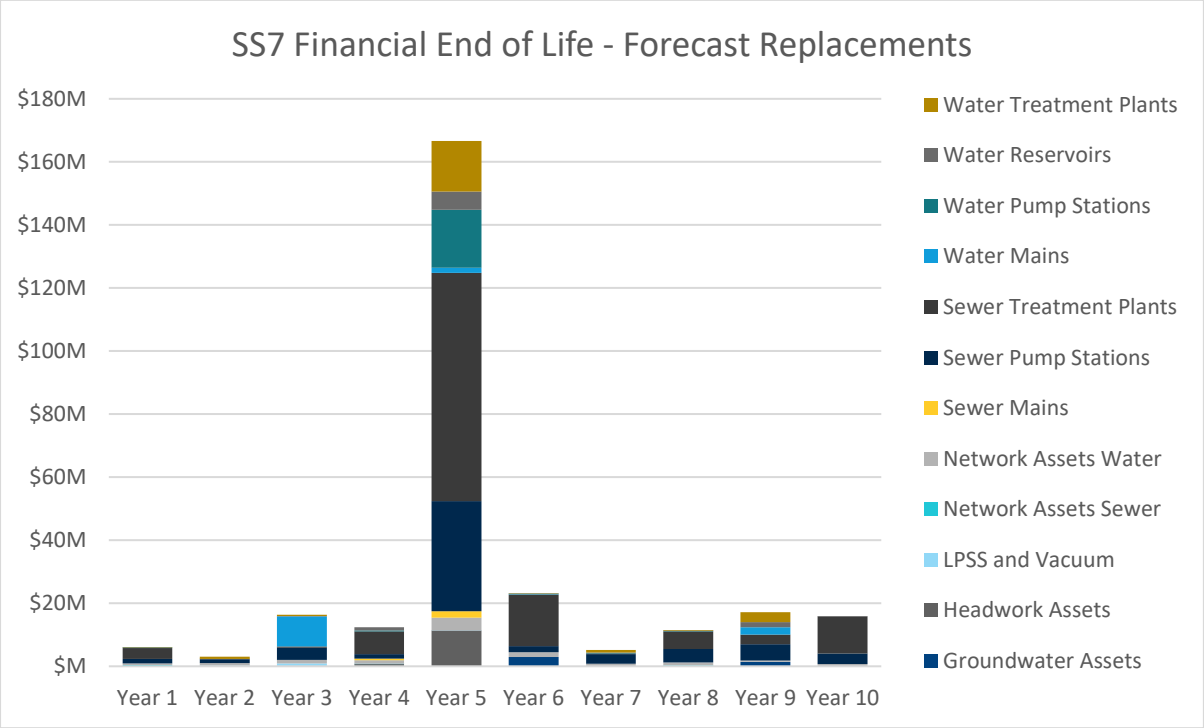

Figure 60 - Financial Asset Register Forecast End of Life Replacements