

# Central Coast Council Expenditure Review

## Final Report

IPART

March 2019

Contains *sensitive* information



# Notice

This document and its contents have been prepared and are intended solely for IPART's information and use in relation to the Central Coast Council Water Expenditure Review

WS Atkins International Limited (Australia branch) assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 173 pages including the cover.

## Document history

Job number: 5169240			Document ref:			
Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	Working draft for IPART initial review	SJI/GJ/SW	SJI/GJ/SW/J NSJ	JNSJ	GJ	02/11/18
Rev 2.0	Draft for IPART and CCC Review	SJI/GJ/SW	SJI/GJ/SW/J NSJ	JNSJ	GJ	22/11/18
Rev 2.1	Draft for IPART and CCC Review	SJI/GJ/SW	SJI/GJ/SW/J NSJ	JNSJ	GJ	23/11/18
Rev 2.2	Draft for IPART and CCC Review- amended for typos	SJI/GJ/SW	SJI/GJ/SW/J NSJ	JNSJ	GJ	26/11/18
Rev 3.0	Draft Final Report	SJI/GJ/SW	SJI/GJ/SW/J NSJ	JNSJ	GJ	24/01/19
Rev 3.1	Draft Final Report: amended capex summary table and typos	GJ				30/01/19
Rev 3.2	Final Report	SJI/GJ/SW	SJI/GJ/SW/J NSJ	JNSJ	GJ	12/02/19
Rev 3.3	Final Report	SJI/GJ/SW	SJI/GJ/SW/J NSJ	JNSJ	GJ	01/03/19
Rev 4.0	Final Report (Public Release)	SJI/GJ/SW	SJI/GJ/SW/J NSJ	JNSJ	GJ	25/03/19
Rev 5.0	Final Report (Public Release) with confidentiality amendment	GJ	SJI	JNSJ	GJ	28/03/19

# Table of contents

Chapter	Pages
<b>Glossary</b>	<b>6</b>
<b>Executive Summary</b>	<b>8</b>
<b>1 Introduction</b>	<b>17</b>
1.1 Terms of Reference	17
1.2 Council's submission to IPART	17
1.3 Review Process	17
1.4 Methodology	18
1.5 Price base	21
<b>2 Strategic Management Overview</b>	<b>22</b>
2.1 Overview and asset base	22
2.2 Organisation, Structure and Functions	26
2.3 Governance Arrangements	27
2.4 Long term strategic plan	29
2.5 Asset management practices and processes	33
2.6 Corporate Risk Management	39
2.7 Cost Estimation	39
2.8 Procurement	40
2.9 Conclusions	41
<b>3 Operating Expenditure</b>	<b>42</b>
3.1 Methodology	42
3.2 Overview	43
3.3 Operating Expenditure in the Current Determination Period	51
3.4 Prudent and Efficient Expenditure in the Current Determination Period	63
3.5 Operating Expenditure in the Future Determination Period	68
3.6 Prudent and Efficient Expenditure in the Future Determination Period	76
3.7 Conclusions	81
<b>4 Capital Expenditure</b>	<b>84</b>
4.1 Methodology	84
4.2 Overview	86
4.3 Investment Drivers	91
4.4 Asset renewal expenditure	93
4.5 Water other expenditure	97
4.6 Sewerage other expenditure	103
4.7 Stormwater other expenditure	105
4.8 Corporate Services	107
4.9 Prudent and Efficient Expenditure in the Current Determination Period	107
4.10 Prudent and Efficient Expenditure in the Future Determination Period	111
4.11 Continuing efficiency	112
4.12 Catch up efficiency	112
4.13 Efficient Level of Expenditure	113
4.14 Conclusions	116
<b>5 Asset lives</b>	<b>118</b>
5.1 Regulatory asset life at 30 June 2019	118
5.2 Regulatory asset life for capex proposed in the next determination period	118
<b>6 Recommended Output Measures</b>	<b>124</b>

<b>Appendices</b>	<b>130</b>
<b>Appendix A – Capex Projects</b>	<b>131</b>
<b>Appendix B – Project Summaries</b>	<b>134</b>
<b>Appendix C – CCC Service Level Output Performance</b>	<b>168</b>

## Tables

Table 2-1	Council water and sewerage regulatory requirements	24
Table 2-2	Council budgeting units	27
Table 2-3	Mapping of themes, focus areas and objectives to services	31
Table 2-4	Water supply Levels of Service from whole of Council asset management plan	34
Table 2-5	Desired and actual performance against 2013-17 Determination related performance measures	36
Table 2-6	Summary of performance trends by service level output measure 2014 to 2018.	37
Table 2-7	Reported asset backlog	38
Table 2-8	Council Procurement process – Quotation requirements	40
Table 3-1	Current Determination Period Variance Analysis by Service (Gosford)	51
Table 3-2	Current Determination Period Variance Analysis by Service (Wyang)	53
Table 3-3	Current Determination Period Variance Analysis by Service (Council)	55
Table 3-4	Council estimates of opex variances	56
Table 3-5	Change in expenditure between 2014 and 2018	57
Table 3-6	Challenges applied to Council proposed increases in opex in 2019	64
Table 3-7	Recommended efficient opex in the current determination period	67
Table 3-8	Change in average opex between current determination period actuals and 2020 to 2024 by service	68
Table 3-9	Change in average opex between current determination period actuals and 2020 to 2024 by cost type	70
Table 3-10	Summary of recommended pre-efficiency adjustments	76
Table 3-11	Summary of recent regulatory decisions for Australian water utilities	78
Table 3-12	Recommended efficiency challenge	79
Table 3-13	Recommended prudent and efficient expenditure in the next determination period	80
Table 3-14	Recommended prudent and efficient operating expenditure	83
Table 4-1	Current Determination Period Capex Variance Analysis by Service (Gosford)	89
Table 4-2	Current Determination Period Capex Variance Analysis by Service (Wyang)	89
Table 4-3	Summary of capex analysis categories	91
Table 4-4	Summary of capex projects reviewed	92
Table 4-5	Capex renewals adjustments (pre-efficiency) and post Council review of renewals allocation	96
Table 4-6	M2WTM - Re-phasing capex in future determination period	101
Table 4-7	Mangrove creek dam spillway upgrade- Re-phasing capex in future determination period	103
Table 4-8	Water Service: Summary of prudent and efficient capital expenditure current determination period (\$18/19M)	109
Table 4-9	Sewerage Service: Summary of prudent and efficient capital expenditure current determination period (\$18/19M)	110
Table 4-10	Stormwater service: Summary of prudent and efficient capital expenditure current determination period (\$18/19M)	111
Table 4-11	Future determination period cumulative capital efficiencies	113
Table 4-12	Water Service: Summary of Efficient Capital Expenditure	114
Table 4-13	Sewerage Service: Summary of Efficient Capital Expenditure	115
Table 4-14	Stormwater Service: Summary of Efficient Capital Expenditure	116
Table 4-15	Total Capex: Summary of Efficient Capital Expenditure	117
Table 5-1	Council proposed average remaining regulatory asset lives	118
Table 5-2	Asset lives for new assets in Council's submission	119
Table 5-3	Asset lives applied to new assets in Hunter Water's 2015 submission	119
Table 5-4	Asset lives applied to new assets in Sydney Water's 2015 submission	120
Table 5-5	Asset lives assigned to new assets created after 30 June 2013 based on FAR extracts	120
Table 5-6	Weighted average asset life for water capex	122



Table 6-1	Our view on Council's proposed output measures for the water service	125
Table 6-2	Our view on Council's proposed output measures for the sewerage service	127
Table 6-3	Recommended additional output measures	129
Table C-4	Water quality complaints per 1000 properties	168
Table C-5	Unplanned supply interruptions per 1000 properties	168
Table C-6	Water main breaks per 100km main	169
Table C-7	Odour complaints per 1000 properties	169
Table C-8	Sewer main breaks and chokes per 1000km main	170
Table C-9	Reported sewer overflows per 100km main	170
Table C-10	Total sewer overflows per 100km main	171

## Figures

Figure 2-1	Schematic of Council's water and sewerage assets	22
Figure 2-2	Council structure up to 31 October 2018	26
Figure 2-3	Council structure from 1 November 2018	26
Figure 2-4	Project delivery framework	28
Figure 2-5	Integrated Planning and Reporting Framework	29
Figure 2-6	Themes and focus areas within Central Coast Council Strategic Plan	30
Figure 2-7	Asset condition profile	38
Figure 3-1	Significant opex outperformance relative to 2012 submission and 2013 Determination	43
Figure 3-2	Opex outperformance applies to both former LGAs	44
Figure 3-3	Opex performance by service	45
Figure 3-4	Opex per property appears relatively efficient, but is artificially reduced by lower consumption	46
Figure 3-5	Volumetric unit opex efficiency is above average (water)	47
Figure 3-6	Volumetric unit opex efficiency is above average (sewerage)	47
Figure 3-7	Opex efficiency is projected to reduce	49
Figure 3-8	Opex by service in current determination period- Gosford	52
Figure 3-9	Opex by service in current determination period- Wyong	54
Figure 3-10	Components of opex in the current determination period (actuals)	56
Figure 3-11	Historical changes in FTE	58
Figure 3-12	Labour opex (broad definition) during the current determination period	59
Figure 3-13	Stormwater labour trends in the submission	60
Figure 3-14	Corporate overheads in the current determination period	61
Figure 3-15	Energy expenditure and wholesale electricity costs	62
Figure 3-16	CCC proposed opex in the former Gosford LGA	69
Figure 3-17	CCC's proposed opex in the former Wyong LGA	69
Figure 3-18	Change in average opex between current determination period actuals and Council proposal for 2020 to 2024	70
Figure 3-19	Projected expenditure by cost type	71
Figure 3-20	Projected energy expenditure and recent wholesale electricity costs	73
Figure 3-21	Council broad labour expenditure projections	74
Figure 3-22	Adjustment to Council proposed stormwater opex	75
Figure 3-23	Recommended prudent and efficient expenditure in Council	81
Figure 4-1	Significant capex outperformance relative to 2012 submission and 2013 Determination (18/19 prices)	86
Figure 4-2	Current Determination Period = capex outperformance applies to both former LGAs	87
Figure 4-3	Capex performance by service Council	88
Figure 4-4	Capex by project by supply area	90
Figure 4-5	Capex renewals performance	93
Figure 4-6	Capex renewals performance and Atkins recommended adjustments	97
Figure 4-7	Total water capex by project in current and future determination periods	98
Figure 4-8	Water capex by project – Wyong – current determination period (2014-2019)	99
Figure 4-9	Water capex by project – Gosford – current determination period (2014-2019)	102
Figure 4-10	Sewerage capex by project – Wyong – current determination period (2014-2019)	104
Figure 4-11	Sewerage capex by project – Gosford – current determination period (2014-2018) (\$000's)	105

Figure 4-12	Stormwater programme allocated vs unallocated projects) .....	106
Figure 5-1	Asset age and replacement cost for water and sewerage assets installed after 30 June 2013 . .....	121
Figure 5-2	Asset age and replacement cost for stormwater assets installed after 30 June 2013 .....	122
Figure 6-1	Our view on output measure for unplanned interruptions per 1000 properties .....	126
Figure 6-2	Our view on output measure for water main breaks per 100km main .....	126
Figure 6-3	Our view on output measure for wastewater odour complaints per 1000 properties .....	128

# Glossary

Term	Definition
ABC	Activity-Based Costing
ADWG	Australian Drinking Water Guidelines (2004), National Health and Medical Research Council and Agriculture and Resource Management Council
AEMO	Australian Energy Market Operator
AER	Annual Equivalent Rate
AIR	Annual Information Return
BOT	Build, Operate, Transfer
BOM	Bureau of Meteorology
CBA	Cost Benefit Analysis
CBD	Central Business District
CCC	Central Coast Council
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CIO	Chief Information Officer
COSS	Coastal Open Space System
CPI	Consumer Price Index
CRMS	Customer Relationship Management System
CSC	Customer Service Committee
DOC	Dissolved Organic Carbon
ESC	Essential Services Commission of Victoria Australia
ESCOSA	Essential Services Commission of South Australia
ELL	Economic Level of leakage
EMS	Environmental Management System
EP	Equivalent Population
EPA	Environmental Protection Authority
EPCM	Engineering Project Construction Management
EPL	Environment Protection Licence
ERP	Enterprise Resource Planning
FAR	Fixed Asset Register
FRM	Field Resource Management
FTE	Full Time Equivalent
GCC	Gosford City Council
GIS	Geographical Information System
HDD	Horizontal Directionally Drilled
HR	Human Resources
IPART	Independent Pricing and Regulatory Tribunal
IM&T	Information Management and Technology

Term	Definition
IS	Information Services
IT	Information Technology
ISO	International Organisation for Standardisation
JWS	Joint Water Supply
LCD	Litres per capita per day water consumption
LGA	Local Government Authority
LHWP	Lower Hunter Water Plan
KPI	Key Performance Indicator
M2WTM	Mardi to Warnervale Trunk Main
MCA	Multi-Criteria Analysis
ML/d	Megalitres per Day
MWTP	Mardi Water Treatment Plant
NOW	NSW Office of Water
NPR	National performance report
NPV	Net Present Value
NSW	New South Wales
OECD	Organisation of Economic Cooperation and Development
Ofwat	Water Services Regulatory Authority, England and Wales
OH&S	Occupational Health & Safety
PAMS	Product and Asset Management System
P <sub>50</sub>	50th Percentile
P <sub>80</sub>	90th Percentile
PMF	Probable Maximum Flood
PV	Photovoltaic
PRP	Pollution Reduction Program
RAB	Regulated Asset Base
REF	Review of Environmental Factors
RFP	Request for Proposals
R&D	Research & Development
RCM	Regulatory Cost Model
SCADA	System Control and Data Acquisition
SIR	Special Information Return
SOP	Standing Operating Procedure
STP	Sewage Treatment Plant
WSC	Wyang Shire Council



# Executive Summary

This report presents the findings of our review of the capital and operating expenditure for Central Coast Council's (the Council) water and sewerage business and stormwater assets. It addresses the prudent and efficient expenditure in the current period from 2013 to 2019 and for the future determination period 2020 to 2024.

We have based our findings on the Council's annual and special information returns, its submission dated September 2018 presented to IPART, four days of structured interviews with the Council's Water, Sewerage and Stormwater general managers and staff, information provided by the Council and responses to subsequent written questions and document requests. We reviewed functional operational activities and a representative number of capital projects in the current and future determination periods.

Our view of efficiency is based on the concept of a Frontier Company competing in an open market where it has strong internal cost controls. The Frontier Company will continue to seek efficiencies from technological development and innovation. Other companies or agencies will seek greater efficiencies to catch up with the Frontier Company. This concept was developed and applied by the Water Services Regulatory Authority (Ofwat) in England and Wales for the 1999 Periodic Review and also used in the 2004 and 2009 Periodic Reviews. It has been subject to independent scrutiny by the then UK Competition Commission. This approach is similar to that taken for the 2011 and 2015 efficiency reviews of Sydney Water and the 2012 review of Hunter Water.

## Operating Environment

Central Coast Council was formed by the merger of Gosford City Council (GCC) and Wyong Shire Council (WSC) on 12 May 2016 (hereafter former Local Government Authorities (LGAs)) with the first new Council elected on 9 September 2016. Council provides water supply and sewerage services to around 335,000 people in the Central Coast area including Gosford and Wyong.

The system incorporates four dams, three weirs, three water treatment plants, over 50 reservoirs, and more than 2,000 kilometres of pipelines over a catchment of 727km<sup>2</sup>. The region's drinking water is drawn from Mangrove Creek and Mooney Mooney Creek, in Gosford, and Ourimbah Creek and Wyong River, in Wyong.

The Mardi-Mangrove Link is a 21-kilometre pipeline that allows water to be transferred from Wyong River and Ourimbah Creek during high flows, via Mardi Dam to the large Mangrove Creek Dam for storage, instead of allowing it to flow to the ocean. Water can be transported into the Central Coast water supply system by the Hunter Connection. This two-way pipeline provides additional water during drought or for operational reasons for both the Central Coast and Hunter regions. The Council has a two-way agreement with Hunter Water Corporation for transfers of treated drinking water between the systems when supplies are low. The link currently has the capacity to provide 33 ML/d of drinking water from Hunter Water to the Council and is expected to have capacity to provide up to 30 million litres of drinking water a day from CCC to Hunter Water.

The sewerage network incorporates eight treatment plants, nearly 2,500km of reticulation pipes and 324 pumping stations. The majority of sewage undergoes secondary treatment and is discharged into the ocean, with the rest undergoing tertiary treatment before reticulation as recycled water.

Unlike the water supply system, the former Wyong and Gosford LGAs sewerage systems were not linked to each other or to the Hunter; with the exception at Mooney Mooney where untreated sewage is passed to the Sydney Water-owned Brooklyn Treatment Plant.

The stormwater drainage network incorporates more than 1,250 km of pipes, culverts and channels and more than 40,000 pits, across 29 urban catchments and a number of large rural catchments.

## Business Structure

Council has been in the process of reorganisation since the amalgamation of the two former councils. At the time of our interviews in October 2018 the Council was undergoing a further reorganisation to streamline the organisational structure. The Water and Sewer business and the Roads, Transport, Drainage and Waste (responsible for stormwater) are now their own directorates who report directly to the CCC CEO.

## Asset Management & Long-term Planning

Strategic planning takes place at a whole of council level and there is no specific breakdown for water and sewerage or stormwater drainage. The Integrated Planning and Reporting Guidelines for local government in New South Wales made under the Local Government Act 1993 and the Local Government (General) Regulation 2005 defines the corporate planning and reporting requirements for local governments.

As a merged entity, Council is putting in place a strategic asset management framework that draws on elements of practice in the former local governments as well as newly created, unified processes. Council is yet to endorse an asset management policy although it is referred to in the whole of Council asset management plan and documented in the Resourcing Strategy. Despite the lack of a formalised policy, we consider that Council's asset management practices are founded on sound principles and that staff had a good understanding of these principles.

## Performance

Asset performance in terms of water quality, mains bursts and sewer chokes has remained relatively stable across the former LGAs and Council overall and has in fact improved on one measure. To us, this is an indication that the current level of proactive capital and operating expenditure to maintain assets is likely to be sufficient to maintain a stable asset performance although priorities may vary within the overall quantum of expenditure based on Council's risk-based prioritisation approach.

## Output Measures

In the pricing submission submitted in September 2018 Council proposed fixed output measures which do not change between 2020 and 2023 and were not linked to proposed expenditure investment. Subsequently, CCC provided an addendum outlining year-on-year targets for each output measure.

We have formed our view on an appropriate level of expenditure on capex 'renewals' to at least maintain existing service levels. We therefore consider it appropriate that Council at least maintain current output performance levels.

We have reviewed Council's proposed output measures and have recommended adjustments to the performance target for unplanned interruptions, water main breaks and sewerage odour complaints.

We have also recommended three additional measures relating to projects and one additional output measure related to supply interruptions to take account of their impact on customers.

The project milestones are to track delivery of important projects which:

- improve water resource availability and resilience of both the CCC and Hunter Water areas of supply and make up a significant proportion of the capital program; and
- address risks of non-compliance with current EPA licence requirements.

The purpose of the additional supply interruptions measure is to improve understanding and performance relating to the impact of the loss of supply to customers from planned or unplanned interruptions rather than just the frequency of interruptions.

For Stormwater we have been unable to define a specific output measure. There are no identified schemes greater than \$2M capex and therefore it does not seem appropriate to have a named scheme as an output measure. We have not been provided enough detail on the overall programme or stormwater to identify a specific measurable output.

However, we consider it would be prudent for the Council to develop a specific output measure within the first year of the determination period to set a baseline and measure the performance throughout the remainder of the period against. Potential output measures to consider include:

- Length of assets renewed, refurbished or upgraded;

- Flooding incidents (properties, roads) due to asset failure (to be defined but may include blockages and collapses, where flooding occurred during storms which the system is designed to cope with); and
- Customer survey on how Council is performing in relation to stormwater (this could be extended to other measures too).

## Operating Expenditure

### ***Operating Expenditure in the Current Determination Period***

Council has significantly outperformed the opex Determination allowances given to the former LGAs. This has been achieved through a number of efficiency initiatives, such as 'Wyang water', lower corporate overheads, savings in chemical costs, and more efficient means of disposal of sludge from water treatment in Gosford. This has helped to place Council above average in comparative unit opex efficiency.

We have limited confidence in Council's 2019 projected expenditure and have applied a number of adjustments. Council has used a "zero-based budgeting" approach to deriving the expenditure forecast. It has projected a significant increase in opex (+\$7.1M or +7.8%) relative to the 2018 actuals but provided little explanation of the key drivers for the change and why overall levels of expenditure will be significantly higher than in any year since 2015.

We have also made recommendations about the allocation of costs between former LGA areas. Since the amalgamation, i.e. in the years 2017, 2018 and 2019, Council has allocated opex for the joint water supply system between the former LGAs based on where the assets are physically located. Prior to this, the JWS Agreement set out that operating expenditure should be allocated to the former LGAs based on the proportion of consumption and capex should be shared on a 50/50 basis. We consider that, as it is a joint system, benefiting both areas, wherever the assets sit, it would be more cost reflective to allocate opex and capex based on the share of benefits - volumes supplied to each area or number of properties - rather than the physical location of assets.

Indirect costs such as administration costs are allocated equally between the former LGAs and a further equal allocation to the water and sewer services. The indirect costs allocated using the 50/50 rule are significant, comprising \$14.8M (37%) of water opex in 2018 and \$10.7M (27%) of sewerage opex. We conclude that indirect opex should be apportioned to the water and sewerage services in proportion to their direct costs rather than a 50/50 assumption as this is more reflective of the costs incurred. In 2018 the impact of this change would be to reduce Wyong water opex by \$1.3M and increase Gosford by the same amount. It would increase Wyong's sewerage opex by \$0.6M and reduce Gosford by the same amount.

### ***Operating Expenditure in the Future Determination Period***

Council is proposing an increase in opex in the future determination period in real terms relative to the 2014 to 2018 actuals, with the biggest increases being in water and sewerage services across both former LGAs and in Wyong stormwater. These increases are partially offset by reductions in the average corporate opex.

Our approach to the recommended level of efficient expenditure in the future determination period is to

- (i) Make specific adjustments to the forecast opex for the future determination period based on our detailed review of the submission, documentation and discussions with the Council managers;
- (ii) Determine and apply catch-up and continuing efficiency applied to the net expenditure after adjustments for (i) above; and
- (iii) Calculate the efficient level of expenditure to deliver the service standards proposed by Council as an annual expenditure by water, sewerage and stormwater service.

Given the limited confidence in Council's projected 2019 opex we have used 2018 as the starting point for establishing an efficient level of expenditure. We have then examined the justifications for any changes to expenditure relative to 2018. For cost categories which vary year-on-year (such as hire services) we have also compared to averages within the current determination period.

The recommended pre-efficiency adjustments made are summarised below.

- Corporate overheads: accept Council's proposed reduction;

- Stormwater opex: retain at 2018 levels (in addition to ERP adjustment);
- Labour (including provisions): accept Council's proposed reduction;
- Hire services: recommend no real terms increase relative to average actuals in current determination period. This removes any opex items (such as desludging) which have been deferred from the current determination period;
- Materials: retain 2018 expenditure except for \$0.2M p.a. from 2020 for Mardi WTP;
- Energy prices: accept Council's proposed increase;
- Plant and fleet: retain 2018 actuals;
- Productivity gains from IT transformation e.g. ERP: \$0.8M saving in 2020 and \$1.5M saving from 2021 onwards; and
- Reduced overtime due to operations centre: \$0.2M in 2020 and \$0.4M from 2021 onwards.

We consider that Council has reasonable scope for catch-up efficiency. In the submission, the documentation and the discussions we held with Council, we found little indication of internal efficiency challenge being applied to its expenditure projections.

In addition to the savings outlined above, such as productivity benefits from the ERP system, we consider that there are a number of areas in which Council could achieve enhanced efficiency including budgeting, energy efficiency, on-site generation, procurement and materials.

In the period from 2014 to 2018 Council has achieved an average of 3.7% efficiency per annum, or 3.1% p.a. excluding energy costs. Whilst benchmarking has limitations it can be useful to inform the order of magnitude of efficiency potential. The analysis undertaken suggests that Council is operating at the 73<sup>rd</sup> percentile of all utilities across water and sewerage combined, or approximately 67<sup>th</sup> percentile if we exclude utilities understood to purchase bulk water. It suggests that, to attain the 75<sup>th</sup> percentile would require an overall reduction of either 2.3% of Council's opex, or 5.8% excluding bulk water purchasers. To go further and attain the 80<sup>th</sup> percentile would require a reduction of 7.8% (12.5% excluding bulk water purchasers).

We recognise that some efficiencies take time to deliver. We consider it to be realistic for Council to ramp-up to a 2% catch-up efficiency by year 3 of the future determination period. This is similar to the catch-up efficiency applied to Sydney Water in 2016 and other utilities. Combined with the ERP and corporate overhead efficiencies (1.7% and 1.0% of opex respectively), achieving this catch-up would place Council approximately within the upper quartile of Australian utilities in terms of current volumetric efficiency.

Continuing efficiency is the scope for efficient, frontier, utilities to continue to improve efficiency over time. It reflects the continuing efficiencies being gained in the sector through innovation, better ways of working and new technologies. We have recommended that Council be set a continuing efficiency target of 0.25% p.a. in addition to the catch-up efficiency and other adjustments. This target is also broadly consistent with regulatory decisions for water utilities in Australia in recent years.

The resulting recommended efficient expenditure is summarised as follows:

### Recommended prudent and efficient operating expenditure

		(\$M 2018/19)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
CCC total	Corporate	CCC submission	26.6	25.6	23.5	26.3	21.2	20.3	20.3	20.3	20.3	20.3	20.3
		Total efficient expenditure (post-efficiency)	26.6	25.6	23.5	26.3	21.2	20.3	20.2	20.0	19.8	19.7	19.7
	Water	CCC submission	33.1	31.5	29.5	30.3	32.3	35.0	36.6	36.3	35.8	36.0	35.3
		Total efficient expenditure (post-efficiency)	33.1	31.5	29.5	30.3	32.3	29.9	32.6	31.7	31.4	31.5	31.4
	Sewerage	CCC submission	37.2	35.5	30.1	31.5	30.8	35.0	38.1	37.9	37.9	37.9	37.5
		Total efficient expenditure (post-efficiency)	37.2	35.5	30.1	31.5	30.8	31.6	31.7	31.0	30.5	30.5	30.4
	Stormwater	CCC submission	8.7	8.0	5.9	5.8	6.6	7.6	8.0	8.1	8.0	8.1	8.1
		Total efficient expenditure (post-efficiency)	8.7	8.0	5.9	5.8	6.6	6.6	6.5	6.3	6.2	6.2	6.2
	TOTAL	CCC submission	105.6	100.6	89.0	93.9	90.9	98.0	103.1	102.6	102.0	102.3	101.2
		Total efficient expenditure	105.6	100.6	89.0	93.9	90.9	88.5	90.9	89.0	88.0	87.9	87.7

Overall, the recommended efficiency challenge from 2018 to 2024 represents a 3.6% reduction or 0.6% per annum.

## Capital Expenditure

### *Capital Expenditure in the Current Determination Period*

Both former councils have outperformed the capital expenditure allowances in the current determination period. The 2013 determination was for the period to June 2017. The period was extended by IPART to June 2019 on request from the Council with prices maintained in nominal terms; as such there was no specific capex determination for the years 2018 and 2019, although it is inferred as constant from the four years prior as prices were maintained. We are therefore not able to comment on any variance between outturn and the determination for years 2018 or 2019.

Gosford outperformed the determination by 7.7% overall including up to 2017. There was no material variance between the determination and outturn for the water and stormwater services; however, the sewerage service under-spent by 11% of the determination. Wyong outperformed the determination by 31% overall between 2014 and 2017 with significant outperformance across all services.

### *Capital Expenditure in the Future Determination Period*

Due to the format of the Council special information return submission, and in particular the historical expenditure in the former Gosford council, we were not able to reliably compare capex performance by IPART drivers consistently or appropriately between the current and future determination periods in order to clearly track changes over time. We have therefore taken an alternative approach grouping expenditure into categories that can be clearly tracked over time so that any variance is not driven by re-categorisation. We have categorised the expenditure in the submission into the following component parts: renewals and other projects in the water and sewerage services and renewals and other project (allocated and unallocated) expenditure in the stormwater service.

In summary, the key features of Council's proposed 2020-24 capital program, include:

- A large increase in renewals expenditure across all services and various asset types;
- Delivery of the Mardi to Warnervale Trunk Main project comprising some 20% of proposed capital expenditure.

For the water, sewerage and stormwater services, Council is proposing to increase asset renewal expenditure significantly in real terms from the current determination period. We note that there is a significant decrease in Council's proposed expenditure in 2024, and it was acknowledged throughout the interviews that Council did not realistically forecast this far ahead; as such we have little confidence in the proposed 2024 expenditure figures.

Expenditure over the current determination period has been relatively stable throughout all asset classes with no apparent decline in service performance or unacceptable decline in asset condition.

Furthermore, the projects and programs reviewed above generally do not demonstrate that the relationship between expenditure and performance is understood well or accounted for. Performance targets proposed for the future determination period are in line with current performance. Given that Council's approach to forecasting and prioritising renewals is maturing, and that there is no driver to increase expenditure to address performance concerns, we find that increases in asset renewal expenditure in the future determination period are not prudent. We therefore recommend that expenditure is maintained at levels consistent with the current determination period.

The Council allocated \$26.8M (in nominal prices) within the current determination for the development of the Mardi to Warnervale Trunk Main project; however only \$1.6M of this was spent in the current determination period. The Council are now forecasting the entire project to cost \$61.1M including the costs already spent, equating to \$57.4M between 2019 and 2024. We have concerns of the capacity of the Council to be able to recruit the significant number of skilled staff in order to be able deliver this project within current timing and proposed expenditure profile. We have therefore reprofiled the project expenditure over a longer period.



We have made other scheme-specific adjustments where we found the need and/ or timing were not appropriate or justified. Our assessment of the level of capital efficiency able to be achieved by Central Coast Council in the future determination period is a progression of the methodology which we applied to our previous IPART expenditure reviews for Sydney Water, Hunter Water and Sydney Desalination Plant since 2009. This methodology applies the concepts of continuing and catch-up efficiency. Continuing efficiency is that which a Frontier Company would seek to achieve through new technology and innovation. We have assumed a continuing efficiency of 0.25% per annum which is consistent with these earlier studies and was assumed by Ofwat in the UK in its 2009 Determination for water companies in England and Wales.

Catch-up efficiency relates to the improvements in systems and processes to achieve the performance of a frontier company over time. Our review of sample projects identified four business processes where there is an opportunity to lever efficiency savings on the expenditure proposals in the SIR. These relate to Program Management, Value Engineering, Cost Estimates and Procurement. We have assessed the extent of efficiencies that can be made to catch up with the frontier company. The efficiencies that we have applied are summarised below.

Cumulative efficiency challenge (%)					
	2020	2021	2022	2023	2024
Continuing efficiency at the Frontier	<b>0.25</b>	<b>0.5</b>	<b>0.75</b>	<b>1</b>	<b>1.25</b>
Catch-up: capital program management and optimisation	0.5	1	1.5	2	2.5
Catch-up: value engineering	0.75	1.5	2.25	3	3.75
Catch-up: cost-estimating	0.5	2	3	4	4
Catch-up: procurement	1.5	3	4	4	4
<b>Catch-up efficiency</b>	<b>3.25</b>	<b>7.5</b>	<b>10.75</b>	<b>13</b>	<b>14.25</b>
<b>Total efficiency</b>	<b>3.5</b>	<b>8</b>	<b>11.5</b>	<b>14</b>	<b>15.5</b>

Source: Atkins Cardno analysis

We have then applied these efficiencies to derive an efficient level of capital expenditure by service area and in total as summarised below. The table details the adjustments we have made. Explanation of these adjustments are presented in Section 4.



CCC PROPOSAL - CAPEX - SUMMARY							
(\$M 2018/19) year ending June	2020	2021	2022	2023	2024	2020-23 Total	2020-24 Total
Water Wyong	12.5	57.9	27.2	10.9	4.0	108.5	112.5
Water Gosford	9.1	11.8	19.0	12.4	4.8	52.3	57.1
Sewerage Wyong	14.5	12.9	18.0	13.2	9.4	58.7	68.1
Sewerage Gosford	25.3	21.5	23.9	20.9	13.0	91.5	104.4
Stormwater Wyong	5.1	4.4	4.8	5.2	6.8	19.4	26.2
Stormwater Gosford	5.3	6.1	5.9	5.5	3.4	22.8	26.2
<b>Total</b>	<b>71.8</b>	<b>114.5</b>	<b>98.7</b>	<b>68.1</b>	<b>41.4</b>	<b>353.2</b>	<b>394.5</b>
Atkins/Cardno recommended adjustments for specific programs or projects							
Water Renewals	-7.0	-8.1	-13.8	-10.5	0.4	-39.4	-39.0
Mardi to Warnervale Trunk Main	0.0	-25.9	-0.5	13.2	13.2	-21.1	-10.6
Mangrove Creek Dam Spillway Upgrade	0.0	0.0	-1.2	0.7	0.5	-2.0	0.3
Sewerage Renewals Wyong	-4.7	-2.2	-4.0	-2.3	1.5	-13.2	-11.7
Sewerage Renewals Gosford	-9.8	-4.6	-8.4	-4.8	3.1	-27.6	-24.5
Stormwater Renewals Wyong	-0.3	0.2	-0.5	-0.7	-0.5	6.2	7.8
Stormwater Wyong other projects	0.0	0.0	0.0	0.0	0.0	12.0	16.8
Stormwater Renewals Gosford	0.0	-0.3	-0.4	-0.6	0.5	6.2	7.8
Stormwater Gosford other projects	0.0	0.0	0.0	0.0	0.0	15.3	17.7
<b>Total</b>	<b>-21.7</b>	<b>-40.8</b>	<b>-28.8</b>	<b>-5.0</b>	<b>18.7</b>	<b>-96.3</b>	<b>-77.6</b>
ADJUSTED EXPENDITURE BEFORE APPLICATION OF EFFICIENCY TARGETS							
Water Wyong	9.0	28.0	19.7	18.9	17.4	75.6	93.0
Water Gosford	5.6	7.7	10.9	7.8	5.5	32.1	37.6
Sewerage Wyong	9.8	10.7	14.0	10.9	10.9	45.5	56.4
Sewerage Gosford	15.5	16.9	15.5	16.0	16.0	63.9	80.0
Stormwater Wyong	4.8	4.6	4.3	4.5	6.3	18.2	24.6
Stormwater Gosford	5.3	5.8	5.5	4.9	3.9	21.5	25.4
<b>Total</b>	<b>50.1</b>	<b>73.7</b>	<b>70.0</b>	<b>63.1</b>	<b>60.1</b>	<b>256.9</b>	<b>317.0</b>
Atkins/Cardno recommended additional capital efficiency targets (beyond those applied by the company)							
Continuing efficiency (%)	0.25%	0.50%	0.75%	1.00%	1.25%		
Catch-up efficiency (%)	3.25%	7.50%	10.75%	13.00%	14.25%		
ATKINS/CARDNO ASSESSMENT OF EFFICIENT EXPENDITURE							
(\$M 2018/19) year ending June	2020	2021	2022	2023	2024	2020-23 Total	2020-24 Total
Water Wyong	8.7	25.8	17.4	16.3	14.7	68.2	82.8
Water Gosford	5.4	7.1	9.7	6.7	4.6	29.0	33.6
Sewerage Wyong	9.5	9.9	12.4	9.4	9.2	41.2	50.4
Sewerage Gosford	15.0	15.5	13.7	13.8	13.6	58.0	71.6
Stormwater Wyong	4.7	4.2	3.8	3.8	5.4	16.6	21.9
Stormwater Gosford	5.1	5.3	4.8	4.2	3.3	19.5	22.9
<b>Total Efficient Expenditure</b>	<b>48.4</b>	<b>67.8</b>	<b>61.9</b>	<b>54.3</b>	<b>50.8</b>	<b>232.4</b>	<b>283.1</b>
For information summary by former council							
<b>Former Wyong</b>	<b>22.9</b>	<b>39.9</b>	<b>33.7</b>	<b>29.5</b>	<b>29.2</b>	<b>125.9</b>	<b>155.1</b>
<b>Former Gosford</b>	<b>25.5</b>	<b>27.9</b>	<b>28.3</b>	<b>24.8</b>	<b>21.5</b>	<b>106.5</b>	<b>128.0</b>

## Asset lives

We find that Council's approach to the remaining regulatory asset life at 30 June 2019 is consistent with IPART's 2013 Determination. We have not therefore recommended any adjustments to Council's proposed values.

Council has commenced a review of its infrastructure assets including the asset lives to be adopted. However, it considers that the review is not sufficiently advanced to inform the regulatory asset lives. In its submission, Council has proposed a regulatory asset life of 100 years for all capex in the next price review period.

We consider that 100 years is not representative of the economic life of the assets being created in the next determination period. We recommend that the following regulatory asset lives are adopted for capex in the next determination period:

- Sewerage: 41 years, based on the average asset life of assets created during the current determination period according to our analysis of Council's fixed asset register;

- Water: 65 years, based on the average asset life of assets created during the current determination period, adjusted for the impact of the Mardi to Warnervale trunk main and Mangrove Creek Dam Spillway Upgrade; and
- Stormwater: 95 years, based on the average asset life of assets created during the current determination period according to our analysis of Council's fixed asset register.

## Recommendations

In this report we have made a number of recommendations. These include:

- **Capital cost estimation.** Council's approach to cost estimation is at an early stage of maturity with project costs being developed under varying frameworks. There is not yet a Council-wide process for cost estimating and cost estimation tools and techniques very depending on the project context and location. Many significant project cost estimates rely on bottom-up analysis, with little reference to (or explanation of variance from) outturn costs for similar schemes. We recommend a rigorous analysis of outturn costs and appropriate contingency levels to increase confidence with capital cost estimates.
- **Capital program management and link to outcomes.** Effective program management helps to identify synergies, to challenge expenditure and to optimise capital programs by improved targeting of expenditure to areas where it is most required and where it can have greatest impact on customer outcomes. We believe that Council can improve the way it manages expenditure at a program level, with a stronger link to customer outcomes and specific outputs. Improved planning and portfolio optimisation would help promote projects that fit within delivering longer term plans.
- **Capital procurement.** Procurement efficiency involves finding better ways to purchase capitalised goods and services. Leading utilities employ a variety of procurement approaches. We see little evidence of Council considering the benefits of alternative procurement methods, such as alliancing and partnering, and recommend that Council increase consideration of procurement options across its program.
- **Value engineering.** Value engineering looks to reduce the cost of delivering a given scheme by challenging scope and methods and looking for alternative ways to achieve the outcome required. We have seen limited evidence of value engineering for the former LGA's major schemes and would consider this to be a significant area of efficiency. We recommend greater focus on value engineering to ensure that schemes are delivered at an efficient cost.
- **Customer engagement.** Although the Council pricing submission refers to community engagement through customer surveys, bills and pricing appears to be the main focus. There is little evidence of customers being consulted on Council's wider plans and expenditure programs. We consider an improvement would be to put customers at the heart of decision making through more extensive engagement and consultation throughout the business planning process and defining customer outcomes. There is an opportunity for Council and the water and sewerage business to provide a better line of sight from community and stakeholder expectations to asset management planning and activities
- **Budgeting.** Although Council produces high level ten-year financial projections, budgeting and expenditure appears to be very much focused on single year cycles. We recommend that Council consider multi-year budgeting with clear accountability and ownership of budget lines. This would incentivise medium term planning, improved decision-making and create space for spend-to-save initiatives. Linked to this, we think that greater use of activity-based costing for costs currently classified as corporate overheads would help as it would allow better understanding and accountability for these costs, some of which may be controllable and strongly influenced by decisions made in the businesses. We note that Council is considering this already. We consider that it would be useful for Council to ensure that it fully understands and can explain the year-on-year variances caused by its zero-based budgeting approach to strengthen confidence in its budgets.

- **Energy efficiency.** Energy makes up a significant element of Council's opex with an average projected expenditure of \$10.9M in the next five years. We recommend that Council implement a proactive energy efficiency programme, identifying measures which can pay for themselves through reduced, reprofiled, or less expensive, electricity demand. This may involve sub-metering, replacement of energy inefficient equipment, revision of standard specifications, changes to pump configurations, etc. Council does consider energy efficiency in new installations and monitor electricity billing. However, we believe efficiencies could be gained by increased proactive focus, especially for existing installations.
- **On-site generation.** Council has installed one Photovoltaic (PV) plant at Somersby and has indicated in discussions that it believes that on-site generation schemes could achieve payback periods of approximately five years. With short pay-back periods, we recommend that Council look for opportunities to increase on-site energy generation.
- **Operational procurement and materials.** Council appears to be at an early stage of maturity in operational procurement, with limited evidence of forward planning and testing of different procurement methods. Council has made some savings in chemicals use in the current price path. We recommend that Council implements proactive planning and ownership of materials costs and market test different ways to structure or package procurement processes.

# 1 Introduction

## 1.1 Terms of Reference

In September 2018 the Independent Pricing and Regulatory Tribunal of New South Wales (IPART) appointed the Atkins/Cardno consortium to carry out a detailed review of Central Coast Council's (Council) Water and Sewerage operating expenditure and capital expenditure. The purpose of this review is to inform the Tribunal's Determination on prices for the upcoming price control period which applies for up to five years, from 1st July 2019 to 30th June 2024.

This report has been prepared in accordance with the Terms of Reference set out in the contract between Atkins/Cardno and IPART commencing on 13 September 2018.

The findings of this report form an important component of the overall price review process as set out in the IPART Issues Paper<sup>1</sup>. The conclusions relating to prudence and efficiency of capital expenditure in the current determination period inform what IPART includes in Central Coast Council's opening Regulated Asset Base value. The conclusions relating to prudent and efficient operating and capital expenditure in the future determination period assist the Tribunal's assessment of what are justified requirements to be included in the 'building block' model for determining future prices.

The Terms of Reference state that the price control period is for a period of up to five years, 2019 to 2024.

## 1.2 Council's submission to IPART

IPART required Council to provide a submission outlining and substantiating its proposed prices for the period July 2019 to June 2024 and historic costs for the current determination period from July 2013 to June 2019. The following versions of this information have been used in the preparation of this final report:

- Submission to IPART dated 7 September 2018;
- Special Information Return (SIR) dated September 2018;
- Annual Information Return (AIR) dated September 2018; and
- A revised version of the AIR and SIR dated December 2018

The September version of the SIR and AIR included actual expenditure for the year ending June 2018.

We provided comment back to Council upon our initial review of the September SIR and AIR and whilst we have endeavoured to satisfy ourselves as to the provenance and robustness of the data provided, a detailed audit of the completeness and accuracy of the information lies outside the scope of this project.

Council has highlighted that, since amalgamation, the dissection of the total Council information into the two predecessor councils, as communicated in its submission to IPART and therefore in this report represents Council's 'best estimate' and has not been subject to audit.

We reviewed the changes to the AIR and SIR in the December submission and where appropriate made some changes to the expenditure data used for our analysis.

## 1.3 Review Process

The Atkins/Cardno team commenced the review on 13 September 2018. We submitted an Inception Report to IPART on 20 September 2018. Following initial review of the available submission data, we submitted an Information Request to Council on 20 September 2018. Documents were provided by Council from 23 September 2018. Our review team arrived in Central Coast on 1 October 2018.

---

<sup>1</sup> Issues-paper-review-of-Central-Coast-Council June 2018

We held interviews with Council between 2 and 5 October 2018 with key Council staff. Over the week-long interview period we requested additional supporting documentation relating to a range of issues. We then requested further information and queries over the subsequent two weeks to which Council was able to respond to the majority of requests.

Atkins/Cardno would like to take the opportunity to thank Council for making its staff available for the interview days and for the professional manner in which the organisation responded to our challenges and requests for further detail.

This draft report was submitted to IPART on 22 November. Council and IPART are invited to comment on the draft. We received comments from the Council on 22 January 2019. We prepared a log of the comments and our response. We made some adjustments to our findings and view of efficient expenditure where this was appropriate. This Final Report takes into account comments from the Council where they are relevant.

## 1.4 Methodology

Our review and assessment of capital and operating efficiency is based on the hypothesis of a Frontier Company competing in an open market to deliver services to customers, the continuing efficiencies that a Frontier Company makes through innovation and technological development, and the catch-up efficiency required of Council to achieve the performance of a Frontier Company over time. We use this approach to compare the business processes and systems with current best practice and to identify the extent of catch-up that may be required over time to reach an efficient level of operation.

The concept of a Frontier Company utilises two types of efficiency, Continuing Efficiency and Catch-up Efficiency. Continuing efficiency is the scope for a top performing or Frontier Company to continue to improve its efficiency. It reflects the continuing efficiencies being gained across all major sectors through innovation and new technologies. Catch-up efficiency is the scope for all other utilities to reach the performance of a Frontier utility. Our assessment of catch-up efficiency in general relates to four capital processes essential for efficient delivery of capital projects: capital programme management, value engineering, the method of cost estimating and the procurement processes.

This concept was developed and applied by the Water Services Regulatory Authority (Ofwat) in England and Wales for the 1999 Periodic Review and also used in the 2004 and 2009 Periodic Reviews. It has been subject to independent scrutiny by the then UK Competition Commission. This approach is similar to that taken for the 2011 and 2015 efficiency reviews of Sydney Water and the 2012 review of Hunter Water.

We review the decision-making processes for both operating and capital expenditure to test whether there is sufficient challenge and rigour to deliver total least cost solutions. We comment in Section 2 on Council's management systems and processes and identify areas with the potential to drive further efficiencies over the determination period.

Within the Expenditure Review we have considered the asset management practices, the capital investment appraisal, the estimating methodology and procurement process insofar as they are used to identify investment needs and timing, appraise solutions, prioritise projects within defined budgets and procure and manage timely delivery.

Task 1 of the Expenditure Review was to review the long-term investment planning and asset management practices and processes. We examined the longer-term investment strategy and the key assumptions driving this expenditure. We checked that the price submission and SIR were consistent with this long-term investment program. We were able to compare asset management frameworks with best practice. Our analysis was focussed on the ability of the asset management systems and processes to deliver efficient expenditure. Our review is consistent with the IPART paper 'Regulatory Tests of past and forecast Capital Expenditure', December 2010.

### 1.4.1 Operating Expenditure

IPART requires us to assess:

- the efficiency of operating expenditure for the current determination period from 1 July 2013 to 30 June 2019, to the extent necessary to assess the efficiency of the proposed operating expenditure; and



- the efficiency of proposed operating expenditure for the future determination period from 1 July 2019 to 30 June 2024.

Our assessment is based on the actual operating expenditure in the Council submission, the robustness and confidence of these estimates taking into account the basis of the estimates and confidence in the need, timing and scope of the requirements. We also consider the extent to which additional expenditure proposals have been through the internal approval and challenge processes.

Our approach to forward-looking operational efficiency is based on a combination of process-based qualitative and quantitative assessments. We consider how Council performed against the 2013 Determination and the reasons for outperformance, whether due to exogenous factors or actions taken by the Council.

Looking forward we test how the efficiency gains in the current determination period will impact on opex in the future and the potential for further gains through improved processes. Our approach therefore includes an assessment of the Council's operating expenditure proposals and scope for further efficiencies by function and process. We focus on the material areas of expenditure such as energy, operations and maintenance activities. We also test the extent to which planned maintenance is able to extend the life of assets and defer capital expenditure.

We focus on risk management and the approach taken by Council in balancing risk between the Council and customers. We also sought to what extent customers are engaged in the development of the Business Plan. The extent to which customer views are taken into account is a good test of the plan. There is an increasing customer engagement in developing business plans across many utilities including the frontier. Council has recognised this but is at an early stage of customer engagement. We take account of benchmarking analysis. Again, this is a guide as to what extent the Council may be at or behind the frontier.

We look to offset efficiency targets with any efficiency programs demonstrated by Council. The evidence of such efficiency programs is indicative of an Agency which is looking to catch up with the frontier.

We interview the functional managers, review supporting reports and documents and assess the current position on the development and implementation of corporate systems used to set budgets, control and monitor costs and allocate expenditure to the IPART expense types.

We present our analysis of the future expenditure proposals and comment on each main activity in terms of the potential for efficiencies to be achieved through the robustness of estimates, the need and timing of expenditure and absorbing of some activities within base opex as a surrogate for the application of internal challenge and budget control.

We present our review of operating expenditure and our present proposals for an efficient level of future expenditure in Section 3.

### 1.4.2 Capital Expenditure

IPART requires us to assess:

- the efficiency and prudence of capital expenditure for the period from 1 July 2013 to 30 June 2019; and
- the efficiency and prudence of proposed capital expenditure for the period from 1 July 2019 to 30 June 2024 – in order to ensure that planned capital expenditure is directed to the most appropriate projects at an efficient cost.

Our assessment of the prudence of schemes in the current determination period is based on a review of a representative sample of projects. We reviewed the need for each project, its timing and the difference between actual costs and outputs against planned. We considered the basis of costs and the procurement route for implementation of sample projects. For the year 2019, we took a view of the most likely outturn expenditure based on the current status of schemes in the program.

Our approach to the assessment of allowable future expenditure is based on a review of the asset management and capital expenditure processes, project appraisal and decision processes and a review of a representative



sample of schemes in the program. Our methodology involves the following steps which we apply to all expenditure in real 2018/19 dollar terms:

- (i) We undertake a test for prudence where we recommend adjustments on the proposed expenditure if it appears to not be justified e.g. through identifying any inconsistencies in inclusions and allocation of capital expenditure by driver (or otherwise) recorded in the SIR;
- (ii) We further test for prudence related to timing – we may choose to recommend reprofiling expenditure to take out 'lumpy' spending where we think that a more even expenditure is more efficient and feasible given the resourcing required to fulfil the required workload and prior projects track record;
- (iii) We recommend applying the catch-up efficiencies on the proposed works that we consider prudent but can be achieved at lower cost through improved capex processes which we set out in Section 4.10. These efficiencies should bring the utility up to the frontier over time; and
- (iv) We then recommend applying a continuing efficiency where the frontier company continues to improve its processes through innovation and management.

In our efficiency recommendations we assess the extent of efficiencies that have been made since previous reviews and the scope for further efficiencies to catch up with the frontier company.

In our review of investment and asset management planning, we test the assumptions underlying asset replacement expenditure in relation to service level outputs such as water continuity, sewer chokes and other measures. This is to confirm whether the most efficient and timely solution is identified to maintain or enhance current service levels.

We then confirm that the cost estimates in the submission reflect the likely cost of efficient solutions, and the extent to which risk contingencies may be applied at either a project or a programme level.

We test the procurement strategy to confirm whether the approach is the most effective and to what extent this reflects best practice compared with alternatives. Our experience shows that agencies have made good efficiencies through new and innovative procurement models.

We also test to what extent risk is shared between Council and customers. For example, where operating licence performance shows a healthy headroom below the reference levels, we question whether there is scope to take a greater risk on performance while reducing asset replacement activities and costs.

We present our review of capital expenditure and present recommendations for an efficient level of future expenditure in Section 4.

### 1.4.3 Asset Lives

We are required to review and opine on the appropriateness of the asset lives the Council have used in its pricing submission to calculate regulatory depreciation (i.e. return on capital) and recommend adjustments as necessary. We use benchmarks from other utilities and previous price reviews to compare the Council's approach to industry norms. We present our findings in Section 5.

### 1.4.4 Output Measures

IPART requires us to assess Council's performance in the current determination period against outputs defined in the 2013 Determination and to comment where any measures have not been achieved. We use performance in the current determination period as an indicator of the level of replacement expenditure needed in the future determination period.

We also review and recommend output measures for the future determination period, taking into account the activities planned and any proposals made by Council in its submission to IPART.

We present our findings in Section 6.

## 1.5 Price base

We present all our expenditure figures in the CPI inflated 2018/19 price base unless otherwise stated. These CPI inflation factors were provided to Atkins by IPART at inception and correspond to the figures presented in the Council SIR and AIR submission. Unless otherwise indicated, expenditure in financial years is referred to by the calendar year in which the period ends, e.g. 2017-18 is referred to as 2018.

## 2 Strategic Management Overview

### 2.1 Overview and asset base

Figure 2-1 Schematic of Council's water and sewerage assets



Contains *sensitive* information

Central Coast Council was formed by the merger of Gosford City Council and Wyong Shire Council on 12 May 2016 with the first new Council elected on 9 September 2016. Council provides water supply and sewerage services to around 335,000 people in the Central Coast Council area including Gosford and Wyong.

The water supply system incorporates four dams, three water treatment plants, 71 reservoirs, and more than 2,000 kilometres of pipelines over a catchment of 727km<sup>2</sup>. The region's drinking water is drawn from Mangrove Creek and Mooney Mooney Creek, in Gosford, and Ourimbah Creek and Wyong River, in Wyong. This is shown schematically in Figure 2-1.

The Mardi-Mangrove Link is a 21km pipeline that allows water to be transferred from Wyong River and Ourimbah Creek during high flows, via Mardi Dam to the large Mangrove Creek Dam for storage, instead of allowing it to flow to the ocean. Water can be transported into the Central Coast water supply system by the Hunter Connection. This two-way pipeline provides additional water during drought or for operational reasons for both the Central Coast and Hunter regions. The Council has a two-way agreement with Hunter Water Corporation for transfers of treated drinking water between the systems when supplies are low. The link currently has the capacity to provide 33 Million per day (ML/d) from Hunter Water to Council, it is currently limited to 15 ML/d due to lack of Council infrastructure. Council is expected to have capacity to provide up to 30 ML/d to Hunter Water.

The sewerage network incorporates eight treatment plants, nearly 2,500km of reticulation pipes and 324 pumping stations. The majority of sewage undergoes secondary treatment and is discharged into the ocean, with the rest undergoing tertiary treatment before reticulation as recycled water.

Unlike the water supply system, the former Wyong and Gosford LGAs sewerage systems were not linked to each other or to the Hunter. With the exception at Mooney Mooney where untreated sewage is passed to the Sydney Water-owned Brooklyn Treatment Plant.

The stormwater drainage network incorporates more than 1,250 km of pipes, culverts and channels and more than 40,000 pits, across 29 urban catchments and a number of large rural catchments.

### 2.1.1 Legislation

Council's Water and Sewer operations are regulated through a range of legislative and other controls. The regulatory framework for Council's Water and Sewer business includes:

- Local Government Act 1993
- Local Government (General) Regulation 2005
- Water Management Act 2000
- Public Health Act 2010
- Public Health Regulation 2012
- Independent Pricing and Regulatory Tribunal Act 1992
- Fluoridation of Public Water Supplies Act 1957
- Protection of the Environment Operations Act 1997
- Protection of the Environment Administration Act 1991
- Environmental Planning and Assessment Act 1979
- Public Finance and Audit Act 1983
- Food Act 2003
- Dams Safety Act 1978
- Work Health and Safety Act 2011
- Water Act 2007
- Competition and Consumer Act 2010
- Australian Drinking Water Guidelines (Industry Guideline)
- NSW Government "Best Practice" Guidelines for Water Utilities (Industry Guideline)
- Fluoridation Code of Practice (NSW Health Guideline)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

## 2.1.2 Regulatory Requirements

The regulatory requirements for the Council water and sewerage business are outlined in Table 2-1 below.

**Table 2-1 Council water and sewerage regulatory requirements**

Category	Description
Water Planning and Management	<p><b>Water Management Act 2000</b> The former Gosford City and Wyong Shire Councils are listed in Schedule 3 of the Water Management Act as water supply authorities.</p> <p>Continued under Central Coast Council, it provides authorisation to perform these functions and to levy service charges</p> <p>As a local water utility (without an operating licence), the Council must comply with the Best Practice Guidelines for Water and Sewerage and annually report performance to the NSW Department of Industry.</p> <p>Administered by: NSW Department of Industry – Water under the Minister for Primary Industries.</p> <p><b>Water Act 2007</b> Council is required to provide water data to the Bureau of Meteorology (BOM) in accordance with the proscribed timeframes and formats. Administered by: Bureau of Meteorology</p>
Environment	<p><b>Protection of the Environment Operations Act 1997</b> Council is broadly required to take all practicable measures to prevent harm to the environment.</p> <p>An Environment Protection Licence (EPL) is required to operate components of its sewerage system. Administered by: Environment Protection Authority</p> <p><b>Environmental Planning and Assessment Act 1979</b> Council is required to assess the environmental impacts of its activities and mitigate these appropriately.</p> <p>Development consent may be required for some works depending on their nature and location. Administered by: Department of Planning and Environment under the Minister for Planning</p> <p><b>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</b> set out approaches for assessing whether the condition of a waterway meets recognised environmental values and how to protect these values.</p>



Category	Description
Pricing and Finance	<p><b>Independent Pricing and Regulatory Tribunal Act 1992</b> The prices that Council can charge for water, sewerage and stormwater drainage services are statutorily determined by IPART.</p> <p>The Council cannot charge any more than the price determined by IPART. Council cannot charge a price less than that determined by IPART without the approval of the Treasurer. Administered by: Independent Pricing and Regulatory Tribunal (IPART).</p> <p><b>Public Finance and Audit Act 1993</b> The Audit Office conducts financial and performance audits, principally under the Public Finance and Audit Act 1983 and the Corporations Act 2001, and examines allegations of serious and substantial waste of public money under the Public Interest Disclosures Act 1994.</p> <p><b>Local Government Act 1993</b> The Local Government Act 1993 is the principal regulatory instrument for local government in New South Wales, defining guiding principles for local government and defining functions and powers for all aspects of local government operation. The Local Government (General) Regulation 2005 supports the Act. Council is required to prepare and maintain accounting records in accordance with Australian Standards and requirements of the Acts. Administered by: NSW Audit Office under the Treasurer</p>
Public Health and Safety	<p><b>Public Health Act 1991</b> Council is obliged to follow advice issued by the Chief Health Officer regarding drinking water safety. Administered by: NSW Health under the Minister for Health</p> <p><b>Fluoridation of Public Water Supplies Act 1957</b> Council adds fluoride to the water supply in accordance with the Act and Regulation and the Fluoridation Code of Practice. Administered by: NSW Health under the Minister for Health</p> <p><b>Food Act 2003</b> Council must not sell food (water) known (or ought to reasonably be known) to be unsafe. Administered by: NSW Food Authority under the Minister for Primary Industries</p> <p><b>Dams Safety Act 1978</b> Council is required to ensure the safety of its dams. Administered by: Dams Safety Commission under the Minister for Primary Industries</p>
Work Health and Safety	<p><b>Work Health and Safety Regulation 2017</b></p> <p>Council is required to secure and promote the health, safety and wellbeing of staff. Administered by: SafeWork NSW under Minister for Finance and Services</p>
Other	<p><b>Competition and Consumer Act 2010</b></p> <p>The Council must not engage in any misleading or deceptive conduct Administered by: Australian Competition and Consumer Commission</p>
Australian Accounting Standard	<p><b>Australian Accounting Standard AASB116</b></p>



### 2.1.3 The Regulated Business

The regulated water and sewer business of Council is responsible for:

- Water resources and storage;
- Water treatment;
- Drinking water distribution;
- Wastewater collection;
- Wastewater treatment;

The regulated part of Council responsible for stormwater is Roads, Transport and Drainage, pertinent to this review are:

- Stormwater drainage assets and collection.

### 2.1.4 The Non-Regulated Business

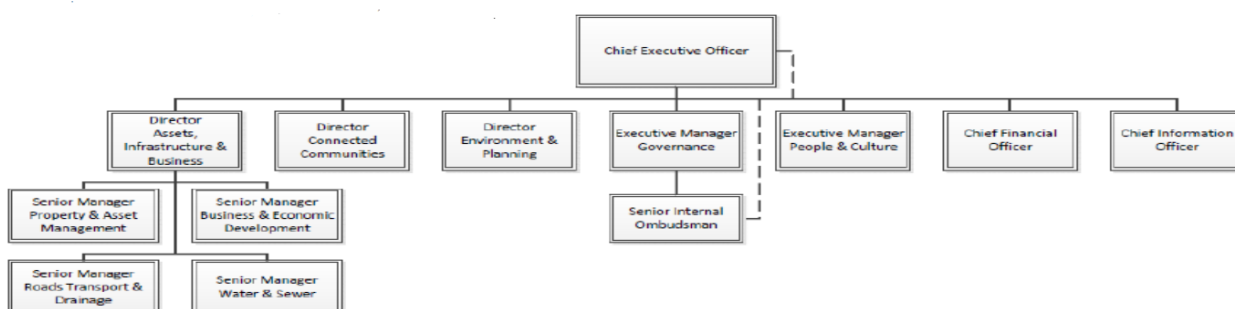
Council undertakes a significant number of activities which are not regulated as part of this price review process. Of most relevance to this review, Council has installed and operates recycled water facilities at its sewage treatments plants. Charges for these facilities are negotiated in written commercial agreements between Council and customers and are not regulated by IPART. Council has separately identified and reported expenditure related to these recycled water facilities.

Council also owns and operates road drainage which feeds into the stormwater assets regulated as part of this review.

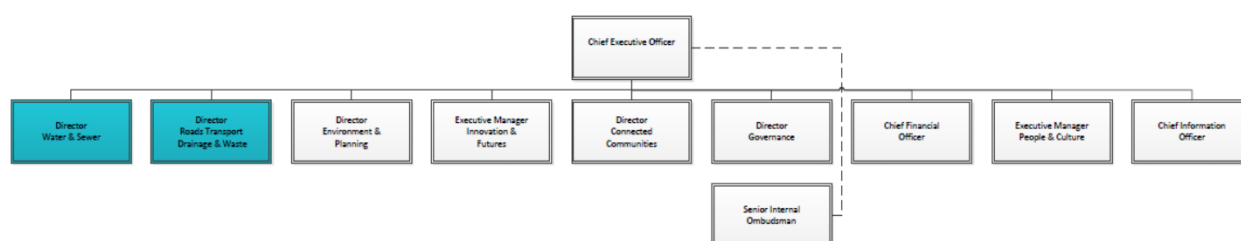
## 2.2 Organisation, Structure and Functions

Council has been in the process of reorganisation since the amalgamation of the two former councils. At the time of our interviews in October 2018 the Council was undergoing a further reorganisation to streamline the organisational structure. The Water and Sewer business and the Roads, Transport, Drainage and Waste (responsible for stormwater) are now their own directorates who report directly to the Council CEO. The former and current structures are shown in Figures 2-2 and 2-3 below.

**Figure 2-2 Council structure up to 31 October 2018**



**Figure 2-3 Council structure from 1 November 2018**



## 2.3 Governance Arrangements

### 2.3.1 Budgeting

Council runs a council-wide annual budgeting process. We have reviewed Council budgets for water, sewerage and stormwater services. It is now employing a zero-based annual budgeting approach for opex, with 2018/19 being the first complete budget development process undertaken by the Council after amalgamation. We were informed by Council that budgeting for opex involves:

- Review of cost drivers (e.g. changes in opex as a result of capital projects, population growth).
- Review previous expenditure performance and root cause analysis.
- Review of fixed and variable costs such as labour, energy, chemicals.

Capex budgets are built up using monthly spend projections and cost estimates indexed to current cost base.

The annual budgeting process commences in October or November and produces twelve-month budgets. All budgets are derived in accruals accounting terms and are built up from the cost centre level.

The budgeting process is initiated by Council's Finance Department providing Unit Managers with templates to prepare a budget for all costs (opex, capex and revenue) based on the cost centres created for each Unit and a common accounts structure to enable collation of costs for analysis. The units are summarised below.

**Table 2-2 Council budgeting units**

Unit	Products/services managed	Main functions
Asset & Facilities Management	Treatment plants, dams raw water pump stations, weirs, catchments, raw water mains, bores, sewer treatment plants, effluent mains, treatment plant sewer pump stations.	Catchment & production of water, treatment of water, treatment of sewerage
Technical Service & Technical Control	Potable water mains, reservoirs, booster chlorination stations, network pump stations, sewer pressure mains, vacuum systems.	Monitoring and distribution of water & the distribution of sewerage
Construction & Project Management	External connections and related service	Major and minor construction
Planning & Design	Development Assessments Trade Waste	Planning and design of Project and growth assets. Compliance activities
Roads Maintenance & Asset Evaluation	Drainage structures, open channels, table drains	
Roads Asset Planning & Design	Drainage assets	Planning & design

Table 32, Council Pricing Submission

Unit-level budgets are consolidated to form the total Council budget. Financial budget components such as depreciation and organisational support costs are also allocated back to the business units as overhead charges.

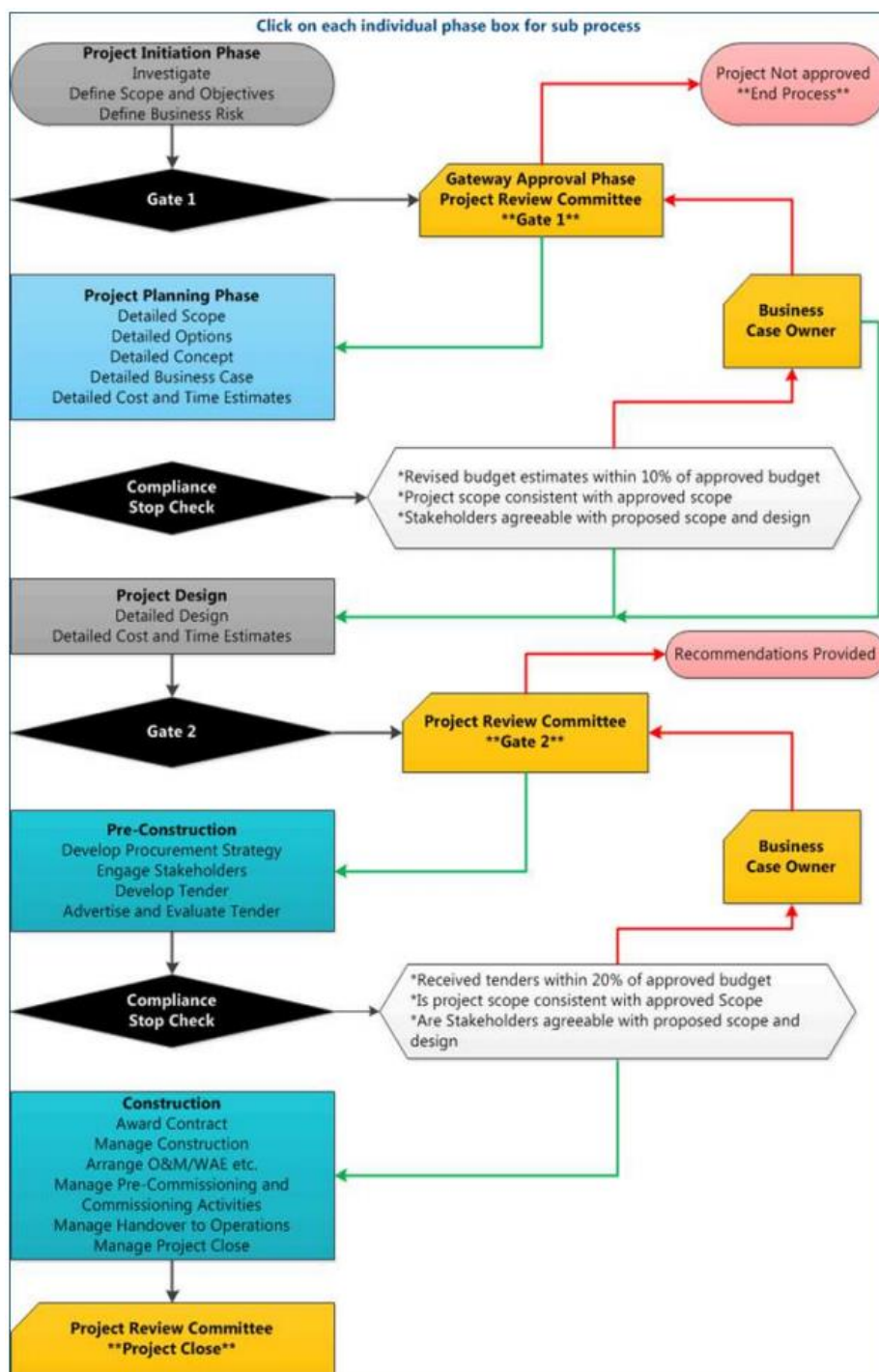
Council then uses a bespoke tool (Power Budget) to track expenditure against budget. This is done by business, unit and section on a monthly basis. Budget Reviews are also undertaken on a quarterly basis to provide financial updates to Council.

## 2.3.2 Project delivery framework

Council is in the process of developing an amalgamated project delivery framework. We were provided a presentation of the overview of the project gateway process outlined in Figure 2-4 below. The project gateway process appears to be relatively new and it was

unclear how prevalent its usage is throughout the water and sewer business as it stands. Our project reviews indicated that the process was being used to greater or lesser extents across a variety of projects and there was still a way to go to formalise the process and utilise any supporting systems.

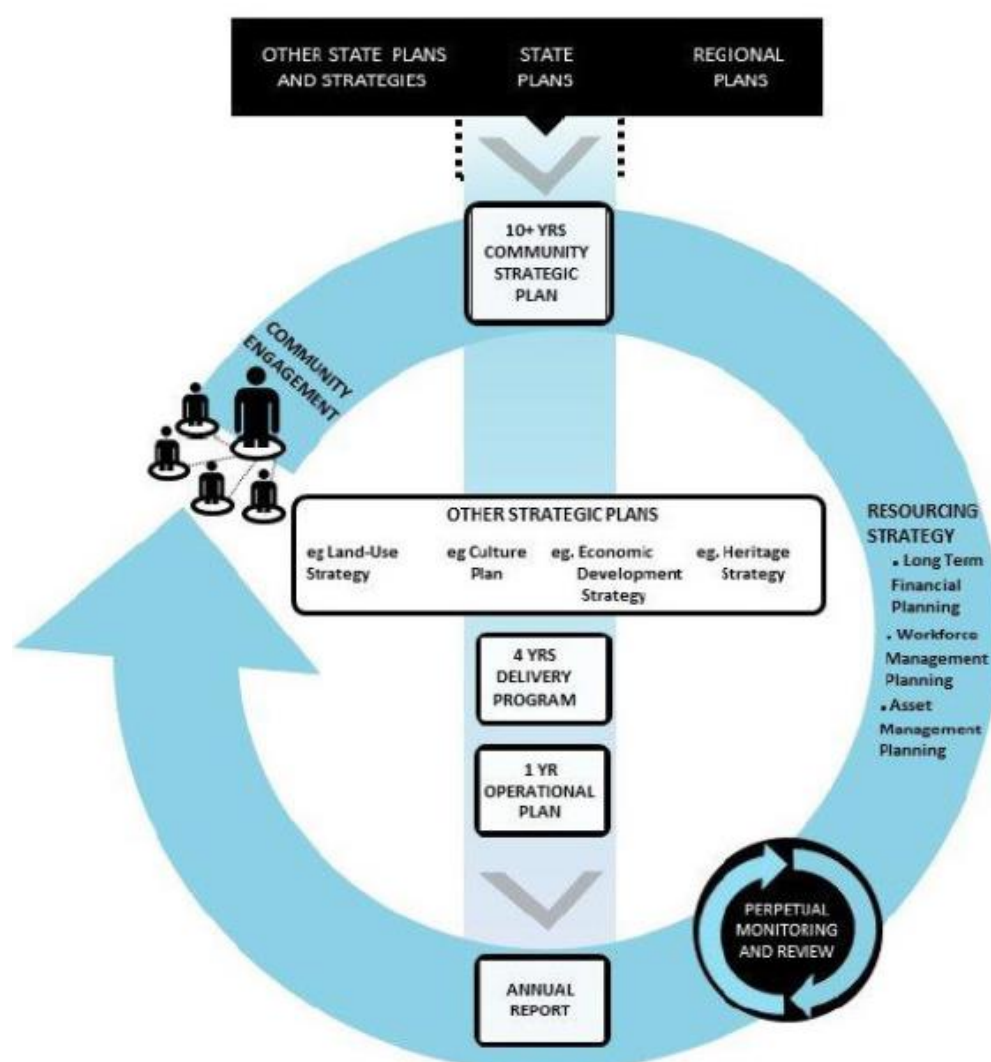
Figure 2-4 Project delivery framework



## 2.4 Long term strategic plan

Strategic planning takes place at a council level and there is no specific breakdown for water and sewerage or drainage. The Integrated Planning and Reporting Guidelines for local government in New South Wales made under the Local Government Act 1993 and the Local Government (General) Regulation 2005 defines the corporate planning and reporting requirements for local governments. The Framework is shown in Figure 2-5.

**Figure 2-5 Integrated Planning and Reporting Framework**



Source : New South Wales Integrated Planning and Reporting Framework  
<https://www.olg.nsw.gov.au/councils/integrated-planning-and-reporting/framework>

Following amalgamation, Central Coast Council was required to have in place key documents under the planning framework by 30 June 2018. The key documents are the Community Strategic Plan, the Long-Term Financial Plan, Workforce Management Planning and Asset Management Planning. The Community Strategic Plan was adopted in June 2018.

Community engagement for the Community Strategic Plan was undertaken across all of Council's services and activities. This engagement identified the following desired Council-wide outcomes:

- Governance and leadership

- Environment
- Community wellbeing
- Economic

The strategic plan then identifies the following themes which the plan is to respond to in order to meet community expectations:

- Belonging
- Smart
- Green
- Responsible – delivering essential infrastructure
- Liveable.

The focus areas to support these themes are shown in Figure 2-6

**Figure 2-6 Themes and focus areas within Central Coast Council Strategic Plan**

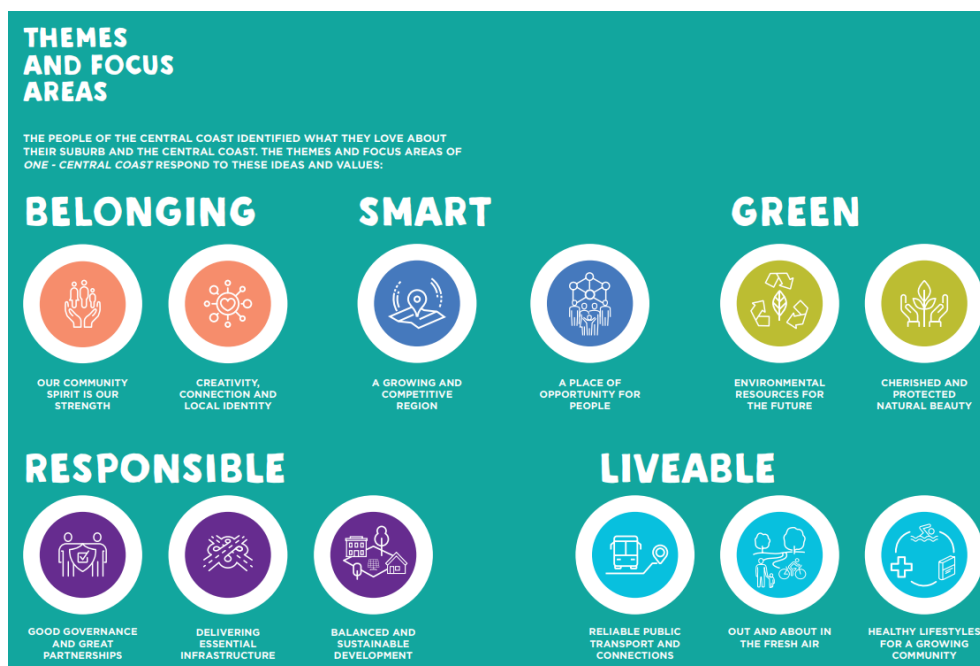


Table 2-3 provides a mapping of the objectives which support the themes and focus areas in the Community Strategic Plan to the services of water supply, sewerage and stormwater. Of the 47 objectives within the Community Strategic Plan, the water supply, sewerage and stormwater services are only mapped as supporting seven.

**Table 2-3 Mapping of themes, focus areas and objectives to services**

Themes	Focus areas	Objectives	Water supply	Sewerage	Stormwater
Responsible	Good governance and partnerships	H.1 Address road and drainage problem areas and partner with the State Government to improve road conditions across the region	X	X	X
		H.4 Plan for adequate and sustainable infrastructure to meet future transport, energy, water and telecommunication demands	X	X	X
Caring/belonging	Our community spirit is our strength	A.4 Enhance community safety within neighbourhoods, public spaces and places	X	X	X
Smart	A growing and competitive region	J.2 Revitalise Gosford CBD, Gosford Waterfront and town centres as key destinations and attractors for businesses, as well as local residents, visitors and tourists	X		
Green	Environmental resources for the future	L.2 Improve water quality for beaches, lakes and waterways by minimising pollutants and preventing litter entering our waterways	X	X	X
		L.3 Reduce littering, minimise waste to landfill and educate to strengthen positive environmental behaviours	X		
		L.4 Incorporate renewable energy and energy alternatives in future design and planning and ensure responsible use of water and other resources			
	Cherished and protected natural beauty	K.1 Protect our rich environmental heritage by conserving beaches, waterways, bushland, wildlife corridors and inland areas, and the diversity of species	X	X	X
		K.2 Promote greening and wellbeing of communities through the protection of local bushland and urban trees, tree canopies and expansion of the Coastal Open Space System (COSS)		X	X
		K.4 Address climate change and its impacts through strategic planning, responsible land management and collaborative partnerships	X	X	X

Source: Central Coast Council Asset Management Plan, Morrison Low March 2018



We make the following observations regarding this mapping of objectives:

- It is not clear why the sewerage and water supply services are mapped to H.1 address road and drainage problem areas and partner with the State Government to improve road conditions across the region. This appears to relate only to the stormwater service;
- There is no mapping of the services to the following objective: G.4 Serve the community by providing great customer experience, value for money and quality services. We consider that water, sewerage and stormwater are important in supporting this objective;
- Water, sewerage and stormwater have an important role in supporting the objectives under the focus area of a growing and competitive region. There are four objectives under this theme but only one service (stormwater) has been mapped to one objective. We consider that all services support the following objectives:
  - C1 Target economic development in growth areas and major centres and provide incentives to attract businesses to the Central Coast;
  - C2 Revitalise Gosford City Centre, Gosford Waterfront and town centres as key destinations and attractors for businesses, local residents, visitors and tourists;
  - C3 Facilitate economic development to increase local employment opportunities and provide a range of jobs for all residents;

This is because value for money infrastructure, provided to support existing and growing communities underpins economic development.

- There are no performance measures linked to the objectives; and
- There is no link in the asset management plan between the objectives and the levels of service.

We understand that the Community Strategic Plan and supporting whole of Council Asset Management Plan have been developed in a reasonably short period of time post-merger to meet the legislative requirements. However, the above observations indicate that Central Coast Council can better demonstrate how its asset management activities support community objectives.

Further community engagement specific to water, sewerage and stormwater was undertaken after the whole of Council community engagement to inform development of the pricing submission. The key community values relating to the water and sewerage business arising from this engagement were:

1. Reliability
2. Value for money
3. Efficiency

In meeting these values, Council has adopted the following three measures:

1. Protecting the water supply catchment
2. Water conservation education
3. Increasing water storage capacity at Mangrove Creek Dam

As for the whole of Council Strategic Community Plan, there is not a clear link between these values and measures and the activities of the water and sewerage business.

## 2.5 Asset management practices and processes

### 2.5.1 Asset management planning overview

As a merged entity, Central Coast Council is putting in place a strategic asset management framework that draws on elements of practice in the former local governments as well as newly created, unified processes. Both local government entities previously had asset management practices that met regulatory requirements. A foundation document for the combined local government is the Central Coast Council Asset Management Plan (Morrison Low, March 2018) which meets the regulatory requirements under the Local Government Act. The stated aim of the asset management plan is to:

*provide the framework to ensure that Council's infrastructure assets are operated, maintained, renewed and upgraded to ensure that the Levels of Service are achieved in the most cost effective and sustainable way.*

The scope of the asset management includes all of Council's assets including water, sewerage and stormwater. The plan's objectives include to:

- prioritise funding and resources between asset groups;
- assist the management of the environmental, financial and public risks related to the infrastructure assets;
- provide the basis for forward works programs;
- provide the basis for optimising whole of life costs; and
- support long term financial planning across all asset classes.

The plan (also referred to as a strategy) states that it identifies the future funding requirements and service delivery in the context of:

- current asset condition and performance;
- levels of service;
- forecast demand for infrastructure and services; and
- funding constraints.

There is also an asset management plan in place for the combined water and sewerage business, the Water and Sewerage Asset Management Plan (Central Coast Council, v5 01 Aug 2018). This plan states that the amalgamated Central Coast Council has been working through harmonisation, integration of the new combined asset data base including nomenclature, hierarchy, information and asset management processes and policies of the Central Coast Council. It notes that this process is ongoing. There is no separate asset management plan for stormwater assets.

Central Coast Council is yet to endorse an asset management policy although it is referred to in the whole of Council asset management plan and documented in the Resourcing Strategy. Section 4.1 of the water and sewerage asset management plan details goals and objectives of asset management that align with the guiding principles typically found in an asset management policy. Despite the lack of a formalised policy, we consider that Council's asset management practices are founded on sound principles and that staff had a good understanding of these principles.

### 2.5.2 Levels of Service and current output measures

#### Levels of Service

The whole of council asset management plan sets out levels of service that are different to those in the water and sewerage asset management plan as they have been developed through different approaches. The Levels of Service detailed in the whole of Council asset management plan are set out below. Similar levels of service are documented for sewerage and stormwater.

**Table 2-4 Water supply Levels of Service from whole of Council asset management plan**

Key performance indicators	Level of service	Performance measurement process	Target performance	Current performance
Accessibility and/or availability	Unrestricted water supply to all connected properties	Customer complaints	Average duration of unplanned interruption (minutes) less than the state-wide median.	N/a
			Water main breaks per 100km less than 23	
Quality / condition	Pleasant tasting and looking drinking water are provided	Customer complaints	100% compliance with drinking water standard	
			Drinking water quality complaints per 1000 properties less than 9	
	Percent of assets in Condition 3 or better	Condition assessment	95% of assets in satisfactory condition or better.	96.6%
Reliability / responsiveness	Percent compliance with Council's documented response time	CRMS data	90% of requests are completed within Council's customer charter	N/a
Customer satisfaction	Customers are happy with the services provided	Community satisfaction survey	The net differential between importance and performance is positive	-13 (2016 research report)
Affordability	The services are affordable and managed at lowest possible cost for required level of service	Review of service agreements and benchmark with other councils	Total operating costs per volume of water distributed is equal or less than the industry average.	
Sustainability	Long term plans are prepared	Life cycle approach to managing assets	A 20-year water supply management plan is operational for water and wastewater, approved by appropriate authorities and reviewed every 3 years.	
	Water resources are used efficiently and sustainably	Water consumption/usage records	Per capita peak water consumption remains constant (or reduces by 5%).	
	Assets meet financial sustainability ratios	Consumption ratio	Between 50% and 75%	69%
		Renewal funding ratio	Between 90% and 110%	85%
		Long term funding ratio	Between 95% and 105%	57%
Health and safety	A safe working environment provided for people involved in providing the service	H&S reported incident	Zero personal injury incidents associated with system operation and maintenance.	
			Health and Safety Manual and contract specification are 100% compliant with Work Health and Safety Act 2011.	

Source: Central Coast Council Asset Management Plan, Morrison Low March 2018

Within the water and sewerage asset management plan, the following 'primary' levels of service are detailed:

- Water supply
  - 100% compliance with the Australian Drinking Water Guidelines
  - Provide minimum pressure of 15m during peak day demands
- Sewerage
  - Sewer effluent discharge meets Environmental Protection Authority (EPA) discharge licence 100% of the time.

The requirement for 100% compliance with the Australian Drinking Water Guidelines is in both the whole of Council asset management plan and the water and sewerage asset management plan. The minimum pressure standard is not. Some of the Levels of Service in the whole of Council asset management plan detailed in Table 2-4 (e.g. water quality complaints) appear in parts of the water and sewerage asset management plan but not in the framework presented in the whole of Council asset management. There is a disconnect between the two asset management planning documents. This reflects the purpose of the whole of Council asset management plan to meet the regulatory requirements and the water and sewerage asset management plan which has been developed by the business as it progressively puts in place consistent processes. This disconnect in the documents means that there is also a disconnect between the community engagement reflected in the Community Strategic Plan and the water and activities and expenditure forecasts in the sewerage asset management plan. There is an opportunity for Council and the water and sewerage business to provide a better line of sight from community and stakeholder expectations to asset management planning and activities.

To improve, the line of sight from community and stakeholder expectations through planning and to activities, in the coming regulatory period, Council should:

- Remove the discrepancies between the whole of Council asset management plan and the water and sewerage asset management plan by establishing a single, endorsed statement of levels of service;
- Engage with the community and stakeholders regarding the levels of service; and
- Mature expenditure planning methodologies so that there is a stronger link between the forecast expenditure requirement and achieving the levels of service.

### Output Measures

The water and sewerage asset management plan also details 'related performance measures' nominated by IPART for the constituent Councils for the 2013-17 Determination period. These measures and the performance of each Council against them for 2016/17 is detailed below.

**Table 2-5** Desired and actual performance against 2013-17 Determination related performance measures

	Desired Performance by 2015/16 (Both Gosford and Wyong)	Gosford – Performance in 2016/17	Wyong – Performance in 2016/17
<b>Water</b>			
Water quality complaints per 1,000 customers	9.9	8.6	6.64
Average frequency of unplanned interruptions per 1,000 properties	151.8	135.31	85.278
Water main breaks per 100km water main	23.7	18.36	13.92
Compliance with Australian Drinking Water Guidelines – microbial guideline values	Compliance	Compliance	Compliance
Compliance with Australian Drinking Water Guidelines – chemical guideline values	Compliance	Compliance	Compliance
<b>Sewer</b>			
Sewer overflows per 100km main	32.6	33.63	35.27
Sewage overflows reported to the environmental regulator per 100km main	1.6	2.8	4.42
Sewage odour complaints per 1,000 properties	1.9	1.9	1.68
Sewage main breaks and chokes per 100km	35.6	37.08	31.33
Compliance with Environmental Protection Licence concentration and load limits	Compliance	Compliance	No

The preceding comparison between the desired performance and actual performance shows that:

- Both Councils outperformed the following measures:
  - Water quality complaints per 1,000 customers
  - Average frequency of unplanned interruptions per 1,000 properties
  - Water main breaks per 100km water main
  - Sewage odour complaints per 1,000 properties
- Wyong met the measure for sewage main breaks and chokes per 100km main but Gosford did not
- Both Councils did not meet the measures for sewer overflows per 100km main and sewage overflows reported to the environmental regulator per 100km main. Council notes that sewer overflows for both Wyong and Gosford have increased over historic levels due to a change in reporting approach.



## Performance trends

The Council and former LGAs service level output measures are presented in the Council submission between 2013/14 and 2017/18. We summarise and comment on the overall performance trends each of the service levels Table 2-6 in below and provide the supporting detail in Appendix C.

**Table 2-6 Summary of performance trends by service level output measure 2014 to 2018.**

Service level output measure	Comment on performance trend
Water Quality complaints per 1000 connections	Performance has been broadly stable with no discernible trend
Unplanned supply interruptions per 1000 properties	Performance has been broadly stable with no discernible trend
Water main breaks per 100km main	Performance has shown marginal year on year improvements overall with reductions in the number of water main breaks (noting that in 2010/11 the level of water main breaks in Gosford was around 30 breaks per 100km main meaning that performance has improved considerably since this time)
Odour complaints per 1000 properties	Performance has been broadly stable with no discernible trend
Sewer main breaks and chokes per 1000km main	Performance has been broadly stable with no discernible trend
Reported sewer overflows per 100km main	Performance has been variable year on year with no discernible trend
Total sewer overflows per 100km main	Performance has been broadly stable with no discernible trend

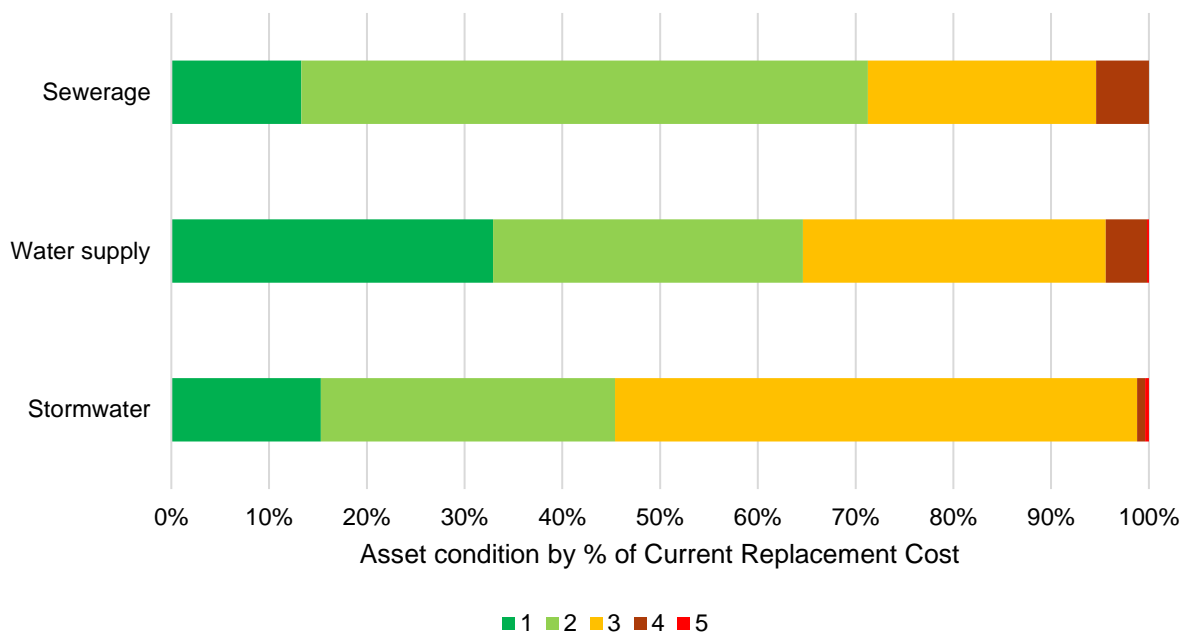
We found that performance has remained relatively stable across the former LGAs and Council overall and has in fact improved on one measure. This helps to inform our view on whether there is a requirement for additional expenditure, in particular for expenditure on renewals in the future determination period which we discuss in Section 4.

We discuss Councils proposed output measures and performance over the future determination period in Section 6.

### 2.5.3 Asset condition

The condition of assets provides assurance that they are able to function to meet their requirements. It has been a focus of Council to obtain a wider coverage of up to date asset condition information in recent years. The whole of Council asset management plan notes that the asset information relating to the water supply, sewerage and stormwater asset classes is considered 'reliable'. The condition profile for the three asset classes is shown in Figure 2-7. In this figure, a condition grade of 1 is 'as new' and a condition grade of 5 is 'poor'.

**Figure 2-7 Asset condition profile**



The whole of Council asset management plan includes commentary on the concept of an ‘asset backlog’. This is defined as the expenditure required to bring assets to a satisfactory standard (condition grade 3). This is also a regulatory reporting requirement under Special Schedule 7. The ‘backlogs’ for stormwater, water supply and sewerage are summarised below.

**Table 2-7 Reported asset backlog**

	Assets by current replacement cost in Condition 4 and 5 (%)	Backlog (\$)	Backlog ratio (Backlog/written down value) (%)	Backlog ratio (Backlog/current replacement cost) (%)
Stormwater	1.2	10,564,000	1.1	0.7
Water supply	4.4	15,286,000	1.5	0.9
Sewerage	5.4	21,164,000	1.5	1.0

The Office of Local Government has set a desired benchmark of <2.0% for the backlog ratio when measured against written down value. All three asset classes are below this benchmark.

In response to our draft report, Council has updated its estimate of backlog being \$72M for water and \$151M for sewerage. The updated estimate of backlog was based on the value of assets by replacement costs that are in condition grade 5. This is a stricter criterion than that applied in the whole of Council asset management plan which used a criterion of assets in condition grade 4 and 5 to define backlog. Council explained that the backlog estimate in the whole of Council asset management plan is based on the asset useful lives in the Financial Asset Register and unit rates used for financial reporting and that it considers that this methodology can underestimate the renewals backlog. Council states that its updated backlog estimate is based on “fundamental analysis by material, function and useful life of each asset and percentage of useful life consumed”. Council further notes that “as the amalgamated Council develops, so will the newly aligned operational and functional reporting to create greater sophistication of the data. The asset management team are and will continue to undertake continual reconciliation between Financial Asset Register and Technical Asset Register to better align the practices of technical asset management and financial reporting.”

Council considers that the observed backlog is a driver for expenditure in the future Determination period. It wishes to address this backlog through increased expenditure on asset renewal. We do not agree that the backlog measure is an appropriate approach for quantifying asset renewal needs. This is because a condition rating lower than 3 does not mean that an asset cannot provide the service required of it. It is appropriate for many assets that a run-to-failure life cycle management approach is adopted where there is little or no impact on service until this failure. Council adopts this strategy for a number of its asset classes, in particular water reticulation mains. Therefore, maintaining assets at condition grade 3 is not consistent with minimising the life cycle cost of assets and is not efficient.

It is difficult to reconcile the differences between the two methodologies used to report backlog by Council. As identified by Council, reconciliation between the technical and financial asset registers will provide benefit in better understanding the risk profile of the asset base and renewal needs in coming years. In the absence of a clear performance driver, we consider that it is appropriate that Council progresses this reconciliation and alignment work to provide greater confidence in its forecasting of renewal requirements.

Approaches to forecasting asset renewals vary in complexity, the depth of analysis and data requirements. The adopted approach will depend on a variety of factors such as data availability and maturity of asset management processes. Broadly, the hierarchy of possible approaches to estimating renewal requirements in order of increasing maturity are:

1. Age based (expected useful life);
2. Condition and risk based – expected useful life adjusted for observed condition; and
3. Performance based – considering the impact of asset performance on customer service.

The backlog metric, while incorporating condition information, is not a condition and risk-based approach. This is because the backlog approach implies an asset renewal intervention criterion of the condition grade being 3 (in the whole of Council asset management plan). This is not the intervention trigger adopted by Council – many assets are run to failure or when observed condition is 4 or 5. Also, the International Infrastructure Management Manual does not recognise the backlog method as an approach for forecasting renewal requirements.

The backlog ratio has been used as metric for other purposes, particularly as a high-level measure of financial sustainability. This purpose is not equivalent to forecasting renewal requirements.

We comment on Council's approach to forecasting and justifying expenditure for asset renewal further in Section 4.4.

## 2.6 Corporate Risk Management

Since amalgamation, Council has commenced an enterprise risk management project to create a single approach to risk management in line with ISO 3100:2009. This approach will be used in future to manage corporate risks but was not used to develop its' submission.

For the purpose of justifying and prioritising expenditure, Council has employed a number of legacy risk-based approaches that vary between asset classes and locations. An important development for the future determination period is that Council intends to adopt and implement a consistent approach to determining asset criticality consistent with the corporate risk framework. This consistent approach should enable Council to better demonstrate risk-based decision making and potentially to demonstrate how it is effectively prioritising expenditure between drivers and asset classes within the program.

## 2.7 Cost Estimation

Project cost estimates are built up from a range of information sources including historical costs and State Government reference rates. Adjustments are made for local conditions (e.g. acid sulphate soils). There is no guideline in place that defines a standard approach to cost estimating for water and sewerage projects. As a result, cost estimating is undertaken differently across the business for different types of assets on a project by project basis. For significant projects this is often undertaken using a bottom-up approach by external consultants. We consider that there is significant room to improve cost estimating processes. We would recommend developing an overarching cost estimation framework expedited through a cost estimation manual

and the development of cost estimation tools. We consider this would help Council move towards a greater level of maturity for example through improving project contingency planning and reviewing outturn costs to budget estimates.

## 2.8 Procurement

The Procurement and Projects unit has central responsibility for procurement within Council. Within Procurement and Projects, two sections have key responsibilities for procurement activities. Purchasing and Stores set the overall framework for procurement and undertakes purchasing activities. The Contract Governance section is responsible for tendering and oversight of 'regulated contracts'. Regulated contracts are those exceeding \$150,000 including GST which are required under the Local Government Act and Regulation to be procured through an open tender process.

A procurement policy for the combined council has been drafted but has not yet been endorsed. The policies for the two former local governments have broadly similar principles. Achieving value for money is an overarching aim. Council seeks to achieve efficiency and probity in procurement through:

- Centralised oversight and policy development for procurement;
- Contact plans are required for expected expenditure greater than \$150k;
- Purchasing is required to be undertaken in accordance with delegated authorities and can only occur where a budget has been allocated and expenditure is within the budget; and
- One up approval is required for purchases.

**Table 2-8 Council Procurement process – Quotation requirements**

Total Value	Minimum Requirements (if not available on existing contract)
Under \$5,000	One written or verbal quotation.
\$5,000 - \$9,999	One written quotation- attach quotation to purchase requisition
\$10,000 - \$49,999	Two written quotations- attach quotations to purchase requisition
\$50,000 - \$149,999	Three written quotations- attach quotations to purchase requisition

Council's predominant approaches to procuring new capital works is either through internal resources or a separated design, tender, construction approach. Council advises that it is open to alternative tender arrangements such as Expression of Interest and Early Contractor Involvement but does not use them. For the significant proposed expenditure for the Mardi to Warnervale pipeline, potential procurement approaches have been proposed by the consultant and these have been taken to a workshop with the Contract Governance team.

The Contract Governance team is able to provide advice and support on procurement strategies. For example, on different approaches to market or an appropriate balance between price and quality selection criteria. It is not mandatory to obtain or accept this advice. Similarly, the central unit can identify procurement trends and opportunities for aggregating purchasing for achieving efficiencies but do not have the authority to mandate procurement approaches. There are opportunities to further gain efficiencies though considering the benefits of alternative procurement methods, such as alliancing and partnering.

The former local governments each had a local preference policy in place, but these were removed at the time of amalgamation. A local preference policy has been proposed. Council notes that much of their goods and services are currently procured locally so a local preference policy may not have a material impact.

Internal resources are used for lower risk, high volume work such as mains renewal. A number of procurement arrangements are in place for specific goods and services such as mains supply and sewer relining. External resources are used for peaks in the water main renewal program.

While the central unit provides oversight and assistance with procurement, it is up to the business to manage contract delivery and completion.

## 2.9 Conclusions

Our review has focussed on the business management processes and systems in place, under improvement or being developed to make the decisions on how to invest in and maintain assets. This informs us of the scope to lever efficiency savings in the future determination period.

Council has been in the process of reorganisation since the amalgamation of the two former councils. At the time of our interviews in October 2018 the Council was undergoing a further reorganisation to streamline the organisational structure. Following amalgamation, Central Coast Council was required to have in place key documents under the planning framework by 30 June 2018. The Community Strategic Plan and supporting whole of Council Asset Management Plan have been developed in a reasonably short period of time post-merger to meet the legislative requirements. However, we consider that Council can better demonstrate how its asset management activities support community objectives.

We found that performance measures have remained relatively stable across the former LGAs and Council overall and has in fact improved on one measure. This helps to inform our view on whether there is a requirement for additional expenditure, in particular for expenditure on renewals in the future determination period. For the upcoming Determination period, Council is proposing improvement in performance across four measures as detailed below with no change for three.

The Council asset management plan includes commentary on the concept of an 'asset backlog'. This is defined as the expenditure required to bring assets to a satisfactory standard (condition grade 3). Council considers that the observed backlog is a driver for expenditure in the future Determination period. We do not agree that the backlog measure is an appropriate driver for asset renewal and maintaining assets at condition grade 3 is not consistent with minimising the life cycle cost of assets and is not efficient.

We consider that there is scope to improve corporate risk management as the legacy processes between the two former councils are streamlined. There is opportunity to become more efficient and move towards a greater level of maturity in cost estimating for example through improving project contingency planning and reviewing outturn costs to budget estimates. There are opportunities to further gain efficiencies though considering the benefits of alternative procurement methods, such as alliancing and partnering.



## 3 Operating Expenditure

### 3.1 Methodology

This section presents the results of our review of the efficiency and prudence of Council's operating expenditure. We identify below the major investment drivers and explain the variances in the current determination period expenditure against the 2013 Determination. We comment on the efficiency and prudence of operating expenditure in the current determination period.

We then make an assessment of an efficient level of expenditure for the period from 2020 to 2024 taking into account our discussions with Council, documents presented and subsequent answers to questions we raised. We discuss the cost drivers and efficient cost level recommendations for operational and support activities.

The methodology for the review of operating expenditure has focused on an evaluation of:

- (i) Actual expenditure for financial years ending 2014 to 2018;
- (ii) The current budget for year ending 2019; and
- (iii) The projected costs for the financial years ending 2020 to 2024.

The evaluation of operating expenditure has been undertaken using Council's 2018 Submission and supporting AIR and SIR spreadsheets. Our assessment is based on the actual operating expenditure in the Submission, the robustness and confidence of these expenditures taking into account the basis of the estimates and the confidence of the need, timing and scope of the requirements. We also take into account whether additional expenditure proposals have been through the internal approval and challenge processes.

We have interviewed the functional managers, reviewed supporting reports and documents and assessed the current position on the development and implementation of corporate systems used to set budgets, control and monitor costs and allocate expenditure to the IPART expense types.

We present our analysis of the future expenditure proposals by Council and comment for each activity on the potential for efficiencies through the robustness of estimates, the need and timing of expenditure and challenging Council's classification of some activities as new, additional, requirements rather than base opex.

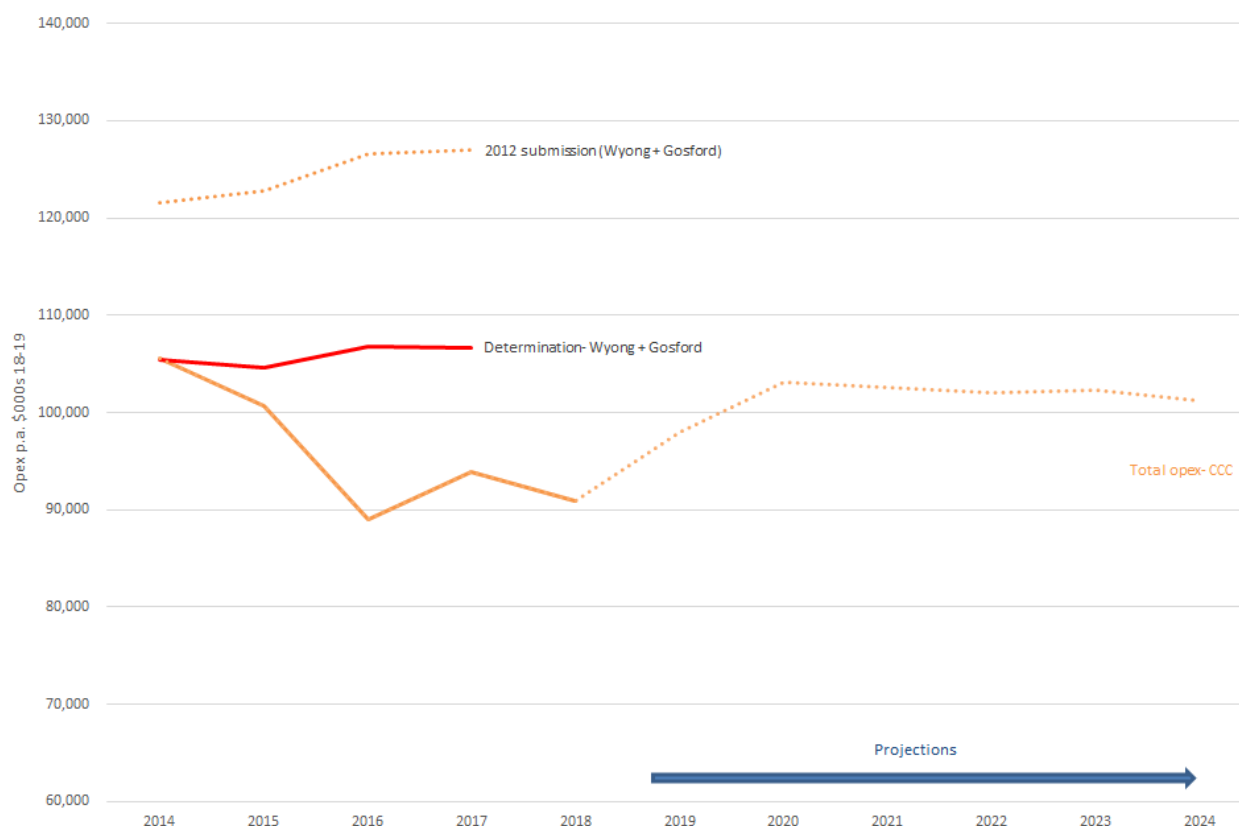
Our views on future efficiencies are based on the hypothesis of a Frontier Company, the continuing efficiencies that a Frontier Company makes through innovation and technological development and the catch-up efficiency required to achieve the performance of a Frontier Company over time.

IPART's previous Determination covered prices for the period from 1 July 2013 to 30 June 2017. As this review is being undertaken after this period, to allow analysis of opex performance during the current determination period, the 2017 Determination values have been applied without change to 2018 and 2019. This is referred to as the 'extrapolated Determination' in the text in this section.

## 3.2 Overview

Since 2013-14, Council's opex has been significantly lower than anticipated in the Gosford and Wyong 2012 Submissions and the 2013 Determinations.

**Figure 3-1 Significant opex outperformance relative to 2012 submission and 2013 Determination**



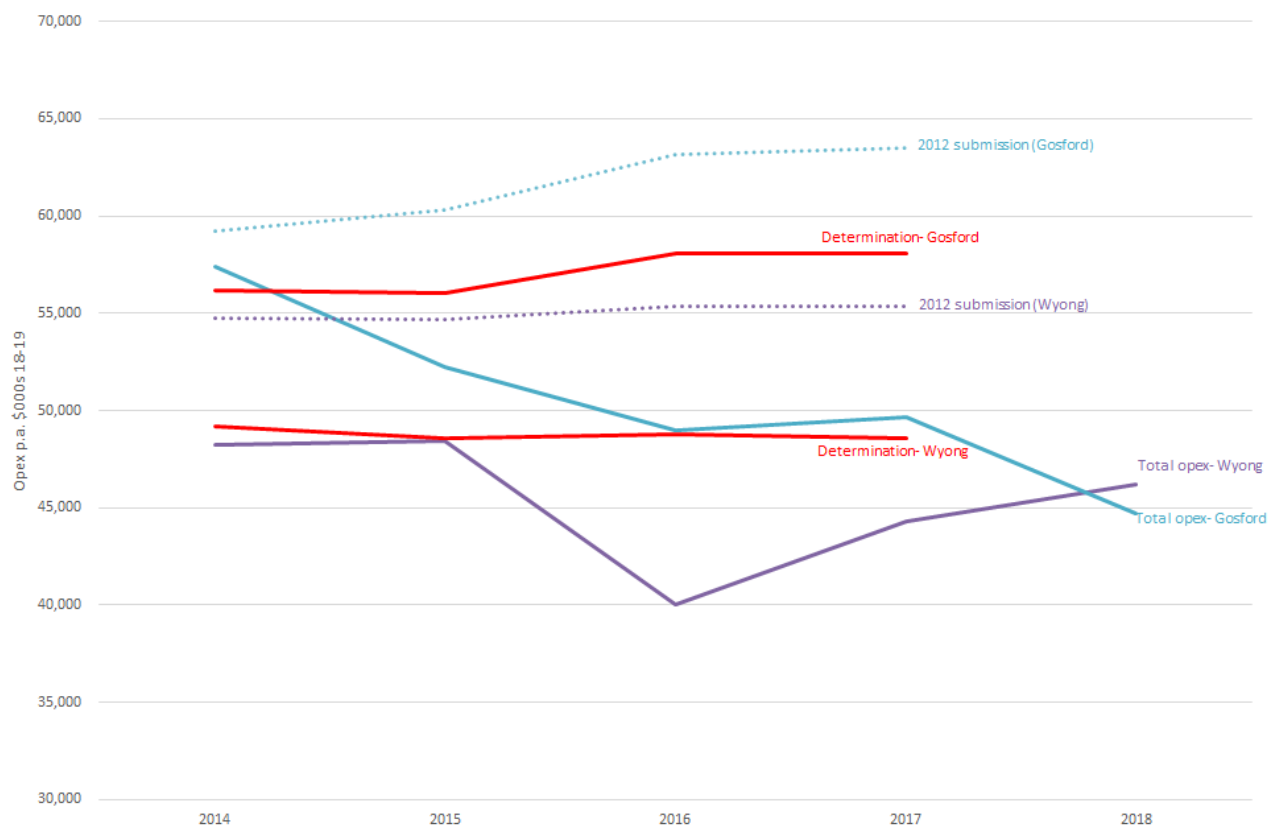
Note: opex adjusted for months in 15/16 and 16/17 reported years<sup>2</sup>. Y-axis truncated.

Source: SIR Opex CCC

This outperformance has been achieved across both the former LGAs as shown below:

<sup>2</sup> Because of the formal amalgamation of the councils in mid-May 2016, the opex reported in CCC's submission for 2015/16 captures 10.5 months of costs whereas the reported 2016/17 opex captures 13.5 months of costs.

**Figure 3-2 Opex outperformance applies to both former LGAs**

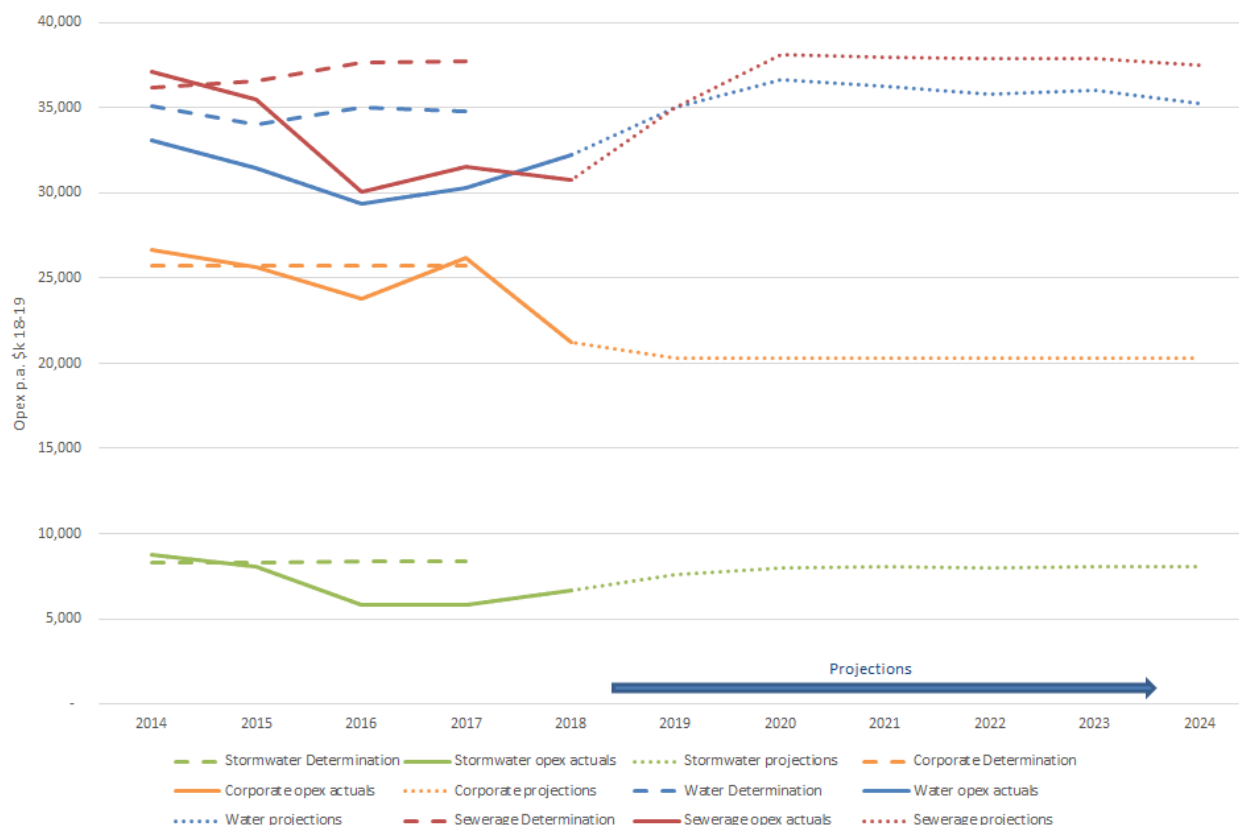


Note: Y-axis truncated.

Source: SIR Opex Gosford and SIR Opex Wyong

In the next determination period, Council is projecting an increase in opex relative to recent actuals, with a peak in 2019-20, followed by a modest reduction thereafter. This increase is largely driven by ramping up of sewerage and water opex, but not corporate opex, and a small increase in stormwater expenditure as shown below.

**Figure 3-3 Opex performance by service**



Source: SIR Opex CCC

### Benchmarking efficiency

We have compared Council's efficiency in water and sewerage with other utilities using data from the National performance report 2016–17 (NPR)<sup>3</sup>.

The purpose of benchmarking is to help to understand Council's relative efficiency. Given the limitations of benchmarking, it is not used in a deterministic manner to derive expenditure recommendations. Limitations of benchmarking using NPR data include the differences between utilities in terms of:

- Service levels, customer types, scale, local factors, geographies and asset configurations. These factors can have significant effects, particularly on unit costs (if costs are per unit volume or connection for example);
- Level of vertical integration. For example, some purchase bulk water, which adds to operating costs, whereas others, such as the Council, provide this service themselves (which, all else equal, results in lower opex);
- Definitions and approaches to classification of expenditure as opex versus capex. For example, some utilities lease vehicles, whilst others own them; some procure significant capex projects using outsourced contracts which are accounted for as opex rather than capex, others do not.

Another limitation of benchmarking using the NPR data is that expenditure is only available at aggregate level and does not allow deep understanding of the drivers of expenditure or of difference between utilities.

Based on the NPR data, Council's water and sewerage opex appears to be operating at above average efficiency for the sector. Care needs to be taken in interpreting the per property efficiency metric, as Council

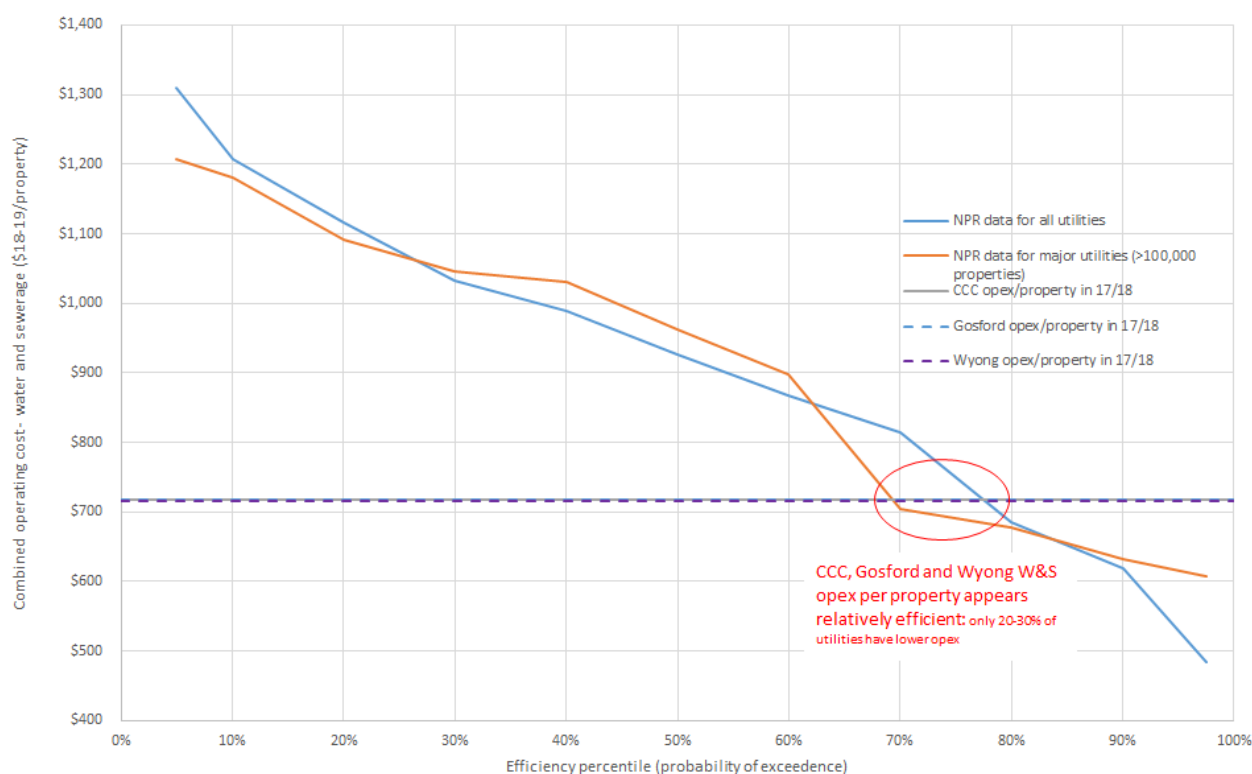
<sup>3</sup> Bureau of Meteorology 2018, National performance report 2016–17: urban water utilities

has significantly lower than average consumption per property. In 2017, Council reported to NPR “urban”<sup>4</sup> potable water supplied per connected property of 215kl compared to the NPR average of 297 kl per property. This 27% lower consumption per property is therefore likely to artificially reduce Council’s costs per property, making it look more efficient on this metric than it otherwise would.

We show below the comparison against all utilities in the NPR data but also the ‘major utilities’. The ‘all utilities’ comparison uses more data points and is therefore less likely to be skewed by outliers. We show the major utilities data set, for information, as it is the category that Council sits in. However, with a mean number of properties of 480,000, the ‘major utilities’ is actually much larger on average than Council whereas the all utilities average of 120,000 is similar to Council and is therefore the preferred metric.

For consistency purposes the water and sewerage opex figures include the corporate overhead charges allocated to them.

**Figure 3-4 Opex per property appears relatively efficient, but is artificially reduced by lower consumption**



Source: NPR data and analysis of ‘Opex by Item’ and ‘Non-financial’ tabs

On a volumetric basis, the Council water service appears to be operating at slightly better than the 60<sup>th</sup> percentile of all utilities and better than 80% of major utilities. However, we note that if utilities which are understood to purchase bulk water are excluded, which may make the analysis more directly consistent<sup>5</sup>, Council water service appears to be operating at approximately the 55<sup>th</sup> percentile of all utilities.

For the sewerage service, Council is operating at approximately the 85<sup>th</sup> percentile for all utilities and 70<sup>th</sup> percentile of major utilities.

On a volumetric basis, the Council water service appears to be operating at slightly better than the 60<sup>th</sup> percentile of all utilities and better than 80% of major utilities. However, we note that if utilities which are

<sup>4</sup> Volume of potable water supplied to residential, commercial, municipal and industrial customers.

<sup>5</sup> As purchasing bulk water, rather than producing it, tends to shift some expenditure from capex to opex.

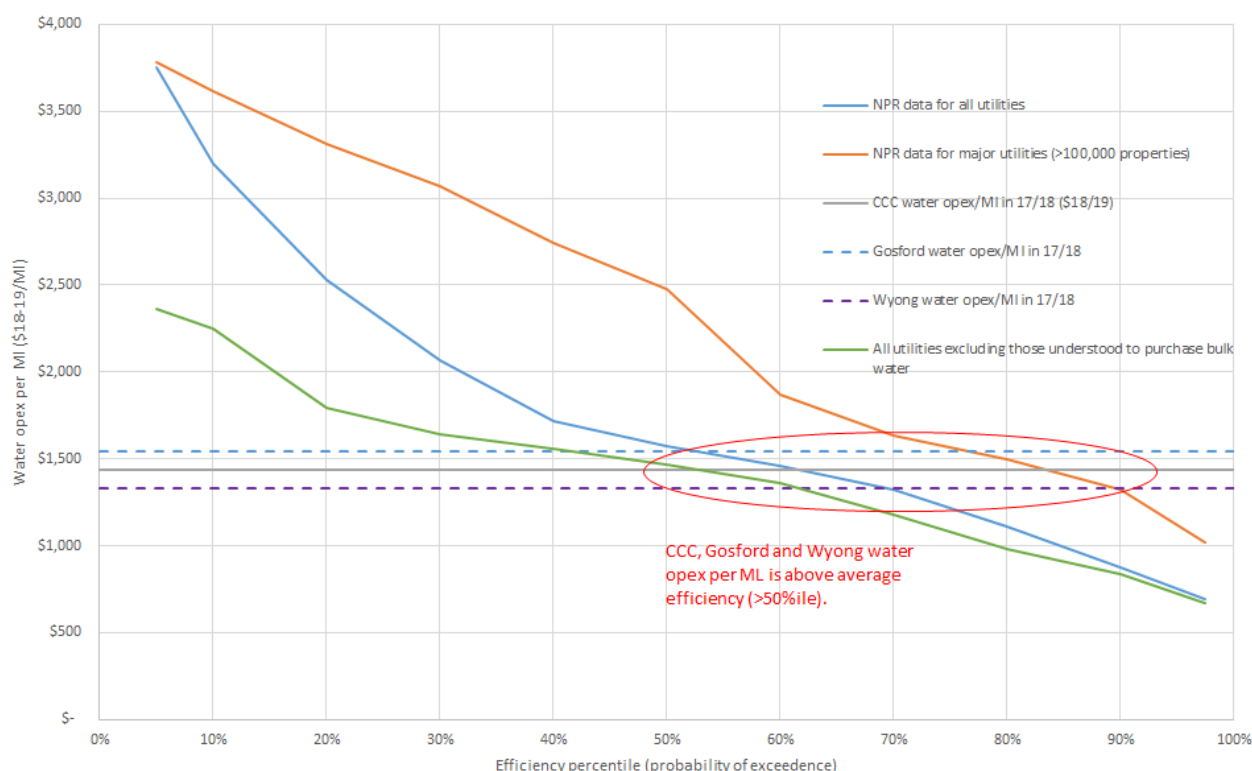


understood to purchase bulk water are excluded, which may make the analysis more directly consistent<sup>6</sup>, Council water service appears to be operating at approximately the 55<sup>th</sup> percentile of all utilities.

For the sewerage service, Council is operating at approximately the 85<sup>th</sup> percentile for all utilities and 70<sup>th</sup> percentile of major utilities.

Overall, this analysis suggests that Council is operating at the 73<sup>rd</sup> percentile of all utilities across water and sewerage combined, or approximately 67<sup>th</sup> percentile if we exclude utilities understood to purchase bulk water. The analysis suggests that, to attain the 75<sup>th</sup> percentile would require an overall reduction of either 2.3% of Council's opex, or 5.8% excluding bulk water purchasers. To go further and attain the 80<sup>th</sup> percentile would require a reduction of 7.8% (12.5% excluding bulk water purchasers).

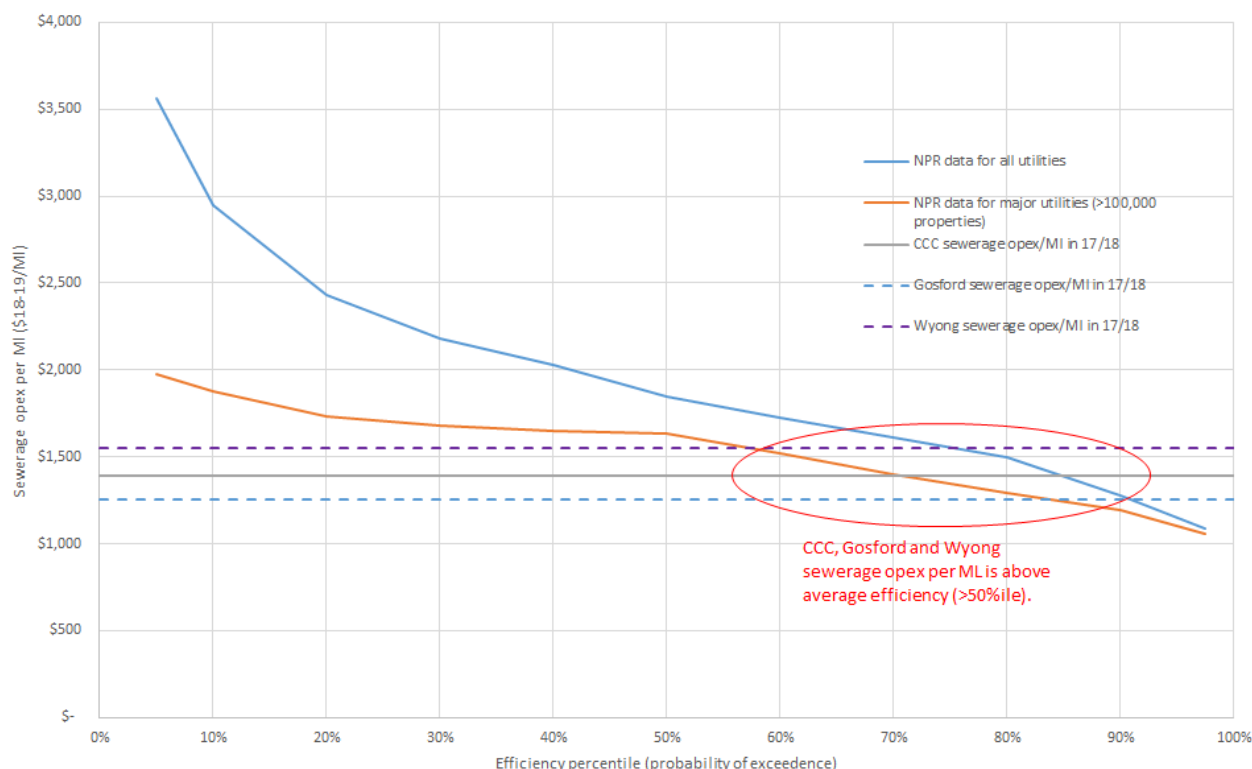
**Figure 3-5 Volumetric unit opex efficiency is above average (water)**



Source: NPR data and analysis of 'Opex by Item' and 'Non-financial' tabs

**Figure 3-6 Volumetric unit opex efficiency is above average (sewerage)**

<sup>6</sup> As purchasing bulk water, rather than producing it, tends to shift some expenditure from capex to opex.



Source: NPR data and analysis of 'Opex by Item' and 'Non-financial' tabs

There appears to be several reasons for this efficiency performance:

- Corporate overheads are reduced by sharing the cost of the Councils' senior management (CEO, CFO, corporate IT systems, etc) between different council functions. Water and sewerage only cover 28% of these corporate overhead costs;
- Council does not treat significant third-party capex as opex through bulk purchase or Build, Operate, Transfer (BOT) models. For example, bulk water purchase costs are low compared to Sydney Water, which purchases water from third parties such as WaterNSW and Sydney Desalination Plant. This may also help to explain why major utilities appear to have higher unit water opex than others, whereas economy of scale helps them to appear more efficient in sewerage where BOT type arrangements are generally less common;
- The former councils have undertaken a number of efficiency initiatives in the current determination period, such as 'Wyong water', as discussed further below; and
- Council currently has a high number of unfilled staff vacancies, reducing the labour opex spend.

Hunter Water is relatively close geographically to Council and, like Council, does not purchase bulk water. It serves a greater number of customers (approximately 246,000 properties connected to water supply) and has higher unit consumption with 285kl per property<sup>7</sup>.

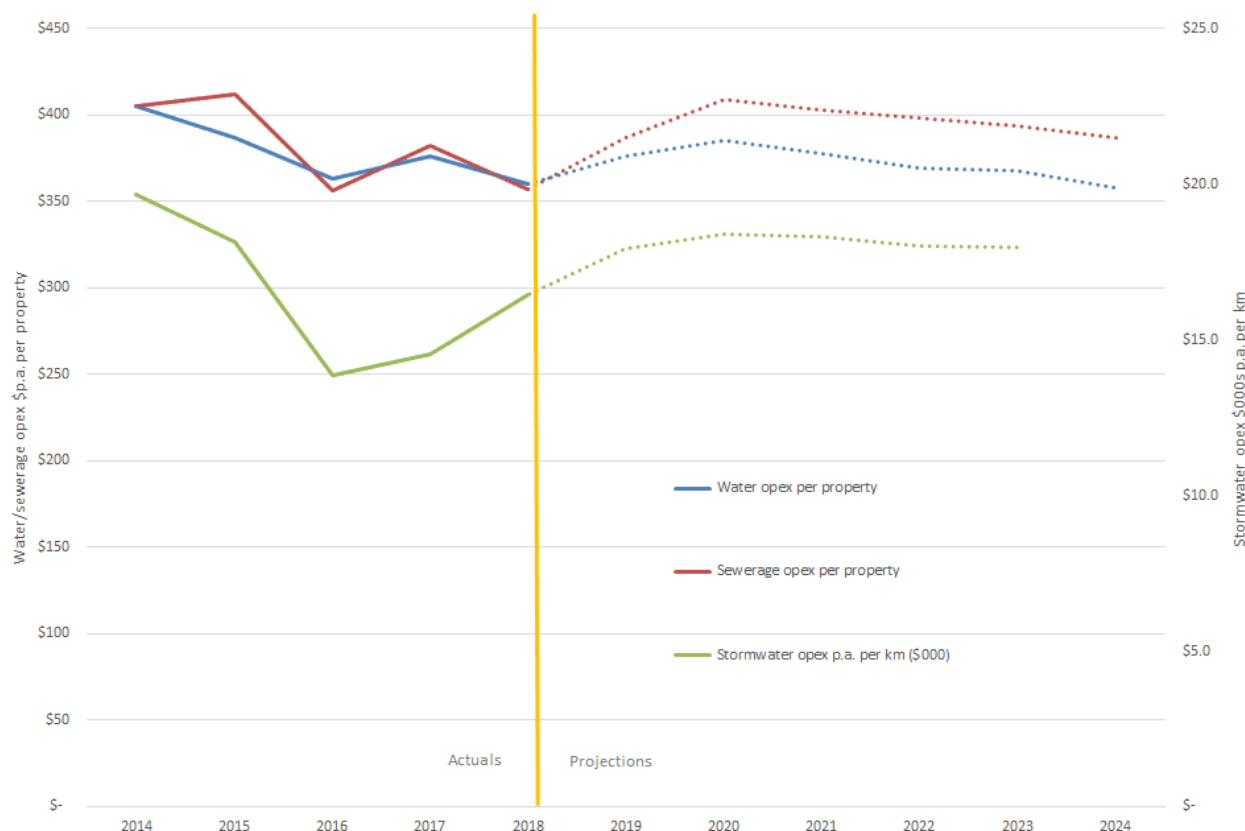
Hunter Water appears to have lower unit opex than Council on both a volumetric and per property basis. It reported lower unit opex on a volumetric basis with total water and sewerage opex of \$2,127/ML compared to \$2,830/ML for Council<sup>8</sup>. Hunter Water also reported lower opex per property of \$602, compared to \$716 for Council, despite Council customers having lower average water consumption.

While there has been an improvement in efficiency in the current determination period, Council's projections suggest that in the future determination period this efficiency is anticipated to reduce initially before improving at a very modest rate from 2020 onwards.

<sup>7</sup> Urban potable consumption according to NPR 2016/17 dataset

<sup>8</sup> For total water and sewerage opex, based on Hunter Water NPR data for 2016/17 escalated to 2017/18 prices using CPI

**Figure 3-7 Opex efficiency is projected to reduce**



Source: analysis of 'Opex by item\_CCC' and 'Non-financial' tabs

### Allocation of costs between former LGAs areas

CCC is able to allocate many direct costs between the former LGAs areas with confidence because its' cost centres are at site or system level for water and sewerage or still use the old areas to distinguish costs (e.g. stormwater maintenance on local roads).

The main component of direct opex which is not easy to allocate relates to the joint water supply system which serves both areas in an integrated manner. Since the amalgamation, in the years 2017, 2018 and 2019, CCC has allocated opex between the former LGAs based on where the assets are physically located. This also appears to be the approach taken to allocation of capex. Prior to this, the Joint Water Supply (JWS) Agreement set out that operating expenditure should be allocated to the former LGAs based on the proportion of consumption and capex should be shared on a 50/50 basis.

**We consider that, as it is a joint system, benefiting both areas, wherever the assets sit, it would be more cost reflective to allocate opex and capex based on the share of benefits - volumes supplied to each area or number of properties - rather than the physical location of assets.** We do not have the data which would be required to identify the impact of such a change.

Indirect costs such as administration costs are allocated equally between the former LGAs and a further equal allocation to the water and sewer services. The indirect costs allocated using the 50/50 rule are significant, comprising \$14.8M (37%) of water opex in 2018 and \$10.7M (27%) of sewerage opex<sup>9</sup>. For the water and sewerage services in aggregate, the 50/50 split appears reasonable as 49% of direct opex were coded to Wyong and 51% to Gosford in 2018. However, there is a significant difference at service level with 41% of direct water opex being coded to Wyong and 56% of direct sewerage opex<sup>10</sup>.

**We conclude that indirect opex should be apportioned to the water and sewerage services in proportion to their direct costs rather than a 50/50 assumption as this is more reflective of the costs**

<sup>9</sup> Source: Atkins-Cardno analysis of data provided in CCC document: 'Item 83 How much opex is allocated 50.50 between Determination former LGAs'. Note this does not provide a breakdown for stormwater opex

<sup>10</sup> Meaning that 59% of direct water opex is coded to Gosford and 44% of direct sewerage opex.

**incurred.** In 2018 the impact of this change would be to reduce Wyong water opex by \$1.3M and increase Gosford by the same amount. It would increase Wyong's sewerage opex by \$0.6M and reduce Gosford by the same amount. We have applied this adjustment to historical and projected opex.

There has been a significant shift in the way that stormwater labour is being allocated between Gosford and Wyong. This is discussed in further detail below.

### 3.3 Operating Expenditure in the Current Determination Period

#### Overview

The former LGAs, and now Council, have significantly outperformed the 2013 Determination opex allowance across all service lines. The only exception to this is stormwater opex in Wyong, which in 2018 and 2019 exceeds the extrapolated Determination. This appears to be due to an increase in the labour charge in 2018 due to the change in labour allocation between the former LGAs and a high 'plant and fleet' charge, both discussed further below. Even with this recent increase, total stormwater opex in Wyong between 2014 and 2019 was still slightly less than the Determination.

The service level variances are summarised in table and graphical form for Gosford, Wyong and the combined business below.

Table 3-1 Current Determination Period Variance Analysis by Service (Gosford)

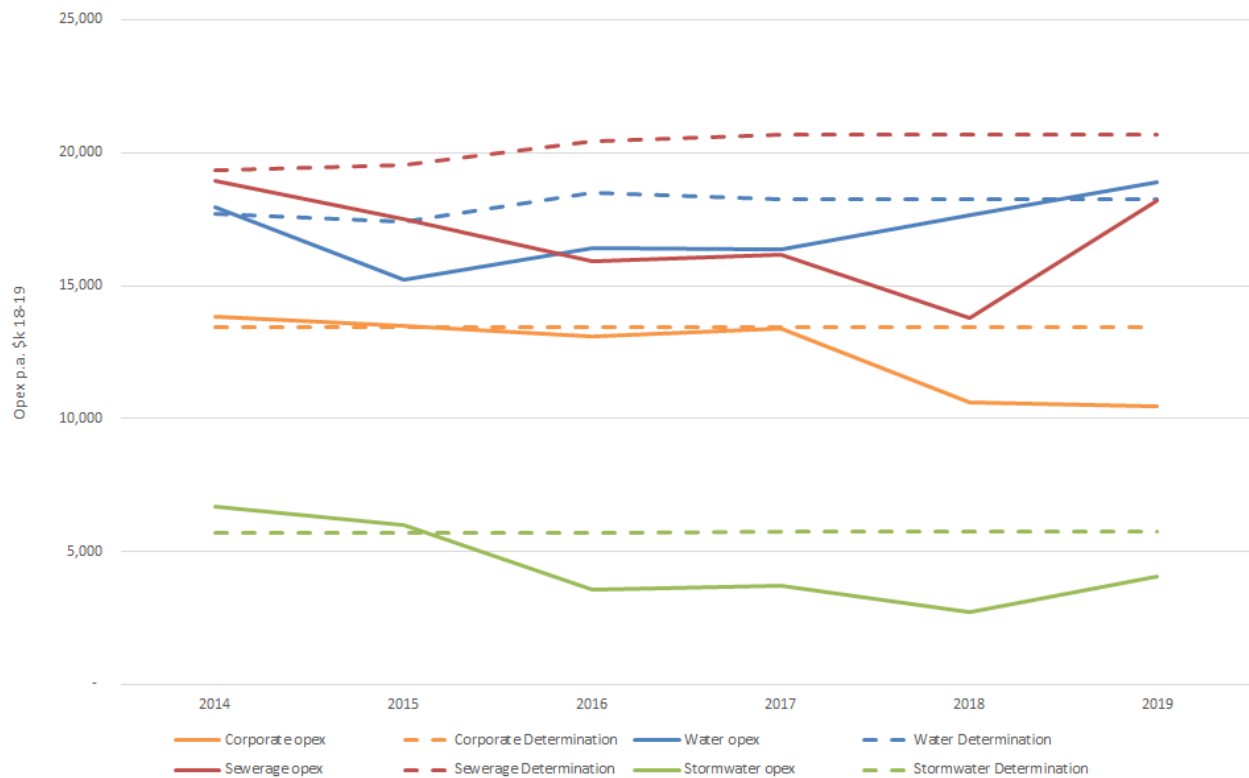
Year ending June: (\$k 2018/19)	2014	2015	2016	2017	2018	2019 (budget)	Total
<b>CORPORATE OPERATING EXPENDITURE</b>							
Actuals	13,830	13,489	13,110	13,369	10,596	10,472	
Determination	13,421	13,421	13,421	13,421	13,421	13,421	
Variance from Determination	409	68	-311	-52	-2,825	-2,949	-5,659
<b>WATER OPERATING EXPENDITURE</b>							
Actuals	17,941	15,232	16,420	16,349	17,632	18,880	
Determination	17,690	17,390	18,492	18,229	18,229	18,229	
Variance from Determination	251	-2,158	-2,072	-1,880	-597	651	-5,806
<b>SEWERAGE OPERATING EXPENDITURE</b>							
Actuals	18,926	17,486	15,911	16,182	13,784	18,209	
Determination	19,345	19,546	20,421	20,683	20,683	20,683	
Variance from Determination	-420	-2,060	-4,510	-4,501	-6,899	-2,474	-20,863
<b>STORMWATER OPERATING EXPENDITURE</b>							
Actuals	6,672	6,012	3,559	3,740	2,701	4,048	
Determination	5,705	5,711	5,725	5,736	5,736	5,736	
Variance from Determination	967	301	-2,166	-1,996	-3,035	-1,688	-7,616
<b>TOTAL REGULATED OPERATING EXPENDITURE</b>							
Actuals	57,369	52,219	49,000	49,639	44,712	51,609	
Determination	56,162	56,068	58,059	58,068	58,068	58,068	
Variance from Determination	1,207	-3,849	-9,059	-8,429	-13,356	-6,459	-39,944

Note: Determination figures for 2018 and 2019 are assumed to be equal to 2017 figure

Source: SIR Opex Gosford



**Figure 3-8 Opex by service in current determination period- Gosford**



Note: 2019 figures are budget not actuals

Source: SIR Opex Gosford

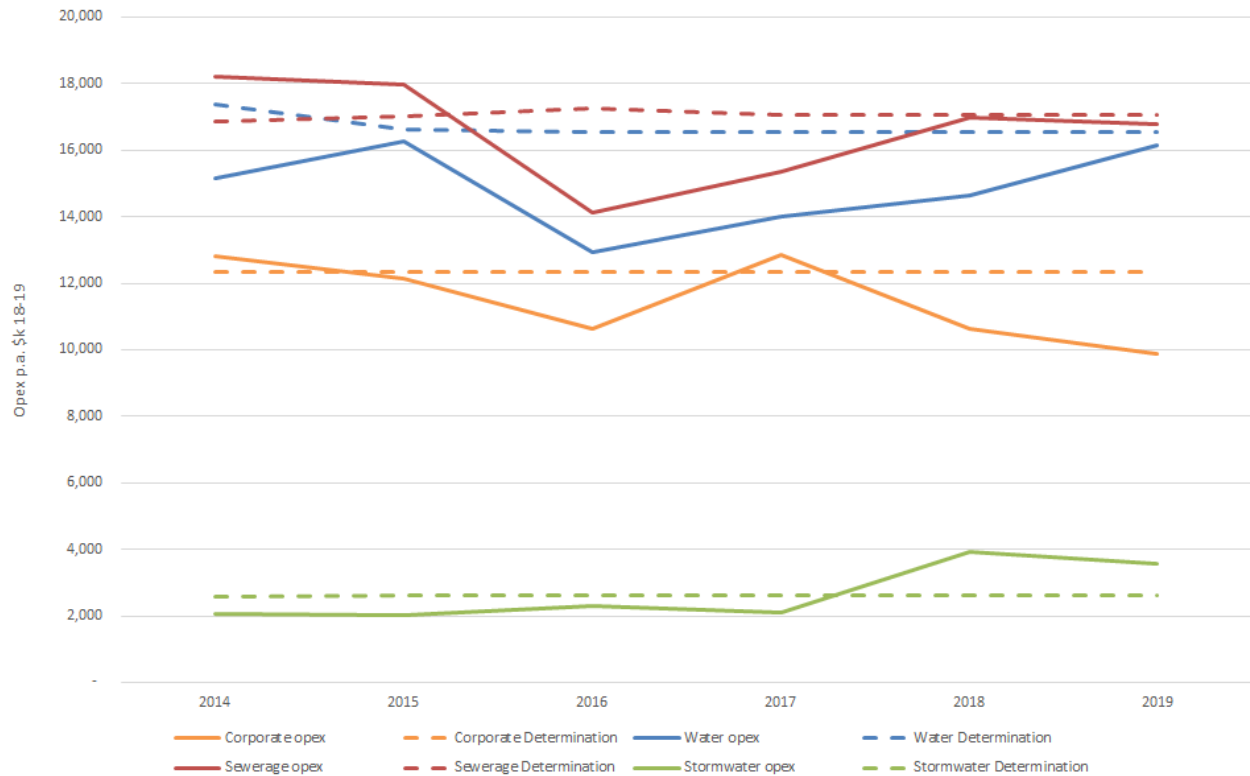
**Table 3-2 Current Determination Period Variance Analysis by Service (Wyong)**

Year ending June: (\$k 2018/19)	2014	2015	2016	2017	2018	2019 (budget)	Total
<b>CORPORATE OPERATING EXPENDITURE</b>							
Actuals	12,835	12,151	10,651	12,839	10,640	9,872	
Determination	12,348	12,348	12,348	12,348	12,348	12,348	
Variance from Determination	487	-197	-1,697	491	-1,708	-2,475	-5,099
<b>WATER OPERATING EXPENDITURE</b>							
Actuals	15,156	16,269	12,946	13,986	14,627	16,147	
Determination	17,392	16,606	16,561	16,562	16,562	16,562	
Variance from Determination	-2,235	-337	-3,614	-2,576	-1,935	-415	-11,113
<b>SEWERAGE OPERATING EXPENDITURE</b>							
Actuals	18,198	17,979	14,141	15,371	16,990	16,800	
Determination	16,848	17,024	17,241	17,046	17,046	17,046	
Variance from Determination	1,350	955	-3,100	-1,675	-56	-246	-2,772
<b>STORMWATER OPERATING EXPENDITURE</b>							
Actuals	2,053	2,029	2,290	2,106	3,942	3,569	
Determination	2,623	2,623	2,624	2,625	2,625	2,625	
Variance from Determination	-570	-595	-335	-519	1,317	944	243
<b>TOTAL REGULATED OPERATING EXPENDITURE</b>							
Actuals	48,242	48,428	40,027	44,301	46,200	46,389	
Determination	49,210	48,602	48,774	48,581	48,581	48,581	
Variance from Determination	-968	-174	-8,746	-4,280	-2,381	-2,192	-18,741

Note: Determination figures for 2018 and 2019 are assumed to be equal to 2017 figure

Source: SIR Opex Wyong

**Figure 3-9 Opex by service in current determination period- Wyong**



Note: 2019 figures are budget not actuals

Source: SIR Opex Wyong

**Table 3-3 Current Determination Period Variance Analysis by Service (Council)**

Year ending June: (\$k 2018/19)	2014	2015	2016	2017	2018	2019 (budget)	Total
<b>CORPORATE OPERATING EXPENDITURE</b>							
Actuals	26,665	25,640	23,761	26,207	21,236	20,345	
Determination	25,769	25,769	25,769	25,769	25,769	25,769	
Variance from Determination	896	-129	-2,008	439	-4,532	-5,424	-10,758
<b>WATER OPERATING EXPENDITURE</b>							
Actuals	33,097	31,502	29,366	30,335	32,259	35,027	
Determination	35,082	33,996	35,052	34,791	34,791	34,791	
Variance from Determination	-1,985	-2,495	-5,686	-4,456	-2,532	236	-16,918
<b>SEWERAGE OPERATING EXPENDITURE</b>							
Actuals	37,124	35,465	30,052	31,552	30,774	35,009	
Determination	36,194	36,570	37,662	37,729	37,729	37,729	
Variance from Determination	931	-1,105	-7,610	-6,176	-6,955	-2,719	-23,635
<b>STORMWATER OPERATING EXPENDITURE</b>							
Actuals	8,725	8,041	5,849	5,845	6,643	7,617	
Determination	8,328	8,334	8,349	8,361	8,361	8,361	
Variance from Determination	398	-294	-2,501	-2,516	-1,718	-743	-7,374
<b>TOTAL REGULATED OPERATING EXPENDITURE</b>							
Actuals	105,611	100,647	89,027	93,940	90,912	97,998	
Determination	105,372	104,670	106,832	106,649	106,649	106,649	
Variance from Determination	240	-4,022	-17,805	-12,709	-15,737	-8,651	-58,685

Note: Determination figures for 2018 and 2019 are assumed to be equal to 2017 figure

Source: SIR Opex CCC

### Explanation of the variance

In its SIR, Council has provided estimates for a number of factors driving the variance relative to the Determination. The largest factors (>\$2.0M), which account for about 35% of the variance, are summarised below.

**Table 3-4 Council estimates of opex variances**

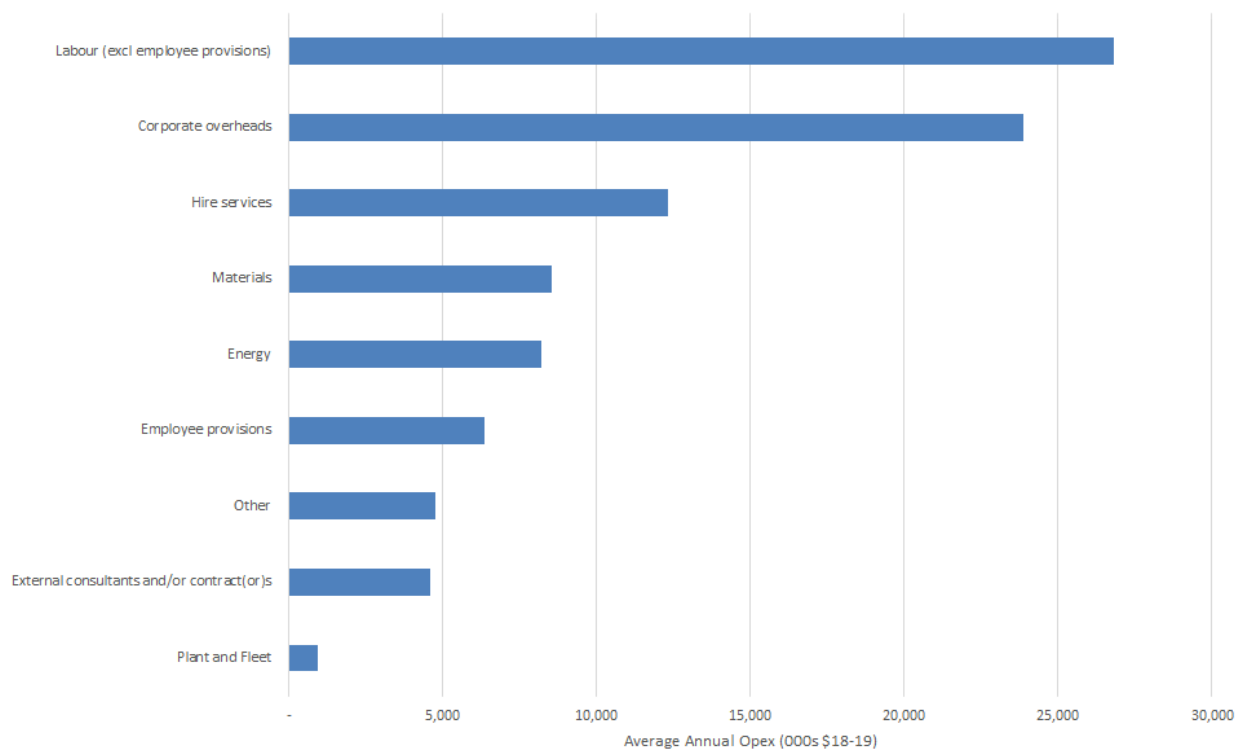
Year ending June: (\$k 2018-19)	2014	2015	2016	2017	2018	2019	Total
Water Gosford: Sludge Management	-	-1,239	-1,608	-1,242	-	-	-4,089
Water Wyong: Materials	-1,344	-646	-2,124	-1,062	-	-	-5,177
Sewerage Gosford: Sludge Management	-1,016	-1,143	-1,960	-1,482	-	-	-5,601
Sewerage Wyong: Materials and hire services	-695	-681	-3,570	-864	-	-	-5,810

Note 1: this table presents only CCC estimates >\$2M.

Note 2: negative values mean underspend relative to expectations.

The most significant components of operating expenditure in the current determination period are summarised below:

**Figure 3-10 Components of opex in the current determination period (actuals)**



Note: figures shown are average annual expenditure 'actuals' between 2014 and 2018

Source: 'Opex by item\_CCC'

Contains *sensitive* information

The change in expenditure between 2014 and 2018 is summarised for the main cost components below.

**Table 3-5 Change in expenditure between 2014 and 2018**

Cost category (\$k 2018/19)	Expenditure in 2014	Expenditure in 2018	Change in expenditure	Change	Note
Labour (excluding employee provisions)	26,945	27,904	959	4%	
External consultants and/or contract(or)s	5,795	1,034	-4,761	-82%	Council is budgeting this to increase to \$6.2M in 18/19
Hire services	12,677	11,185	-1,492	-12%	
Materials	11,360	8,583	-2,777	-24%	
Energy	10,485	7,100	-3,385	-32%	
Corporate overheads	25,821	21,236	-4,585	-18%	One of the most significant drivers for sustained reduction in opex
Plant and Fleet	-	4,752	4,752		New opex charge from 17/18 onwards
Employee provisions	8,540	5,851	-2,689	-31%	
Other	4,269	4,834	565	13%	
<b>TOTAL</b>	<b>105,893</b>	<b>92,480</b>	<b>-13,413</b>	<b>-13%</b>	

Source: Opex by item\_CCC

We examine some of the main areas of expenditure below.

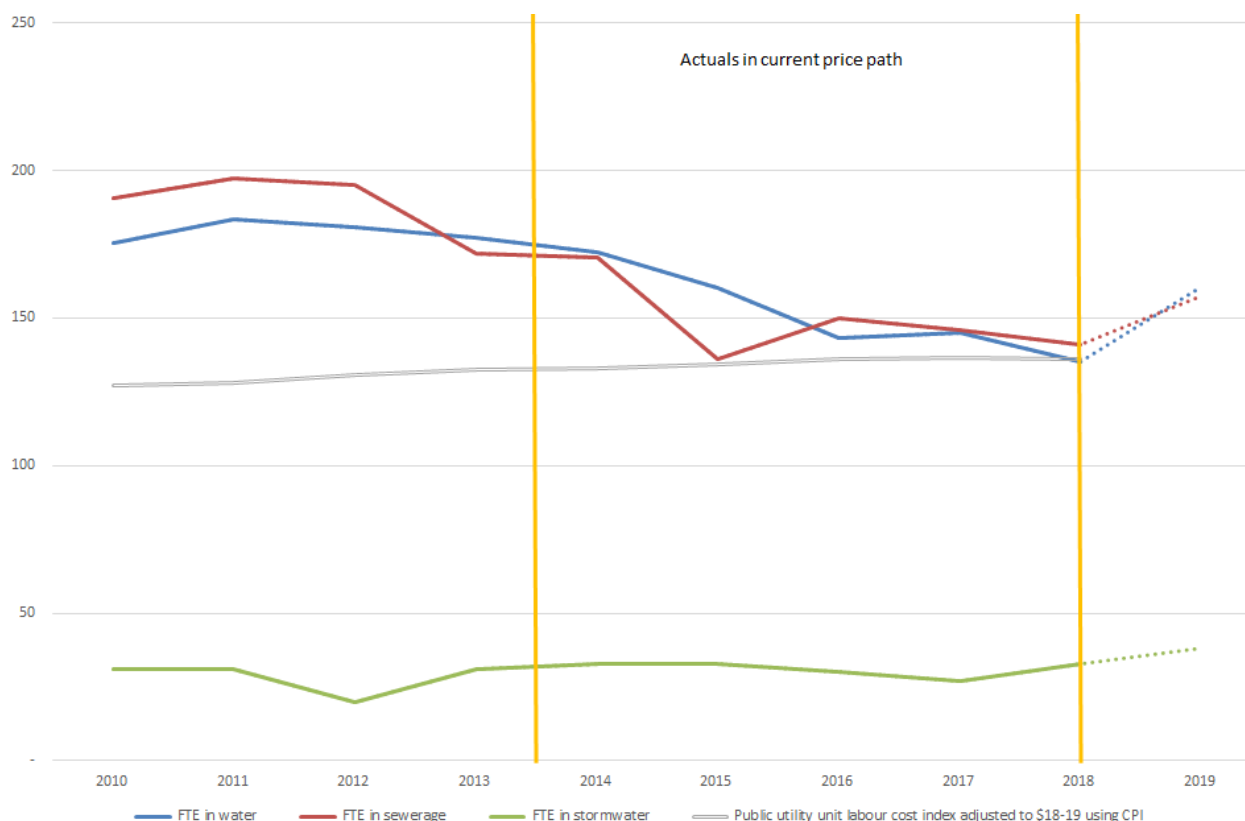
### Labour

Both former councils implemented initiatives which have reduced the number of full-time equivalent employees (FTEs) in their water and sewerage business. For Wyong, this was achieved as part of “Wyong Water” which reduced staff by 28 FTEs. For Gosford, staff numbers were reduced as part of a 2015 business restructure. While the FTE levels reported for the stormwater business have not changed significantly<sup>11</sup>, it is understood that the numbers quoted include employees working on drainage and road maintenance, as well as stormwater. The labour opex charged to the stormwater business has reduced significantly from \$3.8M in 2014 to \$2.3M in 2018, suggesting that significant efficiencies have been achieved in stormwater labour expenditure.

<sup>11</sup> Based on “Non-financial\_CCC”



**Figure 3-11 Historical changes in FTE**



Source: 'Non-financial\_CCC' and Wage Price Index<sup>12</sup>

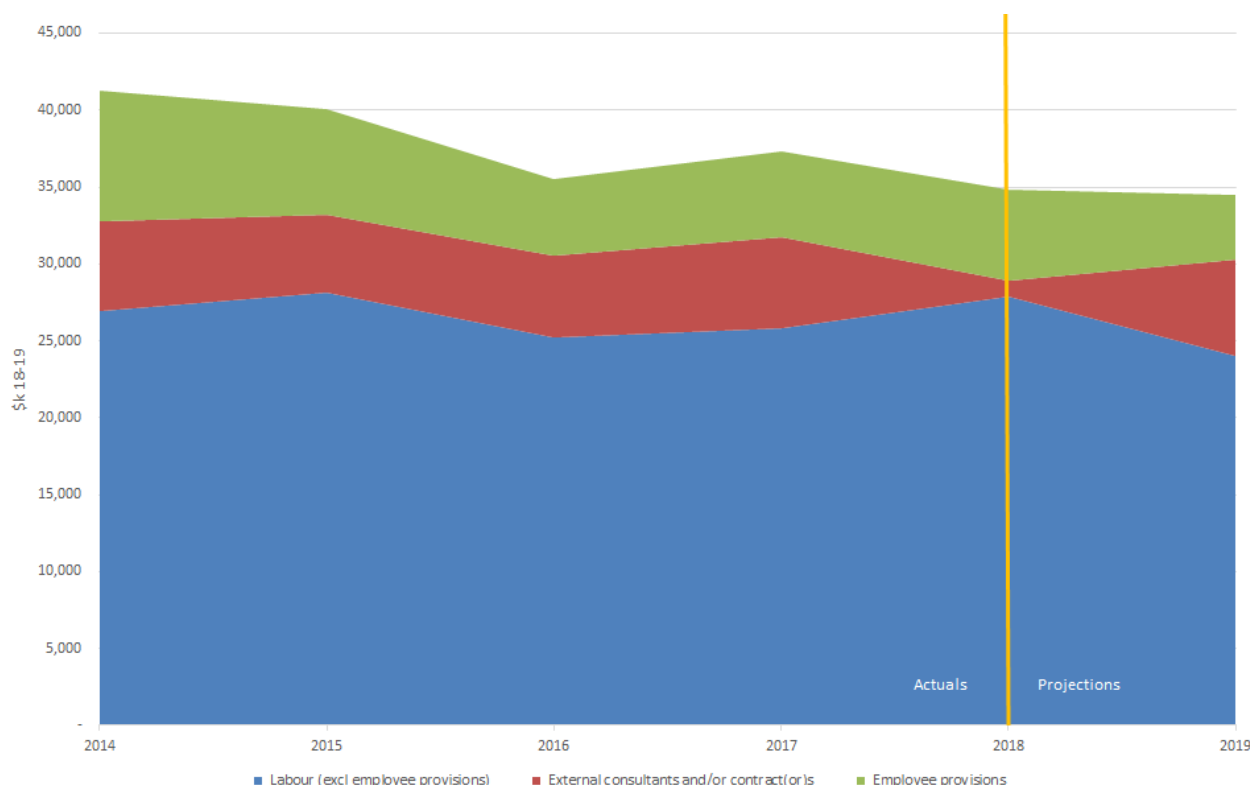
However, this has not led to a reduction in the category 'labour (excluding employee provisions)', which has increased by 3.6% from 2014 to 2018. This may be because of increases in unit labour costs and/or if the FTE reduction largely affected labour which would have been capitalised if Council had delivered the full capital program allowed for in the 2013 Determination. A reduction in the broader measure of labour opex has been achieved through reductions in employee provisions<sup>13</sup> (-31.5%) and external consultant/contractors as seen below. Council has explained that the changes in provisions reflect a shift in the split between labour costs and provisions due to changes in how leave credits and superannuation are allocated between provisions and the labour line<sup>14</sup>. We also infer from Council's response that, in 2018 and 2019, some of the superannuation and payroll tax for capitalised labour may have been misallocated to opex. We were informed in interview that approximately 5% of labour has been capitalised in recent years. This suggests that the amount which has been misallocated to opex rather than capex is small (<\$0.2M p.a.) and unlikely to materially affect capex. We have therefore not made an adjustment.

<sup>12</sup>Table 5a. Total Hourly Rates of Pay Excluding Bonuses: Sector by Industry, Original. Index A2705246T, Financial Year Index; Total hourly rates of pay excluding bonuses; Australia; Public; Electricity, gas, water and waste services. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6345.0Jun%202018?OpenDocument>

<sup>13</sup> superannuation, sick leave, payroll tax etc

<sup>14</sup> 'Item 142 Labour opex v1.1'

**Figure 3-12 Labour opex (broad definition) during the current determination period**



Source: 'Opex by item\_CCC'

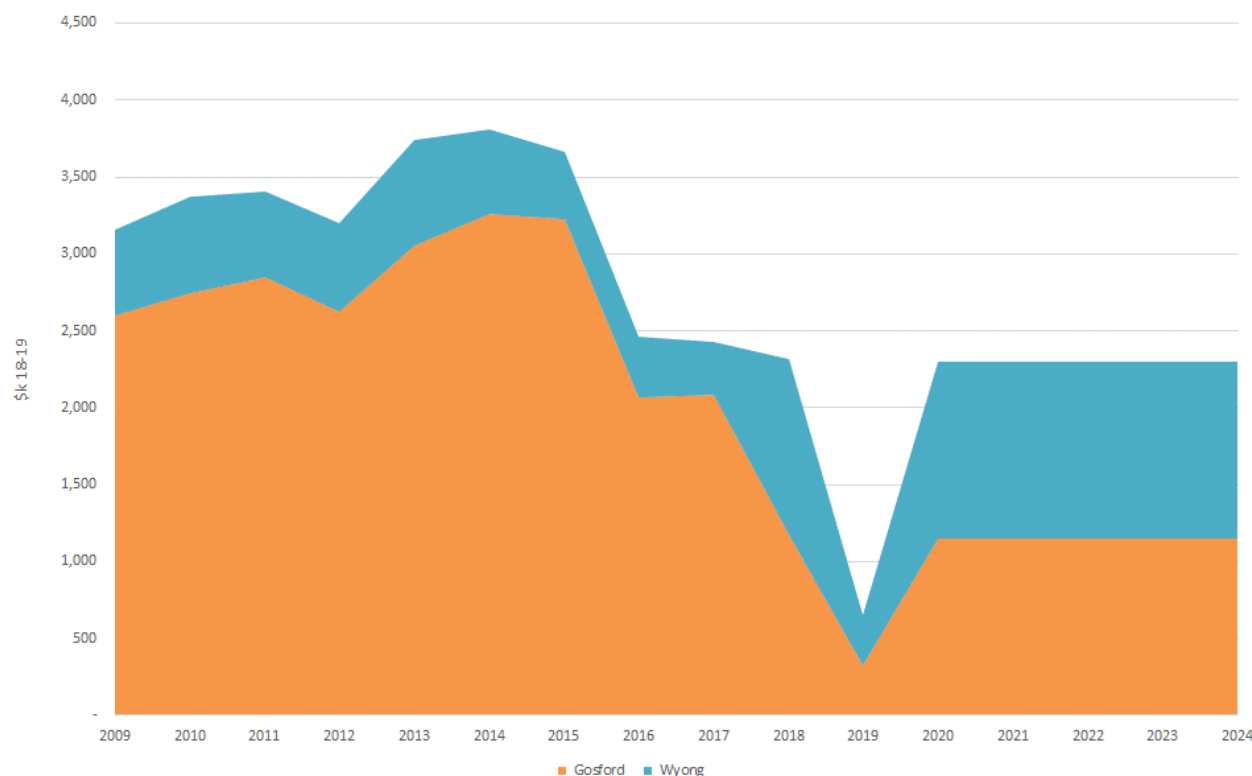
According to its submission, Council is projecting an increase in FTE from 309 to 356 FTE between 2018 and 2019 (+15%). However, at the same time, it is projecting a slight reduction in labour opex in this period (-\$0.3M or -1%). Based on Council's response<sup>15</sup>, it appears that this is due to high vacancy rates assumed in the internal budgeting process. This may also be reflected in the higher external consultants and contractor costs in 2018-19.

Council's submission suggested a significant reduction in stormwater labour expenditure in 2019, as shown below. When challenged about this, Council have identified that there was an error in the 2019 budgeting process and indicated that approximately \$1.7M is missing from the 2019 figure. Based on the average labour cost projected for 2020 to 2024, we estimate this figure to be \$1.6M. We discuss 2019 stormwater opex further below.

It is also notable that there has been a significant shift in the way that stormwater labour is being allocated between Gosford and Wyong. From 2009 to 2017 approximately 84% of labour costs are attributed to Gosford. From 2018 on, this has shifted to 50%. We consider that the 50% allocation is more appropriate than the previous figure given that 47% of stormwater drains are in Gosford (by length) and Gosford attracts 52% of non-labour opex. We have not recommended an adjustment to historical opex as the 2009-2016 period reflects the separate council workforces and 2017 was a transitional period as the teams from the two former councils were integrated. As the teams are now combined the allocation applied by Council from 2018 onwards appears appropriate.

<sup>15</sup> 'Item 113 Labour Budget variance in 2018-19'

**Figure 3-13 Stormwater labour trends in the submission**



Source: "Opex by item\_Gosford" and "Opex by item\_Wyong"

### Corporate overheads

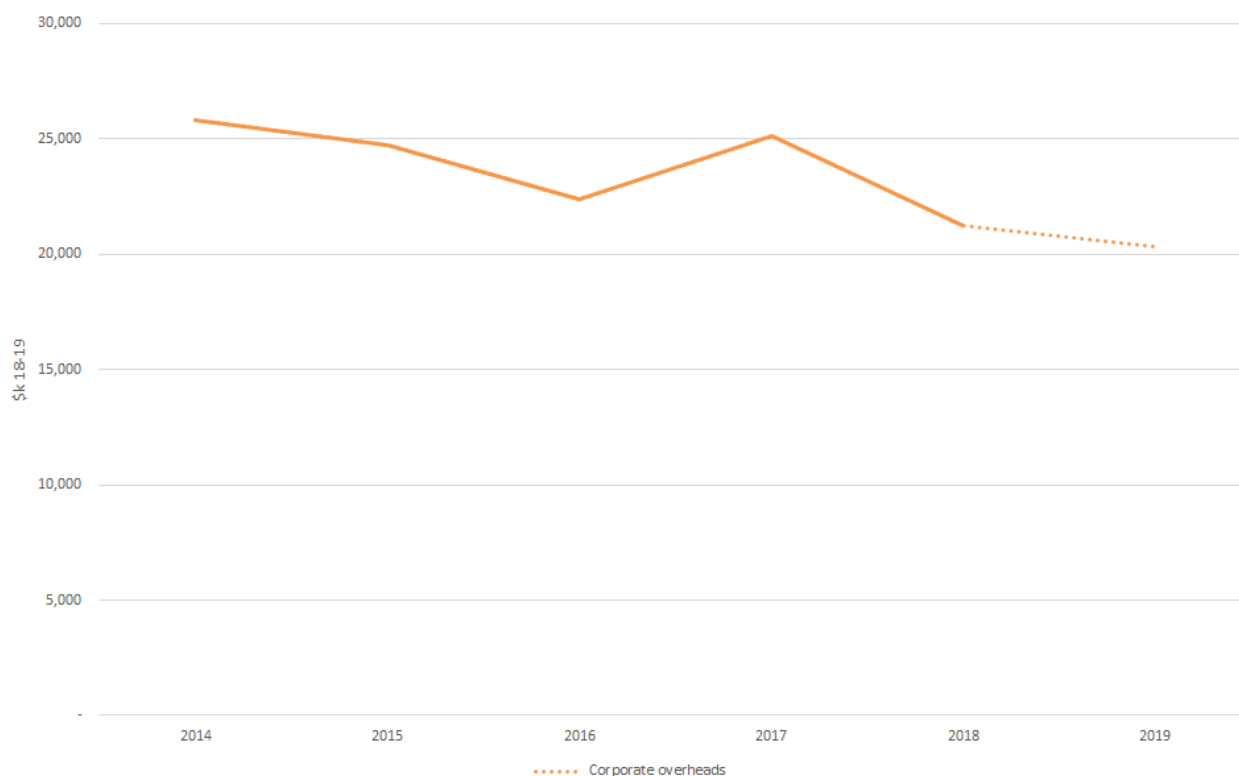
A proportion of Council's corporate overheads are charged to the water and sewerage and stormwater business units based on the proportion of Council's total operating expenditure (including depreciation) they incur each month. This charge covers the costs of Council's executives (CEO, CFO, CIO, councillor's remuneration, etc) and shared service costs comprising IT, HR, finance and legal. It also includes subscription fees and licences for in-service software and depreciation of corporate assets such as IM&T hardware and software as well as corporate administration buildings.

Customer service is also paid for through the corporate overhead charge. The customer contacts team service all of Council's functions. They triage contacts and pass them to field officers (first responders) which sit within the water and sewerage/ roads and drainage teams.

Council has a billing system which covers all of its services and is captured through the corporate overhead along with any billing queries. Meter reading is treated as part of the corporate overhead charge across the Council area. In the former Gosford council area, the finance team employs three meter readers. In the former Wyong council area, meter reading is contracted out. Council has not provided details of how it intends to manage or harmonise meter reading in future. However, the meter reading contract expires within the 2019 financial year, so we assume the approach will be reviewed shortly. For the purpose of this review, we have assumed that any new procurement and/or change in accounting will have no net effect on water and sewerage opex.

Corporate overheads have been on a downward trend during the current determination period. Although Council was not able to provide a breakdown of these charges it is possible that some of the reduction from 2016 levels to 2018 and 2019 is associated with amalgamation efficiencies. Prior to this, some of the savings may be due to business efficiency drives such as the 2015 Gosford City Council business restructure.

**Figure 3-14 Corporate overheads in the current determination period**



Source: 'Opex by item\_CCC'<sup>16</sup>

Corporate overhead expenditure is allocated to Council's different businesses on a monthly basis, according to the proportion of total opex (including depreciation but excluding shared services) incurred by that business in month. We understand that the water and sewerage services are currently allocated approximately 27.8% of corporate overheads and stormwater approximately 5.2%<sup>17</sup>. We do not consider it unreasonable to allocate corporate overheads using this approach.

Council has not been able to provide a breakdown of the corporate charges. Without details of the corporate expenditure undertaken, it is not possible to review the prudence and efficiency of corporate IT expenditure with confidence. However, corporate overhead charges have been on a strong reducing trend (-\$4.6M p.a. or -18% since 2014) and are projected to continue reducing in the next determination period. We have also recommended catch-up and continuing efficiency challenges in the future determination period as detailed in Section 3.6. Given the reductions and efficiencies recommended, we do not consider a specific adjustment to be required.

Council is understood to be considering moving to an activity-based costing (ABC) approach for corporate overheads as part of its 2020 budget process. This would include, for example, looking at whether it is possible and material to allocate IM&T (IT) device costs directly to the business unit benefiting from it. We consider that greater use of ABC would help to increase confidence that the charge is cost-reflective, in particular as regards clearly distinguishable expenditure items, such as meter reading, which are currently allocated across a number of businesses.

## Energy

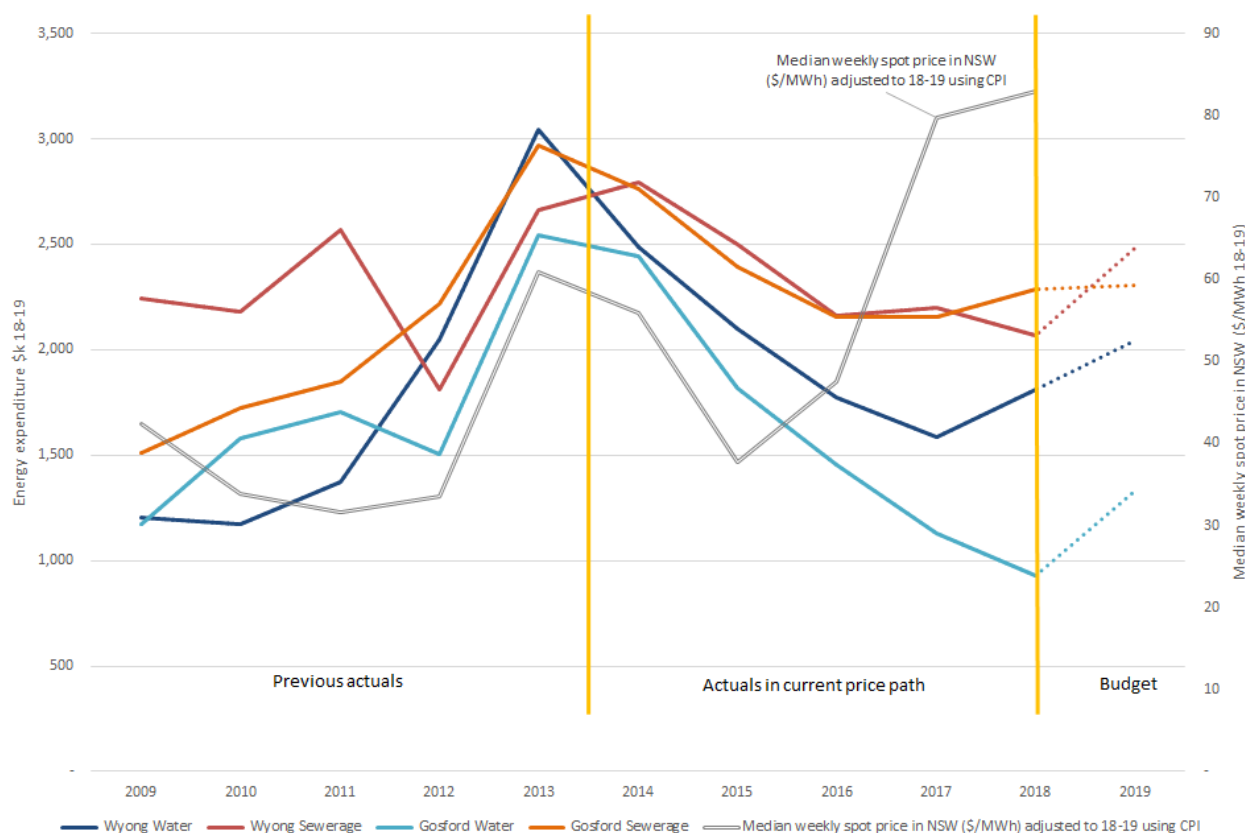
Energy costs made up nearly 10% of the current determination period water and sewerage operating expenditure, with an average of \$8.2M p.a. in the period.

<sup>16</sup> Note that in the Wyong portion of CCC's 'Opex by item' tabs rental accommodation is allocated to the service lines, whereas in the SIR Opex tabs it is allocated to 'corporate overheads'. This graph relates to the 'Opex by item' figures. Elsewhere, when we set out full opex by service, rental accommodation is 'corporate overheads' consistent with the SIR Opex tabs.

<sup>17</sup> Page 106 CCC Submission

Expenditure has been on a generally reducing trend during this period from a peak in 2013. Council has three current electricity supply contracts: one expiring in December 2018, one in June 2019 and one in December 2019. Council anticipates going to market in late 2018 to replace the expiring contract. Given recent increases in wholesale prices there is some uncertainty in this projection.

**Figure 3-15 Energy expenditure and wholesale electricity costs**



Source: 'Opex by item\_Gosford', 'Opex by item\_Wyong' and analysis of AER weekly volume weighted average spot prices<sup>18</sup>

### Sludge management and chemicals

Three of the main areas of variance identified by Council as summarised in Table 3-4 relate to sludge management.

For example, in 2015, the former Gosford Council commenced discharge of water treatment plant sludge to sewer, which created efficiencies relative to the landfill disposal anticipated. This led to approximately \$4.1M of savings.

Some of the other sludge management underspend actually relates to deferral of expenditure through stockpiling of sludge which Council have subsequently moved into their projections for opex in the next determination period. This includes Kincumber lagoons desludging which is expected to cost \$1.9M, of which \$1.2M is expected to take place in 2019 and the rest in the next determination period.

In its submission, Council highlights that some savings in chemical costs have been made during the current determination period in the former Wyong Council area due to process improvements and better contract management capabilities. It does not give details of the amount of savings specific to chemicals although it does identify total efficiency in materials expenditure of \$5.2M.

However, we note during discussions that higher expenditure on chemicals is projected for 2019 than in 2018. As also discussed in the Future Determination Period, the basis for this increase is not clear, particularly for 2019 and we have assumed that the 2018 actuals for materials are more robust than the projected 2019 figure. The impacts of this assumption are summarised in Table 3-6 below.

<sup>18</sup> Accessed from: <https://www.aer.gov.au/wholesale-markets/wholesale-statistics/weekly-volume-weighted-average-spot-prices> on 15 October 2018

## Plant and fleet

One notable change in the current determination period is a change in accounting for plant and fleet costs.

In the former Wyong Council, it is understood that plant and fleet assets were owned centrally and hired to various parts of the organisation, including the water, sewerage and stormwater businesses as an opex charge. By contrast, in the former Gosford Council, the water, sewerage and stormwater businesses owned some plant and fleet assets and they were treated as capital assets. Following amalgamation, the plant and fleet operating model was changed across the organisation to align with the Wyong model. To achieve this transparently, plant and fleet assets were transferred to Council's plant and fleet business at their written down value. Depreciation on these, and any new, assets is then charged to the businesses based on usage of the plant and fleet assets.

Plant and fleet opex was \$4.8M in 2018, the first year in which this charge came into effect. Council is budgeting \$5.8M in 2019.

We do not consider centralised management of 'plant and fleet' across the Council, and therefore treatment of the costs as opex, as in itself imprudent or inefficient. We have not therefore recommended any adjustment related to this change in accounting. However, we have challenged the proposed expenditure in 2019 as detailed in Section 3.4 below.

## 3.4 Prudent and Efficient Expenditure in the Current Determination Period

Council has significantly outperformed the opex Determination allowances given to Gosford and Wyong Councils. This has been achieved through a number of efficiency initiatives, such as Wyong water, and savings in chemical purchasing and use. This has helped to place Council above average in comparative unit opex efficiency.

One of the most significant sustained reductions in the current determination period has been due to lower corporate overheads. Without a detailed commentary, we have assumed that the downward trend has been driven by council-wide business efficiency initiatives. It does not appear to be primarily due to the amalgamation as much of the reduction was achieved in the period from 2014 to 2016 and the charge increased in the 2017 financial year. However, the continued reduction from 2017 to the budgeted 2019 figure suggests that the amalgamation may have helped to sustain this efficiency.

Despite a reduction in FTEs, opex labour costs (excluding provisions) have actually increased over the period from 2014 to 2018. However, the reduction in headcount does appear to have significantly contributed to the reduction in opex through lower (-31%) 'employee provisions'. We understand from Council that the policy concerning provisions is fixed centrally. However, it is clearly linked to operational staffing levels and therefore likely to reflect the efficiencies achieved.

There has been a significant reduction in spend on external consultants and/or contractors in 2018. However, Council does not expect this to be sustained and are projecting expenditure to increase again to its previous levels in the 2019 budget. This includes expenditure on items such as the Central Coast Integrated Water Resources study.

Energy expenditure has reduced over the period, although this may be largely driven by wholesale electricity costs. Council is looking to align the timing of its electricity supply contracts to take account of greater economies of scale.

We note that some of the efficiencies in the current determination period relate to deferral of expenditure previously expected to take place in the determination period such as sludge removal and bridge painting. An example of this is the desludging of the lagoons at Kincumber which is now expected to cost \$1.9M and fall partly in the next determination period (\$0.7M). Similarly, \$1.3M allowed for Hawkesbury River Bridge painting has started later than previously expected, although, given that it started in 2018, we assume that it will still be finalised within the current determination period.

\$4.1M of the underspend in period is due to more efficient means of disposal of sludge from water treatment in Gosford which is expected to continue.



## 2019 forecast

We have limited confidence in the 2019 budget expenditure. Council has used a “zero-based budgeting” approach to deriving the expenditure forecast. It has projected a significant increase in opex (+\$7.1M or +7.8%) relative to the 2018 actuals but little explanation of the key drivers for the change and why overall levels of expenditure will be significantly higher than in any year since 2015.

Council has provided explanations for proposed increases in hire services (desludging and bridge painting), external consultants/contractors (Central Coast Water Plan, \$1.8M support for Scada integration), materials (chemical costs) and an increase in plant and fleet. Council has provided line by line explanation for \$8.5M of additional spend noting that there are some offsetting reductions.

However, we consider it likely that a significant proportion of the proposed increases are not new obligations and should be covered as part of base opex. They should therefore not be treated as additions to previous levels of expenditure. The additional expenditure is likely to be spread over a number of years. We have therefore recommended a reduction to the budgeted 2019 opex of \$9.5M or 9.7%. The largest proposed increases accepted relate to increased dewatering of Kincumber STP and Wyong, because of a backlog in sludge created during the current determination period.

Council has not provided a robust justification for an increase in stormwater opex in 2019 compared to 2018 so we have made an adjustment to make it equal to 2018 opex.

As discussed above, we have assumed no increase in materials expenditure in 2019 relative to 2018. Council has also increased plant and fleet expenditure in 2019 using a “zero-based budgeting” approach. Council has not provided a justification for the increase. We have therefore made an adjustment to the projections to reflect 2018 actuals for water and sewerage which were \$3.9M in total. We have allocated this equally between the former LGAs and between the water and sewerage services.

**Table 3-6 Challenges applied to Council proposed increases in opex in 2019**

Council explanation of variance (\$k 18-19)	Council proposed increase in expenditure in 2019	Comment/Our view	Impact of our challenge on Council's proposed 2019 opex
WATER			
Annual Service agreements and licences etc. with telecommunications provider and SCADA integrator.	534	Followed by 50% negative adjustment in 2020. Treat as base opex.	-534
Central Coast Integrated Water Resources	1,213	Assume will be delivered over three years.	-809
Investigation into provision of Water and Sewer mains in unserved areas of the former GCC	450	Followed by \$350k negative adjustment in 2020 Assume any uncapitalized expenditure should be base opex.	-450
Detailed Design of Water and Sewer infrastructure improvement projects required for growth of Gosford CBD	400	Followed by \$400k negative adjustment in 2020. Detailed design so assume capitalised.	-400
Major revision of 2007 study into infrastructure requirements to service future growth in the northern development areas. Includes update of existing hydraulic models, options assessment and cost estimation. Required to support 2019 Development Servicing Plan	210	Assume all base opex	-210

Council explanation of variance (\$k 18-19)	Council proposed increase in expenditure in 2019	Comment/Our view	Impact of our challenge on Council's proposed 2019 opex
Scada Support to operate, maintain, standardise and merge the 2 separate SCADA system domains (north and south).	900	Accept to support integration benefits. Assume net impact above base opex spread over three years.	-600
Other	165	Assume base opex	-165
Materials (not listed as an explanation of variance in SIR for water)	1,329	Council has not justified the increase over 2018 figure. Assume average actuals in 2014 to 2018 is more robust	-1,329
Plant & fleet (not listed as an explanation of variance in SIR)	-564	Council has not provided clear justification for this change. Assume 2018 figure is more robust and allocate equally between water and sewerage.	-627
<b>TOTAL WATER</b>			<b>-5,124</b>
<b>SEWERAGE</b>			
Annual Service agreements and licences etc with telecommunications provider and SCADA integrator.	534	Followed by 50% negative adjustment in 2020. Treat as base opex.	-534
Critical RM Strategic review and destructive / NDT condition assessments	180	Followed by \$120k negative adjustment in 2020. Treat as base opex.	-180
Investigation into provision of Water and Sewer mains in unserviced areas of the former WSC	300	Followed by equal negative adjustments in 2020 and 2021. Assume any uncanceled expenditure should be base opex.	-300
Materials	699	Justification unclear. Possibly zero-based budgeting. Assume no increase in chemical budget	-699
Scada Support to operate, maintain, standardise and merge the 2 separate SCADA system domains (north and south).	900	Accept to support integration benefits. Assume net impact above base opex spread over three years.	-600
Increased dewatering of Kincumber STP Sludge lagoon to remove stockpiled sludge	1,200	Accept	-
Increased bio solids dewatering and disposal of tonnage at Wyong area (\$0.2m)	200	Accept	-
\$100,000 / tunnel or Outfall inspection by contractors. 3 inspections / year	300	Unclear why just in 2019. Assume part of base opex.	-300
Other	335	Assume part of base opex	-335
Plant & fleet (not listed as an explanation of variance in SIR)	1,618	Council has not provided clear justification for this change. Assume 2018 figure is more	-427

Council explanation of variance (\$k 18-19)	Council proposed increase in expenditure in 2019	Comment/Our view	Impact of our challenge on Council's proposed 2019 opex
		robust and allocate equally between water and sewerage.	
TOTAL SEWERAGE			-3,375
STORMWATER			
No explanation of increase relative to 2018	975	Council has employed zero- based budgeting. Assume that 2018 is more robust than 2019 projection	-975

SIR Opex\_CCC

Note: only lists items >\$150k

### Efficient expenditure

We summarise below our view on efficient expenditure in the current determination period. This reflects the challenge we have applied to the 2019 projected opex and the recommended adjustment to allocation of indirect water and sewerage opex between Gosford and Wyong.

**Table 3-7 Recommended efficient opex in the current determination period**

		(\$M 2018/19)	2014	2015	2016	2017	2018	2019
Gosford	Corporate	CCC submission	13.8	13.5	13.1	13.4	10.6	10.5
		No adjustment						
		<b>Total efficient expenditure</b>	<b>13.8</b>	<b>13.5</b>	<b>13.1</b>	<b>13.4</b>	<b>10.6</b>	<b>10.5</b>
	Water	CCC submission	17.9	15.2	16.4	16.3	17.6	18.9
		Allocation of indirect w&s opex	1.3	1.3	1.3	1.3	1.3	1.9
		Materials adjustment						(1.1)
		Challenge of 18/19 opex						(1.9)
		Plant & fleet adjustment						(0.3)
		<b>Total efficient expenditure</b>	<b>19.2</b>	<b>16.5</b>	<b>17.7</b>	<b>17.6</b>	<b>18.9</b>	<b>17.5</b>
	Sewerage	CCC submission	18.9	17.5	15.9	16.2	13.8	18.2
		Allocation of indirect w&s opex	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	0.3
		Challenge of 18/19 opex						(1.3)
		Plant & fleet adjustment						(0.3)
		<b>Total efficient expenditure</b>	<b>18.3</b>	<b>16.8</b>	<b>15.3</b>	<b>15.5</b>	<b>13.1</b>	<b>16.9</b>
	Stormwater	CCC submission	6.7	6.0	3.6	3.7	2.7	4.0
		Adjustment to maintain at 2018 levels						(1.3)
		<b>Total efficient expenditure</b>	<b>6.7</b>	<b>6.0</b>	<b>3.6</b>	<b>3.7</b>	<b>2.7</b>	<b>2.7</b>
	Total Gosford	CCC submission	57.4	52.2	49.0	49.6	44.7	51.6
		<b>Total efficient expenditure</b>	<b>58.0</b>	<b>52.9</b>	<b>49.6</b>	<b>50.3</b>	<b>45.4</b>	<b>47.5</b>
Wyong	Corporate	CCC submission	12.7	12.1	10.4	12.9	10.6	9.9
		No adjustment						
		<b>Total efficient expenditure</b>	<b>12.7</b>	<b>12.1</b>	<b>10.4</b>	<b>12.9</b>	<b>10.6</b>	<b>9.9</b>
	Water	CCC submission	15.2	16.3	13.1	14.0	14.6	16.1
		Allocation of indirect w&s opex	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.9)
		Materials adjustment						(0.2)
		Challenge of 18/19 opex						(1.3)
		Plant & fleet adjustment						(0.4)
		<b>Total efficient expenditure</b>	<b>13.9</b>	<b>15.0</b>	<b>11.8</b>	<b>12.7</b>	<b>13.3</b>	<b>12.4</b>
	Sewerage	CCC submission	18.2	18.0	14.2	15.3	17.0	16.8
		Allocation of indirect w&s opex	0.6	0.6	0.6	0.6	0.6	(0.3)
		Challenge of 18/19 opex						(1.6)
		Plant & fleet adjustment						(0.1)
		<b>Total efficient expenditure</b>	<b>18.9</b>	<b>18.7</b>	<b>14.9</b>	<b>16.0</b>	<b>17.6</b>	<b>14.8</b>
	Stormwater	CCC submission	2.1	2.0	2.3	2.1	3.9	3.6
		Adjustment to maintain at 2018 levels						0.4
		<b>Total efficient expenditure</b>	<b>2.1</b>	<b>2.0</b>	<b>2.3</b>	<b>2.1</b>	<b>3.9</b>	<b>3.9</b>
	Total Wyong	CCC submission	48.2	48.4	40.0	44.3	46.2	46.4
		<b>Total efficient expenditure</b>	<b>47.6</b>	<b>47.8</b>	<b>39.4</b>	<b>43.7</b>	<b>45.6</b>	<b>41.0</b>
CCC total	Corporate	CCC submission	26.6	25.6	23.5	26.3	21.2	20.3
		<b>Total efficient expenditure (post-efficiency)</b>	<b>26.6</b>	<b>25.6</b>	<b>23.5</b>	<b>26.3</b>	<b>21.2</b>	<b>20.3</b>
	Water	CCC submission	33.1	31.5	29.5	30.3	32.3	35.0
		<b>Total efficient expenditure (post-efficiency)</b>	<b>33.1</b>	<b>31.5</b>	<b>29.5</b>	<b>30.3</b>	<b>32.3</b>	<b>29.9</b>
	Sewerage	CCC submission	37.2	35.5	30.1	31.5	30.8	35.0
		<b>Total efficient expenditure (post-efficiency)</b>	<b>37.2</b>	<b>35.5</b>	<b>30.1</b>	<b>31.5</b>	<b>30.8</b>	<b>31.6</b>
	Stormwater	CCC submission	8.7	8.0	5.9	5.8	6.6	7.6
		<b>Total efficient expenditure (post-efficiency)</b>	<b>8.7</b>	<b>8.0</b>	<b>5.9</b>	<b>5.8</b>	<b>6.6</b>	<b>6.6</b>
TOTAL	Total Gosford and Wyong	CCC submission	105.6	100.6	89.0	93.9	90.9	98.0
		<b>Total efficient expenditure</b>	<b>105.6</b>	<b>100.6</b>	<b>89.0</b>	<b>93.9</b>	<b>90.9</b>	<b>88.5</b>

Source: analysis of 'Opex by item\_Wyong', 'Opex by item\_Gosford' and 'Opex by item\_CCC'

Note: 2016 and 2017 figures have been adjusted to take account of shorter/longer reporting years.

The efficient expenditure in 2019 is used as the basis for assessing expenditure in the future determination period. The reduction in efficient opex in 2019 relative to 2018 is driven by Council's projected decrease in corporate overheads and total labour costs (including provisions) and the challenge applied to Council's proposed increases summarised in Table 3-6.

Overall, our recommended efficient expenditure in the six-year period is \$568.7M, i.e. \$68.2M or 10.7% below the extrapolated Determination allowance.

On the basis of what we have reviewed, we have confirmed that expenditure relates to the regulated business.

## 3.5 Operating Expenditure in the Future Determination Period

### Overview

Council is proposing an increase in opex in the next determination period in real terms relative to the 2014 to 2018 actuals, with the biggest increases being in water and sewerage services across both former LGAs and in the Wyong stormwater service. These increases are partially offset by reductions in the average corporate opex and Gosford stormwater service.

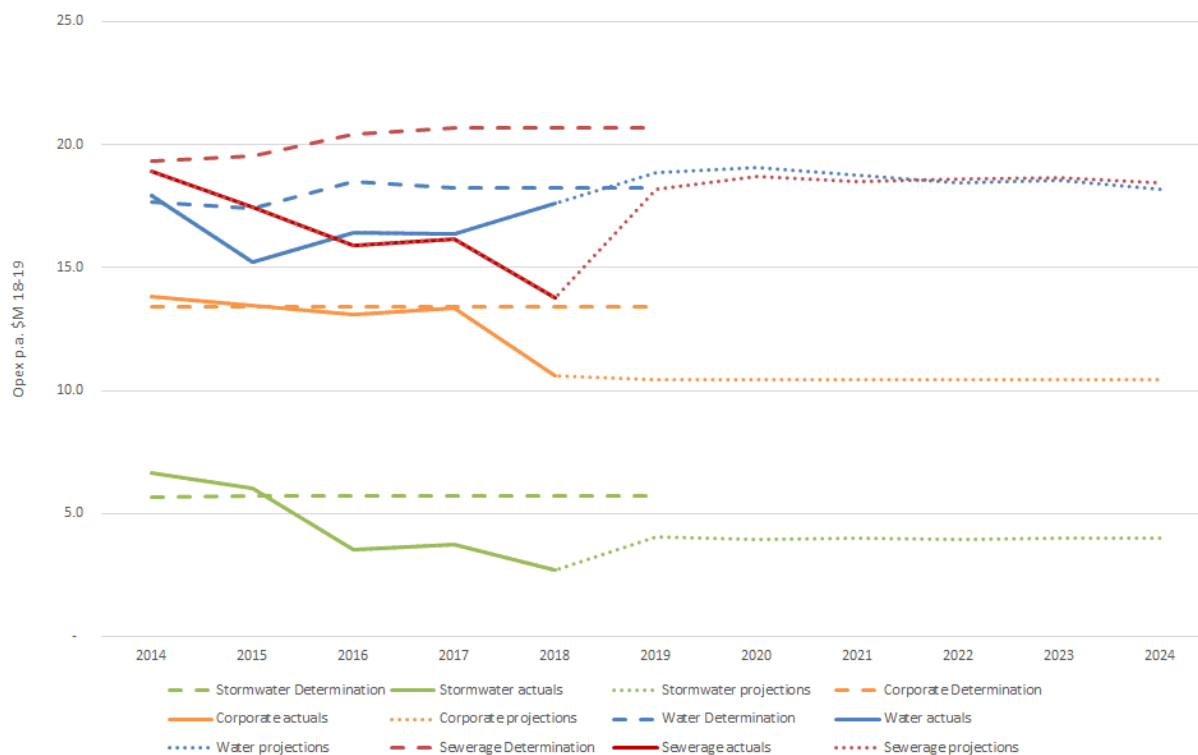
**Table 3-8 Change in average opex between current determination period actuals and 2020 to 2024 by service**

Service (\$M 2018-19)	Average Expenditure 2014 to 2018	Proposed Average Expenditure 2020 to 2024	Proposed change in average expenditure	Change
<b>GOSFORD</b>				
Corporate	12.9	10.5	-2.4	-19%
Water	16.7	18.6	1.9	11%
Sewerage	16.5	18.6	2.1	13%
Stormwater	4.5	4.0	-0.6	-12%
Total Gosford	50.6	51.6	1.0	2%
<b>WYONG</b>				
Corporate	11.8	9.9	-1.9	-16%
Water	14.6	17.4	2.8	19%
Sewerage	16.6	19.3	2.7	16%
Stormwater	2.5	4.1	1.6	63%
Total Wyong	45.4	50.6	5.2	11%

Source: Opex by item\_CCC

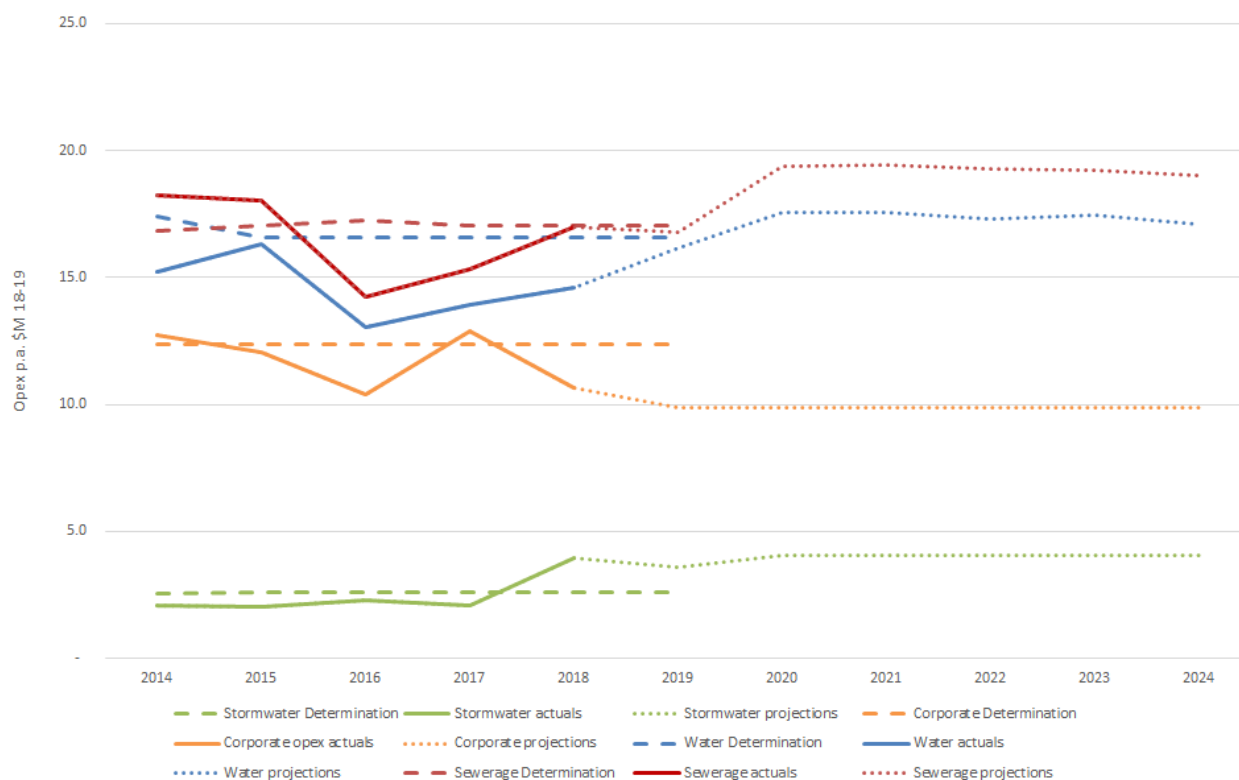
Note: totals may not appear to add due to rounding

**Figure 3-16 CCC proposed opex in the former Gosford LGA**



Source: 'Opex by item\_Gosford'

**Figure 3-17 CCC's proposed opex in the former Wyong LGA**



Source: analysis of 'Opex by item\_Wyong'



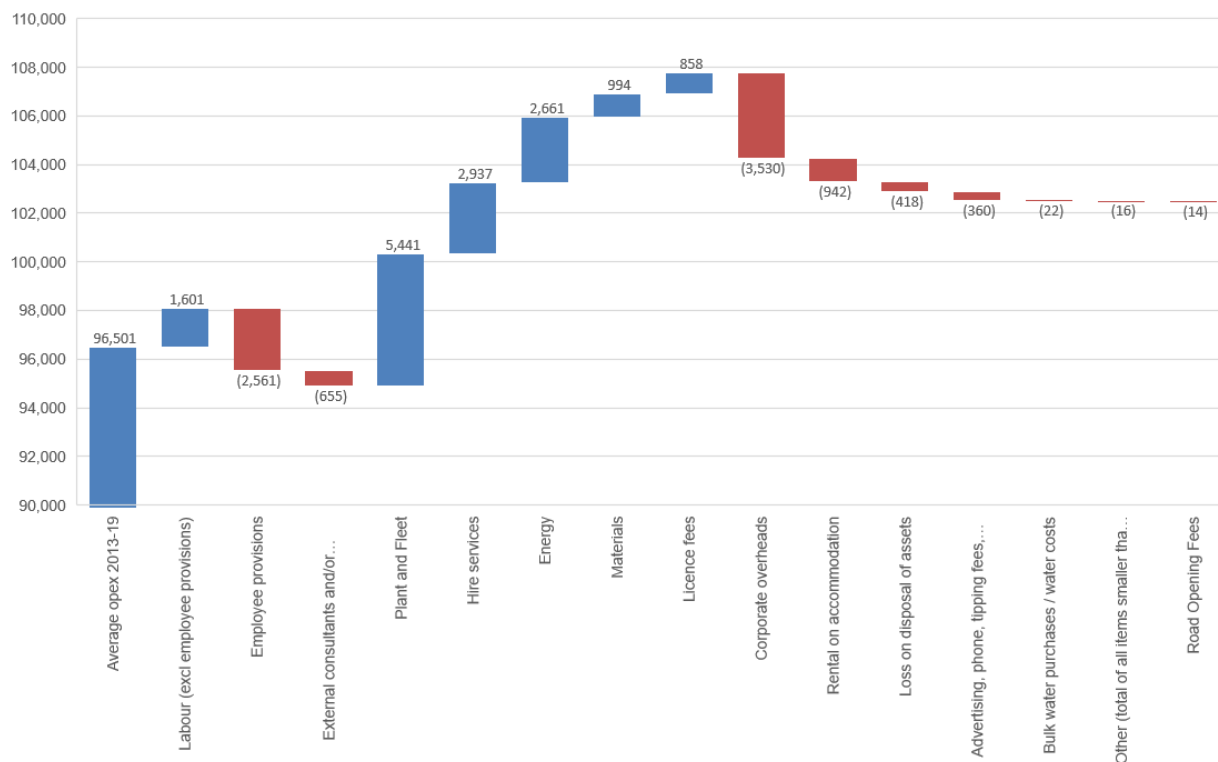
The change is driven by an increase in average plant and fleet, hire services and energy expenditure. This is partially offset by a reduction in the average corporate overhead charge, total labour costs (including provisions) and external consultants/contractors.

**Table 3-9 Change in average opex between current determination period actuals and 2020 to 2024 by cost type**

Cost category (\$k 2018-19)	Average Expenditure 2014 to 2018	Proposed Average Expenditure 2020 to 2024	Proposed change in average expenditure	Change
Labour (excluding employee provisions)	26,809	28,411	1,601	6%
External consultants and/or contract(or)s	4,614	3,959	-655	-14%
Hire services	12,341	15,278	2,937	24%
Materials	8,568	9,562	994	12%
Energy	8,202	10,864	2,661	32%
Corporate overheads	23,874	20,345	-3,530	-15%
Plant and Fleet	950	6,392	5,441	572%
Employee provisions	6,363	3,802	-2,561	-40%
Other	4,777	3,865	-913	-19%
<b>TOTAL</b>	<b>96,501</b>	<b>102,477</b>	<b>5,976</b>	<b>6%</b>

Source: Opex by item\_CCC

**Figure 3-18 Change in average opex between current determination period actuals and Council proposal for 2020 to 2024**



Source: 'Opex by item\_CCC'

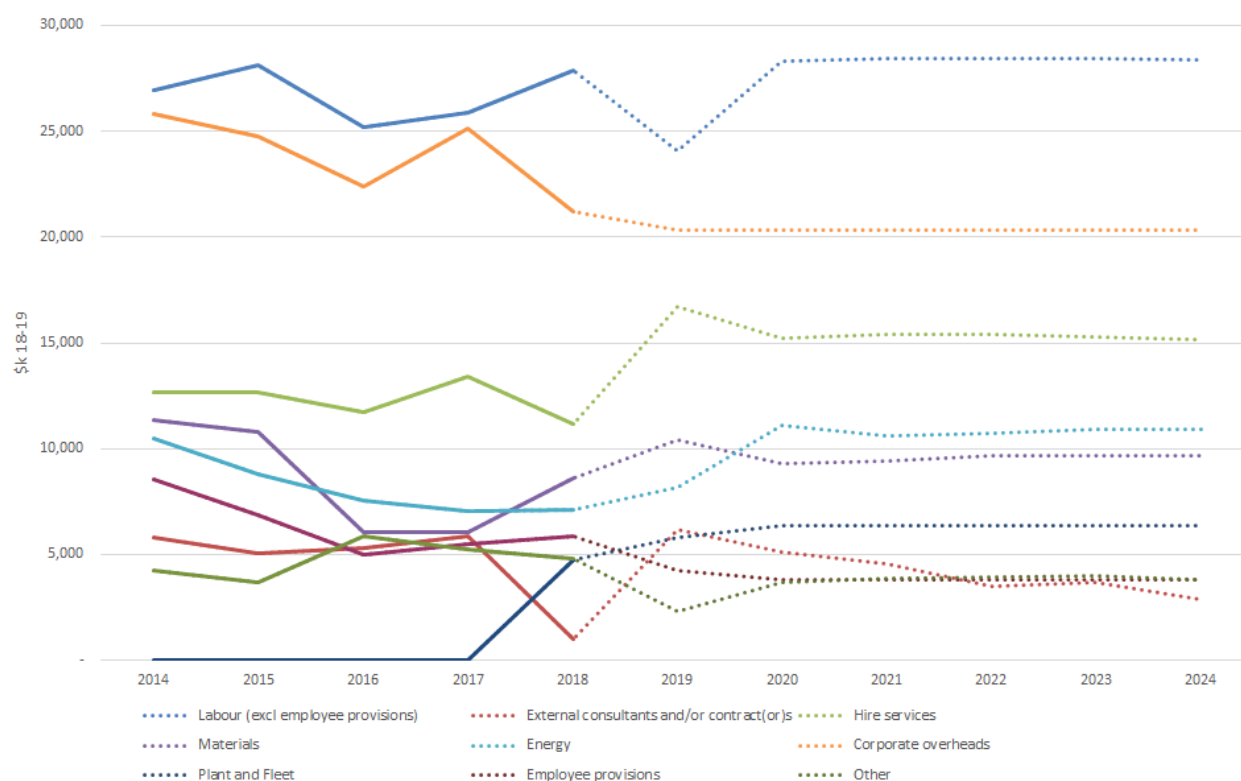
## Methodology

Council has used a mix of different approaches to forecast opex. For example:

- Labour related costs have been based on the amalgamated organisation structure and revised employee policies;
- Hired and contracted services are based on estimates of sludge and biosolid management costs;
- Consultancy costs have been based on known projects;
- Chemical costs (materials) are based on projected unit chemical costs; and
- Energy is based on AEMO and water demand projections.

These are summarised in Table 35 of Council's submission and, to varying degrees, in the text. The resulting expenditure projections by cost category are summarised below:

**Figure 3-19 Projected expenditure by cost type**



Source: 'Opex by item\_CCC'

## IT opex and corporate overheads

We understand that all significant IT (or IM+T) expenditure is passed on to the water and sewerage and stormwater businesses through the corporate overhead charge, through opex or a depreciation charge for any IT capex.

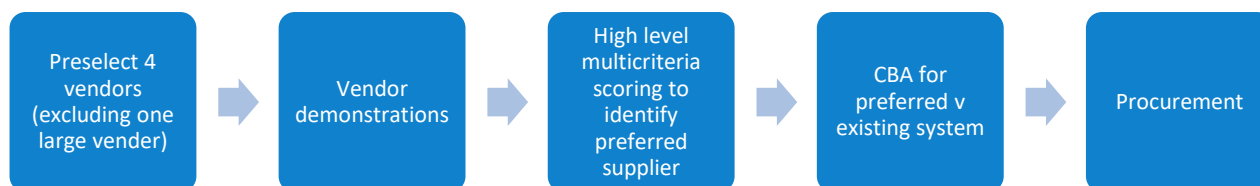
Council has started to implement a transformational IT strategy which consolidates the two former councils' systems then builds on this to improve service provision. The strategy<sup>19</sup> envisages approximately \$25.1M of capex and \$32.8M of opex from 2018 to 2022 across all of the Council functions.

One key component of this strategy is the implementation of a comprehensive Enterprise Resource Planning system (ERP) covering finance, human capital management, customer relationship management, business

<sup>19</sup> Item 74 IPART IT Strategy Response Template

intelligence and analytics, assets, property and rating. This is estimated to cost an average of \$3.6M p.a.<sup>20</sup> in opex and have zero capex.

Council has carried out a cost-benefit analysis (CBA) for the proposed ERP application and identified benefits equal to \$40.4M in present value terms over 10 years equivalent to approximately \$4.6M p.a. The cost-benefit analysis has been carried out for Council's preferred solution, selected based on high level multicriteria scoring, and compared against a 'maintain existing system' option. It is not clear from the business case provided that tenders or costings were obtained from suppliers to inform the evaluation. We also consider it highly unusual that one of the largest ERP vendors was not invited thereby reducing potential competition, especially as Council's own multicriteria analysis found that vendor to be the second highest ranked option. The process followed by Council appears to be:



We consider that, given the scale of expenditure, the process followed, as we understand it, does not represent best procurement practice. In particular, it would be best practice to (a) consult a wider pool of potential vendors (b) develop an outline RFP or similar before selecting the preferred supplier to allow competitive procurement processes and (c) select a preferred supplier based on more rigorous analysis than high level multicriteria scoring.

In the context of reducing corporate overheads we do not consider that an adjustment to this expenditure line is necessary. However, as Council has identified that the ERP will deliver productivity benefits of approximately \$4.6M p.a.<sup>21</sup> we have allocated this as an efficiency gain to the service lines, starting with 50% of the benefit in 2020 and 100% from there on. We have assigned this efficiency to the different services and areas on the basis of the proportion of Council's submission opex and assuming that 27.8% of the benefit sits with the water and sewerage and 5.2% with the stormwater service, in line with the current corporate overhead allocation and split of operating expenditure across the council's functions.

As can be seen in Figure 3-19, corporate overheads are projected to continue at the lower level set in the 2019 budget. Council has not provided a breakdown of this projection or business cases for 'other IT expenditure'. However, Council has proposed a reduction in corporate overhead charges and we have recommended an efficiency as a result of the ERP program. Given this, we have not recommended any further adjustments in corporate overhead expenditure.

### Plant and fleet

Council has a separate plant and fleet business responsible for providing and maintaining vehicles. It operates on a zero-based budgeting basis. 'Plant and fleet' expenditure is recharged to business units on the basis of vehicle use. Plant and fleet charges are projected to increase from 2018 actuals in both water and sewerage services, with no significant change in the stormwater service.

Council has not provided a justification for the increase in water and sewerage plant and fleet expenditure. We have therefore made an adjustment to the projections to reflect the most recent total \$3.9M actual expenditure in 2018. We have allocated this equally between the former LGAs and between water and sewerage. We have accepted Council's proposed plant and fleet expenditure for stormwater.

<sup>20</sup> Estimated based on the whole life cost and present values reported by CCC

<sup>21</sup> Estimated based on the present values of benefits in CCC's business case

## Energy

Council has based its energy cost projections using water demand projections and unit costs from the AEMO retail price trends report<sup>22</sup>. On the whole we consider it to be a reasonably robust method.

Given the recent significant increase in wholesale electricity prices we do not consider Council's projections unreasonable, with levels of expenditure which are expected to be below those in 2013 even though wholesale prices are now higher. However, Council has not demonstrated significant focus on reducing electricity usage through energy efficiency and on-site generation. This is addressed as a potential source of efficiency later in the chapter.

Council's projections are based on theoretical projections, in a market which has seen significant cost shifts. As Council is going to market at the end of 2018 it would be appropriate, should timing permit, for IPART to use the price data from this to refine the expenditure allowances.

**Figure 3-20 Projected energy expenditure and recent wholesale electricity costs**



Source: 'Opex by item\_Gosford', 'Opex by item\_Wyong' and analysis of AER weekly volume weighted average spot prices<sup>23</sup>

## Hire services

Council is projecting a significant increase in hire services of an average \$2.9M p.a. or 24% above the average actuals between 2014 and 2018. In 'SIR Opex CCC' it provides details of a number of items which it expects will increase expenditure in the coming years. However, Council has not demonstrated that these items should not be part of 'base' opex. It has demonstrated that \$2.1M for additional sludge dewatering is required. However, this is expenditure which has been deferred from the current determination period and which it has therefore already received funding to deliver. We conclude that there is no justification for a real-term increase in expenditure relative to the average expenditure in 2014 to 2018. We have therefore recommended an adjustment to make hire service expenditure equal to the average 2014 to 2018 actuals. This leads to reductions in expenditure except for Wyong water and sewerage services where Council had projected reduced expenditure.

<sup>22</sup> Retail electricity price history and projected trends, AEMO, Jacobs, September 2017

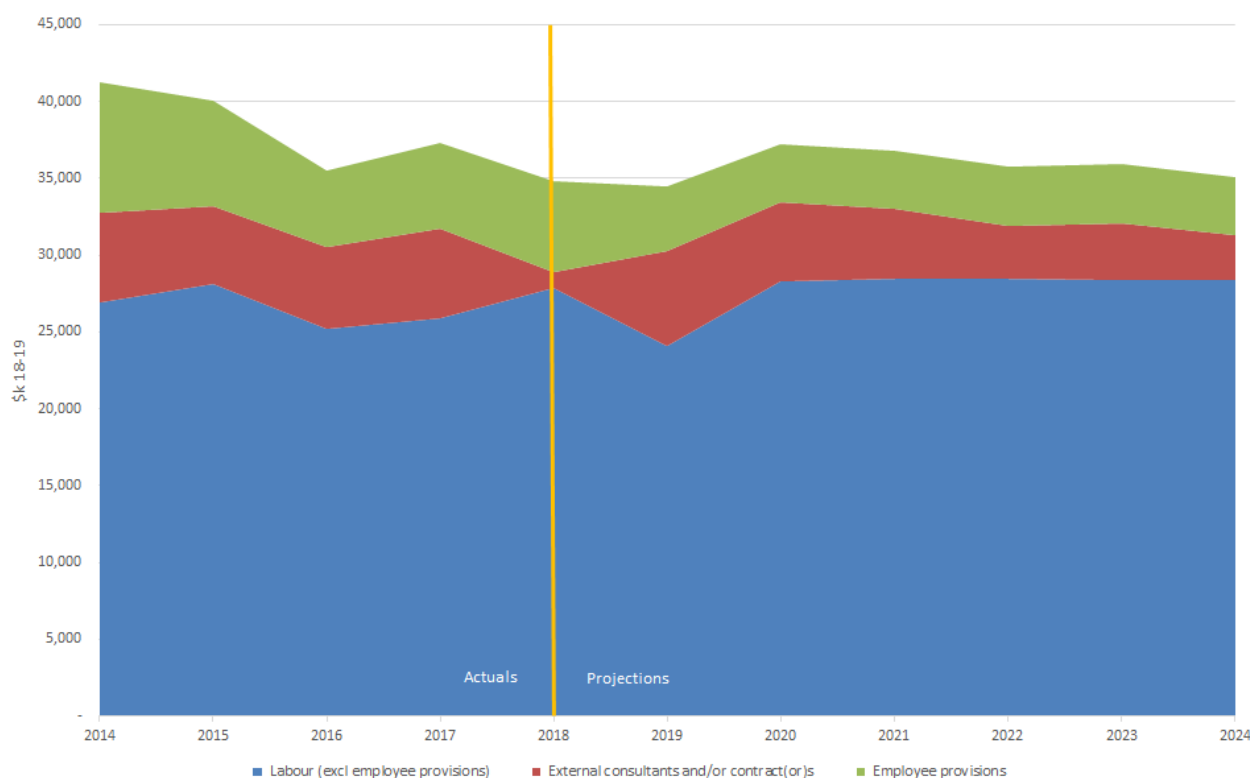
<sup>23</sup> Accessed from: <https://www.aer.gov.au/wholesale-markets/wholesale-statistics/weekly-volume-weighted-average-spot-prices> on 15 October 2018

No specific adjustment has been made to stormwater hire services expenditure as we have recommended a broader adjustment to stormwater expenditure as discussed below.

## Labour

Council is projecting an increase in FTEs, but a reduction in total labour operating expenditure relative to the average in the current determination period, largely driven by a reduction in employee provisions but also increased labour capitalisation, which Council expect to increase from 5% to approximately 17% of labour expenditure in the next determination period. Salary increases are based initially on the Local Government (State) Award 2017 which came into operation on 1 July 2017.

**Figure 3-21 Council broad labour expenditure projections**



Source: 'Opex by item\_CCC'

One element which is increasing labour expenditure from 2020 onwards is the development of a 24-hour operations centre. Council has allocated \$250k of additional labour expenditure for the resources required<sup>24</sup>. However, in interview, Council stated that one of the main benefits of the operations centre would be a reduction in overtime costs, expected to be approximately \$410k p.a.<sup>25</sup> which is not built into the projections. We have therefore built in \$410 p.a. of labour savings allocated equally across water and sewerage and the former LGAs starting in 2021, with half of these benefits secured in 2020.

## Materials

Compared to actuals in the current determination period, materials expenditure is projected to increase by \$1.4M p.a. in water (+34%), \$0.2M p.a. (+72%) in stormwater, and to reduce by \$0.6M (-15%) for sewerage.

Council has only provided robust justification for a change to ferric chloride dosing at Mardi WTP and for the use of powdered activated carbon with a total additional spend of \$0.8M over four years from 2020, equivalent to \$0.2M p.a. We have therefore made an adjustment to keep materials expenditure flat in real terms compared to 2018 actuals, with the exception of \$0.2M p.a. addition from 2020 onwards.

<sup>24</sup> Item 130 Ops Centre Opex

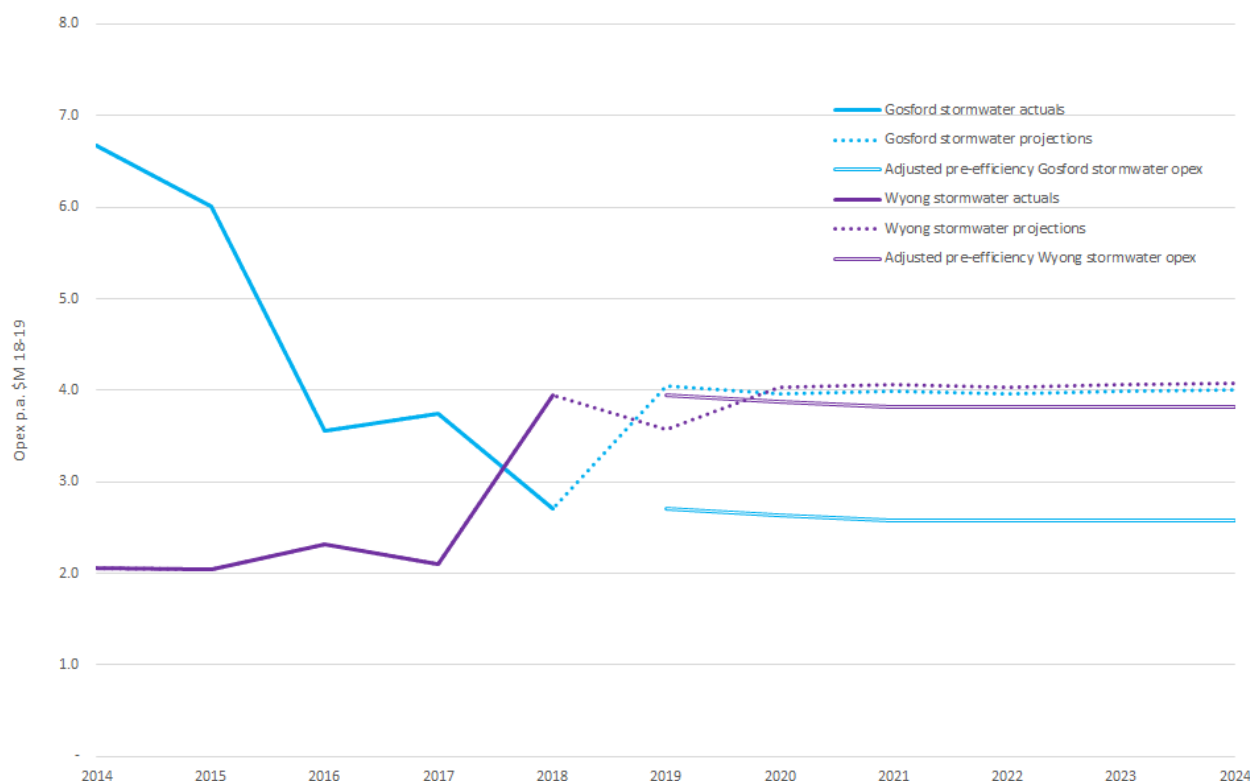
<sup>25</sup> 'Water Operations Centre Business Case Overview'

No specific adjustment has been made to stormwater materials expenditure as we have recommended a broader adjustment to stormwater expenditure as discussed below.

## Stormwater

As mentioned in Section 3.4, Council has projected a change in stormwater opex from 2019 on without providing justification. In the absence of justification for the increase we have therefore made an adjustment to make the opex equal to the 2018 actuals. This is in addition to the adjustment related to productivity savings associated with roll out of the ERP. The resulting adjusted 'pre-efficiency' expenditure is shown in Figure 3-22 below.

**Figure 3-22 Adjustment to Council proposed stormwater opex**



Source: 'Opex by item\_Gosford', 'Opex by item\_Wyong'

## Efficiency Initiatives

Council has outlined a number of operational efficiency initiatives it envisages, including for example:

- approximately \$2.63M of capital spending for projects which will improve water and sewer system monitoring and operational activities;
- replacement of the troublesome Tacoma South vacuum sewer network with a new low-pressure sewerage system. This is expected to cost \$2.2M;
- refurbishment of problem sewer pump stations such as Avoca No.7; and
- improved water pressure and leak management initiatives.

However, Council has not clearly articulated how these savings have been built into its opex projections. We have therefore not removed any efficiency savings associated with these initiatives from our assessment of overall efficiency discussed below.



## 3.6 Prudent and Efficient Expenditure in the Future Determination Period

Our approach to the recommended level of efficient expenditure is to

- (i) Make specific adjustments to the forecast opex for the future determination period based on our detailed review of the submission, documentation and discussions with the Council managers;
- (ii) Determine and apply catch-up and continuing efficiency applied to the net expenditure after adjustments for (i) above; and
- (iii) Calculate the efficient level of expenditure to deliver the service standards proposed by Council as an annual expenditure by water, sewerage and stormwater service.

We have limited confidence in Council's projected 2019 opex as it is based on zero-based budgeting, contains a number of anomalies such as negative expenditure adjustments, and Council has not been able to provide robust explanations for the variances from prior years. We have therefore used 2018 actuals, adjusted for the allocation of indirect opex as outlined in Section 3.2, as the starting point for establishing an efficient level of expenditure. We have then examined the justifications for any changes to expenditure relative to 2018. For cost categories which vary year-on-year (such as hire services) we have also compared to averages within the current determination period.

The recommended adjustments made are summarised below. These are in addition to the adjustments made for allocation of indirect water and sewerage opex on the basis of direct opex rather than the 50/50 rule.

**Table 3-10 Summary of recommended pre-efficiency adjustments**

Cost category/adjustment type	Council proposed average expenditure in 2020-24 relative to.... (\$M 18-19)		Our recommendation
	Average of 2014 to 2018	2018	
Corporate overheads	-3.5	-0.9	Accept Council proposed levels
Stormwater opex	+0.9	+1.4	Retain at 2018 levels (in addition to ERP adjustment)
Labour (including provisions)	-1.0	-1.5	Accept Council proposed reduction
Hire services	+2.9	+4.1	There is some volatility year-to-year. Recommend no real terms increase relative to average actuals in current determination period. This removes any opex items (such as desludging) which have been deferred from the current determination period.
Materials	Water: +1.4 Sewerage: -0.6	+1.2 -0.0	Retain 2018 expenditure except for \$0.2M p.a. from 2020 for Mardi WTP.
Energy prices	+2.7	+3.8	Accept increase
Plant and fleet	Water: +2.1 Sewerage: +2.7	-0.4 +2.1	No real terms increase relative to 2018 actuals.
Productivity gains from IT transformation e.g. ERP	n/a	n/a	\$0.8M saving in 2020. \$1.5M saving from 2021 onwards
Reduced overtime due to operations centre	n/a	n/a	\$0.2M in 2020. \$0.4M from 2021 onwards

Note: materials and hire service expenditure has been adjusted to average actuals over the current determination period rather than 2019 as the expenditure against these items can vary significantly year-on-year.

The increases set out in Table 3-10 are at aggregate Council level. The adjustments suggested have different impacts on former LGA area opex as can be seen in Table 3-13.

### 3.6.1 Scope for efficiency

#### Catch-up efficiency

We consider that Council has reasonable scope for catch-up efficiency. In the submission, the documentation and the discussions we held with Council, we found little indication of internal efficiency challenge being applied to its expenditure projections.

In addition to the savings outlined above, such as productivity benefits from the ERP system, we consider that there are a number of areas in which Council could achieve enhanced efficiency, for example:

- **Budgeting.** Although Council produces high level ten-year financial projections, budgeting and expenditure appears to be very much focused on single year cycles. We believe that efficiencies could be brought through multi-year budgeting with clear accountability and ownership of budget lines. This would incentivise medium term planning, improved decision-making and create space for spend-to-save initiatives. Linked to this, we think that greater use of activity-based costing for costs currently classified as corporate overheads would help as it would allow better understanding and accountability for these costs, some of which may be controllable and strongly influenced by decisions made in the businesses. We note that Council is considering this already.
- **Energy efficiency.** Energy makes up a significant element of Council's opex with an average projected expenditure of \$10.9M in the next five years. It is considered good practice for a water utility to have a proactive energy efficiency programme, identifying measures which can pay for themselves through reduced, reprofiled, or less expensive, electricity demand. This may involve sub-metering, replacement of energy inefficient equipment, revision of standard specifications, changes to pump configurations, etc. Council do consider energy efficiency in new installations and monitor electricity billing. However, we believe efficiencies could be gained by increased proactive focus, especially for existing installations.
- **On-site generation.** Council has installed one Photovoltaic (PV) plant at Somersby and has indicated in discussions that it believes that on-site generation schemes could achieve payback periods of approximately five years. In its submission, Council mentions one potential cogeneration scheme which may produce benefits in the following determination period. We understand that Council has not been rolling out on-site generation more widely because of competing priorities. However, with short pay-back periods, we believe that customers would benefit from further on-site energy generation and that some of the benefits could be realised in coming years through shorter lead-time solutions.
- **Procurement and materials.** Council appears to be at an early stage of maturity in procurement, with limited evidence of forward planning and testing of different procurement methods. Council has made some savings in chemicals use in the current determination period. However, we believe that Council could achieve further efficiencies through better procurement and proactive planning and ownership of materials costs.

In the period from 2014 to 2018 Council has achieved an average of 3.7% efficiency per annum, or 3.1% p.a. excluding energy costs. While benchmarking has limitations, it can be useful to inform the order of magnitude of efficiency potential. The analysis undertaken suggests that Council is operating at the 73<sup>rd</sup> percentile of all utilities across water and sewerage combined, or approximately 67<sup>th</sup> percentile if we exclude utilities understood to purchase bulk water. It suggests that, to attain the 75<sup>th</sup> percentile would require an overall reduction of either 2.3% of Council's opex, or 5.8% excluding bulk water purchasers. To go further and attain the 80<sup>th</sup> percentile would require a reduction of 7.8% (12.5% excluding bulk water purchasers).

We recognise that some efficiencies take time to deliver. We consider it to be realistic for Council to ramp-up to a 2% catch-up efficiency by year 3 of the next determination period. This is similar to the catch-up efficiency applied to Sydney Water in 2016 and other utilities. Combined with the ERP and corporate overhead efficiencies (1.7% and 1.0% of opex respectively), achieving this catch-up would place Council approximately within the upper quartile of Australian utilities in terms of current volumetric efficiency.

## Continuing efficiency

Continuing efficiency is the scope for efficient, frontier, utilities to continue to improve efficiency over time. It reflects the continuing efficiencies being gained in the sector through innovation, better ways of working and new technologies.

There is limited literature available on which to assess the trends in continuing efficiency specific to the Australian water sector. In England and Wales, the regulator, Ofwat, undertakes econometric modelling of operating expenditure as part of its periodic review of prices. For the 2014 price review, Ofwat's modelling considers total expenditure 'totex'; that is total capital and operating expenditure over a five-year period. It compared each company's 'totex' with its modelled cost 'threshold' which included specific agreed adjustments.

For the water service, the 18 companies' 'totex' costs varied from -5% to +4%, excluding two outliers. For the sewerage service, the ten companies' 'totex' costs varied from -5% to +3%, excluding one outlier. We can assume that the frontier company is at the -5% value; suggesting that there is potential for a total of approximately 5% efficiency for combined opex and capex, ramping up over the five-year price control period. It is difficult to allocate this specifically to opex, but it gives an order of magnitude of efficiency expectations. There is insufficient information in the public domain from the current PR19 price review to inform our analysis.

A review conducted by the Organisation of Economic Cooperation and Development (OECD) in 2015<sup>26</sup> examined a wide sample of global firms and found that efficiency gains at the frontier have averaged 3.5% p.a. for firms in the manufacturing sector and 5.0% p.a. in the service sector. Across all firms, i.e. not just those at the frontier, efficiency gains have been lower, averaging 1.7% p.a. in the manufacturing sector and 0.3% p.a. in the services sector.

We recommend that Council be set a continuing efficiency target of 0.25% p.a. in addition to the catch-up efficiency and other adjustments. This target is also broadly consistent with regulatory decisions for water utilities in Australia in recent years as summarised below.

**Table 3-11 Summary of recent regulatory decisions for Australian water utilities**

Regulated business	Regulator	Year	Continuing efficiency (% p.a.)	Catch-up efficiency (%)	General (% p.a.)
SA Water	ESCOSA	2016			1.0 – 1.5
Sydney Water	IPART	2016	0.25	Ramp up from 0.5 to 2.0%	
Sydney Desalination	IPART	2017			0.75
Hunter Water	IPART	2016	0.25	0.25	
Melbourne Water	ESC	2016			1.0
All businesses	ESC	2012			1.0

Our recommendation for Council combines the 0.25% per annum adjustment and specific adjustment for labour costs, to derive a cumulative efficiency of 2.7% by 2022 and 3.0% by 2023.

<sup>26</sup> Frontier firms, technology diffusion and public policy: micro evidence from OECD countries, OECD Productivity Working Papers No. 02, November 2015.

**Table 3-12 Recommended efficiency challenge**

	2020	2021	2022	2023	2024
Catch up efficiency challenge (% within year)	0.50%	1.00%	2.00%	2.00%	2.00%
Continuing efficiency challenge (cumulates year on year)	0.25%	0.25%	0.25%	0.25%	0.25%
Adjustment factor- catch up	0.9950	0.9900	0.9800	0.9800	0.9800
Adjustment factor- continuous	0.9975	0.9950	0.9925	0.9900	0.9876
Combined adjustment factor	0.9925	0.9851	0.9727	0.9702	0.9678

The recommended level of prudent and efficient expenditure is shown below. Efficient expenditure in 2020 is higher than efficient expenditure in 2019 (+\$2.4M) due to a mix of factors including the increase in energy costs (+\$2.9M), an increase in materials (+\$0.2M) and reductions due to efficiency challenges as well as some minor changes in 'other' opex categories, where, for example, there was a one-off negative 'other' expenditure budgeted in 2019 (-\$0.3M). Opex then reduces in 2021 and 2022 as a result of decreasing energy costs and external consultants and contractors as well as the general efficiency challenges.

**Table 3-13 Recommended prudent and efficient expenditure in the next determination period**

		(\$M 2018/19)	2020	2021	2022	2023	2024
Gosford	Corporate	CCC submission	10.5	10.5	10.5	10.5	10.5
		Adjusted expenditure before efficiency challenge	10.5	10.5	10.5	10.5	10.5
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure	10.4	10.3	10.2	10.2	10.1
	Water	CCC submission	19.1	18.7	18.4	18.5	18.2
		Maintain at adjusted 2018 levels	-	0.1	0.2	0.4	0.7
		Productivity savings from IT transformation	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
		Operations centre- reduced overtime	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
		CCC proposed labour cost reduction (incl provision)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)
		Hire services adjustment	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)
		Accept additional materials	0.1	0.1	0.1	0.1	0.1
		Accept energy cost increases	1.2	0.9	1.1	1.1	1.1
		Adjusted expenditure before efficiency challenge	17.7	17.2	17.4	17.5	17.5
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure	17.6	17.0	17.0	16.9	16.9
	Sewerage	CCC submission	18.7	18.5	18.6	18.6	18.4
		Maintain at adjusted 2018 levels	(5.6)	(5.4)	(5.5)	(5.5)	(5.3)
		Productivity savings from IT transformation	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
		Operations centre- reduced overtime	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
		CCC proposed labour cost change (incl provisions)	0.3	0.4	0.4	0.4	0.4
		Hire services adjustment	(0.9)	(0.9)	(0.9)	(0.9)	(0.9)
		Accept energy cost increases	0.8	0.8	0.7	0.8	0.8
		Adjusted expenditure before efficiency challenge	13.2	13.0	12.9	13.0	13.0
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure	13.1	12.8	12.6	12.6	12.6
	Stormwater	CCC submission	4.0	4.0	4.0	4.0	4.0
		Adjustment to maintain at 2018 levels	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)
		Productivity savings from IT transformation	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
		Adjusted expenditure before efficiency challenge	2.6	2.6	2.6	2.6	2.6
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure	2.6	2.5	2.5	2.5	2.5
	Total Gosford	CCC submission	52.2	51.7	51.5	51.7	51.1
		Adjusted expenditure before efficiency challenge	44.0	43.3	43.4	43.5	43.5
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure	43.7	42.6	42.2	42.2	42.1
Wyong	Corporate	CCC submission	9.9	9.9	9.9	9.9	9.9
		Adjusted expenditure before efficiency challenge	9.9	9.9	9.9	9.9	9.9
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure	9.8	9.7	9.6	9.6	9.6
	Water	CCC submission	17.5	17.5	17.3	17.5	17.1
		Maintain at adjusted 2018 levels	(4.2)	(4.2)	(4.0)	(4.1)	(3.8)
		Productivity savings from IT transformation	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
		Operations centre- reduced overtime	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
		CCC proposed labour cost change (incl provisions)	(0.4)	(0.3)	(0.3)	(0.3)	(0.3)
		Hire services adjustment	1.3	1.3	1.3	1.3	1.3
		Accept additional materials	0.1	0.1	0.1	0.1	0.1
		Accept energy cost increases	1.0	0.9	0.9	1.0	1.0
		Adjusted expenditure before efficiency challenge	15.1	14.9	14.9	15.0	14.9
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure	15.0	14.7	14.5	14.5	14.5
	Sewerage	CCC submission	19.4	19.4	19.3	19.3	19.0
		Maintain at adjusted 2018 levels	(1.8)	(1.8)	(1.7)	(1.6)	(1.4)
		Productivity savings from IT transformation	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
		Operations centre- reduced overtime	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
		CCC proposed labour cost change (incl provisions)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)
		Hire services adjustment	1.0	1.0	1.0	1.0	1.0
		Accept energy cost increases	1.0	0.9	0.9	0.9	0.9
		Adjusted expenditure before efficiency challenge	18.7	18.4	18.4	18.5	18.4
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure post-efficiency	18.6	18.2	17.9	17.9	17.9
	Stormwater	CCC submission	4.0	4.1	4.0	4.1	4.1
		Adjustment to maintain at 2018 levels	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
		Productivity savings from IT transformation	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
		Adjusted expenditure before efficiency challenge	3.9	3.8	3.8	3.8	3.8
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure post-efficiency	3.9	3.8	3.7	3.7	3.7
	Total Wyong	CCC submission	50.8	50.9	50.5	50.7	50.1
		Adjusted expenditure before efficiency challenge	47.6	47.0	47.0	47.1	47.1
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure post-efficiency	47.2	46.3	45.7	45.7	45.6
CCC total	Corporate	CCC submission	20.3	20.3	20.3	20.3	20.3
		<b>Total efficient expenditure (post-efficiency)</b>	<b>20.2</b>	<b>20.0</b>	<b>19.8</b>	<b>19.7</b>	<b>19.7</b>
	Water	CCC submission	36.6	36.3	35.8	36.0	35.3
		<b>Total efficient expenditure (post-efficiency)</b>	<b>32.6</b>	<b>31.7</b>	<b>31.4</b>	<b>31.5</b>	<b>31.4</b>
	Sewerage	CCC submission	38.1	37.9	37.9	37.9	37.5
		<b>Total efficient expenditure (post-efficiency)</b>	<b>31.7</b>	<b>31.0</b>	<b>30.5</b>	<b>30.5</b>	<b>30.4</b>
	Stormwater	CCC submission	8.0	8.1	8.0	8.1	8.1
		<b>Total efficient expenditure (post-efficiency)</b>	<b>6.5</b>	<b>6.3</b>	<b>6.2</b>	<b>6.2</b>	<b>6.2</b>
TOTAL	Total Gosford and Wyong	CCC submission	103.1	102.6	102.0	102.3	101.2
		Adjusted expenditure before efficiency challenge	91.6	90.3	90.4	90.6	90.6
		Efficiency adjustment factor	99.25%	98.51%	97.27%	97.02%	96.78%
		Total efficient expenditure	90.9	89.0	88.0	87.9	87.7

Note: some of the figures appear misleading due to rounding. For example, Gosford stormwater productivity savings double from \$0.06M in 2020 to \$0.13M in 2021 but both years are rounded to \$0.1M.

**Figure 3-23 Recommended prudent and efficient expenditure in Council**



## 3.7 Conclusions

### Current Determination Period

Council has significantly outperformed the opex Determination allowances given to Gosford and Wyong Councils. This has been achieved through a number of efficiency initiatives, such as 'Wyong water', lower corporate overheads, savings in chemical costs, and more efficient means of disposal of sludge from water treatment in Gosford. This has helped to place Council above average in comparative unit opex efficiency.

The broad measure of labour opex (including provisions and external consultants/contractors) has reduced over the determination period. Energy expenditure has also reduced over the period, although this may be largely driven by wholesale electricity costs.

We have limited confidence in Council's 2019 projected expenditure and have applied a number of adjustments to the expenditure. Council has used a "zero-based budgeting" approach to deriving the expenditure forecast. It has projected a significant increase in opex (+\$7.1M or +7.8%) relative to the 2018 actuals but provided little explanation of the key drivers for the change and why overall levels of expenditure will be significantly higher than in any year since 2015.

We have also made recommendations about the allocation of costs between former LGAs areas. Since the amalgamation, i.e. in the years 2017, 2018 and 2019, Council has allocated opex for the joint water supply system between the former LGAs based on where the assets are physically located. Prior to this, the JWS Agreement set out that operating expenditure should be allocated to the former LGAs based on the proportion of consumption and capex should be shared on a 50/50 basis. We consider that, as it is a joint system, benefiting both areas, wherever the assets sit, it would be more cost reflective to allocate opex and capex based on the share of benefits - volumes supplied to each area or number of properties - rather than the physical location of assets.

Indirect costs such as administration costs are allocated equally between the former LGAs and a further equal allocation to the water and sewer services. The indirect costs allocated using the 50/50 rule are significant,



comprising \$14.8M (37%) of water opex in 2018 and \$10.7M (27%) of sewerage opex. We conclude that indirect opex should be apportioned to the water and sewerage services in proportion to their direct costs rather than a 50/50 assumption as this is more reflective of the costs incurred. In 2018 the impact of this change would be to reduce Wyong water opex by \$1.3M and increase Gosford by the same amount. It would increase Wyong's sewerage opex by \$0.6M and reduce Gosford by the same amount.

### Future Determination Period

Council is proposing an increase in opex in the next determination period in real terms relative to the 2014 to 2018 actuals, with the biggest increases being in water and sewerage services across both former LGAs and in the Wyong stormwater service. These increases are partially offset by reductions in the average corporate opex and Gosford stormwater service.

Our approach to the recommended level of efficient expenditure in the future determination period is to

- (i) Make specific adjustments to the forecast opex for the future determination period based on our detailed review of the submission, documentation and discussions with the Council managers;
- (ii) Determine and apply catch-up and continuing efficiency applied to the net expenditure after adjustments for (i) above; and
- (iii) Calculate the efficient level of expenditure to deliver the service standards proposed by Council as an annual expenditure by water, sewerage and stormwater service.

Given the limited confidence in Council's projected 2019 opex we have used 2018 as the starting point for establishing an efficient level of expenditure. We have then examined the justifications for any changes to expenditure relative to 2018. For cost categories which vary year-on-year (such as hire services) we have also compared to averages within the current determination period.

The recommended pre-efficiency adjustments made are summarised below.

- Corporate overheads: accept Council's proposed reduction;
- Stormwater opex: retain at 2018 levels (in addition to ERP adjustment);
- Labour (including provisions): accept Council's proposed reduction;
- Hire services: recommend no real terms increase relative to average actuals in current determination period. This removes any opex items (such as desludging) which have been deferred from the current determination period;
- Materials: retain 2018 expenditure except for \$0.2M p.a. from 2020 for Mardi WTP;
- Energy prices: accept Council's proposed increase;
- Plant and fleet: retain 2018 actuals;
- Productivity gains from IT transformation e.g. ERP: \$0.8M saving in 2020. \$1.5M saving from 2021 onwards;
- Reduced overtime due to operations centre: \$0.2M in 2020. \$0.4M from 2021 onwards.

We consider that Council has reasonable scope for catch-up efficiency. In the submission, the documentation and the discussions we held with Council, we found little indication of internal efficiency challenge being applied to its expenditure projections.

In addition to the savings outlined above, such as productivity benefits from the ERP system, we consider that there are a number of areas in which Council could achieve enhanced efficiency including through budgeting, energy efficiency, on-site generation, procurement and materials.

In the period from 2014 to 2018 Council has achieved an average of 3.7% efficiency per annum, or 3.1% p.a. excluding energy costs. Whilst benchmarking has limitations it can be useful to inform the order of magnitude of efficiency potential. The analysis undertaken suggests that Council is operating at the 73<sup>rd</sup> percentile of all utilities across water and sewerage combined, or approximately 67<sup>th</sup> percentile if we exclude utilities understood to purchase bulk water. It suggests that, to attain the 75<sup>th</sup> percentile would require an overall reduction of either 2.3% of Council's opex, or 5.8% excluding bulk water purchasers. To go further and attain the 80<sup>th</sup> percentile would require a reduction of 7.8% (12.5% excluding bulk water purchasers).

We recognise that some efficiencies take time to deliver. We consider it to be realistic for Council to ramp-up to a 2% catch-up efficiency by year 3 of the next determination period. This is similar to the catch-up efficiency applied to Sydney Water in 2016 and other utilities. Combined with the ERP and corporate overhead efficiencies (1.7% and 1.0% of opex respectively), achieving this catch-up would place Council approximately within the upper quartile of Australian utilities in terms of current volumetric efficiency.

Continuing efficiency is the scope for efficient, frontier, utilities to continue to improve efficiency over time. It reflects the continuing efficiencies being gained in the sector through innovation, better ways of working and new technologies. We have recommended that Council be set a continuing efficiency target of 0.25% p.a. in addition to the catch-up efficiency and other adjustments. This target is also broadly consistent with regulatory decisions for water utilities in Australia in recent years.

The resulting recommended efficient expenditure is summarised as follows:

**Table 3-14 Recommended prudent and efficient operating expenditure**

		(\$M 2018/19)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
CCC total	Corporate	CCC submission	26.6	25.6	23.5	26.3	21.2	20.3	20.3	20.3	20.3	20.3	20.3
		Total efficient expenditure (post-efficiency)	26.6	25.6	23.5	26.3	21.2	20.3	20.2	20.0	19.8	19.7	19.7
	Water	CCC submission	33.1	31.5	29.5	30.3	32.3	35.0	36.6	36.3	35.8	36.0	35.3
		Total efficient expenditure (post-efficiency)	33.1	31.5	29.5	30.3	32.3	29.9	32.6	31.7	31.4	31.5	31.4
	Sewerage	CCC submission	37.2	35.5	30.1	31.5	30.8	35.0	38.1	37.9	37.9	37.9	37.5
		Total efficient expenditure (post-efficiency)	37.2	35.5	30.1	31.5	30.8	31.6	31.7	31.0	30.5	30.5	30.4
	Stormwater	CCC submission	8.7	8.0	5.9	5.8	6.6	7.6	8.0	8.1	8.0	8.1	8.1
		Total efficient expenditure (post-efficiency)	8.7	8.0	5.9	5.8	6.6	6.5	6.5	6.3	6.2	6.2	6.2
	TOTAL	CCC submission	105.6	100.6	89.0	93.9	90.9	98.0	103.1	102.6	102.0	102.3	101.2
		Total efficient expenditure	105.6	100.6	89.0	93.9	90.9	88.5	90.9	89.0	88.0	87.9	87.7

Overall, the recommended efficiency challenge from 2018 to 2024 represents a 3.6% reduction or 0.6% per annum.

## 4 Capital Expenditure

### 4.1 Methodology

This section presents the results of our review of the efficiency and prudence of Council's capital expenditure. We identify below the major investment drivers and explain the variances in the current determination period expenditure against the 2013 Determination. We comment on the efficiency and prudence of capital expenditure in the current determination period and our view of future efficiency.

The methodology for the review of capital expenditure has focused on gaining an understanding of Council's external and internal environment as well as reviews of large projects and programs. Our views are guided by the evaluation of asset management and capital investment processes through interviews and Council presentations, which we discussed in Section 2 of this report. We have commented on the main asset management systems and processes used to budget, track, monitor and report capital expenditure.

Our methodology involves the following steps which we apply to all expenditure in real 2018/19 dollar terms.

- We undertake a test for prudence where we recommend adjustments on the proposed expenditure if it appears to not be justified e.g. through identifying any inconsistencies in inclusions and allocation of capital expenditure by driver (or otherwise) recorded in the SIR;
- We further test for prudence related to timing – we may choose to recommend reprofiling expenditure to take out 'lumpy' spending where we think that a more even expenditure is more efficient and feasible given the resourcing required to fulfil the required workload and prior projects track record;
- We recommend applying the catch-up efficiencies on the overall expenditure portfolio that we consider prudent but can be achieved at lower cost through improved capex processes which we set out in Section 4.10. These efficiencies should bring the utility up to the frontier over time; and
- We then recommend applying a continuing efficiency where the frontier company continues to improve its processes through innovation and management.

Our assessment on future efficiency informs our recommendations for an appropriate overall *level* of capital expenditure, and for the avoidance of doubt we do not "approve" or "reject" any specific projects or programmes. We apply efficiencies at a portfolio level which considers our strategic, asset management and business process review as well as our project level reviews. We discuss the approach to cost drivers and efficient cost level recommendations for each of the capital drivers as far as the Council submission will allow for each specific service.

We have selected a representative sample of capital projects from the 2013 Determination and proposed for period 2020 to 2024 to gain an understanding of the efficiency and prudence of the investment; defined by IPART as:

#### **Efficiency test**

*The 'efficiency test' is used to determine how much of a utility's proposed expenditure (operating and capital) for the upcoming determination period (commencing on 1 July 2019) should be included in the utility's revenue requirement. The efficiency test should examine **whether the utility's actual and proposed expenditure represents the best and most cost-effective way of delivering the regulated services.***

#### **Prudence test**

*The 'prudence test' assesses whether, in the circumstances existing at the time, the decision to invest in an asset is one that the utility, acting prudently, would be expected to make. In assessing prudence, the consultant should assess both **how the decision was made**, and **how the investment was executed** where the asset has been built (i.e., the construction or delivery and*

*operation of the asset), having regard to information available at the time. In examining forecast expenditure, the prudence test examines the consistency of this expenditure with the utility's longer-term capital expenditure program.*

*The prudence and efficiency tests are used to determine how much:*

- actual capital expenditure in the current determination period, and*
- forecast capital expenditure in the upcoming determination period*

*should be rolled into the regulatory asset base (RAB) for the purposes of calculating allowances for a return on and return of capital, to be recovered from regulated prices.*

We also tested how these sample projects were progressed through the capital programme processes and the extent to which they are supported by business cases.

The evaluation of capital expenditure has been undertaken using Council's 2018 Submission and supporting AIR and SIR spreadsheets. In particular for this review we have based our assessment on the "capex by project" worksheets which indicate project by line the overall actual and projected expenditure. We opine on the robustness and confidence of these expenditures taking into account the basis of the estimates and the confidence of the need, timing and scope of the requirements. We also take into account whether additional expenditure proposals have been through the internal approval and challenge processes.

We have interviewed project and programme managers, reviewed supporting reports, business cases, cost estimates and other documents to assess the current position on the development and progress on a sample of projects. Each project has a summary of our findings presented in Appendix B. The 19 projects we reviewed represent some 30% of the total capex for the current and future determination period and are representative of each service and area of expenditure. The selection includes asset renewals where we test the links with service level and asset condition.

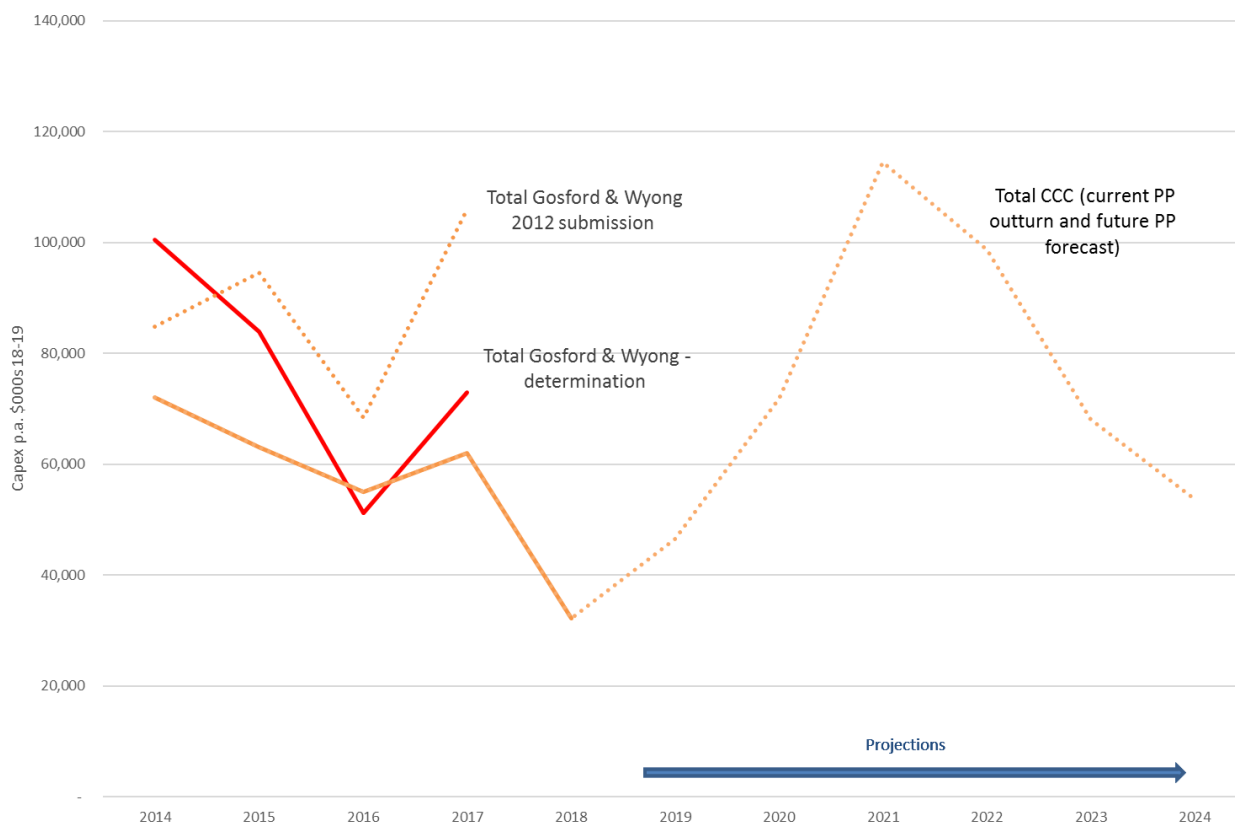
We present our analysis of the future expenditure proposals and comment on the potential for efficiencies through the robustness of estimates, the need and timing of expenditure and the impact of internal challenge and budget control.

Our views on future capital expenditure efficiencies are based on the hypothesis of a Frontier Company, the continuing efficiencies that a Frontier Company makes through innovation and technological development and the catch-up efficiency required of Council to achieve the performance of a Frontier Company over time. Our efficiency assessment methodology is set out in Section 1.4.

## 4.2 Overview

During the current determination period, the former LGAs councils' actual capex has been significantly lower than assumed in the 2012 submission and 2013 determination by IPART. As we discussed in Section 2.5.2, Council have shown relatively stable performance in their service level output measures overall. This indicates that expenditure has been appropriate to maintain this level of service.

**Figure 4-1 Significant capex outperformance relative to 2012 submission and 2013 Determination (18/19 prices)**

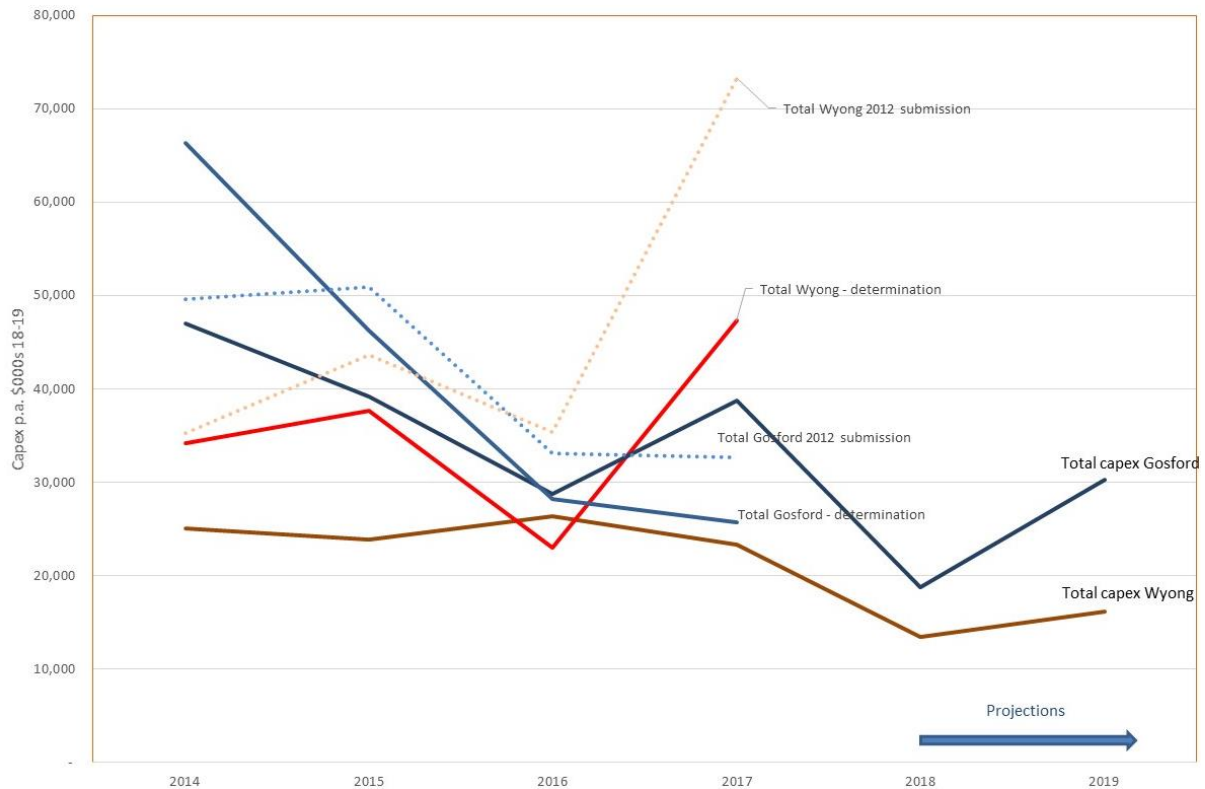


Note: capex has not been adjusted for months in 16/17 and 17/18 reported years

Sources: 'Capex by Project Wyong', 'Capex by Project Gosford', 'Capex by Project CCC'

Both former councils have outperformed the capital expenditure allowance in the current determination period. The 2013 determination was for the period to June 2017. The period was extended by IPART to June 2019 on request from the Council with prices maintained in nominal terms; as such there was no specific capex determination for the years 2018 and 2019, although it is inferred as constant from the four years prior as prices were maintained.

**Figure 4-2 Current Determination Period = capex outperformance applies to both former LGAs**

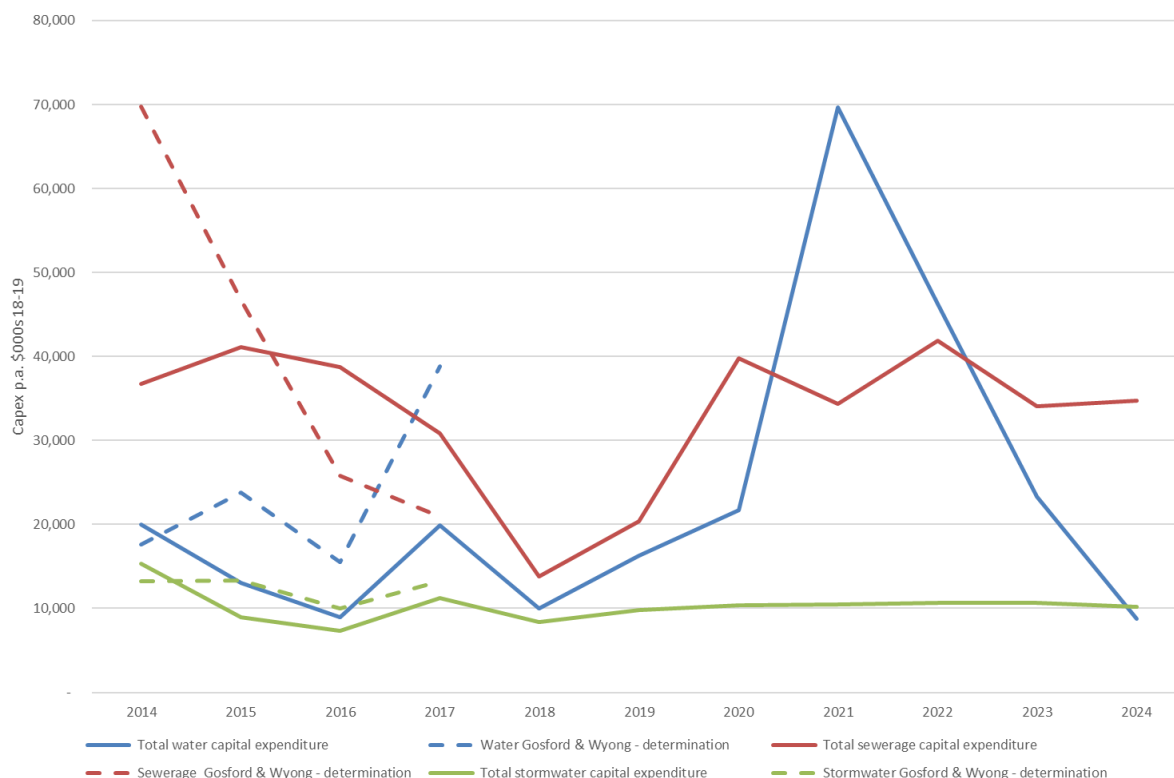


Sources: Capex by Project Wyong, Capex by Project Gosford, Capex by Project CCC

For each service of water, sewerage and stormwater the outturn capex in the current determination period is lower than was allowed for in the determinations overall for the former LGAs councils as shown in Figure 4-3 below.



**Figure 4-3 Capex performance by service Council**



Sources: SIR Capex1\_Wyong, Capex by Project Wyong, SIR Capex1\_Gosford, Capex by Project Gosford, Capex by Project CCC

Table 4-1 and Table 4-2 below provide an overview of the expenditure by service including any expenditure variance against the previous determination for both the former LGAs councils for the four year determination period (2014-2017).

The 2013 IPART determination was for up to 2017, as such we cannot comment on any variance between outturn and the determination for years 2018 or 2019.

Gosford outperformed the determination by 7.7% overall including up to 2017. There was no material variance between the determination and outturn for the water and stormwater service, however sewerage service under-spent by 11 % relative to the determination allowance.

**Table 4-1 Current Determination Period Capex Variance Analysis by Service (Gosford)**

Year ending June: (\$k 18-19)	2014	2015	2016	2017	2018	2019 (budget)	Total (2014-2017)	Total (2014- 2019)
<b>WATER CAPITAL EXPENDITURE</b>								
Actuals	10,528	6,805	5,442	15,792	6,745	11,160	38,567	56,473
Determination	9,910	13,133	8,450	7,723			39,216	
Variance from Determination	618	-6,328	-3,008	8,068			-649	
<b>SEWERAGE CAPITAL EXPENDITURE</b>								
Actuals	30,298	30,541	21,166	18,286	9,710	13,667	100,290	123,667
Determination	52,653	29,313	16,395	14,484			112,844	
Variance from Determination	-22,355	1,228	4,771	3,802			-12,554	
<b>STORMWATER CAPITAL EXPENDITURE</b>								
Actuals	6,149	1,883	2,132	4,616	2,266	5,460	14,780	22,506
Determination	3,787	3,814	3,406	3,474			14,481	
Variance from Determination	2,362	-1,931	-1,274	1,142			299	
<b>TOTAL REGULATED CAPITAL EXPENDITURE</b>								
Actuals	46,975	39,229	28,740	38,694	18,722	30,287	153,638	202,646
Determination	66,349	46,259	28,251	25,681			166,541	
Variance from Determination	-19,374	-7,030	489	13,012			-12,903	

Wyong outperformed the determination by 31% overall between 2014 and 2017 with significant outperformance across all services.

**Table 4-2 Current Determination Period Capex Variance Analysis by Service (Wyong)**

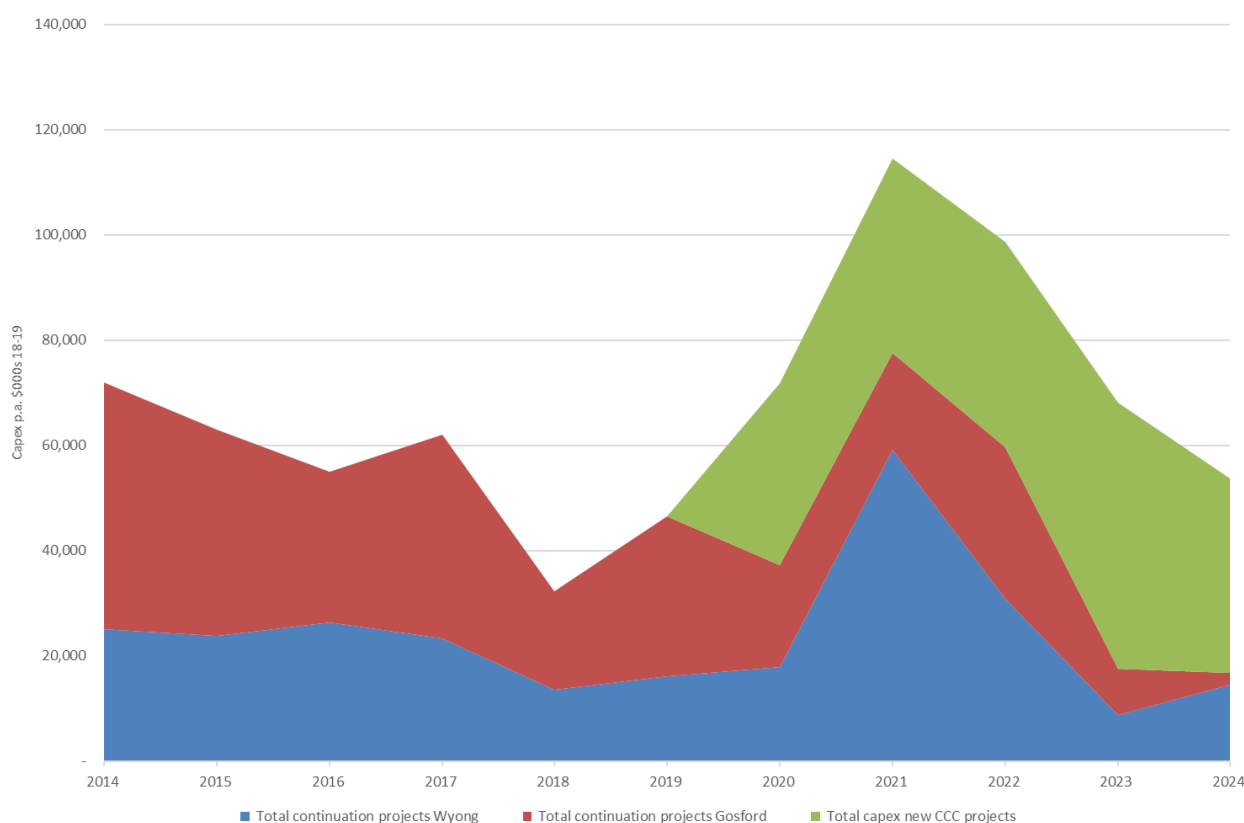
Year ending June: (\$k 18-19)	2014	2015	2016	2017	2018	2019 (budget)	Total (2014-2017)	Total (2014- 2019)
<b>WATER CAPITAL EXPENDITURE</b>								
Actuals	9,501	6,199	3,539	4,143	3,300	5,134	23,382	31,816
Determination	7,656	10,657	7,096	31,114			56,523	
Variance from Determination	1,845	-4,458	-3,556	-26,971			-33,141	
<b>SEWERAGE CAPITAL EXPENDITURE</b>								
Actuals	6,416	10,531	17,595	12,584	4,110	6,682	47,126	57,918
Determination	17,092	17,440	9,370	6,457			50,358	
Variance from Determination	-10,676	-6,909	8,225	6,127			-3,233	
<b>STORMWATER CAPITAL EXPENDITURE</b>								
Actuals	9,140	7,085	5,197	6,622	6,072	4,340	28,044	38,455
Determination	9,436	9,524	6,566	9,726			35,251	
Variance from Determination	-296	-2,439	-1,368	-3,104			-7,207	
<b>TOTAL REGULATED CAPITAL EXPENDITURE</b>								
Actuals	25,056	23,814	26,332	23,349	13,482	16,156	98,551	128,189
Determination	34,183	37,621	23,031	47,297			142,132	
Variance from Determination	-9,127	-13,806	3,301	-23,948			-43,581	

Contains *sensitive* information

There were a significant number of projects in the determination that were not undertaken. Through our discussions with the Council we identified that resourcing was a constraint; this was a key driver for some of the variance in the current determination period. As discussed in Section 3, Council currently has a high number of unfilled staff vacancies. As such we have some concern that the lack of resourcing may impact on the deliverability of some of the most significant projects in the future determination period; especially given the “lumpy” nature of the proposed expenditure.

There is a significant proportion of expenditure identified within the Council SIR submission worksheets as being “continuation projects” from the former LGAs. These represent a number of projects where project development costs have been capitalised within the former LGAs and then rolled forward into the amalgamated Council. These projects are those solely within the former Council supply areas and are specifically identified projects.

**Figure 4-4 Capex by project by supply area**



Sources: Capex by Project\_CCC

Council project drivers identified from 2019 onwards comprise: asset renewals/replacements, asset upgrades, new assets or major projects and programs. In addition, there are former Council's projects “continued from the previous determination”,

For water projects expenditure is for groundwater, headworks, water mains, water meters, water network assets, water pump stations, water reservoirs and water treatment plants.

For sewerage projects this expenditure comprises: sewage treatment plants, sewer LPSS vacuum systems, sewer mains, sewer network assets and sewer pump stations,

Stormwater projects are either renewals or upgrades and are either allocated named projects or “unallocated” where the projects have not yet been identified, we have not been provided a detailed programme for stormwater.

### 4.2.1 Consistency with long term plans

We have not been provided a specific long-term plan for the Council water and sewer business or stormwater assets. There is a community development plan, but this is Council wide and there is limited evidence of how this specific pricing submission fits within longer term plans or strategic goals.

## 4.3 Investment Drivers

For the current determination period, Council submitted incomplete data for the individual project lines within the combined "SIR Capex 2\_CCC" for the current determination period. We noted that Council submitted the former LGAs council's data in inconsistent formats between the 'Capex by Project' and 'SIR Capex2' worksheets. We were therefore not able to reliably compare capex performance by IPART drivers consistently or appropriately between the current and future determination periods in order to clearly track changes over time.

The variance for historical 'SIR Capex 2\_Gosford', were due to historical system changes. The records of the IPART defined cost drivers for each project in Gosford were no longer available with any certainty. At the time of developing the submission to IPART, Council could not establish the drivers for all historical Gosford council capex and have been unable to confidently enter correct information of historical project by driver.

We have therefore taken an alternative approach have grouping expenditure into categories that can be clearly tracked over time so that any variance is not driven by re-categorisation.

We have categorised the expenditure in the submission into the following component parts: renewals and other projects in the water and sewerage services and renewals and other projects (allocated and unallocated) expenditure in the stormwater service. The Council provided us their view of the allocation of expenditure between "renewals" and "other projects" in January 2019 which we have used as our baseline.

**Table 4-3 Summary of capex analysis categories**

Water	Sewerage	Stormwater
Wyong renewals	Wyong renewals	Renewals
Wyong other projects	Wyong other projects	Other projects (allocated and unallocated)
Gosford renewals	Gosford renewals	
Gosford other projects	Gosford other projects	

In addition, we are required to undertake our analysis on both the Gosford and Wyong SIR as well as the Council SIR.

We reviewed a sample of larger programs/projects with significant expenditure in 2013 to 2018 and 2019 to 2024 to understand the scope of programs/projects, the process, the planned and actual delivery, the reasons for variance in forecast and outturn costs and the contribution to outcomes. Our key findings are summarised in the following sections: renewals for each relevant service in Section 4.4; water 'other' expenditure in Section 4.5 in Gosford and Wyong, sewerage 'other' expenditure in Section 4.6 and stormwater expenditure in Section 4.7. We reviewed the projects shown in Table 4-4.

**Table 4-4 Summary of capex projects reviewed**

Title		SIR ID No.	Total Capex 2014-2024
<b>JWS WATER PUMP STATIONS MAJOR(MECH/ELEC)</b>	Gosford SIR	WEM001	6,425
<b>Wyong share of GCC JWS Projects</b>	Wyong	WBE019	8,940
<b>WATER MAIN RENEWALS - PROGRAM BUDGET</b>	Gosford SIR	SEM016	5,795
<b>Annual Water Main Renewal Program</b>	Central Coast	SGP040	9,300
<b>Trunk Water Main Renewal Program</b>	Central Coast	SGP045	8,891
<b>SPS Renewals - unallocated Budget</b>	Gosford SIR	DEM020	14,607
<b>Sewer Gravity Mains</b>	Gosford SIR	DEM022	6,061
<b>EPCM - KSTP DIGETTERS</b>	Gosford SIR	DEM036	10,319
<b>Critical Sewer Main Rehabilitation - Reticulation System</b>	Central Coast	DGP003	7,969
<b>Sewer Pump Station - Mech/Electrical Renewals</b>	Central Coast	DGP006	9,625
<b>Sewer Pump Station Refurbishment Program</b>	Central Coast	DGP008	6,730
<b>Sewer rising main renewal program</b>	Central Coast	DGP010	6,502
<b>Sewer Treatment Plant - Mech/Electrical Renewals</b>	Central Coast	DGP011	6,025
<b>Drain.Levy-Drain Construction</b>	Gosford SIR	OEM052	1,636
<b>15209.Wyong CBD STG 2 North Rd to Hardware Ln</b>	Wyong SIR	OGP050	3,315
<b>Work from WQ Strat (Short Term)</b>	e.g. New chlorination points, software to periodically run WPS	W155	24,082
<b>Mardi to Warnervale Trunk Main</b>	New main to support growth in northern areas and transfers to Hunter	W211	59,895
<b>Wyong South STP</b>	STP upgrade to increase capacity	S215	16,116

Contains *sensitive* information

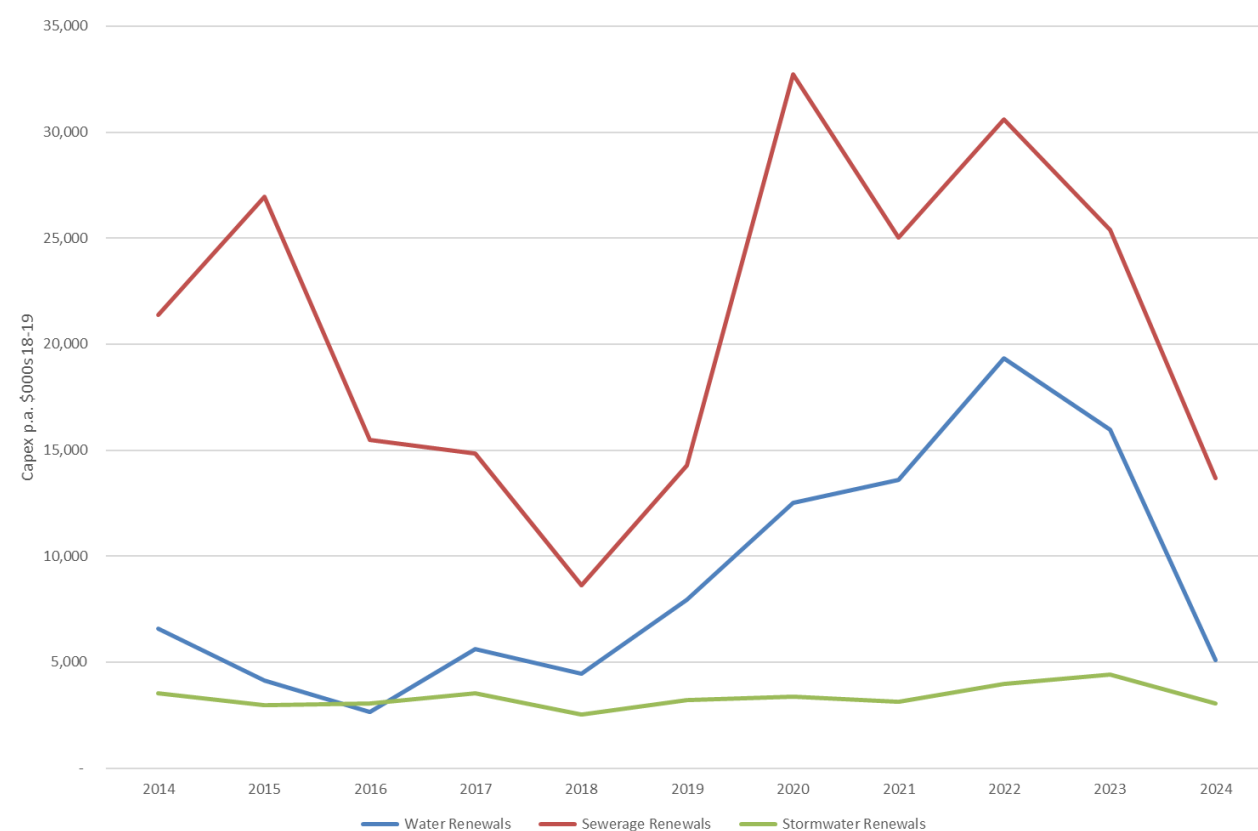
Title		SIR ID No.	Total Capex 2014-2024
<b>Mangrove Creek Dam - Spillway and Dam Upgrades</b>			7,098

Individual scheme summary sheets are included in Appendix B 'Summary Sheets for Capital Projects Reviewed'.

## 4.4 Asset renewal expenditure

For the Water, Sewerage and Stormwater services, Council is proposing to increase asset renewal expenditure significantly from the current determination period in real terms as shown in Figure 4-5 below. We noted that there is a significant decrease in Council's proposed expenditure in 2024, and it was acknowledged throughout the interviews that Council did not realistically forecast this far ahead as such we have little confidence in the proposed 2024 expenditure figures.

**Figure 4-5 Capex renewals performance**



Sources: Capex by Project\_Wyong, Capex by Project\_Gosford, Capex by Project\_CCC

In the current determination period, both the former local governments generally adopted a risk-based approach to identifying and prioritising asset renewals. However, the approach adopted varies across asset classes and between Gosford and Wyong.

Forecast renewal requirements are not based on predicted asset degradation, environmental factors or the impact (benefit) to customers of a change in performance. This is reflective of Council's level of maturity compared to the Frontier Company and its focus on standardising approaches across the two former LGAs. The lack of a robust and evidenced based methodology for forecasting future renewal needs does however mean that robust justification has not been provided for the substantial increase in renewal expenditure in the future determination period.



Council contends that increased expenditure is required to improve service to customers and that this is supported by customer opinion. However, Council has proposed performance standards for the upcoming period discussed in Section 6 which generally reflect current performance. Therefore, the proposed performance in the future determination period does not represent an increase in standard but instead is 'business as usual'.

For the water service, renewals in the former Gosford council area have been comparatively greater than in the former Wyong council area. Council is requesting a significant increase in renewals capex in the future determination period as shown in Figure 4.5 This expenditure has, in general, not been attributed to any specifically identifiable projects in the SIR submission.

We reviewed a number of asset renewal projects to inform our assessment of prudent and efficient capital expenditure. Detailed findings from these reviews are included in Appendix B and a summary of each follows.

#### **Water reticulation main and trunk main renewals (future determination period)**

Council defines a trunk water main as a nominal diameter greater than 200mm. This means that some mains in reticulation are included in the trunk water main program. We therefore considered water mains and trunk mains together with 'SGP046 - Water Main Renewal Program \_ Network Improvement for Water Quality' and the reactive water main renewal program.

While there is not a clear mapping for expenditure on these programs in the current determination period compared to that forecast, analysis suggests that the average annual expenditure for 2014 – 2019 is \$1.8M per year. For the future determination period, expenditure is forecast to increase by more than three times to \$6.0M per year.

For the three performance measures relating to water mains, Council has proposed targets that are lower (less onerous) than the level of performance currently being achieved. Forecasting is also not based on predicted deterioration, environmental factors or the impact on customers.

Council has in place sound, risk-based approaches for prioritisation of water main and trunk main renewal works. While it has employed this approach to forecast works for the former Gosford LGA, for the former Wyong LGA and some items of work, such as reactive water main renewals, the forecasting approach is top-down with little supporting evidence.

Council is proposing to increase the program at the same time that performance measures have improved or are stable. There is no clear customer desire for increased performance from water mains. Council's asset management approaches are maturing. Current forecasting approaches do not indicate, or are not sufficiently robust, to suggest a need for increased expenditure on water main and trunk main renewals. We therefore conclude that while the water main program is prudent, the level of activity and expenditure forecast is inefficient. We therefore propose that expenditure in the future determination period reflects the level of expenditure in the current determination period with an annual average expenditure of \$1.8M per year.

#### **SPS Renewals Unallocated Budget (current determination period)**

This expenditure was identified to refurbish a range of sewer pump stations covering electrical and mechanical, civils, switchboard, health and safety and compliance works. The budget was for the whole programme of works for both major and minor works.

We looked at one example of a specific project within this programme which was WG16 and N2 pumping stations which require an upgrade to ensure their efficient operation.

There was a significant underspend in the overall programme which included a significant variation of \$11.8M between the SIR \$26.4M and the AIR \$14.6M. Council underspent by \$2M in the last period against the determination or the approved budget for this programme.

The significant rescoping and underspend of the original forecast expenditure indicates that the programme was not optimally planned at the outset. Lack of resources was noted as being a significant contribution for the under delivery. We have no reason to suggest that the actual expenditure was not prudent and efficient as such we have not made any adjustments.

### **Sewage treatment plants M&E (future determination period)**

There is a need to renew and replace mechanical and electrical (M&E) assets at sewage treatment plants when they fail or applying a proactive approach based on their assessed risk to service delivery. Historically, the approach to renewal of mechanical and electrical assets at sewage treatment plants varied. In the former Wyong LGA, assets were run to failure. In the former Gosford local government area, a more proactive approach was adopted. Council has commenced a condition assessment program across all of its treatment plants to provide information into asset renewal decisions.

Prior to this condition assessment work being undertaken, Council has compiled a spreadsheet with known sewage treatment plant M&E renewal needs. There is a total of 22 items included in the program. A risk score has been assigned to each item in the works program. Each item in the program has an assigned condition and a cost estimate. The total estimate of works in the program spreadsheet is \$7.0M. Council advised that as the proposed expenditure within the pricing submission is \$6.0 million (both figures over four years) it will prioritise expenditure within the upcoming price period within this expenditure envelope.

The cost estimates for switchboard work includes a 50% contingency which appears high given that Council has recent experience in completing this type of work. We conclude that it is prudent to undertake these renewal works. However, the level of expenditure forecast appears inefficient. As this project falls within the overall renewals category, we have proposed to maintain the historic average level of expenditure for renewals overall. The council will be able to prioritise the expenditure for this particular project line within this accordingly.

### **Sewer main renewals**

Council proposes a small increase in sewer main expenditure for the future determination period. As for water mains, Council has in place sound, risk-based approaches for prioritisation of sewer main renewal works. The development of the future program has relied on extrapolation from current levels of activity. There is no proposed change to performance standards and there is no clear customer desire for increased performance from sewer mains. As for water mains, Council's asset management approaches are maturing. Current forecasting approaches do not indicate, or are not sufficiently robust, to suggest a need for increased expenditure on sewer main renewals. We therefore conclude that while the sewer main program is prudent, the level of expenditure forecast is inefficient. We have therefore re-profiled renewals expenditure based on the average annual amount in the current determination period for 'renewals' projects overall.

### **Business as usual headworks and reservoirs**

The headworks and reservoir 'business as usual' expenditure includes a mix of individual projects that have been separately scoped and programs of works that have been estimated based on historical costs and levels of activity. The driver for works is asset renewal although for one large item, the Upper Mooney Dam Water Station Capacity Upgrade, there will be water security benefits. We reviewed this project in detail and consider that the project is justified and that sounds planning has been undertaken for the level of project development. A risk-based approach has been taken to prioritise needs for reservoirs but currently this only extends to the Gosford reservoirs. Council intends to extend the risk-based approach to all reservoirs, and to be consistent with the new criticality framework in the upcoming determination period. We consider that expenditure across all renewal drivers in the future determination period should be moderated while Council moves towards a more mature approach in this area.

Consistent with our findings in Section 2 on Council's asset management approach, we do not consider that the approach implied by the whole of Council asset management plan to maintain assets at a condition grade 3 is efficient. Discussions with Council staff also suggested that the renewals programs have not been developed to meet this criterion. As set out in Section 2.5.3, approaches to forecasting asset renewals vary in complexity, the depth of analysis and data requirements. Broadly, the hierarchy of possible approaches to estimating renewal requirements in order of increasing maturity are:

- (i) Age based (expected useful life);
- (ii) Condition and risk based – expected useful life adjusted for observed condition; and
- (iii) Performance based – considering the impact of asset performance on customer service.

The backlog metric, while incorporating condition information is not a condition and risk-based approach. This is because the backlog approach implies an asset renewal intervention criterion of the condition grade being 3. This is not the intervention trigger adopted by Council – many assets are run to failure or when observed condition is 4 or 5. Also, the International Infrastructure Management Manual does not recognise the backlog method as an approach for forecasting renewal requirements.

When we consider the performance-based approach, there is no convincing evidence from the performance measures that assets are deteriorating.

Expenditure over the current determination period has been relatively stable throughout all asset classes with no apparent decline in service performance or unacceptable decline in asset condition. We have not made specific project line adjustments for the above 'renewals' projects, rather we have identified all renewals projects in the current and future determination periods and maintained the same average level of expenditure across each.

Furthermore, the projects and programs reviewed above generally do not demonstrate that the relationship between expenditure and performance is understood well or accounted for. Performance targets proposed for the future determination period are in line with current performance. Given that Council's approach to forecasting and prioritising renewals is maturing, and that there is no driver to increase expenditure to address performance concerns, we recommend that asset renewal expenditure in the future determination period be maintained at levels consistent with the current determination period. Our recommended adjustments to Council's proposed overall 'renewals' expenditure is shown in Table 4-5 and outlined graphically in Figure 4-6.

**Table 4-5 Capex renewals adjustments (pre-efficiency) and post Council review of renewals allocation**

CCC PROPOSAL - CAPEX - RENEWALS							
(\$M 2018/19) year ending June	2020	2021	2022	2023	2024	2020-23 Total	2020-24 Total
Water Renewals	12.5	13.6	19.3	16.0	5.1	61.4	66.5
Sewerage Renewals	32.7	25.0	30.6	25.4	13.7	113.8	127.4
Stromwater Renewals	3.4	3.2	4.0	4.4	3.1	14.9	18.0
<b>Atkins/Cardno Adjustments</b>							
Water Renewals	-7.0	-8.1	-13.8	-10.5	0.4	-39.4	-39.0
Sewerage Renewals	-14.5	-6.8	-12.4	-7.1	4.6	-40.7	-36.2
Stromwater Renewals	-0.2	0.0	-0.8	-1.3	0.0	-2.4	-2.4
<b>Atkins/Cardno Recommended Expenditure</b>							
Water Renewals	5.5	5.5	5.5	5.5	5.5	22.0	27.5
% adjustment water renewals	-56%	-60%	-72%	-66%	8%	-64%	-59%
Sewerage Renewals	18.3	18.3	18.3	18.3	18.3	73.0	91.3
% adjustment sewerage renewals	-44%	-27%	-40%	-28%	33%	-36%	-28%
Stromwater Renewals	3.1	3.1	3.1	3.1	3.1	12.5	15.6
% adjustment stormwater renewals	-7%	-1%	-21%	-29%	2%	-16%	-13%

**Figure 4-6 Capex renewals performance and Atkins recommended adjustments**



Sources: 'Capex by Project Wyong', 'Capex by Project Gosford', 'Capex by Project CCC', Atkins analysis

Council advised that it intends to move to a consistent approach to determining and prioritising asset renewals across its asset classes in coming years. This will be underpinned by a criticality framework across all asset classes. This is an appropriate next step for Council to mature its approach. Greater insight into the customer perception and experience of service delivery would also be beneficial.

### Stormwater renewals

We have reviewed the stormwater renewals expenditure in the current determination period which averages \$231k in the current determination period. In the SIR submission Council propose to spend an average of \$2.1M per year. in the future determination period, equating to a near ten-fold increase in spending. Council has not provided any evidence for linking proposed service levels or outputs to expenditure. Further to this the stormwater assets are a relatively young asset base. We have therefore levelled stormwater renewals expenditure for the future determination period applying the average expenditure in the current determination period. All renewals for stormwater in the current determination period have taken place within the former Wyong region however the majority of renewals in the future determination period are proposed to be in the former Gosford region. We have proposed adjustments to the renewals in both former LGAs in the future determination period.

## 4.5 Water other expenditure

Water capital expenditure in the current and future determination period is driven by three major projects funded by both Gosford and Wyong councils.

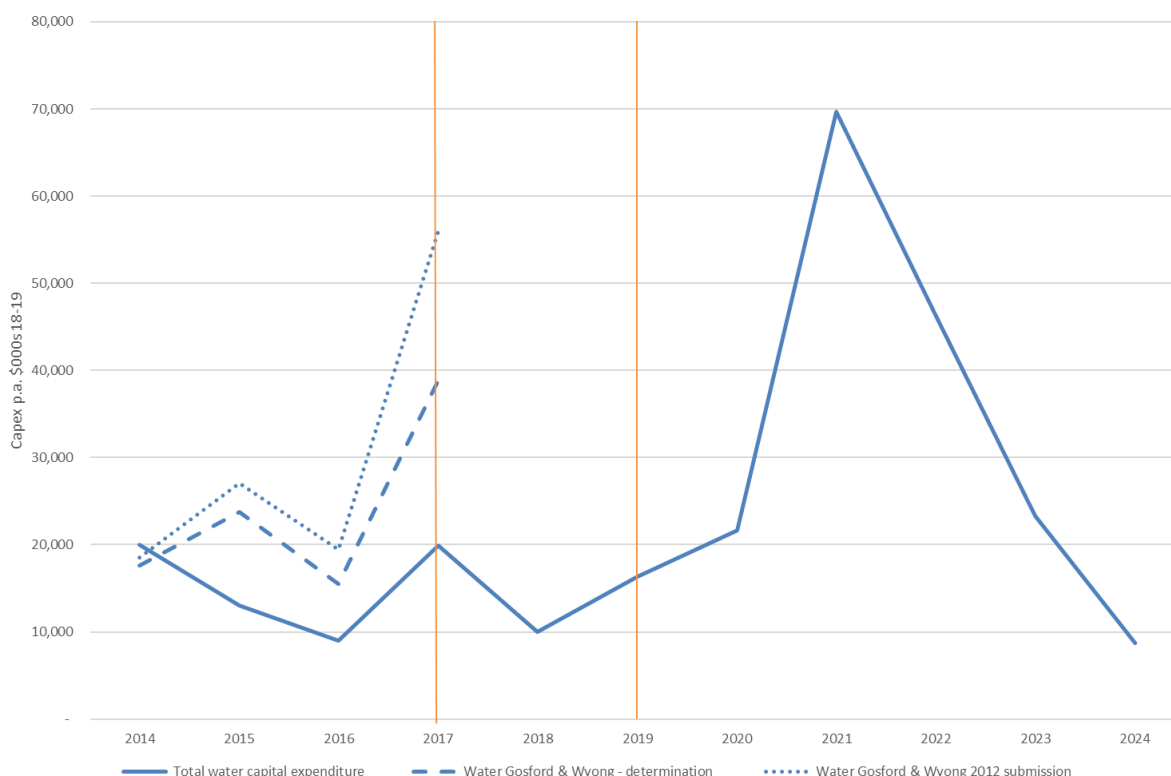
- (i) The Mardi to Warnervale Trunk Main (M2WTM);
- (ii) The Mangrove Creek Dam Spillway upgrade; and
- (iii) The Water Quality programme.

The M2WTM was included in the current determination period at the last pricing determination although this was deferred for reasons set out in Section 4.5.2 below. The Mangrove Creek Dam Spillway upgrade, was also deferred in the current period, however with the need for additional yield required from this source, the Council has proposed to progress this project; this is discussed in Section 4.5.4 below. The Water Quality programme of works has been scoped in the current determination period with options considered to meet the desired outcomes with design detail to be defined.

The impact of deferring these projects from the current to future determination period results in a significant increase in average annual capex of 187% in the future determination period compared to the average spend in the current determination period across the Council. The capex trends are shown in Figure 4-7.

As an example, the current determination assumed \$26.8M in nominal prices for the development of the Mardi to Warnervale Trunk Main. However only \$2.59M of this has been spent in the current determination period.

**Figure 4-7 Total water capex by project in current and future determination periods**

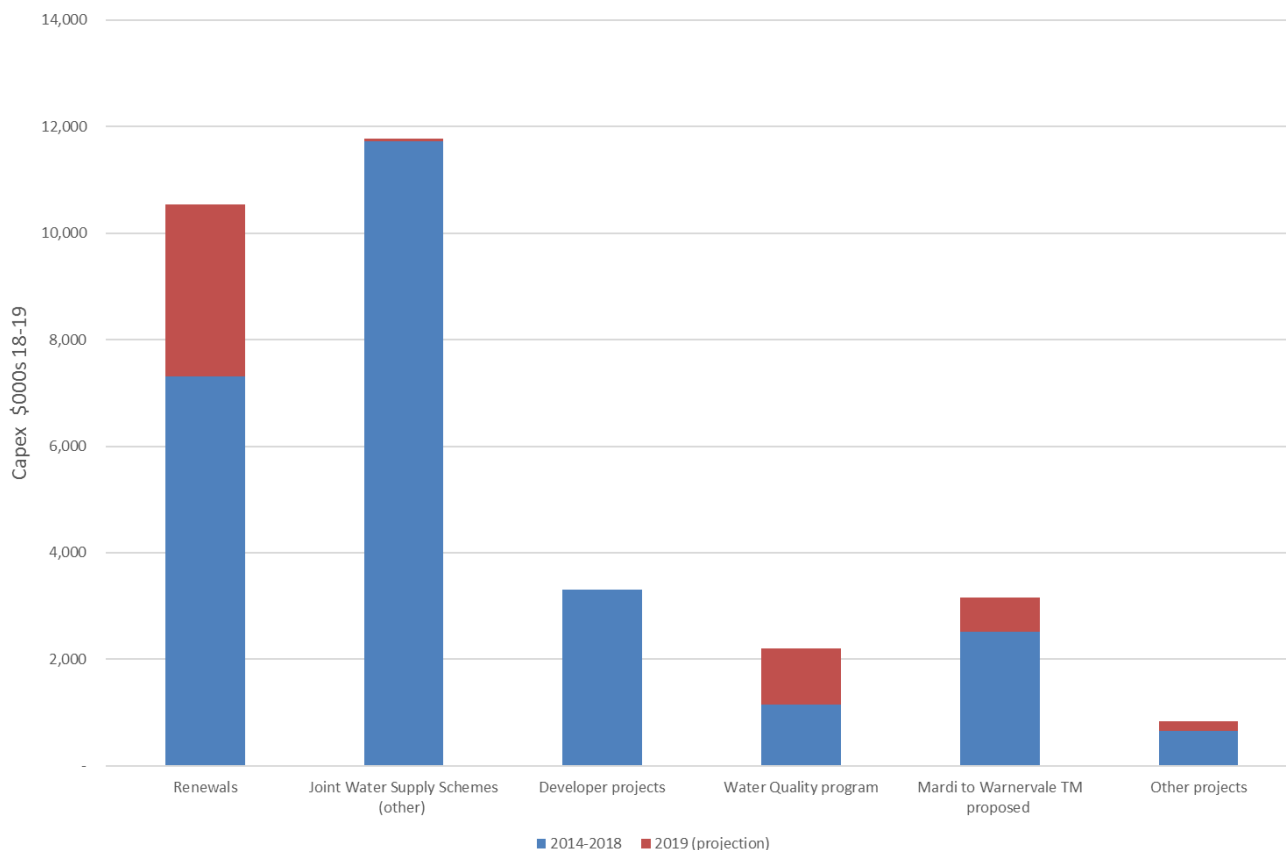


Sources: 'Capex by Project Wyong', 'Capex by Project Gosford', 'Capex by Project CCC',

### 4.5.1 Wyong

Capital expenditure in the current determination period has been dominated by joint water supply projects water mains and developer projects.

**Figure 4-8 Water capex by project – Wyong – current determination period (2014-2019)**



Sources: 'Capex by Project Wyong'

## 4.5.2 Water major projects: Wyong

### 4.5.2.1 Current Determination Period

#### Wyong share of GCC JWS Projects

Wyong share of GCC JWS Projects was the most significant expenditure for Wyong in the current determination period for those projects that were undertaken within the former Gosford Council region. This line item in the SIR is made up of a number of projects that were funded through the "Joint Scheme Funding Agreement" between the Wyong Shire and Gosford City Councils prior to Council. This agreement stipulated that each Council fund 50% of the total cost of construction of approved capital works of the Joint Schemes although we noted from the historical allocation that this was not always consistently applied.

### 4.5.2.2 Future Determination Period

#### Mardi to Warnervale Trunk Main (M2WTM) (W211)

The Mardi to Warnervale Pipeline (M2WP) is a proposed pipeline which will run from the existing Mardi Water Treatment Plant to Sparks Road at Warnervale. Based on design progress to date the M2WP comprises the following key components.

- 9km DN750mm pipeline from Mardi Water Treatment Plant (MWTP) to Sparks Road including two major Horizontal Directionally Drilled (HDD) crossings and a horizontal thrust bore under the M1 Pacific Motorway;
- A short length of DN375mm pipeline along Nikko Road to an existing connection point adjacent to the Nikko Road booster pump station;
- A new valve house at the Northern end of the M2WP where the main trifurcates, including the installation of valving and flow metering assets.



The M2WP project was identified as an integral piece of water supply infrastructure for the northern region of CCC's area of service (Department of Commerce, 2008). The M2WP was identified as achieving two key objectives which are to:

- (i) Service growth in Council's northern areas which include the major growth hub at Warnervale Town Centre and numerous greenfield sub-division sites within the Kanwal reservoir supply area. The pipeline is required to be fully operational prior to 2026 to meet this growth objective with reservoir storage and peak day pressure management while also allowing decommissioning of a temporary booster pump station servicing the Warnervale Town Centre;
- (ii) Meet commitments under the "Hunter - Central Coast Pipeline Agreement, 2006" to allow increased northbound bulk water transfers between the Central Coast and Hunter up to 30ML/day.

Secondary objectives achieved following the construction of the pipeline include:

- Local job creation and contribution to building a stronger regional community.
- Allow the Nikko Road Booster Pump station to be taken offline.
- Establishment of the Kiar Ridge Reservoir ahead of the construction of the future reservoir.
- Provide redundancy to the existing two trunk mains which supply Kanwal Reservoir from Tuggerah 2 Reservoir.

The Council allocated \$26.8M (in nominal prices) within the current determination for the development of the Mardi to Warnervale Trunk Main, however only \$1.6M of this was spent in the current determination period. Earlier concept designs undertaken in 2005 had selected the route due to a common alignment with the future 'Link Road' which is a proposed major arterial road between the Pacific Highway at Watanobbi and Sparks Road, Warnervale. In 2014 an executive decision was made which confirmed the co-location of the pipeline with the proposed 'Link Road'. Detail design and preparation of a Review of Environmental Factors (REF) then proceeded on that basis. Since then the timing of the construction of the link road has diverged and a full reappraisal of the route alignment options was undertaken.

In April 2016 consultants were engaged to undertake detailed environmental investigations in the form of a REF and developing the detailed design for Option 1 - Watanobbi alignment. Subsequent to this report and detailed bottom-up cost estimating, the Council are now forecasting the entire project to cost \$61.1M including the costs already spent, equating to \$57.4M between 2019 and 2024. The project capital cost estimate is \$49.3M, excluding Council's internal costs, with construction contract works are estimated to take approximately 16 months.

We consider the expenditure to be prudent in terms of its needs; however, we have a concern over the timing of the project for two reasons:

- (i) the capacity of the Council to be able to recruit the significant number of skilled staff in order to be able deliver this project within Council proposed timing and expenditure profile;
- (ii) Due to the passage of time between the preparation of the REF and the commencement of construction, the project team are seeking a revision of the current REF to ensure all legislation, searches, studies and investigations remain current and accurate. This will be completed prior to seeking requests for tenders. There is uncertainty around how long this will take to complete and any specific findings to be taken into account.

Overall, we have little confidence that the lumpy capex profile in the submission can be achieved, especially in parallel with the other significant capital projects proposed. We recommend re-profiling expenditure over the period 2020 to 2024 as shown in Table 4-6 below to smooth the expenditure and allow resources to be deployed across the whole determination period. This recommended reprofiling does not preclude the Council from bringing forward the expenditure earlier in the period. If the two concerns identified above are addressed the Council would still be able to engage construction contractors earlier and the project capex profile condensed further within the determination period.

**Table 4-6 M2WTM - Re-phasing capex in future determination period**

Year ending June: (\$k 18-19)	2019 (current PP)	2020	2021	2022	2023	2024
Mardi to Warnervale TM proposed	640	4,031	39,061	13,748	0	0
Atkins recommended adjustments	0	0	-25,859	-546	13,202	13,202
Mardi to Warnervale TM - Atkins recommended expenditure	640	4,031	13,202	13,202	13,202	13,202

The Council over-recovered revenue for this project in the current period as it was not progressed. The 'SIR Capex 2\_Wyong' worksheet includes this project as "continuing from prior determination" under "funded through developer charges". In parallel to this submission the Council has submitted an application for funding of the M2WTM project from the Regional Growth Fund, with the application outcome pending. The funding application for this project is outside the scope of our review.

### Water Quality Programme

The first phase of the project addressed the first three elements of the framework for management of drinking water quality, which is essentially a 'catchment to tap' risk assessment that will identify issues to be solved in order to provide sufficient quality drinking water for residents in Wyong and other stakeholders including Gosford Council, Hunter Water and NSW Health. The second phase identified the solutions both at Mardi Water Treatment Plant and within the distribution network, and a staged approach to implement those solutions. These solutions are based around key identified issues including dissolved organic carbon in source water, water age and chlorine decay in the distribution system, high turbidity during high demand periods and reservoir configurations.

The greater part of the forecast \$24.57M expenditure in Water Quality Programme is identified from the sub-project "20799 - Mardi Water Treatment Plant Stage 3 Upgrade". This proposed upgrade to the Mardi Water Treatment Plant (MWTP) will secure 160ML/d of drinking water production capacity in accordance with the Australian Drinking Water Guidelines. Although Mardi WTP is nominally rated at 160 ML/d treatment capacity, the production capacity of the plant is de-rated in response to elevated turbidity in the raw water from Mardi Dam following periods of heavy rain. The increased natural organic matter in the raw water during these events also results in difficulties in maintaining disinfection residuals in the distribution network without exceeding trihalomethane (THM) formation limits. The Stage 3 upgrades to the Mardi WTP plan to secure 160 ML/d of treated water production capacity under higher raw water turbidity conditions and provide effective dissolved organic carbon (DOC) removal under all conditions.

Preliminary work has been undertaken in the current determination period with an options appraisal undertaken in 2014 with a concept design report published in April 2017. The concept report states that the estimated project capital cost of the overall Mardi WTP Stage 3 upgrade is estimated at about \$20.3 M (P90, including contingency) while the whole of life cost is estimated at about \$41.9 M (30-year NPV @ 5%) at this level of design.

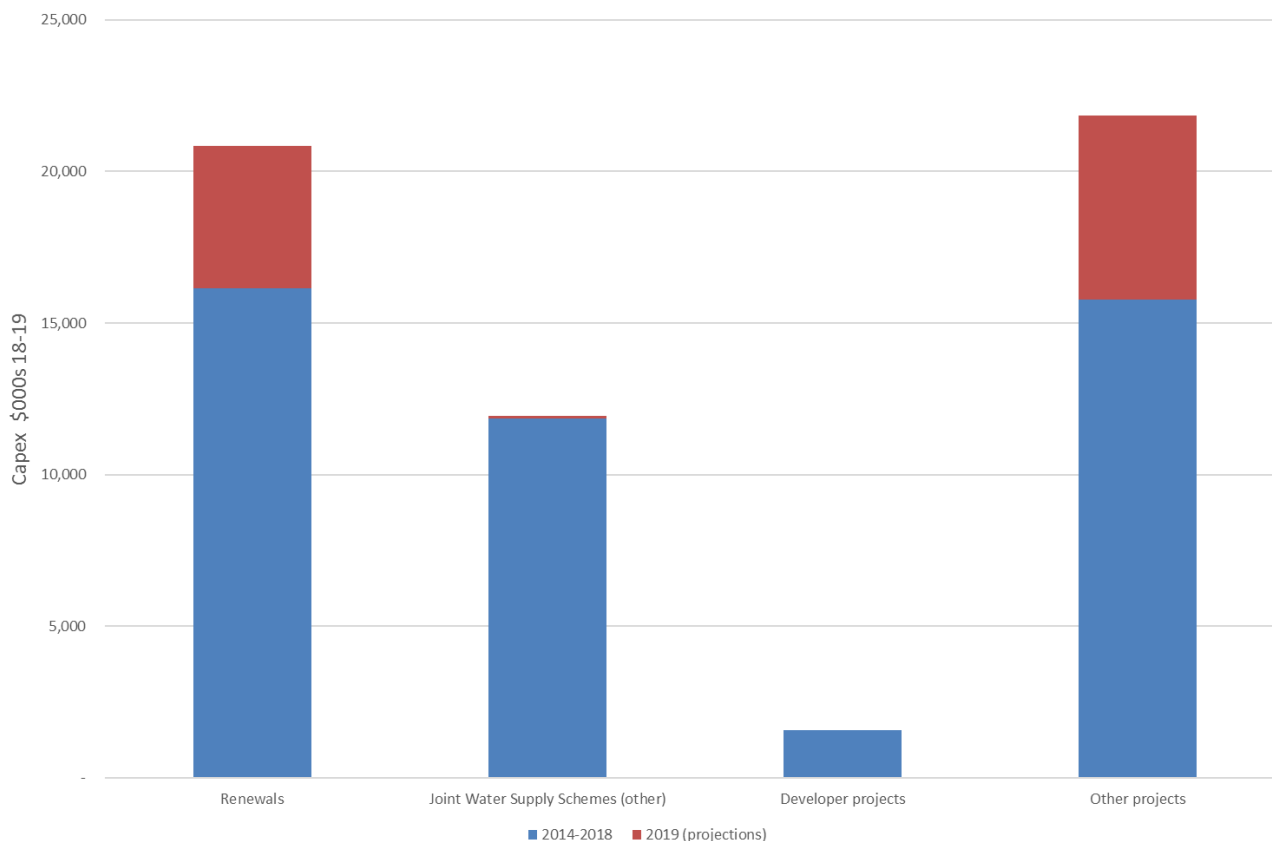
The project appears to be prudent and necessary to maintain water quality and quantity to appropriate levels at the Mardi Treatment Plant. We do have some concerns about the efficiency of the scheme expenditure based on the evidence provided throughout our review. We noted from the Project Estimate sheet that "project management" was included twice in the overall "Estimated total project cost". The Council identified this as "extra over expenditure applied as part of the business case preparation" that was not included in the consultant's original bottom up assessment. We have not made a specific adjustment within this project however we have applied an overall efficiency challenge to cost estimating and contingency.

It appears that cost contingency has been applied both through the concept design phase and then a further 30% contingency applied at a higher Council project management level over and above the consultants cost estimating contingency. We have not made any specific adjustments to this project as a result of high contingencies, but this is a typical example of SIR costs being overstated. This supports our view to apply a catch-up efficiency for cost estimating for all proposed capital expenditure at a portfolio level.

### 4.5.3 Gosford

Capital expenditure in the current determination period has largely been comprised of renewals, Joint Water supply scheme projects (including dams and WTP works) as well as a range of other minor capital works.

**Figure 4-9 Water capex by project – Gosford – current determination period (2014-2019)**



Sources: 'Capex by Project Gosford'. \$000s 18/19

### 4.5.4 Water major projects: Gosford

Significant growth is expected in the Central Coast region, whose population is projected to increase from 339.5k in 2016 to 415k in 2036. This is reflected in increasing levels of capital expenditure on servicing growth through upgrades, enhancements and new assets.

#### 4.5.4.1 Future Determination Period

##### Mangrove Creek dam spillway upgrades

Mangrove Creek Dam is the largest of the region's three dams and acts as a main back-up to the water supply. Water is released from the dam when stream flows are low in Mooney Mooney Creek, Ourimbah Creek and Wyong River. Water is drawn from the dam via the intake tower and then released via valves at the outlet works, this water then flows 20 km downstream to Mangrove Creek Weir and pumped to Mooney Mooney. From here the water is further pumped to Somersby balance tanks and then transferred from the balance tanks to Somersby Water Treatment Plant. Treated water is transmitted by gravity or pumping to the distribution networks in the Council supply area.

Mangrove Creek dam is primarily a storage dam with water being pumped up from the Mardi Dam which is fed through the catchment. There is a high degree of Council control over the Mangrove dam levels. The Mangrove Creek dam is managed at 80% of full storage capacity in order to address the Probable Maximum Flood (PMF) risk for the dam, which was classified by the NSW Dams Safety Committee as having a 'HIGH A' Flood Consequence Category.

The project was deferred in the current price period. It was acknowledged that Dam Safety standards could be maintained whilst operating the Dam at 80% of its design capacity. At the time there was a reduced need to increase the capacity of the Mangrove Creek Dam due to the ongoing plans for Hunter Water to build a dam at Tillegra which would have provided increased storage capacity and resilience between the Central Coast and Hunter. Since then the Tillegra Dam was not progressed. As such there is now a renewed need for the Mangrove Creek Spillway upgrade project to be implemented.

In support of the development on the Lower Hunter Water Plan (LHWP), Mangrove Creek Spillway Upgrades were identified formally within the 2013 'Lower Hunter Water Plan Surface Water Options – Mangrove Creek Dam Enlargement' report. This document outlines the original need for the project, optioneering and feasibility assessment. While we recognise that the need for the dam storage upgrade has changed since the last determination period, Council has not provided us with any business case in order to appropriately opine on the efficiency of the scheme. As a business case is not available it was unclear to us how ready Council would be to implement the project within the current timeframe. Because of this, we are proposing to defer the significant expenditure for this particular project by 1-2 years and smooth the expenditure profile in order to allow Council to efficiently allocate resource across the whole determination period.

Furthermore, for the capex programme overall, we have little confidence in the 2024 figures overall and for this particular project Council did not propose any expenditure in 2024, as such we recommend including expenditure for years 2023 and 2024. We have proposed to adjust the profile of the expenditure shown in Table 4-7 below. This recommended reprofiling does not preclude the Council from bringing forward the expenditure earlier in the period. If business case is suitably progressed the Council would still be able to engage construction contractors earlier and the project capex profile condensed further within the determination period.

**Table 4-7 Mangrove creek dam spillway upgrade- Re-phasing capex in future determination period**

Year ending June: (\$k 18-19)	2019	2020	2021	2022	2023	2024
Mangrove Creek Spillway Upgrade Proposed by Council	100	520	919	3,750	1,890	0
Atkins Recommended adjustment	0	0	0	-1,180	680	500
Mangrove Creek Spillway Upgrade Atkins Recommended	100	520	919	2,570	2,570	500

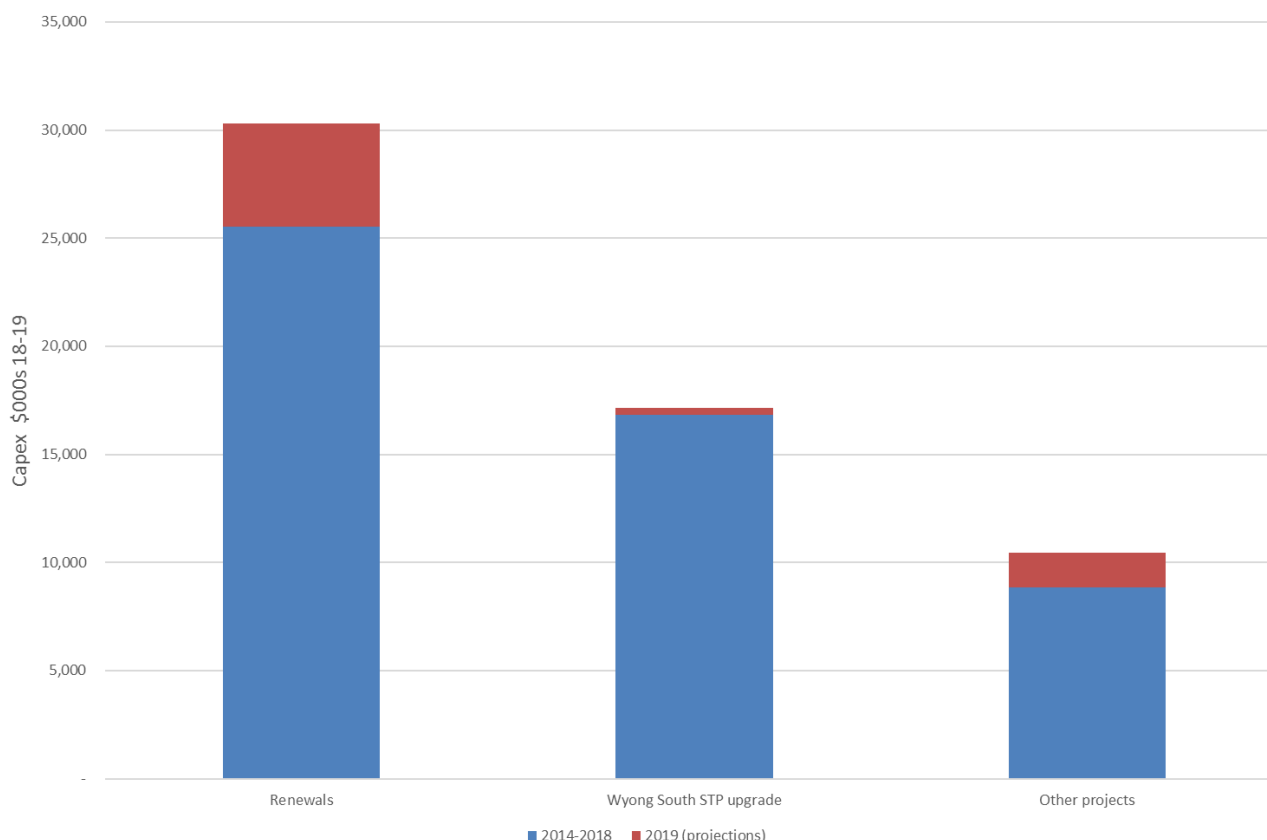
## 4.6 Sewerage other expenditure

Sewerage projects other than renewals are predominantly driven by upgrades to STPs. In the current determination period significant expenditure has been on upgrading capacity at Wyong South STP and Kincumber STP. In the future determination period Council propose similar upgrade projects on Charmhaven STP and Bateau Bay STP.

### 4.6.1 Wyong

The former Wyong Council's most significant expenditure in the current determination period was on renewals, the largest individual project by expenditure was the Wyong STP upgrade which contributed around 33% of total sewerage expenditure in the current determination period.

**Figure 4-10 Sewerage capex by project – Wyong – current determination period (2014-2019)**



Sources: 'Capex by Project Wyong'

#### 4.6.1.1 Current Determination Period

##### Wyong South STP upgrade

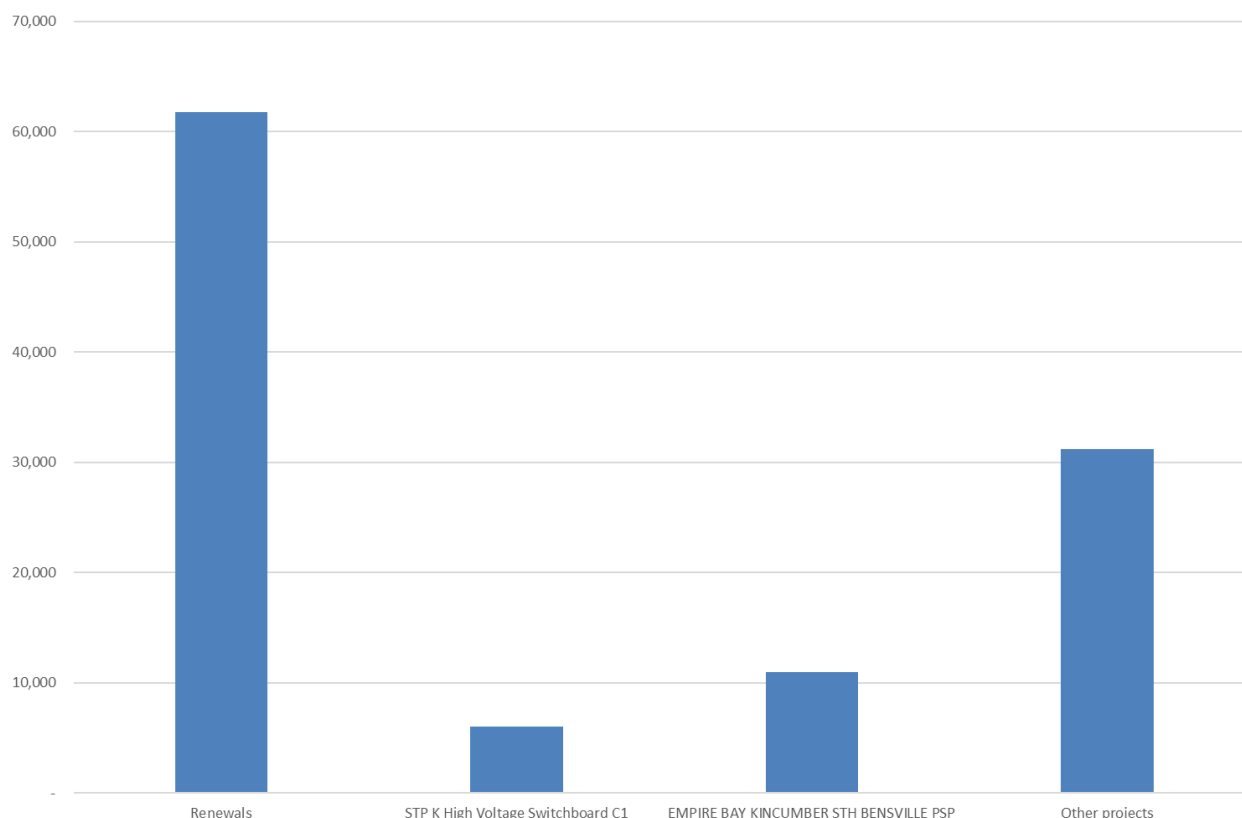
The primary driver for this project was to increase the rated capacity of the STP plant from 48,000 EP to 60,000 EP to support growth within the catchment and provide operational flexibility for the management of loads from major trade waste customers within the catchment. The final outturn cost was greater than that allowed for in 2013 determination as the cost estimate which supported the pricing submission was prepared at preliminary design stage. The business case for the total project cost of \$15.2M was approved in 2013 following the completion of detailed design.

The Wyong South STP upgrade is similar in size and scope to the Charmhaven STP upgrades project in the current Council proposal and can be used as a proxy for determining the efficient level of expenditure going forward. We consider both projects to be prudent and efficient and as such have not applied any adjustments. The Charmhaven STP upgrades project is at a more developed stage than the Wyong STP was at the time of the last submission and there have been lessons learned in how to deliver this type of project.

#### 4.6.2 Gosford

Comparatively to Wyong the former Gosford Council expenditure was similar on renewals with significant expenditure on upgrading the Kincumber and Woy Woy STPs as well as a significant pollution reduction scheme. Our review included a visit to Kincumber STP where we noted the newly installed switchgear, digesters and odour control projects on site.

**Figure 4-11 Sewerage capex by project – Gosford – current determination period (2014-2018) (\$'000's)**



Sources: Capex by Project\_Gosford

#### 4.6.2.1 Current Determination Period

##### 'EPCM - KSTP DIGESTERS

This project was part of the Gosford City Council Engineering Project Construction Management (EPCM) for the Coastal Carrier and Kincumber & Woy Woy Sewage Treatment Works (STP's). The main drivers for the upgrade works was the Environmental Protection Authority (EPA) - Pollution Reduction Program (PRP) - under Council's licence condition specifically U1 PRP 3. Due to ongoing operational problems with the anaerobic digesters at Kincumber STP there was a direction to empty, clean out and overhaul the digesters and associated pipe work. Three separate contracts were procured to undertake:

1. miscellaneous works (minor replacements);
2. cleaning and inspection for digester 1; and
3. cleaning and inspection for digester 2 and refurbishment and repair for digester 2.

The overall costs for this project outturned at \$10.7M compared with a forecast of \$10.3M in the 2012 submission. \$5.4M was spent in the 2009 determination period with the remaining \$4.9M in the current determination period. We consider the expenditure to be prudent and efficient and have made no adjustments.

## 4.7 Stormwater other expenditure

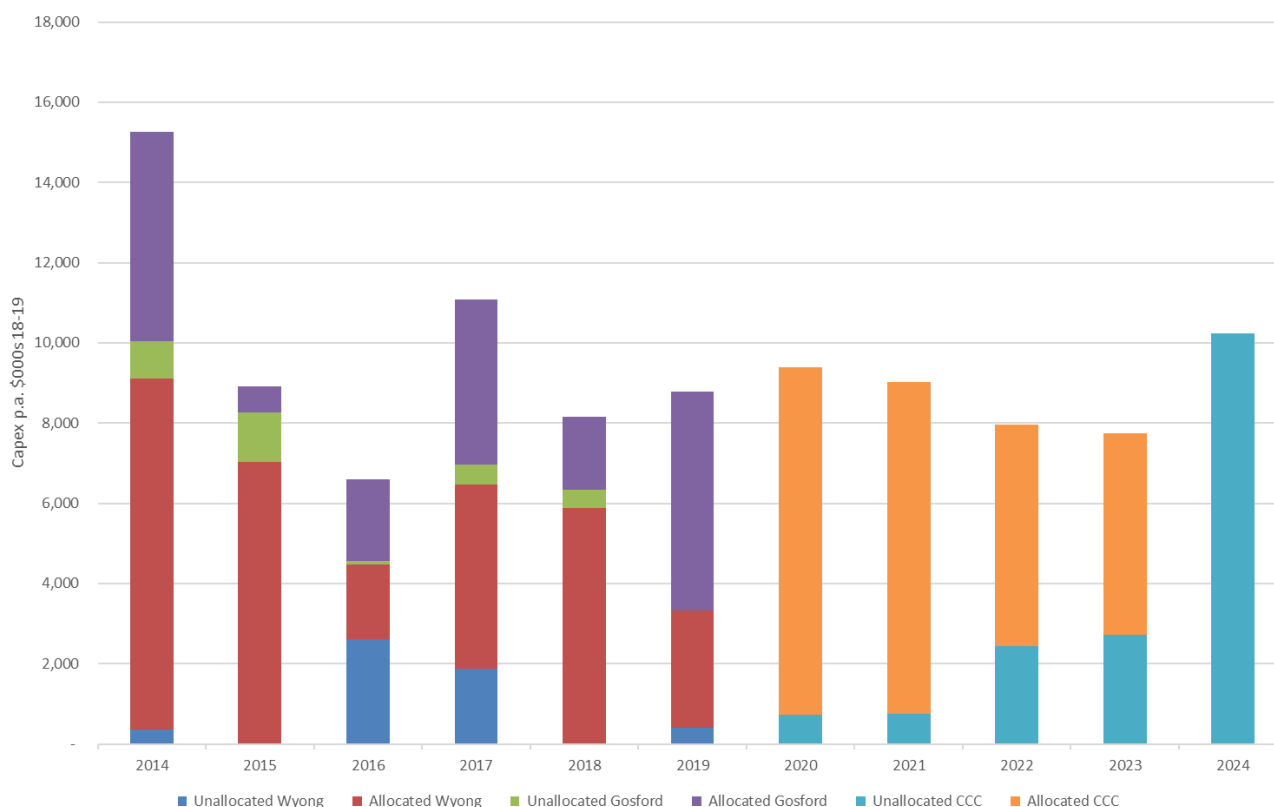
The most significant expenditure within the current determination period has been on an upgrades programme. We have not been provided any details of the wider programme of works to be able to make an assessment on the prudence or efficiency of the expenditure in the current determination period. Within each of the former Councils there were a significant number of projects which were "unallocated" at the time of our review. As we have not seen this data, we are not able to confirm that the expenditure is prudent.



The Stormwater service appears to be treated as separate entities with no combined Council wide approach to managing the programme at a Council wide level. Both the former Gosford (Council South region) and former Wyong (Council North region) appear to operate disparate teams with different ways of working. There does not appear to be a combined approach which manages risks at a Council programme wide level.

Within the proposed stormwater programme the Council has only named and identified a few projects to specific sites which are “allocated”; The main areas of expenditure and related projects are not yet identified and are unnamed or unallocated to specific sites. We have been unsighted as to how the Council proactively identify projects for delivery and gives us little confidence in the scope and size of the future program.

**Figure 4-12 Stormwater programme allocated vs unallocated projects)**



We reviewed two stormwater projects, one in each of Gosford and Wyong:

- 15209. Wyong CBD STG 2 North Rd to Hardware Ln
- 'RIVERIA-CONST BY CONTRACT

We comment below on each project.

#### 4.7.1 Wyong

Overall expenditure on stormwater in the former Wyong region has remained fairly constant with an average of \$6.4M p.a. in real terms in the current determination period. In the future determination period Council proposed a total \$14.9M of expenditure of allocated projects, equating to an average of \$3.7M p.a. This is significantly less than the average expenditure in the current determination period.

##### 4.7.1.1 Current Determination Period

###### 15209. Wyong CBD STG 2 North Rd to Hardware Ln

This project was planned following significant flooding in 2007 of the Wyong CBD which resulted in extensive property damage and loss of numerous vehicles with floodwaters up to 1.5m high. Detailed investigations commenced to determine the reasoning for the severity of this flooding and options to resolve the problem.

This resulted in the decision to design and construct a new drainage system through the centre of Wyong to receive these floodwaters.

At the last submission in 2012 the project was estimated to cost \$1.5M in the current determination period with the project at concept phase. In 2014 consultants were contracted to undertake a flood impact assessment for developing the proposed culvert trunk drainage system. This specific component of the project out-turned at \$3.3M in nominal terms. There was an overspend on this project since the forecast at the last pricing submission when the project was at concept phase. The project was subsequently better defined and the costs increased. We consider the actual expenditure to be prudent and efficient and therefore we have not made an adjustment.

## 4.7.2 Gosford

Overall expenditure on stormwater in the former Gosford region has been lumpy in the current determination period with the greatest expenditure of \$6.1M in 2014, and least of \$1.8M in 2015. The average expenditure was \$3.7 p.a. in real terms in the determination period. Council proposes \$20.6M (average \$5.1M p.a.) of expenditure of allocated projects in the Gosford region; this is significantly greater than the average expenditure p.a. in the current determination period.

### 4.7.2.1 Current Determination Period

#### 'RIVERIA-CONST BY CONTRACT

This project was identified as a "typical" upgrade project to improve the drainage in Riviera Avenue / Trevalley Close although it was noted that there was no imminent risk for the project not going ahead.

The estimate for the project was prepared in October 2012 based on prices from completed jobs at that time with \$550k of the total value for tendering to the contractor and a further \$80k for Gosford council work. There was a variation sought due to ground conditions that were found to be unstable. This increased costs by another \$189k. The project outturn cost was \$799k.

We found the project was delivered efficiently however we have not been provided any detail on the up-front decision making to ascertain whether this was a prudent expenditure and how this project fits in with the wider stormwater upgrade programme. We have not made a specific adjustment for this as it is reflective of the entire stormwater programme, however we have reflected our findings within our overall efficiency adjustments for stormwater and programming.

## 4.8 Corporate Services

Council water and sewer and stormwater have not attributed any capex to corporate services in the current or future determination periods. The wider Council's shared services team applies corporate opex to each business unit within the Council. There are capex items which are treated as opex which is discussed in detail in the opex Section 3.

## 4.9 Prudent and Efficient Expenditure in the Current Determination Period

The IPART brief requires us to comment on the efficiency and prudence of capital expenditure in the current determination period. The prudence test relates to how decisions are made on the basis of information available at that time and how the investment was executed.

We have considered the efficiency and prudence of capital investments during the 2014-19 determination period and comment under key headings.

### Capital Planning

The water and sewerage projects reviewed appeared to have investigated a number of options but there appeared to be limited optioneering. In the examples audited, the chosen options were almost always the least cost options in terms of capex, typically after the concept had been defined. In the projects we reviewed there was limited evaluation of non-financial categories. There is a need to develop capital planning within the context of long-term planning. For example, the "WaterPlan 2050" appears to sit in isolation rather than being

used as a guide or tool that drives any investment decision making. We recognise that plans are in place to develop a more integrated plan through evolving the Lower Hunter Plan with the DPI. It is recommended that Council have an active involvement in developing these plans at an early stage which are used to feed into future strategic decision making and support future pricing submissions.

The review of historical capex projects undertaken has not found any imprudent or inefficient expenditure to any particular chosen solutions, but wider strategic business planning appears limited and does not appear to link through into decision making. We have not proposed any adjustments to historical capex save for 2019 which are projections. The 2019 projections appear to have been developed on the same basis as the future determination period submission and as such we have made commensurate adjustments for those projects which cross over both the current and future determination periods, most significantly for water service renewals.

### **Timing**

Council have been able to demonstrate examples of deferring capital investment, for example when wider exogenous factors have meant that original plans at concept stage have had to be deferred or the approach reconsidered. There appears to be a focus within Council on expenditure for individual projects in the current determination period and again a long-term strategy would help to inform the timing of investment in programmes over specific determination periods. We have not made any adjustments to prior capital spend to allow for timing/premature investments.

### **Efficient expenditure in the current determination period**

We summarise below our view on efficient expenditure in the current determination period. This reflects the challenge we have applied to the 2019 projected capex in particular for water renewals and some minor adjustments due to the rephasing of the other capex projects that have some early expenditure in the current determination period.

**Table 4-8 Water Service: Summary of prudent and efficient capital expenditure current determination period (\$18/19M)**

<b>CCC PROPOSAL - CAPEX - WATER</b>						
(\$M 2018/19) year ending June	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Wyong renewals	2.7	1.7	0.8	0.9	1.2	3.2
Wyong other projects	6.8	4.5	2.7	3.2	2.1	1.9
Gosford renewals	3.9	2.5	1.8	4.7	3.2	4.7
Gosford other projects	6.6	4.3	3.6	11.1	3.5	6.4
<b>Total</b>	<b>20.0</b>	<b>13.0</b>	<b>9.0</b>	<b>19.9</b>	<b>10.0</b>	<b>16.3</b>
<b>Atkins/Cardno recommended adjustments for specific programs or projects</b>						
Water Renewals	0.0	0.0	0.0	0.0	0.0	-2.4
Mardi to Warnervale Trunk Main	0.0	0.0	0.0	0.0	0.0	0.0
Mangrove Creek Dam Spillway Upgrade	0.0	0.0	0.0	0.0	0.0	-0.3
<b>ADJUSTED EXPENDITURE</b>						
Wyong renewals	2.7	1.7	0.8	0.9	1.2	2.0
Wyong other projects	6.8	4.5	2.7	3.2	2.1	1.9
Gosford renewals	3.9	2.5	1.8	4.7	3.2	3.5
Gosford other projects	6.6	4.3	3.6	11.1	3.5	6.1
<b>Total</b>	<b>20.0</b>	<b>13.0</b>	<b>9.0</b>	<b>19.9</b>	<b>10.0</b>	<b>13.6</b>
<b>ATKINS/CARDNO ASSESSMENT OF EFFICIENT EXPENDITURE</b>						
(\$M 2018/19) year ending June	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Wyong renewals	2.7	1.7	0.8	0.9	1.2	2.0
Wyong other projects	6.8	4.5	2.7	3.2	2.1	1.9
Gosford renewals	3.9	2.5	1.8	4.7	3.2	3.5
Gosford other projects	6.6	4.3	3.6	11.1	3.5	6.1
<b>Total Efficient Expenditure</b>	<b>20.0</b>	<b>13.0</b>	<b>9.0</b>	<b>19.9</b>	<b>10.0</b>	<b>13.6</b>
*We have assumed the CCC projects are a 50/50 split for water due to historic JWS agreement between the two former councils						
<b>Former Wyong</b>	<b>9.5</b>	<b>6.2</b>	<b>3.5</b>	<b>4.1</b>	<b>3.3</b>	<b>3.9</b>
<b>Former Gosford</b>	<b>10.5</b>	<b>6.8</b>	<b>5.4</b>	<b>15.8</b>	<b>6.7</b>	<b>9.7</b>
<b>Total CCC</b>	<b>20.0</b>	<b>13.0</b>	<b>9.0</b>	<b>19.9</b>	<b>10.0</b>	<b>13.6</b>

**Table 4-9 Sewerage Service: Summary of prudent and efficient capital expenditure current determination period (\$18/19M)**

<b>CCC PROPOSAL - CAPEX - SEWERAGE</b>						
(\$M 2018/19) year ending June	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Wyong renewals	4.4	5.8	5.1	6.9	3.4	4.8
Wyong other projects	2.0	4.7	12.5	5.7	0.7	1.9
Gosford renewals	17.0	21.2	10.4	8.0	5.2	9.5
Gosford other projects	13.3	9.4	10.8	10.3	4.5	4.2
<b>Total</b>	<b>36.7</b>	<b>41.1</b>	<b>38.8</b>	<b>30.9</b>	<b>13.8</b>	<b>20.3</b>
<b>Atkins/Cardno recommended adjustments for specific programs or projects</b>						
Sewerage Renewals Wyong	0.0	0.0	0.0	0.0	0.0	0.0
Sewerage Renewals Gosford	0.0	0.0	0.0	0.0	0.0	0.0
<b>ADJUSTED EXPENDITURE</b>						
Wyong renewals	4.4	5.8	5.1	6.9	3.4	4.8
Wyong other projects	2.0	4.7	12.5	5.7	0.7	1.9
Gosford renewals	17.0	21.2	10.4	8.0	5.2	9.5
Gosford other projects	13.3	9.4	10.8	10.3	4.5	4.2
<b>Total</b>	<b>36.7</b>	<b>41.1</b>	<b>38.8</b>	<b>30.9</b>	<b>13.8</b>	<b>20.3</b>
<b>ATKINS/CARDNO ASSESSMENT OF EFFICIENT EXPENDITURE</b>						
(\$M 2018/19) year ending June	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Wyong renewals	4.4	5.8	5.1	6.9	3.4	4.8
Wyong other projects	2.0	4.7	12.5	5.7	0.7	1.9
Gosford renewals	17.0	21.2	10.4	8.0	5.2	9.5
Gosford other projects	13.3	9.4	10.8	10.3	4.5	4.2
<b>Total Efficient Expenditure</b>	<b>36.7</b>	<b>41.1</b>	<b>38.8</b>	<b>30.9</b>	<b>13.8</b>	<b>20.3</b>
<b>Former Wyong</b>	<b>6.4</b>	<b>10.5</b>	<b>17.6</b>	<b>12.6</b>	<b>4.1</b>	<b>6.7</b>
<b>Former Gosford</b>	<b>30.3</b>	<b>30.5</b>	<b>21.2</b>	<b>18.3</b>	<b>9.7</b>	<b>13.7</b>

**Table 4-10 Stormwater service: Summary of prudent and efficient capital expenditure current determination period (\$18/19M)**

CCC PROPOSAL - CAPEX - STORMWATER SERVICE						
(\$M 2018/19) year ending June	2014	2015	2016	2017	2018	2019
Stormwater Renewals Wyong	2.00	2.15	2.03	1.79	1.82	1.71
Stormwater Wyong other projects	7.14	4.93	3.17	4.83	4.25	2.63
Stormwater Renewals Gosford	1.53	0.81	1.03	1.74	0.69	1.51
Stormwater Gosford other projects	4.62	1.07	1.11	2.88	1.58	3.95
<b>Total</b>	<b>15.29</b>	<b>8.97</b>	<b>7.33</b>	<b>11.24</b>	<b>8.34</b>	<b>9.80</b>
Atkins/Cardno recommended adjustments for specific programs or projects						
Stormwater Renewals Wyong	0.00	0.00	0.00	0.00	0.00	-0.15
Stormwater Wyong other projects	0.00	0.00	0.00	0.00	0.00	0.00
Stormwater Renewals Gosford	0.00	0.00	0.00	0.00	0.00	0.05
Stormwater Gosford other projects	0.00	0.00	0.00	0.00	0.00	0.00
ADJUSTED EXPENDITURE						
Stormwater Renewals Wyong	2.00	2.15	2.03	1.79	1.82	1.56
Stormwater Wyong other projects	7.14	4.93	3.17	4.83	4.25	2.63
Stormwater Renewals Gosford	1.53	0.81	1.03	1.74	0.69	1.56
Stormwater Gosford other projects	4.62	1.07	1.11	2.88	1.58	3.95
<b>Total</b>	<b>15.29</b>	<b>8.97</b>	<b>7.33</b>	<b>11.24</b>	<b>8.34</b>	<b>9.69</b>
ATKINS/CARDNO ASSESSMENT OF EFFICIENT EXPENDITURE						
(\$M 2018/19) year ending June	2014	2015	2016	2017	2018	2019
Stormwater Renewals Wyong	2.00	2.15	2.03	1.79	1.82	1.56
Stormwater Wyong other projects	7.14	4.93	3.17	4.83	4.25	2.63
Stormwater Renewals Gosford	1.53	0.81	1.03	1.74	0.69	1.56
Stormwater Gosford other projects	4.62	1.07	1.11	2.88	1.58	3.95
<b>Total Efficient Expenditure</b>	<b>15.29</b>	<b>8.97</b>	<b>7.33</b>	<b>11.24</b>	<b>8.34</b>	<b>9.69</b>
<b>Former Wyong</b>	<b>9.14</b>	<b>7.08</b>	<b>5.20</b>	<b>6.62</b>	<b>6.07</b>	<b>4.19</b>
<b>Former Gosford</b>	<b>6.15</b>	<b>1.88</b>	<b>2.13</b>	<b>4.62</b>	<b>2.27</b>	<b>5.51</b>

## 4.10 Prudent and Efficient Expenditure in the Future Determination Period

We are proposing adjustments to capital expenditure in the SIR submission to reflect our view of prudent and efficient expenditure for the future determination period. Our views are based on the review of the Information Return and in particular the analysis of historical delivery performance, discussions with Central Coast Council, our assessment of asset management and long-term strategic planning processes, the review of sample projects and the assessment of capital expenditure processes. We discuss our methodology in Section 4.1 above.

Our assessment of the level of capital efficiency able to be achieved by Central Coast Council in the future determination period is a progression of the methodology which we have applied to our previous expenditure reviews for IPART. This approach is based on a methodology developed by Ofwat and applied to water companies in England and Wales for over 15 years. This methodology applies the concepts of continuing and catch-up efficiency.

Continuing efficiency is the scope for a top performing or Frontier Company to continue to improve its efficiency. It reflects the continuing efficiencies being gained across all major sectors through innovation and new technologies. Catch-up efficiency is the scope for all other utilities to reach the performance of a Frontier utility. This concept was developed and applied by the Water Services Regulatory Authority (Ofwat) in England and Wales for the 1999 Periodic Review and also used in the 2004 and 2009 Periodic Reviews. It has been subject to independent scrutiny by the then UK Competition Commission. Our assessment of catch-up in general relates to four capital processes essential for efficient delivery of capital projects: capital programme management, value engineering, the method of cost estimating and the procurement processes.

We have made specific adjustments to certain programs or projects which we have reviewed in terms of scope of work or timing of expenditure. These projects were representative of the program as a whole, so we have



reprofiled other expenditure on a similar basis. Our adjustments relate generally to a slower rate of increase of expenditure above the current price period. We have commented in Sections 4.5 and 4.6 on specific projects and relate to the reprofiling of the proposed expenditure increases.

We have reprofiled expenditure in three significant capital projects in order to smooth the overall capital expenditure over the future determination period (2020-2024). The Council's September 2018 pricing proposal indicates delivering many significant projects in parallel within the first two to three years of the period. Smoothing the expenditure profile does not prevent Council from prioritising projects within the overall portfolio of capital projects and will enable Council resources to be deployed across the whole determination period.

We then arrived at an adjusted expenditure profile against each service type. To this adjusted expenditure profile, we have applied the efficiency targets that we assess later in this Section. The derivation of our proposed expenditure for Central Coast Council for the future determination period following adjustments and application of efficiencies as set out below.

## 4.11 Continuing efficiency

We have projected a continuing capital efficiency of 0.25% per annum over the period 2020 to 2024 to reflect the impact of new technology and innovation which all agencies, including a frontier agency, should achieve. This value is the same as the previous efficiency targets set for Sydney Water and Hunter Water and consistent with the concept of a water utility operating at the frontier of efficiency which our past experience shows is appropriate and achievable. We suggest that any significant differences between the forecast and outturn continuing efficiency should be considered from a retrospective analysis of prudent expenditure at the next determination period review.

## 4.12 Catch up efficiency

We have applied our judgment to determine the level of catch-up efficiency that could be achieved by Council based on our assessments of the capital processes reported in Section 2 and the review and analysis of sample projects representative of the program as a whole. We have identified four areas where Council should be able to make material improvement to its processes to frontier level over time and deliver material efficiencies over the price control period. These are:

- (i) Improvements to capital program management;
- (ii) Improvements to value engineering;
- (iii) Improvements in cost estimating and the management of contingencies; and
- (iv) the impact of new procurement processes and the likely savings from more effective program management.

Each of these areas is defined and briefly discussed in the following sections.

### Capital Program Management

Effective program management helps to identify synergies, to challenge expenditure and to optimise capital programs by improved targeting of expenditure to areas where it is most required and where it can have greatest impact on customer outcomes. It usually involves a mixture of culture, incentives, systems and processes. It reflects our view that Council can improve the way it manages expenditure at a program level, with a stronger link to customer outcomes and specific outputs. For example, water resources projects appear to be delivered in isolation often to fulfil specific yield requirement due to an acute deficit experienced at a particular time and location. Improved planning and portfolio optimisation would help promote projects that fit within delivering longer term plans.

The efficiency has been applied in a uniform incremental approach over the 2020-24 period, recognising that change can take time to take effect.

### Value engineering

Moving from the program level to the scheme-specific level, value engineering looks to reduce the cost of delivering a given scheme by challenging scope and methods and looking for alternative ways to achieve the outcome required.

We have seen limited evidence of value engineering for the former LGA's major schemes and would consider this to be a significant area of efficiency. This efficiency allows for value engineering to become more widespread to ensure that schemes are delivered at an efficient cost.

## Cost estimation and contingency

Council's approach to cost estimation is at an early stage of maturity with project costs being developed under varying frameworks. There is not yet a Council wide process for cost estimating and cost estimation tools and techniques very depending on the project context and location. Many significant project cost estimates rely on bottom-up analysis, often by external consultants who may be conservative, with little reference to (or explanation of variance from) outturn costs for similar schemes. Contingencies for major projects tend to be applied at two levels within the project cost estimation process, within the consultants bottom up build up and typically a further 30% contingency applied on top of this at Council level. There does not appear to be any management of risk and contingency at a portfolio level.

We consider that a rigorous analysis of outturn costs and appropriate contingency level is required.

We have applied a catch-up efficiency to reflect the potential for recent cost estimates to fail to capture efficiency improvements and for estimates to routinely include conservative assumptions as well as an efficiency for Council to move towards a management of contingency at a portfolio level.

## Procurement

Our experience is that procurement provides the greatest leverage for efficiency across the capital processes. Procurement efficiency involves finding better ways to purchase capitalised goods and services. It can involve packaging of works, incentivisation and contractual arrangements, such as alliancing and partnering. Leading utilities employ a variety of procurement approaches. We see little evidence of Council considering the benefits of alternative procurement methods.

Council has indicated that it would be open to alternative tender arrangements to engage with contractors at an earlier stage in the procurement process to leverage greater procurement efficiencies.

We have therefore applied an additional procurement efficiency adjustment equal to 4% from 2022 onwards. The efficiency is phased in through 2020 and 2021 reflecting the fact that a proportion of capital expenditure in the first two years of the next determination period may already be procured. Sydney Water (2016) identified a significant efficiency on its own analysis and we built this into the forward capex. For Council we have also applied a 4% efficiency to reflect a similar potential saving from improved procurement practice.

Our assessment of the level of continuing and catch-up efficiencies achievable in the future determination period is shown in Table 4-11 below. These efficiencies are applied to the capital expenditure in the SIR over the period to 2024 which includes a range of specific projects at varying levels of development, allocated and unallocated expenditure.

**Table 4-11 Future determination period cumulative capital efficiencies**

Cumulative efficiency challenge (%)					
	2020	2021	2022	2023	2024
Continuing efficiency at the Frontier	0.25	0.5	0.75	1	1.25
Catch-up: capital program management and optimisation	0.5	1	1.5	2	2.5
Catch-up: value engineering	0.75	1.5	2.25	3	3.75
Catch-up: cost-estimating	0.5	2	3	4	4
Catch-up: procurement	1.5	3	4	4	4
<b>Catch-up efficiency</b>	<b>3.25</b>	<b>7.5</b>	<b>10.75</b>	<b>13</b>	<b>14.25</b>
<b>Total efficiency</b>	<b>3.5</b>	<b>8</b>	<b>11.5</b>	<b>14</b>	<b>15.5</b>

The total efficiency we propose of 14% over four years or 15.5% over five years appears to be at the upper limit of the range of companies in England and Wales, based on the 2014 periodic review outcomes. This is what we might expect for a relatively new water utility where the efficiencies from the amalgamation and council reorganisation have yet to be realised in full.

## 4.13 Efficient Level of Expenditure

We have derived an efficient level of capital expenditure for each service through reviewing the SIR submission and adjusting against broad project categories. We have re-profiled some expenditure for defined programs and projects. We then apply the continuing and catch-up efficiencies to reflect the catch-up potential in program

management, value engineering, cost estimating and contingency management and procurement. There is a summary of capital expenditure adjustments included the tables below.

**Table 4-12 Water Service: Summary of Efficient Capital Expenditure**

<b>CCC PROPOSAL - CAPEX - WATER</b>							
(\$M 2018/19) year ending June	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2020-23 Total</b>	<b>2020-24 Total</b>
Wyong renewals	5.2	5.6	7.7	8.0	2.6	26.5	29.1
Wyong other projects	7.3	52.4	19.4	2.9	1.4	82.0	83.5
Gosford renewals	7.3	8.1	11.6	8.0	2.6	34.9	37.5
Gosford other projects	1.9	3.7	7.4	4.4	2.2	17.4	19.6
<b>Total</b>	<b>21.7</b>	<b>69.7</b>	<b>46.2</b>	<b>23.3</b>	<b>8.7</b>	<b>160.9</b>	<b>169.6</b>
<b>Atkins/Cardno recommended adjustments for specific programs or projects</b>							
Water Renewals	-7.0	-8.1	-13.8	-10.5	0.4	-39.4	-39.0
Mardi to Warnervale Trunk Main	0.0	-25.9	-0.5	13.2	13.2	-13.2	0.0
Mangrove Creek Dam Spillway Upgrade	0.0	0.0	-1.2	0.7	0.5	-0.5	0.0
<b>ADJUSTED EXPENDITURE BEFORE APPLICATION OF EFFICIENCY TARGETS</b>							
Wyong renewals	1.7	1.5	0.8	2.8	2.8	6.8	9.6
Wyong other projects	7.3	26.5	18.9	16.1	14.6	68.8	83.5
Gosford renewals	3.8	4.0	4.7	2.7	2.8	15.2	17.9
Gosford other projects	1.9	3.7	6.3	5.1	2.7	16.9	19.6
<b>Total</b>	<b>14.7</b>	<b>35.7</b>	<b>30.7</b>	<b>26.8</b>	<b>22.8</b>	<b>107.8</b>	<b>130.6</b>
<b>Atkins/Cardno recommended additional capital efficiency targets (beyond those applied by the company)</b>							
Continuing efficiency (%)	0.25%	0.50%	0.75%	1.00%	1.25%		
Catch-up efficiency (%)	3.25%	7.50%	10.75%	13.00%	14.25%		
<b>ATKINS/CARDNO ASSESSMENT OF EFFICIENT EXPENDITURE</b>							
(\$M 2018/19) year ending June	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2020-23 Total</b>	<b>2020-24 Total</b>
Wyong renewals	1.7	1.4	0.7	2.4	2.3	6.1	8.5
Wyong other projects	7.0	24.4	16.7	13.9	12.3	62.0	74.4
Gosford renewals	3.6	3.7	4.2	2.3	2.3	13.8	16.1
Gosford other projects	1.8	3.4	5.5	4.4	2.3	15.1	17.4
<b>Total Efficient Expenditure</b>	<b>14.1</b>	<b>32.8</b>	<b>27.1</b>	<b>23.0</b>	<b>19.3</b>	<b>97.1</b>	<b>116.4</b>
*We have assumed the CCC projects are a 50/50 split for water due to historic JWS agreement between the two former councils							
<b>Former Wyong</b>	<b>8.7</b>	<b>25.8</b>	<b>17.4</b>	<b>16.3</b>	<b>14.7</b>	<b>68.2</b>	<b>82.8</b>
<b>Former Gosford</b>	<b>5.4</b>	<b>7.1</b>	<b>9.7</b>	<b>6.7</b>	<b>4.6</b>	<b>29.0</b>	<b>33.6</b>
<b>Total CCC</b>	<b>14.1</b>	<b>32.8</b>	<b>27.1</b>	<b>23.0</b>	<b>19.3</b>	<b>97.1</b>	<b>116.4</b>

**Table 4-13 Sewerage Service: Summary of Efficient Capital Expenditure**

<b>CCC PROPOSAL - CAPEX - SEWERAGE</b>							
(\$M 2018/19) year ending June	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2020-23 Total</b>	<b>2020-24 Total</b>
Wyong renewals	10.6	8.1	9.9	8.2	4.4	36.8	41.2
Wyong other projects	3.9	4.8	8.1	5.0	5.0	21.9	26.9
Gosford renewals	22.1	16.9	20.7	17.2	9.3	76.9	86.2
Gosford other projects	3.1	4.5	3.2	3.7	3.7	14.5	18.2
<b>Total</b>	<b>39.8</b>	<b>34.4</b>	<b>41.9</b>	<b>34.1</b>	<b>22.4</b>	<b>150.2</b>	<b>172.6</b>
<b>Atkins/Cardno recommended adjustments for specific programs or projects</b>							
Sewerage Renewals Wyong	-4.7	-2.2	-4.0	-2.3	1.5	-13.2	-11.7
Sewerage Renewals Gosford	-9.8	-4.6	-8.4	-4.8	3.1	-27.6	-24.5
<b>ADJUSTED EXPENDITURE BEFORE APPLICATION OF EFFICIENCY TARGETS</b>							
Wyong renewals	5.9	5.9	5.9	5.9	5.9	23.6	29.5
Wyong other projects	3.9	4.8	8.1	5.0	5.0	21.9	26.9
Gosford renewals	12.3	12.3	12.3	12.3	12.3	49.4	61.7
Gosford other projects	3.1	4.5	3.2	3.7	3.7	14.5	18.2
<b>Total</b>	<b>25.3</b>	<b>27.6</b>	<b>29.5</b>	<b>27.0</b>	<b>27.0</b>	<b>109.4</b>	<b>136.4</b>
<b>Atkins/Cardno recommended additional capital efficiency targets (beyond those applied by the company)</b>							
Continuing efficiency (%)	0.25%	0.50%	0.75%	1.00%	1.25%		
Catch-up efficiency (%)	3.25%	7.50%	10.75%	13.00%	14.25%		
<b>ATKINS/CARDNO ASSESSMENT OF EFFICIENT EXPENDITURE</b>							
(\$M 2018/19) year ending June	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2020-23 Total</b>	<b>2020-24 Total</b>
Wyong renewals	5.7	5.4	5.2	5.1	5.0	21.1	26.4
Wyong other projects	3.8	4.5	7.2	4.3	4.2	17.3	23.9
Gosford renewals	11.9	11.4	10.9	10.6	10.4	43.7	55.3
Gosford other projects	3.0	4.2	2.8	3.2	3.1	14.2	16.3
<b>Total Efficient Expenditure</b>	<b>24.4</b>	<b>25.4</b>	<b>26.1</b>	<b>23.2</b>	<b>22.8</b>	<b>99.2</b>	<b>121.9</b>
<b>Former Wyong</b>	<b>9.5</b>	<b>9.9</b>	<b>12.4</b>	<b>9.4</b>	<b>9.2</b>	<b>41.2</b>	<b>50.4</b>
<b>Former Gosford</b>	<b>15.0</b>	<b>15.5</b>	<b>13.7</b>	<b>13.8</b>	<b>13.6</b>	<b>58.0</b>	<b>71.6</b>

**Table 4-14 Stormwater Service: Summary of Efficient Capital Expenditure**

<b>CCC PROPOSAL - CAPEX - STORMWATER SERVICE</b>							
(\$M 2018/19) year ending June	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2020-23 Total</b>	<b>2020-24 Total</b>
Stormwater Renewals Wyong	1.82	1.31	2.02	2.25	2.05	7.40	9.44
Stormwater Wyong other projects	3.27	3.06	2.76	2.91	4.78	12.00	16.77
Stormwater Renewals Gosford	1.54	1.84	1.95	2.16	1.02	7.50	8.52
Stormwater Gosford other projects	3.75	4.22	3.91	3.38	2.39	15.27	17.65
<b>Total</b>	<b>10.39</b>	<b>10.44</b>	<b>10.64</b>	<b>10.70</b>	<b>10.23</b>	<b>42.16</b>	<b>52.39</b>
<b>Atkins/Cardno recommended adjustments for specific programs or projects</b>							
Stormwater Renewals Wyong	-0.26	0.25	-0.46	-0.69	-0.49	-1.16	-1.65
Stormwater Wyong other projects	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stormwater Renewals Gosford	0.01	-0.28	-0.39	-0.61	0.54	-1.26	-0.73
Stormwater Gosford other projects	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>ADJUSTED EXPENDITURE</b>				<b>BEFORE APPLICATION OF EFFICIENCY TARGETS</b>			
Stormwater Renewals Wyong	1.56	1.56	1.56	1.56	1.56	6.23	7.79
Stormwater Wyong other projects	3.27	3.06	2.76	2.91	4.78	12.00	16.77
Stormwater Renewals Gosford	1.56	1.56	1.56	1.56	1.56	6.23	7.79
Stormwater Gosford other projects	3.75	4.22	3.91	3.38	2.39	15.27	17.65
<b>Total</b>	<b>10.14</b>	<b>10.40</b>	<b>9.79</b>	<b>9.41</b>	<b>10.28</b>	<b>39.73</b>	<b>50.01</b>
<b>Atkins/Cardno recommended additional capital efficiency targets (beyond those applied by the company)</b>							
Continuing efficiency (%)	0.25%	0.50%	0.75%	1.00%	1.25%		
Catch-up efficiency (%)	3.25%	7.50%	10.75%	13.00%	14.25%		
<b>ATKINS/CARDNO ASSESSMENT OF EFFICIENT EXPENDITURE</b>							
(\$M 2018/19) year ending June	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2020-23 Total</b>	<b>2020-24 Total</b>
Stormwater Renewals Wyong	1.50	1.43	1.38	1.34	1.32	5.66	6.97
Stormwater Wyong other projects	3.16	2.81	2.44	2.50	4.03	10.91	14.95
Stormwater Renewals Gosford	1.50	1.43	1.38	1.34	1.32	5.66	6.97
Stormwater Gosford other projects	3.62	3.89	3.46	2.91	2.02	13.87	15.89
<b>Total Efficient Expenditure</b>	<b>9.78</b>	<b>9.57</b>	<b>8.66</b>	<b>8.09</b>	<b>8.69</b>	<b>36.10</b>	<b>44.79</b>
<b>Former Wyong</b>	<b>4.66</b>	<b>4.25</b>	<b>3.82</b>	<b>3.84</b>	<b>5.35</b>	<b>16.57</b>	<b>21.92</b>
<b>Former Gosford</b>	<b>5.12</b>	<b>5.32</b>	<b>4.84</b>	<b>4.25</b>	<b>3.33</b>	<b>19.53</b>	<b>22.86</b>

## 4.14 Conclusions

We have reviewed Council's processes for delivering capital projects and we have examined specific projects to confirm how these processes are applied. We have proposed adjustments to the Submission expenditure to reflect phasing of outputs in specific programs or projects. We have applied continuing efficiencies and catch-up efficiencies to reflect business planning, the cost estimating process and procurement.

We have formed the opinion that Council has significant scope to realise these capital efficiencies through improvements in its asset management processes, systems and strategies. We have quantified the adjustments and efficiencies that we believe Council will be able to make over the coming determination period and we will apply these to our recommendations to derive the efficient expenditure for the future determination period.

We show in Table 4-15 below the capital expenditure proposed by Council the adjustment we have made and our findings on the level of efficient capital expenditure for the future determination period.

**Table 4-15 Total Capex: Summary of Efficient Capital Expenditure**

<b>CCC PROPOSAL - CAPEX - SUMMARY</b>							
(\$M 2018/19) year ending June	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2020-23 Total</b>	<b>2020-24 Total</b>
Water Wyong	12.5	57.9	27.2	10.9	4.0	108.5	112.5
Water Gosford	9.1	11.8	19.0	12.4	4.8	52.3	57.1
Sewerage Wyong	14.5	12.9	18.0	13.2	9.4	58.7	68.1
Sewerage Gosford	25.3	21.5	23.9	20.9	13.0	91.5	104.4
Stormwater Wyong	5.1	4.4	4.8	5.2	6.8	19.4	26.2
Stormwater Gosford	5.3	6.1	5.9	5.5	3.4	22.8	26.2
<b>Total</b>	<b>71.8</b>	<b>114.5</b>	<b>98.7</b>	<b>68.1</b>	<b>41.4</b>	<b>353.2</b>	<b>394.5</b>
<b>Atkins/Cardno recommended adjustments for specific programs or projects</b>							
Water Renewals	-7.0	-8.1	-13.8	-10.5	0.4	-39.4	-39.0
Mardi to Warnervale Trunk Main	0.0	-25.9	-0.5	13.2	13.2	-21.1	-10.6
Mangrove Creek Dam Spillway Upgrade	0.0	0.0	-1.2	0.7	0.5	-2.0	0.3
Sewerage Renewals Wyong	-4.7	-2.2	-4.0	-2.3	1.5	-13.2	-11.7
Sewerage Renewals Gosford	-9.8	-4.6	-8.4	-4.8	3.1	-27.6	-24.5
Stormwater Renewals Wyong	-0.3	0.2	-0.5	-0.7	-0.5	6.2	7.8
Stormwater Wyong other projects	0.0	0.0	0.0	0.0	0.0	12.0	16.8
Stormwater Renewals Gosford	0.0	-0.3	-0.4	-0.6	0.5	6.2	7.8
Stormwater Gosford other projects	0.0	0.0	0.0	0.0	0.0	15.3	17.7
<b>Total</b>	<b>-21.7</b>	<b>-40.8</b>	<b>-28.8</b>	<b>-5.0</b>	<b>18.7</b>	<b>-96.3</b>	<b>-77.6</b>
<b>ADJUSTED EXPENDITURE</b>	<b>BEFORE APPLICATION OF EFFICIENCY TARGETS</b>						
Water Wyong	9.0	28.0	19.7	18.9	17.4	75.6	93.0
Water Gosford	5.6	7.7	10.9	7.8	5.5	32.1	37.6
Sewerage Wyong	9.8	10.7	14.0	10.9	10.9	45.5	56.4
Sewerage Gosford	15.5	16.9	15.5	16.0	16.0	63.9	80.0
Stormwater Wyong	4.8	4.6	4.3	4.5	6.3	18.2	24.6
Stormwater Gosford	5.3	5.8	5.5	4.9	3.9	21.5	25.4
<b>Total</b>	<b>50.1</b>	<b>73.7</b>	<b>70.0</b>	<b>63.1</b>	<b>60.1</b>	<b>256.9</b>	<b>317.0</b>
<b>Atkins/Cardno recommended additional capital efficiency targets (beyond those applied by the company)</b>							
Continuing efficiency (%)	0.25%	0.50%	0.75%	1.00%	1.25%		
Catch-up efficiency (%)	3.25%	7.50%	10.75%	13.00%	14.25%		
<b>ATKINS/CARDNO ASSESSMENT OF EFFICIENT EXPENDITURE</b>							
(\$M 2018/19) year ending June	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2020-23 Total</b>	<b>2020-24 Total</b>
Water Wyong	8.7	25.8	17.4	16.3	14.7	68.2	82.8
Water Gosford	5.4	7.1	9.7	6.7	4.6	29.0	33.6
Sewerage Wyong	9.5	9.9	12.4	9.4	9.2	41.2	50.4
Sewerage Gosford	15.0	15.5	13.7	13.8	13.6	58.0	71.6
Stormwater Wyong	4.7	4.2	3.8	3.8	5.4	16.6	21.9
Stormwater Gosford	5.1	5.3	4.8	4.2	3.3	19.5	22.9
<b>Total Efficient Expenditure</b>	<b>48.4</b>	<b>67.8</b>	<b>61.9</b>	<b>54.3</b>	<b>50.8</b>	<b>232.4</b>	<b>283.1</b>
For information summary by former council							
<b>Former Wyong</b>	<b>22.9</b>	<b>39.9</b>	<b>33.7</b>	<b>29.5</b>	<b>29.2</b>	<b>125.9</b>	<b>155.1</b>
<b>Former Gosford</b>	<b>25.5</b>	<b>27.9</b>	<b>28.3</b>	<b>24.8</b>	<b>21.5</b>	<b>106.5</b>	<b>128.0</b>



## 5 Asset lives

This section presents a review of the appropriateness of the asset lives used to calculate regulatory depreciation ('regulatory asset lives') in Council's pricing proposal.

### 5.1 Regulatory asset life at 30 June 2019

We understand that the approach taken by Council to deriving the average remaining regulatory asset life at 30 June 2019 is as follows:

- For assets existing at the date of the prior Determination, Council has taken the weighted average remaining regulatory asset life for each service (water, sewerage and stormwater) from the former LGAs' 2013 submissions and reduced them by 6 years to take account of the time elapsed;
- An asset life of 100 years has been applied to all net capex since 2013<sup>27</sup>;
- These have been combined to derive average remaining life weighted by the RAB value of the assets at 30 June 2019.

The resulting average remaining lives are summarized below.

**Table 5-1 Council proposed average remaining regulatory asset lives**

Service	Remaining asset life at 2013 Determination (years)		Council proposed average remaining life at 30 June 2019 (years)
	Gosford LGA	Wyong LGA	
Water	81.1	82.4	77.2
Sewerage	77.0	72.4	75.5
Stormwater	98.9	69.8	80.9

Source: Table 62 of CCC Pricing Submission

We find that Council's approach to the remaining regulatory asset life at 30 June 2019 is consistent with IPART's 2013 Determination. **We do not therefore recommend any adjustments to these values.**

### 5.2 Regulatory asset life for capex proposed in the next determination period

Council has commenced a review of its infrastructure assets including the asset lives to be adopted. However, it considers that the review is not sufficiently advanced to inform the regulatory asset lives. In its submission, Council has proposed a regulatory asset life of 100 years for all capex.

However, a regulatory asset life of 100 years does not appear to be consistent with the economic lives of the assets being created. Council's view, summarised in Table 8.4 of the AIR, is that only new stormwater pipelines and canals have a useful asset life as high as 100 years, with all other asset types having shorter useful lives, as summarised in Table 5-2 below. This therefore suggests that 100 years is an overestimate of the average useful economic life of new assets.

<sup>27</sup> Net of grants and developer contributions

**Table 5-2 Asset lives for new assets in Council's submission**

Asset category	Water	Sewerage	Stormwater
Water/Sewer Mains			
Stormwater pipelines/canals	77	74	100
Treatment Plants	57	40	94
Corporate Buildings	71	69	
Pumping Stations	33	54	
Dams and Weirs	93		
Groundwater	26		
Raw Water	64		
Tunnels	83		
Water Reservoirs	66		
Telemetry Towers	34		
Low Pressure Sewer Systems		81	
Network Assets		41	
Outfall		79	
Drains			75
Gross Pollutant Traps			87

Table 8.4 of AIR

These asset lives are consistent with other utilities. For example, Jacob's 2016 review of Hunter Water's expenditure<sup>28</sup> found a weighted mean asset life for new assets of 67 years, based on the following expected life of new assets.

**Table 5-3 Asset lives applied to new assets in Hunter Water's 2015 submission**

Asset category	Water	Sewerage	Stormwater
Dams	80	0	0
Treatment plants	60	50	0
Pipelines	100	90	0
Reservoirs/tanks	80	0	0
Pump stations	50	50	0
Office equipment	4	4	4
Buildings	40	40	40
Vehicles	4	3	3
Outfall sewers	0	100	0
Pipelines/canals	0	0	100
Drains	0	0	100

Hunter Water Special Information Report, 2015

Sydney Water applies an approach which distinguishes by broad asset type. The values used in its 2015 submission are summarised below. The longest asset life proposed was 100 years, meaning that the average regulatory asset life was significantly below this.

<sup>28</sup> "Comment on Hunter Water's Response to IPART's Draft Report", Jacobs, 2016

**Table 5-4 Asset lives applied to new assets in Sydney Water's 2015 submission**

	Civil	Electronic	Mechanical	Electrical
Water, sewerage and stormwater	100	15	30	25
Corporate	68	10	30	25

Table 10-5, Sydney Water Price Plan 2016-20

Council has not provided a breakdown of the asset types it expects to construct in the next determination period. This makes it difficult for us to estimate with confidence the average regulatory asset life of proposed new assets. However, Council has provided extracts of its fixed asset register (FAR). These have a number of gaps in them, with 22% of water asset lines and 20% of sewerage asset lines having no replacement cost value for example<sup>29</sup>. However, they give an indication of the weighted average asset life Council has assigned to assets created after 30 June 2013. These are summarised below. The asset lives presented are weighted by replacement cost, excluding all assets to which no asset life has been assigned.

**Table 5-5 Asset lives assigned to new assets created after 30 June 2013 based on FAR extracts**

Service	Average life of assets created since 2013 on date installed (years)
Water	52
Sewerage	41
Stormwater	95

Source: Analysis of 'Item 114-115 Working for the average useful asset life for W&S' and 'Item 114-115 Working for the average useful asset life for Drainage'

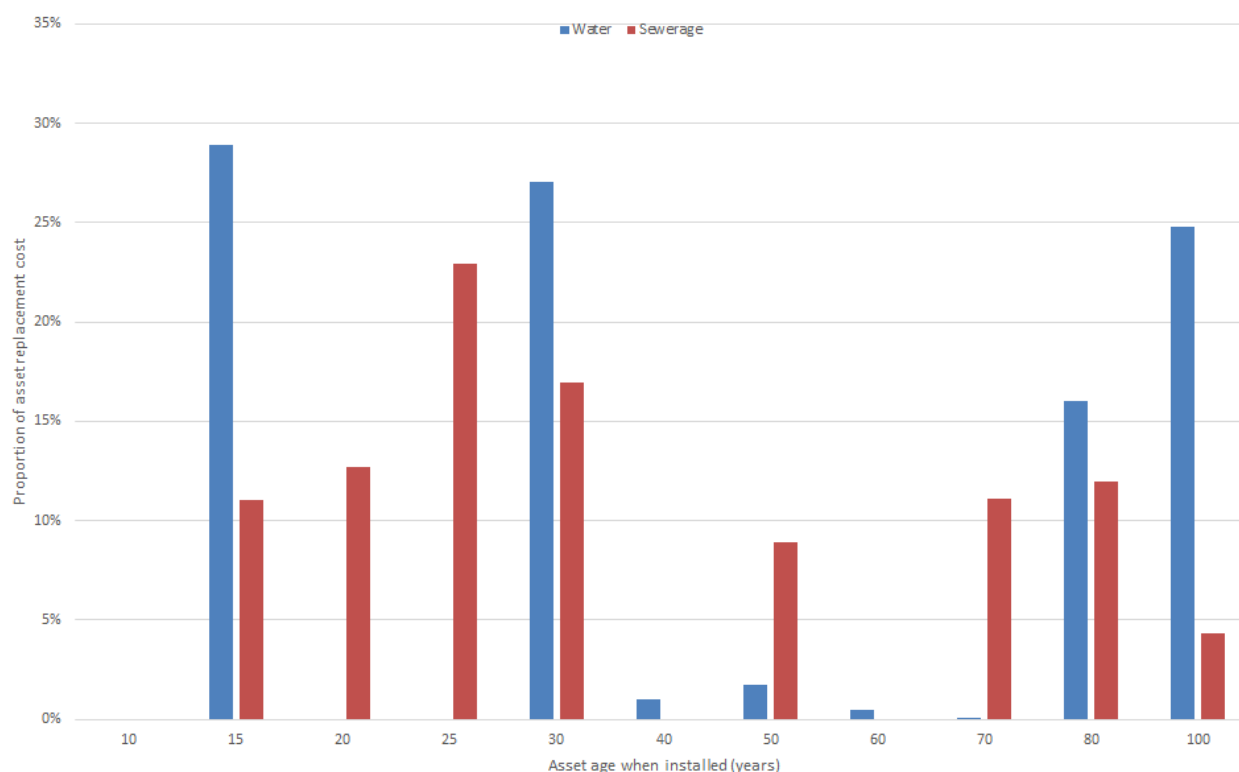
### Water and sewerage assets

The average new asset lives assigned to water and sewerage assets in the FAR put into service since 2013 are significantly below 100 years. They are also lower than the weighted mean asset life for new assets applied for Hunter Water. The reason that they are low appears to be because a reasonably significant proportion of the capital program after 30 June 2013 has been committed to medium-life assets such as mechanical equipment and filter media with lives typically 30 years or lower.

The breakdown of asset ages by replacement cost for assets installed after 30 June 2013 is summarised below. From this it can be seen that, although the most common asset age for new water assets is 15 years, a greater proportion of the water assets had longer asset lives (80 and 100 years) than for sewerage. The most common sewerage asset life is higher than water at 25 years, but relatively few sewerage assets have been assigned a 100 year asset life, presumably because of the tougher conditions faced by sewerage assets.

<sup>29</sup> Only 1% of stormwater asset lines have no replacement value

**Figure 5-1 Asset age and replacement cost for water and sewerage assets installed after 30 June 2013**



Source: Analysis of 'Item 114-115 Working for the average useful asset life for W&S'

Examples of significant medium-life assets created since 2013 include:

- Water: filter media at Mardi WTP with asset life of 15 years and replacement value of \$4.4M.
- Sewerage:
  - mechanical assets at inlet works and secondary treatment at Wyong South STP with a mix of asset lives of 20 and 25 years and replacement value of \$7.1M;
  - mechanical assets for primary and sludge treatment and odour removal enclosure for Bateau Bay STP with a mix of asset lives of 20 and 25 years and replacement value of \$5.6M.

Although the analysis above is based on partial data, the useful asset lives in Table 5-5 appear more representative of the economic life of the assets being created than the 100 years proposed by Council. Council has not provided a breakdown of asset types it proposes to construct during the next determination period. However, there are no major sewerage projects proposed, and no information to suggest a significant change in the composition of the sewerage capex program, so we have assumed that the average asset life of sewerage assets in the next determination period will be similar to the current determination period. **For sewerage, we therefore recommend that an asset life of 41 years be applied for the regulatory asset life of new assets created in the next determination period.**

For the water service, we recommend that an adjustment be applied to take account of two significant long asset life projects proposed in the next determination period. This is because Council did not construct any major long-asset life schemes during the current determination period. The Mardi to Warnervale trunk main and Mangrove Creek Dam Spillway Upgrade will be long-life assets. Assuming that, as suggested by Table 5-2, they have asset lives of 77 years and 93 years respectively, and that the rest of the capital program has a similar profile to the current determination period, we expect that the weighted average asset life of assets created in the water service in the next determination period will be approximately equal to 63 years.

**Table 5-6 Weighted average asset life for water capex**

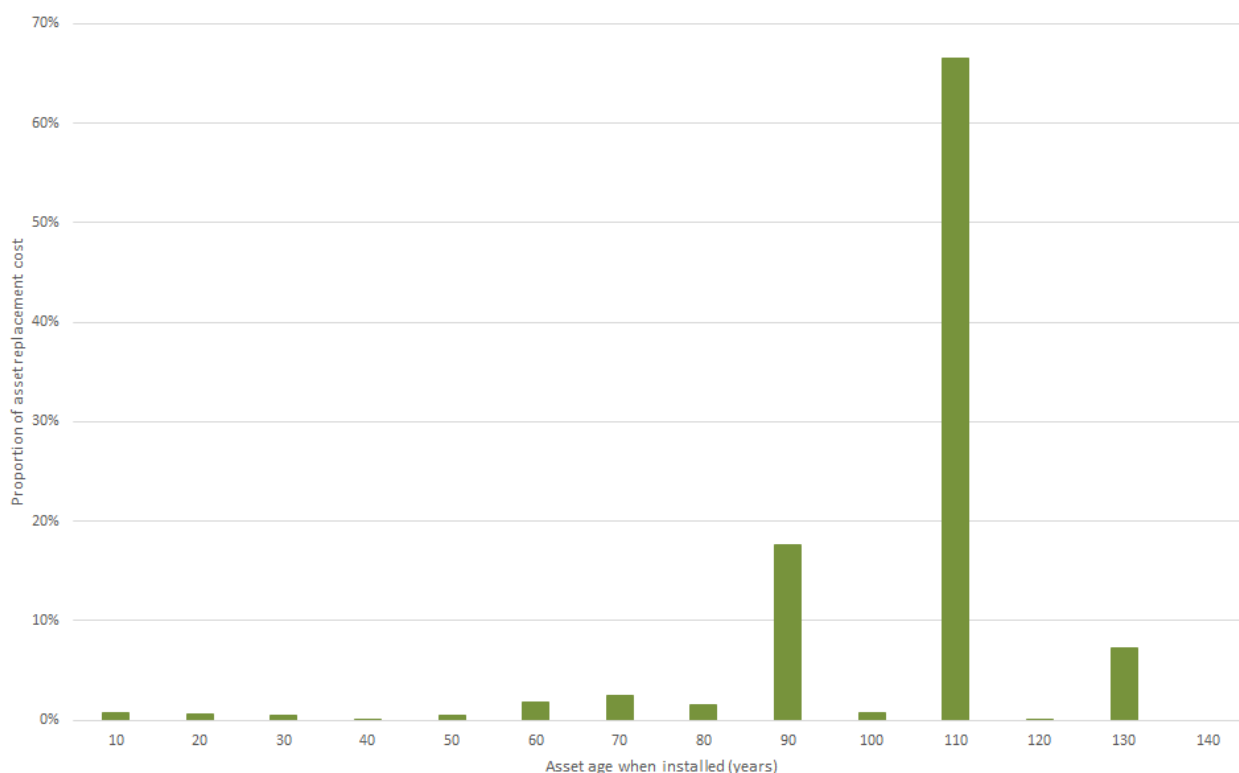
Capex item	Pre-efficiency capex between 2020 and 2024 (\$M)	Asset life (years)
Total water capex (Table 4-12)	130.6	n/a
M2WTM capex (Table 4-6)	56.8	77 (Table 5-2)
Mangrove Creek capex (Table 4-7)	7.2	93 (Table 5-2)
Water capex other than M2WTM and Mangrove Creek	66.6	52 (Table 5-5)
<b>Weighted average for all water capex</b>		<b>65</b>

For water, we therefore recommend that an asset life of 65 years be applied for the regulatory asset life of new assets created in the next determination period.

### Stormwater Assets

The average asset life in the FAR of new stormwater assets created since 2013 is a little lower than 100 years because of expenditure on assets such as gross pollutant traps and some reticulation assets which have been assigned lives of 80-90 years.

**Figure 5-2 Asset age and replacement cost for stormwater assets installed after 30 June 2013**



Source: Analysis of 'Item 114-115 Working for the average useful asset life for Drainage'

We see no reason that the average asset life of assets in the next determination period should be significantly different to the current determination period. **We therefore recommend that an asset life of 95 years be applied as the regulatory asset life for new stormwater assets created in the next determination period.**



## 6 Recommended Output Measures

In the pricing submission submitted in September 2018 Council proposed fixed output measures which did not change between 2020 and 2023 and were not linked to proposed expenditure investment. Subsequently, Council provided an addendum outlining year-on-year targets for each output measure.

We have reviewed Council's proposed output measures and recommended three additional measures relating to projects and one additional output measure related to supply interruptions to take account of their impact on customers.

The project milestones are to track delivery of important projects which:

- improve water resource availability and resilience of both the Council and Hunter Water areas of supply and make up a significant proportion of the capital program; and
- address risks of non-compliance with current EPA licence requirements.

The purpose of the additional supply interruptions measure is to improve understanding and performance relating to the impact of the loss of supply to customers from planned or unplanned interruptions rather than just the frequency of interruptions.

As discussed in Section 4.4, we have formed our view on an appropriate level of expenditure on capex 'renewals' to at least maintain existing service levels. Council's forecast renewal expenditure requirements are not based on predicted asset deterioration, output measure performance, environmental factors or the impact (benefit) to customers. We consider it appropriate that Council at least maintain current output performance levels.

We summarise in the tables below our view on Council's proposed output measures across each service and our recommended additional output measures. We have recommended adjustments to the performance target for unplanned interruptions, water main breaks and sewerage odour complaints.

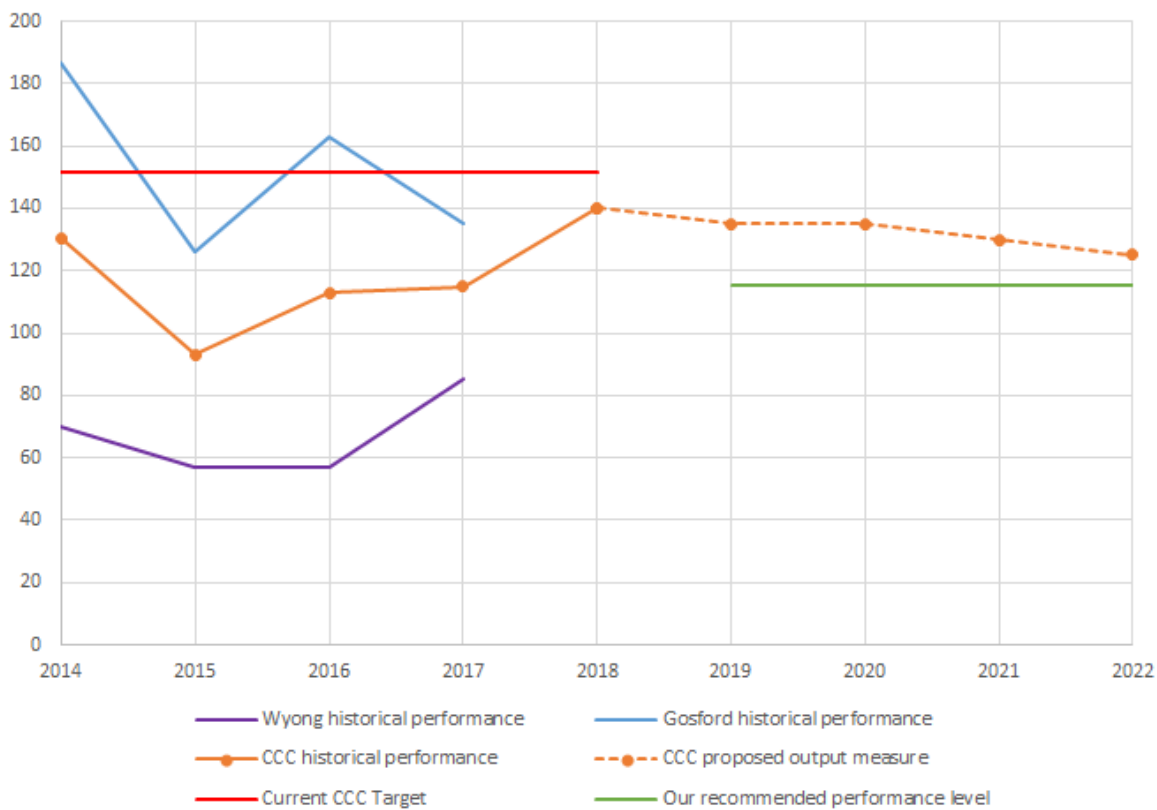
**Table 6-1 Our view on Council's proposed output measures for the water service**

Output or activity measure	Current Council Target	Note	Target for 2020	Target for 2021	Target for 2022	Target for 2023
1. Water quality complaints per 1000 properties	9.9	Council proposal	9	8	8	7
		Our view: accept Council's proposal	9	8	8	7
2. Average frequency of unplanned interruptions per 1000 properties	151.8	Council proposal	135	135	130	125
		Our view: the average of recent year average actuals (2015 to 2018) is a better measure of the performance Council should be attaining. See Figure 6-1	115	115	115	115
3. Water main breaks per 100km main	23.7	Council proposal	20	18	16	14
		Our view: in the early years of the next Determination period Council should be aiming for performance closer to recent averages. See Figure 6-2. We have based our recommendation on the average of 2015-2018 except for 2023 where we accept Council's proposal.	16	16	16	14
Compliance with Australian Drinking Water Guidelines – microbial guideline values 4.	100	Council proposal	100	100	100	100
		Our view: accept Council's proposal	100	100	100	100
5. Compliance with Australian Drinking Water Guidelines – chemical guideline values	100	Council proposal	100	100	100	100
		Our view: accept Council's proposal	100	100	100	100

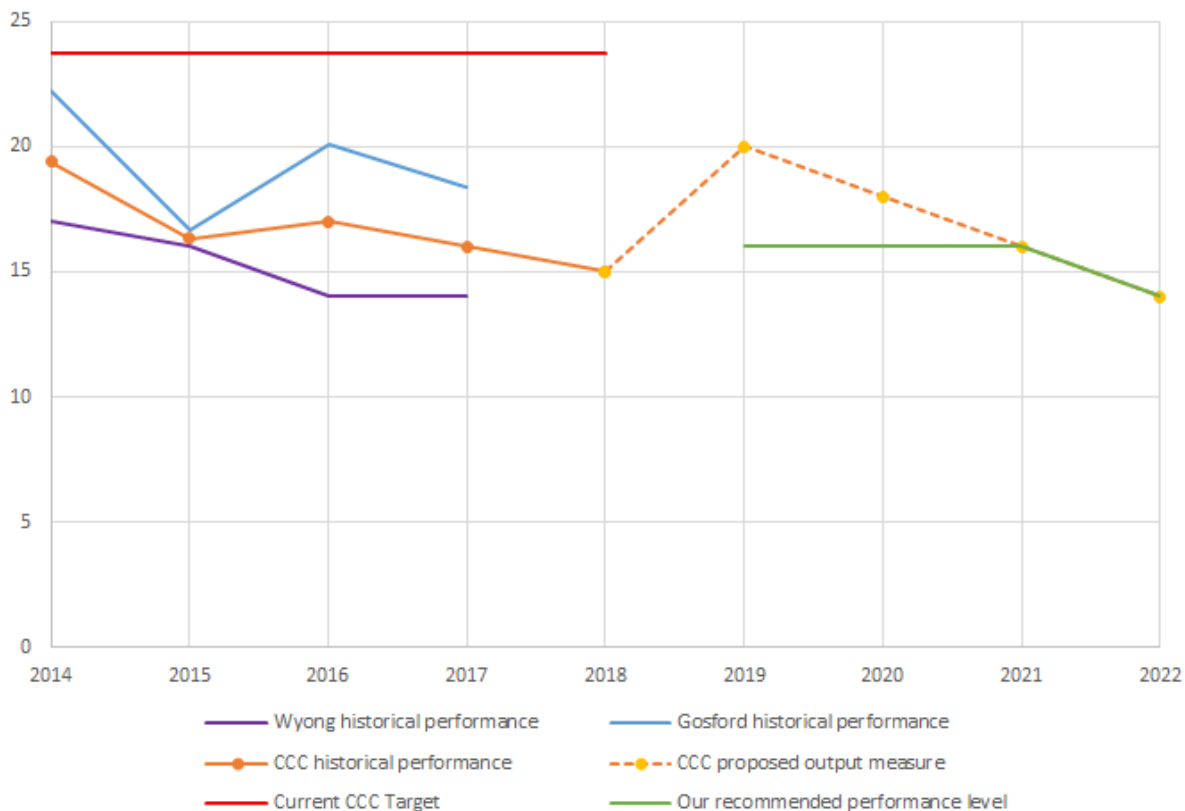
Item 117 Addendum CCC Revised Output Measures.pdf

For the measures pertaining to water quality complaints and drinking water compliance (microbial and chemical) we agree with the Council's proposals. We have recommended tighter targets based on Council's historical performance in the current determination period for unplanned supply interruptions (Figure 6-1) and water main breaks (Figure 6-2). We consider these targets to be stretching and achievable.

**Figure 6-1 Our view on output measure for unplanned interruptions per 1000 properties**



**Figure 6-2 Our view on output measure for water main breaks per 100km main**



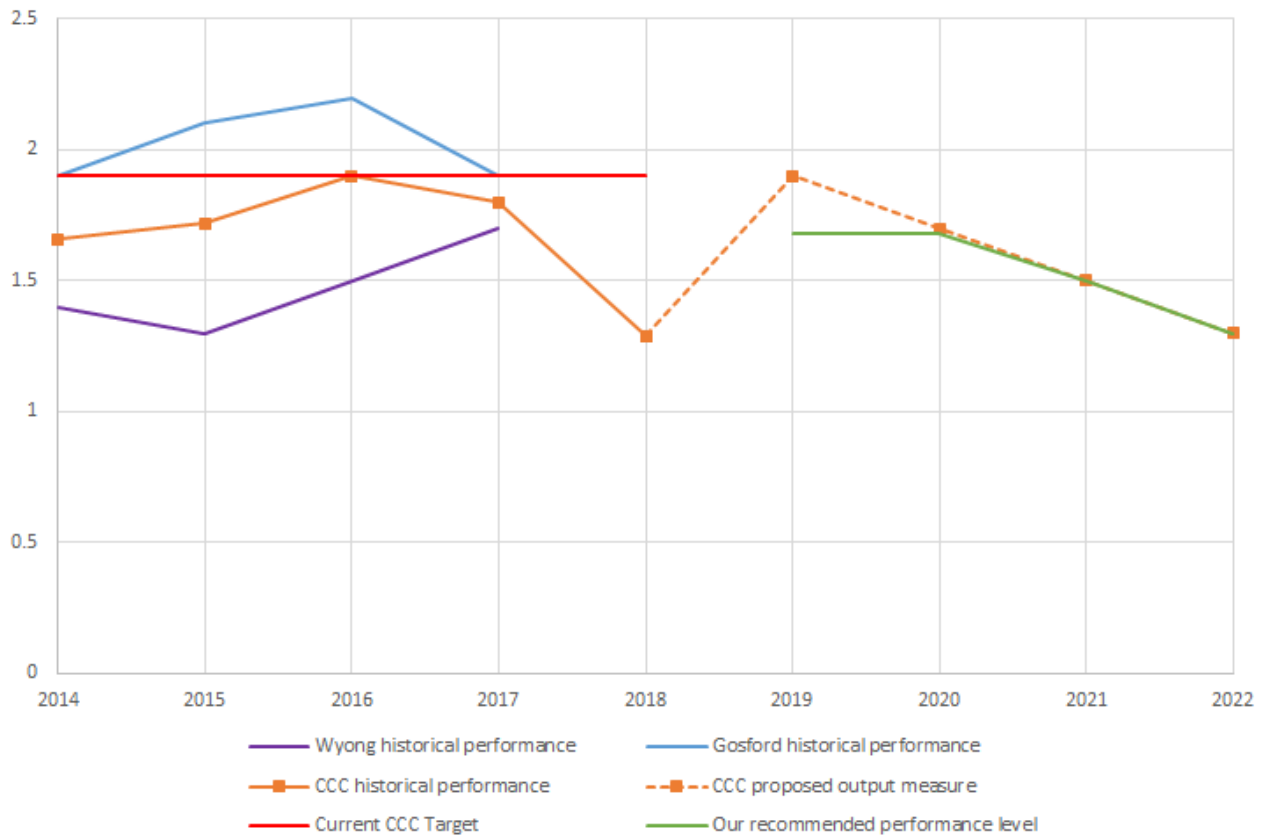
**Table 6-2 Our view on Council's proposed output measures for the sewerage service**

Output or activity measure	Current Council Target	Note	Target for 2020	Target for 2021	Target for 2022	Target for 2023
1. Wastewater overflows per 100 km main	32.6	Council proposal	32	30	28	26
		Our view: accept Council's proposal	32	30	28	26
2. Wastewater overflows reported to the environmental regulator per 100km main	1.6	Council proposal	1.6	1.5	1.4	1.3
		Our view: accept Council's proposal	1.6	1.5	1.4	1.3
3. Wastewater odour complaints per 1000 properties	1.9	Council proposal	1.9	1.7	1.5	1.3
		Our view: given recent investments in odour prevention we consider that the target for 2020 should align with the average of recent years (2015 to 2018) rather than the previous Council target	1.7	1.7	1.5	1.3
4. Wastewater main breaks and chokes per 100km main	35.6	Council proposal	35.6	34	32	30
		Our view: accept Council's proposal	35.6	34	32	30
5. Compliance with EPL concentration, load limits.	n/a	Council proposal	Yes	Yes	Yes	Yes
		Our view: accept Council's proposal	Yes	Yes	Yes	Yes

Item 117 Addendum CCC Revised Output Measures.pdf

For the measures pertaining to: wastewater overflows; wastewater main breaks and compliance with EPL concentration load limits we agree with the Council's proposals. We have recommended tighter targets in the early years of the future determination period based on Council's historical performance in the current determination period for wastewater odour complaints (Figure 6-3).

**Figure 6-3 Our view on output measure for wastewater odour complaints per 1000 properties**



**Table 6-3 Recommended additional output measures**

Output Measure	Output
Water service	
Project milestone: Mangrove Creek Spillway Dam Upgrades	Mangrove Creek Spillway Dam Upgrade project to be 100% complete by 30 June 2024
Project milestone: Mardi to Warnervale Trunk Main	Mardi to Warnervale Trunk Main project to be >75% complete by 30 June 2024
Customer Service: Supply Interruptions	Total customer minutes lost to supply interruptions (both planned and unplanned) to remain stable or improving over the determination period.  Note that Council reports data to NPR (frequency and average duration of unplanned interruptions) which can be used as an input to this measure, but it is not available for the current year.
Sewerage	
Project milestone: Charmhaven STP	Charmhaven STP upgrades to be 100% complete by June 2024

For Stormwater we have been unable to define a specific output measure. There are no identified schemes greater than \$2M capex and therefore it does not seem appropriate to have a named scheme as an output measure. We have not been provided enough detail on the overall programme or stormwater to identify a specific measurable output.

However, we consider it would be prudent for the Council to develop a specific output measure within the first year of the determination period to set a baseline and measure the performance throughout the remainder of the period against. Potential output measures to consider include:

- Length of assets renewed, refurbished or upgraded;
- Flooding incidents (properties, roads) due to asset failure (to be defined but may include blockages and collapses, where flooding occurred during storms which the system is designed to cope with); and
- Customer survey on how Council is performing in relation to stormwater (this could be extended to other measures too).

# Appendices



# Appendix A – Capex Projects

SIR Capex 2\_CCC lists 510 projects, of which 110 have capex in 2014-24 greater than \$1M and 30 have capex >\$5M<sup>30</sup> albeit a number of these “projects” are actually bucket codes such as “Continuing Projects from prior determination”. The total project spend in 2014-24 is just over \$683M.

The RFP requires us to review 10% of the capital program by total value and by number. We have based the selection primarily on the projects listed in SIR Capex 2, as summarised below:

In total we propose to review 21 projects/programs (c20% by number) with a total spend of approximately a third of the overall program by value (depending on how much overlap there is between the projects/programs).

We have identified the following 15 projects from “SIR Capex 2\_CCC”. We have focused on larger projects and excluded those which have a GD driver as these are assumed to be funded by third parties and therefore not material to the review.

Title		SIR ID No.	TOTAL CAPEX 2014-2024
JWS WATER PUMP STATIONS MAJOR(MECH/ELEC)	Gosford SIR	WEM001	6,425
Wyong share of GCC JWS Projects	Wyong	WBE019	8,940
WATER MAIN RENEWALS - PROGRAM BUDGET	Gosford SIR	SEM016	5,795
Annual Water Main Renewal Program	Central Coast	SGP040	9,300
Trunk Water Main Renewal Program	Central Coast	SGP045	8,891
SPS Renewals - unallocated Budget	Gosford SIR	DEM020	14,607
Sewer Gravity Mains	Gosford SIR	DEM022	6,061
EPCM - KSTP DIGETSERS	Gosford SIR	DEM036	10,319
Critical Sewer Main Rehabilitation - Reticulation System	Central Coast	DGP003	7,969
Sewer Pump Station - Mech/Electrical Renewals	Central Coast	DGP006	9,625
Sewer Pump Station Refurbishment Program	Central Coast	DGP008	6,730
Sewer rising main renewal program	Central Coast	DGP010	6,502
Sewer Treatment Plant - Mech/Electrical Renewals	Central Coast	DGP011	6,025

<sup>30</sup> All totals quoted from SIR Capex 2 are in a mix of nominal and real

Drain.Levy-Drain Construction	Gosford SIR	OEM052	1.636  (included despite being <\$5M as otherwise no stormwater)
15209.Wyong CBD STG 2 North Rd to Hardware Ln	Wyong SIR	OGP050	3,315  (included as otherwise no stormwater GP)

We also propose to audit an additional four projects based on the expenditure in the “Capex by project” sheets.

Proposed projects from “Capex by project \_Wyong”

Project	Description		Total spend 2014-2024	Why?
Work from WQ Strat (Short Term)	e.g. New chlorination points, software to periodically run WPS	W155	24,082	Large and linked to water quality
Mardi to Warnervale Trunk Main	New main to support growth in northern areas and transfers to Hunter	W211	59,895	Very large
Wyong South STP	STP upgrade to increase capacity	S215	16,116	Capacity increase

Proposed project from “Capex by project Gosford”.

		Total spend 2014-2024	Why?
Mangrove Creek Dam - Spillway and Dam Upgrades	22,656.00	7,098	Deferred in previous review

We have not included Gosford CBD as we understand from the Submission that the Council has sourced funds from NSW Government to cover the entire cost of these upgrades.

Although we can't find the relevant projects as separate lines in the AIR/SIR we will also ask the company to present to us on the **“business as usual” headworks and reservoirs programs** as detailed in Table 45 of the Submission as they are relatively large and potentially increasing over the period:

**Table 45: Water business as usual – Capital investment by asset type (\$000 2018/19)**

	2019/2020	2020/2021	2021/2022	2022/2023	Total
Groundwater	0	0	50	150	200
Headworks assets	1,875	3,177	7,524	4,738	17,314
Water Mains	2,568	2,015	1,946	2,175	8,703
Water Meters	1,151	1,151	1,151	1,151	4,603
Water Network assets	309	608	1,034	917	2,867
Water Pump Stations	873	551	885	1,536	3,846
Water Reservoirs	682	2,245	4,085	3,080	10,092
Water Treatment Plants	3,932	13,599	5,405	4,417	27,353
Total	11,390	23,346	22,080	18,164	74,978

## Appendix B – Project Summaries

### PROJECT DETAILS

<b>Project Name</b>	Water Main Renewals comprising: 1. Annual Water Main Renewal Program 2. Trunk Water Main Renewal Program 3. Water Main Renewal Program _ Network Improvement for Water Quality 4. Water Main Renewal Program _ Reactive		
<b>Region:</b>	Historic: Gosford, Wyong and Central Coast Council Future: Central Coast Council	<b>Status</b>	Current and future determination periods
<b>SIR ID No.</b>	SGP040, SGP045, SGP046, SGP047		

### FINANCIALS AND PROGRAM

<b>Budget in 2013 Submission</b>	N/a	<b>Initial Delivery Date</b>	Ongoing
<b>Outturn cost / Forecast outturn cost in Submission</b>	N/a	<b>Actual / Forecast Delivery Date</b>	Ongoing

### KEY DATA

<b>Project or program</b>	Water main renewals
<b>Line of Business</b>	Water
<b>Cost Driver</b>	Renewal
<b>Stage</b>	Ongoing program

<b>FY Ending</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s							6,406	5,790	5,821	6,175	-
Actual \$ 000s	1,360	1,348	1,647	2,828	1,814	3,284					

### NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

The water main renewal program supports ongoing service delivery to meet water supply standards primarily relating to continuity of supply. We reviewed a number of separate items from the SIR relating to water main renewal:

- SGP040 - Annual Water Main Renewal Program
- SGP045- Trunk Water Main Renewal Program
- SGP046 - Water Main Renewal Program \_ Network Improvement for Water Quality
- SGP047 - Water Main Renewal Program \_ Reactive

SGP040 - Annual Water Main Renewal Program is a proactive water main renewal program that prioritises the replacement of water mains based on their failure history and other factors. CCC defines a trunk water main based on size with mains >200mm in nominal diameter being categorised as trunk mains. This means that mains that have function of reticulation are included in the trunk water main program. We have therefore considered both the reticulation and trunk water main lines from the SIR together here. SGP046 - Water Main Renewal Program \_ Network Improvement for Water Quality is a program to replace dead ends in the reticulation network to improve water quality. The last item, SGP047 is a reactive program for water main renewal.

Water main renewals primarily support the reliability of supply. They have an additional impact on the quality of supply. This is a direct impact where renewals are targeted at removing dead ends in the supply network and an indirect impact where mains in poor condition are replaced leading to less material being deposited in the network that can contribute to dirty water events. The service standards relevant to water main renewals are detailed in the following table. This table details the desired performance over the current Determination period, the performance in each local government area for 2016/17 and the proposed performance in the upcoming Determination period.

	Desired Performance by 2015/16 (Both Gosford and Wyong)	Gosford – Performance in 2016/17	Wyong – Performance in 2016/17	Proposed for upcoming Determination period
<b>Water</b>				
Water quality complaints per 1,000 customers	9.9	8.6	6.64	9.0
Average frequency of unplanned interruptions per 1,000 properties	151.8	135.31	85.278	136
Water main breaks per 100km water main	23.7	18.36	13.92	20

The preceding analysis shows that current performance in the two Council areas (for 2016/17) is better than the desired performance standard from the current Determination. CCC has proposed performance standards for the upcoming period that are lower than that proposed for the current determination period but above current performance. Therefore, the proposed performance does not represent an increase in standard but instead is 'business as usual'.

## SCOPE OF WORKS / OPTIONS APPRAISAL

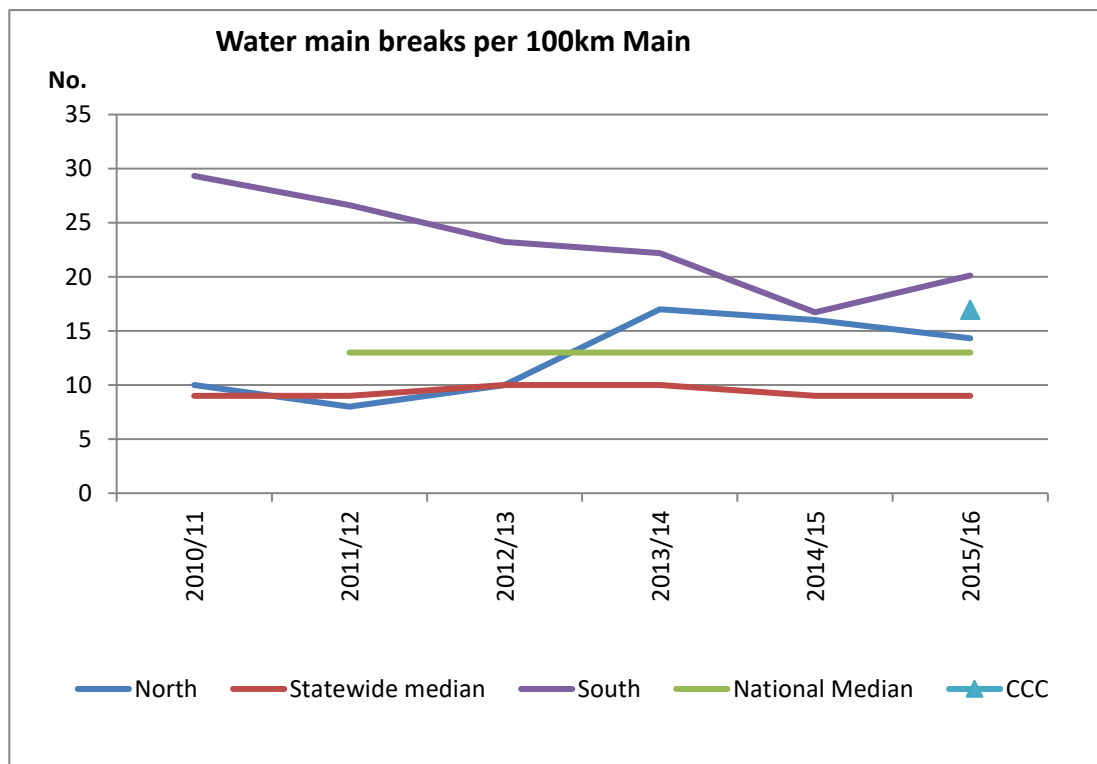
### Historic approach to water main renewal

In the former Wyong area, reticulation mains were managed on a run to fail basis with a trigger for renewal of five breaks on a main segment between valves. We were informed that Wyong Council found it difficult to find mains that met this criterion. This is supported by the water main break frequency rate reported for

Wyong of 13.92 per 100km of water main which is much lower than the 18.36 per 100km of water main reported for Gosford in 2016/17 and the proposed target of 20 per 100km of water main.

It was noted that previously the Wyong water and sewerage business had made contributions to the roads business for the cost of relocating and replacing water mains impacted by road works. Costs for these works were forecast at \$2.1 million in the current Determination period. Wyong ceased making these contributions with only \$30k expended in the period as it recognised that these were not consistent with user pays/impactor pays principles.

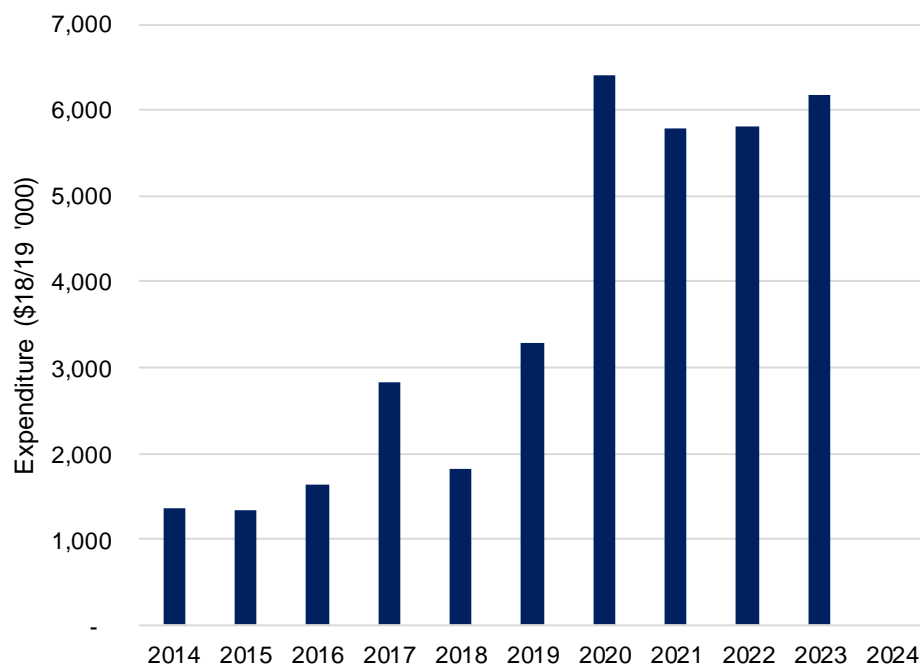
The water main break frequency in the former Gosford area has been historically higher than that observed in Wyong. However, over the current Determination period, the rate has reduced noticeably from around 30 breaks per 100km of main to 18 breaks per 100km of main in 2017/18. This is shown in the following figure.



Source: Central Coast Council

#### Historical expenditure

Determining historic expenditure on water main renewals is made difficult by the expenditure being across multiple projects for which the naming conventions are not consistent between the two former local governments and which have also changed during the current Determination period. Based on a bottom-up assessment of projects (consistent with the analysis in the body of the report), we have identified historic expenditure within the scope of water main renewals. The total of this expenditure in the current Determination period and forecast for the corresponding expenditure categories is shown in the following figure.



Source: Atkins/Cardno analysis

Expenditure for both local governments from 2014 to 2019 is forecast to total \$10.8 million at an average of \$1.8 million per year. The largest single item in this period is an aggregated water main reticulation program for Wyong which totals \$3.04 million. Historical expenditure for Gosford is typically disaggregated into single projects although there is also a program line total \$1.2 million.

#### Future expenditure overview

The following table details proposed expenditure for the upcoming period across the four programs. CCC has only populated four years of expenditure in the SIR.

		2020	2021	2022	2023	2024	Total
Annual Water Main Renewal Program	SGP040	2,450	2,200	2,200	2,450		9,300
Trunk Water Main Renewal Program	SGP045	2,456	2,090	2,121	2,225		8,891
Water Main Renewal Program _ Network Improvement for Water Quality	SGP046	500	500	500	500		2,000
Water Main Renewal Program _ Reactive	SGP047	1,000	1,000	1,000	1,000		4,000
Total		6,406	5,790	5,821	6,175		24,191

The proposed expenditure has a small peak in 2020 driven by trunk main renewals and is thereafter relatively flat. Over the four years forecast, the average expenditure for the four programs is \$6.05 million per year.

The proposed average annual expenditure for the future Determination period is more than three times higher than historical expenditure across renewal of water and trunk mains. There is no single component



of expenditure that is driving the increase – all components are increasing substantially over historical levels.

CCC advised that the forecast expenditure should generally be viewed as an envelope which will be prioritised in response to planning and emerging needs in upcoming years.

Expenditure has been forecast based on a combination of bottom-up aggregation of potential projects which have been subject to prioritisation. This has been undertaken for works in the former Gosford local government area. For Wyong and some items of work (such as reactive water main renewals), the forecasting approach is top-down with little supporting evidence.

#### Water main renewal expenditure

We revised CCC's methodology for prioritising water main renewal expenditure. This is based on a Water Services Association of Australia (WSAA) methodology. This methodology was used by the former Gosford Council and is being extended to the whole of CCC. The methodology is a multi-criteria analysis which incorporates the following criteria:

- Benefit/cost ratio
- Average number of breaks per year – last three years
- Average number of breaks per year – last seven years
- Qualitative impacts to customers, operations and environment

These criteria are weighted and summed as follows to arrive at a priority score:

$$\text{Priority score} = (2 \times \text{BCR}) + (1 \times \text{average number of breaks per year} - \text{last three years}) + (0.5 \times \text{average number of breaks per year} - \text{last seven years}) + \text{sum of impacts}.$$

The three impact areas are scored as follows:

Nil = 0

Minor = 1

Moderate = 2

Major = 3.

Based on the evidence of the substantial decrease in water main breaks in the Gosford Council region over the last seven years, the prioritisation methodology appears effective at targeting mains requiring renewal. Notwithstanding this apparent effectiveness, we consider that there are some opportunities to improve the methodology. In particular, the qualitative scoring of customer, operational and environmental impacts may unduly influence the prioritisation.

The cost benefit analysis also should be seen more as an indicative rating than an actual reflection of the benefits of the work. The cost benefit analysis is based on a Sydney Water methodology. We reviewed the application of the cost benefit analysis for the Woy Woy Rd reticulation main renewal. The costs included are the capital costs for main renewal and the benefits are the avoided cost of main repairs. These are assumed constant over the 30-year analysis period. The cost benefit analysis is limited in scope in that it doesn't include benefits to others outside of CCC, such as third-party costs and indirect benefits such as traffic congestion and the inconvenience of interruptions to supply. Despite these issues, we consider that the cost benefit analysis approach is acceptable given that it is one input into the overall prioritisation methodology.

CCC stated that it intends to revise its prioritisation methodology during the upcoming Determination period. This revision is intended to move the prioritisation to a risk approach consistent with the asset risk assessment approach to be introduced across the water and sewerage business (as discussed in Section 2.6).

We also reviewed the other inputs into the prioritisation for the Woy Woy Rd main including failure history and cost build up. We found sufficient evidence supporting the inputs to the prioritisation.

We were provided with the water main program for the current year, 2018/19. This program totals \$1.515 million which is for 3,250m of mains renewal and is the sum of all projects with a priority score greater than five.

We challenged CCC staff to demonstrate the link between the priority score (which drives the total program size) and the desired performance standards such as customer interruptions and mains breaks. CCC staff advised that its understanding of this linkage is maturing. There is not a long-term forecast for water mains renewals that predicts service performance based on investment and modelled asset deterioration. Council's understanding and forward estimates are therefore based on the extrapolation of observed historical trends.

#### Trunk water main renewal

Trunk water main renewals are prioritised using the same methodology described for reticulation mains. We were provided a schedule of prioritised trunk water main renewals. The five highest priorities are shown below.

Street	Suburb	Dia. (mm)	Length (m)	Existing Material	Priority Score	Estimate	B/C Ratio @ 4.5%	Breaks 3yrs	Breaks 7 yrs	Impact score
Section 3 - The Round Drive	Avoca Beach	250mm	650	CICL	8.0	\$747,500	0.58	2	2	6
Section 5 - Cape Three Points Road	Avoca Beach	375mm	450	CICL	7.9	\$879,750	0.54	2	2	6
Section 1 - The Round Drive	Avoca Beach	250mm	450	CICL	6.6	\$517,500	0.70	3	3	4
Ocean Beach Road	Woy Woy	375mm	63	CICL	6.2	\$128,000	1.12	2	4	3
Tramway Rd/Elanta Ave	North Avoca/Avoca Beach	450mm	295	CICL	6.2	\$770,000	1.08	2	5	3

The first three are all located in close proximity and are different sections of the same part of the network. In total, 1550m of this section of main is prioritised for renewal. When we investigated the location of this main, it appears that despite its size, the main only has the function of distribution. We therefore question its inclusion in the trunk main program. There is an opportunity for CCC to improve its classification of trunk mains with a stronger link to the criticality of assets to service delivery.

For the two highest priority mains in particular, the priority score is driven by the impact score being the sum of customer, operational and environmental risks. Both mains have been rated as having 'major' customer and operational impacts (score =3 each) leading to the total score of 6. We challenged CCC over this rating given the qualitative scoring approach and the apparent function of the main as a distribution main and the apparent network configuration which would allow a section of the main to be isolated without impacting customers outside of the shutdown section. CCC responded that the impact score was driven in part by damage to private property caused in previous breaks.

We consider that for trunk main works (and larger distribution main works) that short form business case or project evaluation documents should be prepared to better articulate the need for the works and the expected benefits. This would help mitigate the potential for qualitative scoring of the impact measures undermining the prioritisation.

CCC advises that it will move to an approach for managing trunk mains aligned with its criticality and risk framework. This should help CCC to better identify 'avoid fail' mains and to implement appropriate lifecycle management approaches for these. It is likely that this will lead to mains >200mm no longer being categorised as trunk mains.

#### Cost estimates

Cost estimates for water reticulation mains and trunk mains are built up from a base rate with factors added for conditions such as the presence of rock and acid sulphate soils, the location (local road v main road) and the presence of services and structures. A 15% contingency has been added to the estimated costs.

### **DELIVERY AND PROGRAM**

Water main works are undertaken by a combination of internal (day labour) crews and external contractors. External resources are used for more complex techniques such as pipe bursting or large projects. CCC has recently entered into a long-term arrangement for water main renewals, water service replacements and water meter replacement. This is a four-year contract with the possibility of two separate one year extensions. This arrangement is with a single contractor and was procured through an open process.

We requested CCC to advise the mix of internal and external resources used for water main works historically. We were provided this breakdown for the former Gosford local government area for the period 2014 to 2017. Around two-thirds of works were delivered by external contractors and one third by internal resources.

The proposed tripling of the program will be challenging for CCC to deliver. While CCC is able to draw on external resources for construction, there will be increased demand on its own resources to oversee the uplift in work.

### **CONCLUSIONS ON PRUDENCE AND EFFICIENCY**

CCC has in place sound, risk-based approaches for prioritisation of water main and trunk main renewal works. While it has employed this approach to forecast works for the former Gosford local government area, for the former Wyong local government area and some items of work (such as reactive water main renewals), the forecasting approach is top-down with little supporting evidence.

CCC is proposing an increasing program at the same time that performance measures have improved or are stable. There is no clear customer desire for increased performance from water mains. CCC's asset management approaches are maturing. Current forecasting approaches do not indicate, or are not sufficiently robust, to suggest a need for increased expenditure on water main and trunk main renewals. We therefore propose that prudent and efficient expenditure in the future determination period reflects the level of expenditure in the current determination period.

### **DOCUMENTS REVIEWED**

- WMRP 2018-2019 Breaks Program \_V2.xlsx
- Additional water trunk mains - high level cost estimate.xlsx
- Reactive rehabilitation cost estimate.xlsx
- Retic WMRP analysis costing future.xlsx
- Water mains historical kpi information.docx
- WM breaks GIS screenshot - Woy Woy renewal.jpg
- Retic WMRP 2018-2019 Program.xlsx
- Item 97 - water mains delivered internal v external last three years.xlsx
- Item 98 - Historical Expenditure.xlsx

## PROJECT DETAILS

<b>Project Name</b>	Sewage Treatment Plants – M&E renewals		
<b>Region:</b>	Central Coast Council	<b>Status</b>	Future determination periods
<b>SIR ID No.</b>	30-100-RF2		

## FINANCIALS AND PROGRAM

<b>Budget in 2013 Submission</b>	N/a	<b>Initial Delivery Date</b>	N/a
<b>Outturn cost / Forecast outturn cost in Submission</b>	N/a	<b>Actual / Forecast Delivery Date</b>	N/a

## KEY DATA

<b>Project or program</b>	Sewage Treatment Plants – M&E renewals
<b>Line of Business</b>	Sewerage
<b>Cost Driver</b>	Renewal
<b>Stage</b>	Ongoing program

<b>FY Ending</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s								1,500	1,500	1,500	1,500	
Actual \$ 000s												

## NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

The renewal of mechanical and electrical assets at sewage treatment plants is required to maintain environmental compliance. The need for the expenditure should account for the criticality of the asset and the presence of redundancy and operational mitigation measures which often reduce the risk to maintaining compliance.

## SCOPE OF WORKS / OPTIONS APPRAISAL

Historically, the approach to renewal of mechanical and electrical assets at sewage treatment plants varied. In the former Wyong local government area, assets were run to failure. In the former Gosford local government area, a more proactive approach was adopted. CCC has commenced a condition assessment program across all of its treatment plants to provide information into asset renewal decisions.

Prior to this condition assessment work being undertaken, CCC has compiled a spreadsheet with known sewage treatment plant M&E renewal needs. There is a total of 22 items included in the program. A risk score has been assigned to each item in the works program.

The total estimate of works in the program spreadsheet is \$7.0 million. CCC advised that as the proposed expenditure within the pricing submission is \$6.0 million (both figures over four years) it will prioritise expenditure within the upcoming price period within this expenditure envelope. CCC will prioritise works during the upcoming period based on more detailed planning, additional information (e.g. planned condition assessment at Bateau Bay STP) and stakeholder consultation. This approach is reasonable to planning for renewal of these assets at this point in time.

We reviewed the Project Initiation Request Form and cost estimate for the Woy Woy STP Stage 1 & 2 Aerator Renewals and for switchboard control room renewals. The cost estimates for switchboard renewals are based on projects recently completed and include for the cost of disposal of the existing assets. The estimates are based on lineal metre of switchboards to be renewed. For the aerator renewal work, a contingency of 20% had been allowed. For the switchboard renewal work, a 50% contingency had been allowed. This contingency is consistent with CCC's cost estimating template for project "initiation" or "feasibility" but appears high for work which CCC has recently completed project experience on which to base its estimates.

## DELIVERY AND PROGRAM

Following planning and design, works will be packaged for delivery. Internal resources will be used where appropriate. Works over \$150,000 will go to open tender. It is anticipated that the majority of the electrical works will be designed in house and the switchboard constructed in house. The switchboard would then be free-issued to a contractor to install and undertake the cabling.

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

There is a need to renew and replace mechanical and electrical assets at sewage treatment plants when they fail or proactively based on their assessed risk to service delivery. CCC has developed a program of works based on the information available. Each item in the program has an assigned condition and a cost estimate. The cost estimates for switchboard work includes a 50% contingency which appears high given that CCC has recent experience in completing this type of work. We conclude that it is prudent to undertake these renewal works. However, the magnitude of expenditure required for the upcoming Determination requires better justification.

## DOCUMENTS REVIEWED

ITEM 103, CA Mardi WTP Electrical Condition Assessment Audit.pdf

ITEM 103, 99656-1 Cost Estimate, Mech-Elec Renewals.xlsx

ITEM 103, 99656-1 Cost Estimate, SCA References.xlsx

ITEM 103, 99656-1 Cost Estimate, SCA Renewals.xlsx

ITEM 103, 99656-1 Cost Estimate, WWSTP Stage 1 & 2 Aerator Renewals.xlsx

ITEM 103, 99656-1 Mech-Elec Project Status.docx

ITEM 103, 99656-1 PFR, MechElec Renewals.xlsx

ITEM 103, 99656-1 PFR, SCA Renewals.xlsx

ITEM 103, 99656-1 PFR, WWSTP Stage 1 & 2 Aerator Renewals.xlsx

ITEM 103, CA Bateau Bat STP, Summary Report DRAFT, 2018.06.pdf

ITEM 103, CA Mannering Park STP Electrical Condition Assessment Audit.pdf

## PROJECT DETAILS

<b>Project Name</b>	Sewer Main Renewals comprising:		
	Central Coast	Critical Sewer Main Rehabilitation - Reticulation System	DGP003
	Wyang	Inspection of critical sewers	DBE032
	Wyang	Relining Program	DBE033
	Wyang	Early replacement based on Inspection program	DBE034
	Gosford	Sewer Gravity Mains	DEM006
	Gosford	RELINING OF GRAVITY MAINS	DEM014
	Gosford	CCTV CONDUIT INSPECTION	DEM015
<b>Region:</b>	Historic: Gosford, Wyong and Central Coast Council  Future: Central Coast Council	<b>Status</b>	Current and future determination periods
<b>SIR No.</b>	<b>ID</b> DGP003, DBE032, DBE033, DBE034, DEM006, DEM014, DEM015		

## FINANCIALS AND PROGRAM

<b>Budget in 2013 Submission</b>	N/a	<b>Initial Delivery Date</b>	Ongoing
<b>Outturn cost / Forecast outturn cost in Submission</b>	N/a	<b>Actual / Forecast Delivery Date</b>	Ongoing

## KEY DATA

<b>Project or program</b>	Sewer main renewals
<b>Line of Business</b>	Sewerage
<b>Cost Driver</b>	Renewal
<b>Stage</b>	Ongoing program



FY Ending	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Planned \$ 000s	3,458	2,730	1,007	820	358	-					
Actual \$ 000s							2,158	1,937	1,937	1,937	

## NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

The sewer main renewal program supports ongoing service delivery to meet sewerage standards primarily relating to continuity of supply. Forecast expenditure is captured in the item Critical Sewer Main Rehabilitation - Reticulation System (DGP003). Work in the current determination period is recorded across a number of expenditure lines which comprise:

### Former Wyong local government area:

- Inspection of critical sewers
- Relining Program
- Early replacement based on Inspection program
- Sewer Gravity Mains

### Former Gosford local government area:

- Relining of gravity mains
- CCTV conduit inspection

The service standards relevant to the sewerage service are detailed in the following table. Sewage main breaks and chokes is the most directly relevant indicator for sewer main renewals. This table details the desired performance over the current Determination period, the performance in each local government area for 2016/17 and the proposed performance in the upcoming Determination period.

	Desired Performance by 2015/16 (Both Gosford and Wyong)	Gosford – Performance in 2016/17	Wyong – Performance in 2016/17	Proposed
Sewer overflows per 100km main	32.6	33.63	35.27	32.0
Sewage overflows reported to the environmental regulator per 100km main	1.6	2.8	4.42	1.6
Sewage odour complaints per 1,000 properties	1.9	1.9	1.68	1.9
Sewage main breaks and chokes per 100km	35.6	37.08	31.33	35.6

For sewer main breaks and chokes, the proposed standard for the future determination period is the same as the desired performance in the current determination period. Current performance in Gosford (37.08 breaks and chokes per 100km main) is just above (4% higher) than this current and future target while current performance in Wyong is 12% better than this target. Therefore, like for water mains, the proposed performance does not represent an increase in standard but instead is 'business as usual'.

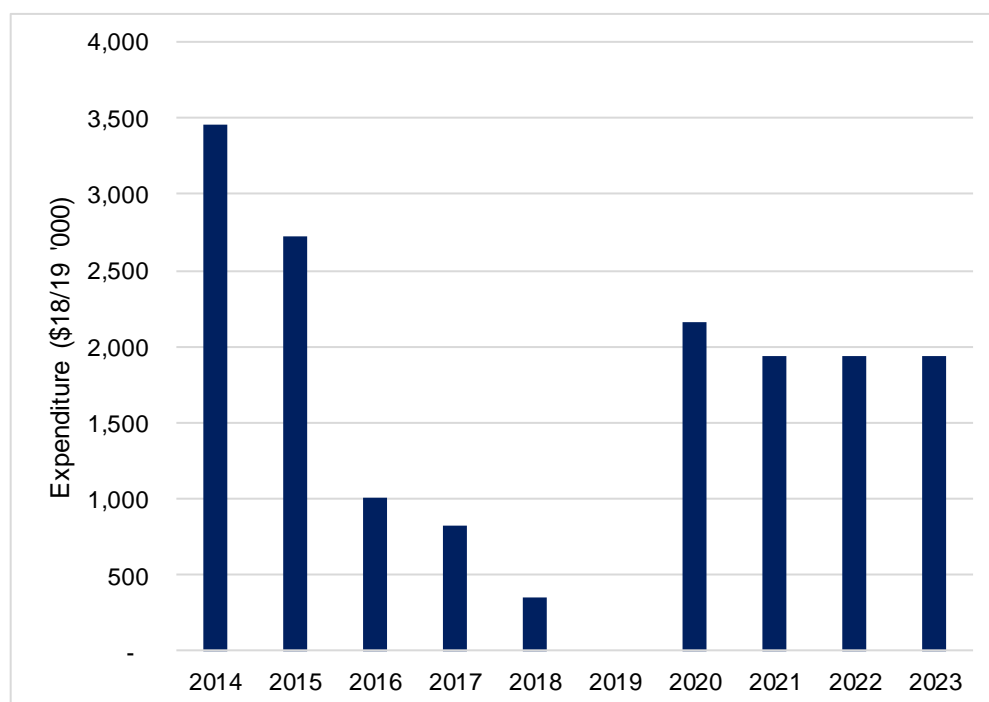
## SCOPE OF WORKS / OPTIONS APPRAISAL

Historically, two different approaches have been adopted to assign criticality to sewer mains. For Wyong, criticality was determined based on pipe diameter. In Gosford, criticality was based on a combination of factors including customer and environmental impacts.

In Gosford, sewer main renewal decisions have been based on a WSAA decision matrix that accounts for main failures and condition information.

To forecast expenditure requirements for the future determination period, two different approaches have been adopted. For the former Gosford local government area, the length of main to be renewed has been based on GIS analysis to identify sewer lengths on which more than two break/chokes or overflows have occurred in the last two years. Upstream and downstream sections were also included. This snapshot of performance history was used to inform likely expenditure requirements over the future determination period. For the former Wyong local government area, the estimated length of sewer main required to be renewed was forecast as being the same length per year as in the current determination period.

Expenditure on sewer main renewals from 2014 and forecast to 2023 is shown in the following figure. Expenditure for sewer main renewals in 2019 appears to have been omitted from the SIR.



The expenditure profile shows a peak in 2014 driven by \$1.9 million of expenditure by Gosford in this year. Expenditure dropped sharply in 2016 to 2018. For the period 2020- 2023, \$7,969k of total expenditure is forecast at an average of \$1,992k per year.

The expenditure has been built up based on known rates for relining, clean and inspection and cutting junctions. An allowance of 17% for project management has been added along with a 10% contingency.

## DELIVERY AND PROGRAM

Works are delivered primarily by external contractors through a pre-qualified panel.

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

As for water mains, CCC has in place sound, risk-based approaches for prioritisation of sewer main renewal works. The development of the future program has relied on extrapolation from current levels of activity. CCC's program while in line with the average of recent years, is a step up from the low levels of activity in the last two years. There is no proposed change to performance standards and there is no clear customer desire for increased performance from sewer mains. As for water mains, CCC's asset management approaches are maturing. Current forecasting approaches do not indicate, or are not sufficiently robust, to suggest a need for increased expenditure on sewer main renewals.

## DOCUMENTS REVIEWED

Sewer mains current - historical KPIs.docx  
SUMMARY Critical sewer mains rehab.xlsx  
Critical sewer retic main rehabilitation cost estimates.xlsx  
Critical SMH rehabilitations - cost estimate.xlsx  
Gravity sewer main risk framework - South.docx  
Sewer gravity main rehab summary FINAL.xlsx

## Mardi to Warnervale Trunk Main

### PROJECT DETAILS

<b>Project Name</b>	Mardi to Warnervale Trunk Main		
<b>Region:</b>	Central Coast	<b>Status</b>	Current and Future
<b>SIR ID No.</b>	W211		

### FINANCIALS AND PROGRAM

<b>Budget in 2018 Submission</b>	\$61.1M	<b>Initial Delivery Date</b>	2021
<b>Outturn cost / Forecast outturn cost in Submission</b>	n/a	<b>Actual / Forecast Delivery Date</b>	n/a

### KEY DATA

<b>Project or program</b>	Water
<b>Line of Business</b>	
<b>Cost Driver</b>	Growth – other projects
<b>Stage</b>	Planning- construction phase business case

<b>FY Ending</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s						640	4,031	39,061	13,748		
Actual \$ 000s	3	94	120	1,297	901						

### NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

The Mardi to Warnervale Pipeline (M2WP) is a proposed pipeline which will run from the existing Mardi Water Treatment Plant to Sparks Road at Warnervale. Based on design progress to date the M2WP comprises the following key components.

- 9km DN750mm pipeline from Mardi Water Treatment Plant (MWTP) to Sparks Road including two major Horizontal Directionally Drilled (HDD) crossings and a horizontal thrust bore under the M1 Pacific Motorway;
- A short length of DN375mm pipeline along Nikko Road to an existing connection point adjacent to the Nikko Road booster pump station;
- A new valve house at the Northern end of the M2WP where the main trifurcates, including the installation of valving and flow metering assets.

The M2WP project was identified as an integral piece of water supply infrastructure for the northern region of CCC's area of service (Department of Commerce, 2008). The M2WP was identified as achieving two key objectives which are to:

- (iii) Service growth in CCC's northern areas which include the major growth hub at Warnervale Town Centre and numerous greenfield sub-division sites within the Kanwal reservoir supply area. The pipeline is required to be fully operational prior to 2026 to meet this growth objective with reservoir storage and peak day pressure management while also allowing decommissioning of a temporary booster pump station servicing the Warnervale Town Centre;
- (iv) Meet commitments under the "Hunter - Central Coast Pipeline Agreement, 2006" to allow increased northbound bulk water transfers between the Central Coast and Hunter up to 30ML/day.

Secondary objectives achieved following the construction of the pipeline include:

- Local job creation and contribution to building a stronger regional community.
- Allow the Nikko Road Booster Pump station to be taken offline.
- Establishment of the Kiar Ridge Reservoir ahead of the construction of the future reservoir.
- Provide redundancy to the existing two trunk mains which supply Kanwal Reservoir from Tuggerah 2 Reservoir.

## SCOPE OF WORKS / OPTIONS APPRAISAL

The Council allocated \$26.8M (in nominal prices) within the current determination for the development of the Mardi to Warnervale Trunk Main, however only \$1.6M of this was spent in the current determination period. Earlier concept designs undertaken in 2005 had selected the route due to a common alignment with the future 'Link Road' which is a proposed major arterial road between the Pacific Highway at Watanobbi and Sparks Road, Warnervale. In 2014 an executive decision was made which confirmed the co-location of the pipeline with the proposed 'Link Road'. Detail design and preparation of a Review of Environmental Factors (REF) then proceeded on that basis. Since then the timing of the construction of the link road has diverged and a full reappraisal of the route alignment options was undertaken.

## DELIVERY AND PROGRAM

In April 2016 consultants were engaged to undertake detailed environmental investigations in the form of a REF and developing the detailed design for Option 1 - Watanobbi alignment. Subsequent to this report and detailed bottom-up cost estimating, the Council are now forecasting the entire project to cost \$61.1M including the costs already spent, equating to \$57.4M between 2019 and 2024. The project capital cost estimate is \$49.3M, excluding CCC's internal costs, with Construction Contract works are estimated to take approximately 16 months.

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

Overall, we have little confidence that the lumpy expenditure profile in the submission can be achieved. We recommend re-profiling expenditure over the period 2020 to 2024 as shown below.

### M2WTM - Re-phasing capex in future determination period

Year ending June: (\$k 18-19)	2019 (current PP)	2020	2021	2022	2023	2024	2025 (next determination period)
Mardi to Warnervale TM proposed	640	4,031	39,061	13,748	0	0	0
Atkins recommended adjustments	0	0	-31,668	-18	10,562	10,562	10,562
Mardi to Warnervale TM - Atkins recommended expenditure	640	4,031	7,393	13,730	10,562	10,562	10,562

The Council over recovered revenue for this project expenditure in the current period as it was not taken forward. The 'SIR Capex 2\_Wyong' worksheet includes this project as "continuing from prior determination" under "funded through developer charges". In parallel to this submission the Council has submitted an application for funding of the M2WTM project from the Regional Growth Fund, with the application outcome pending. The funding application for this project is outside the scope of our review.

## DOCUMENTS REVIEWED

- Mardi to Warnervale Pipeline Gate 2 Draft Business Case - v1.2
- M2WP Final Design Report
- M2WP Levelled Resource Plan\_V1.12\_ReCalc 21.09.2018SL

## Work from WQ Strat (Short Term)

### PROJECT DETAILS

<b>Project Name</b>	Work from WQ Strat (Short Term)		
<b>Region:</b>	Wyong	<b>Status</b>	Current and Future
<b>SIR ID No.</b>	W155		

### FINANCIALS AND PROGRAM

<b>Budget in 2018 Submission</b>	1,110	<b>Initial Delivery Date</b>	
<b>Forecast outturn cost in Submission</b>	24,082	<b>Actual / Forecast Delivery Date</b>	

### KEY DATA

<b>Project or program</b>	Water Quality Strategy
<b>Line of Business</b>	Water
<b>Cost Driver</b>	Existing Mandatory
<b>Stage</b>	Concept Design

### Capex by project

#### Work from WQ Strat (Short Term) (W155)

<b>FY Ending</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s						1,049	2,623	12,300	5,000	2,000	
Actual \$ 000s			186	388	536						

### NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

The first phase of the project addressed the first three elements of the framework for management of drinking water quality, which is essentially a 'catchment to tap' risk assessment that will identify issues to be solved in order to provide sufficient quality drinking water for residents in Wyong and other stakeholders including Gosford Council, Hunter Water and NSW Health. The second phase identified the solutions both at Mardi Water Treatment Plant and within the Distribution network, and a staged



approach to implement those solutions. These solutions are based around the key identified issues including dissolved organic carbon in source water, water age and chlorine decay in the distribution system, high turbidity during high demand periods and reservoir configurations.

The majority of forecast \$24.57M expenditure is identified from the project “20799 - Mardi Water Treatment Plant Stage 3 Upgrade”. This proposed upgrade to the Mardi Water Treatment Plant (MWTP) will secure 160ML/d of drinking water production capacity to Australian Drinking Water Guidelines, for a contemporary raw water quality envelope which reflects water quality in Mardi Dam following the extraction regime implemented as part of the commissioning of the Mardi to Mangrove Transfer Pipeline. The raw water quality envelope also reflects quality from Mangrove Creek Dam which is the alternate supply source for the WTP.

The raw water quality at Mardi WTP can deteriorate significantly with turbidities in excess of 20 NTU following heavy rain in the region. During these events the treatment plant has been de-rated. As regional demand increases however, the dam source will need to be utilised during high turbidity events. Hence the process at Mardi WTP needs to be capable of maintaining a secure production of 80 ML/d, 120 ML/d and up to 160 ML/d in the short to medium term.

Mardi Water Treatment Plant (WTP) is able to produce in the order of 160 ML/d of potable water from the Mardi Dam under typical dam conditions (2.8 NTU & 49 HU Colour), during which the raw water turbidity ranges between 0.6 and 20 NTU. During rain and storm events, which lead to poor raw water quality, the capacity of the plant has to be reduced to enable sufficient filter run times to be achieved. As regional demand increases however, this will not be sustainable and the dam source may need to be utilised during poor raw water quality times and at increased plant production rates of up to 160 ML/d. Hence the process at Mardi WTP needs to be capable of maintaining a secure production of up to 160 ML/d during poor raw water quality events. To achieve the ultimate capacity, the plant may be augmented in stages of 80 ML/d, 120 ML/d and up to the ultimate 160 ML/d. A number of plant design and condition deficiencies restrict sustainable production at these levels during poor raw water quality conditions.

## SCOPE OF WORKS / OPTIONS APPRAISAL

A number of technical studies have been completed which had sought to define the previous Wyong Shire Council's water quality risks and determine appropriate solutions, both capital and operational, within the treatment and distribution systems

In 2015 Hunter H2O was engaged by Wyong Shire Council (WSC) to undertake an options study on the upgrade of Mardi WTP.

This report outlined the options assessment process and determined that the best clarification option to take forward in the design for Mardi WTP was Inclined Plates. The estimated capital cost of this option was ~\$11.8M while the whole of life cost was estimated at ~\$12.8M (30-year NPV @ 7%).

Various sludge handling options were considered during the options assessment with the preferred options being:

1. Modification of the existing sludge lagoons.
2. Future discharge to sewer.

The existing lagoons, with yearly dewatering, have enough capacity for continued use up to ~30 years. Improvements to the inlet and outlet would ensure that the lagoons operate with minimal solids carryover and can dewater more effectively when taken offline. The estimated capital cost of this option was ~\$0.47M while the whole of life cost was estimated at ~\$3.4M (30-year NPV @ 7%)

As the schemes are at concept phase there is a need to undertake further design to refine and design the preferred solutions.

The Concept design report is stated that "This Concept Design Report has been prepared to assist Wyong Water for their next IPART submission"

## DELIVERY AND PROGRAM

Preliminary work has been undertaken in the current determination period with an options appraisal undertaken in 2014 with a concept design report published in April 2017

The concept report states that the estimated project capital cost of the overall Mardi WTP Stage 3 upgrade is estimated at ~\$20.3 M (P90, including contingency) while the whole of life cost is estimated at ~\$41.9 M (30-year NPV @ 5%) at this level of design.

Delivery team have met with SWC to discuss with them to get lessons learned.

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

The concept report states that the estimated project capital cost of the overall Mardi WTP Stage 3 upgrade is estimated at about~\$20.3 M (P90, including contingency) while the whole of life cost is estimated at about~\$41.9 M (30-year NPV @ 5%) at this level of design.

In the round the project appears to be prudent and necessary to maintain water quality and quantity to appropriate levels at the Mardi Treatment Plant. We do have some significant reservations about the efficiency of the scheme based on the evidence provided in the SIR.

We have noted from the Project Estimate sheet that "project management" has been included twice in the overall "Estimated total project cost". We recommend an adjustment of \$1M for this. Have not made a specific adjustment for this as we have applied an overall efficiency challenge to cost estimating and contingency.

It appears that cost contingency has been applied both through the concept design phase and then a further 30% contingency applied at a higher CCC project management level over and above the consultants cost estimating contingency. We have not made any specific adjustments to this project as a result of this high contingencies but this is a typical example of SIR costs being overstated. This supports our view to apply a catch-up efficiency for cost estimating for all proposed expenditure.

## DOCUMENTS REVIEWED

- Presentation water quality –
- Water Quality Strategy Business Case (2014)
- Mardi Water Treatment Plant Stage 3 Upgrade – Project Business case (2018)
- Catchment to Tap Drinking Water Quality Management System Risk Assessment (2013)
- Mardi Water Treatment Plant Investigation and Options Study (2015)
- Wyong Distribution Network Water Quality Strategy (2016)
- Mardi Water Treatment Plant Stage 3 Upgrade Concept Design Report (2017)

## Mangrove Creek Dam - Spillway and Dam Upgrades

### PROJECT DETAILS

<b>Project Name</b>	Mangrove Creek Dam - Spillway and Dam Upgrades		
<b>Region:</b>	Gosford	<b>Status</b>	Future Determination Period
<b>SIR ID No.</b>	No ID		

### FINANCIALS AND PROGRAM

<b>Budget in 2018 Submission</b>	\$7.2M	<b>Initial Delivery Date</b>	2023
<b>Forecast outturn cost in Submission</b>	n/a	<b>Forecast Delivery Date</b>	2023

### KEY DATA

<b>Project or program</b>	Project
<b>Line of Business</b>	Water
<b>Cost Driver</b>	Other projects
<b>Stage</b>	Business Case

<b>FY Ending</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s						290	330	919	3,750	1,809	
Actual \$ 000s											

### NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

Mangrove Creek Dam is the largest of the region's three dams and acts as a main back-up to the water supply. Water is released from the dam when stream flows are low in Mooney Mooney Creek, Ourimbah Creek and Wyong River. Water is drawn from the dam via the intake tower and then released via valves at the outlet works, this water then flows 20 km downstream to Mangrove Creek Weir and pumped to Mooney Mooney. From here the water is further pumped to Somersby balance tanks and then transferred from the balance tanks to Somersby Water Treatment Plant. Treated water is transmitted by gravity or pumping to the distribution networks in the CCC supply area.

Mangrove Creek dam is primarily a storage dam with water being pumped up from the Mardi Dam which is fed through the catchment. There is a high degree of Council control over the Mangrove dam levels. The Mangrove Creek dam is managed at 80% of full storage capacity in order to address the Probable Maximum

Flood (PMF) risk for the dam, which was classified by the NSW Dams Safety Committee as having a 'HIGH A' Flood Consequence Category.

The project was deferred in the current price period. It was acknowledged that Dam Safety standards could be maintained whilst operating the Dam at 80% of its design capacity. At the time there was a reduced need to increase the capacity of the Mangrove Creek Dam due to the ongoing plans for Hunter Water to build a dam at Tillegra which would have provided increased storage capacity and resilience between the Central Coast and Hunter. Since then the Tillegra Dam was not progressed. As such there is now a renewed need for the Mangrove Creek Spillway upgrade project to be implemented.

In support of the development on the Lower Hunter Water Plan (LHWP), Mangrove Creek Spillway Upgrades were identified formally within the 2013 '*Lower Hunter Water Plan Surface Water Options – Mangrove Creek Dam Enlargement*' report. This document outlines the original need for the project, optioneering and feasibility assessment.

## SCOPE OF WORKS / OPTIONS APPRAISAL

Feasibility studies prepared by NSW Water Solutions Group within NSW Public Works on behalf of Hunter Water Corporation (HWC) for a surface water supply option based on increasing the flood security and/or storage capacity of the existing Mangrove Dam on Mangrove Creek some 35km north-west of the city of Gosford. The studies have been prepared as part of HWC investigations to support the development on the Lower Hunter Water Plan (LHWP).

## DELIVERY AND PROGRAM

Business case to be developed with programme.

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

While we recognise that the need for the dam storage upgrade has changed since the last determination period, CCC has not provided us with any business case in order to appropriately opine on the efficiency of the scheme. As a business case is not available it was unclear to us how ready CCC would be to implement the project within the current timeframe. Because of this, we are proposing to defer the significant expenditure for this particular project by three years and smooth the expenditure profile.

Furthermore, for the capex programme overall we have little confidence in the 2024 figures overall and for this particular project CCC did not propose any expenditure in 2024, as such we recommend including expenditure for years 2023 and 2024. We have proposed to adjust the profile of the expenditure shown below:

Year ending June: (\$k 18-19)	2019	2020	2021	2022	2023	2024
Mangrove Creek Spillway Upgrade Proposed by CCC	290	330	919	3,750	1,809	0
Atkins Recommended adjustment	-290	-40	-589	-2,264	914	2,269
Mangrove Creek Spillway Upgrade Atkins Recommended	0	290	330	1,486	2,723	2,269

## DOCUMENTS REVIEWED

- Lower Hunter Water plan – (NSW state government)
- CCC water supply system

## 'JWS WATER PUMP STATIONS MAJOR(MECH/ELEC)

### PROJECT DETAILS

<b>Project Name</b>	'JWS WATER PUMP STATIONS MAJOR(MECH/ELEC)		
<b>Region:</b>	Gosford	<b>Status</b>	Current
<b>SIR ID No.</b>	WEM001		

### FINANCIALS AND PROGRAM

<b>Budget in 2013 Submission</b>	11.59M +20% contingency \$13.9M = total water and sewer – for the contract	<b>Initial Delivery Date</b>	2017
<b>Outturn cost / Forecast outturn cost in Submission</b>	6,425	<b>Actual / Forecast Delivery Date</b>	

### KEY DATA

<b>Project or program</b>	Page 82
<b>Line of Business</b>	Water
<b>Cost Driver</b>	Existing mandatory standards
<b>Stage</b>	

<b>FY Ending</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s	197	1,644	931	3,647	6						
Actual \$ 000s											

### NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

The original need for this project was as part of Gosford Council's ongoing capital delivery program and replacements the high voltage assets at Kincumber and Woy Woy sewage treatment plants and Mooney Mooney and Mangrove Creek water pump stations were due for replacement, as they reached the end of their serviceable life and they were more likely to fail which would result in loss of power supply to site which would restrict Councils ability to treat sewage or to provide raw water. There was also further health and safety risk if they were not replaced.

### SCOPE OF WORKS / OPTIONS APPRAISAL

Tenders for the provision of High Voltage Replacements were called in accordance with the Local Government General Regulation 2005 - Section 7 Tendering. all Tenderers provided a conforming offer and then different options that in their view, provided value for money for Gosford Council. Three of the six Tenderers were shortlisted, and invited to present their proposals to the Evaluation Team. After these presentations the Evaluation Team reviewed the different options and settled on the best solution for Gosford Council. Once different options were finalised, the shortlisted Tenderers were then required to submit additional information.

## DELIVERY AND PROGRAM

We reviewed the project risk register which outlined how the contractor delivered the project. There were some 16 variations to the original contract for various reasons outlined in the register many related to Ausgrid rules on the power supply. The project was managed financially within the variations through the contingency pot and included within the contract.

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

The project appeared to be prudent and efficient and the contract appeared to be managed appropriately

## DOCUMENTS REVIEWED

- Contract initiation and development plan – post submission
- Sign off by Council
- Risk register – Gosford city council – HV asset replacement
- Tender assessment criteria/weighting
- Variation example 7



## 'EPCM - KSTP DIGETSERS

### PROJECT DETAILS

<b>Project Name</b>	'EPCM - KSTP DIGETSERS		
<b>Region:</b>	Gosford	<b>Status</b>	Current
<b>SIR ID No.</b>	DEM036		

### FINANCIALS AND PROGRAM

<b>Budget in 2018 Submission</b>		<b>Initial Delivery Date</b>	Planned for budget \$9.0M  Original submission for \$5M
<b>Outturn cost / Forecast outturn cost in Submission</b>	10,319	<b>Actual / Forecast Delivery Date</b>	

### KEY DATA

<b>Project or program</b>	New standards
<b>Line of Business</b>	Sewerage
<b>Cost Driver</b>	
<b>Stage</b>	Completed

<b>FY Ending</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s	3,935	5,000	1,226	143	15						
Actual \$ 000s											

### NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

This project was part of the Gosford City Council Engineering Project Construction Management (EPCM) for the Coastal Carrier and Kincumber & Woy Woy Sewage Treatment Works (STP's). The main drivers for the upgrade works was the Environmental Protection Authority (EPA) - Pollution Reduction Program (PRP) - under Council's licence condition specifically U1 PRP 3. Due to ongoing operational problems with the anaerobic digesters at Kincumber STP there was a direction to empty, clean out and overhaul the digesters and associated pipe work.

This particular project had not been undertaken for 25 years although it is considered preferable to replace every 10 years.

## SCOPE OF WORKS / OPTIONS APPRAISAL

The options appraisal looked at staging of the works. We were provided little or no evidence of alternative options considered other than digester replacement for this project.

## DELIVERY AND PROGRAM

3 stages packages of work were developed with respective contracts tendered

Three separate contracts were procured to undertake:

1. miscellaneous works (minor replacements);
2. cleaning and inspection for digester 1; and
3. cleaning and inspection for digester 2 and refurbishment and repair for digester 2.

Variations were managed with provisional sums attributed with latent conditions and contingency amounts. A Project control group approved specific variations if within the amounts and delegation between council operations and council works.

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

The overall costs for this project outturned at \$10.7M compared with a forecast of \$10.3M in the 2012 submission. \$5.4M was spent in the 2009 determination period with the remaining \$4.9M in the current determination period. We consider the expenditure to be prudent and efficient and have made no adjustments.

## DOCUMENTS REVIEWED

- Summary document
- Tender evaluation (1,2,3)
- SMEC work project

## Wyong South STP

### PROJECT DETAILS

<b>Project Name</b>	Wyong South STP - STP upgrade to increase capacity		
<b>Region:</b>	Wyong	<b>Status</b>	Current Determination Period
<b>SIR ID No.</b>			

### FINANCIALS AND PROGRAM

<b>Budget in 2013 Submission</b>	\$12.5M	<b>Initial Delivery Date</b>	2018
<b>Outturn cost / Forecast outturn cost in Submission</b>	\$15.2M	<b>Actual / Forecast Delivery Date</b>	2018

### KEY DATA

<b>Project or program</b>	Project
<b>Line of Business</b>	Sewerage
<b>Cost Driver</b>	Growth -other projects
<b>Stage</b>	Completed

<b>FY Ending</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s											
Actual \$ 000s	436	2,438	8,516	4,205	221	300					

### NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

The primary driver for this project was to increase the rated capacity of the STP plant from 48,000 EP to 60,000 EP to support growth within the catchment and provide operational flexibility for the management of loads from major trade waste customers within the catchment.

### SCOPE OF WORKS / OPTIONS APPRAISAL

Project drew upon previous technical studies and included a major investigation and design contract (WSP) which included:

- o Flows and loads characterisation
- o Options Review
- o Concept design
- o In principal regulator approval
- o Geotechnical, Detail Design and Review of Environmental Factors
- o Cost estimate and final regulator approval (Section 292 Water Mgt Act approval)

The STP upgrade involved the following:

- „ new inlet works and connecting pipework
- „ new ventilation and odour control system
- „ modification to existing IDEA tanks
- „ associated electrical, instrumental and control works
- „ extension of service water network to provide standpipes near all work areas

A Technical Study and options analysis was undertaken by consultants within the concept design report who also looked at a NPV approach.

## DELIVERY AND PROGRAM

Business case developed and approved for \$15.2M. Business case value higher than forecast included in pricing determination (\$13.4M from Table 28 in current submission) as the pricing submission was based on cost estimates available at a preliminary design stage (mid 2012) before the design was finalised and detailed cost estimate prepared (June 2013)

CCC's procurement strategy was to have two contracts, a separate design and separate construction elements.

Main site works are complete. The final cost greater than allowed for in determination as the cost estimate which supported the pricing submission was prepared at preliminary design stage. The business case for total project cost of \$15.2M was approved in 2013 following the completion of detail design. The key business case objectives have now been achieved including:

- Increase in rated capacity of the plant from 48,000 EP to 60,000 EP to support growth within the catchment and provide operational flexibility for the management of loads from major trade waste customers within the catchment.
- Renewal of various civil, mechanical and electrical assets including the provision of a new inlet works, new electrical switchroom and new decanters for two of the four aeration tanks.

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

The final outturn cost was greater than that allowed for in 2013 determination as the cost estimate which supported the pricing submission was prepared at preliminary design stage. The business case for the total project cost of \$15.2M was approved in 2013 following the completion of detailed design.

The Wyong South STP upgrade is similar in size and scope to the Charmhaven STP upgrades project in the current CCC proposal and can be used as a proxy for determining the efficient level of expenditure going forward. We consider both projects to be prudent and efficient and as such have not applied any adjustments.

The Charmhaven STP upgrades project is at a more developed stage than the Wyong STP was at the time of the last submission and there have been lessons learned in how to deliver this type of project

## DOCUMENTS REVIEWED

- Tender evaluations
- Wyong South STP Business case
- Procurement Strategy

## '15209.Wyong CBD STG 2 North Rd to Hardware Ln

### PROJECT DETAILS

<b>Project Name</b>	'15209.Wyong CBD STG 2 North Rd to Hardware Ln		
<b>Region:</b>	Wyong	<b>Status</b>	Current
<b>SIR ID No.</b>	OGP050		

### FINANCIALS AND PROGRAM

<b>Budget in 2013 Submission</b>		<b>Initial Delivery Date</b>	
<b>Outturn cost / Forecast outturn cost in Submission</b>	3,315	<b>Actual / Forecast Delivery Date</b>	

### KEY DATA

<b>Project or program</b>	Stormwater upgrade
<b>Line of Business</b>	
<b>Cost Driver</b>	
<b>Stage</b>	Completed

<b>FY Ending</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s											
Actual \$ 000s	2,436	880	(1)								

### NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

This project was planned following significant flooding in 2007 of the Wyong CBD which resulted in significant extensive property damage and loss of numerous vehicles with floodwaters up to 1.5m high. (1.5m). Detailed investigations commenced to determine the reasoning for the severity of this flooding and options to resolve the problem. This resulted in the decision to design and construct a new drainage system through the centre of Wyong to receive these floodwaters.

### SCOPE OF WORKS / OPTIONS APPRAISAL

In 2008 consultants were engaged by Wyong Shire Council to prepare a concept design strategy for stormwater drainage improvements in the Wyong Town Centre Catchment. The design criteria was to target the 1% Annual Exceedance Probability (AEP) storm flows that currently impact traffic movements and increases the risk of property damage and pedestrian injury. The report outlined a scope of stormwater improvement works for future funding in Council's annual budget and the remedial measures required to collect and convey generated stormwater runoff within the catchment to reduce the risk of flooding impacts occurring.

At the last submission in 2012 the project was estimated to cost \$1.5M in the current determination period with the project at concept phase. In 2014 consultants were contracted to undertake a flood impact assessment for developing the proposed culvert trunk drainage system.

## DELIVERY AND PROGRAM

The project delivery consisted of 6 stages based on location and coinciding with the timing of other ongoing local works to avoid localized disruption between March 2014 and March 2016.

CCC developed a contract plan for the \$1.25M culverts, the remainder of the delivery was by the in-house CCC team

Tendering – 2 tenders were received for for the culvert supply. This was a unique project and as such supply chain works so not “typical” for the drainage team normally 3-5 received.

Tender evaluation. BCP, directors report to council (\$1.013 M) – full detailed designs so little risk for variations

CCC won the IPWEA award for the best public works in drainage award and for delivering this with internal resources –

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

This specific component of the project out-turned at \$3.3M in nominal terms. There was an overspend on this project since the forecast at the last pricing submission as when the project was at concept phase. The and as the project was subsequently better well defined and the costs also increased. However, we consider the actual expenditure appeared to be prudent and efficient and therefore we have not made an adjustment.

## DOCUMENTS REVIEWED

- Wyong CBD Stormwater Improvements Report Draft April 2008 - Stefani Group (1)
- Final Flood Impact Assessment from Cardno March 2014 Wyong CBD
- Wyong CBD Drainage IPWEA Submission



## 'RIVERIA-CONST BY CONTRACT

### PROJECT DETAILS

<b>Project Name</b>	'RIVERIA-CONST BY CONTRACT		
<b>Region:</b>	Gosford	<b>Status</b>	Current Period
<b>SIR ID No.</b>	OEM014		

### FINANCIALS AND PROGRAM

<b>Budget in 2013 Submission</b>	\$510k	<b>Initial Delivery Date</b>	2014
<b>Outturn cost / Forecast outturn cost in Submission</b>	\$799k	<b>Actual / Forecast Delivery Date</b>	2014

### KEY DATA

<b>Project or program</b>	Stormwater
<b>Line of Business</b>	
<b>Cost Driver</b>	Flood risk
<b>Stage</b>	Completed

<b>FY Ending</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Planned \$ 000s	510										
Actual \$ 000s	799										

### NEED FOR SCHEME / DRIVERS / SERVICE REQUIREMENT

This was a “typical” stormwater upgrade project. The key driver was for as part of flood risk catchment planning funded through general revenue drainage charges.

### SCOPE OF WORKS / OPTIONS APPRAISAL

Options were limited according to the team to a trunk line through houses comprising of both kerb and gutter works. There was a minimum requirement of what was needed to be done of

Construction of 83 metres of 1500mm X 750mm reinforced concrete box culverts, the upgrading of 230 metres of stormwater pipes ranging from 1050mm to 450mm diameter, stormwater pits and associated works.

The construction work was tendered with 4 contractors submitting tenders on a 50/50 price quality scoring evaluation.

## DELIVERY AND PROGRAM

There was an initial \$510k estimate and subsequent variations of \$189k which were agreed to due to variable ground conditions that were found unstable and due to working around a sewer rising main. These all appeared to be handled with due process to the variation delegations and evidence has been provided.

## CONCLUSIONS ON PRUDENCE AND EFFICIENCY

Appears prudent however we are unsighted on how this particular projects fits within the overall stormwater strategy.

## DOCUMENTS REVIEWED

- Pro Forma Contract Initiation and Development Plan
- Ordinary Tender Report
- Riviera Ave Terrigal Drainage Stage 8 WAE.
- Quotation for Revised Additional Works
- Variation summary Riviera Drainage Stage 8 Delcare Constructions

## Appendix C – CCC Service Level Output Performance

Table C-4 Water quality complaints per 1000 properties

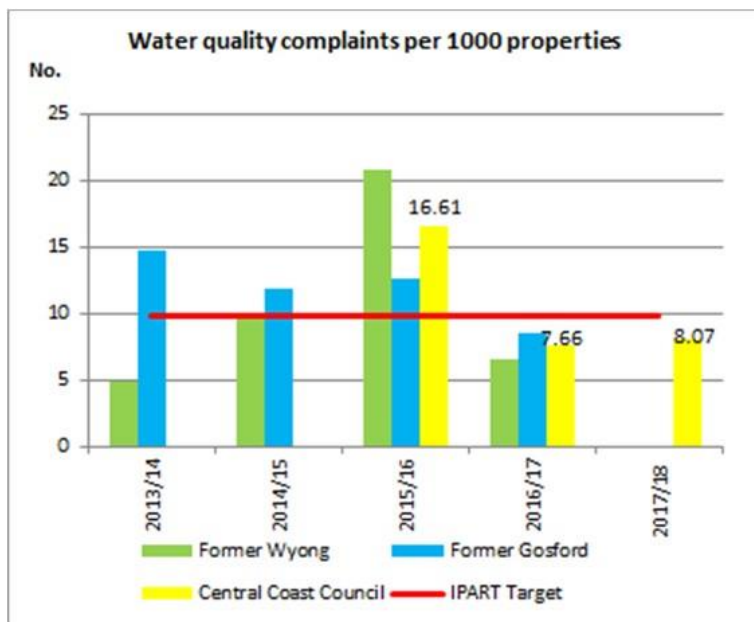


Table C-5 Unplanned supply interruptions per 1000 properties

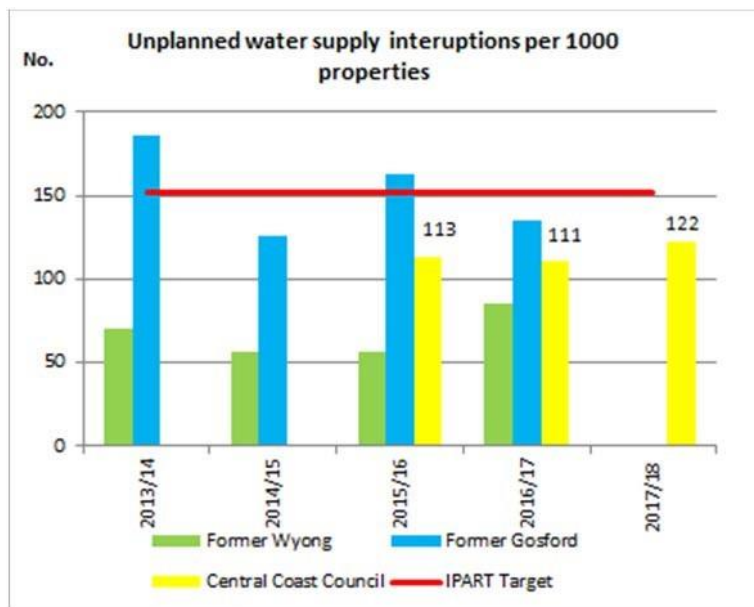


Table C-6 Water main breaks per 100km main

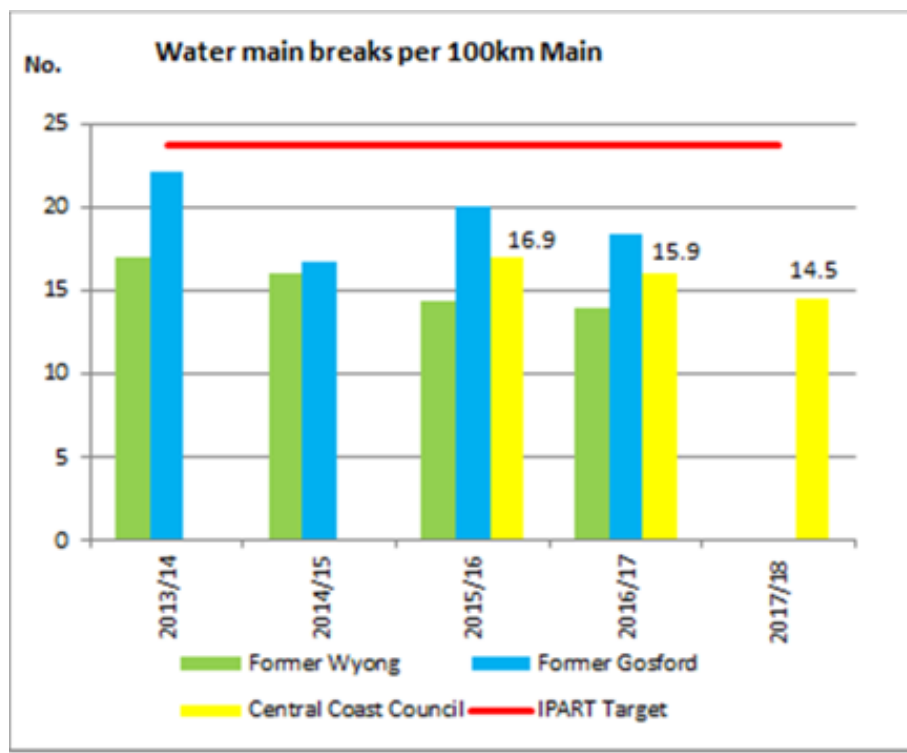


Table C-7 Odour complaints per 1000 properties

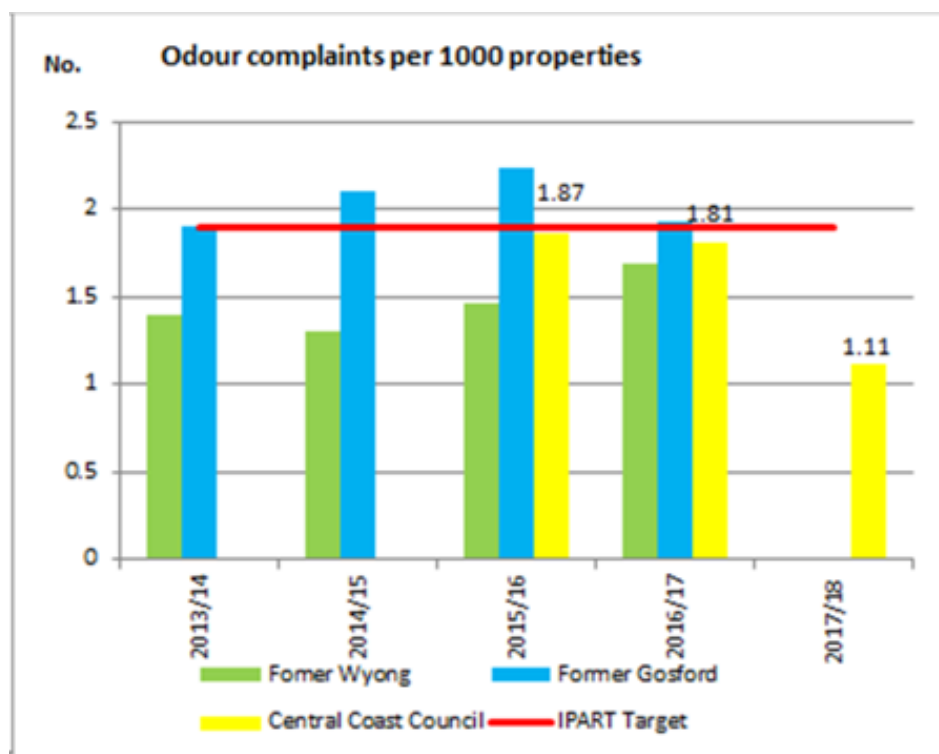


Table C-8 Sewer main breaks and chokes per 1000km main

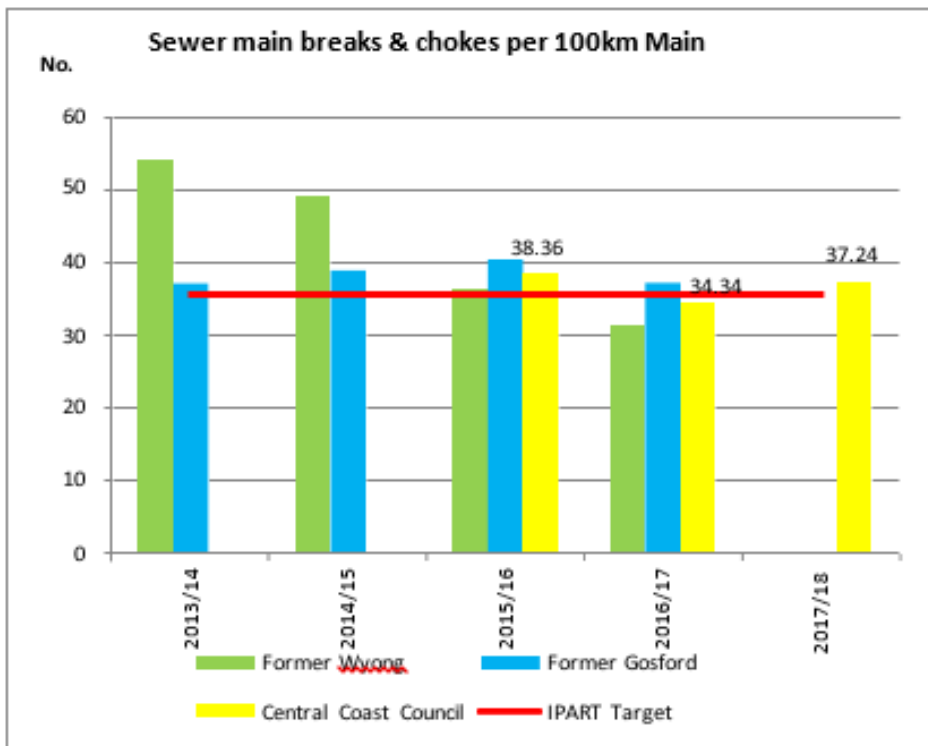
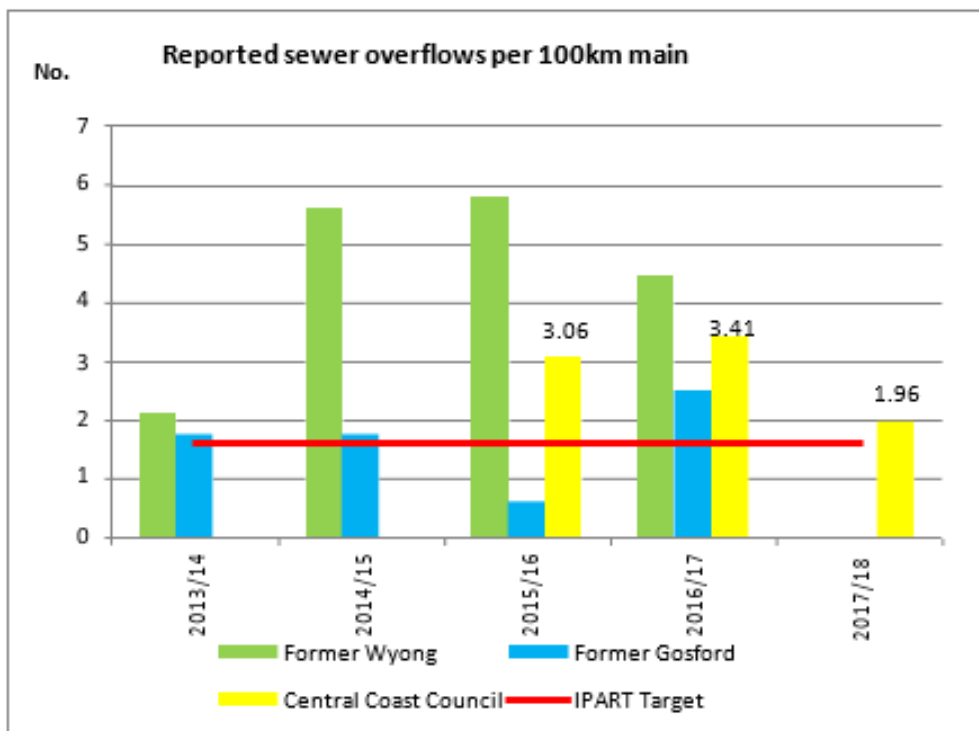
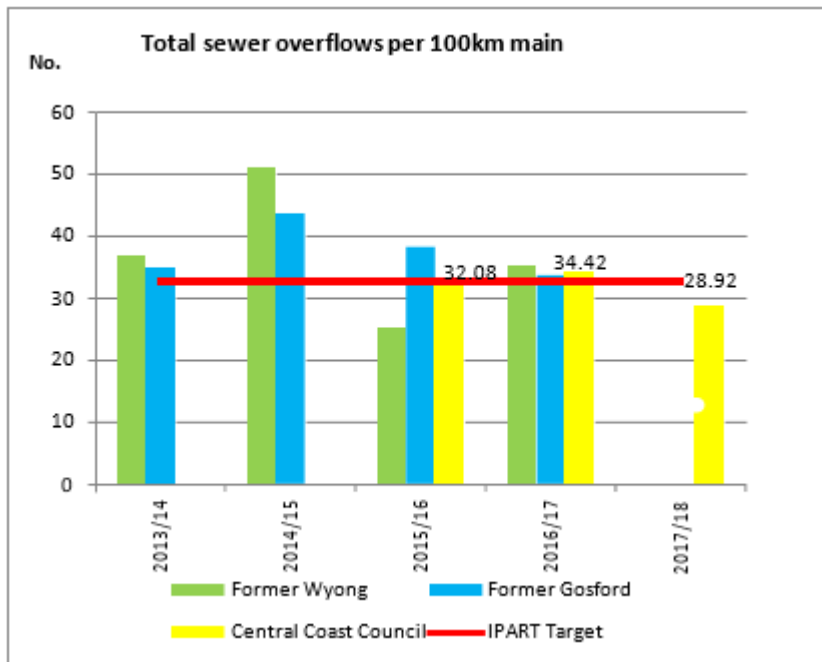


Table C-9 Reported sewer overflows per 100km main



**Table C-10 Total sewer overflows per 100km main**



**WS Atkins International (Australia) Limited**

Woodcote Grove  
Ashley Road  
Epsom  
KT18 5BW

United Kingdom

**[simon.ingall@atkinsacuity.com](mailto:simon.ingall@atkinsacuity.com)**

© Atkins Ltd except where stated otherwise.

The Atkins logo, 'Carbon Critical Design' and the strapline  
'Plan Design Enable' are trademarks of Atkins Ltd.