7 Demand for services

Central Coast Council

This Technical Paper provides the following information for the 2022 IPART pricing period:

- Methodology and estimate for water sales forecast
- Water and wastewater serviced customer accounts
- Drainage serviced customer accounts
- Integrated Supply Demand Planning (iSDP), an End Use Model used for forecast.
- Estimated water sales over the period July 2022 to June 2026 to average 27,530 megalitres per year
- Forecast water sales and customer base for services used to forecast revenue

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1 Introduction

Central Coast Council (Council) provides water and wastewater services to households, businesses and industry across the region. Stormwater drainage services are also provided to customers with properties located within a declared drainage area.

To calculate prices required to recover target revenues, Council has forecast water demand and wastewater discharge volume, together with the number of water, sewerage and stormwater connections.

Forecasts proposed to and adopted by IPART are required to be as accurate as possible. If the forecasts are markedly different from actual outcomes, Council's revenues could vary significantly from target revenues.

Water sales of a utility can be impacted by factors including population growth, dry /wet years, climate change and water restrictions. The COVID 19 pandemic has also impacted water sales in the region. Water sales forecasting can be limited by the available data associated with these factors.

Several approaches and tools for estimating water demands address these factors. In the previous pricing submission, Council used the Integrated Supply and Demand Planning (iSDP) model for water sales forecasting. Hunter Water has used the same model for its latest IPART pricing submission. Council has updated its iSDP model for forecasting water sales with the most recent technical and customer behaviour assumptions. Council has engaged population experts, .id, to provide forecasts for the population, dwellings and occupancy, using the most recent census data from the Australian Bureau of Statistics (ABS).

Council provides sewerage services to approximately 98 per cent of its residential water customers. The proportion of non-residential water customers provided with sewerage services varies with the water meter size of the customers. Sewage discharge volumes are forecast from water usage statistics. Sewage discharge factors are applied to the estimated portion of metered water usage discharged into the sewerage system.

This technical paper sets out Council's proposed demand and billable connection forecasts, with explanation of forecast methodology and underlying assumptions.

2 Customer growth

2.1 Population serviced

The Central Coast Council region has a current population of approximately 355,000 people based on Council's consultant (.id- Informed Decisions) population forecasts (as at June 2021). However, not all the population living in the Central Council Local Government Area (LGA) is serviced for water, sewerage and/or stormwater drainage. Council utilises *estimated resident population in private dwellings* data provided by the consultant, to forecast customer numbers for these services.

2.1.1 Water Supply Servicing Area

Figure 1 shows the water supply servicing area for Council's supply scheme. Generally, residents on the western side of M1 Motorway (Mangrove Mountain, Kulnura, etc) are not serviced by the Council supply scheme. Some rural and peri-urban properties on the eastern side of M1 are not connected to the supply scheme, reducing the total residential population for forecast of water sales. Table 1 provides the actual and forecast population figures used for sales forecasting.

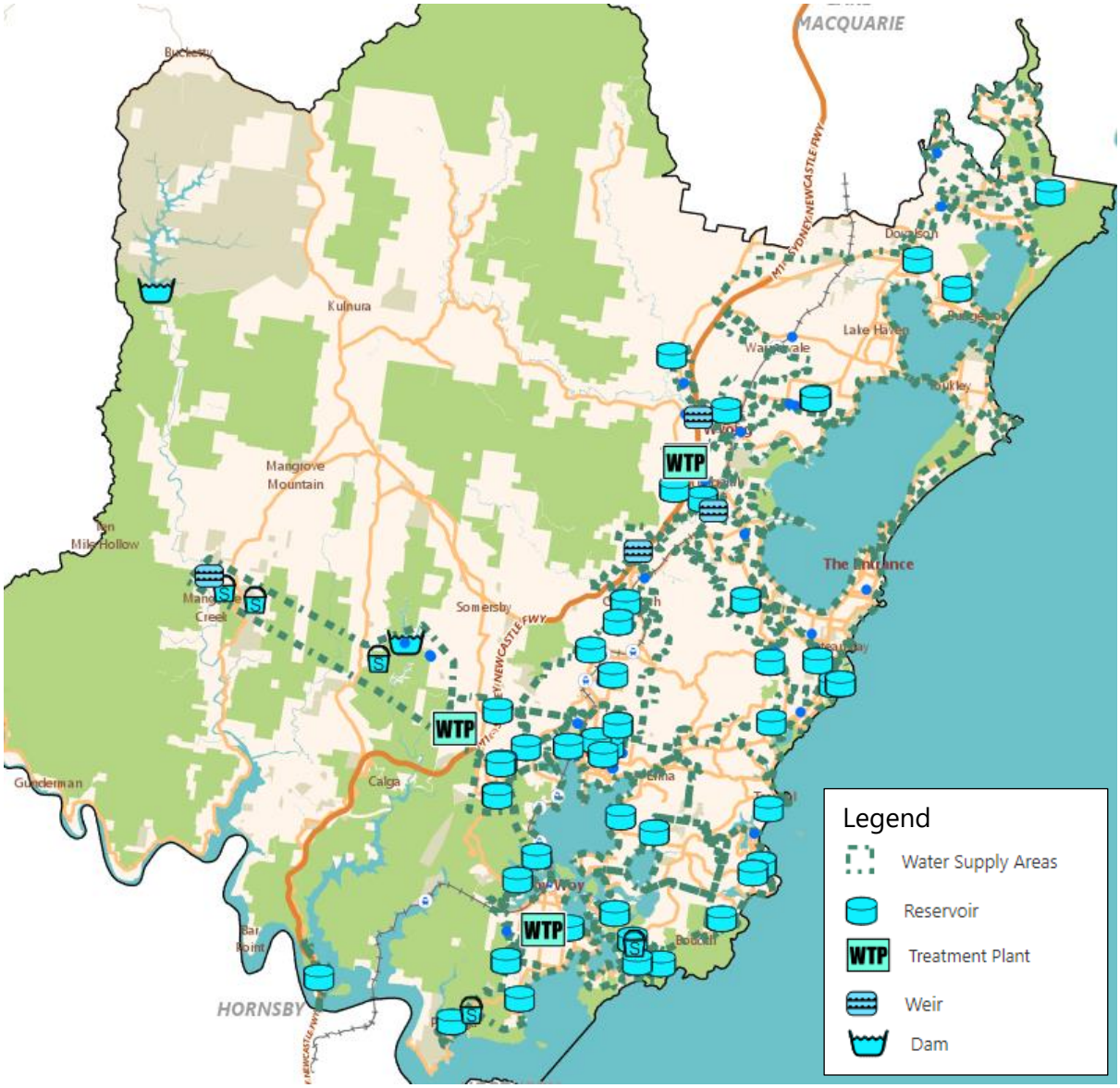


Figure 1: Central Coast Water Serviced Area

Table 1: Central Coast Serviced Population

Financial Year	Annual Movement %	Estimated Resident Population in Private Dwellings ^	Estimated Resident Population in Private Dwellings serviced with water #
2015-16		330,662	324,124
2016-17	1.0%	334,024	327,410
2017-18	1.1%	337,693	331,003
2018-19	1.1%	341,528	334,754
2019-20	1.2%	345,485	338,618
2020-21	1.2%	349,606	342,643
2021-22	1.1%	353,495	346,440
2022-23	1.1%	357,235	350,087
2023-24	1.0%	360,824	353,583
2024-25	1.0%	364,488	357,152
2025-26	1.0%	368,151	360,721
2026-27	1.0%	371,923	364,393

^ Estimated Resident Population in Private Dwellings includes dwellings in areas that are not serviced by the water network. The source of this information is the Council Consultant, .id-informed decisions' website updated in March 2018.
# Estimated Resident Population in Private Dwellings serviced with water is calculated by population information for suburbs not serviced by water, and GIS mapping of Councils' water network.

2.2 Forecast population and dwellings

The demand for residential water supply is largely driven by the demographics of the region. The population, dwelling type and occupancy (persons per dwelling) are key elements for water demand modelling. These demographics and growth forecasts are informed by the previous analysis by Council's Consultant (.id).

The Central Coast has a mix of dwelling types including residential single houses, units and flats. Council used ABS data (Census) to determine the future population in single and multi-dwellings, and .id estimated the resident population in private dwellings and the average occupancy rate. This data is combined to provide the total number of occupied dwellings, subdivided into standalone houses and units/flats. The ratio of single dwellings to total

dwellings was then calculated. Based on historical trends from 2011 to 2016, it is assumed to decrease in future at an average rate of 0.2% per year. Table 2 shows existing and forecast dwellings used for water demand/sales forecasting.

Table 2: Forecast Growth in Residential Dwellings

Year	Estimated Single Dwellings	Estimated Multi Dwellings
2019-20	106,736	27,932
2020-21	107,926	28,392
2021-22	109,045	28,832
2022-23	110,123	29,250
2023-24	111,041	29,829
2024-25	111,977	30,421
2025-26	112,907	31,022
2026-27	113,869	31,634

The Central Coast is divided into two regions, North (former Wyong Shire Council) and South (former Gosford City Council) for the purpose of demand forecasting. Both regions have different growth rates and patterns of development. Due to availability of land, most of the green field development on the Central Coast is happening in the North region, whereas development in the South region is in-fill and redevelopment. Figure 2 shows the forecasted serviced population of both regions.

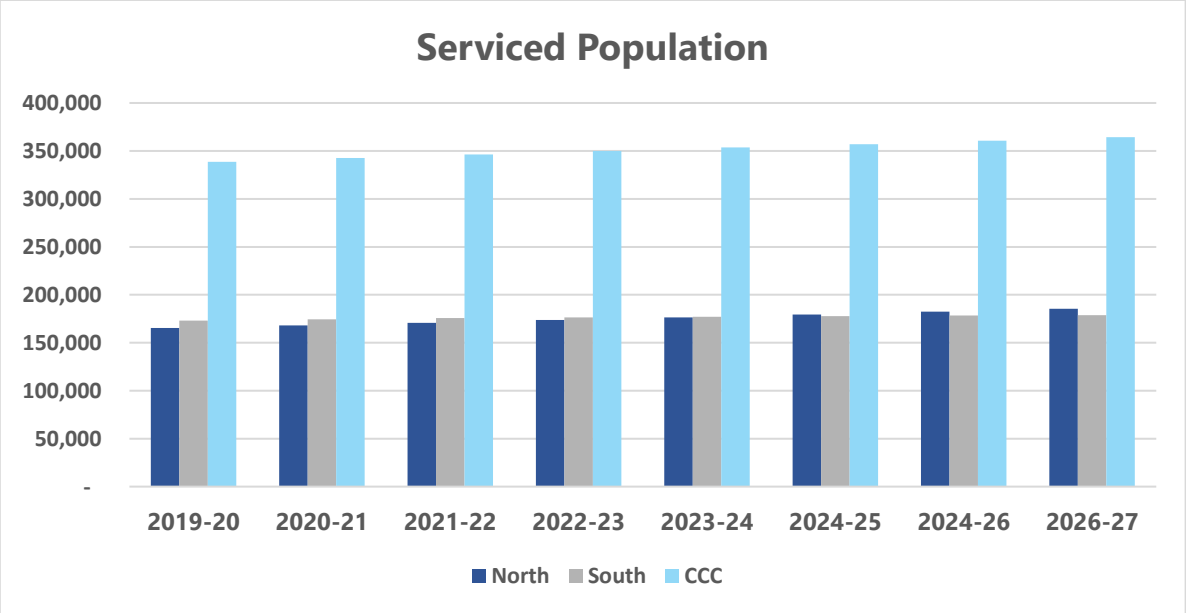


Figure 2: Central Coast Serviced Population

In the model, the estimated residential population in occupied private dwellings is used to calculate the forecast water sales for residential houses, units and flats. Figure 3 shows the distribution of dwellings in single and multi-dwellings (units and flats). The remaining population living in non-private dwellings such as in nursing homes, retirement villages etc. is accounted for in the "Other-Residential" category (added to Non-Residential) demand/sales for IPART purposes.

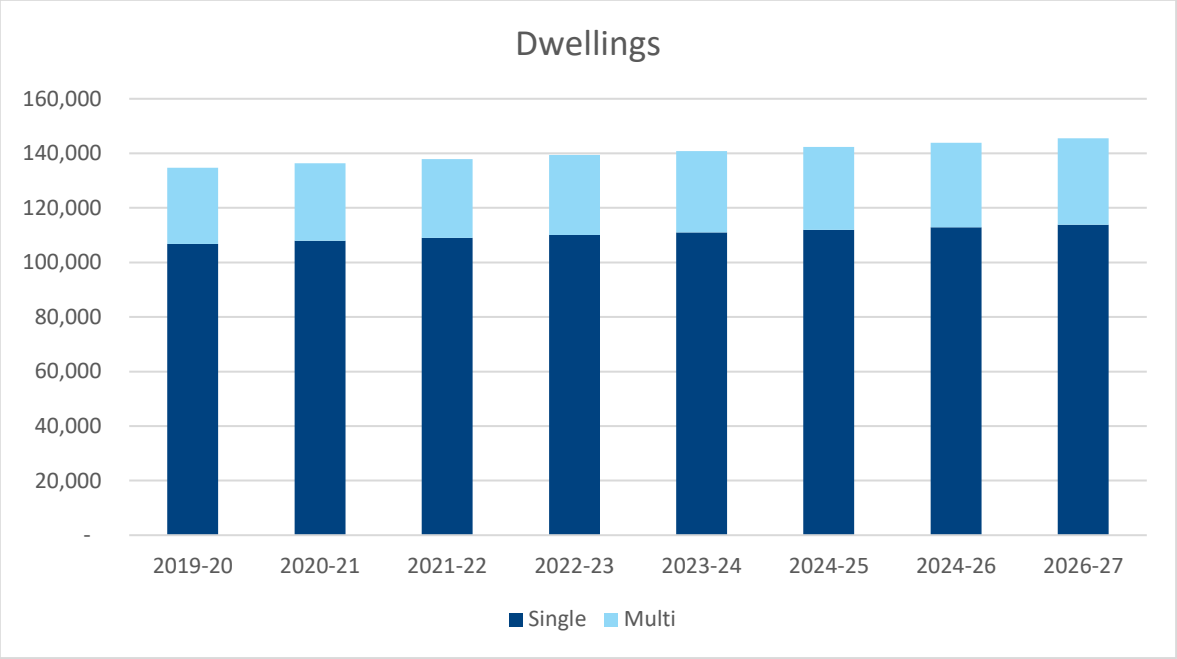


Figure 3: Central Coast Dwelling Forecast

The growth of Council's non-residential customers including industrial, commercial and recreational is pegged to the population growth rate. As outlined above, the dwelling information provided is based on the forecasts provided by iD based on the 2016 census. Billable customer numbers used in tariff modelling are sourced separately from Council's billing system and are presented later in Table 15.

3 Modelling water demand

Council uses the Integrated Supply Demand Planning (iSDP) model to calculate the water sales forecast. This modelling tool is widely used across water utilities in Australia and was implemented by Council in its last IPART pricing submission. An overview of the modelling tool is provided in Box 1.

Box 1 – Overview of the integrated supply-demand planning model

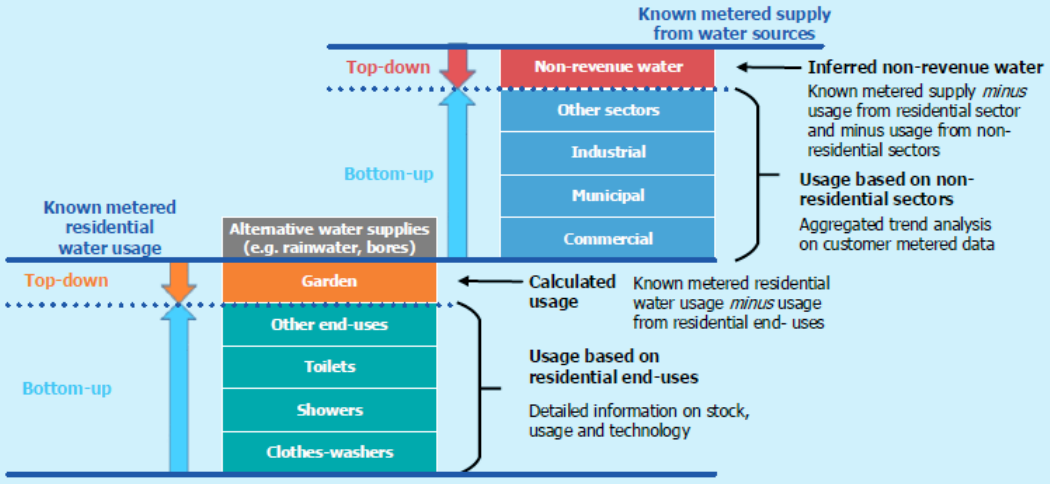
The integrated supply-demand planning (iSDP) model is considered best practice for water demand forecasting. It uses sector trends for non-residential demand while the residential forecast is based on end-uses (activities).

The iSDP model is based on a disaggregated analysis of consumption in individual customer categories (e.g. residential, industrial, commercial and non-revenue water). Individual customer categories are broken down further into individual end uses (e.g. residential toilets, showers, taps, washing machines and gardens). This modelling approach provides a transparent and robust predictive tool to assess the realistic impacts of water efficiency programs.

Water demands have been analysed in the model using a combination of bottom-up and top-down approaches:

- For the residential sector a bottom-up approach estimates demand for each residential end-use except garden use. Garden use is determined using a top-down approach - calculated as a balancing item against actual residential meter data.
- For the non-residential sector a bottom-up approach estimates demand for each individual sub-sector based on meter data trends.
- Non-revenue water (e.g. losses) is calculated using Water Services Association of Australia (WSAA) national reporting methodology.

Disaggregation in the model is represented in the following conceptual diagram.



Source: Technical Paper 7 Demand for Services Hunter Water 2019

The iSDP model provides a water demand forecast for average climate conditions (rainfall, temperature and evaporation). It is unable to capture and account for extreme climate variability or climate change impacts such as drought and higher than average rainfall.

Council engaged the Institute for Sustainable Futures (ISF) to review the model and previous recommendations made by ISF in 2018. Table 3 below shows the progress of resolution of ISF's 2018 recommendations.

Table 3: Review of ISF Recommendations

No.	Recommendation	Resolution
1	Extending the baseline years for future water sale forecasts	Metered consumption data from 2016-17 to 2019-20 used. Data prior to Council merger was not used due to merger date not aligning with the financial years.
2	Improving the data structure of customer metered data	Internal project to improve the structure and quality of data in progress. The development of a single billing system was commissioned but not yet completed.
3	Improving the data quality and quality assurance of customer metered data	
4	Developing a single customer billing system for the joint Council region	
5	Using the latest version of the iSDP model when it is available in late 2018	An updated version of the iSDP model has not been developed yet but various recommendations from ISF have been incorporated in the model update for this pricing forecast.
6	Conducting a local end-use and stock data survey	End use study has not been conducted at this stage, but Council intends to use the outcome of Sydney and Hunter Water end use studies to inform the model for future iterations.
7	Breaking the non-residential forecast into sub-sectors	Sub-categorising of non-residential customers is in progress and forecast to be completed during 2022 determination period.
8	Conducting an ongoing survey of the intentions of major customers (intensive uses)	Listed as one of the future improvements.
9	Climate correction of consumption and bulk data for the baseline years	Climate correction has been prepared for bulk water demand.
10	Sensitivity analysis of key parameters in the forecast	Once data becomes available, Council intends to test the sensitivity of population impact due to Covid19 pandemic.

4 Actual and forecast water consumption

Growth in population and housing are the key drivers for water consumption and new connections across the Central Coast region, with dry and wet climatic conditions impacting the outcomes within any pricing period.

4.1 Current regulatory period

In 2019, IPART determined the Central Coast water forecast sales for the period 2020 to 2022 as provided in Table 4. The actual sales are on average 6.95% less than the IPART determined figures for years 2019-20 and 2020-21.

Table 4: Current IPART determined and actual water sales (ML)

Category	2019-20	2020-21	2021-22
Houses	18,483	18,818	18,935
Apartments	2,837	2,856	2,869
Non-Residential	6,557	6,692	6,746
Metered exempt properties	768	783	790
Total IPART Determined sales	28,645	29,149	29,340
Actual Water Sales	26,695	27,168	27,183*

** Forecast water sales*

IPART determined sales were approximately 7.5% higher than Council proposed figures for the 2019 IPART determination. This variance is due to consumption for metered exempt properties being added to Council's proposed sales forecast (refer to snapshot in Table 5 below from the 2019 IPART determination) whereas Council's forecasting was originally inclusive of exempt customers. These were not considered separately by Council. The impacts of the variance between determined and actual water sales is discussed in Technical Paper 6- Tariff Modelling.

Table 5: Water Demand Forecasts over the 2019 Determination Period (ML)

	2019-20	2020-21	2021-22
Council proposal			
Houses	18,267	18,383	18,497
Apartments	2,830	2,843	2,856
Non-residential	6,075	6,127	6,176
Metered exempt properties[a]	0	0	0
IPART decision			
Houses	18,483	18,818	18,935
Apartments	2,837	2,856	2,869
Non-residential	6,557	6,692	6,746
Metered exempt properties	768	783	790

a The Council did not separately identify water consumption from metered exempt properties.

Sources: Central Coast Council Annual Information Return 2017-18; and IPART analysis.

Other factors that potentially impacted actual sales compared to IPART determined sales:

- There were dry weather conditions in the Central Coast and Hunter regions prior to the start of the previous pricing period that forced Hunter Water to launch a vigorous water saving campaign and impose restrictions in September 2019.
- Central Coast residents interpreted HW water saving measures as being applicable to their region.
- Council launched a water savings campaign in mid-2019, before imposing Level 1 restrictions in February 2020.
- A large rainfall event in February 2020 ended the drought, with Level 1 restrictions remaining in place until 7 December 2020 when water storage had sufficiently recovered.
- The COVID-19 pandemic is understood to have influenced water use behaviours over the same period, with an increase in residents working from home, partial school closures and alternative business operations.

Council has not been able to quantify the proportion of impact of these various contributing factors. See Figure 4 for a summary of key impacts on water sales for the region.

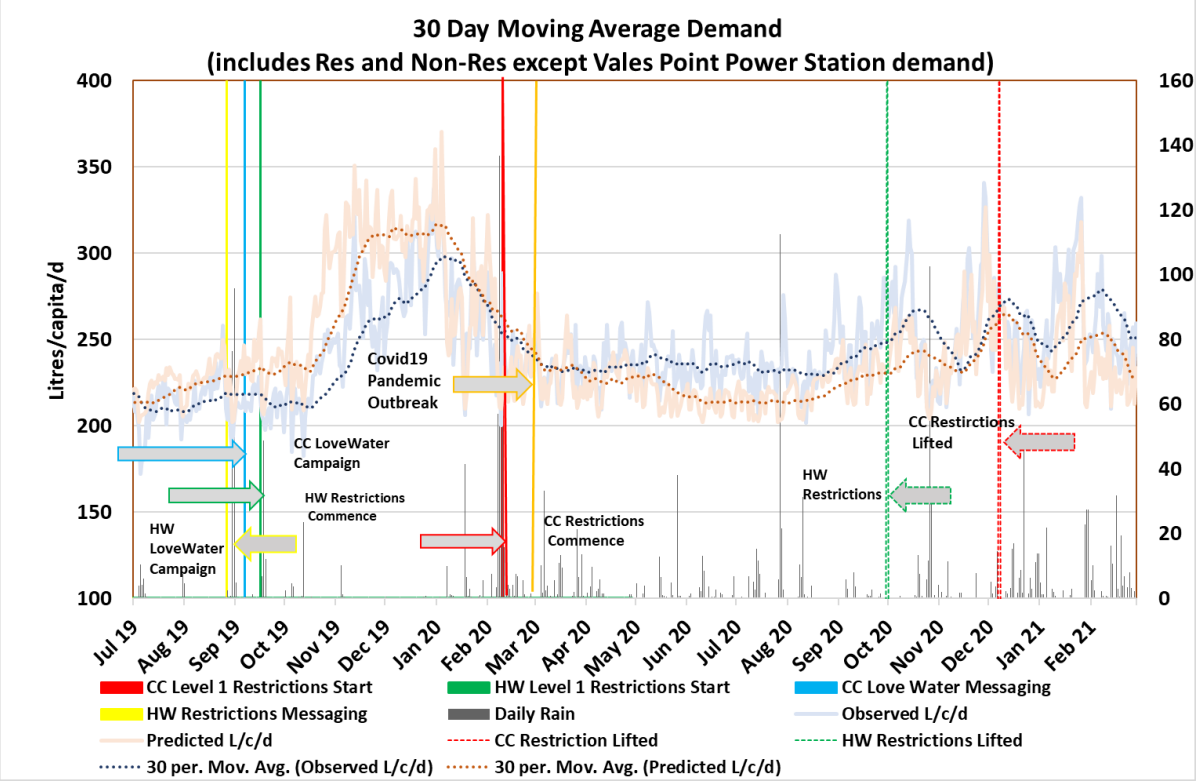


Figure 4: Demand Outcomes of Various Factors

4.2 Next regulatory period

ISDP Model as shown in Box 1 – Overview of Integrated Supply Demand Model, is an end use model. An end-use approach to forecasting is 'bottom-up'-with specific focus on residential end uses e.g. toilets, showers, washing machines etc. with water demand (in the residential sector) associated with typical uses of that water or 'end uses'. These end uses include plumbing products and appliances such as toilets, taps, washing machines and dishwashers etc. The demand for a particular end-use is translated into the aggregate demand by multiplying the volumes used (say in flushing a toilet for example) by the frequency of usage and the demographics driving that particular demand (whether this is population, total dwelling numbers or single or multi-residential dwelling numbers).

Forecasts are built up from projected changes in demographics over time as well as functions that reflect the shifts in the total stock of the plumbing products and appliances over time as well as the water efficiency of that stock.

The garden and outdoor end-use is the only residential one that is commonly determined using a top-down approach. Garden and outdoor use is the difference between bottom up modelling results for other end-uses and the historical metered consumption for residential customers. Because, garden and outdoor water use is strongly influenced by the weather, the

selection of a baseline or reference year(s) is particular important to this component of the forecast.

The Non-Residential sector includes recreational (parks and playgrounds), commercial, institutional and industrial. For the purpose of forecasting water demand all non-residential customers have been grouped into average and high usage customers. The growth of customers is taken proportional to the population growth in both groups of customers, but their demand is forecast using average consumption of both groups separately.

Table 6 provides the forecast water sales for residential and non-residential sectors in megalitres/year for the pricing period. The forecast figures include exempt customers usage also.

Table 6: Water Sales Forecast (ML)

Category	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Residential	20,755	20,867	20,966	21,076	21,190	21,315
Non-Residential	6,427	6,459	6,489	6,521	6,552	6,586
Total	27,183	27,326	27,456	27,596	27,742	27,901

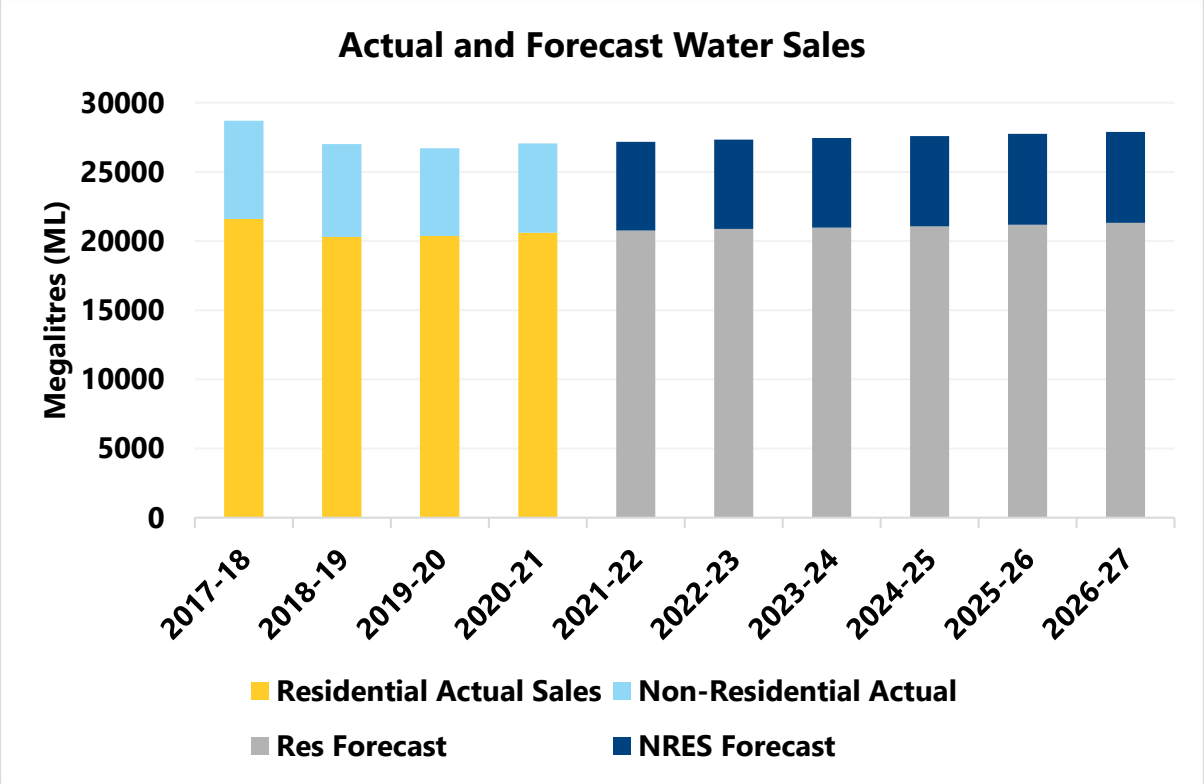


Figure 5: Actual and Forecast Water Sales

The forecasted water sales can be impacted by prevailing dry and wet climate conditions, water restrictions, demand management measures and any variance in forecasted population growth. This can impact the revenue from water sales.

IPART' Review of Central Coast Council's Prices from 1 July 2022 -Submission Information Package has asked Council to consider the outstanding issue from 2018-19 price review application of climate correction to water sales forecast.

Council has used the Daily Tracking Model to inform the impact of climate. The cumulative frequency of four yearly demand factors on consumption in Figure 6, shows low sensitivity (median value of 0.996) to prevailing climate conditions. It is shown that with prevailing climate conditions, there is low likelihood of future water demands varying by more than 3% as a result of climate variability. The resulting demand factors for selected percentiles are shown in Table 7.

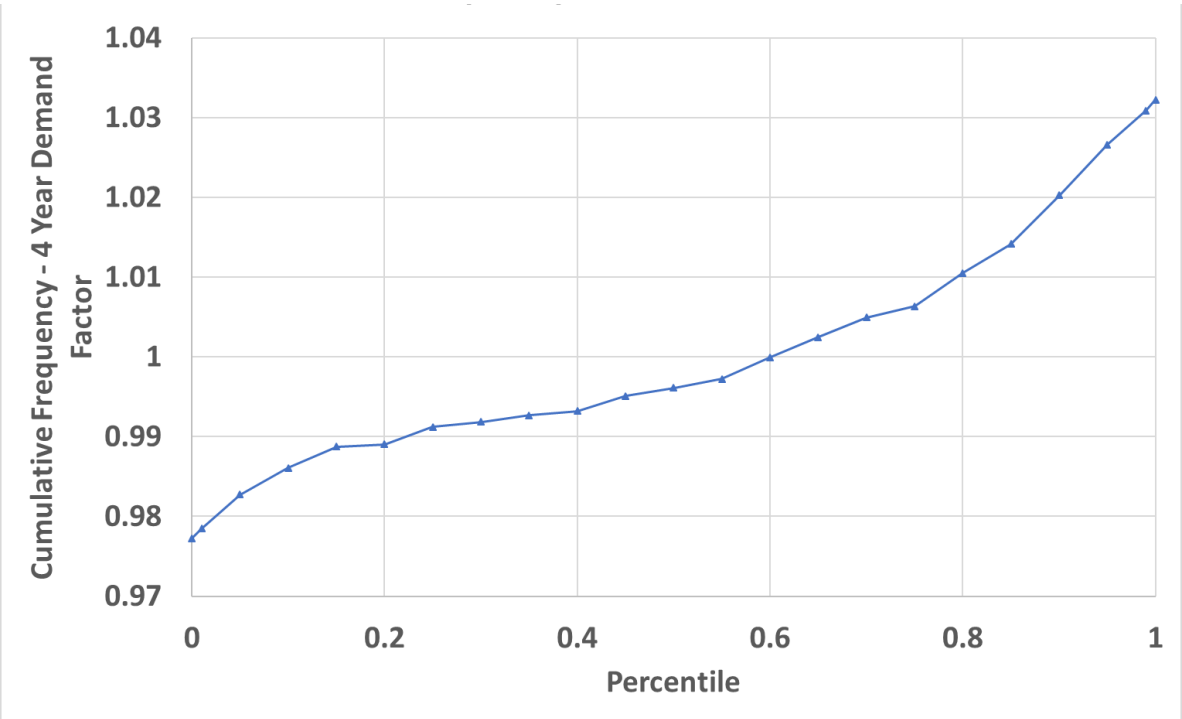


Figure 6: Cumulative Frequency 4 Year Demand Factors

Table 7: Demand Outcomes for Selected Frequencies

Percentile	Demand Output
0.05	98.3%
0.25	99.1%
0.5	99.6%
0.75	100.6%
0.95	102.7%

In Council's next long-term water resources plan, Central Coast Water Security Plan, water conservation has been identified as a focus area which has potential to reduce water sales over the pricing path. The recent drought that started in March/April 2017, when Council's storage was at about 75%, depleted the storage to 50% (restrictions trigger) in February 2020 in less than 3 years. Although the Central Coast storage recovered to its current level of about 75% after that short and intense spell of drought (due to La Nina development), recurrence of drought and impositions of restrictions cannot be ruled out due to uncertainties in the future. Council's revenue will reduce in such a scenario.

Any step changes in population growth due to COVID19 has potential to impact the forecast water sales. There is not sufficient data, at this point in time, to measure how the impact will pan out for the Central Coast region. The current census of 2021 may provide more insights when data becomes available.

5 Actual and forecast sewage discharge volumes

Sewer usage for residential customers is based on property type and levied at a fixed charge to reflect the deemed usage. The deemed sewer usage is as follows:

- 125 kL for standalone residential properties
- 80 kL for residential properties within multiple or mixed multiple premises.

Non-residential customers within mixed multiple premises have a deemed sewer usage of 125kL and are charged a fixed rate to reflect this. All other non-residential customers are liable for a volumetric sewer usage charge.

Sewage discharge volumes are a function of water sales. A sewage discharge factor is applied to water sales to reflect the estimated portion of metered water usage discharged into the sewerage system.

Only three of Council's non-residential customers are separately metered for sewage discharge. For other non-residential customers, a customer-specific discharge factor is applied based on the nature of the customer's business. See Technical Paper 8 for more detail on the deemed sewage discharge allowance and sewage discharge factors.

Variances between forecast and actual sewage discharge volumes reflect variances in overall non-residential water demand, as well as the mix of non-residential customers with different discharge factors.

Table 8: Forecast and Actual Chargeable Non-residential Sewage Discharge Volumes

(ML/year)	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
IPART 2019 Determination	3,768	3,798					
Actual (including wastewater usage from customers with a sewer meter)	4,155						
Forecast based on ratio of actual sewage and water usage charges		3,965	3,985	4,004	4,023	4,043	4,064

To forecast the overall volume of wastewater discharged into the sewerage system by non-residential customers, past trends of non-residential wastewater discharge as a proportion of non-residential water sales were considered and applied to future water sales forecasts.

6 Actual and forecast billable connections

Council's billable connections are used to calculate the level of fixed (service) charges. This is required to forecast the number of connections (up to 2026) so the spread of the revenue across all connections can be done accurately based on IPART's price modelling methodology.

This section will cover water, sewerage and stormwater drainage actual and forecast billable connections based on billable connections as at March 2021. Forecasts based on the billable connections as at March 2021 have been used in the submission as waiting for the June 2021 billable connections to commence forecasting and modelling of tariffs would delay the completion of the pricing submission which is due for lodgement on the 4 September 2021.

6.1 Water connections

Forecast of connections is based on the rate of historical connections, population and dwellings growth and divided into 3 different categories:

- Residential (includes Exempt)
- Non-residential (excluding Exempt)
- Non-residential Exempts

Overall, the increase in water customers is in line with housing activity growth. The proportion of residential units and flats is increasing compared to single dwellings, impacting the proportion of billable customers (properties) within the residential charges. The latest forecast available is 2020-21 Q3 data from March 2021, used as the baseline to forecast billable customers and estimated population increases. *(Note - Forecasts based on the billable connections as at March 2021 have been used in this submission as waiting for the June 2021 billable connections to commence forecasting and modelling of tariffs would delay the completion of the pricing submission which is due for lodgement to IPART in September 2021.*) Table 9 provides actual and forecast residential water billable customers.

Table 9: Actual and Forecast Residential Water Billable Customers

Water Service Customer Type	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Residential Mix Multi Premises	1,266	1,280	1,294	1,308	1,322	1,337	1,351
Residential Multi Premises	29,197	29,531	29,851	30,172	30,499	30,827	31,164
Residential Unmetered	37	37	38	38	39	39	39
Residential	103,913	105,101	106,242	107,383	108,548	109,715	110,915
Total	**134,413**	**135,950**	**137,425**	**138,901**	**140,408**	**141,918**	**143,470**

In the non-residential sector, the number of larger sized meters (80mm and 100mm) have reduced due to downsizing or closure, therefore no growth is anticipated in the next pricing path for these meter categories. Since the previous IPART submission, the method for identification of non-residential exempt meters has been updated to facilitate more rigorous analysis. It requires a review of customer data to correctly classify exempt and non-exempt customers. Due to overlapping of categories in the 2019-20 and 2020-21 data, the growth rate for both non-residential (excluding exempt) and non-residential exempt is based on combined change of both categories from 2020 to 2021. Table 10 and Table 11 show actual and forecast billable connections.

Table 10: Actual and Forecast Non-Residential Water Billable Connections

Meter size (mm)	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
20	1,587	1,591	1,604	1,616	1,629	1,642	1,656	1,669
25	741	747	758	769	781	792	804	816
32	248	249	249	250	250	250	251	251
40	613	610	610	610	610	610	610	610
50	404	396	396	396	396	396	396	396
65	14	13	13	13	13	13	13	13
80	107	95	95	95	95	95	95	95
100	90	63	63	63	63	63	63	63
150	12	9	9	9	9	9	9	9

200	2	2	2	2	2	2	2	2
250	2	2	2	2	2	2	2	2

Table 11: Actual and Forecast Non-residential Exempt Water Connections

Meter size (mm)	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
20	490	529	534	539	544	549	554	559
25	286	318	322	326	330	334	338	342
32	118	118	118	118	118	118	118	118
40	123	122	122	122	122	122	122	122
50	182	189	189	189	189	189	189	189
65	7	5	5	5	5	5	5	5
80	51	53	53	53	53	53	53	53
100	53	52	52	52	52	52	52	52
150	6	6	6	6	6	6	6	6
200	0	0	0	0	0	0	0	0
250	0	0	0	0	0	0	0	0

Table 12 and Table 13 show actual and forecast connections for both billable and exempt retirement villages. No growth is anticipated in these categories.

Table 12: Actual and Forecast Billable Retirement Villages Water Connections

Meter size (mm)	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
20	6	6	6	6	6	6	6
25	2	2	2	2	2	2	2
32	1	1	1	1	1	1	1
40	3	3	3	3	3	3	3
50	8	8	8	8	8	8	8
65	2	2	2	2	2	2	2
80	10	10	10	10	10	10	10
100	21	21	21	21	21	21	21
150	3	3	3	3	3	3	3
200	0	0	0	0	0	0	0
250	0	0	0	0	0	0	0

Table 13: Actual and Forecast Exempt Retirement Villages Water Connections

Meter size (mm)	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
20	2	2	2	2	2	2	2
25	1	1	1	1	1	1	1
32	0	0	0	0	0	0	0
40	5	5	5	5	5	5	5
50	5	5	5	5	5	5	5
65	2	2	2	2	2	2	2
80	2	2	2	2	2	2	2
100	3	3	3	3	3	3	3
150	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0
250	0	0	0	0	0	0	0

Table 14 shows non-residential mixed multiple premised which are billed by service charge and unmetered non-residential premises. No growth is anticipated in these connections.

Table 14: Actual and Forecast Non-Residential Water Connections billed by service charge per property

Category	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Mixed multiple premise	260	260	260	260	260	260	260
Unmetered	6	6	6	6	6	6	6

Table 15 shows the total of all categories actual and forecast water connections.

Table 15: Total Actual and Forecast Water Connections

Category	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Residential	TBC	134,413	135,950	137,425	138,901	140,410	141,918	143,470
Non-Residential	3,820	3,777	3,801	3,825	3,850	3,875	3,900	3,925
Non-Residential Exempt	1,316	1,392	1,401	1,410	1,419	1,428	1,437	1,446
Retirement Village		56	56	56	56	56	56	56
Retirement Village (exempt)		20	20	20	20	20	20	20
Non-Residential Mixed Multiple Premises		260	260	260	260	260	260	260
Non-Residential Unmetered		6	6	6	6	6	6	6
Total	**TBC**	**139,924**	**141,494**	**143,002**	**144,512**	**146,053**	**147,597**	**149,183**

The 2019 IPART pricing determination has charges based on the following methods:

1. Residential customers are billed a fixed annual service charge based on each property as defined in the determination:
    a. All residential properties regardless of the actual meter size are deemed to have a 20 mm meter

b. Multi-premises are premises where there are two or more properties and each premises is counted as a property and treated as a billable customer
c. Dual occupancies are counted as two billable customers
d. Residential connections include vacant land and mixed developments
e. Exempt properties are excluded from billable connections as they are not charged for services provided based on their exemptions
f. Standpipes are excluded as they are covered by other miscellaneous charges

2. Non-residential customers are billed depending on the property type or meter size as follows:
   a. Properties within a mixed multiple premise are billed a fixed annual service charge per property as defined in the determination
   b. Unmetered properties are billed a fixed annual service charge per property as defined in the determination
   c. All other non-residential properties are billed based on meter size for water service charges

Exempt properties, both residential and non-residential, are included in the Annual Information Return, however, for calculating tariffs these properties are not included.

6.2 Sewer connections

For 2020-21, residential sewer connections comprise 97.8% of the water service connections. Properties without a sewer connection have onsite sewer management. It is anticipated this proportion will be maintained during the pricing period. Table 16 provides actual and forecast sewerage connections for the residential customers.

Table 16: Actual and Forecast Residential Sewer Connections

Category	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Residential - Mix Multi Premises	1,238	1,252	1,266	1,279	1,293	1,307	1,322
Residential - Multi Premises	28,555	28,881	29,195	29,508	29,828	30,149	30,479
Residential - Unmetered	36	37	37	37	38	38	39
Residential	101,627	102,789	103,904	105,020	106,160	107,301	108,474
Total	**131,456**	**132,959**	**134,402**	**135,844**	**137,319**	**138,795**	**140,314**

Methodology for forecasting sewer connections is based on current non-residential sewer customers as a percentage of non-residential water customers. This is because the

percentage varies for each meter size, given some customers are not connected to the sewerage network. Table 17 provides actual and forecast sewer connections for non-residential excluding exempts category.

Table 17: Actual and Forecast Non-Residential excluding exempts Sewer Connections

Meter Size (mm)	Percent of Water Connections	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
20	95.5%	1,519	1,531	1,543	1,555	1,568	1,580	1,593
25	94.9%	709	719	730	741	752	763	774
32	96.4%	240	240	240	240	241	241	241
40	97.9%	597	597	597	597	597	597	597
50	97.2%	385	385	385	385	385	385	385
65	92.3%	12	12	12	12	12	12	12
80	93.7%	89	89	89	89	89	89	89
100	95.2%	60	60	60	60	60	60	60
150	77.8%	7	7	7	7	7	7	7
200	50.0%	1	1	1	1	1	1	1
250	50.0%	1	1	1	1	1	1	1

The 2019 IPART pricing determination has charges based on the following methods:

1. Residential customers are billed a fixed annual service charge based on each property as defined in the determination:
    a. All residential properties regardless of the actual meter size are deemed to have a 20 mm meter
    b. Multi-premises are premises where there are two or more properties and each premises is counted as a property and treated as a billable customer
    c. Dual occupancies are counted as two billable customers
    d. Residential connections include vacant land and mixed developments and
    e. Exempt properties are excluded from billable connections as they are not charged for services provided based on their exemptions

2. Non-residential customers are billed by property type or meter size as follows:
    a. Properties within a mixed multiple premise are billed a fixed annual service charge per property as defined in the determination
    b. Unmetered properties are billed a fixed annual service charge per property as defined in the determination
    c. All other non-residential properties are billed on meter size for sewerage service charges.

In the 2019 determination, IPART has determined separate sewerage service charges between the former Gosford and Wyong local government areas. In the pricing submission, Council is proposing to align the sewerage service charges between the two former LGA's. This was a question in the Community Survey and most of customers were in favour of the alignment. The survey results are shown in the following exert:

There was majority support for the discontinuation of location-based sewer services pricing – with the idea of creating an average of the two price levels resonating with most:

- *When the initial concept was revealed, it was supported by 58% of the Residential – Structured respondents, 61% of the Residential – Council Your Voice Our Coast (YVOC) respondents, and 63% of the Small to Medium Entities (SME) respondents; and,*
- *When the full pricing implications were revealed, it was supported by 59% of the Residential – Structured respondents, 66% of the Residential – Council YVOC respondents, and 66% of the SME respondents.*[1]

Non-residential exempt properties are not included as these customers are not charged for a sewer service charge. Information on exempt non-residential customers is included in the Annual Information Return.

Table 18 and Table 19 provide actual and forecast sewer connections for retirement villages, both billable and exempt respectively.

Table 18: Actual and Forecast Billable Retirement Villages Sewer Connections

Meter size (mm)	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
20	6	6	6	6	6	6	6
25	2	2	2	2	2	2	2
32	1	1	1	1	1	1	1
40	3	3	3	3	3	3	3
50	8	8	8	8	8	8	8
65	2	2	2	2	2	2	2
80	10	10	10	10	10	10	10
100	21	21	21	21	21	21	21
150	3	3	3	3	3	3	3
200	0	0	0	0	0	0	0
250	0	0	0	0	0	0	0

[1] Source: Community feedback for IPART submission April 2021. Survey conducted in February 2021.

Table 19: Actual and Forecast Exempt Retirement Villages Sewer Connection

Meter size (mm)	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
20	2	2	2	2	2	2	2
25	1	1	1	1	1	1	1
32	0	0	0	0	0	0	0
40	5	5	5	5	5	5	5
50	5	5	5	5	5	5	5
65	2	2	2	2	2	2	2
80	2	2	2	2	2	2	2
100	3	3	3	3	3	3	3
150	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0
250	0	0	0	0	0	0	0

Table 20 shows non-residential mixed multiple premise which are billed by service charge and unmetered non-residential premises. No growth is anticipated in these connections.

Table 20: Actual and Forecast Non-Residential Sewer Connections billed by service charge per property

Category	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Mixed multiple premise	256	256	256	256	256	256	256
Unmetered	5	5	5	5	5	5	5

Table 21 shows the total of all categories actual and forecast sewer connections excluding non-residential exempt category.

Table 21: Total Actual and Forecast Sewer Connections

Category	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Residential	131,449	132,959	134,402	135,844	137,319	138,795	140,314
Non-Residential	3,620	3,642	3,665	3,688	3,713	3,736	3,760
Non-Residential Exempt *	-	-	-	-	-	-	-
Retirement Village	56	56	56	56	56	56	56
Retirement Village (exempt)	20	20	20	20	20	20	20
Non-Residential Mixed Multiple Premises	256	256	256	256	256	256	256
Non-Residential Unmetered	5	5	5	5	5	5	5
Total	**135,406**	**136,938**	**138,404**	**139,869**	**141,369**	**142,868**	**144,411**

* Non-residential exempt properties are not included as these customers are not charged for a sewer service charge. Information on exempt non-residential customers is included in the Annual Information Return

6.3 Stormwater drainage customers

Council provides stormwater drainage services to the entire population residing within the Central Coast LGA. The defined existing declared drainage area determines the customer base for servicing and charging shown in Figure 7. The total declared drainage area covers approximately 66% of the Local Government Area.

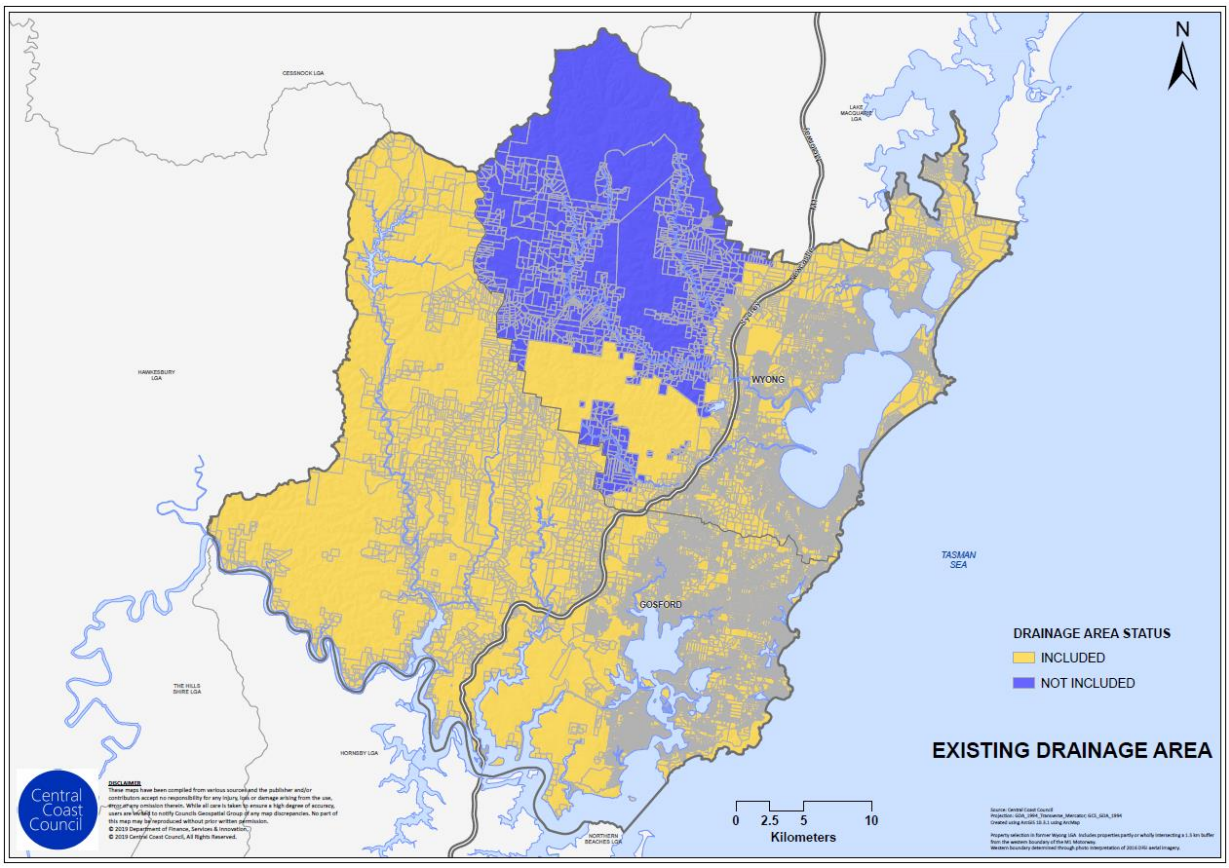


Figure 7: Declared Drainage Area

The stormwater drainage customer information below has been extracted from the water billing system. Forecasts are based on the annual movement in customer numbers from 2019-20 to 2020-21. There is limited information on customer changes as the new fixed and area-based charges were implemented from 1 July 2019. Customer information for 2020-21 is based on information available from March 2021.

Forecasts are based on:

- Annual movement for each residential customer type and forecasted growth in dwellings (properties)
- Annual movement for each property type

Stormwater drainage charges apply to all properties in the declared drainage area, except those that are classified as exempt. The number of billable stormwater drainage properties reflects factors such as rezoning, land housing subdivision and unit development. While the numbers exceed water and sewerage customers as some properties are independent of the network, the growth in the billable stormwater drainage customer base is less.

Forecasts and actuals for the current price period are reported in Table 22.

Table 22: Actual and Forecast Billable Stormwater Drainage Properties, 2020-21 to 2021-22

Property Type	2020-21	2021-22
Residential Customers		
Standalone Premise	107,429	107,667
Mixed Multiple Premises	1,264	1,445
Multiple Premises	29,141	29,569
Vacant Land	1,810	1,690
Total Residential Customers	**139,644**	**140,371**
Non-Residential Customers		
Mixed Multiple Premises	293	332
Vacant Land	159	150
Low Impact	22	22
Small property (<1,000m^2)	1,406	1,421
Medium property (1,001m^2 to 10,000m^2)	1,707	1,717
Large property (10,001m^2 to 45,000m^2)	319	318
Very Large property (>45,000m^2)	185	184
Total Non-Residential Customers	**4,091**	**4,144**
	143,735	**144,515**

Annual forecast billable stormwater customers in periods 2022-23 to 2026-27 are shown in Table 23. Annual customer growth is forecast to be 0.5 per cent per year for residential properties and 1.2 per cent per year for non-residential properties.

Table 23: Forecast Billable Stormwater Drainage Properties, 2022-23 to 2026-27

Property Type	2022-23	2023-24	2024-25	2025-26	2026-27
Residential Customers					
Standalone Premise	107,895	108,123	108,356	108,589	108,829
Mixed Multiple Premises	1,619	1,793	1,970	2,148	2,331
Multiple Premises	29,980	30,391	30,811	31,232	31,665
Vacant Land	1,575	1,460	1,343	1,226	1,105
Total Residential Customers	**141,069**	**141,767**	**142,480**	**143,195**	**143,930**
Non-Residential Customers					
Mixed Multiple Premises	371	410	449	488	527
Vacant Land	141	132	123	114	105
Low Impact	22	22	22	22	22
Small property (<1,000m^2)	1,436	1,451	1,466	1,481	1,496
Medium property (1,001m^2 to 10,000m^2)	1,727	1,737	1,747	1,757	1,767
Large property (10,001m^2 to 45,000m^2)	317	316	315	314	313
Very Large property (>45,000m^2)	183	182	181	180	179
Total Non-Residential Customers	**4,197**	**4,250**	**4,303**	**4,356**	**4,409**
Total Stormwater Drainage Customers	**145,266**	**146,017**	**146,783**	**147,551**	**148,339**

To ensure stable revenue forecasting and minimise uncertainty for customers, the declared drainage areas will remain unchanged during the 2022 determination period.

Council will review and consider consolidating the two drainage areas during the next determination period (post 2026) and if approved, will work with the relevant Government Department to implement this change commencing in the following determination period.

7 Bulk water

7.1 Inter-region transfers with Hunter Water Corporation

Background/Context

As part of the 2018 pricing submission, Hunter Water and Council proposed setting prices using the higher Short Run Marginal Cost (SRMC) of the two organisations. This would have resulted in a transfer cost of $0.33/kL. Key considerations for this were:

- Flexibility to manage the uncertainty of volumetric transfers
- Equity, as the utilities' capital investment is recovered from their respective customer bases (given that it provides drought security for customers in both regions)
- Consistency in not constraining the transfer of water between the regions as a drought security response
- Allowing for revenue neutral outcomes when water is transferred purely for maintenance purposes

IPART considered the use of the Long Run Marginal Cost (LRMC) as the most cost-reflective approach. This was based on reflecting the direct costs of pumping water through the pipeline (e.g. electricity costs, treatment costs etc) as well as the opportunity cost of consuming water from the other utilities network (cost of a reduction in one utility's supply in order to increase the other's supply). IPART estimated a transfer cost of approximately $1.50/kL but chose to keep the rate unchanged at $0.70/kL due to complications associated with introducing this higher rate. IPART also determined that Hunter Water and Central Coast Council could opt out of IPART's determined maximum price and enter into an unregulated pricing agreement and service level arrangement.

A variation to the existing Hunter Central Coast Pipeline Agreement, that sets the transfer rate on the higher of the two utility's SRMC ($0.33/kL), has been signed by the two organisations.

The key aspects of this variation are:

- Set the inter-region transfer cost between both parties to $0.33/kL in both directions, with no escalation of the price with inflation (to simplify administration)
- Commence the variation from the date of signing (March 2020)
- Terminate the variation on the expiry date of the 2019 IPART determination (30 June 2022)

- Council intends to further extend a nonregulated pricing agreement with Hunter Water Corporation

8 Abbreviations

ABS	Australian Bureau of Statistics
GIS	Geographic Information System (mapping)
HW	Hunter Water
IPART	Independent Pricing And Regulatory Tribunal
iSDP	Integrated Supply Demand Planning
ISF	Institute of Sustainable Futures (UTS)
LGA	Local Government Area
LMRC	Long Run Marginal Cost
SRMC	Short Run Marginal Cost

9 References

- .id informed decisions, Central Coast NSW community profile, https://profile.id.com.au/central-coast-nsw Hunter Water, IPART Pricing Proposal, 1 July 2019
- Institute for Sustainable Futures (UTS), Review of water demand forecasts and demand model for Central Coast Council Apr 2018
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