



# Hoxton Park recycled water services

Development Servicing Plan 2021

Sydney  
**WATER**

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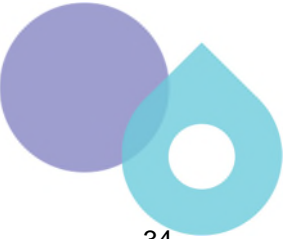




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# 1 Executive summary

This Draft Development Servicing Plan (Draft DSP) sets out the proposed price for connecting a new development to our Hoxton Park recycled water scheme. The draft prices have been prepared using the method set by the Independent Pricing and Regulatory Tribunal's (IPART) in their 2019 Determination<sup>1</sup> (the 2019 Determination).

Using the methodology in the 2019 Determination, the revised recycled water infrastructure contribution for the Hoxton Park Recycled Water system would be \$17,437 (\$2021-22) per ET. However, we do not consider this represents good value for this community so we applied for and gained approval from the NSW Treasurer to set a price **below** the maximum price determined by IPART's determination, in accordance with section 18(2) of the Independent Pricing and Regulatory Tribunal Act 1992 (the IPART Act). We propose to continue to cap the developer charge for the Hoxton Park recycled water system at the current rate of \$8,007 per ET (\$2021-22). We consider this to be equivalent to the provision of a rainwater tank to meet BASIX. The charge will be adjusted each year based on movements in the Consumer Price Index (CPI), with the first adjustment to apply from 1 July 2022.

A detached or semi-detached single residential dwelling is charged as one ET. Table 1-1 summarises the proposed contributions for other developments that have a different level of demand compared to a single residential dwelling. Non-residential developments will have the option to request that infrastructure contributions be calculated using a site-specific estimate of recycled water use (ie, a flow-based charge).

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<sup>1</sup> *Maximum Prices for Connecting to a Recycled Water System – Final Determination July 2019*

Table 1-1 Proposed capped recycled water infrastructure contributions for different development types

Development type:	Residential (\$/dwelling)									Non-residential (\$/ET)
	Density (dwellings per pure net hectare*)	0 – 20	21 – 35	36 – 50	51 – 65	66 – 80	81– 95	96 – 125	126 - 155	
<b>Contribution (\$2021-22)</b>	\$8,007	\$6,086	\$4,083	\$3,363	\$2,882	\$2,722	\$2,402	\$2,162	\$1,761	\$8,007

\* Pure net area equates to developable area



## 2 Development Servicing Plan methodology

Part 2 of this Development Servicing Plan (DSP) outlines the regulation of recycled water infrastructure contributions and explains the way in which charges are calculated.

### 2.1 Introduction

#### 2.1.1 Infrastructure contributions and Development Servicing Plans

The *Sydney Water Act 1994* allows Sydney Water Corporation (Sydney Water) to recover the cost of infrastructure that is needed to provide services to properties. The contributions are a means by which Sydney Water can recover the cost of providing infrastructure to service urban development.

Sydney Water levies infrastructure contributions for recycled water services in accordance with IPART's 2019 Determination. The information we have used to calculate infrastructure contributions must be set out in a DSP (this document).


#### 2.1.2 Regulation of infrastructure contributions

IPART is an independent authority that regulates the pricing of declared government monopoly services. IPART may set a maximum price for a government monopoly service, or it may instead decide to set a methodology that must be used to calculate the price.

In the 2019 Determination, IPART set a methodology that must be used to determine the maximum price that can be charged for a new development connecting to a recycled water system. Our application of that methodology must be documented in a DSP, be placed on public exhibition for stakeholder comment, and registered with IPART.

IPART can also regulate recycled water usage charges but has declined to set a regulated usage charge for any of our recycled water schemes. Under the current regulatory framework, Sydney Water must propose a recycled water usage price and IPART will then assess our proposal against a set of pricing principles. IPART will only step in to regulate or set a price where it decides our proposed price is not consistent with their pricing principles. In our April 2020 response to IPART's draft price determination, we proposed that recycled water usage prices at all schemes would be set





at 90% of the non-drought drinking water usage price. IPART accepted this proposal in their June 2020 final determination. There is currently no recycled water service charge for the Hoxton Park scheme.

### 2.1.3 Payment of a recycled water infrastructure contribution

As a condition of development consent, the consent authority (usually council) requires a developer to make satisfactory arrangements with Sydney Water for the provision of water related services to a new development. To identify the necessary arrangements, a developer must submit to Sydney Water an application for a Section 73 Compliance Certificate.

Upon receiving the application for a Compliance Certificate, Sydney Water investigates the impact that a proposed development is likely to have on its systems. Sydney Water then issues a Notice of Requirements under s74 of the Sydney Water Act. This sets out the conditions that a developer must satisfy before Sydney Water issues a Section 73 Compliance Certificate. For areas with recycled water services, the Notice of Requirements will include the infrastructure contribution payable and/or works that a developer must construct before the services are made available.

### 2.1.4 Dispute resolution

A developer who is dissatisfied with the way in which Sydney Water has applied IPART's methodology may lodge a complaint with Sydney Water. The dispute process is set out in section 31 of the *Independent Pricing and Regulatory Tribunal Act 1992* (the IPART Act). The first step in this process is to notify Sydney Water of the complaint.

Following a review by Sydney Water, if a developer is still dissatisfied it may request that the matter be reviewed by way of arbitration. An arbitrator is to be appointed by agreement between the developer and Sydney Water and the costs of the arbitration are to be borne equally.

### 2.1.5 Disclaimer

This DSP and the infrastructure contributions it contains have been prepared by Sydney Water to meet the requirements of the 2019 Determination and have been prepared using the latest available information.



## 2.2 Regulation - principles and calculation method

### 2.2.1 Principles of the regulation

In the 2019 Determination, IPART set a methodology for fixing the maximum price for connecting a new development to a recycled water system. The principles underlying IPART's methodology are that contributions should:

- enable the full recovery of relevant costs
- reflect variations in the costs of servicing different developments
- result in new development areas meeting the costs of the services provided
- cover only expenditure that can be clearly linked to development.

### 2.2.2 The calculation method

The 2019 Determination requires infrastructure contributions to be calculated using the following steps:

- Calculate the present value of the existing and future assets used to provide services in the DSP area
- Deduct the present value of the future net operating result expected to be incurred by providing the services to the DSP area
- Deduct the present value of the cost offsets associated with the recycled water scheme
- Divide the above result by the present value of the number of the benefiting developments in the DSP area.

The contribution rate is expressed as a dollar amount per Equivalent Tenement (ET), where one ET is equal to the assumed demand of a typical residential detached or semi-detached dwelling. The total contribution payable by any given development therefore depends on the assessed number of ETs in that development. The underlying NPV method ensures that, all else being equal, the price paid by each new connection will be the same price (\$/ET) regardless of when the connection occurs.

IPART's formula for calculating recycled water infrastructure contributions (which they describe as Incremental Developer Charges) is shown below.

$$IDC_R = \frac{K}{L_1} - \frac{NPV (R_i - C_i)}{L_2} - \frac{PV(S_i + EB_i + GD_i + AOC_i) + PV(ACC_j)}{L_1} \text{ for } i = \text{financial years } 1, \dots, n \text{ and for } j = \text{financial years } 1, \dots, m$$

Where:

$IDC_{RW}$  means the Incremental Developer Charge (recycled water infrastructure contribution) per ET to be serviced by the connection;

$K$  means the Present Value of the Capital Charge for Assets (Existing and New) that will serve the relevant DSP Area;

$L_1$  means the Present Value of the number of ETs in the DSP Area for the Capital Charge and Cost Offset (new customers from 1 January 2007);

$L_2$  means the Present Value of the number of ETs for the Reduction Amount (new customers over 30 years from the current year);

$R_i$  means the future periodic revenues to be received from supplying the Recycled Water Service to new customers in the DSP Area in each financial year  $i$ ;

$C_i$  means the future operating, maintenance and administration costs of providing new customers in the relevant DSP Area with the services provided by the Recycled Water System in each financial year  $i$

$S_i$  means any subsidy or funding received from another external source received in each financial year  $i$  for the provision of the recycled water connection service;

$EB_i$  means the External Benefit in each financial year  $i$ ;

$GD_i$  means costs associated with a Recycled Water System or part of a Recycled Water System which is the subject of a Government Directive in each financial year  $i$ ;

$AOC_i$  means Avoided Operating Costs in each financial year  $i$ ;

$ACC_j$  means Avoided Capital Costs in each financial year  $j$ ;

$n$  means the financial year which is 30 years from the financial year in which the relevant DSP was registered with IPART

$m$  means a financial year that is at least 30 years from the financial year in which the DSP was registered with IPART



### 2.2.3 Review of DSPs and developer charges

This Draft DSP has been placed on public exhibition for a period of 30 working days. Sydney Water will review all submissions from the public received during the exhibition period and consider whether any changes are needed. The DSP will then be finalised and sent to IPART for registration. Once registered, the DSP and infrastructure contribution must be reviewed at least once in each five-year period.

The final infrastructure contribution price will be subject to an annual adjustment in line with movements in the Consumer Price Index. The first adjustment will take effect from 1 July 2022.

### 2.2.4 Preparation of DSPs

The 2019 Determination identifies the minimum level of information to be included in each DSP. The information requirements relate to the description of the DSP area, demographic and planning assumptions, the standards of service provided, descriptions of assets and the calculation of an infrastructure contribution.

## 2.3 Forecasting urban development rates


Recycled water infrastructure contributions are influenced by existing and forecast development that use up the capacity of assets, and the timing of future capital works to service growth. In addition, the operating revenue is likely to vary over time based on changes to drinking water prices in periodic pricing determinations, given we have decided to link the recycled water usage price to drinking water prices.

### 2.3.1 Existing development

Sydney Water has used its corporate billing and geographic information systems to determine the extent and type of existing development in the DSP area.

### 2.3.2 Forecasting residential development

Sydney Water has based our population and residential development forecast in the DSP area on the latest Department of Planning, Industry and Environment (DPIE) information.



Properties will generally connect and begin to use recycled water around two years after developer contributions are received. This means there is a two-year lag in the ET forecast for the calculation of water usage revenue for new properties relative to the forecast ET for development.

### 2.3.3 Forecasting non-residential development

Commercial and industrial development forecasts have been based upon development trends in the DSP area over the last twenty years. Forecast non-residential development has been limited to land currently zoned for commercial and industrial development in the Local Environment Plans of Liverpool and Campbelltown Councils.

## 2.4 Forecasting System Demand

### 2.4.1 Forecasting system demand


The growth forecasts for the Hoxton Park Project Area have been used to estimate future demand on the recycled water system. System design allowances have then been applied to identify infrastructure requirements to meet growth and to ensure standards of service are met. Demand has been expressed in terms of average day demand.

### 2.4.2 Defining an Equivalent Tenement

The 2019 Determination requires infrastructure contributions be expressed in terms of a dollar amount per ET. IPART defines one ET as a measure of recycled water consumption for an average residential dwelling.

In the previous 2006 Determination, IPART required that we adopt a fixed value of 110 kilolitres as the volume of recycled water used by an average residential dwelling over a year. This fixed value applied to all recycled water schemes, even if there was evidence that average demand was higher or lower.

The 2019 Determination removed the requirement to use a fixed value at all schemes, and instead allows for a scheme-specific value to be used. For this DSP we have used a figure of 50 kL a year for the average residential dwelling for the ET consumption. We have based our estimate of ET for Hoxton Park on the recycled water consumption records for freestanding or semi-detached residential properties in the area. We have also assumed recycled water demand of 42 kL a year for multi-unit residential developments.



For the purpose of calculating infrastructure contributions we have assumed that an average residential dwelling is a single detached dwelling with a single 20 mm recycled water meter. As such, the design allowances for a single detached dwelling represent the demand of one ET.

All other residential development types are equated to a number of ET based upon the relative design allowances for that development type. All demands are equated to an ET for the purpose of calculating recycled water infrastructure contributions.

Non-residential properties including commercial and industrial developments and special uses such as schools and parks are equated to a number of ET based upon the relative design allowances for that development type based on forecast employee numbers.

## 2.5 Determining relevant assets

In accordance with the 2019 Determination, the infrastructure contribution calculation includes all recycled water assets that Sydney Water has funded or will fund to provide services to new development.


### 2.5.1 Existing assets

Sydney Water's financial, developer and geographic information systems were used to identify works that have been constructed to provide a benefit to future development.

- Headworks –the recycled water facilities at the Hoxton Park water recycling plant
- Major works – include recycled water delivery pumping stations, drinking water top-up pumping stations, service reservoirs and large diameter recycled water distribution mains
- Distribution mains and lead-in mains which link local areas to the trunk system
- Reticulation mains which are required to deliver recycled water services at a local level within the Hoxton Park Recycled Water Scheme (excluding reticulation mains constructed by developers and handed over to Sydney Water free-of-charge).

### 2.5.2 Future assets

The 2019 Determination allows Sydney Water to recover the cost of assets that are yet to be constructed and which are identified as being necessary to service future development.



The capital expenditure reflects growth related requirements set out in Sydney Water's Growth Servicing Strategy – *Options Assessment Business Case - Hoxton Park Recycled Water Scheme, 2018, Delivery Approval Business Case for Western Sydney Airport Construction Water, 2020* and recycled water scheme plans.

### 2.5.3 Standards of service

The standards of service for supply of recycled water are set out in the Customer Contract in Sydney Water's Operating Licence. These standards may vary over time with the renewal of the Operating Licence.

The current Licence is effective from 1 November 2019 to 30 November 2023. The Licence requires Sydney Water to ensure that the recycled water system and the recycled water supplied to customers comply with the *Australian Guidelines for Water Recycling 2006* as agreed by NSW Health.

### 2.5.4 Asset apportionment

The NPV methodology used to calculate infrastructure contribution has several advantages. An important feature of the method is that, everything else staying equal, each developer will pay the same relative contribution to infrastructure costs in a DSP area regardless of when they develop.


In the 2019 Determination, however, IPART changed the definition of ETs for the capital charge component to exclude ETs developed prior to 1 January 2007. In the absence of any other adjustments, this would have resulted in a material increase in the capital charge component at some schemes as the same costs would have been divided through by a smaller number of ETs.

After bringing this to IPART's attention in May 2021, the Tribunal resolved to issue a Clarification Notice under clause 2.2(b) of Schedule 6 of the 2019 Determination. The Notice takes effect when it is published in the NSW Government Gazette. According to the notice, Sydney Water is required to adopt the following interpretation when estimating the capital charge:

*“any portion of an Asset attributable to Pre-2007 Equivalent Tenements is not a ‘relevant Asset’ for the purposes of clause 2.3(a)(1) of Schedule 4 to the Determination and should be excluded.”*

In relation to cost offsets, IPART's notice also clarifies that Sydney Water must apply the following approach:

*“When estimating the External Benefit (EB<sub>i</sub>), Avoided Capital Costs (ACC<sub>j</sub>) and Avoided Operating Costs (AOC<sub>i</sub>) Cost Offset Variables, any part of these Cost Offset Variables attributable to Pre-2007 Equivalent Tenements should be excluded.”*



Sydney Water considers that this clarification restores the original principles of the NPV method, and will ensure that capital costs, cost offsets, and ETs are assessed on a consistent basis. It does not materially change the resulting contribution charge for each ET of development.

As no assets for the Hoxton Park scheme were commissioned prior to 1 January 2007, there has not been a need to apply an asset apportionment method in this draft DSP.

### 2.5.5 Valuation of existing assets

For all existing assets, Sydney Water has revised and updated previous MEERA value estimates.

### 2.5.6 Valuation of future assets

Capital expenditure for future works included in the calculation of infrastructure contributions reflect our best estimate of the efficient cost of those assets.

## 2.6 Operating result

The operating result equals the operating revenue from future development less the operating and maintenance costs associated with servicing this development. As required by the 2019 Determination, the forecast operating result is based on the expected urban development in the recycled water DSP area over the next thirty years from the year in which IPART is forecast to register the DSP.

### 2.6.1 Revenue

The operating revenue forecasts are based upon the 2020 Price Determination for drinking water and consequential link to recycled water pricing<sup>2</sup>. Beyond the price path, the current service and usage charges have been assumed to remain constant in real terms. That is, the charges only change by the inflation rate. The operating revenues are based on average usage of 50 kL per year by a single detached dwelling.

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<sup>2</sup> As noted in Section 11.3.1 of IPART's *Final Report, Review of prices for Sydney Water, June 2020*, we currently set the price of recycled water at 90% of the non-drought price for drinking water.



### 2.6.2 Operating and maintenance costs

The future operating and maintenance costs for the Hoxton Park Recycled Water Scheme are based on actual and estimated costs. The method of calculating costs identifies:


- the processes and activities required to produce the recycled water (eg treatment, distribution)
- the cost driver for each process/activity (eg electricity, chemicals)
- support costs (eg customer meter reading costs)
- corporate overheads (allocated proportional share of Sydney Water's corporate costs in line with the 2020 Price Determination)

The majority of the operating and maintenance cost components are variable and depend on throughput. For example, distribution pumping costs are calculated using the volume of water supplied, the kilowatts of power required and the unit costs of electricity. However, some operating cost components such as corporate overheads do not vary with throughput in the short-term. Under IPART's 2019 Determination however, the total corporate overheads allocated to the scheme must be split between existing and new ETs. As such, the proportion of corporate overheads included in the calculation of this DSP charge increases each year in line with increasing numbers of new ETs relative to total ETs.

In the final report that accompanied the 2019 Determination, IPART confirmed that recycled water infrastructure contributions are able to capture any scheme costs that are not recoverable by other means, subject to their being an overall nexus between new development and each cost item. In this DSP, we are proposing to recover the net income tax liability that Sydney Water must pay on assets constructed by developers and handed over to us as an Asset Free-of-Charge (AFOC).

In line with statutory accounting rules, if an entity receives an asset but was not required to pay for it (AFOC), the value of those free assets is treated as income and will attract an income tax liability in the year of commissioning. The initial tax payment is only partially offset by future depreciation tax benefits over the life of the asset, resulting in a non-zero net cost. A similar tax liability applies to drinking water and wastewater mains handed over to us by developers, however we can recover that cost via general customer prices.

We have no avenue to recover the tax liability for recycled water reticulation mains, as we are unable to pass-on the costs of higher cost recycled water schemes to general customer prices. After accounting for future depreciation tax benefits, our estimate of the net tax liability on recycled water AFOC has been reflected in the total infrastructure contribution.



Total overall operating costs for the Hoxton Park Recycled Water Scheme are forecast to increase in line with development forecasts as shown in **Error! Reference source not found..**

## 2.7 Cost offsets (avoided costs)

The 2019 Recycled Water Determination continued to allow consideration of avoided or deferred costs. At this time, Sydney Water does not have sufficient evidence of significant avoided or deferred costs associated with the Hoxton Park scheme.



## 3 Hoxton Park Recycled Water Scheme

This section provides information about the area served by the Hoxton Park Recycled Water Scheme and the infrastructure included in this DSP. The development and demand rates used in the calculation of the infrastructure contribution are also detailed.

### 3.1 Hoxton Park recycled water DSP

#### 3.1.1 History of the Hoxton Park recycled water supply scheme


In 2003, The NSW Government announced that all new residential developments from July 2004 must achieve drinking water savings of at least 40 percent under a new BASIX regulation.

The Hoxton Park recycled water scheme was also specifically identified in the 2004, 2006 and 2010 Metropolitan Water Plans as a scheme to enable the achievement of significant drinking water savings in new release areas.

Sydney Water investigate options to minimise drinking water demand in the future urban release area of Edmondson Park. This work concluded that dual reticulation via a recycled water scheme was the preferred option for Edmondson Park, and would allow future dwellings to comply with BASIX. Sydney Water commenced construction of the scheme based on the rate of growth forecasted by the Department of Planning and Environment.

The Hoxton Park Recycled Water Scheme now services an area of 1,056 ha and is located to the south west of Sydney, within Liverpool and Campbelltown Local Government Areas. Sydney Water first approved the recycled water scheme in March 2006. In April 2013, Sydney Water approved a revised Hoxton Park Recycled Water Scheme Stage 1a service area to limit the supply of recycled water to approximately 9,200 dwellings, rather than 14,000 dwellings as per the previously expected.

The Hoxton Park Recycled Water Scheme – Stage 1a service area is predominantly residential with some industrial and commercial development. The area includes a number of development sites including Elizabeth Hills and Middleton Grange to the north, and Panorama Estate (Glenfield Road) and Edmondson Park to the south. Currently, there are around 6,240 lots developed. Of these, approximately 25 percent (at Ingleburn Gardens and Glenfield Road) are supplied drinking water from the Minto water supply zone via WP0416 and Edmondson Park RS0473. The recycled water reticulation for the



remaining customers is currently cross connected to local drinking water supplies. These areas will be progressively connected over the next few years as the recycled water trunk mains and lead-in mains are completed.

The Hoxton Park scheme requires that recycled demand be equivalent to that required by around 6,500 connections before it can cost-effectively meet recycled water quality guidelines. After the scheme was built, actual population growth in the area was slower than forecast. If we had commissioned the scheme with any fewer connections than this threshold, the consequential lower demand for recycled water would have resulted in the service not meeting the requirements in the Australian Guidelines for Water Recycling. As such, rather than using recycled water, customers have been receiving drinking water (at recycled water prices). Once the required demand is achieved and the scheme can meet the AGWR we will commission the plant and connect to the purple pipe system. This is anticipated to be in approximately 2024.

When operational, the Hoxton Park Recycled Water Scheme will be supplied from the Glenfield Recycled Water Treatment Plant. Recycled water will be pumped via RP0366 to Edmondson Park Recycled Reservoir RS0473. Drinking water top-up is provided to RS0473 from the Minto water supply zone via pumping station WP0416. A future water pumping station will provide top-up drinking water during peak demand periods from the Cecil Park water supply zone directly to the Elizabeth Hills precinct at the northern end of the servicing area. Future recycled water infrastructure is shown in

### 3.1.2 Boundaries and location

The areas in the Hoxton Park Recycled Water Scheme Stage 1a service area includes the Elizabeth Hills and Len Waters Industrial Estate, Middleton Grange and Park Bridge Estate, Freemans Ridge, Yarrunga, Panorama Estate, Ingleburn Gardens, and areas of the new releases at Edmondson Park. Opportunities to expand and optimise the scheme were assessed in 2018. At that time the boundary was slightly expanded as presented in Figure 1 and the dwelling forecast is currently expected to be 10,270. The increase is largely in the Edmondson Park, Freemans Reach and Middleton Grange developments and at the Edmondson Park town centre where high rise apartments are now proposed.

Other aspects of the Hoxton Park Recycled Water Scheme service area are presented in Table 3-1 including population in 2020, 2030 and 2050 projected population.

Table 3-1 Description of the Hoxton Park Recycled Water DSP Area

<b>Area (hectares)</b>	1,056
<b>Local Government Area</b>	The Hills Shire and Blacktown City Council
<b>Estimated Population 2020</b>	21,456
<b>2030</b>	31,610
<b>2050</b>	32,322

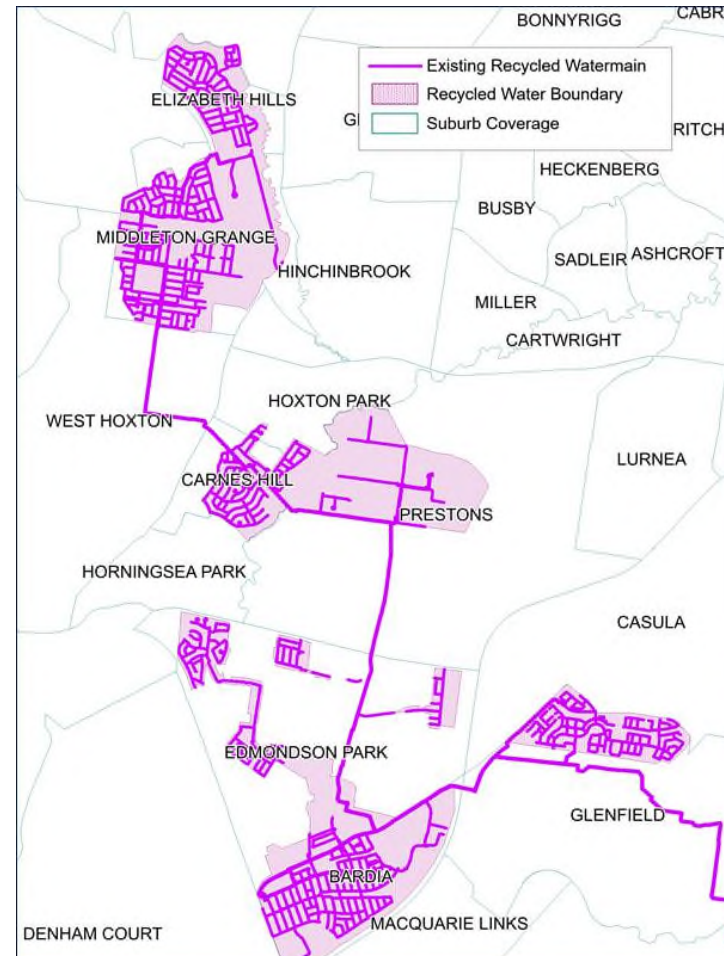


Figure 1 Hoxton Park recycled water DSP boundary

Figure 2 Forecast ET growth per year

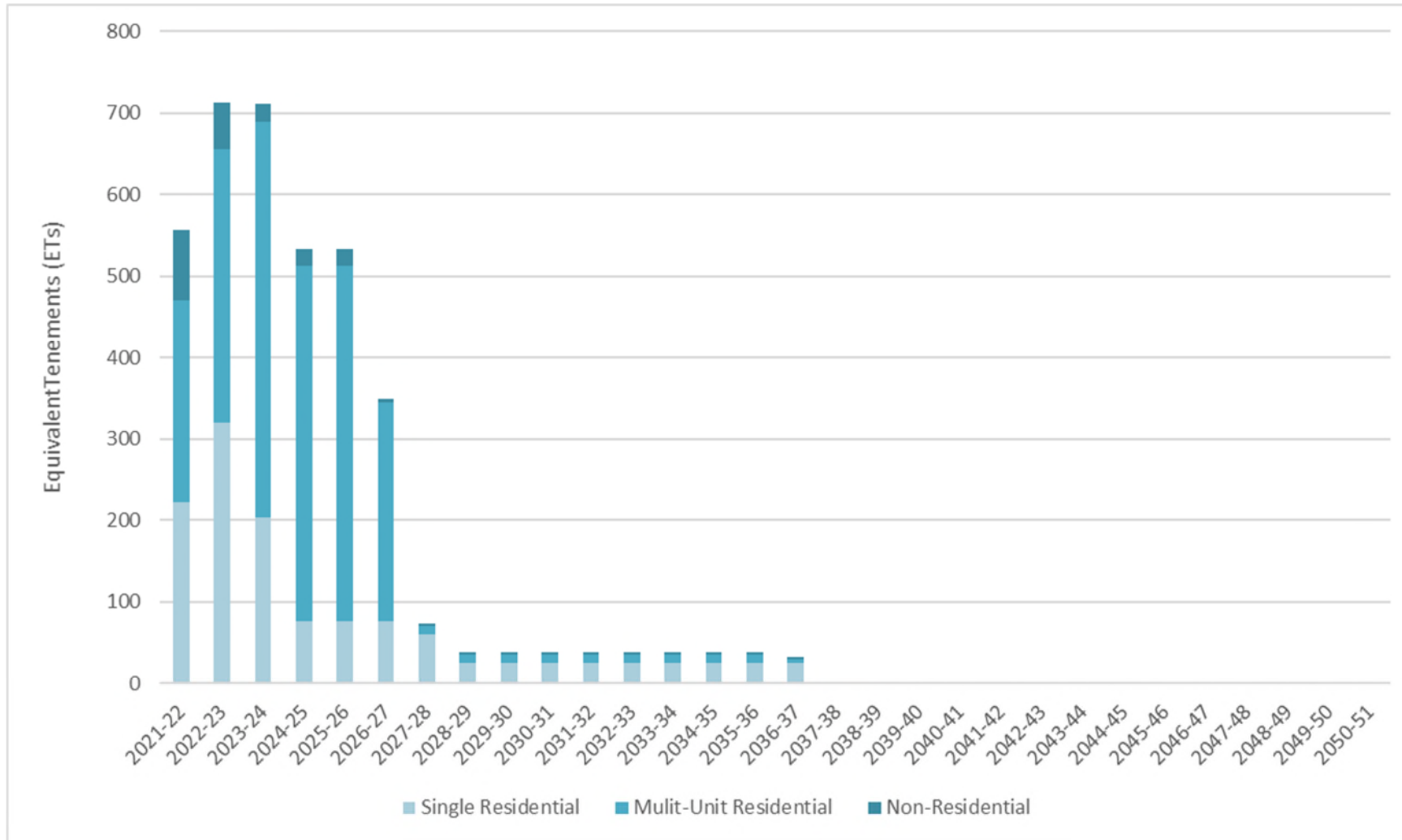
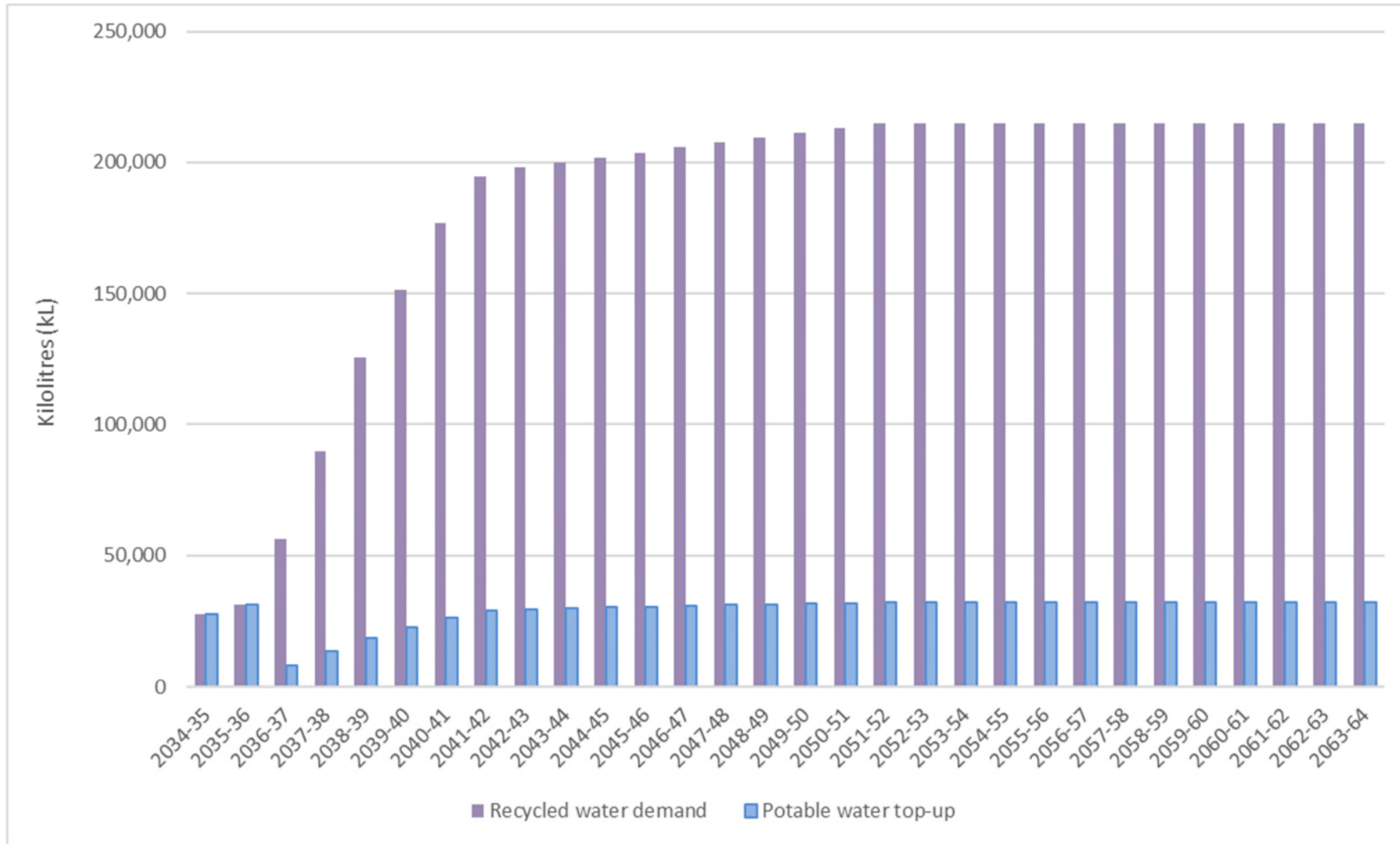


Figure 3 Cumulative recycled water demand from new customers (and need for potable top-up)



### 3.1.3 Recycled water infrastructure

The infrastructure includes:

- Headworks – such as the recycled water facilities at Hoxton Park wastewater treatment plant (WWTP)
- Major works – include recycled water delivery pumping stations, potable water top-up pumping stations, elevated service reservoirs and large diameter recycled water distribution mains
- Lead-in works – which link developer areas to the existing system, and
- Reticulation mains – which are required to deliver recycled water services within the Hoxton Park Project Area<sup>3</sup>.

Most of the Hoxton Park Recycled Water Scheme (HPRWS) trunk infrastructure has been constructed. However, the Glenfield Water Recycling Plant was mothballed until more properties could connect. The plant will soon be re-commissioned to provide recycled water services during construction of the new Western Sydney Airport, with the costs recovered as part of a negotiated servicing agreement.

The customers in the HPRWS boundary will receive recycled water from the plant once the construction of Western Sydney Airport is completed, which is anticipated to be in approximately 2024. Tertiary treated effluent will be treated in the recycled water plant by superchlorination and ultraviolet (UV) disinfection. This treatment will ensure that the recycled water meets the quality guidelines set by *The Australian Guidelines for Water Recycling: Managing Health and Environmental Risks* (2006).

When demand for recycled water exceeds supply the recycled water reservoirs are supplemented with drinking water. Each recycled water reservoir incorporates a drinking water top-up pumping station.

Most of the Hoxton Park Recycled Water Scheme has already been constructed. Future works will be required once the construction of the Airport is completed and recycled water is distributed within the HPRWS boundary.

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<sup>3</sup> Reticulation mains constructed by developers and handed over as AFOC are not eligible to be recovered in the infrastructure contribution. Any contribution made by Sydney Water towards the cost of those assets has been captured in the capital charge. We also propose recovering the net tax liability that must be borne by Sydney Water due to these assets.



## 3.2 Assets

The assets included in the calculation of the Hoxton Park Recycled Water DSP have been identified and valued in accordance with the method described in Section 0 and Section 0. Further detail is in Appendix 1 – Commissioned assets funded by Sydney Water.

### 3.2.1 Existing assets

Existing assets constructed to service development include the water treatment plant, reservoirs, mains and pumping stations. The values of these assets are included in the calculation of the infrastructure contribution and are described in Appendix 1. This shows the following asset details:

- commissioning dates
- infrastructure size/length of pipelines
- values
- unit costs (where applicable).

### 3.2.2 Future assets

Planned future assets included in the infrastructure contribution are shown in Figure 4 and summarized in Figure 5. This includes several new lead-in mains at key locations, a new pumping station to facilitate potable water top-up, and upgraded chlorination systems at the recycled water plant,

These assets have been identified based on the forecast development rates in the Hoxton Park Project Area.

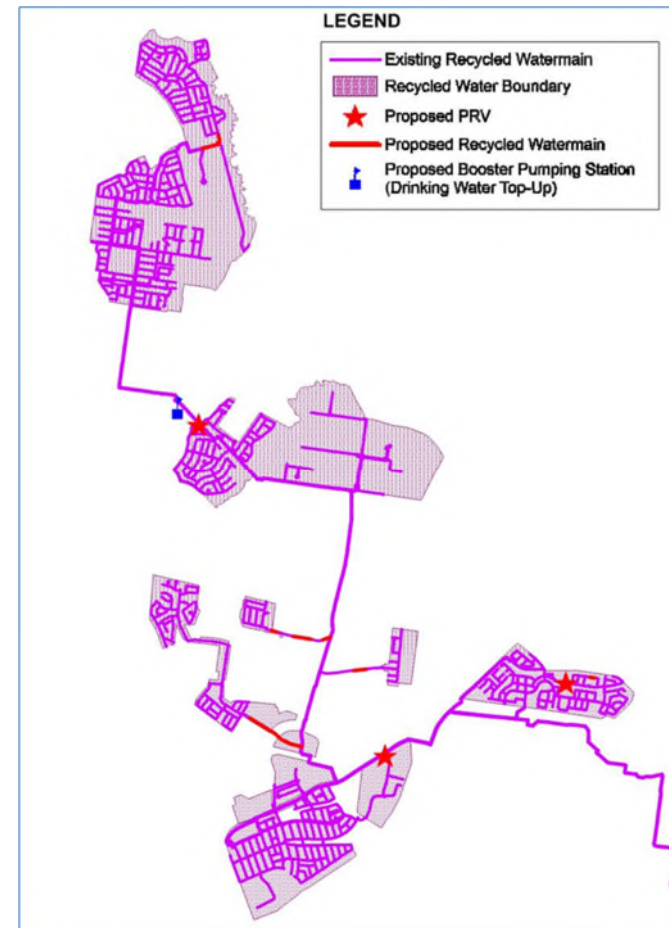


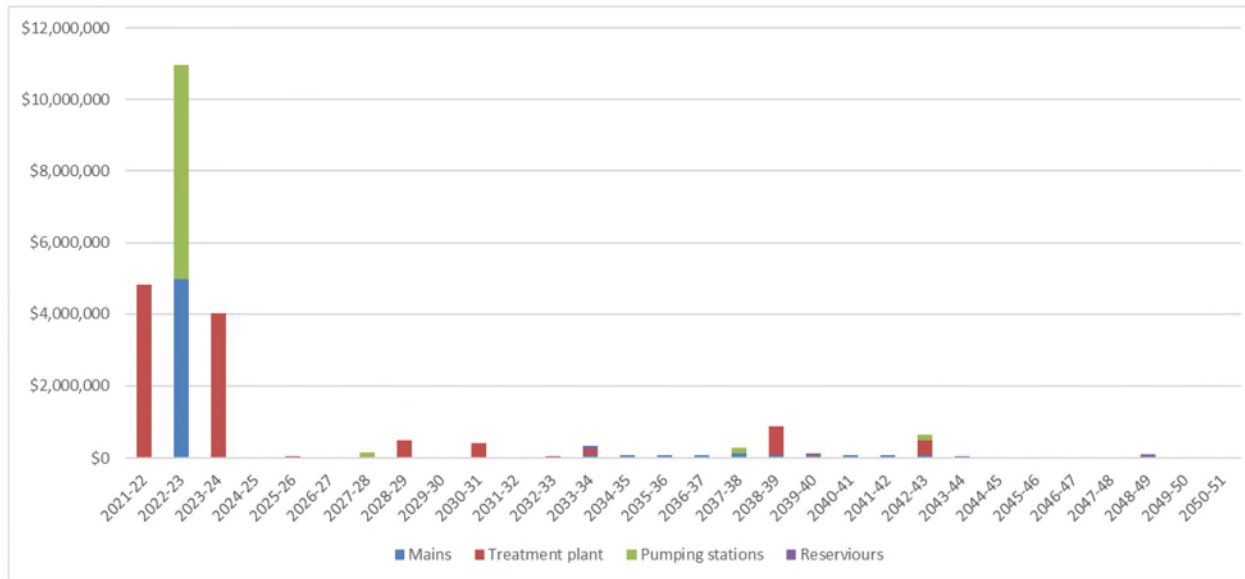
Figure 4 Proposed future infrastructure

### 3.2.3 Asset renewals

The capital charge for future assets includes an allowance for various asset renewals and replacements over time, as existing assets reach the end of their life including:

- Replacement of recycled water meters
- Renewal of pressure reducing valves (PRVs) every 15 years
- Renewal of pumps and other mechanical parts every 10 to 15 years
- Renewal of electrical components every seven to 10 years
- Building works to maintain structural integrity every 15 years

Figure 5 Forecast capital expenditure



# 4 Infrastructure contribution calculation

## 4.1 Key assumptions and inputs

This section sets out key assumptions in the calculation of the infrastructure contribution.

Table 4-1 - Inputs to the developer charge calculation model

Recycled Water Scheme	Hoxton Park
Present Year for Evaluation	2021-22
Real Pre-tax Rate of Return	4.2%
<b>Recycled Water Charges</b>	2021-22
Usage Charge (\$/kL nominal dollars)	\$2.12
<b>Recycled Water Average Consumption</b>	
Single residential (kL/dwelling/year)	50
Multi residential (kL/dwelling/year)	42
<b>Asset Apportionment</b>	
Present value of all ETs (past + future)	12,679
Present value of ETs before 1 Jan 2007	49
Present value of ETs post 1 Jan 2007 (L <sub>1</sub> )	12,630
Present value of ETs from 1 July 2021 (L <sub>2</sub> )	3,378

## 4.2 Capital Charge

### 4.2.1 Existing assets

Table 4-2 Value of commissioned assets 1992-93 to 2021-22 (MEERA values)

	2007-08 To 2011-12	2012-13 To 2016-17	2017-18 To 2021-22
Mains	\$35,126,443	\$11,118,270	\$850,189
Treatment and pumping	\$0	\$39,558,834	\$0
Reservoirs	\$0	\$21,238,381	\$0

Note: All assets were commissioned after 1 January 2007 and there is no need to apply any apportionment factor to meet the requirements of IPART's Clarification Notice.

### 4.2.2 Future assets

Table 4-3 Value of uncommissioned assets (efficient cost)

	2021-22 to 2025-26	2026-27 To 2030-31	2031-32 To 2035-36	2036-37 to 2040-41	2041-42 to 2045-46	2046-47 to 2050-51
Mains	\$4,975,498	\$0	\$220,694	\$427,795	\$185,819	\$0
Treatment and pumping	\$14,803,821	\$1,061,030	\$213,231	\$1,017,974	\$563,833	\$0
Reservoirs	\$0	\$153,773	\$0	\$153,773	\$153,773	\$0

Note: All assets were commissioned after 1 January 2007 and there is no need to apply any apportionment factor to meet the requirements of IPART's Clarification Notice.

### 4.2.3 Capital charge

Table 4-4 Capital charge calculation components

Recycled Water Scheme	Hoxton Park
(A) Present value of capital expenditure (K)	\$183,083,586
(B) Present value of ETs (L <sub>1</sub> )	12,630
<b>Capital charge (A) / (B)</b>	<b>\$14,384 / ET</b>

## 4.3 Net Operating Result

### 4.3.1 Revenue

All revenue is collected via a recycled water usage charge, which is set at 90% of the potable water usage price. Cumulative recycled water demand from new development was shown previously in Figure 3, and total revenue is simply annual recycled water demand multiplied by the recycled water usage price. The present value of revenue from new developments is \$6.3 million.

### 4.3.2 Operating costs

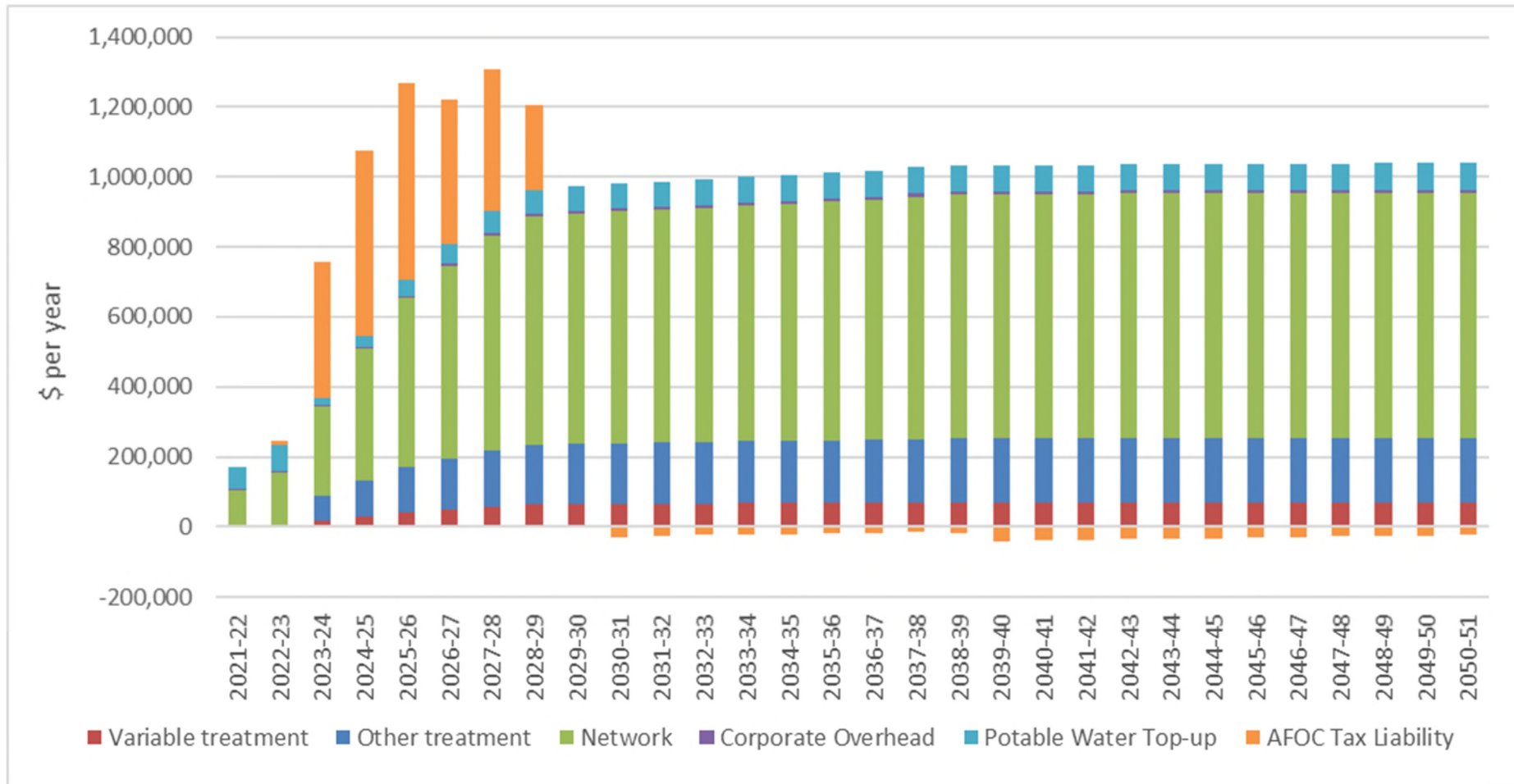
The operating costs of the Hoxton Park recycled water scheme include:

- Fixed and variable treatment costs
- Network related operating and maintenance costs (excluding renewals)
- An allocation of corporate overheads
- Potable water top-up (valued at the retail price of potable water, in order to maximise incentives to avoid potable top-up)

- Our net tax liability relating to assets free of charge

Our forecasts of future operating costs are summarised in Figure 6 below.

Figure 6 Forecast operating expenditure



### 4.3.3 Net operating result

The net operating result is shown in **Error! Reference source not found.** As the amount of operating revenue we receive from new development is insufficient to recover the incremental operating costs created by that development, the short-fall must be added to the overall infrastructure contribution.

Table 4-5 Net operating result

Recycled Water Scheme	Hoxton Park
(D) Present value of revenue (R)	\$6,274,860
(E) Present value of operating costs (C)	\$16,587,736
(F) Present value of ETs (L <sub>2</sub> )	3,378
<b>Net operating result ((D) + (E)) / (F)</b>	<b>-\$3,050 / ET</b>

## 4.4 Infrastructure contribution price

The following table details the components of the infrastructure contribution calculation using IPART's methodology.

Table 4-6 - Components of the infrastructure contribution price (\$2021-22)

Capital charge	Net operating result	Avoided costs	Infrastructure contribution (\$/ET)
\$14,384	(\$3,053)	\$0	\$17,437

We have approval from the NSW Treasurer to set this infrastructure contribution below the maximum price calculated by applying IPART's determination, in accordance with section 18(2) of the Independent Pricing and Regulatory Tribunal Act 1992 (the IPART Act). As such, Sydney Water will continue to cap the infrastructure contribution for the Hoxton Park recycled water system at \$8,007 per ET in \$2021-22. The schedule of proposed infrastructure contributions is shown in Table 4-7.

Table 4-7 - Schedule of infrastructure contributions after the cap approved by the Treasurer of NSW is applied

Development type:	Residential (\$/dwelling)									Non-residential (\$/ET)
	Density (dwellings per pure net hectare*)	0 – 20	21 – 35	36 – 50	51 – 65	66 – 80	81– 95	96 – 125	126 - 155	
<b>Contribution (\$2021-22)</b>	\$8,007	\$6,086	\$4,083	\$3,363	\$2,882	\$2,722	\$2,402	\$2,162	\$1,761	\$8,007

\*Pure net area equates to developable area

#### 4.4.1 Comparison with previously applicable infrastructure contribution

The current developer charge at Hoxton Park is \$8,007 per ET. The current charge is capped at the estimated cost of complying with BASIX via installation of a rainwater tank in the Hoxton Park area. Sydney Water will continue to cap the developer charge for the Hoxton Park recycled water system at \$8,007 per ET in \$2021-22. This remains equivalent to the provision of a rainwater tank to meet BASIX in the Hoxton Park area and represents good value for money for connection to a climate independent water supply.



## Appendix 1 – Commissioned assets funded by Sydney Water

Table A1-1 Existing gravity and pressure mains – length of main installed by year

Diameter (mm)	150	200	250	300	355	375	450	500	600	Total
2008-09		7	1,830	4,495		1,761	8,190	1,851		18,134
2009-10		426	961			241	1,511		915	4,054
2010-11		74	512							586
2011-12		322	259							581
2012-13			559	341		2,006	175	96	1,558	4,735
2013-14		189		638	186					1,013
2014-15	69	120	136	51						376
<b>Grand Total</b>	<b>69</b>	<b>1,137</b>	<b>4,257</b>	<b>5,525</b>	<b>186</b>	<b>4,009</b>	<b>9,876</b>	<b>1,947</b>	<b>2,473</b>	<b>29,478</b>

Table A1-2 Existing gravity and pressure mains – MEERA value of installed mains by year (\$ millions, \$2021-22)

Diameter (mm)	150	200	250	300	355	375	450	500	600	Total
2008-09		\$0.006	\$1.371	\$4.059		\$2.695	\$13.457	\$3.364		\$24.953
2009-10		\$0.294	\$0.776			\$0.410	\$2.541		\$2.309	\$6.329
2010-11		\$0.050	\$0.386							\$0.435
2011-12		\$0.215	\$0.193							\$0.409
2012-13	\$0.219		\$0.685	\$0.292		\$2.050	\$0.253	\$0.169	\$4.749	\$8.461
2013-14		\$0.123		\$0.544	\$0.187					\$0.854
2014-15	\$0.034	\$0.075	\$0.098	\$0.046						\$0.253
<b>Grand Total</b>	<b>\$0.253</b>	<b>\$0.763</b>	<b>\$3.509</b>	<b>\$4.941</b>	<b>\$0.187</b>	<b>\$5.155</b>	<b>\$16.251</b>	<b>\$3.533</b>	<b>\$7.058</b>	<b>\$41.693</b>

Table A1-3 Existing reservoirs

Commission Year	Reservoir Name	Reservoir Number	Purpose	Type	Size (ML)	MEERA value included in DSP (\$2021-22)
2014-15	Edmondson Park Elevated Recycled Reservoir	RS0473	Provide a gravity supply to the Edmondson Park Elevated Zone	Elevated	2	\$16,077,113
2014-15	Edmondson Park Elevated Recycled Reservoir	RS0473	Reservoir Land Acquisition	Elevated	2	\$1,290,252
2014-15	Edmondson Park Elevated Recycled Reservoir	RS0473	RX0006 Chemical Dosing Unit	Elevated	2	\$2,056,503

Table A1-4 Existing recycled water treatment plant works and pumping stations

Commission Year	Asset Name	Asset Number	Purpose	Type	Size	MEERA value included in DSP (\$2021-22)
2012-13	Glenfield recycled water treatment plant	WRP Glenfield	Supply Recycled Water to Hoxton Park Recycled Water Scheme	IDAL	4 ML	\$30,116,926
2014-15	Glenfield recycled water treatment plant	WRP Glenfield	Mothballing-		-	\$35,875
2012-13	Glenfield recycled water pumping station	RP0366	Supply recycled water from Glenfield Recycled water treatment plant to Edmondson Park Recycled Reservoirs	-	-	\$1,532,630
2012-13	Edmondson Park recycled water pumping station	WP0416	Provide Potable Water Top-Up to the Hoxton Park Recycled Water Scheme			\$4,425,670
2012-13	Allowance for Pumping Station Land Acquisition	WP0416	Pumping Station Land Acquisition			\$68,000



SW06 07/21

For more info email [multimedia@sydneywater.com.au](mailto:multimedia@sydneywater.com.au)

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