

Transitioning to Water Resilient Illawarra

Illawarra Regional Master Plan





Foreword



A message from the General Manager

It is with great pleasure that Sydney Water releases the *Illawarra Regional Master Plan 2024*, developed with key stakeholders in the region.

The Illawarra region is well-regarded for its unique landscape and biodiversity values – spectacular escarpment, coastline, natural waterways, lakes, rural hinterlands, and natural resources. Traditionally the Illawarra is renowned for its world class steel making and a major seaport for international trade. By 2056, the water demand for the Illawarra is projected to grow by 25% to service a population of 400,000 people. As the region grows, providing rainfall independent water supply for the region will be critical.

This master plan outlines Sydney Water's vision for the coastal city and plans to ensure our world class water services can continue to be enjoyed by the residents and visitors to the Illawarra well into the future. It considers reimagining the role of water in the Illawarra region in the context of water resilience to create a better life with world class water services. A collaborative approach with key government agencies and large established industries will underpin a whole-of government approach to deliver the vision.

The master plan considers how Sydney Water can support regional growth of residential, commercial and industrial sectors as well as the transformation of the Illawarra region to a future advanced manufacturing and innovation hub. Recycled water will play a major role in supporting the newly announced hydrogen hub to facilitate decarbonisation. This master plan provides a framework for understanding the challenges and opportunities of an integrated water management approach in the Illawarra now, and into the future.

We look forward to continuing to work with our key stakeholders and community to ensure the right infrastructure and services are delivered at the right time to create a better life with world class water services.

Paul Plowman

General Manager, Asset Lifecycle

Acknowledgement of Country

Sydney Water respectfully acknowledges First Nations people as the traditional custodians of Sydney, the Illawarra and the Blue Mountains where we work, live and learn. Their lore, traditions and customs nurtured and continue to nurture the waters (bulingang or saltwater and muulii ngadyuung or sweetwater) in our operating area, creating wellbeing for all.

We pay our deepest respect to Elders, past and present. We acknowledge their deep connections to land and waters. In the spirit of reconciliation, we remain committed to working in partnership with local Traditional Owners to ensure their ongoing contribution to the future of the water management landscape, learning from traditional and contemporary approaches, while maintaining and respecting their cultural and spiritual connections.

Our families, friends and future generations depend on us to protect their health and our environment. In doing so, we respect the traditional Caring for Country restorative approaches practiced over tens of thousands of years by First Nations people and play our part to improve the health of the landscape by recognising and nurturing the value of water in our environment and communities.





The Illawarra Regional Master Plan is a collaborative project developed by Sydney Water, Arup and Aurecon.

Sydney Water would also like to thank the following organisations who contributed to the development of this master plan:

- Department of Planning, Housing and Infrastructure (DPHI)
- Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- Water NSW
- Regional NSW
- NSW Office of Environment and Heritage
- NSW Environment Protection Authority (EPA)
- Department of Education
- Transport for NSW
- Illawarra State Emergency Services (SES)
- NSW Health – Illawarra Shoalhaven Local Health District
- Illawarra Shoalhaven Joint Organisation
- Kiama Municipal Council
- Shellharbour City Council
- Shoalhaven City Council
- Wollongong City Council
- Property Council of Australia
- Urban Development Institute Australia
- Port Kembla Port Authority
- Department of Regional NSW



01

What is the Illawarra Regional Master Plan



Sydney Water is re-imagining water in Illawarra through its Illawarra Regional Master Plan. It supports Sydney Water’s vision to create a *better life with world class water services* and aligns with the NSW Government’s vision of Illawarra as liveable, productive, and sustainable region.

The master plan does this by looking at the urban water cycle holistically, exploring the broader value of water for community benefit, and setting long term direction to positively respond to future challenges and opportunities. It goes beyond essential water servicing to consider, integrate, and enhance the economic value of water and enable transitioning to a water resilient city.

Engagement with government stakeholders has been central to the development of the master plan. Stakeholders from several NSW government agencies, and Illawarra local councils have been involved in workshops to help Sydney Water shape the master plan at key stages. The stakeholders broadly ranged from planning, infrastructure, environment, resource and land management and development sectors.

The master plan considers four alternative servicing pathways and highlights the important role water plays in delivering a water sensitive Illawarra Region. It sets a long-term direction for servicing Illawarra, finding that an adaptable and integrated water cycle management approach delivers the greatest economic value for the region, over a conventional servicing approach. The context for a secure water supply in the master plan is set by the **Greater Sydney Water Strategy** (GSWS) developed by NSW Government. The GSWS considers all supply options – dams, desalination and Purified Recycled Water within the framework that delivers integrated water, carbon reduction and better environmental outcomes. The context for thriving and innovative Illawarra is set by the **Illawarra Shoalhaven Regional Plan 2041** developed by the then Department of Planning, Industry and Environment.

The master plan’s vision, developed in collaboration with our stakeholders is:

“A resilient water supply supports a thriving and innovative Illawarra, enhancing liveability and sustainability for its community.”



02

Focus on Illawarra



Through the Illawarra Shoalhaven Regional Plan 2041, the NSW Government sets the vision and priorities for the coastal city, leveraging its character and strength to underpin transformation through growth and innovation. The plan for the Illawarra Shoalhaven region is based on the principles of liveability, productivity and sustainability.

Challenges and opportunities in the Illawarra present a case to manage water sustainably. Re-imagining and defining the ways in which water is valued, used and managed and how water services are provided, will be vital to delivering the Illawarra region.

Along with servicing growth, the master plan takes an adaptive approach to respond to opportunities, challenges and complexities in the region.

The water-related critical issues for the Illawarra have been categorised under six key themes as shown in left of figure below. The stakeholders developed a set of outcomes and objectives as shown in the right of the figure below.

ILLAWARRA REGIONAL ISSUES & OPPORTUNITIES

Resilient Water Services

- Single source of supply (Avon Dam) resulting in a lack of redundancy
- Climate driven vulnerability of assets and supply
- System performance approaching capacity to service growth
- Critical asset failures and asset reliability

Recycled Water

- Recycled water demand is driven by one large industrial customer single market
- Small residential demands are a long distance from existing treatment facilities

Waterway Health

- Inland and coastal waterway health
- Biodiversity corridors – 43% of the region has environmental value
- Impact of wet weather overflows
- Lack of coordinated stormwater management
- Culturally significant land

Climate Impacts and Adaptation

- Region is susceptible to climate events – extreme heat, flooding, drought, sea level rise
- Coastal assets prone to flooding, sea rise, and coastal ingress
- Vulnerable bushfire area – risk to water supply infrastructure
- Impact on water quality during climate event drives a need for alternative supply

Water for Greening and Cooling

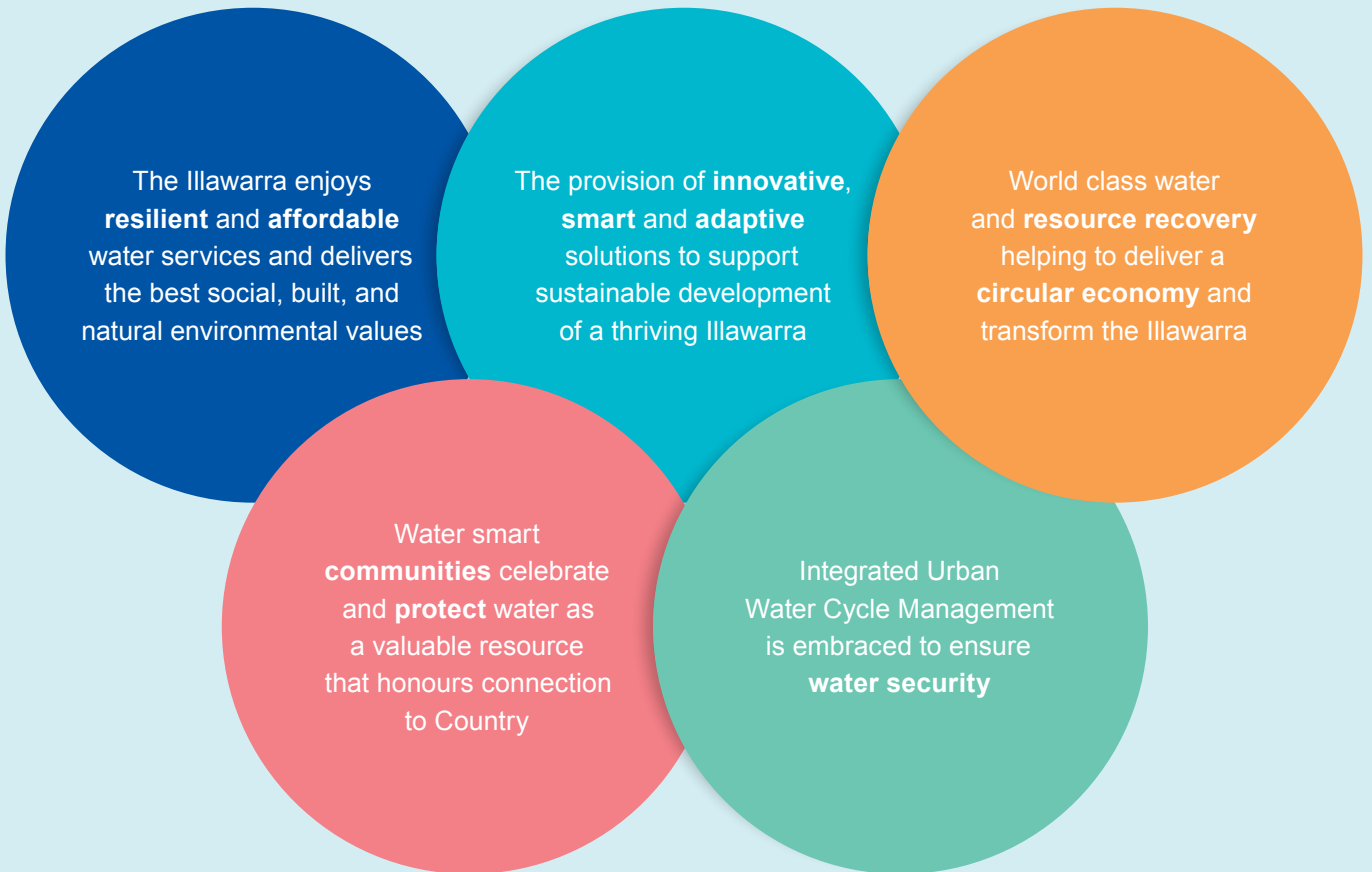
- Sustainable water supply to maintain urban greening and open spaces
- Preserve the highly visited and economically valuable natural landscape and coastline
- Growth in population will require new, improved, and connected open spaces

Circular Economy and Resource Management

- Collaboration needed to deliver water sensitive cities for the future
- Sydney Water's role for the Illawarra to become a green hydrogen hub (i.e. recycled water supply)
- Alignment to NSW Government and Sydney Water net-zero emissions targets

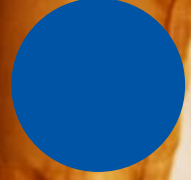
STAKEHOLDERS OUTCOME AND OBJECTIVES

Stated Outcomes



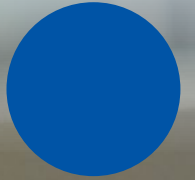
Key Objectives

-  Deliver water services that improve value
-  Water services are planned and implemented in a timely manner
-  Support government and community response to climate change adaptation
-  Reflect First Nations cultural values
-  Support community connection to water
-  Protect biodiversity and the health of the waterways and coast
-  Provision of integrated water cycle management solutions
-  Maximise resource recovery to achieve circular economy



03

The Illawarra Regional Master Plan approach



We took a phased approach to develop the master plan. Each step represented an important milestone in the development of the master plan as well as an opportunity to engage with key stakeholders and confirm service direction.

Issues and directions



- Understand the servicing context for the region
- Outlining the planning challenges, issues and opportunities
- Proposing alternative servicing concepts

Concept development



- Alternative servicing concepts and a base case analysed
- Water and resource balance developed for each concept
- High level investment costs and economic benefits evaluated

Pathway development



- Concepts combined into four servicing pathways that reflect different level of water integration
- Water and resources balance re-evaluated
- High-level investment costs developed for each pathway
- Economic benefits evaluated for each pathway

Adaptive plan



- Ongoing monitoring of external uncertainties likely to emerge
- Reassessing the application of the servicing pathways in response to the uncertainties
- Primary pathway selected and adaptive plan developed
- Roll out of analysis into next steps of planning

MAY 2021

Workshop 1: Framing workshop

- Introduced the Master Plan process to our external stakeholders
- Co-developed vision and outcomes; feedback on issues and opportunities

APRIL 2022

Workshop 2: Development of servicing concept

- Showcased the alternative servicing concepts including water and resource balance
- Collaborate with stakeholders to identify key enabling factors for each concept

NOV 2022

Workshop 3: Servicing pathways analysis

- Reviewed and tested the thinking behind preliminary servicing pathways complete with a water and resource balance assessment
- Feedback on work completed and identifying events which may influence an adaptive strategy

JULY 2023

Adaptive Plan including investments needed and action plan (master plan report with supporting studies)

04

Servicing pathways considered in the master plan



Pathway 1: Traditional City

Pathway 1 focuses on traditional wastewater, drinking water, and stormwater servicing concepts that aim to discharge into waterways and the ocean.

Pathway 1 – Key features



Drinking Water

Reliance on bulk water supply (dam) and Illawarra Water Filtration Plant system to service growth demands in region. Drinking water for recycled water shortfalls.



Wastewater

Upgrades to existing wastewater treatment plants and network, in-line with existing strategies to service additional growth.



Recycled Water

Retains existing and committed schemes (Wollongong, Bombo, Gerringong-Gerroa).



Stormwater

Retain current stormwater servicing by councils. Rainwater tanks on-lot with gross pollutant traps and biofiltration. Stormwater discharged to local waterways.



Biosolids

Continue with upgrades to solids treatment in Shellharbour and Wollongong in line with existing plans.

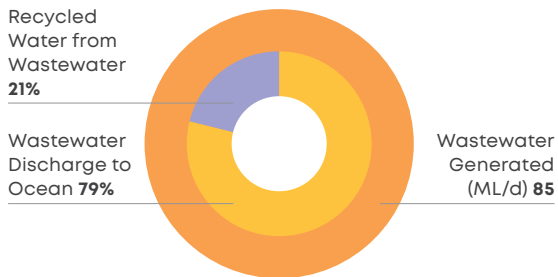


Carbon/Energy

Some energy recovery and increasing carbon emissions. Electricity grid decarbonisation will further reduce emissions.

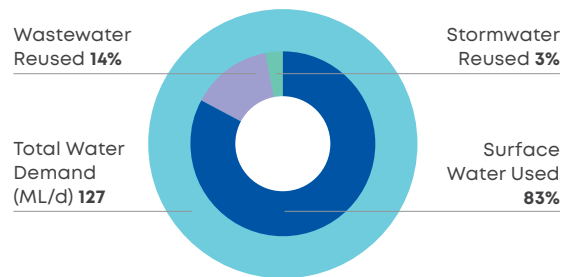
PATHWAY 1 – WATER, RESOURCE AND ENERGY BALANCE

WASTEWATER BALANCE

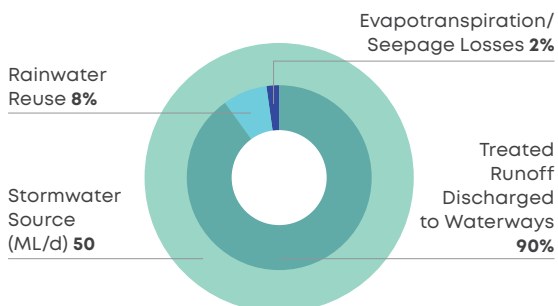


BlueScope Steel has its own discharge licence (not included)

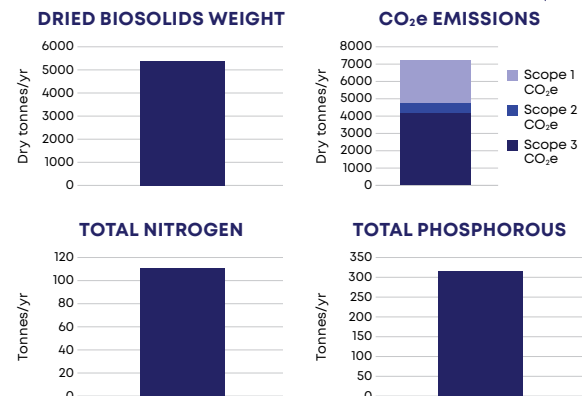
DRINKING WATER BALANCE



STORMWATER BALANCE



BIOSOLIDS AND EMISSIONS



Pathway 2: Resource Efficient City

Pathway 2 aims to reuse stormwater and wastewater locally for non-potable needs in concentrated growth regions. Industrial non-potable demands are met by upgrades coastal water treatment facilities.

Pathway 2 – Key features



Drinking Water

Reliance on bulk water supply (dam) and Illawarra Water Filtration Plant system to service growth demands in region. Drinking water for recycled water shortfalls.



Wastewater

Deferring upgrades to existing wastewater treatment plants and network, due to transfer of western growth corridor flows to sewer mining schemes.



Recycled Water

Precinct scale recycled water schemes supplied by stormwater/wastewater streams to provide recycled water to western growth corridor.



Stormwater

Stormwater harvesting with treatment for non-potable reuse and Water Sensitive Urban Design for pollution reduction. Traditional on-lot treatment measures in urban renewal zones.



Biosolids

Continue with upgrades to solids treatment in Shellharbour and Wollongong in line with existing strategies.

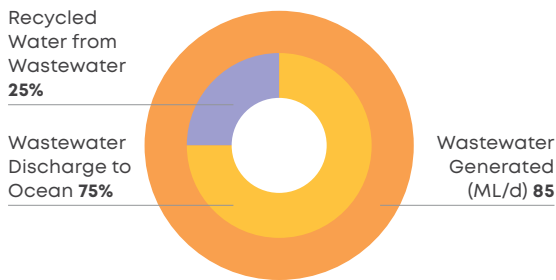


Carbon/Energy

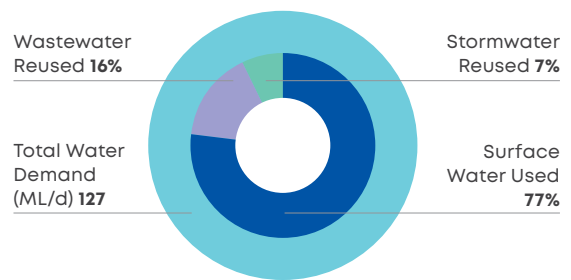
Additional energy use for stormwater system and possible sewer mining installation, leading to an increase in Scope 1 and 2 emissions.

PATHWAY 2 – WATER, RESOURCE AND ENERGY BALANCE

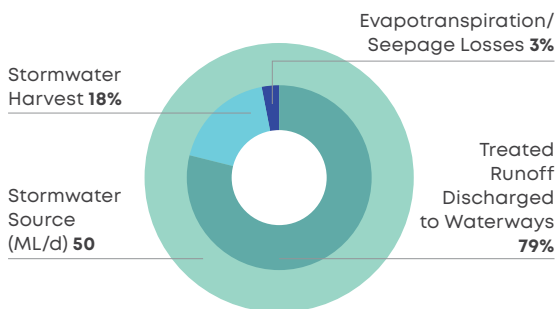
WASTEWATER BALANCE



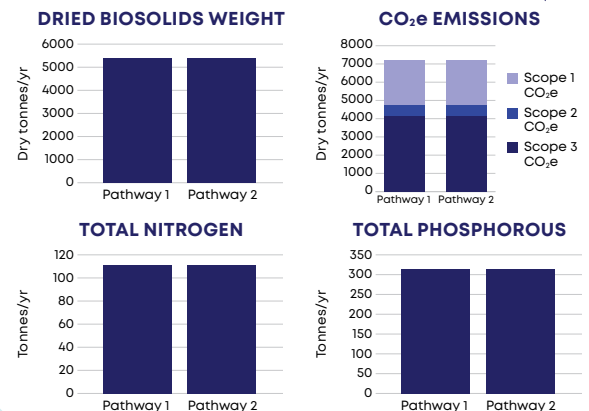
DRINKING WATER BALANCE



STORMWATER BALANCE



BIOSOLIDS AND EMISSIONS



Pathway 3: Water Resilient City

Pathway 3 provides resilient water supply sources and improves waterway health while addressing climate, operational, and single point of failure risks through a Purified Recycled Water (PRW) facility and desalination (this pathway delivers highest benefit to cost ratio).

Pathway 3 – Key features



Drinking Water

Significant reduced reliance on bulk water supply and improved Rainfall Independent Supply from desalination to service the Illawarra region.



Wastewater

Deferring upgrades to existing wastewater treatment plants and network, due to transfer of western growth corridor flows to sewer mining schemes.



Recycled Water

Retains existing and committed schemes (Wollongong, Bombo, Gerringong-Gerroa).



Stormwater

Stormwater harvesting with treatment for PRW reuse and Water Sensitive Urban Design for pollution reduction. Traditional on-lot treatment measures in urban renewal zones.



Biosolids

Continue with upgrades to solids treatment in Shellharbour and Wollongong in line with existing plans.

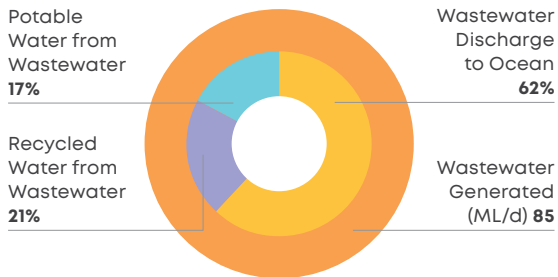


Carbon/Energy

Increasing energy with some recovery; increasing carbon emissions. Electricity grid decarbonisation will further reduce emissions.

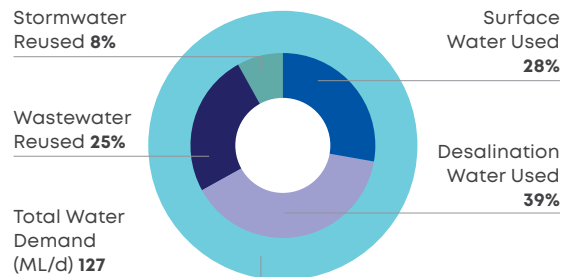
PATHWAY 3 – WATER, RESOURCE AND ENERGY BALANCE

WASTEWATER BALANCE

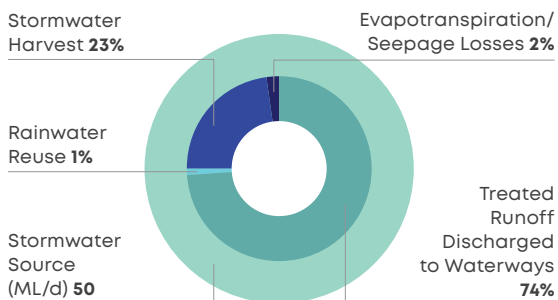


BlueScope Steel has its own discharge licence (not included)

DRINKING WATER BALANCE



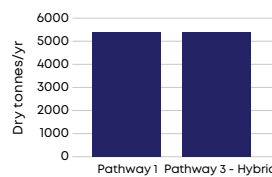
STORMWATER BALANCE



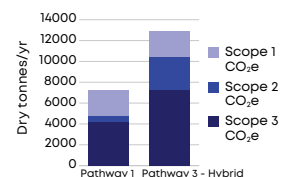
BIOSOLIDS AND EMISSIONS



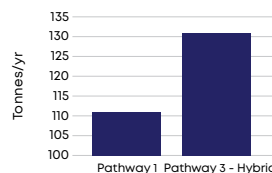
DRIED BIOSOLIDS WEIGHT



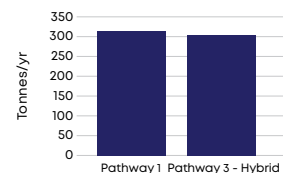
CO₂e EMISSIONS



TOTAL NITROGEN



TOTAL PHOSPHOROUS



Pathway 4: Eco-sensitive City

Pathway 4 includes a new resource recovery hub in the Illawarra Region, with a focus on increasing product recovery and reducing Sydney Water’s carbon footprint.

Pathway 4 – Key features

Drinking Water
 Significant reduced reliance on bulk water supply and improved Rainfall Independent Supply due to desalination to service the Illawarra region.

Wastewater
 Upgrades to existing wastewater treatment plants and network, in-line with existing strategies to service additional growth. Solids transferred to biosolids hub.

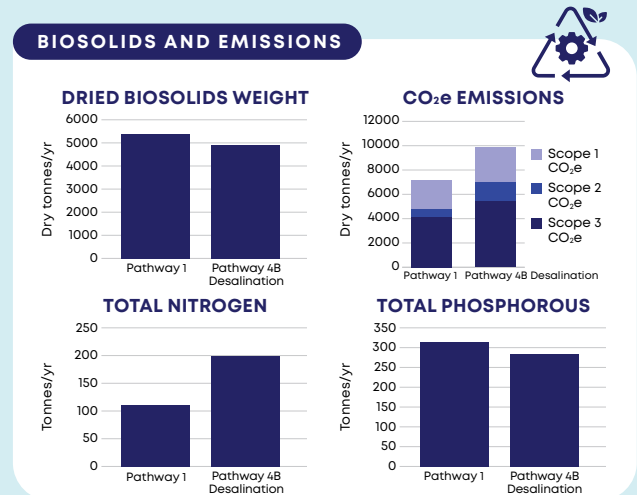
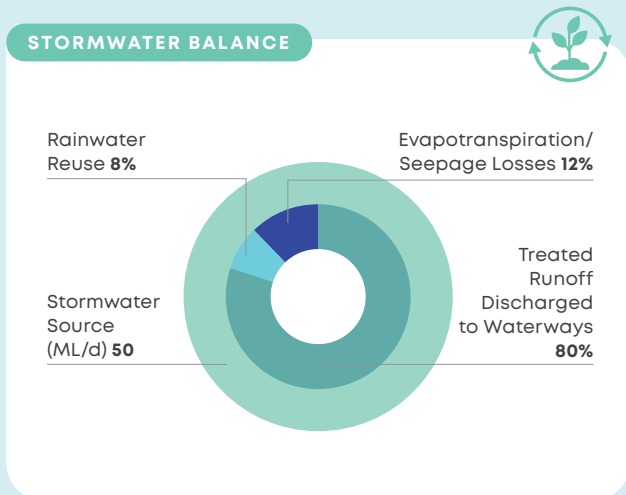
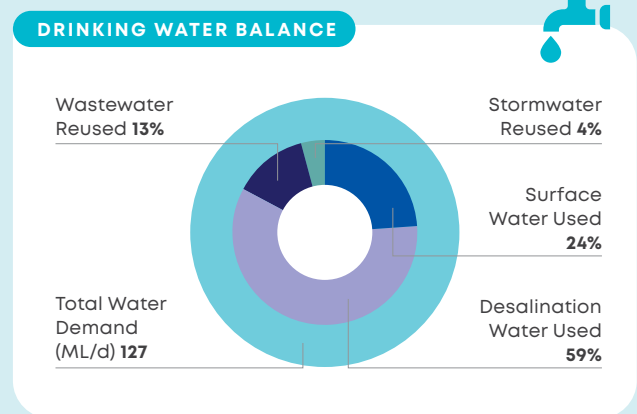
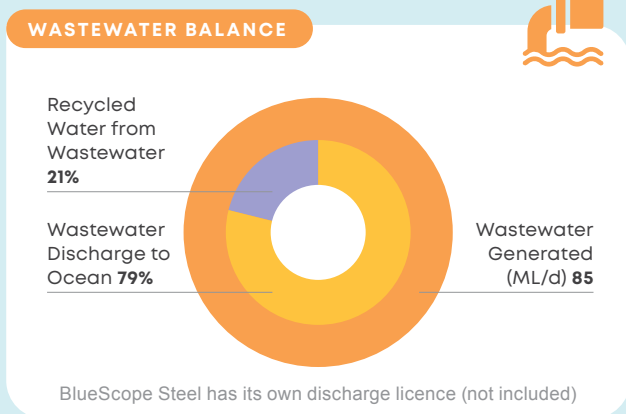
Recycled Water
 Retains existing and committed schemes (Wollongong, Bombo, Gerringong-Gerroa). No new recycled water schemes.

Stormwater
 Enhanced Water Sensitive Urban Design in greenfield areas with rainwater tanks, biofiltration and large wetlands. Traditional on-lot treatment measures in urban renewal zones.

Biosolids
 Creation of a new biosolids hub, potentially in an industrial area in Illawarra. Resource recovery is maximised.

Carbon/Energy
 Energy recovery is maximised, including through increased biogas generation. Additional energy consumption due to hub, pumping of sludge to the hub from existing treatment plants and desalination plant.

PATHWAY 4.2 – WATER, RESOURCE AND ENERGY BALANCE



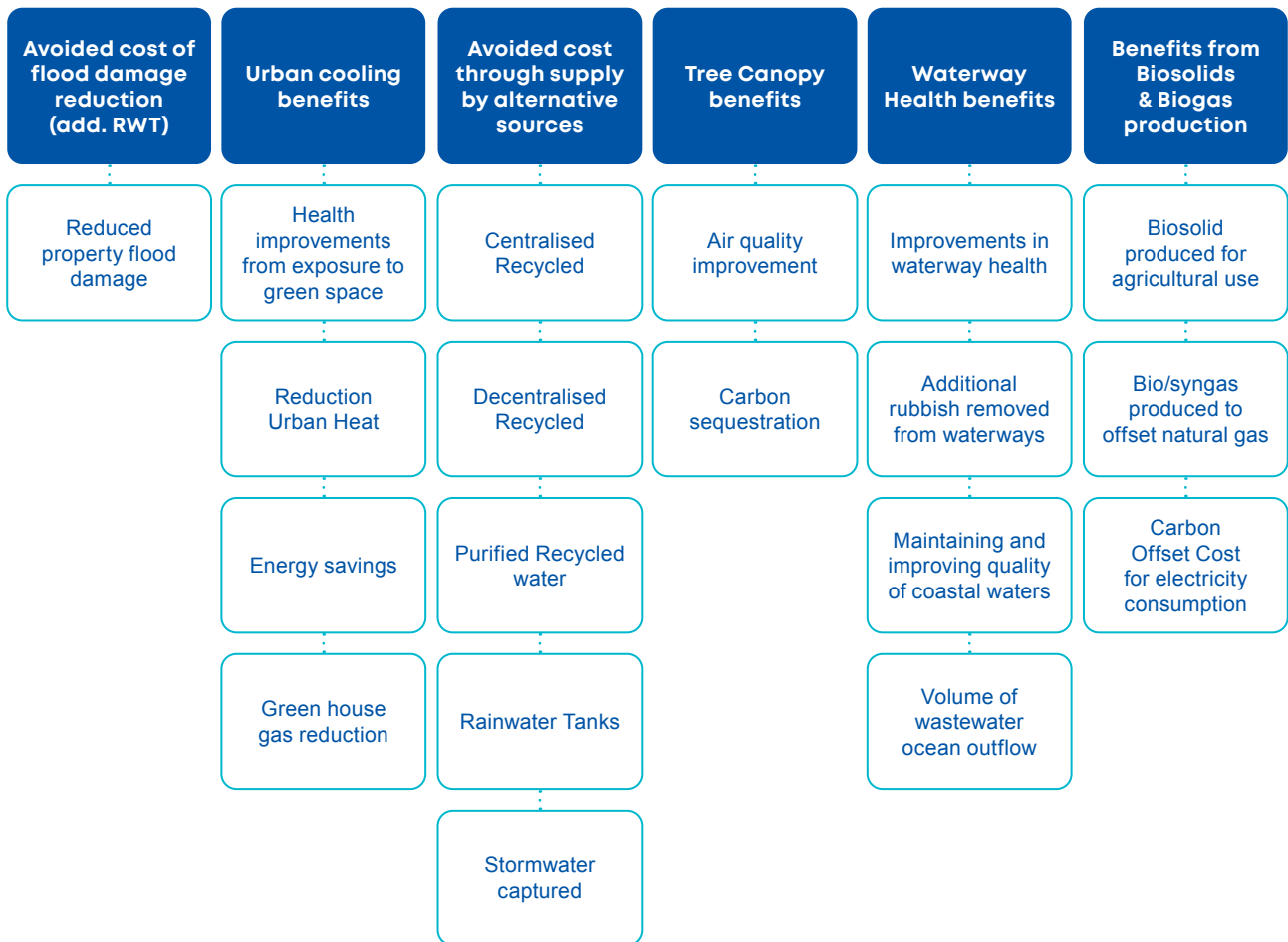


05

How improved water services bring value to the Illawarra region



Four servicing pathways including sub-pathway variations were evaluated to understand the liveability and sustainability outcomes including measuring economic benefits to the community and the environment in the Illawarra region. Implementing the preferred pathway means that customers will enjoy a greener, cooler and more resilient city. This is the value proposition. The benefits include:



PATHWAY 3

Hybrid is observed to be the best performing servicing pathway. It generates \$1 billion in additional benefits relative to the Base Case with a BCR of 1.05.

This is driven by...

1



Lower stormwater capex. 3 – Hybrid supply the largest volume of purified recycled water from stormwater. This not only produces an alternative supply of drinking water for the region but diverts stormwater flows from local waterways. 3 – Hybrid achieves the higher stormwater treatment outcome more cost effectively than 3 – Desal, 4 – Desal and 4 – Regional PRW. To improve the health of the region's waterways, these pathways must spend more on rainwater tanks and wetlands.

2



Desalination is more cost-effective than purified recycled water.

The cost effectiveness of 3 – Hybrid relative to 3 – Regional PRW West is due to expenditure on desalination infrastructure being cheaper than purified recycled water infrastructure.

3



Eliminating water supply security risk delivers a net economic benefit.

Pathways 1 (Base Case) and 2 rely only on existing surface water supply and exhibit a \$2.138 billion surface water supply failure cost (probability weighted) that exceeds the cost of investing in desalination and purified recycled water in 3 – Hybrid.

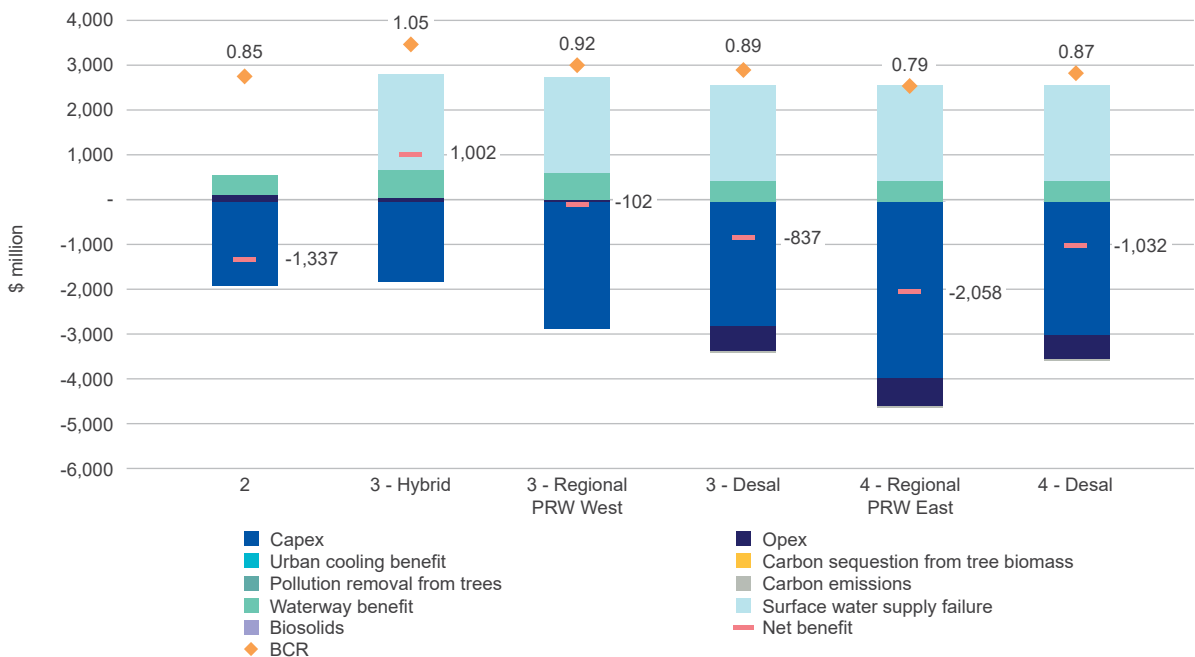
4



Treating wastewater and stormwater flows to drinkable standard is more cost effective than treating to non-drinking water standard.






3 – Hybrid exhibits a more cost-effective way of recycling wastewater and stormwater relative to Pathway 2. This involves treating wastewater and stormwater to potable standard. This allows it to distribute the recycled water into the existing drinking water network instead of building an additional third pipe network if it had treated it to non-potable standard.

ECONOMIC NET BENEFIT AND BCR RELATIVE TO PATHWAY 1 (BASE CASE)



Qualitative Pathway Assessment

The stated outcomes and strategic objectives, as described in Section 3 form the criteria for the qualitative assessment framework.

Outcome	PW1	PW2	PW3.1 Regional PRW	PW3.2 Desalination	PW3.3 Hybrid	PW4.1 PRW and Hub	PW4.2 Desalination and Hub
 <p>The Illawarra enjoys resilient and affordable water services that deliver the best social, built and natural environmental values, enabling economic growth and development.</p>	Not desirable	Not desirable	More favourable	More favourable	More favourable	More favourable	More favourable
 <p>The provision of innovative, smart and adaptive solutions to support the sustainable development of a thriving Illawarra, where water plays an enhanced role to improve liveability for generations to come.</p>	Not desirable	Less favourable	More favourable	More favourable	Most favourable	More favourable	More favourable
 <p>Water smart communities from the coast to the hinterland celebrate and protect water as a valuable and sustainable resource that honours connection to Country.</p>	Less favourable	More favourable	Most favourable	More favourable	Most favourable	Most favourable	More favourable
 <p>Integrated Urban Water Cycle Management is embraced to make best use of water, maintain or improve waterway health, and protect the Illawarra's high-value environmental corridors and biodiversity.</p>	Less favourable	Less favourable	More favourable	More favourable	Most favourable	More favourable	More favourable
 <p>World class water and resource recovery initiatives help to deliver a more circular economy and transform the Illawarra as a global hub for clean energy and innovative industries.</p>	Not desirable	Not desirable	More favourable	Less favourable	Less favourable	Most favourable	Most favourable

06

How we're supporting the Illawarra region



Moving from a Traditional City pathway to a Water Resilient City pathway for Illawarra, means:

- Less reliance on dams; desalination water sources for drinking purposes
- More stormwater harvested and recycled water in the form of purified recycled water for drinking (PRWD)
- Able to transition to PRWD in the future as drought resilient outcome
- More capture of resources from wastewater, contribute to carbon reduction – biosolids and energy generation
- An increased focus on local retention and reuse of stormwater supported by co-ordinated waterways management with Local Councils
- Land use planning adopts new urban typologies which reduce the loss of pervious land and incorporate water sensitive urban design

The master plan aspirations for water in Illawarra region go beyond delivering clean, safe, reliable, and efficient water and wastewater services that meet our customers' needs. The plan considers the whole of water cycle in management.

The analysis highlights that water plays a key role in achieving sustainable outcomes through greening and cooling, to support liveable communities. Water also supports the development of industrial innovation precincts, and new industries in Port Kembla and Shellharbour.

The analysis found:

- The Traditional City pathway while viable, would not deliver the vision of thriving and innovative Illawarra region. While it is the least cost option, it also has the lowest economic benefits in the longer term
- The Water Resilient City is the primary pathway on the basis that it delivers the vision supported by greatest economic value. However, some services would need to be tested for community acceptance. These pathways will be explored for opportunities if regulatory, environment and community attitudes shift

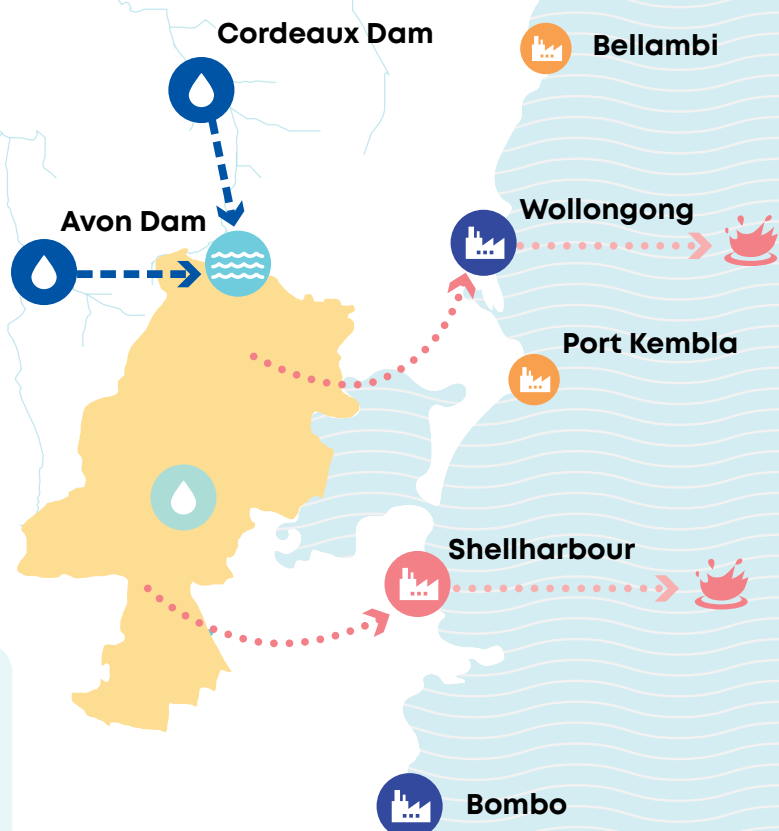
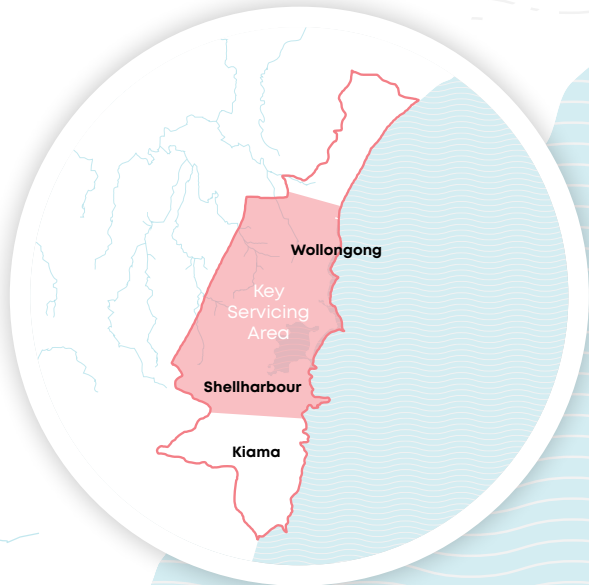
The following page illustrates water infrastructure and service changes from what exists today in the Illawarra region, to what is needed by 2056. The aim is to maximise the value delivered for the Illawarra region by securing its long-term vision and ensuring that water sustains a thriving and innovative Illawarra that supports liveability and sustainability.

Whilst the Water Resilient City pathway is the primary pathway for the whole region, components of Resource Efficient City and Eco-sensitive City would be leveraged on an opportunistic basis for individual projects in the Illawarra region. An adaptive plan has been developed to explore how this could be achieved.



PATHWAY 1: TRADITIONAL CITY

Status-quo Illawarra Regional Servicing 2056

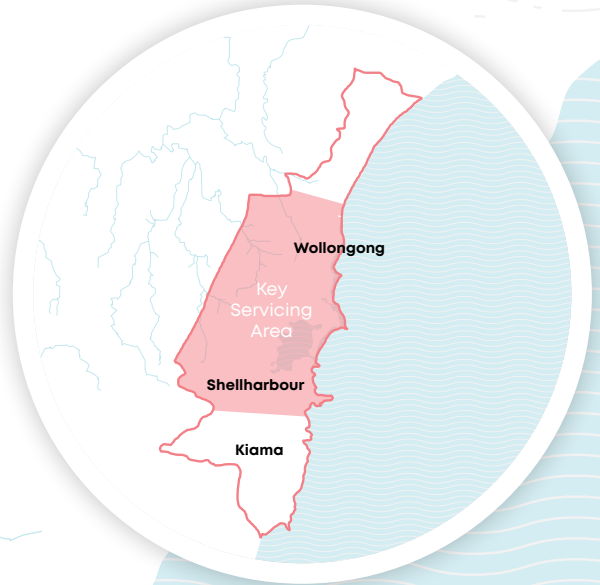


- Study Area
- Growth Area
- Surface Water
- Illawarra Filtration Plant
- Rainwater Tanks
- Water Resource Recovery Facility (storm)
- Water Resource Recovery Facility
- Water Resource Recovery Facility (recycling)



RECOMMENDED SERVICING DIRECTION

Water Resilient Illawarra Regional Servicing 2056



Cordeaux Dam

Bellambi

Avon Dam

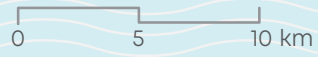
Wollongong

Port Kembla

Shellharbour

Bombo

- | | | | |
|---|----------------------------|---|--|
|  | Study Area |  | Water Resource Recovery Facility (storm) |
|  | Growth Area |  | Water Resource Recovery Facility (recycling) |
|  | Ocean Outfall |  | Water Resource Recovery Facilities |
|  | Surface Water |  | Desalination Plant |
|  | Illawarra Filtration Plant | | |
|  | Rainwater Tanks | | |



07

A flexible, adaptive plan



The future rates of growth, climate patterns, technological advancements, catchment system responses to changes, social and political environments can all be forecast; however, the level of certainty decreases over time. Adaptive planning can be used for decision making in the face of uncertainty and features the following characteristics:

- ✔ Provisions for adaptation as conditions change and knowledge is gained with the ability to accelerate decisions in response to specific triggers
- ✔ A combination of actions to be taken right away with those that make important commitments to shape the future and those that preserve needed flexibility for the future
- ✔ Specification of a monitoring system, together with the specification of actions to be taken when specific trigger values are reached



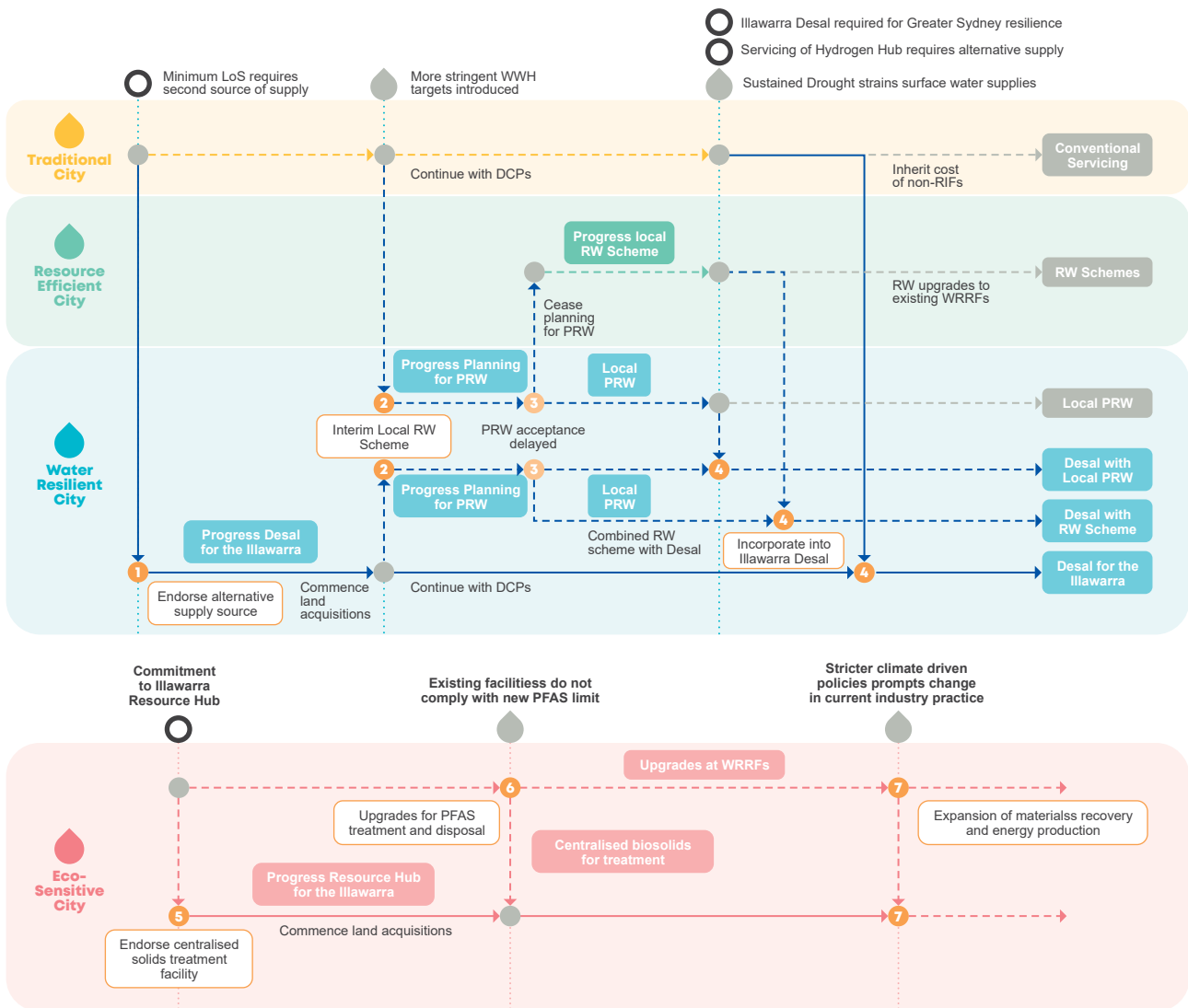
Should the need or an opportunity arise, the plan offers flexibility to move from the traditional servicing pathway towards more water resilient servicing pathways. The diagram below outlines the possible interconnectivity between the servicing pathways and the horizons at which certain pathways are expected to become redundant, as it will no longer realise the extent of the benefit to make a strong business case.

Continued stakeholder collaboration and monitoring of actual growth, climate, environmental responses to development, technological advancements, and community values and attitudes to water recycling will be necessary to inform decisions at key times over the Illawarra region's evolution. Infrastructure planned will be scalable to be responsive to changing needs and circumstances.

The key decision points for each servicing pathways are shown in the adaptive plan below. A primary sequence of planning and delivery activities are needed to ensure that each of the pathways can remain "live".

At key points in the future, decisions will be required to adopt and/or discontinue the pursuit of alternate servicing pathways. These decisions are to be made by considering the latest information that is available at the time. An adaptive plan with appropriate robust monitoring, comprehensive trigger identification, and planned response protocol can help realise opportunities as they arise over time.

ADAPTIVE SERVICING PLAN



08 Delivering outcomes



The next steps in delivering the outcomes of the master plan are outlined below:

Stated Outcome	Next Step Activities	Planning Needs
 <p>The Illawarra enjoys resilient and affordable water services that deliver the best social, built and natural environmental values, enabling economic growth and development</p>	<ul style="list-style-type: none"> Ongoing monitoring of growth in the region and impact on servicing needs in subsequent planning Review and monitor the triggers that are associated with the Water Resilient City Servicing Direction Further optimise the desalination opportunity in the context of broader Sydney strategic needs and Sydney Water's Water Master Plan direction 	<ul style="list-style-type: none"> Progress planning for high priority infrastructure required to enable growth, including interim servicing requirements Commence assessment on the minimum level of service for resilient supply required and the broader implications this may have on Sydney Water Commence Illawarra Water Delivery System Plan / Illawarra Drinking Water Strategy with consideration of desalination, opportunity to optimise desalination plant sizing, configuration, and staging for the Illawarra Review and update the outcomes of this regional plan, including the desalination opportunity in the context of broader Sydney strategic needs, once Sydney Water's Water Master Plan is completed
 <p>The provision of innovative, smart and adaptive solutions to support the sustainable development of a thriving Illawarra, where water plays an enhanced role to improve liveability for generations to come</p>	<ul style="list-style-type: none"> Progress water conservation measures to achieve reduced water demand – identify barriers and solutions Discussion with externals regarding land acquisition for proposed infrastructure (i.e., desalination) Discussion with LGAs on urban canopy targets to monitor their impact on water demand, with impact depending on tree type and whether irrigation is required 	<ul style="list-style-type: none"> Commence assessment of land availability and financial mechanism for land acquisition/s for desalination as well as centralised resource recovery hub Further progress climate sensitivity and adaptation assessment for the Illawarra Region, to identify comparative expense and added benefit to customers of adaptations to RCP4.5 and RCP8.5 for the adaptive plan and align with the recently released Sydney Water Climate Guidebooks. Refer to recommendations and approach suggested in the Illawarra Climate Change Assessment (Volume 2) of this Master Plan
 <p>Water smart communities from the coast to the hinterland celebrate and protect water as a valuable and sustainable resource that honours connection to Country</p>	<ul style="list-style-type: none"> Continue monitoring the signposts for an introduction of waterway health targets trigger with respect to the discharge of stormwater into the waterways as per Table 5-3 Contingent to introduction of waterway health targets with respect to the discharge of stormwater into the waterways for the Illawarra, start early engagement of the community, local and state authorities (heritage, ecological, geology, biodiversity) Contingent to introduction of waterway health targets with respect to the discharge of stormwater into the waterways for the Illawarra, work with the local community, developers, and Councils to build awareness of the benefits of recycled water as a drinking source and progress planning and community acceptance program regarding purified recycled water in the Illawarra region 	<ul style="list-style-type: none"> Realising the signposts for an introduction of waterway health targets with respect to the discharge of stormwater into the waterways for the Illawarra, commence a feasibility study for recycled water upgrades to Shellharbour treatment facilities and transfer to a new PRW polishing plant Incorporate findings of Bombo WRP odour and corrosion study into subsequent service planning
 <p>Integrated Urban Water Cycle Management is embraced to make best use of water maintain or improve waterway health and protect the Illawarra's high-value environmental corridors and biodiversity</p>	<ul style="list-style-type: none"> Continue monitoring the signposts for an introduction of waterway health targets trigger with respect to the discharge of stormwater into the waterways as per Table 5-3 Meet with LGAs and developers now to explain our roadmap and communicate risks/consequences of setting waterway health targets with respect to the discharge of stormwater into the waterways Contingent to introduction of waterway health targets with respect to the discharge of stormwater into the waterways for the Illawarra, communicate interim RW scheme strategy with developers and LGAs 	<ul style="list-style-type: none"> Realising the signposts for an introduction of waterway health targets with respect to the discharge of stormwater into the waterways for the Illawarra, further progress understanding of integrated water management needs within key growth areas (i.e. West Dapto Urban Renewal Area) through a sub-regional plan, including implementation feasibility and needs of recycled water schemes as local PRW
 <p>World class water and resource recovery initiatives help to deliver a more circular economy and transform, the Illawarra as a global hub for clean energy and innovative industries</p>	<ul style="list-style-type: none"> Establish commercial framework and policy for future implementation of a centralised resource recovery hub and desalination plant Explore further opportunities for energy recovery and reduced carbon footprint at existing and new facilities and within the network Progress discussions between Sydney Water and Port Kembla Hydrogen Hub (Department of Regional NSW) on alternative water supply for green hydrogen production 	<ul style="list-style-type: none"> Progress further benefits and opportunity assessment (detailed planning) to establish a decision for a centralised resource recovery hub in the Illawarra Integrate detailed planning for upgrades at Wollongong WRP with the servicing opportunity for a central Resource Recovery Hub; to provide opportunity to influence scope and short-term investment at Wollongong WRP Further investigate (detailed planning) the opportunity to reduce the network average pressure and capture potential energy in the network via hydroelectric generators Continue engagement with Port Kembla Development Authority to share information about Sydney Water plans for the region and to achieve synergies of investments (i.e. desalination plant investment)



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