South East Water
Urban Water Strategy
Aboriginal acknowledgement

South East Water proudly acknowledges Aboriginal people as Australia’s first peoples and the local Traditional Owners as the original custodians of the land and water on which we rely and operate. We pay our deepest respects to their Elders past, present and future.

We acknowledge the continued cultural, social and spiritual connections that Aboriginal people have with the lands and waters, and recognise and value that the Traditional Owner groups have cared for and protected them for thousands of generations.

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 while maintaining their cultural and spiritual connections.

Cover: South East Water’s Boneo Water Recycling Plant provides an important alternative source of water to market gardens in the drier months.
Cover photograph: Craig Moodie
Introduction

Healthy water sustains life and enhances the liveability of Melbourne’s south east region in which we operate. Our region includes residential and commercial areas, vast stretches of beaches, national parks and agricultural food bowls.

This document summarises South East Water’s Urban Water Strategy, which establishes our strategic water resource management directions and actions to 2065, to further support the creation of liveable communities and sustain our region’s geographic diversity.

It aligns with the State Government of Victoria’s Water for Victoria plan.
Our customers
and stakeholders

South East Water, located in Melbourne’s south east, is one of three metropolitan water utilities that provides water and wastewater services across Melbourne. Our region covers more than 3,640 square kilometres and borders more than 270 kilometres of coastline along Port Philip Bay and Western Port.

Our customer base is diverse. Customers include those who live in high-rise developments in St Kilda, low density housing in Mount Eliza, growth areas in Pakenham, and include those who work in agricultural holdings in Somerville and intensive industrial areas in Dandenong. Our region also attracts holiday-makers along the Mornington Peninsula.

Currently, we provide water services to more than 675,000 residential and 58,000 commercial and industrial properties that rely on South East Water 24/7 to provide their water and remove their wastewater. We also provide almost 12,000 of these properties with recycled water. This equates to more than 1.7 million people.

Customers and stakeholders agree that water is essential for life. Our research shows that customers:
- expect sustained access to clean, affordable water and associated services from South East Water
- are particularly keen to play their part in creating engaged and responsive water literate communities.

Customers and stakeholders have told us that they:
- have an interest in knowing more about the availability of water in the future
- want to be involved in water resource planning to better understand initiatives to secure future water supplies
- want to learn more about the role they can play as individuals in improving their water efficiency.

South East Water also recognises and appreciates the unique knowledge and perspective of the Traditional Owners within our region, including the Bunurong, Boon Wurrung and Wurundjeri people. Meetings with Traditional Owners has uncovered a strong appetite for further engagement and a commitment to work together to identify how we can enhance cultural and recreational water outcomes.
Our water supply and wastewater system

Drinking water
As a water utility, we buy the majority of our drinking water from wholesaler Melbourne Water. The vast majority of drinking water supplied to South East Water customers (currently around 156 GL per year) comes from the forested catchments of the Yarra and Thomson rivers via Cardinia Reservoir. Other water will soon be supplied from the Victorian Desalination Project. This water will be delivered into Cardinia Reservoir to mix with water from the Thomson and Yarra systems. The Victorian Desalination Project is managed by AquaSure.

To get drinking water to our customers, we own and operate water supply assets including 82 water pump stations and more than 13,500 kilometres of water mains.

Wastewater
We currently remove around 121 GL of wastewater per year. Eighty eight per cent of this is treated at the Eastern Treatment Plant and Western Treatment Plant (operated by Melbourne Water) with 12 per cent treated at South East Water’s eight water recycling plants.

To remove and treat wastewater, our network comprises more than 10,000 kilometres of wastewater mains and 261 wastewater pump stations.

Alternative water
Our alternative water network provides around 5 GL of recycled water per year to households for toilet flushing and outdoor use and for irrigation purposes by agriculture, viticulture, recreation and business operations.

Our alternative water network includes a stormwater treatment plant, see Figure 1.
In South East Water’s service area, our population is forecast to almost double by 2065 which means an increasing demand for water. Water demand is not only impacted by population growth, but by the way growing populations choose to live. For example, more townhouses, apartments and detached dwellings in the future rather than single houses on large blocks, means less water will be needed for irrigating householders’ gardens and lawns. Other factors such as changes in the manufacturing sector also impact future water demand.

As outlined in the government’s Guidelines for Assessing the Impact of Climate Change on Water Supplies in Victoria, climate change is expected to cause temperature changes and more variable rainfall patterns. This means that our rainfall-dependent water supplies will be less reliable in providing enough water for all our communities and the needs of the environment.

Taking these factors into consideration, we compared our future water demand scenarios with our assessment of available water supplies to 2065. It indicates that even under high climate change and high population growth scenarios, our water supplies are relatively secure for the next 10 to 15 years (primarily due to the availability of non-climate dependent water supplies including the Victorian Desalination Project). However we still face inherent uncertainty. See Figure 2.

Figure 2: South East Water’s water supply and demand balance to 2065

A = Under medium climate change and medium population growth scenarios, we will have enough water until 2047

B = Forecast water demand by 2065 is 200 GL
In the face of population growth, climate change and an inherently uncertain future, our challenge over the next 50 years is how we continue to effectively manage our increasing demand for water and increasing wastewater volumes, while delivering more value to our customers.

Based on medium population growth and medium climate change impacts, South East Water forecasts:

- a drinking water demand of around 200 GL per year by 2065
- a doubling of the volume of alternative water by 2065 to more than 9 GL per year, including recycled water and stormwater in residential estates (where relevant) and recycled water for irrigation uses including agriculture, viticulture, recreation and business operations
- a 60 per cent increase in wastewater to 193 GL per year by 2051 (see Figure 3).
Over the next 50 years, South East Water commits to undertaking six key actions that will help deliver on our three strategic objectives (shown in the diagram).

Our strategic objectives aim to enhance water availability and create more liveable communities, as well as defer large-scale water supply and major wastewater treatment upgrades to limit impact on customer bills through large spikes in expenditure.

We recognise that these three strategic objectives and supporting actions:
- overlap and are not discrete (no action in isolation will help deliver the future we seek to create)
- can only by progressed by working collaboratively with stakeholders and our community on the challenges we face.
Key action 1:

Manage our water resources adaptively

Adaptive management of our water resources is necessary due to the inherent uncertainty in population growth forecasts, climate change impacts and the annual variations in rainfall and temperature.

This Urban Water Strategy, which is reviewed and updated every five years, is central to our adaptive management approach. Also key are the annual Water Outlook and Drought Preparedness Plan.

Released annually each December, the Water Outlook outlines key risks to our drinking water supply system and the actions that South East Water (either individually or collectively with all Melbourne water utilities and Melbourne Water) will undertake over the following 12 months to maintain five years of water supply security for Melbourne. The Water Outlook helps guide decision making about whether there is a need for water restrictions and other water savings initiatives and also guides the desalinated water order process.

The Drought Preparedness Plan helps to manage periods of water shortages and outlines actions that South East Water will undertake to ensure that our communities are prepared for the eventuality of drought.

Adaptive management also requires that we are ready to secure our water supplies in the long term. Long term water supplies can be secured through water trading between water utilities by allowing water to move to where it is most valued. This involves optimising our current water resources and exploring further options for centralised water supply augmentations.

South East Water will:

Continue to apply our adaptive management approach through:

- release of the annual Water Outlook
- review the desalinated water order process in collaboration with Department of Environment, Land, Water and Planning by September 2017.
- review of the Drought Preparedness Plans every five years.
- continuing to support the expansion of water trading into Melbourne.
- working with Melbourne Water and other stakeholders to identify centralised water supply augmentation options and decision-making frameworks, as necessary.
Key action 2: Create water efficient communities

Our customers have told us they expect South East Water to deliver programs to support efficient water use.

Water efficiency will support a balanced approach to managing our water resources by helping to:
- reduce dependence on water from surface water catchments, reservoirs and the Victorian Desalination Project
- defer the cost of a large-scale augmentation to Melbourne’s water supply system.

South East Water will continue to offer an innovative range of products and services to customers seeking more knowledge about their water usage and who also may be experiencing difficulties paying their bills. These products and services will not only enhance affordability, but will help ensure we can deliver enough water with limited use of water restrictions into the future. For example, South East Water is currently developing innovative products to provide customers with access to near-real-time water usage data that can help them to change their water using behaviours.

South East Water will:

- Continue to deliver water efficiency programs, such as Target 155, and non-residential customer programs. By 2022, we forecast demands of 230 litres per person per day for total drinking water use and 150 litres per person per day for residential water use in Melbourne.
- Continue to collaborate in research and development of new technologies, such as the provision of personalised water consumption data, that will help empower customers to better manage their water use.
- Continue to deliver our programs for vulnerable customers.
Key action 3: Deliver effective wastewater systems

As the wastewater network approaches major augmentation milestones, we will continue to optimise our wastewater system (including our network and water recycling plants) by identifying further opportunities to:

• extract resources for co-generation
• increase volumes of recycled water reused for beneficial purposes.

By increasing volumes of wastewater reused for fit-for-purpose functions, South East Water can help reduce the demand for drinking water and minimise impacts on waterways and bays.

South East Water will continue to undertake ongoing comprehensive sewage planning to provide effective and efficient wastewater systems while meeting all environmental obligations. This will include the use of pressure sewers (incorporating monitoring and control technology provided by OneBox®) in areas where it presents the lowest community cost. This approach is already being applied through the Peninsula ECO (Early Connections Option) Project along the southern Mornington Peninsula.

South East Water will:

• Re-imagine local water recycling plants to better provide for opportunities for resource recovery.
• Optimise timing and size of future capacity upgrades to local water recycling plants through improved adaptive planning approaches, as necessary.
• Continue to identify opportunities to use pressure sewers throughout the wastewater network, including as part of the ongoing backlog program.
Key action 4: Deliver integrated water management solutions

Integrated water management (IWM) brings together all facets of the water cycle, from fit-for-purpose water supplies and wastewater management and drainage, to maximise social, environmental and economic outcomes. Fishermans Bend, Aquarevo, Casey Clyde and Pakenham East are all examples of South East Water’s place-based IWM solutions.

South East Water will identify new place-based IWM opportunities that deliver net community benefit through collaboration with state government departments, local governments, and other water corporations. The community’s willingness to invest in alternative water and IWM projects will be tested through South East Water’s 2018 water price review process.

The ability to achieve IWM outcomes such as enhanced liveability, is in part guided by existing urban planning policies and building regulations and standards. South East Water considers that there are opportunities to enhance existing policy and regulations to strengthen the linkage between land use planning and water management. Enhanced linkages will deliver more liveable communities, connected through open spaces and greener places.

To achieve the best community-based outcomes, future decisions in IWM will be guided by applying a consistent investment evaluation framework. This means that the value of each of the community-wide benefits and costs related to each investment is consistently applied, evaluated and funded. With this integrated investment evaluation in its infancy, South East Water will collaborate to further strengthen the data and methodology used to enable best community outcomes.

South East Water will:

• Continue to implement our current IWM projects.
• Collaborate with stakeholders to identify new IWM opportunities in the Yarra, Western Port and Dandenong catchments.
• Work with councils to identify priority assets to be supported in drought situations by March 2018.
• Continue to support enhancements to policy and regulations that strengthen the linkage between land use planning and water management.
• Collaborate with stakeholders to develop and apply a consistent IWM investment evaluation framework.
• Develop a comprehensive recycled water strategy, by the end of 2017, to maximise recycled water use in the South East Water area.
South East Water is not only impacted by climate change, but also contributes to future climate change through our own carbon emissions generated through providing water to our customers and collecting and treating wastewater.

Our Climate Change Mitigation Strategy articulates how South East Water plans to embed carbon neutrality into our operations by 2030. Achieving this will be advanced by investing in renewable energy. We also have a Climate Change Adaptation Plan, which seeks to identify all known and potential risks associated with a changing climate so that we can improve our resilience and continue to provide essential services to our customers and the wider community. Key actions include adaptively managing our water supplies to minimise the potential for water shortages, implementing asset management plans that seek to ensure operation of assets under a broad range of climate scenarios, and undertaking new research to understand vulnerability of new technologies. Investment in actions that mitigate and adapt to the impacts of climate change will, over the longer term, also seek to limit expenditure necessary as a result of climate change.

South East Water will:

- Implement our Climate Change Mitigation Strategy to support our pledge to achieve net-zero emissions through increased renewable energy generation.
- Continue to implement actions as identified in our Climate Change Adaptation Strategy to ensure assets are appropriate for changing future needs.
Empowered and engaged communities in water resource management issues, are created through the provision of ongoing education and communication.

So we’ll be developing a more engaging Water Outlook to enhance customer understanding about water availability and about initiatives to secure future water supplies.

In the future, we will also further assess the benefits of digital metering technology. This technology will not only provide us with the ability to better alert customers to leaks on their property and customise customer bills, but will provide opportunities for us to better manage our water supply and networks.

Through our price review submission (for pricing period 2018-23), we are also exploring opportunities to empower customers through new tariff options such as reducing the fixed proportion of bills.

To further advance our engagement with indigenous communities, including the Bunurong, Boon Wurrung and Wurundjeri people, South East Water commits to working collaboratively with the water sector to develop long-term, meaningful relationships with the Traditional Owners.

We will aspire to create relationships and actions that enable the co-design, co-development and co-management of water resources and identify engagement opportunities, such as discussing Elders’ concerns about water and waterway management, and the integration of cultural water needs into water resource management.

South East Water will:

- Incorporate ongoing educational resources into our customer communication plans.
- Continue to work collaboratively with the water sector to research the benefits of digital metering for our communities.
- Consider opportunities, through our price review submission, to empower customers through new tariff options.
- Revise the annual Water Outlook to enhance customer understanding about water availability and about initiatives to secure future water supplies.
- Work collaboratively with the water sector to develop long term meaningful relationships with the Traditional Owners.
Fishermans Bend

Fishermans Bend is Australia’s largest urban renewal project in the heart of Melbourne (two and half times the size of the existing CBD) and wholly within South East Water’s service area. The redevelopment will consist of five precincts across two municipalities and connect Melbourne’s CBD to Port Phillip Bay. It is expected that by 2050, Fishermans Bend will be home to approximately 80,000 residents and provide employment for up to 60,000 people. The vision for Fishermans Bend is for “a thriving place that sets an example for environmental sustainability, enhanced liveability, diversity and innovation”.

Fishermans Bend provides a unique opportunity to provide our future customers with sustainable, leading-edge solutions and transition the area into a water sensitive city, supporting Melbourne’s status as the ‘World’s Most Liveable City’. Expected liveability outcomes include creating efficient wastewater systems, reducing reliance on drinking water supplies, reducing flooding and transforming urban amenity.

Integrated water management is a central part of achieving sustainability and liveability objectives. The proposed integrated water servicing strategy has been developed with significant collaboration with City of Melbourne, City of Port Philip, Department of Environment, Land, Water and Planning, Melbourne Water, Environment Protection Authority and Fishermans Bend Hub. It is based on the use of recycled water supplied from a sewer mining plant within Fishermans Bend along with large rainwater tanks in each building. The sewer mining plant is expected to be in service in 2031 enabling water to be shared across other growing precincts across inner Melbourne.
South East Water key projects

Aquarevo

Aquarevo is a unique collaboration between South East Water and residential land developer, Villawood Properties, to develop an exciting residential development in Lyndhurst, where homes will feature a range of water initiatives unprecedented in a new residential development.

Land sales commenced in November 2016 and the first residents will move into their homes in late 2017, and throughout 2018 and 2019.

Each Aquarevo home will be connected to a OneBox® device that controls the water technology in each home, including:

- a pressure sewer system that pumps wastewater to a local water recycling plant, treats the water to Class A standard, and sends it back to each home for use in the garden, toilet or washing machine – closing the loop.
- rainwater tanks with technology that receives weather forecasts – then releases water before heavy rainfall to minimise overflows or flooding in local waterways.

Aquarevo residents will be able to monitor their energy and water consumption on a customised smartphone app.

To reduce pressure on drinking water, homes will be plumbed with three types of water to showcase the possibilities of harnessing all sources of water available to us: drinking, recycled and rainwater. Each home will have a leading-edge rain to hot water system, so that rainwater can be used for non-drinking, hot water purposes (such as showering, baths and other hot water faucets).

In collaboration with subsidiaries of Ausnet Services, South East Water is also planning to test and trial a mini-grid solution providing energy to South East Water’s local water infrastructure.

Photo: Aquarevo
South East Water key projects

Casey Clyde
The Casey Clyde development is located in the growth area of Melbourne’s south-east. It will include innovative water solutions that will ensure sustainable water supply to 50,000 homes in the Casey Clyde area.

The servicing strategy for the Casey Clyde area will include recycled water supplied to the area via a third pipe network. The recycled water will either be supplied from the Eastern Treatment Plant and the existing Pakenham water recycling plant or from a new local water recycling plant in the Casey Clyde area. Community consultation and assessment of these supply options is currently underway.

This development will enhance the potential to supply non-drinking water into the wider recycled water network to the west of Casey Clyde, and to agricultural areas to the east.

Peninsula ECO (Early Connection Option) Project
The Peninsula ECO Project is an ambitious project to construct an entire pressure sewer network 230 kilometres long and able to service more than 16,000 properties. These properties, located on the southern Mornington Peninsula between Rye and Portsea and including St Andrews Beach, are currently not connected to a reticulated sewerage system.

The project was born due to ageing and failing onsite septic tanks on the Mornington Peninsula, which were contributing to the declining environmental health of local creeks and groundwater. The Peninsula ECO Project, with its world-leading OneBox® technology, accelerated the removal of septic tanks by providing customers with the option to connect to the mains sewer system. Reticulated sewerage systems provide for enhanced environmental outcomes as well as deliver benefits to residents who are no longer restricted by the presence of septic tanks or drain fields on their property.

Pakenham East
South East Water, Melbourne Water and Cardinia Shire Council are preparing a servicing strategy for the Pakenham East growth area to develop the optimal mix of water-related solutions for the community. The servicing strategy will identify the best integrated water management servicing option and may include local wastewater treatment and reuse, stormwater harvesting (with potential treatment and re-use), rainwater tanks or other alternative water sources.

Customer
There are some things that customers all expect: water that is safe to drink, it tastes good, is available when they want it and they don’t want to have to think about their wastewater. While South East Water will continue to deliver on these core customer expectations, we also recognise that expectations of customers are changing and are being influenced by smart technologies that can provide information rich products and services in real time. South East Water is working to ensure our products and services are evolving to meet changing customer expectations. We are evolving from offering paper only bills and generic water efficiency tips, to harnessing personalised information and empowering customers to better manage their water through trialling of a water usage tracking app, providing opportunities for enhanced control of customer water bills.
Implementing the *Urban Water Strategy*

Actions identified in South East Water’s *Urban Water Strategy* will be undertaken independently, and in partnership with stakeholders and our community from 2017-22. Our price review submission (for pricing period 2018-23) will include the resourcing needs that will ensure we can deliver on our commitments into the future.

Our annual Corporate Plan will reflect the priority actions identified in this *Urban Water Strategy*, ensuring alignment between key business plans to the year 2022.

This approach will provide for an enduring commitment to the actions outlined within the *Urban Water Strategy* and will help South East Water achieve its vision to deliver "healthy water for life".