



# Melbourne Water 101

Who we are, what we do and who we work with





## Contents

|   |    |
|---|----|
| Who we are  | 2  |
| Our customers   | 3  |
| Water supply  | 5  |
| Sewerage and recycled water                               | 10 |
| Waterways   | 14 |
| Managing the Floodplain                                   | 18 |
| Alternative water sources and integrated water management | 20 |
| Liveability   | 22 |
| Environmental stewardship                                 | 24 |
| Water prices and charges                                  | 27 |

Updated December 2017

**“** *Water is essential to Melbourne’s vibrant, liveable and sustainable lifestyle – now and into the future. It underpins the health of people and the environment, enhances community wellbeing and supports productivity and jobs.* **”**

# Who we are

Melbourne Water makes a vital contribution to the famous Melbourne lifestyle through the supply of high-quality water, reliable sewerage services, integrated drainage systems, flood prevention and by enhancing our waterways and land for greater community use.

Guided by our vision of creating Healthy People, Healthy Places and a Healthy Environment, we help make greater Melbourne a fantastic place to live.

As a statutory authority owned by the Victorian Government, we work hard to deliver solutions that are financially and environmentally sustainable.

Today, Melbourne Water employs a team of diverse, smart and capable people from a board range of specialised professions. Our staff are skilled in balancing the immediate needs of the community with the long term needs of the environment.

Melbourne Water doesn't work alone. We collaborate with a wide range of partners including water retailers, councils, developers, contractors, the community and government agencies to deliver all that we do.



## Melbourne Water's operating area



# Enhancing life and liveability

Melbourne Water's vision is to enhance life and liveability for the community of Melbourne. Our focus is to help create healthy people, healthy places and a healthy environment, now and into the future.

**Healthy people** – By providing safe, affordable, world-class drinking water and sewage treatment, we protect public health and strengthen the wellbeing of our community.

**Healthy places** – By managing the impacts of climate change, protecting the region from floods and developing spaces for public use, we create more desirable places to live.

**Healthy environment** – By being innovative with resource recovery, reducing our emissions and improving the quality of waterways, we enhance biodiversity and help protect our natural assets.

Our values of care, integrity and courage guide what we do. They are integral to the way we do business and treat each other, and are intrinsically linked to our vision of enhancing life and liveability.

“With more than 125 years of experience servicing greater Melbourne, we focus on securing a sustainable and healthy community for future generations.”

## Our Customers



In 2016-17, we established a consistent way of engaging with customers and took the next steps to delivering the products and services our customers expect, in the way they expect them, through our Customer Focus program.

Our customers include:

- Melbourne's retail water companies and other water authorities
- government and regulators
- 38 local Councils
- community and education groups

- land developers and businesses that divert river water
- peak bodies
- over 4.2 million Melburnians who receive waterways and drainage services.

### Customer service

We focus on developing and delivering an improved organisational approach to customer service through our new 'Customer Service Model' to better embed customer service into specific areas of our operations.

Recent achievements over the year include:

- a steadily increasing overall reputation score reaching an 'Excellent/ Top Tier' rating of 80.2 in June 2017
- a revamped Customer Service Centre handling almost 40,000 calls
- launching the relationship management framework that defines our approach to managing our key customer segments
- creating the Melbourne Water Story to support delivery of the water curriculum in schools, a digital learning experience of Melbourne's past, present and future water-related challenges
- implementing Your Say, an easily accessible digital platform for the community to participate in our projects and the decisions that affect them.

We continue to monitor our reputation through our Reputation Survey to understand how we are perceived by our customers and the community and how satisfied they are with the products and services we provide.

## Wholesale water

The majority of Melbourne's water is supplied from protected mountain catchments adjacent to the city. This is why Melbourne enjoys some of the most affordable and highest quality water in the world.

Melbourne Water supplies, treats and transfers drinking water to Melbourne's three retail water companies and other non-metropolitan water businesses. Our wholesale water customers are:

- City West Water
- South East Water
- Yarra Valley Water
- Western Water
- Barwon Water
- Gippsland Water
- South Gippsland Water
- Southern Rural Water
- Westernport Water
- Victorian Environmental Water Holder

## Wholesale sewerage

Melbourne Water transports, treats and disposes 90 per cent of the sewage generated by Melbourne and the wider metropolitan area. Our wholesale sewerage customers are:

- City West Water
- South East Water
- Yarra Valley Water

## Recycled water

Our two sewage treatment plants supply recycled water to wholesale customers who on sell it to their water users. Our recycled water customers are:

- City West Water
- South East Water
- Southern Rural Water
- Eastern Irrigation District

Melbourne Water is committed to delivering affordable services that are valued by our customers and the community, and which contribute to Melbourne's liveability. We consistently look for opportunities to better deliver these services in both a financially and environmentally sustainable way.

“ We strive to develop strong, valued and trusting relationships with our customers and stakeholders to enhance life and liveability. ”



## Key Corporate Partnerships

Melbourne Water partners with numerous organisations, with a common thread to Enhance life and Liveability through Melbourne's waterways.

Our key partnerships include;

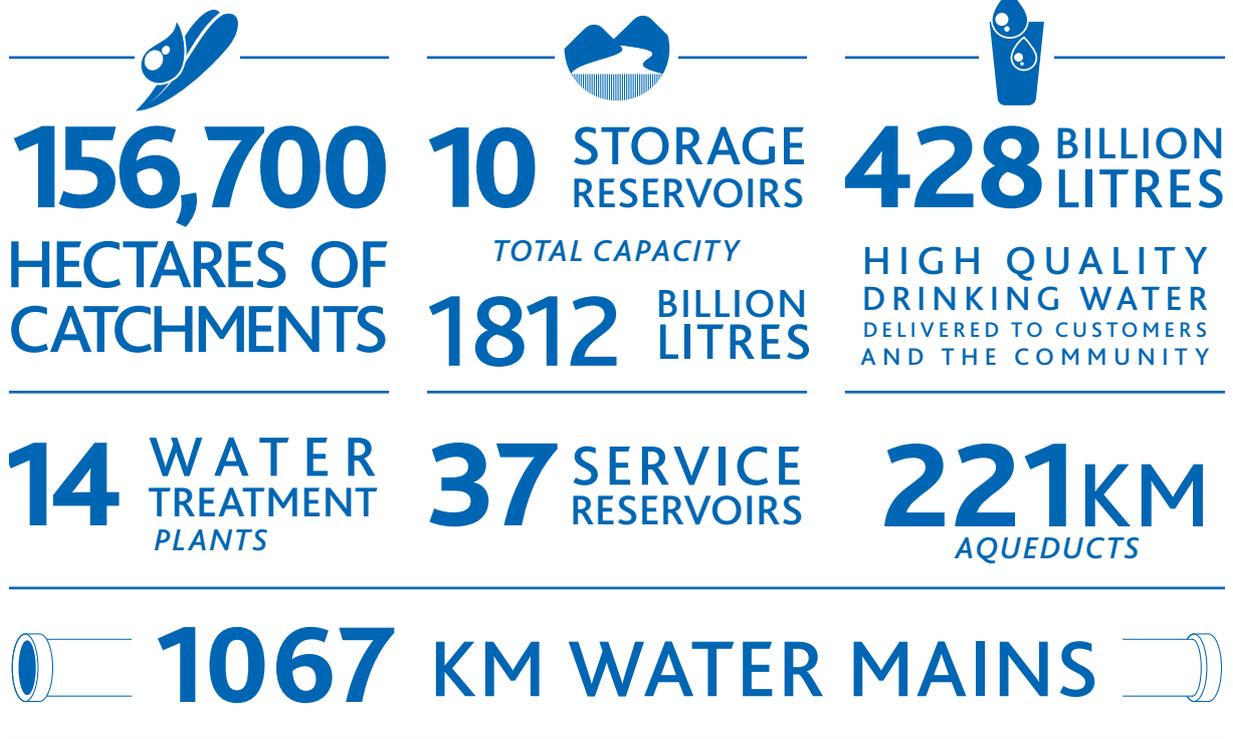
- Inflatable Regatta
- Melbourne Food and Wine Festival
- Melbourne Water's Kids Teaching Kids Conference
- Indigenous Engagement and events with the Wurundjeri Council
- CEDA
- Smart Communities
- Committee for Melbourne



# Water Supply

# Water supply

To ensure Melbourne's water supply remains secure, we manage our water storages to meet the needs of a growing city and are prepared for drought, flood, bushfires and other events.



Most of Melbourne's drinking water comes from protected water catchments in the Yarra Ranges, forested areas located in national parks and state forests. Melbourne is one of only a few cities in the world with protected water catchments. A small proportion of our drinking water is sourced from open catchments. Open catchments incorporate mixed land uses like farming instead of being used exclusively to harvest water.

## Protected Catchments

In these protected catchments, native forests filter rainwater as it flows across land into creeks, rivers and our reservoir storages. The Thomson Reservoir catchment isn't closed but is located in a remote and uninhabited area.

The water sourced from protected catchments is all disinfected with chlorine. This process ensures that any bacterial contamination from animals within the catchment is treated, and prevents any potential recontamination within the distribution network. Most water from protected catchments is also dosed with fluoride, to help prevent tooth decay (note that this is a legal requirement under the Fluoridation Act). In addition, some water is treated by UV to provide immediate treatment for sites where customers live close by.

**“** We maintain Melbourne's safe and reliable water resources that come from forests high up in the Yarra Ranges, and manage long-term projects to address the challenges of climate change, increased climate variability and population growth. **”**

## Open catchments

About 30 per cent of Melbourne's water comes from open catchments. This water undergoes additional treatment processes to ensure it meets the same requirements as water from closed catchments.

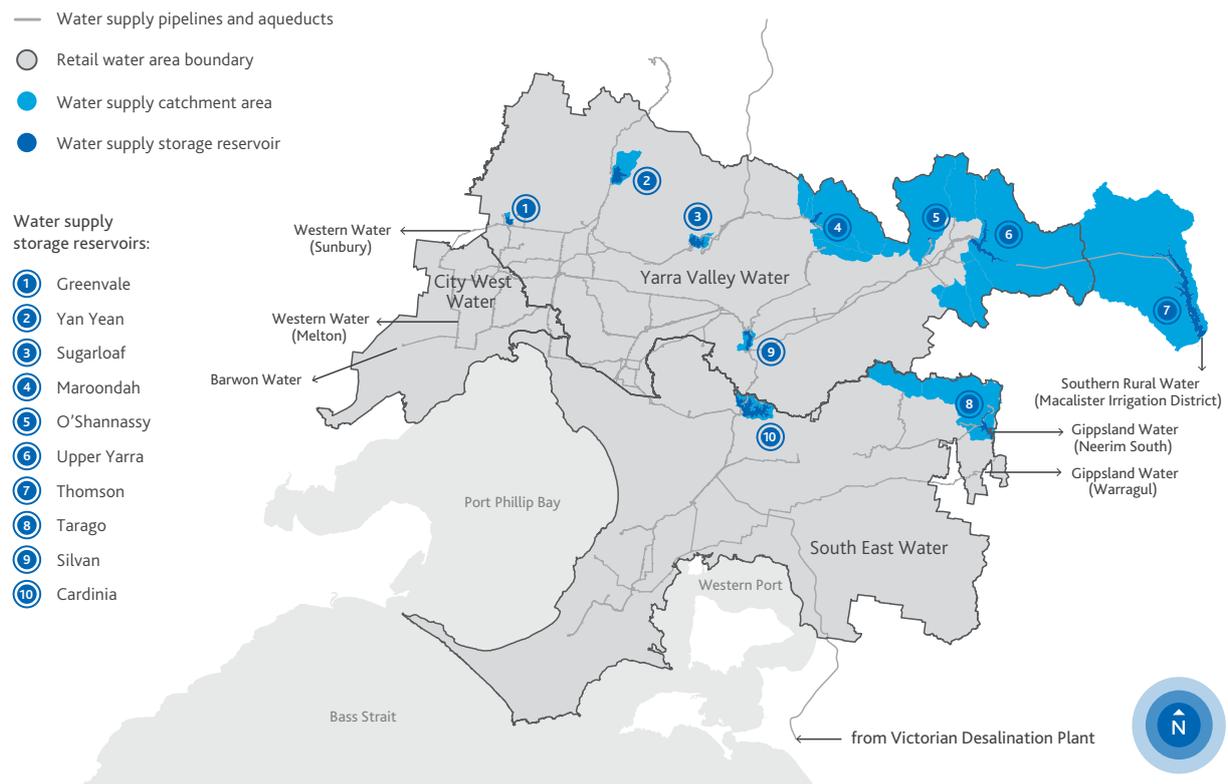
Our water treatment plants include:

- Winneke Water Treatment Plant: treats water from Sugarloaf Reservoir that is fed by water from the Yarra River, Maroondah Aqueduct and Sugarloaf Pipeline
- Tarago Water Treatment Plant: complemented by an extensive catchment management plan, around 25 per cent of water from the Tarago catchment comes from areas that include farmed land, dairies and homes with septic tanks and therefore, must be treated.

Full treatment includes:

- coagulation: helps bacteria and small solid particles stick together
- clarification: separates solid particles and removes odour
- filtration: removes most of the remaining suspended particles, and any microorganisms attached to the particles
- disinfection: chlorine and/or ultraviolet light are used to destroy or inactivate remaining microorganisms in the water
- fluoridation: helps prevent tooth decay and is a legal requirement under the Health (Fluoridation) Act 1973
- pH correction: lime or caustic soda is added to neutralise the pH of the water as chlorine and fluoride are slightly acidic.

## Melbourne water supply system



## Water quality

We use extensive online monitoring on our treatment processes to make sure Melbourne's drinking water consistently meets the Department of Health and Human Services requirements for safe drinking water.

We test for a wide range of physical, biological and chemical parameters in both raw and treated water, to ensure that the water provided to customers meets the requirements specified in the Australian Drinking Water Guidelines, and is safe to drink.

## Reservoirs

From the major reservoir storages, water flows through large pipes (distribution mains) to service reservoirs.

The 38 service reservoirs throughout the metropolitan area provide short-term storage of one to two days to ensure a constant water supply during peak demand periods.

Thousands of kilometers of underground pipes carry the water in a web-like network to the metropolitan retail water businesses, supplying the water to homes, schools and businesses.

Water pressure is carefully managed to ensure it is adequate but not so high that it causes damage to water mains or household plumbing appliances.

## Mini hydro-electricity plants

Hydro-electric power stations operate throughout Melbourne Water's supply network. These power stations generate renewable energy from the flow and pressure of moving water and feed it back into the electricity grid.

In addition to the nine existing power stations, five mini-hydro plants were commissioned over the last 12 months and we are investigating options for further plants. The new plants are located at service reservoirs in Wantirna, Boronia, Dandenong, Mount Waverley and Cardinia Creek.

## Victorian Desalination Plant

Desalination complements our catchments by providing a secure, rainfall-independent source of water for Melbourne. The Victorian Desalination Plant is capable of supplying up to 150 billion litres of high quality drinking water each year. It removes salts and minerals from seawater by passing it through reverse osmosis membranes.

In 2017, the Minister for Water announced an order of 50 billion litres of water from the Victorian Desalination Project at no additional charge to customers, and that a minimum annual water order of 15 billion litres would be introduced for the next three years.

Melbourne Water and Melbourne's retail water companies provided operational and technical advice to help inform this decision. Considering such things as how much water will be needed throughout the year, the current levels in our storages, expected water demand, climate outlooks and the cost to consumers.

Minimum annual water orders contribute to continued water security, better plant management and steady prices for customers.

## Protecting our catchments

### Bushfires

Bushfires seriously threaten the quality and quantity of our drinking water supply. Rain washes ash and sediment into reservoirs, and forests recovering from bushfire use large amounts of water, reducing the amount entering reservoirs.

Melbourne Water uses fire towers, lightning trackers and a 'spotter chopper' to detect fires early. Our ongoing maintenance of grass cutting, fire breaks, access roads and planned burns also helps to reduce the risk of fires starting.

We employ approximately 40 fire fighters who are based near water catchments all year round and are responsible for 'first-attack' response to fires in the catchments. During the fire season, this number increases to more than 60 trained fire fighters on standby. We also have a fire-bombing helicopter, 25 fire trucks, five bulldozers and 40 water tanks capable of holding 22,000 litres of water each to help fight fires.

### Illegal entry

Public entry to closed water supply catchments has been prohibited for over 100 years.

Melbourne Water patrols the catchments and can issue on-the-spot fines to anyone caught trespassing or causing damage to fences or signs.



## Key projects

### Securing Melbourne's water supply

We are developing and implementing a broad range of strategies to maximise the water available for the community. These include the harvesting and use of stormwater, reusing effluent from our treatment plants, using water from the Victorian Desalination Plant, increasing connectivity across the water supply system and continuing to contribute to community education and knowledge about the water cycle.

In 2017, we completed the Melbourne Water System Strategy and worked with the metropolitan retail water companies to develop *Water for a Future Thriving Melbourne*. These strategies address water management challenges and explore opportunities across the greater Melbourne region for the next 50 years.

### Connecting Barwon Water to the grid

The Melbourne to Geelong pipeline has been used to transfer water from Melbourne Water to Barwon Water for approximately three months to relieve pressure on the region's water supplies. The 59-kilometre pipeline connects Geelong's Lovely Banks storage basins with Melbourne Water's Cowies Hill Reservoir in Tarneit and can be brought back into operation if Barwon Water need water to secure their supply.

### Supporting growth and reducing risk

In 2016-17, Melbourne Water delivered \$104.85 million in capital works to sustain the water supply system for the community of Melbourne for future generations. Significant investments of more than \$48.5 million were made to renew water transfer assets, including the Preston Reservoir to Merri Creek water main renewal (\$19.8 million) and the replacement of the ageing Maroondah Aqueduct (\$18.5 million).

### Water use and restrictions

Permanent water use rules were put in place from 1 December 2012 after Stage 1 water restrictions were lifted.

In March 2016, Target 155 (T155) was reintroduced as a reminder to make the best use of our precious water supplies. T155 is a voluntary water efficiency program that encourages householders of metropolitan Melbourne to limit their water consumption to 155 litres per person per day.

Melburnians proved that the water-saving habits adopted during the drought from 1997-2009 could become ingrained and used historically low levels of water despite restrictions being eased. Melbourne's annual average water consumption dropped considerably since the 1990s and only recently began to climb again above 400 billion litres in a year:

- 1990 to 1999 - 478 billion litres a year
- 2000 to 2009 - 430 billion litres a year
- 2010 to 2013 - 364 billion litres a year
- 2014 to 2016 - 412 billion litres a year

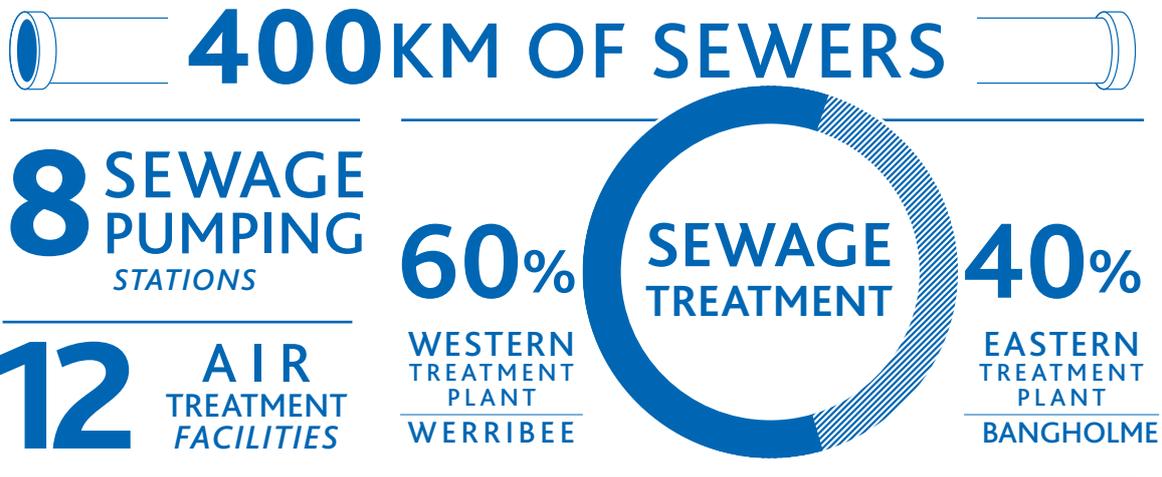
While it is inevitable that there will be temporary spikes in consumption in hot weather, Melburnians have shown an attitude shift to water use and are generally using less water. This is important given the expected continued growth of our population.



## Sewerage and recycled water

# Sewerage and recycled water

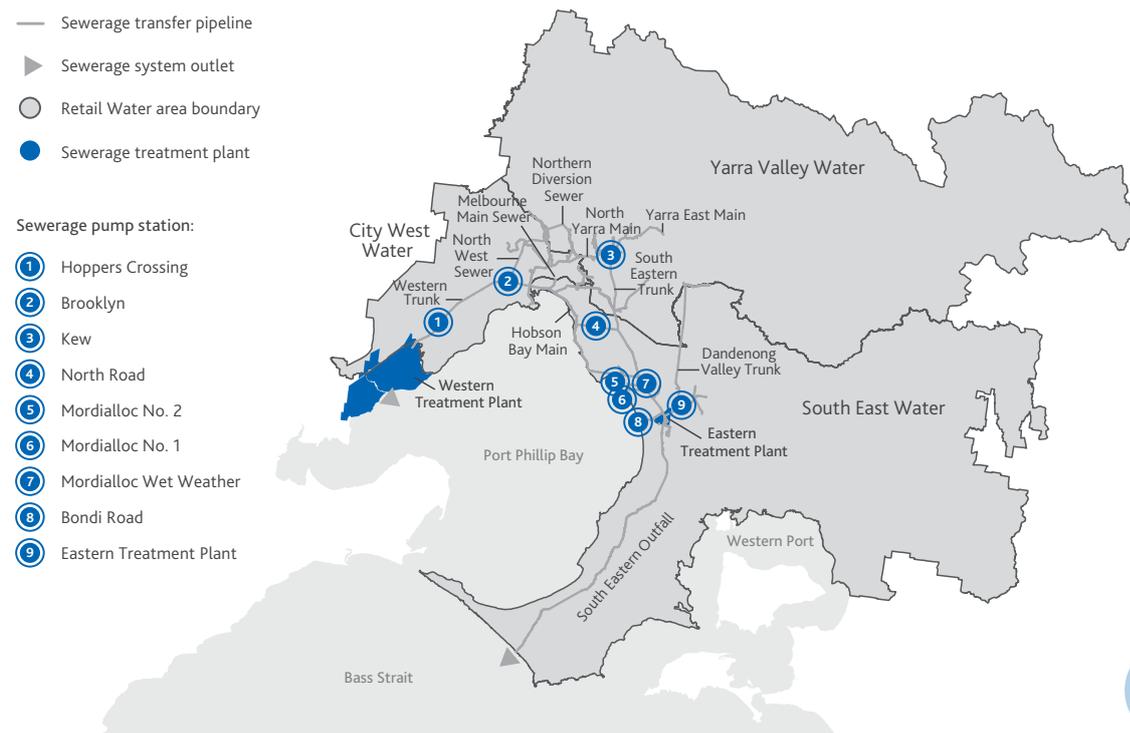
Melbourne's sewage treatment system consists of two main treatment plants, the Western Treatment Plant at Werribee and the Eastern Treatment Plant at Bangholme.



More than 400 kilometres of pipes and pumps transfer waste from the networks of Melbourne's retail water companies to our treatment facilities. The rest is treated at smaller plants by Melbourne's three retail water companies.

We received and treated 332 gigalitres of sewage at the Western Treatment Plant (60 per cent) and the Eastern Treatment Plant (40 per cent) over the last twelve months.

## Melbourne Water's sewerage system



## Pump stations

Although our sewers slope downwards to allow sewage to flow along by gravity, sewage must be brought back to the surface by pumping stations for treatment.

The three largest pumping stations are at Hoppers Crossing, Brooklyn and Kew.

## Sewage as a resource

Sewage is not just a waste product. In the face of climate change and new technology, we are turning sewage into valuable resources such as recycled water and biogas (renewable energy).

### Recycled water

Both sewage treatment plants produce Class A and Class C recycled water for use on site and to supply to customers offsite. Class A is the highest class of recycled water and can be used for a range of non-drinking purposes. The Western Treatment Plant was the first plant in Victoria to produce Class A recycled water.

Both plants continued to meet customer and regulatory standards throughout 2016-17. The Western Treatment Plant treated nearly 200 billion litres of sewage to produce 18 billion litres of recycled water, with almost six billion litres delivered to our customers and the remainder used on site. The Eastern Treatment Plant treated 133 billion litres of sewage and produced over 15 billion litres of recycled water, with more than five billion litres supplied to customers and the remainder used on site.

### Energy generation

Both plants produce biogas (methane) during the treatment of sewage, which is used to generate electricity and significantly reduce the running costs of the treatment plants. Around 45 million cubic metres of biogas was captured over the last twelve months to cover 40 per cent of treatment process electricity requirements.

The Western Treatment Plant uses biogas to meet nearly all of its electricity needs. Sometimes the plant produces more energy than it uses and this excess is exported to the electricity grid to offset usage at our other sites.

The Eastern Treatment Plant uses biogas to power a substantial part of its electricity usage and most of its heating and cooling. The plant's seven generators can run solely on biogas or be supplemented by natural gas as needed.

### Biosolids

We have made significant progress in the use of our clay rich biosolids. The Eastern Treatment Plant achieved the highest amount of reuse over the past 12 months in its 40 years of operation. Over the past three years, more than 750,000 dry tonnes of biosolids have been removed from the one million dry tonnes stockpiled. These were used to seal a remediated site and to refurbish sludge drying pans.

During the same period, the Western Treatment Plant began using 3500 dry tonnes of biosolids on broad acre agriculture to improve the soil and crop. We are actively seeking to expand the land application of biosolids with suitable farmers. This treated and safe sewage by-product can be used to improve the condition of soil or as an energy source.

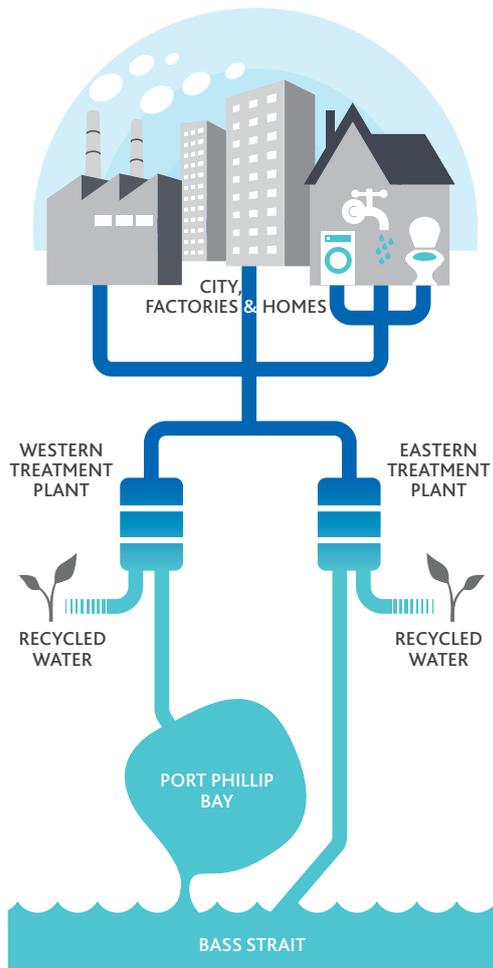
### Sewage spills

In extreme rainfall events there is the risk of sewage backing up and spilling into households, especially in showers as they are the lowest point in most homes.

To take pressure off the system, a number of measures and infrastructure are in place. These include:

- extra sewerage capacity to take stormwater
- emergency outlets across the network to control overflow of highly diluted sewage into suburban creeks and waterways
- infrastructure upgrades, such as the Northern Sewerage Project, to increase the sewerage capacity.





## Key projects

### Western Treatment Plant upgrades

The Western Treatment Plant provides safe, effective treatment for more than half of Melbourne's sewage including significant removal of nitrogen before discharge of the final treated water to Port Phillip Bay.

To safeguard the future as Melbourne's population grows, we began a three-stage, \$290 million program of works in 2012. These works ensure nitrogen loads to Port Phillip Bay are managed and assets continue to be safe and efficient to operate and maintain, as well as providing enhanced biodiversity outcomes.

We recently started construction on the second stage of works, an automated \$150 million nitrogen removal plant and expect it will begin operating in late 2018 to treat 140 million litres of wastewater per day.

### Securing recycled water supply

In 2017 a long-term bulk water agreement was finalised with Southern Rural Water. It provides certainty of water supply by guaranteeing 11 billion litres of recycled water from the Western Treatment Plant for Southern Rural Water to pass onto irrigators in Werribee South via its supply network. Irrigators can be confident of a reliable supply into the future, regardless of uncertain climate conditions.

### Capital works

In 2016-17 we delivered \$51.5 million of capital works to rehabilitate our sewer transfer assets while continuing to service our customers. Major capital works include Williamstown and Merri Creek sewers and the Merri Creek Interceptor. A further \$67.5 million of sewer rehabilitation projects have been developed and prioritised for future works.

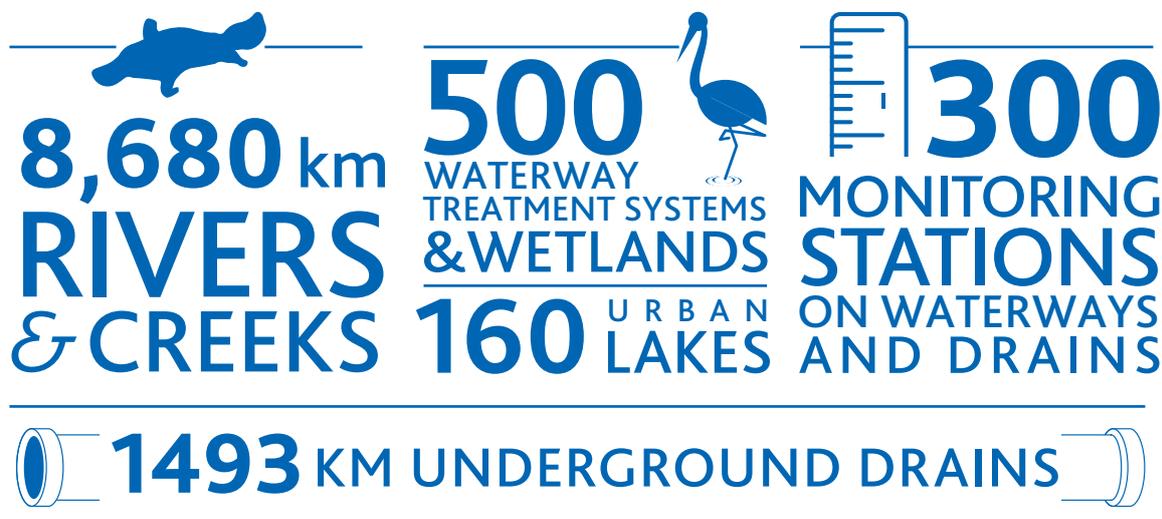




# Waterways

# Waterways

Melbourne Water manages the health of Melbourne's rivers and creeks.



## Healthy waterways

We work with councils, land owners and the community to improve Melbourne's waterways, including the Yarra, Werribee, and Maribyrnong rivers and smaller suburban creeks. We are involved in land use planning to make sure new developments protect and enhance nearby waterways.

Over the past year, we began 80 multi-year river health projects to improve waterways by:

- planting 225 kilometres of new vegetation
- constructing 73 kilometres of stock exclusion fencing
- rehabilitating 95 hectares of aquatic habitat, including wetlands, billabongs and floodplains
- removing three fish barriers to improve waterway connectivity for fish and other animals
- removing 2987 cubic metres of silt and debris
- stabilising river banks across six sites to protect waterways
- providing \$8.4 million in funding and project assistance to local government and the community to improve waterway health.

Melbourne's waterways are impacted by urbanisation, agriculture and recreation to different degrees. Urban creeks, such as Merri Creek, are under the most threat due to their proximity to people and development. Some have sustained so much damage they can never be totally restored to their original condition.

Stormwater pollution is the biggest threat to the health of our waterways due to the pollutants it carries, such as animal droppings, oil and chemicals.

## Yarra River

Water quality in the Yarra has improved vastly over the last 20 years as much of the Yarra catchment is now sewered. Industrial waste too, is diverted to treatment plants and public attitude has shifted around the importance of binning rubbish.

Melbourne Water has approximately 70 monitoring sites on the Yarra River to continually measure changes to oxygen levels, salinity and nutrients.

## The Yarra Strategic Plan

The Yarra River and its environs underpin the liveability and economic prosperity of Melbourne. The river and its catchment provide 70 per cent of Melbourne's drinking water, and is home to one-third of Victoria's animal species. The river is of great spiritual and cultural significance for Aboriginal communities.

In February 2017, the Victorian Government released its Yarra River Action Plan. It contains 30 actions to ensure the river and its parklands are protected over the long-term. The plan has nominated Melbourne Water as the lead agency for seven of these actions, one of which includes developing a 50-year Community Vision for the Yarra. The vision will become the foundation for an overarching Yarra Strategic Plan to ensure better coordination of activities and decision-making processes for the entire river.

## Animals

More than a third of Victoria's plant and animal species are found in the Yarra catchment, including platypus, a range of fish (and the endangered Yarra Pygmy Perch), frogs, waterbugs and bird species.

Melbourne Water surveys urban waterways twice a year to understand the health and movements of platypus. We undertake a number of research projects to understand the migration and importance of fish in our rivers and creeks.

## Environmental flows

Each year, in conjunction with Melbourne Water, the Victorian Environmental Water Holder authorises environmental water releases for Melbourne's waterways. These flows are critical for river health as they:

- flush sediment from rivers
- improve water quality and habitat for platypus, macroinvertebrates and frogs
- encourage vegetation growth
- aid fish spawning and migration.

Environmental water releases over the last 12 months include:

- five from the Yarra River - 21,361 megalitres
- three from the Tarago River - 1952 megalitres
- six from the Werribee River - 1850 megalitres
- three from the Maribyrnong River - 304 megalitres

## Community support

Melbourne Water provided \$8.4 million in funding over 12 months to the community and local government to support a broad range of activities that help improve the health of waterways and catchments. This funding assisted in delivering our Living Rivers program to support councils with waterway health and create sustainable stormwater management solutions. It also helped the *Our Space, Your Place* program that makes land managed by Melbourne Water available for community projects, such as community gardens.

Funding recipients included:

- not for profit community groups
- private holders and managers of land
- farmers
- councils and public land managers
- schools and the community

“ Each year, Melbourne Water invests in protecting our waterways from a variety of threats, including those posed by climate change and population growth. ”



## Frog Census

The Frog Census program supports the community to record and report frog calls, and encourages conservation action such as building frog ponds. Data collected is used to understand frog population trends and inform waterway management.

The program experienced unprecedented growth in participation following the launch of our Frog Census app for mobile devices in September 2016. Volunteer numbers increased from 66 to almost 600 and over 1500 frog reports were received in one year, compared with before the launch of the app where we received 249 reports for the entire year.

## Education and Waterwatch

We continue to support a community that values water and the environment through our engagement and education programs, with learning for the water curriculum and opportunities for citizen scientists to contribute to scientific research by monitoring our waterways. We have built capacity at an industry level and expanded our Clearwater program to regional Victoria to increase integrated water management knowledge and understanding.

Over twelve months, nearly 9000 people participated in Waterwatch activities to help protect the health of our local rivers and creeks, including the Frog Census, Platypus Census, Waterbug Census and stream water quality testing. We discovered additional habitat for the Sherbrooke Amphipod (an endangered crustacean), launched a frog monitoring app for mobile devices and created community art supporting healthy waterways. Our Platypus Census, eDNA monitoring and platypus sightings reported through the platypusSPOT website and app supported the long running Melbourne Water Urban Platypus Monitoring program.

## Development Services

Melbourne Water supports all stages of urban development and provides planning advice for the construction of stormwater infrastructure. This helps to protect new properties from flooding and minimises the negative impacts on local waterways. We also work with the development industry and private landowners to provide service for the planning and building of sustainable and liveable communities.

The Development Services team supports all stages of urban growth area development and provides planning advice for the construction of stormwater infrastructure to protect new properties from flooding and maintain the health of local waterways.

In 2016-17, four Precinct Structure Plans were finalised with Melbourne Water input, 22 Development Services Schemes underwent concept design, and over 1450 hectares of development land met compliance requirements. This last step means Melbourne Water supported the development industry to deliver around 21,600 homes in growth areas, along with schools, retail and shopping precincts, parklands and open recreational space for new communities.

Melbourne Water also supported the development industry to deliver capital works in growth areas. These works included five flood-retarding basins, eight kilometres of waterway rejuvenation, 20 kilometres of underground pipe to manage drainage and flood flows, and eight new wetlands to provide stormwater treatment and, importantly, habitats for diverse flora and fauna.





RETARDING  
BASIN  
SUBJECT TO  
FLOODING

## Managing the Floodplain

# Managing the Floodplain

Melbourne Water is the floodplain manager for the Port Phillip and Westernport catchments. We work closely with the wide range of organisations involved in flood management including our 38 local government customers, DELWP and emergency response agencies such as the SES and EMV.

With each of these agencies, we have both formal and informal engagement plans. Notably, these include our Flood Management Plans which articulate a collaborative approach to managing flood risk, tailored to the specific needs of the local area.

We collect and develop flood information to support appropriate decision making for the prevention, response and recovery phases of flood management. Our sources of flood information include many computer models, rainfall data, topographic data and drainage system configuration, amongst others.

We provide flood advice on new developments and lead projects to address existing and future flood risks across Melbourne.

We help reduce the risk of floods by:

- maintaining 1598 kilometres of stormwater drains and 238 retarding basins
- building new flood protection assets including new pipes, retarding basins, flood gates, levee banks, amongst others
- managing waterways to help reduce the impacts of flooding
- raising awareness of risks and responses
- providing data for warning systems.
- Implementing planning controls to ensure appropriate development in flood prone areas.

## Rising sea levels

Melbourne Water is working with the Victorian Government and councils to address rising sea levels through initiatives and research projects that include:

- sea level rise assessments in developments along coast lines
- the Australian Rainfall and Runoff Review
- flood modelling around climate change scenarios
- a business-wide Climate Change Adaptation Strategy.

## Key projects

### Flood Management Strategy

We are working with our strategy partners that include local government, the Victorian State Emergency Services (SES) and the Department of Environment, Land, Water and Planning (DELWP) to implement the Flood Management Strategy – Port Phillip and Westernport. The focus continues to be on catchment-wide flood management and in reviewing the 60 hectare convention that identifies the roles and responsibilities of Melbourne Water and local government in managing drainage and stormwater.

### Drainage infrastructure

We continue to invest in drainage infrastructure to reduce the effects of flooding. We invested over \$20 million on updating embankments for 28 flood retarding basins over the past year and \$42 million on the Murrumbeena to Malvern Flood Mitigation project to reduce the impact of flooding to properties in the area.

### Flood Integrated Decision Support System

The Flood Integrated Decision Support System (FIDSS) has been used for monitoring and reporting on several minor to moderate flood events since its inception in 2015. It was upgraded in late 2016 to include an improved event archiving function.

FIDSS provides real time, high quality information before, during and after flood events. It is an essential tool for sharing flood-related information with our emergency partners and for keeping flood-prone communities up-to-date. FIDSS has been designed to integrate Melbourne Water's telemetry systems, URBS hydrologic software, HYDSTRA data management and GIS flood maps. It directly connects with the latest Radar, Nowcast and Access Products from the Bureau of Meteorology.

Floodplain Management Australia awarded FIDSS the Flood Risk Management Project of the Year at its national conference in May 2017.



## Alternative water sources and integrated water management

# Alternative water sources and integrated water management

Melbourne Water takes an integrated approach that brings together all facets of the water cycle – water supply, sewerage management, treatment and stormwater – to achieve sustainable triple bottom line benefits for the community.

Integrated water management is an approach that supports:

- collaboration with customers and stakeholders to promote new and diverse water resources
- the incorporation of integrated water and urban development planning
- finding ways to obtain multiple benefits from our natural and built assets
- managing the water supply system to meet urban, environmental and agricultural needs
- undertaking long-term planning to address the needs of a growing population, climate change and variability.

Taking a holistic, integrated approach to Melbourne's water cycle helps in a number of ways:

- socially, by providing public health, safety, open spaces and sports fields, reduced urban heat-island effect and improvements in the resilience of the water supply system to climate change
- economically, by providing affordable services and seeking opportunities for growth, especially in industry and agriculture
- environmentally, by increasing the amount of water available for environmental flows and reducing impacts to the environment from such things as pollution, stormwater and treated wastewater.

## Stormwater management

Stormwater is rainwater that has fallen onto roads and rooves, which often contain chemicals or pollutants. Water Sensitive Urban Design (WSUD) is an approach to planning and designing urban areas that makes use of this valuable resource and reduces the harm it causes to rivers and creeks.

Melbourne Water is responsible for the licensing of surface water from some catchments and its own works, which includes licencing stormwater to assist in integrated water management.

## Key projects

### Sunbury Integrated Water Management Plan

We are developing the Sunbury Integrated Water Management Plan with Western Water, Hume City Council and the Department of Environment, Land, Water and Planning to identify a sustainable and integrated approach to water management. Through community engagement the plan considers the growth of Sunbury and the challenges and opportunities to protect local waterways. It will explore how to maximise alternative water sources generated from stormwater and recycled water within the expanding urban areas.

### Arden Macaulay

Arden Macaulay is a city-shaping project that will transform North Melbourne into an extension of the CBD and provide a link to inner Melbourne suburbs through new high-capacity rail. Melbourne Water is contributing to this collaborative project to define key problems and create innovative solutions. This will help develop a high quality urban environment and revitalise the Moonee Ponds Creek corridor. It has led to the Victorian Planning Authority issuing the development of a vision and framework for the area.

### Enhancing our Dandenong Creek

We identified that stormwater pollution from industrial areas along Dandenong Creek is a more serious source of pollution than infrequent wet-weather sewage spills into the creek. Enhancing our Dandenong Creek is an environmental project that will improve natural amenity by removing an underground pipe the Dandenong Creek currently flows through to allow the creek to run overland again. It will re-create billabong and other habitats, reduce uncontrolled sewer spills, support native fish to breed and promote positive behaviours of local industry to reduce stormwater pollution.





# Liveability

# Liveability

For over a century our organisation has serviced the community with safe and secure drinking water, reliable sanitation and effective flood management. These are fundamental elements to a liveable city.

As well as these essential services, we also plan and deliver many liveability services across the metropolitan region, such as bike paths and parkland. We manage over 33,000 hectares of land and 8680 kilometres of waterways, and hold valuable partnerships with state and local government, industry and community groups that extend beyond our estate.

We have a significant opportunity to further enhance the liveability of Melbourne.

## Key projects

### Greening the Pipeline

The Greening the Pipeline initiative aims to convert the 27-kilometre heritage listed Main Outfall Sewer pipeline into parkland. The pipeline was built in 1882 in Melbourne's west as a vital piece of infrastructure to remove and transport Melbourne's sewage for treatment. It was decommissioned after protecting the health of Melbourne for more than 100 years.

We are currently working with Wyndham City Council on the next stage of Greening the Pipeline. This involves master planning of a four kilometre section of the pipeline and engaging community to help develop the plan that will guide future design and investment in the project.

### Western Treatment Plant Future Land Use Plan

Funding of \$1.6 million was allocated during the preparation of the Western Treatment Plant Future Land Use Plan in 2015 to improve safe community access and increase various nature-based, education and recreation activities, including eco-tourism. We will deliver facilities such as toilets and interpretive, directional and wayfinding signage, improve birdwatching routes and develop the urban design and landscape setting for the new administration and visitor centre in the old township on site. There are also plans to engage with regional stakeholders to explore on-going future partnership opportunities.

“ With a growing population across the world's most liveable city, we know it is increasingly important to provide our community with healthy green spaces and amenity. ”

### Community-based liveability projects

We delivered a range of community-based projects over the past year. These include:

- developing the Yarra River Paddling Investigation that identified opportunities to improve recreational boating access throughout the Yarra River, with enhanced public safety and promoting waterway values
- the AMES Australia and Conservation Volunteers Australia partnership to build a sense of community and improve waterway awareness for new migrants through a revegetation program along Kororoit Creek in Sunshine
- the *Our Space, Your Place* program to enable not for profit organisation, TEAM, to utilise Melbourne Water land to run a sustainability education hub for people with disabilities
- creating a sustainable tourism action plan for Werribee Gorge
- a student led growling grass frog mural at Williams Landing as part of Greening the Pipeline.



## Environmental stewardship

# Environmental stewardship

We work to minimise environmental impacts and meet environmental obligations.

We do this by:

- enhancing and promoting the value of natural and cultural assets in the services we provide
- responding to climate change and variability through mitigation measures
- using natural resources efficiently
- minimising waste through recycling and reuse initiatives
- preserving and promoting cultural heritage
- encouraging our suppliers and partners to apply sustainable business practices.

Research is a critical part of our response to climate change. We have formed close partnerships with the CSIRO, Bureau of Meteorology and various universities.

Melbourne Water has developed projects to harness waste and to re-use it either to generate energy for our operations or for the benefit of communities. We are also looking at new ways our natural assets are used to their maximum potential and have established healthy ecosystems by managing waterways from catchment to coast.

## United Nations Global Compact

In 2016, we committed to the United Nations Global Compact, the world's largest corporate sustainability initiative. This is both a practical framework for action and a platform for demonstrating corporate commitment and leadership to the UN Sustainable Development Goals (SDG). These goals aim to put the world on a sustainable path and mobilise efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind.

The vital role of water and related resources in creating and delivering sustainable communities puts Melbourne Water in a key position to contribute to this global effort. We will enhance our contribution across all goals, while demonstrating leadership on the goals of Clean Water and Sanitation, Sustainable Cities and Communities and Life on Land.

# SUSTAINABLE DEVELOPMENT GOALS





## Climate resilience

Climate Change is a critical challenge for Melbourne Water, the community and natural environments.

Melbourne Water is one of Australia's major greenhouse gas emitters and climate change poses significant risks to our services over the long term. Melbourne Water's land management, water supply, wastewater and urban development activities provide unique opportunities to support the natural environment and community wellbeing.

We are developing a new Climate Change and Resilience Plan for our business to ensure we are prepared and capable to address future challenges. The plan will build on past progress and respond to four key areas:

- greenhouse gas emissions
- environmental resilience
- community resilience
- adapting to climate change.

## Aboriginal engagement

Aboriginal communities have a spiritual and customary living relationship with water in all its forms through creation stories, use of water as a resource and knowledge about sharing and conserving water. Establishing and fostering partnerships with Aboriginal communities throughout the Port Phillip and Westernport region continues to be an important part of Melbourne Water's water resource planning and management processes.

Over the coming year, Melbourne Water will enhance this approach to include recognition and support for Aboriginal cultural, spiritual and economic values to land, water and resources as part of delivering the Water for Victoria plan. Key initiatives include the Heritage Improvement Program and the Reconciliation Action Plan.

## Enhancing biodiversity

Melbourne Water manages significant landholdings that support diverse and thriving communities of native plants and animals. We develop and implement strategies that protect native biodiversity in compliance with Victorian and Commonwealth biodiversity obligations, and our activities for the year align with the Victorian Biodiversity Plan 2037. We also updated the three-year Environmental Stewardship Strategy to enhance the value of our natural and cultural assets by ensuring resources are available and service provisions are made for future generations.



# Water prices and charges

# Water prices and charges

We plan and cost projects, and prepare budgets to help determine the prices we need to charge customers.

This forms part of our pricing submissions to the Essential Services Commission who reviews and approves changes to water prices, usually every five years as part of the Price Review.

Melbourne Water delivered an 11 per cent reduction in wholesale water and sewerage charges. These costs were outlined through our 2016 Price Review and followed substantial customer and community engagement to understand priorities for services and asset investments.

The 2016 Price Review, which came into effect on 1 July 2016, outlines our investment and operating costs and the prices to match these costs for the next few years.

## Waterways and Drainage Charge

The Waterways and Drainage Charge funds a range of programs to protect and improve the health of our rivers and creeks, and provide regional drainage services, flood protection and flood warning systems throughout the Port Phillip and Westernport region.

“Melbourne Water plans water, sewerage, drainage and river health projects needed to support Melbourne’s growing population and maintain essential services.”

There are three main categories of charges:

- residential: applies to residential property owners located within the Urban Growth Boundary
- non-residential: properties located within the Urban Growth Boundary and major airports that are not classified as residential
- rural: applies to customers located outside the Urban Growth Boundary

The Waterways and Drainage Charge is billed to customers quarterly by Melbourne’s retail water companies and annually by regional water companies on behalf of Melbourne Water.

## Financial Performance

|   |  |  |
|---|--|--|
| <b>\$1.79bn</b><br>REVENUE                                    | <b>\$657.2m</b><br>FINANCE<br>EXPENSES     | <b>\$14.9bn</b><br>TOTAL ASSETS  |
| <b>\$512.4m</b><br>OPERATING<br>EXPENSES                      | <b>\$237.9m</b><br>EARNINGS<br>BEFORE TAX  | <b>\$14.9bn</b><br>TOTAL LIABILITIES   |
| <b>\$383.8m</b><br>DEPRECIATION<br>& AMORTISATION<br>EXPENSES | <b>\$150.4m</b><br>NET PROFIT<br>AFTER TAX | <b>53.6%</b><br>GEARING RATIO<br>DEBT/DEBT + EQUITY  |
|   |  | <b>2%</b><br>Interest cover (cash) times<br>(operating cash flows before<br>interest and tax/interest<br>payments) |

As per the 2016-17 Annual Report

