

# WATERWAYS

## STRATEGIC GOALS

- > Improve the health and amenity of waterways and marine environments
- > Manage flood risk
- > Improve environmental outcomes from all aspects of the business
- > Listen to and engage the community to seek support for our projects and priorities
- > Conserve and improve biodiversity and ecosystems
- > Invest prudently and efficiently, taking account of environmental, social and financial considerations, whole-of-life costs, risks and service needs

## KEY ACHIEVEMENTS

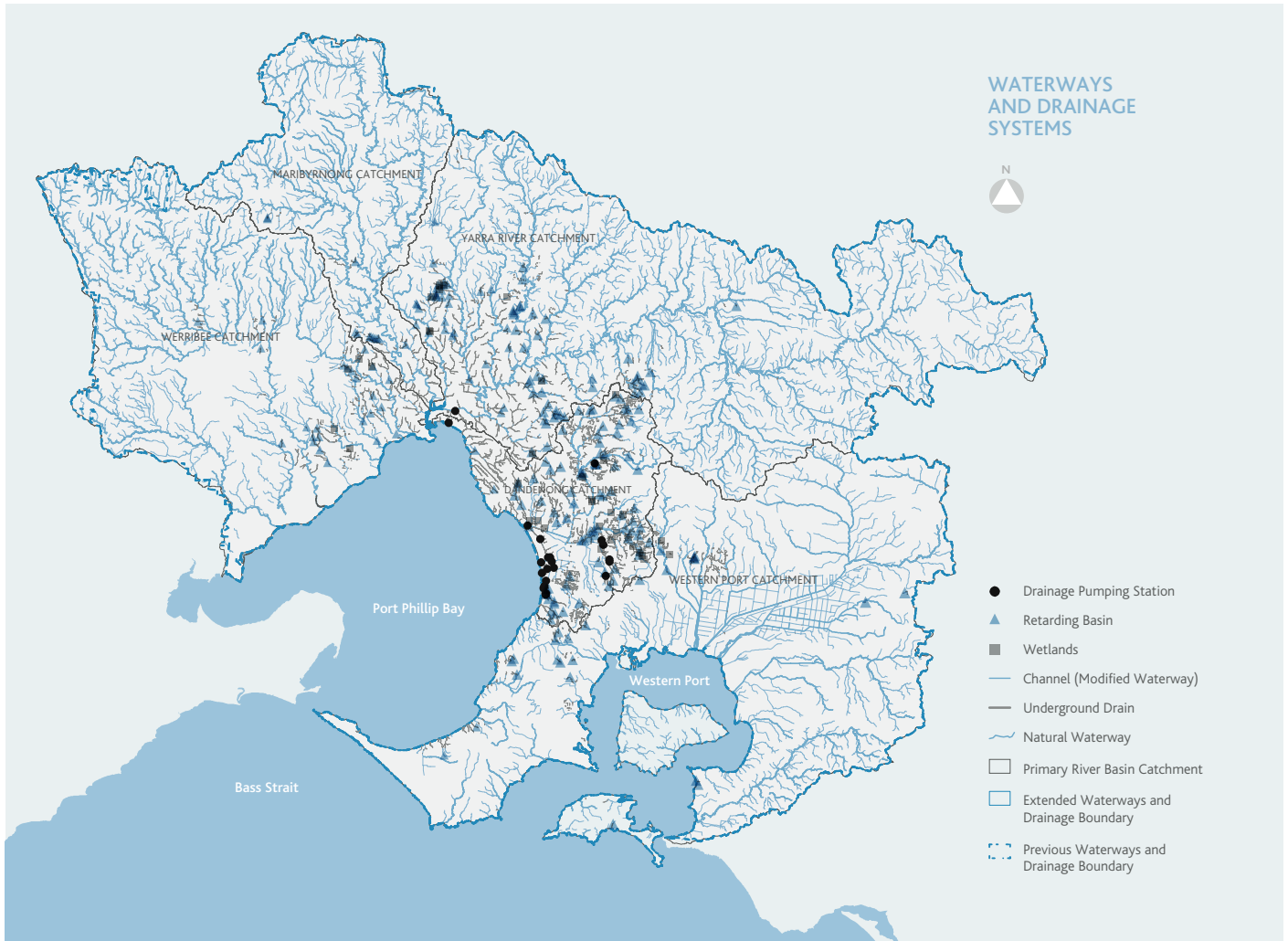
- > Provided an extensive and timely response to February rainfall and subsequent flooding including a major effort to assist people affected and removing more than 2,000 cubic metres of rubbish and debris from Melbourne's waterways
- > Returned full environmental flows to the Yarra River after years of drought
- > Made significant progress implementing our *Flood Management Strategy* including working with councils and emergency services to develop Flood Management Plans
- > Fully met the service standards set out in our Customer Charter for Waterway Diversion Services for the first time
- > Began works to build a new weir and fishway at Dights Falls on the Yarra River
- > Worked with the Growth Areas Authority and local councils to ensure infrastructure in growth areas is in place to provide flood protection, manage stormwater runoff, protect waterways and facilitate water sensitive urban design
- > Implemented safer processes for working in confined spaces such as drains

## DISAPPOINTMENTS

- > The number of property owners directly affected by the February floods
- > Delays to many waterway improvement projects due to the flooding
- > Two notifiable incidents investigated by EPA Victoria on capital projects in relation to the release of potable water with elevated turbidity levels into the stormwater system

## CHALLENGES

- > Managing day-to-day workloads while responding to a significant increase in activity as a result of the February floods
- > Engaging with flood-affected landowners who experienced creek erosion and damage to farm dams across parts of the middle Yarra catchment
- > Constructing major drainage works to minimise flooding in areas with unacceptable risks of incurring significant economic and social costs
- > Managing high workloads associated with land development and the impacts of major infrastructure projects on our assets such as waterway crossings
- > Realising opportunities for better and more integrated management of stormwater to create a more liveable Melbourne



## OUR WATERWAYS AND DRAINAGE SYSTEM

Melbourne Water is the caretaker of river health in the Port Phillip and Westernport region. In this role, we manage:

- 8,400 kilometres of rivers and creeks
- 1,463 kilometres of drains
- 315 constructed waterway treatment systems and wetlands
- 300 monitoring stations on waterways and drains
- 122 urban lakes

We work with many people who look after waterways and the plants and animals that depend on a healthy river environment. These people include local councils, landowners, community groups, developers, farmers, government agencies and research institutions.

### IMPROVING WATER QUALITY

Melbourne Water spent \$4.6 million this year helping local councils implement Water Sensitive Urban Design to improve the health of waterways under the Living Rivers Stormwater Program.

Improvement projects included the Tanderrum Way (main street) extension in Broadmeadows (with Hume City Council); streetscape works within the Little Stringybark Creek catchment in Mt Evelyn; Afton Street wetlands next to the Maribyrnong River at Aberfeldie; and a green roof experiment on the Monash City Council offices in Glen Waverley.

We also worked to improve hotspots of chemical and biological pollution, targeting Victoria Street in Richmond and Bourke Street in the city where waste from food businesses was reduced through focused engagement and education.

### IMPROVING RIVER HEALTH

Melbourne Water invested more than \$17.5 million in streamside works this year to protect and improve river health. These works involved removing and managing weeds across 467 kilometres, revegetating 59 kilometres of land along waterways and stabilising nine sites subject to erosion.

Our River Health Incentives Program provides funds and support for landowners and managers to improve the health of land adjoining waterways. We provided 872 grants this year valued at \$3.61 million (compared to 850 grants valued at \$3.55 million in 2009/10).

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Top: Suburban raingarden  
Above: River health works, Merri Creek

The Myrning and Korkuperimmul Creeks Biolink Project is an example of one large and successful collaborative effort from this program. The project is developing two north-south biolinks, joining high biodiversity areas – Wombat State Forest and Werribee Gorge – by enhancing native vegetation and faunal habitat along the upper reaches of both creeks.

Melbourne Water is collaborating with the Port Phillip and Westernport Catchment Management Authority, Grow West Implementation Committee and Pentland Hills Landcare Group on the three year project. During this first year, 15 landholders were recruited to deliver six kilometres of revegetation and weed control and plant more than 4,000 plants at a cost of \$105,000.

Under our Stream Frontage Management Program, we provided \$2.49 million to support a record 676 projects on private property, constructing 130 kilometres of fencing along waterways to exclude livestock and planting more than 225,000 native seedlings.

We also funded 137 Community Grant waterway management projects totalling \$636,000 and supported public land managers through 59 Corridors of Green projects totalling \$490,000.

## Investing in research

During 2010/11, Melbourne Water invested more than \$1.5 million on research that helps strategic decision-making in waterway management, as well as increasing the effectiveness and efficiency of our activities.

Areas of research include urban stormwater harvesting and treatment, development of water resource modelling and decision support tools, control of aquatic and riparian weeds, aquatic ecotoxicology and pollution management, wildlife conservation, climate change impacts on waterways, functioning of estuaries and environmental flows.

## ENVIRONMENTAL FLOWS

### Yarra environmental flows

Environmental flows were progressively returned to the Yarra River in 2010 as water storage security increased due to the introduction of new supply projects and good rain over the water supply catchments. The full 37 billion litres a year of environmental water was returned to the Yarra and this will help improve the river's health.

These environmental flows also greatly improve the outlook for vulnerable and important native animals such as Macquarie perch and platypus by providing habitat, increasing food sources (water bugs) and encouraging migration and breeding.

### Werribee River – environmental entitlement

In 2010, the first environmental entitlement was secured in our western catchments in Lake Merrimu which is a reservoir on Pyrites Creek - a tributary of the Werribee River, near Bacchus Marsh. The reservoir is used primarily by Western Water to supply drinking water to the urban communities of Melton and Bacchus Marsh. Southern Rural Water also operates Lake Merrimu to supply water to irrigators in the Werribee Irrigation District.

The environment has been allocated 10% of water that flows into Lake Merrimu. This water can be released from Lake Merrimu Reservoir and can also be re-released from Melton Reservoir to achieve ecological objectives in the lower reach of the Werribee River. This means releases can have a double benefit as we can release in the upper Werribee and recapture the release in Melton Reservoir to use at another time in the lower Werribee reaches.

These environmental flow releases can be used to improve conditions over winter when historically water has been held back to enable irrigation releases in the summer months. The lower Werribee experiences seasonal reversal through higher flows during the summer irrigation season and reduced flows in winter. The entitlement will enable us to address this reversal and improve winter conditions for native fish, macroinvertebrates and platypus.

### RELIEF AT LAST FOR WATERWAY DIVERTERS

Melbourne Water manages about 1900 licensed waterway diverters who extract water from the Yarra River, Maribyrnong River, Stony Creek, Kororoit Creek, Laverton Creek and Skeleton Creek catchments. Water is used mainly for agricultural, industrial, commercial and domestic and stock purposes.

In 2010/11, diverters experienced some welcome relief after enduring many years of limited access and bans on drawing water from rivers and streams. Consistent rainfall, even through summer, meant good access to water in all catchments with very few restrictions applied.

Even the normally dry conditions in the western area gave way to some decent river flows and our share of water held in Rosslynne Reservoir in the Maribyrnong catchment increased from just 38 million litres on the 1 July 2010 to 1,585 million litres in June 2011.

However, excessive rain led to widespread flooding and crop losses for some agricultural growers, resulting in overtopping of private dams in February and March and various degrees of dam failure. Melbourne Water employees inspected affected areas and held discussions with dam owners on the actions and works needed to repair their assets and protect local waterways. Melbourne Water continues to liaise with dam owners on many of these cases.

## Legal action

The wetter conditions over the past 12 months have led to less stress on our waterways and fewer demands for water extractions. Consequently, the number of compliance matters being managed by Melbourne Water also fell.

However, a potato farmer in Gembrook was successfully prosecuted in the Dandenong Magistrates' Court in August 2010 for taking water illegally from Cockatoo Creek. The farmer pleaded guilty to taking water in excess of his allocation and was fined \$9,000 and ordered to pay a further \$3,000 in costs.

A number of warning letters were issued to licence holders in 2010, mostly relating to overuse of water allocations.

## Service standards

Melbourne Water fully met the service standards set out in our Customer Charter for Diversion Services for the first year since the charter was developed in 2008. Concerted effort was made to achieve the target for determining applications within the specified time limits. The easing of drought conditions also assisted in achieving this goal.

## Improved monitoring and reporting

Following the success of a pilot program to install automated meter reading equipment on diversion licence holder meters within the Olinda, Stringybark and Steels Dixons Creek catchments, Melbourne Water secured an extra \$400,000 from the Department of Sustainability and Environment to install loggers and equipment on meters within the Woori Yallock Creek and Little Yarra River catchments. An additional 195 loggers were installed between March and June 2011, meaning about half of all Melbourne Water diversion licence meters are now equipped with data loggers.

Benefits apart from compliance include reduced labour costs in meter reading and improved monitoring of consumption demands and trends. The loggers also enable daily water usage information to be available to our customers via a web interface.

## FLOODING RESPONSE

Many parts of Victoria were hit hard by floods this year including much of Melbourne, which recorded its wettest summer on record.

Thankfully, the floods did not result in any loss of life. However, they created significant hardship for private property owners and major challenges for many authorities, including Melbourne Water.

The most severe storms and flooding occurred in early February 2011 with parts of Melbourne experiencing 1-in-500 year rainfall intensity. In addition to significant damage to residential, commercial and industrial properties, the stormwater surge caused extensive structural damage to riverbanks and surrounding infrastructure such as footbridges, paths, and in extreme cases, roads.

Stormwater also pushed a large volume of debris into rivers, including a vast quantity of litter that snagged on tree branches well above the normal water line across many kilometres of urban waterways.

Low-lying parts of the south-east were particularly badly affected. Many farmers in the Koo Wee Rup and Longwarry Flood Protection District, managed by Melbourne Water, were inundated. Subsequent investigations showed the 500 kilometres of drains running through the area performed well under the circumstances, but that no drainage system could have reasonably coped with the rainfall intensity experienced in the area. Importantly, nearby townships avoided significant flood damage.

Drainage infrastructure throughout the metropolitan area was severely tested by rainfall runoff amounts significantly in excess of their design capacity. Melbourne Water's 1,463 kilometre network of drains (in addition to 25,000 kilometres of drains managed by local

councils) performed well under the circumstances, as did our retarding basins and wetlands.

Despite a strong overall performance, the sheer intensity of the storms highlighted numerous areas for improvement in Melbourne's drainage infrastructure. We continue to work closely with local councils on ways to strengthen the system, particularly with climate change research suggesting more intense storms (but less rain overall) in future.

The clean-up from these floods involved months of work for Melbourne Water, including the removal of more than 2,000 cubic metres of rubbish and debris (about 250 truck loads) from waterways.

## Flood Management Strategy

Melbourne Water has made significant progress implementing its *Flood Management Strategy* including engaging local councils and the Victorian State Emergency Service on a program of developing 38 local government Flood Management Plans by 2013. This has involved work with 16 Councils so far, including nine in 2010/11.

We continued to make good progress on the Frankston Drainage Improvement Project, which will reduce the risk of flooding in Frankston's central activity district and help protect significant public infrastructure. Stage one, involving the construction of a 1.5 kilometre stormwater tunnel from Monash University to Kananook Creek, has been completed. More drains are being built in Frankston under Stage two of the project, which is progressing well. Stage three is in detailed design. This is the largest and most complex flood mitigation project undertaken by Melbourne Water with a cost of almost \$70 million.

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## Wet weather delays projects

Heavy rainfall during 2010/11 posed significant challenges and delays to project delivery across many sites. These ranged from delays to earthworks and piling works for several days, to suspending works on some sites for weeks.

The delays have affected construction of the Clayton Retarding Basin Wetland and work on the Dights Falls project has been impossible at times due to higher than normal flows in the Yarra River.

## Dights Falls project

Works to build a new weir and fishway at Dights Falls on the Yarra River in Abbotsford began in late 2010. The current weir is at the end of its useful life and is a barrier to the migration of native fish.

Dights Falls is an important Melbourne landmark dating to the early days of European settlement and the new weir's design takes these heritage values into account. Melbourne Water has worked closely with Heritage Victoria, the City of Yarra, the Wurundjeri tribe, river users and environment groups in designing the new weir and fishway.

## Clayton Retarding Basin Wetland

Works to increase the capacity of the Clayton Retarding Basin and construct a new wetland began in 2010 as part of a collaborative effort between Melbourne Water, the Federal Government and the Kingston City Council.

The project will harvest treated stormwater from the new wetland and use it to irrigate street trees, parks and sporting ovals. This is expected to save almost 100 million litres of drinking water a year – roughly the equivalent of 40 Olympic-size swimming pools.

Retarding basins protect against flash flooding by holding back water so that gutters and drains aren't overwhelmed. The works are expected to increase flood protection for more than 100 nearby properties.

## SAFER WORKING IN STORMWATER DRAINS

A near miss which resulted from a sudden and unexpected rise in water level while undertaking a routine inspection of a stormwater drain in 2009/10, has led to the implementation of a safer process for working in confined spaces.

A review of the incident identified several improvements which have been implemented. The changes have led to a greater focus on the likelihood of sudden and unexpected rise in water levels in drains and the improvements have been welcomed by field personnel.

Further discussions have led to the prototype development of an innovative device, which can be placed several hundred metres from the worksite and provide early warning of rising water levels to allow the personnel in the drain to leave the confined space safely.

## GUIDING URBAN GROWTH

### Developer works

Melbourne Water received \$52.8 million (\$44.3 million in 2009/10) in contributions from developers in 2010/11. These contributions are paid to Melbourne Water to fund infrastructure and water quality offset projects identified in development services schemes, and are required to provide a safe level of flood protection in developing areas and to protect the health of waterways.



It was another big year for capital expenditure in developer works, with \$68.8 million spent on 156 construction projects (\$52.5 million for 174 construction projects in 2009/10).

*Top: Flooding at Blackburn Retarding Basin*

*Above: Upgrade of Dights Falls weir on the Yarra River, Abbotsford*

Developers generated an additional \$23.3 million (\$22.0 million in 2009/10) of Melbourne Water assets, bringing the total asset value for the year to \$92.2 million.

We approved and implemented 16 new development services schemes to guide urban development and planning in urban growth areas to the north, west and south-east of Melbourne.

A major focus for the year has been our work with the Growth Areas Authority, local councils and the land development industry to ensure infrastructure is in place in new growth areas of Melbourne to provide flood protection, manage stormwater runoff, protect waterways and facilitate water sensitive urban design.

There have also been significant commitments made to meeting the requirements for having land ready for development and in managing the impacts of major infrastructure projects on our assets. These include the desalination pipeline - with 85 waterway crossings, and Peninsula Link road project - with 27 waterway crossings.