



**ACHIEVING SUSTAINABLE  
URBAN DEVELOPMENT  
2010/11 REPORT**

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MELBOURNE WATER'S  
WORK WITH THE  
DEVELOPMENT INDUSTRY

## FOREWORD

### MAKING WATER SENSITIVE URBAN DESIGN PART OF THE LANDSCAPE

Melbourne boasts the title of the world's most liveable city and on its fringe are four of the fastest-growing municipalities in Australia: Wyndham, Melton, Whittlesea and Casey.

Urban growth is continuing at a rapid rate and this presents us some challenges. Following 13 years of drought in Victoria, it is clear that a new approach to managing the water resources of our region in a sustainable way is paramount.

By working closely with councils and the development industry we are at the forefront of managing the increased volume of stormwater across Melbourne to protect property and our waterways.

Taking an integrated approach to water management – one that incorporates water sensitive urban design in residential and commercial precincts - is the key to sustainably managing our waterway corridors, protecting our natural ecosystems and meeting the community's expectations of flood protection.

Working collaboratively with the development industry and key stakeholders improves the preparation of Precinct Structure Plans and other master planning for new communities; looking at ways to treat, harvest and reuse stormwater for local uses.

These partnerships are helping to create liveable and sustainable urban spaces that the community wants. Together we are making Melbourne a water sensitive city.

**Chris Chesterfield**

General Manager, Waterways



\$92.2M

TOTAL DEVELOPER  
CONTRIBUTED ASSETS  
IN 2010/11

## INCOME

Melbourne Water received \$51.9 million from developers across the urban growth areas of Melbourne from over 183 active development services schemes (DSS). The Development Services Schemes that provided the greatest contributions are shown in the following table:

DEVELOPMENT SERVICES SCHEME	LOCATION	CONTRIBUTIONS RECEIVED (\$M)
COLLISON ROAD	CLYDE, CLYDE NORTH, CRANBOURNE EAST	5.71
EDGARS CREEK	EPPING, WOLLERT	4.02
CARDINIA ROAD DRAIN	OFFICER, PAKENHAM	3.82
POINT COOK	POINT COOK	2.71
PERRY ROAD	KEYSBOROUGH	2.49
KEYSBOROUGH SOUTH	KEYSBOROUGH	2.17
HALL ROAD	CRANBOURNE WEST	2.02
DOHERTYS DRAIN	RAVENHALL, TRUGANINA, LAVERTON	1.92
MERENDA SOUTH	MERENDA, SOUTH MORANG	1.86
TI-TREE CREEK	BERWICK, CRANBOURNE NORTH & EAST, CLYDE NORTH	1.80
DOREEN	DOREEN	1.78
DAVIS CREEK EAST	MOUNT COTTRELL, TARNEIT	1.59
LYNDHURST NORTH	DANDENONG SOUTH, LYNBROOK, HAMPTON PARK	1.22
SAYERS DRAIN	TARNEIT	1.15
LAVERTON CREEK	TRUGANINA, LAVERTON NORTH, RAVENHALL, DERRIMUT	1.10

## EXPENDITURE

In line with previous years, Melbourne Water reimbursed more to developers than what was received in contributions.

A total of \$68.9 million was reimbursed to developers constructing works on Melbourne Water's behalf.

The largest reimbursements were made in the following schemes:

DEVELOPMENT SERVICES SCHEME	LOCATION	REIMBURSEMENTS (\$M)
COLLISON ROAD	CLYDE, CLYDE NORTH, CRANBOURNE EAST	10.37
STONY HILL CREEK	CAROLINE SPRINGS, HILLSIDE, TAYLORS HILL	8.05
LAVERTON CREEK	TRUGANINA, LAVERTON NORTH, RAVENHALL, DERRIMUT	7.75
POINT COOK	POINT COOK	4.73
EDGARS CREEK	EPPING, WOLLERT	3.62
CARDINIA ROAD DRAIN	OFFICER, PAKENHAM	2.85
DOREEN	DOREEN	2.71
MERENDA CENTRAL	MERENDA	2.14
BAXTER WEST	BAXTER, FRANKSTON SOUTH	1.98
AITKEN CREEK	MICKLEHAM, CRAIGIEBURN	1.97
MERENDA SOUTH	MERENDA, SOUTH MORANG	1.73
PERRY ROAD	KEYSBOROUGH	1.59
DEEP CREEK SOUTH	PAKENHAM	1.53
BLACK FOREST ROAD	WERRIBEE, WYNDHAM VALE	1.42

## OUR WORK

Melbourne Water continues to work closely with the Growth Areas Authority, councils and the development industry on the preparation of Precinct Structure Plans (PSPs) for Melbourne's new growth areas. Melbourne Water is a leading agency in the incorporation of integrated water management into new growth area planning whilst ensuring flood and environmental protection.

Melbourne Water worked with a number of key stakeholders on integrated water management strategies including, Western Water on the Toolern PSP and the Department of Planning and Community Development on the Werribee Employment Precinct.

The Development Planning team with expertise in town planning, civil and environmental engineering, environmental science, natural resource management and geographical information systems collectively worked on 153 construction projects, prepared 16 new Development Services Schemes, reviewed 15 active DSSs and contributed to the financial review of 70 DSSs. All of which resulted in a total asset value for the 2010/11 year of \$92.2M, \$68.9M of which were reimbursable works.



## PUBLICATION UPDATES

Melbourne Water prepares a number of guidelines to assist developers in the design and construction of its assets. During 2010/11 the following guidelines were updated:

- › Constructed Wetlands Guidelines,
- › Guidelines for the use of MUSIC with new MUSIC rainfall templates, and
- › Guidelines for the Design and Assessment of Flood Retarding Basins.

## COST ESTIMATING RATES

Melbourne Water completed an industry-supported revision of its cost estimating rates. These rates are used to estimate future works to generate the total cost of development services schemes and the respective developer contribution rates. The revision takes into account changes in construction and material rates as well as land valuation. The review is important as these changes in estimates ensure that the contribution rates reflect the real cost of works and that developers are reimbursed appropriately.

Melbourne Water also completed an industry-supported review of its Stormwater Quality Offset rate which resulted in an increase in these rates. Melbourne Water encourages all new developers to incorporate stormwater quality measures into their development. However, where this is not achievable, the Stormwater Quality Offset rates provide a mechanism for developers who cannot achieve best practice stormwater quality standards for their development to pay a offset to Melbourne Water. The rates collected from the Stormwater Quality Offset charge are used to fund stormwater quality treatment elsewhere in the catchment.

## REVIEWED /NEW SCHEMES

Melbourne Water manages an annual program of creating new development services schemes to guide drainage infrastructure planning for new growth areas. Sixteen new development services schemes were implemented in 2010/11: Upper Gum Scrub Creek (Officer), Bunyip West; Mt Cottrell Road (Rockbank); Cherrys Creek (Derrimut, Laverton North); Alfred Rd (Werribee); Werribee West Drain, Pedder Street Drain (Werribee); Colemans Rd (Dandenong South); Taylors Creek (Wallan); Cranbourne West, Hall Road (Cranbourne West); Kayes Drain (Laverton North); Melton South, Abey Rd (Melton South); Ferris Rd (Melton South) and Exford Rd (Melton South).

Melbourne Water undertakes a review of active development services schemes to keep up with changes in the industry. Schemes are prioritised for review where they may be impacted by urban growth boundary movements, precinct structure planning or rezoning and changes to Melbourne Water policy or legislation. In 2010/11 fifteen DSSs were reviewed and the updated schemes approved for implementation: Black Flat Road (Whittlesea); Collison Road (Cranbourne East); Dohertys Drain (Truganina); Edgars Creek (Epping); Forsyth Road (Truganina); Keysborough South; Koo Wee Rup; Mernda Central; Mernda North; Mernda South; Perry Road (Keysborough); South Morang; Ti Tree Creek (Cranbourne East, Clyde North); Upper Hendersons Creek (South Morang) and Wilton vale Creek (Mernda).

## CHANGES IN CONTRIBUTION RATES

Increases to the contribution rates of DSSs during the 2010/11 year:

SCHEME	LOCATION	RATES PER HA	
		2009/10	2010/11
AITKEN CREEK	MICKLEHAM, CRAIGIEBURN	33,293	36,386
BAXTER WEST	FRANKSTON SOUTH, BAXTER	33,117	39,451
BOWEN ROAD	ASPENDALE GARDENS	37,564	50,465
BRAESIDE SOUTH	BRAESIDE	24,683	30,854
BROAD GULLY	DIAMOND CREEK	30932	38665
CARDINIA INDUSTRIAL	OFFICER, OFFICER SOUTH, PAKENHAM	54222	54626
CARDINIA RD	OFFICER, PAKENHAM	80589	88913
COLLARD DRIVE	DIAMOND CREEK	17204	18786
COLLISON ROAD	CRANBOURNE EAST, CLYDE, CLYDE NORTH	52280	65350
CRIB POINT	CRIB POINT	59073	69704
DEEP CREEK SOUTH	PAKENHAM	29444	32516
DERRIMUT	DERRIMUT, DEER PARK, LAVERTON NORTH	33121	37301
EASTERN DRAIN	PAKENHAM	42596	51764
EDGARS CREEK	EPPING, WOLLERT	32353	40441
EDRINGTON PARK	BERWICK	27296	30394
FINDON CREEK	EPPING, WOLLERT	50658	55724
FORSYTH ROAD	TRUGANINA, WILLIAMS LANDING	64643	80804
GOLF LINKS ROAD	NARRE WARREN	36978	48977
GORGE ROAD	SOUTH MORANG	34848	40725
HALLAM NORTH ROAD	ENDEAVOUR HILLS, NARRE WARREN NORTH, LYSTERFIELD SOUTH	25205	27659
HALLAM SOUTH	HALLAM, HAMPTON PARK	26620	38549
HOGANS ROAD	TARNEIT	80167	89215
KENNEDY CREEK	PAKENHAM	42612	51796
KEYSBOROUGH SOUTH	KEYSBOROUGH	82957	91253
KINGS CREEK	HASTINGS	24583	30862
KINLORA	SOMERVILLE	34584	42009
KOO WEE RUP	KOO WEE RUP	23560	33469
LANGWARRIN SOUTH	LANGWARRIN, LANGWARRIN SOUTH	20478	25662
LAURIMAR	DOREEN	40824	45943
LAVERTON CREEK	RAVENHALL, TRUGANINA, LAVERTON NORTH	50104	62630
LOWER CARRUM DOWNS	CARRUM DOWNS	41660	45286
LYNDHURST	LYNDHURST, CRANBOURNE WEST	43818	47108
LYNDHURST NORTH	DANDENONG SOUTH, LYNBROOK, HAMPTON PARK, LYNDHURST	47200	59000
LYNDHURST SOUTH	HAMPTON PARK, CRANBOURNE, CRANBOURNE NORTH	29392	32866

SCHEME	LOCATION	RATES PER HA	
		2009/10	2010/11
MCGREGOR RD	PAKENHAM	28383	28448
MERENDA CENTRAL	MERENDA	39526	49408
MERENDA NORTH	MERENDA	62276	72029
O'NEIL ROAD	BEACONSFIELD	52528	69704
ORDISH ROAD NORTH	DANDENONG SOUTH	24562	30703
ORDISH ROAD SOUTH	DANDENING SOUTH, BANGHOLME	23588	35393
PAKENHAM CREEK	PAKENHAM	42642	51857
PAKENHAM WEST	PAKENHAM	22693	26755
POTTS ROAD WEST	LANGWARRIN	33078	44978
PRINCES DOMAIN	PAKENHAM	29444	32516
ROCKLEIGH PARK	NARRE WARREN NORTH	18921	21828
ROXBURGH PARK (COOPERS ROAD)	ROXBURGH PARK, SOMERTON	20699	25874
ROXBURGH PARK (CRAIGIEBURN SOUTH)	ROXBURGH PARK, CRAIGIEBURN	20699	25874
ROXBURGH PARK (PATULLOS LANE)	ROXBURGH PARK, SOMERTON, CRAIGIEBURN, GREENVALE	20699	25874
SAYERS DRAIN	TARNEIT	55024	68780
SKELETON CREEK EAST	TRUGANINA	19395	24244
SKELETON CREEK SOUTH	POINT COOK	9335	11669
SOMERVILLE	SOMERVILLE	20167	26770
SOUTH MORANG	MILL PARK, SOUTH MORANG	49076	51275
STEELE CREEK	KEILOR PARK, TULLAMARINE	36919	48477
TARNEIT CREEK	TARNEIT	26644	33305
TAYLORS HILL WEST	PLUMPTON	26047	28652
TI-TREE CREEK	NARRE WARRAN SOUTH, BERWICK, CRANBOURNE NORTH, CLYDE NORTH, CRANBOURNE EAST	27536	34420
UPPER CARRUM DOWNS	CARRUM DOWNS, SKYE	29213	40460
UPPER HENDERSONS CREEK	SOUTH MORANG	37385	46731
WARRINGINE CREEK	HASTINGS	28359	36073
WILTONVALE CREEK	SOUTH MORANG	47221	59026

Decreases to the contribution rates of DSSs during the 2010/11 year:

SCHEME	LOCATION	RATES PER HA	
		2009/10	2010/11
BERWICK SOUTH	NARRE WARREN, BERWICK	21,322	18,160
CRANBOURNE CENTRAL	CRANBOURNE	19,696	17,376

## MAJOR INFRASTRUCTURE

Melbourne Water provides input into a number of high profile large-scale infrastructure works such as highways, bridges, pipelines and rail projects in 2010/11.

Working with the project proponents through the strategic/ conceptual stages through to detailed designs, the team ensures that these projects do not detrimentally affect our waterways, main drainage, sewerage and water supply infrastructure. Key projects for 2010/11 have been:

### 1/ VICTORIAN DESALINATION PROJECT

The Victorian Government's most significant water infrastructure project, the desalination project, comprises 84km of connecting pipelines to Melbourne Water's Cardinia Reservoir. The pipeline crosses 80 waterways, including 25 major drainage crossings. The rate of design and construction, coupled with above average rainfall resulted in a number of challenges for the project, and highlighted the environmental and floodplain sensitivities of waterways. Another challenge encountered was the high-voltage underground power supply cabling undertaken in parallel for most of the pipeline alignment.

### 2/ SOUTH MORANG RAIL EXTENSION

Spanning from Keon Park to South Morang in Melbourne's north, the rail extension project features five kilometres of duplicated rail, a 3.8km extension to the metropolitan rail network and three new railway stations.

The extended section has seen clear span bridges constructed over Darebin Creek and Hendersons Drain and a multi-celled culvert with a shared user path at McDonalds Drain. Protection to Melbourne Water's Preston Reservoir Water Supply Main at the new Epping railway station required extensive detailed design and construction methodologies to be developed.

The project also incorporates Water Sensitive Rail Design features – a first for a project of this nature. The project has not been without its challenges: the deep excavation required as part of the construction of the South Morang railway station intercepted saline groundwater and an innovative infiltration-well network solution was implemented to manage the long-term impacts of groundwater.

### 3/ PENINSULA LINK

Peninsula Link is approximately 25km of new freeway in the south-east of Melbourne and links East Link and the Frankston freeway to the Mornington Peninsula freeway. This project involved 27 waterway crossings with floodplain management and river health impacts being a major focus. The freeway alignment also intersects with Melbourne Water's south eastern outfall sewer and Mornington water supply infrastructure.

### 4/ MELBOURNE TO GEELONG PIPELINE

This is a 59km water supply pipeline project connecting Geelong to Melbourne's water supply network at Cowies Hill in Werribee. The connecting pipeline route involves major waterway crossing points including Werribee and Little River. Detailed environmental impact assessments, site environmental management and waterway rehabilitation plans have framed the main requirements of this project.



## 5/ M80 METROPOLITAN RING ROAD UPGRADE

The M80 or Metropolitan Ring Road is undergoing major upgrade works over its 38 kilometre length. The project is split into five major contract delivery segments and the project is approximately two years into a five year construction program. Waterway crossing locations include Kororoit, Steele, Merlynston and Edgars Creeks.

Maintaining flood storage in parallel with construction has featured at the Jacana Retarding Basin beside Moonee Ponds Creek and also at the Jack Roper Reserve beside Merlynston Creek. Water Sensitive Road Design opportunities across each of the contract sections are being sought to ensure that 'project wide' water quality outcomes are achieved.

## 6/ ANTHONY'S CUTTING – WESTERN HIGHWAY UPGRADE AT BACCHUS MARSH

The Western Highway upgrade involves a major highway realignment that crosses ravine-like areas of Djerriwarrh and Pyrites Creeks, east of Bacchus Marsh. At both locations, negotiations during the design phase achieved span bridges to maintain a generous riparian thoroughfare and floodway. Direct seeding of native vegetation and an integrated rabbit management program feature in the overall rehabilitation program.



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## PROJECT HIGHLIGHTS

### FALLING WATER ESTATE, PAKENHAM

The development of the Falling Water estate in Pakenham enabled some 420 metres of a highly degraded Kennedy Creek to be rehabilitated and rejuvenated. At a project cost of \$860,000, Kennedy Creek's physical profile was redesigned to form a meandering waterway and native grasses and shrubs now replace overgrown blackberry bushes.

### COUNCIL WETLANDS IN ABERFELDIE

Melbourne Water assisted Moonee Valley City Council with the technical design and construction surveillance of a wetland built at the outlet of Melbourne Water's Hoffmans Road Main Drain in Afton Street, Aberfeldie.

The stormwater treatment system is designed so that low flows from the main drain are diverted into the wetland where pollutants such as nitrogen and phosphorous are removed before the stormwater is discharged into the Maribyrnong River. Moonee Valley City Council is using the treated stormwater to irrigate the surrounding parkland.

### REMODELLING LAVERTON CREEK

The Deer Park bypass has encouraged large scale industrial development to be built along Robinsons Road in Ravenhall. The increase in development has necessitated the remodelling of two kilometres of Laverton Creek, a significant waterway through this industrial precinct. The \$5 million remodelling works included major culvert crossings at Robinsons and Riding Boundary Roads. The works primarily involve the construction of an earthen channel, however opportunities to include ponds and landscaping has been incorporated into the design that is sympathetic to the Western Plains of Melbourne.



## FUTURE PROJECTS

### REGIONAL RAIL PROJECT

Rail upgrades from Southern Cross Station to Deer Park and 28 kilometres of rail network, providing an improved Geelong rail connection from Deer Park to Wyndham Vale. Melbourne Water played a significant role in making provision for future waterway/railway crossing needs.

### WEST LINK

The project will improve access for heavy vehicles to the Port of Melbourne and provide a long-term alternative to the West Gate bridge to western Melbourne. Our focus has been in resolving conflicts on matters such as our floodplains, main sewer and water supply networks.

### DINGLEY ARTERIAL ROAD CONCEPT

Linking Warragul and Springvale Roads, the Dingley Arterial dissects market-gardening, residential, parklands and sand mining areas of Melbourne's south-east. The conceptual design has included a strategy to integrate waste-water reclamation and re-use as well as renewal of drainage lines.

## ABOUT US

Melbourne Water is owned by the Victorian Government. We manage water supply catchments, treat and supply drinking and recycled water, remove and treat most of Melbourne's sewage, and manage waterways and major drainage systems in the Port Phillip and Westernport region.

We consider social, environmental and financial effects and short-term and long-term implications in all our business decisions.

We provide services to customers and our key stakeholders include government, regulators, other water businesses, land developers, suppliers and the community. These customers and stakeholders and our other strategic partners, including alliance colleagues and research organisations, help us achieve our objectives.

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SCHEMES



Melbourne Water welcomes your comments on this report. Please send comments to Raffaella Crupi at [raffaella.crupi@melbournewater.com.au](mailto:raffaella.crupi@melbournewater.com.au)

More information on Development Planning and Melbourne Water can be found on the Planning and Building webpage at [melbournewater.com.au](http://melbournewater.com.au)

The Melbourne Water Land Development Manual outlines the requirements of developers when providing drainage infrastructure in new development.

The Manual is intended to provide developers and their agents with information that will enable self-assessment of most Melbourne Water standard requirements.

The manual can be found at [ldm.melbournewater.com.au](http://ldm.melbournewater.com.au)

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