

**Report to the Future Melbourne (Environment) Committee**

**Agenda item 6.3**

**Total Watermark – City as a Catchment, 2014 update**

**11 February 2014**

**Presenter:** Krista Milne, Manager Sustainability

**Purpose and background**

1. The purpose of this report is to seek endorsement of Total Watermark – City as a Catchment, 2014 update (the Strategy) attached to this report as Attachment 2.
2. The Strategy is a Council Plan 2013–17 first year action and updates an existing strategy last updated in 2009.

**Key issues**

3. The Strategy focuses on how City of Melbourne will work with the water sector to achieve integrated water cycle management and actions the city will lead on. It is a key strategy delivering Council's vision to be a bold, inspirational and sustainable city and outlines:
  - 4.1 The role of the City of Melbourne and other institutions in water management in the municipality of Melbourne.
  - 4.2 Progress since the last update was released.
  - 4.3 The City of Melbourne's approach to managing water, key initiatives it will undertake and how it will work with the water sector on the following issues:
    - 4.1.1. climate change adaptation and flood
    - 4.1.2. water for liveability
    - 4.1.3. water for the environment
    - 4.1.4. water use.
4. The Strategy has been developed with extensive stakeholder engagement including three stakeholder workshops, an external reference group and individual meetings with key government and commercial decision makers and non-government organisations (refer Attachment 4).
5. The outcome of extensive community and stakeholder consultation was that the majority supported the Strategy with minor adjustments (refer Attachment 3).
6. The City of Melbourne commitments in the Strategy are aligned with the outcomes, priorities and actions in the Council Plan 2013–17 and Annual Plan. Any additional budget required for the implementation will occur through the normal budget processes.

**Recommendation from management**

8. That the Future Melbourne Committee:
  - 8.1 Endorses Total Watermark - City as a Catchment, 2014 update.
  - 8.2 Authorises the Director City Planning and Infrastructure to make any further minor editorial changes to the Strategy prior to publication.

**Attachments:**

1. Supporting Attachment
2. Total Watermark – City as a Catchment, 2014 Update
3. Total Watermark - Community consultation report
4. Total Watermark -Stakeholder engagement summary

## Supporting Attachment

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### Legal

1. There are no legal implications associated with the Strategy.

### Finance

2. The Strategy encompasses a number of large capital expenditures that will result in significant commitment of capital budgets over the long term in order to ensure that Council is addressing one of its key long term challenges, climate change.
3. The City of Melbourne commitments in the strategy are aligned with the outcomes, priorities and actions in the Council Plan 2013–17 and Annual Plan. Any additional budget required for the implementation will occur through the normal budget processes.

### Conflict of interest

4. No member of Council staff, or other person engaged under a contract, involved in advising on or preparing this report has declared a direct or indirect interest in relation to the matter of the report.

### Stakeholder consultation

5. The stakeholder engagement has informed the vision and objectives of this update of the strategy and the actions the city should take as well as action others will take to achieve the goal.
6. Public consultation on the draft strategy was held during October and November 2013, in conjunction with consultation on the draft update of Zero Net Emissions Strategy (refer Attachment 3).
7. Attachment 4 outlines the organisations that have had active involvement in the development of the Strategy.

### Relation to Council policy

8. Total Watermark – City as a Catchment is critical to delivering on the Council's visions of a bold, inspirational and sustainable city and in particular the Eco-City Goal. The Strategy articulates a plan for a liveable city that is adapted to climate change. Council's role to share knowledge and creative solutions is important to achieve the goals of the Strategy.

### Environmental sustainability

9. The Strategy articulates how City of Melbourne and the water sector can enhance the environment through adopting integrated water cycle management.

# TOTAL WATERMARK- CITY AS A CATCHMENT

## UPDATE 2014



**'CREATING A HEALTHY CITY  
IN A HEALTHY CATCHMENT'**











**CITY OF MELBOURNE**



# AN ECO CITY

We provide solid foundations for the sustainability of Melbourne's communities. We embrace the unfamiliar if it helps us achieve our ambitions. We continue to encourage our community to take positive actions and we lead by example locally, nationally and globally.

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To find out how you can participate in the decision-making process for City of Melbourne's current and future initiatives, visit [melbourne.vic.gov.au/getinvolved](https://melbourne.vic.gov.au/getinvolved)

# STRATEGY SNAPSHOT

**Total Watermark – City as a Catchment is our plan for integrated water cycle management for the next four years.**

Our vision is a healthy city in a healthy catchment. Seeing our city as a catchment means that we recognise the important roles of the natural and man-made catchments, including roads, roofs and impermeable surfaces. We want the whole of Melbourne’s community – residents, workers and businesses alike, to think about water and its role in our future, to help create a healthy city in a healthy catchment.

The water security pressures caused by Melbourne’s recent 13-year drought have fundamentally changed the way we use water – in our homes, offices and public open spaces, for recreation and for commercial and industrial purposes.

The impact of flooding has necessitated upgraded drainage infrastructure and increased community resilience. The need to better manage water has led to some ingenious and cutting-edge water capture and recycling techniques being implemented by the private sector, government, residents and City of Melbourne. It has also seen the development of an urban water-focused Victorian Government body, the Office of Living Victoria.

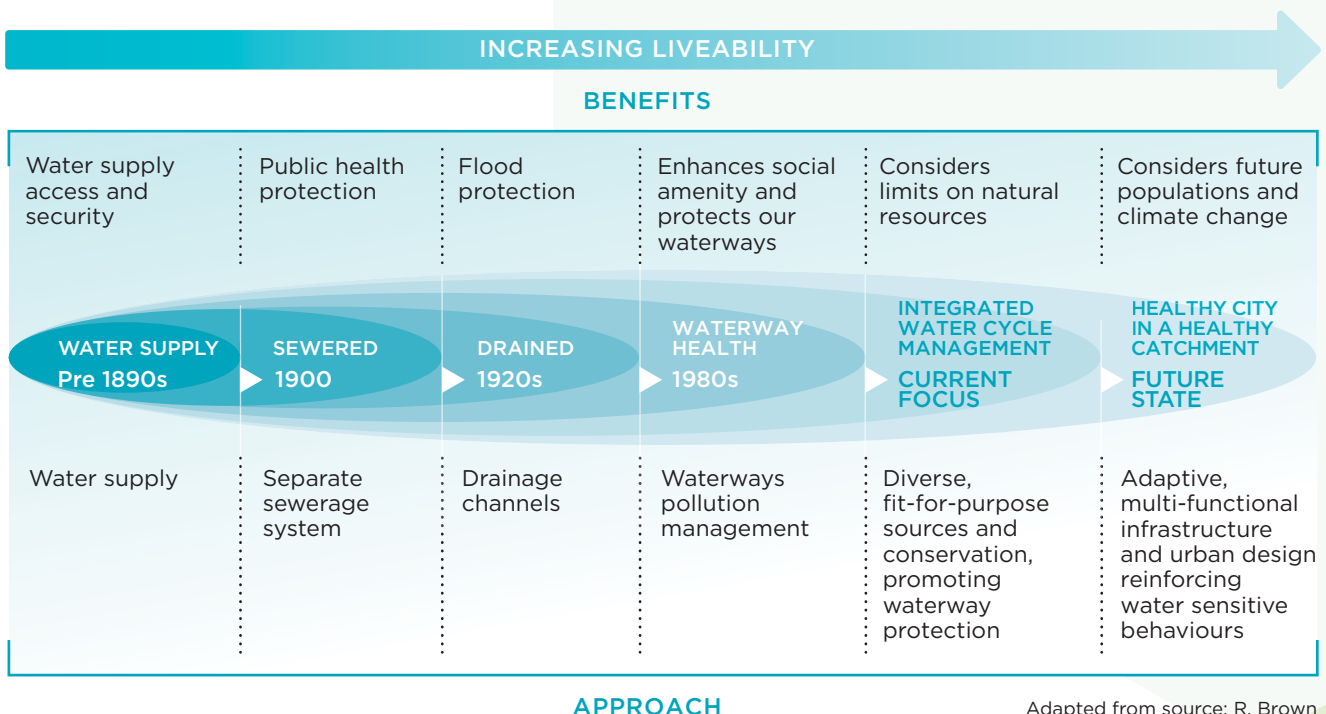
**City of Melbourne practices integrated water cycle management. This is the coordinated management of all components of the water cycle including water consumption, rainwater, stormwater, wastewater and groundwater, to secure a range of benefits for the wider catchment.**

## Context

Despite significant progress towards making Melbourne a healthy city in a healthy catchment, there is still work to be done. As a drainage authority and one of the biggest water users in the municipality, City of Melbourne has a leadership role to play in continuing to implement integrated water cycle management. As the climate changes and we have less but more intense bursts of rainfall, we need to be clever about how we design our city to ensure that we use the right water for the right purpose, while minimising flood risk. The need to maintain Melbourne’s liveability is another key challenge making integrated water cycle management vital.

This strategy is part of City of Melbourne’s work to become one of the world’s most sustainable cities. We know that a successful future depends on understanding the risks that climate change poses, reducing our impact and becoming more resilient.

As part of this, our goal is for Melbourne to be carbon neutral by 2020, as outlined in our *Zero Net Emissions by 2020 – 2014 update*. Other key strategies referenced in *Total Watermark – City as a Catchment* include our: *Climate Change Adaptation Strategy, Urban Forest Strategy, Open Space Strategy, Urban Ecology and Biodiversity Strategy and the Municipal Strategic Statement*.



Adapted from source: R. Brown

## Total Watermark – City as a Catchment engagement process

- In developing this strategy we collaborated with a broad range of partners and water sector organisations including:
  - » Water authorities
  - » Victorian Government departments
  - » Property developers
  - » Regulators
  - » Research bodies and universities
  - » International cities networks.
- From the conception of the strategy, over 15 organisations helped to identify the focus areas, issues and challenges to be addressed. We then consulted further about the actions needed to achieve our objectives and targets.
- An external reference group of leaders in the water sector also provided input and guidance.
- We ran a six-week community consultation, during which community members had the opportunity to provide feedback on the draft document.

## Focus areas

This strategy builds on existing knowledge and successes from our 2002 and 2009 *Total Watermark* strategies. It addresses the following areas:

- 1. Climate change adaptation and flood:** a resilient and safe city that is adapted to current and future extreme weather events.
- 2. Water for liveability:** a water cycle that supports the health, wellbeing and enjoyment of everyone who lives, works, visits and plays across and beyond the municipality of Melbourne.
- 3. Water for the environment:** water managed for biodiversity, healthy public open spaces and clean waterways.
- 4. Water use:** efficient use of fit-for-purpose water contributes to the improved sustainability of Melbourne’s water supply system.

**Fit-for-purpose water use prioritises the appropriate quality of alternative water sources for different demands. The closer the match in the quality of the water to the level needed for end use, the less treatment is required. Reducing water treatment is both energy and cost efficient.**

## Targets

Given the refocusing of Melbourne's water sector from conservation to integrated water cycle management, our 2009 targets have been revised. The table below outlines our new targets and objectives.

Section	Objectives	Progress will be measured in terms of:
<b>Climate change adaptation and flood</b>	<ul style="list-style-type: none"> <li>Adaptation and flood risk embedded into planning process.</li> <li>The Melbourne municipality has an aware and prepared community.</li> </ul>	<ul style="list-style-type: none"> <li>The level to which climate change adaptation is incorporated into urban planning initiatives.</li> <li>Level of awareness of residents and business about climate change and flood risks.</li> </ul>
<b>Water for liveability</b>	<ul style="list-style-type: none"> <li>Water and liveability embedded in planning processes.</li> <li>Access to waterways and public open spaces help support a healthy population.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of City of Melbourne's <i>Open Space Strategy</i>.</li> <li>Increased frequency and diversity of water-based public activity.</li> </ul>
<b>Water for the environment</b>	<ul style="list-style-type: none"> <li>Our major waterways are healthy and clean.</li> <li>Soil moisture supports a healthy urban forest.</li> <li>Optimise stormwater quality.</li> </ul>	<ul style="list-style-type: none"> <li>Health of waterways (measured by Melbourne Water).</li> <li>Decreased runoff (modelled data).</li> <li>Increased infiltration (modelled data).</li> </ul>
<b>Water use</b>	<ul style="list-style-type: none"> <li>Optimise fit-for-purpose water use.</li> <li>Water supply infrastructure is planned for current and future demand.</li> </ul>	See below

Section	2018 targets	2030 targets
<b>Water use</b>	<p><b>Water use</b></p> <ul style="list-style-type: none"> <li>Council: 30% of all water use sourced from alternative water sources.</li> <li>Municipal: 8% of all water use sourced from alternative sources.</li> </ul>	<p><b>Water use</b></p> <ul style="list-style-type: none"> <li>Council: 50% of all water use sourced from alternative water sources.</li> <li>Municipal: 20% of all water use sourced from alternative sources.</li> </ul>
<b>Water for the environment</b>	<p><b>Water quality</b></p> <ul style="list-style-type: none"> <li>20% reduction in Total Nitrogen contributed to the waterways from the municipality of Melbourne's catchment (baseline year 2000).</li> </ul>	<p><b>Water quality</b></p> <ul style="list-style-type: none"> <li>30% reduction in Total Nitrogen contributed to the waterways from the municipality of Melbourne's catchment (baseline year 2000).</li> </ul>

Our municipal targets and objectives fit within the water sector's broader indicators and objectives for the Melbourne metropolitan area.



### Office of Living Victoria's Melbourne's Water Future objectives

- A community engaged in whole-of-water-cycle management
- Suburbs – old and new – designed with water in mind
- Resilient water systems
- Improved waterways and bays
- Reduced inefficiency and waste
- Accelerated innovation and world recognition of expertise

### Melbourne Water waterway health indicators (baseline year 2007)

Middle and lower Yarra River:

- Improve water quality from moderate to good condition
- Improve vegetation from poor to good condition

Moonee Ponds Creek:

- Improve water quality from poor to moderate condition
- Improve vegetation from very poor to poor condition

Maribyrnong River:

- Improve habitat and stability from good to excellent condition
- Improve vegetation from poor to moderate condition
- Improve river flow from poor to moderate condition

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As well as meeting our objectives and targets, we will work with the water sector to implement several major projects to reduce flood risks and improve our integrated water cycle management.

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### Flagship projects

Over the next four years, City of Melbourne will:

#### Southbank and Albert Park Lake

Work with Parks Victoria, the City of Port Phillip, Melbourne Water and the Office of Living Victoria to investigate and potentially deliver a project that aims to reduce flood risks in the catchment, including Southbank, and provide an alternative water resource for the surrounding parklands including Fawkner Park.

#### Elizabeth Street catchment

Work with Melbourne Water and key landowners such as the University of Melbourne and RMIT, to investigate the opportunities to reduce the flood risk in Elizabeth Street. This investigation will involve modelling the effects of interventions, including rainwater harvesting on private land, on the flood extents of 100 year, 20 year, 10 year and 5-year storm events.

#### Integrated climate adaptation model

Develop a Geographic Information System (GIS) based model in collaboration with the Office of Living Victoria. It will be a municipal wide model that combines many layers of data including drainage, flood, land use, thermal imaging and soil type in conjunction with climate data and projections. We will then introduce integrated water cycle management interventions to the model to quantify their impacts and prioritise these interventions.

# The role of water in a healthy Melbourne.

**City of Melbourne is committed to practising integrated water cycle management.**

The strategy; *Total Watermark* - City as a Catchment, adopts sustainable water management practices to build a healthy city in a healthy catchment.

As a drainage authority and one of the biggest water users in the municipality, City of Melbourne has a leadership role to play in continuing to implement integrated water cycle management.

A city's strategies and systems for water management contribute to biodiversity, carbon sequestration and reduction of urban heat island effects.

**Fit-for-purpose** water use prioritises the appropriate quality of alternative water sources for different demands. The closer the match in the quality of the water to the level needed for end use, the less treatment is required. Reducing water treatment is both energy and cost efficient.

**Integrated water cycle management** is coordinated management of all components of the water cycle including water consumption, rainwater, stormwater, wastewater and groundwater, to secure a range of benefits for the wider catchment.

**City as a catchment** is an approach supporting the creation of a water sensitive city. Our vision is of a healthy city in a healthy catchment. Seeing our city as a catchment means that we recognise the important role and linkages of the natural and man-made catchments.

## There are four key areas of focus for City of Melbourne in the Total Watermark Strategy:



### Climate change adaptation and flood

Taking measures to respond to the actual or expected changes in climate to minimise their impact. These measures reduce the vulnerability of the local natural and human systems (including water) to the effects of climate change by increasing the systems' resilience to it.



### Water for liveability

Improving and maintaining the wellbeing of our community through the many characteristics that contribute to making Melbourne a place where people want to live. This relates to economics, planning, health, community and development factors.



### Water for the environment

Managing our key waterways (Yarra River, Maribyrnong River, Moonee Ponds Creek) and their current state/health.



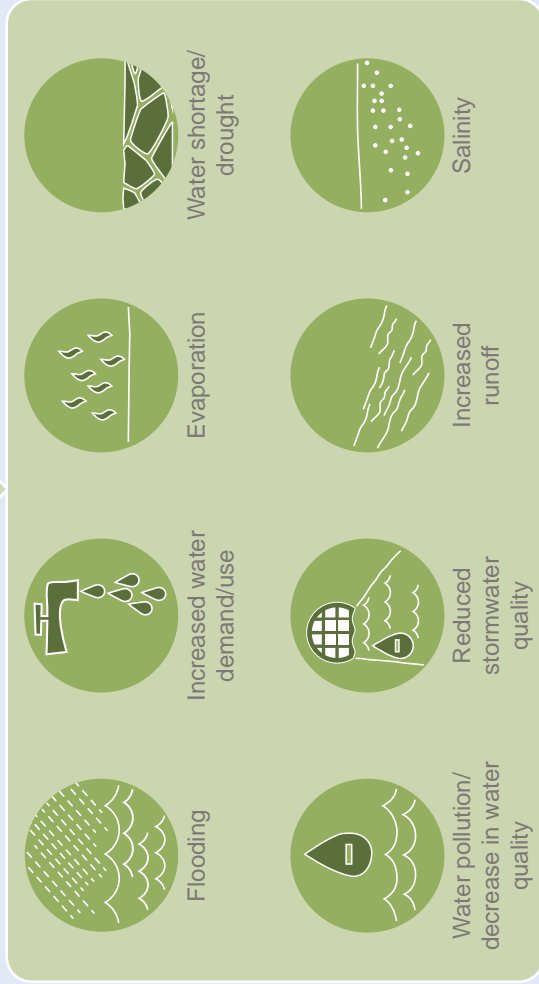
### Water use

Ensuring adequate fit-for-purpose water supply for everyone.

# How is water management linked to...

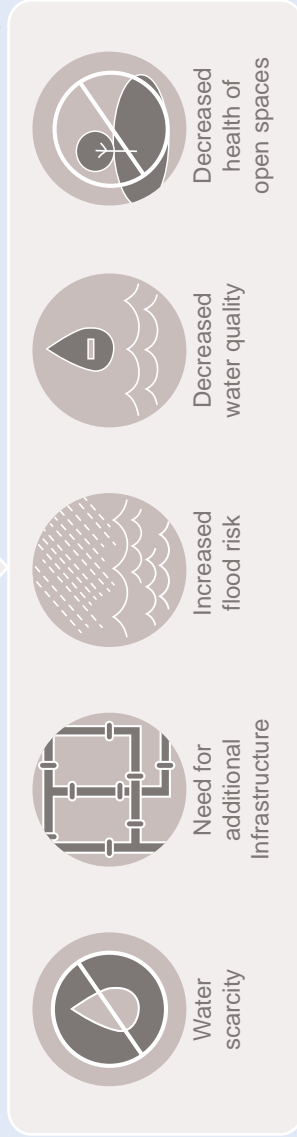
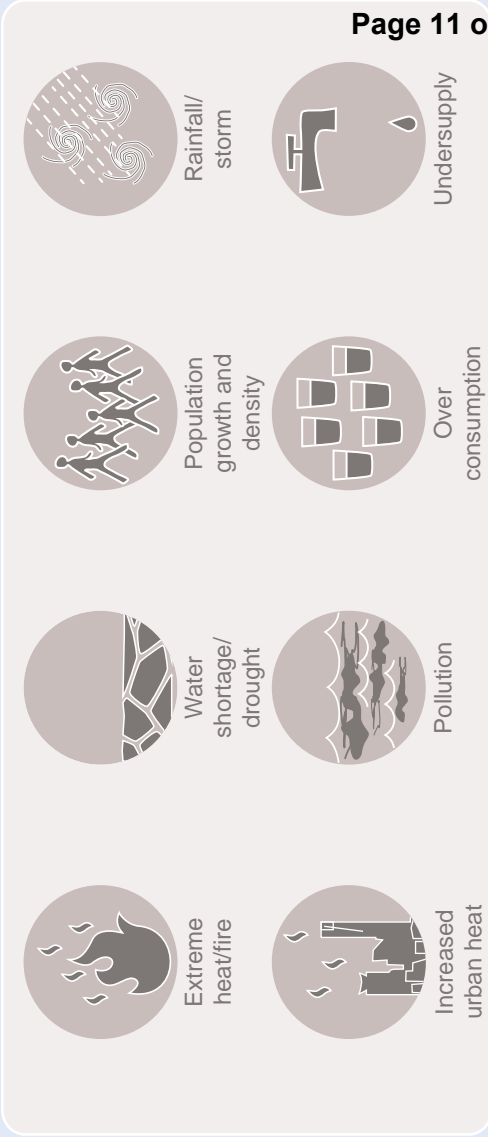
## Climate change

The impacts of climate change can affect the amount, quality and flow of Melbourne's water now and into the future which in turn affects our lives and the environment.

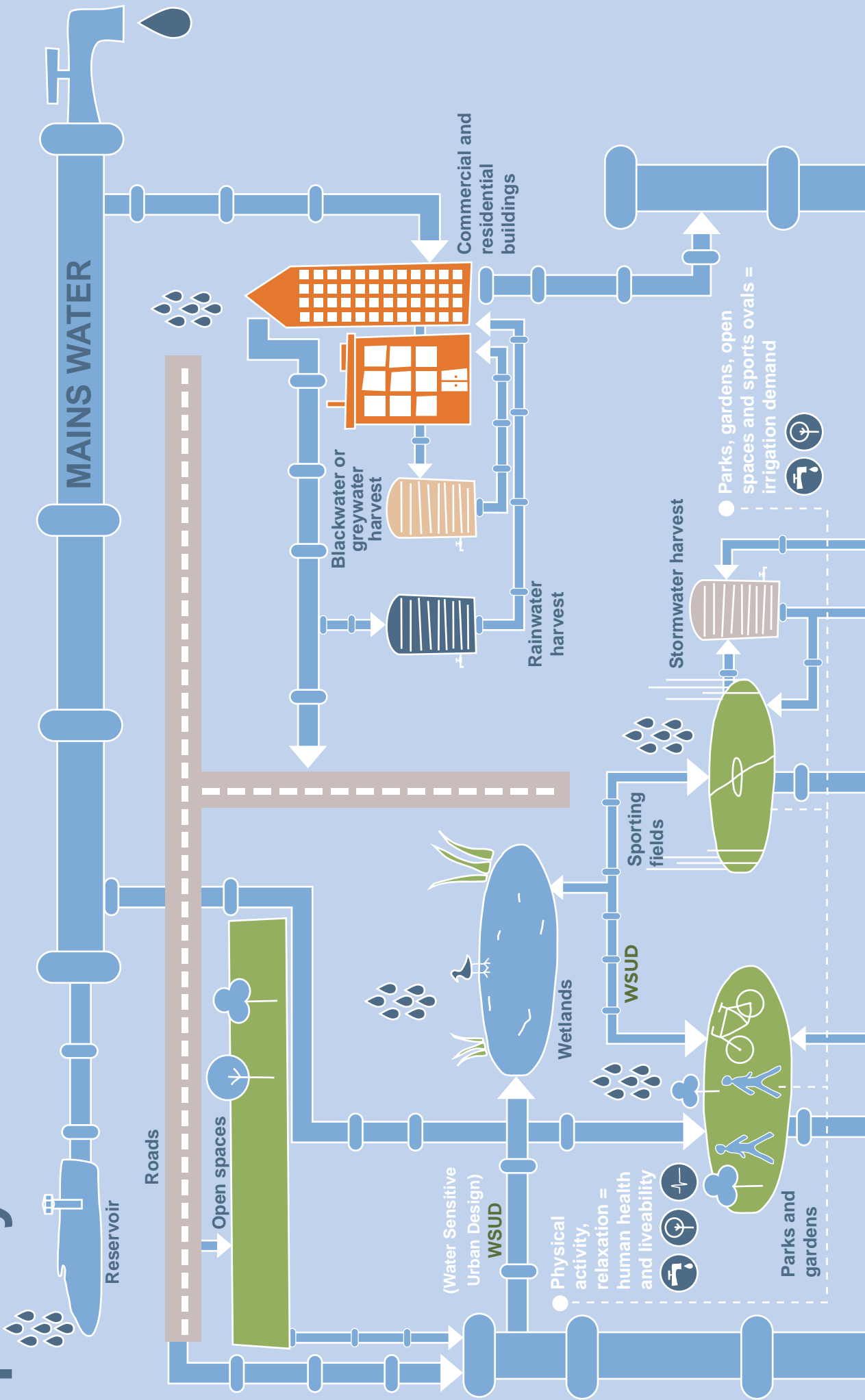


## Health and liveability

To maintain health and liveability in Melbourne we must have clean, affordable water that is available for use by people and the environment.

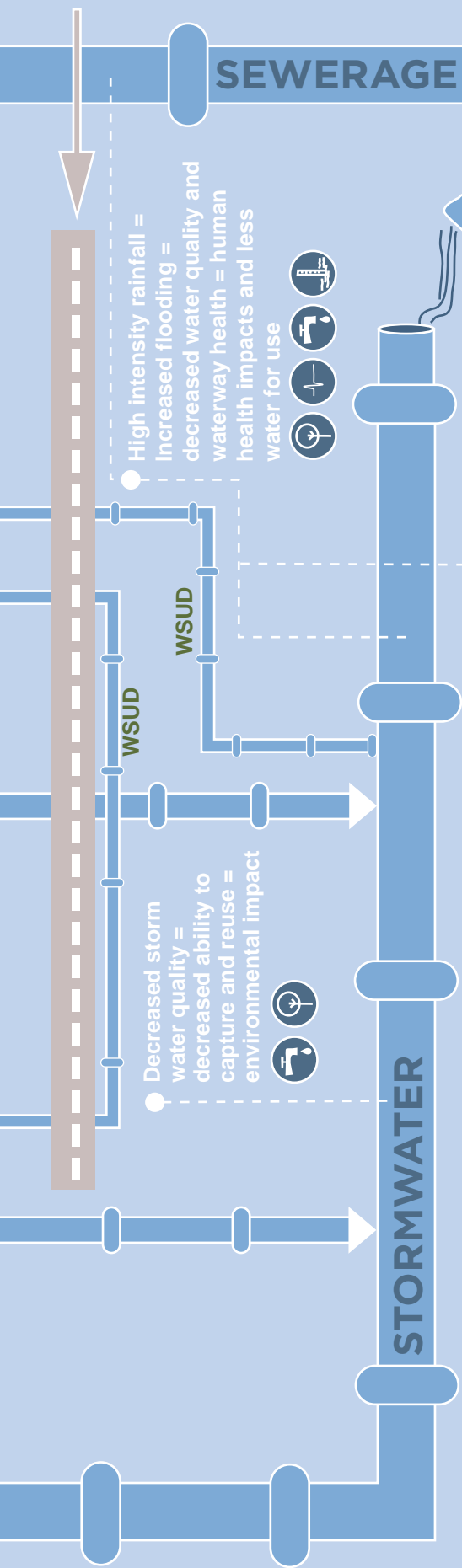


# Melbourne's water system is complex with many components affecting the amount, quality and flow of water.



**Did you know...?**

Melbourne has approximately 280km of drains and 13,500 water pits. Our water infrastructure has to compete for space alongside electrical, telecommuni-cations and gas infrastructure, as well as existing stormwater pipes and even some heritage infrastructure.



# This is how we are using water in Melbourne

Who uses the water?



What are the types of water we use?

- Potable** (Yellow bucket): Water for drinking or ingestion purposes.
- Recycled water** (Light green bucket): Water from an outflowing stream (like wastewater and stormwater) that is treated for further use.
- Stormwater** (Brown bucket): Rainfall runoff from all surfaces including roads and pavements.
- Greywater** (Orange bucket): Reusable water from the laundry, kitchen (but not the toilet).
- Blackwater** (Dark grey bucket): Water from a toilet or kitchen sink which requires significant treatment before reuse.
- Wastewater** (Light green bucket): Used water that is no longer fit for purpose.
- Sewage** (Brown bucket): Everything that goes down the toilet and kitchen/laundry/bathroom sinks as well as trade waste.
- Groundwater** (Dark green bucket): Water held underground in the soil or in pores and crevices in rock.

High intensity rainfall = Increased flooding = decreased water quality and waterway health = human health impacts and less water for use



Decreased storm water quality = decreased ability to capture and reuse = environmental impact



Sea level rise = more saline rivers and regular flooding.



Rivers and creeks



**Greywater**  
Reusable water from the laundry, kitchen (but not the toilet).



**Stormwater**  
Rainfall runoff from all surfaces including roads and pavements.



**Recycled water**  
Water from an outflowing stream (like wastewater and stormwater) that is treated for further use.



**Potable**  
Water for drinking or ingestion purposes.



**Wastewater**  
Used water that is no longer fit for purpose.



**Sewage**  
Everything that goes down the toilet and kitchen/laundry/bathroom sinks as well as trade waste.



**Groundwater**  
Water held underground in the soil or in pores and crevices in rock.

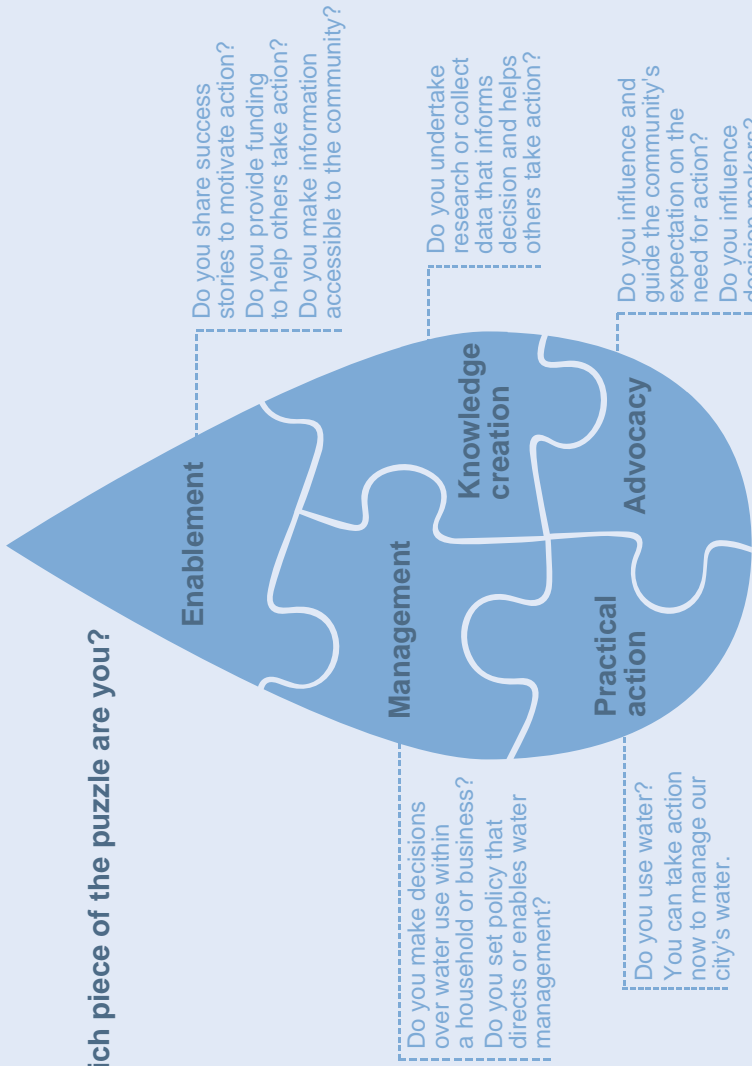
Unhealthy waterways or less water in the environment = recreation and amenity impacts = decreased liveability.



Port Phillip Bay

# Working together to create a healthy city in a healthy catchment.

Which piece of the puzzle are you?



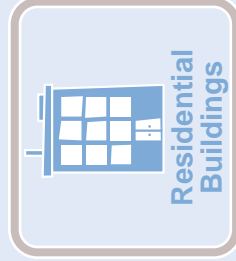
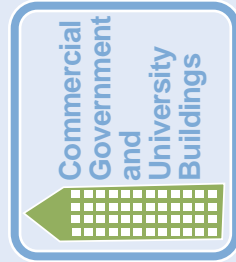
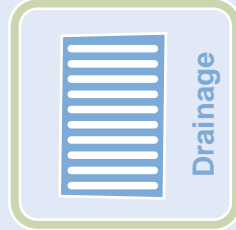
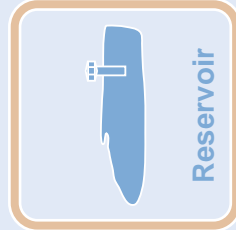
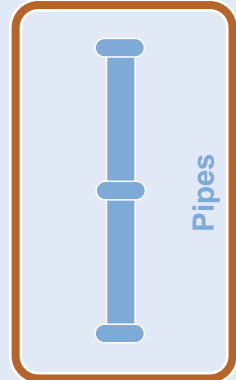
**Planning influences development and land use** across the municipality of Melbourne and therefore can have an impact on water management. To reduce the impact on water in the environment all planning and development decisions must take into account the following:

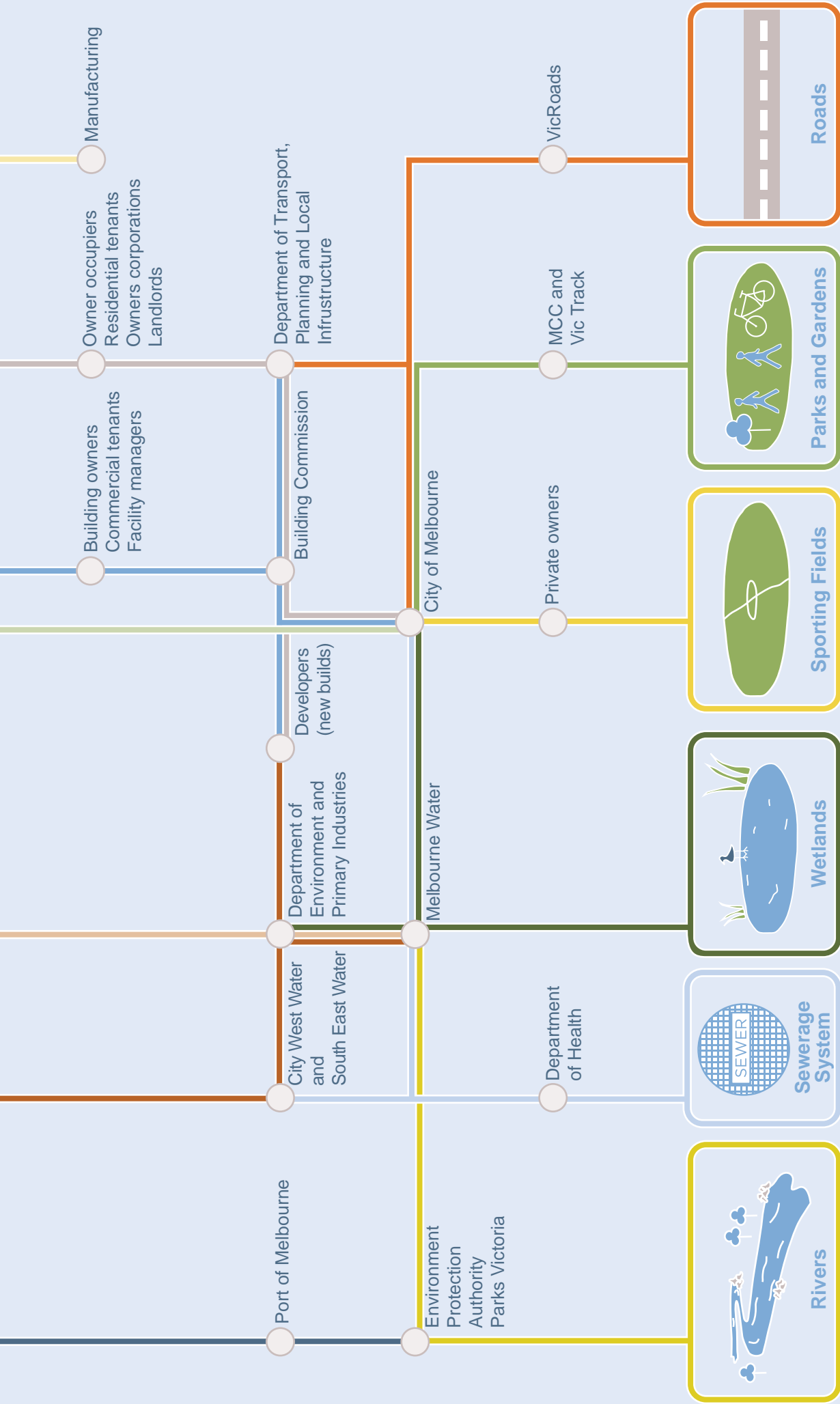
- Coastal inundation and erosion
- Floodplain management
- Catchment planning and management
- Water quality
- Water conservation
- Water supply, sewerage and drainage
- Stormwater
- Environmentally sustainable development
- Natural assets
- Energy, water and waste efficiency

**The Office of Living Victoria is leading the transformation of the way our water cycle is managed and how water cycle services are provided across Melbourne. It will work across metropolitan councils to deliver integrated urban planning and water cycle management.**

## The infrastructure in Melbourne's water system is managed by many stakeholders.

They work together and independently to manage and maintain the system, as well as set policy and direction.





Sources

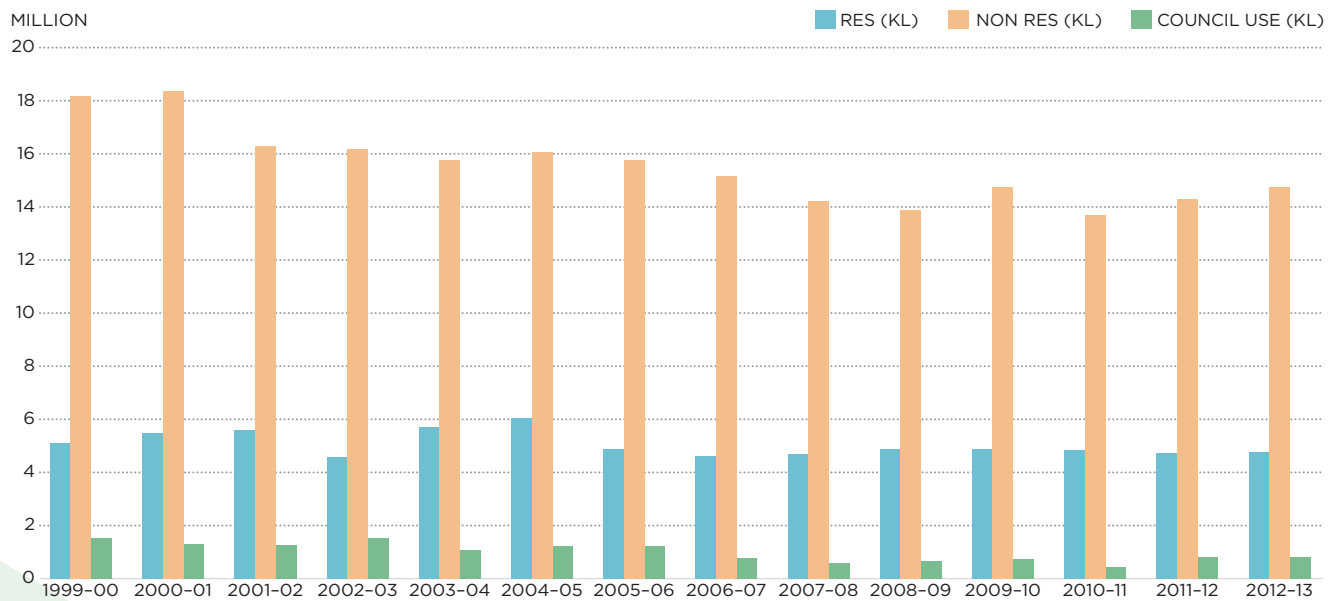
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<http://www.melbourne.vic.gov.au/BuildingandPlanning/Planning/MelbournePlanningScheme/Pages/MelbournePlanningScheme.aspx>

## PROGRESS TO DATE

Since 2002, the municipality of Melbourne has made significant progress in integrated water cycle management practices. The 2009 edition of *Total Watermark* was developed while Melbourne was in the middle of a drought that lasted over a decade, so the strategy primarily focused on reducing both overall water consumption and reliance on mains water. At that time, many other organisations in Melbourne’s

water sector also focused on water conservation. This agenda was highly successful. Residential water consumption in the municipality of Melbourne has reduced by 58 per cent since 2000, and is down by 48 per cent per worker. City of Melbourne has also achieved a 26 per cent reduction in its own water use during this period.

### TOTAL WATER CONSUMPTION IN THE MUNICIPALITY OF MELBOURNE FROM BASE YEAR 1999-2000 TO PRESENT



#### Successes across the municipality since 2008

- Water restrictions and government campaigns such as Target 155 have changed behaviour, reducing water usage.
- Residents have reduced water consumption by purchasing efficient fittings and appliances; choosing drought tolerant plants; recycling household grey water and installing rainwater tanks.
- The Office of Living Victoria has been formed to drive generational change within the sector.
- The water authorities have worked on developing integrated water management plans.

#### City of Melbourne’s successes since 2008

We have:

- Implemented several large stormwater harvesting schemes including those located in: Fitzroy Gardens, Darling Street East Melbourne, the Docklands development, Birrarung Marr, and Alexandra and Queen Victoria Gardens. This has reduced stormwater pollutants such as Total Nitrogen by 32 per cent and decreased our reliance on mains water by 363 million litres.

- Implemented an extensive drought proofing program in open spaces including converting turf to warm season grasses, installation of storm water harvesting tanks and major changes to irrigation practices and systems.
- Incorporated water sensitive urban design into many of our streetscapes.
- Reduced water use in council-owned buildings through efficient fittings and toilets, improving fire sprinkler-testing regimes, cooling tower efficiencies and rainwater harvesting.
- Encouraged building owners and managers to retrofit their buildings and reduce water use in several ways through our 1200 Buildings program has.

#### What City of Melbourne and the water sector have learnt

- Our goal to achieve a 100 per cent reduction in potable water use in our parks was based on a potable water offset scheme, and on changing to a drought tolerant landscape. We are now advocating using appropriate volumes of water for irrigation to maintain our horticultural assets in optimum health.



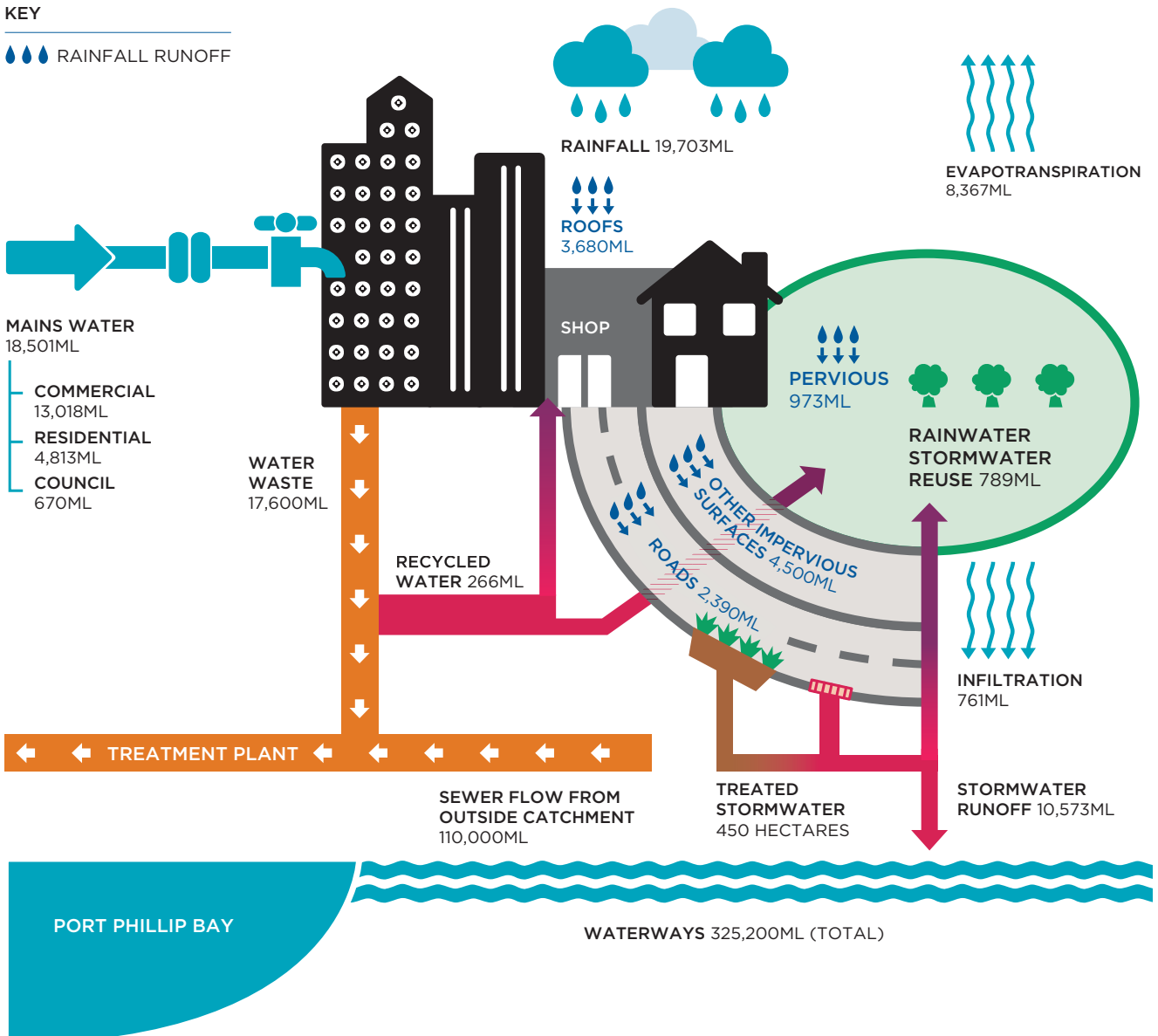
This will require more water in drier times. However, we aim to deliver a large portion of this water from alternative sources.

- Small-scale black water and grey water systems are an expensive source of water and are hard to maintain with the current skill set of maintenance contractors. The water sector is moving towards larger systems to reduce costs and increase efficiency.
- Salinity has been an issue in several projects. To minimise the risk of this challenge in the future, we are enhancing our water testing and carefully considering the type and placement of our infrastructure.
- Data collection and measurement of water use and quality has been challenging. The Office of Living Victoria will implement robust data collection to improve measurement.
- There are numerous benefits associated with localised solutions including reduced energy use, fit-for-purpose outcomes, and irrigation and amenity benefits.
- Melbourne's commercial and residential buildings can make a significant contribution to the municipality's water management through rainwater collection and reuse, and onsite stormwater management.

## MELBOURNE'S WATER CYCLE

### KEY

☔☔☔ RAINFALL RUNOFF



## STRATEGY IMPLEMENTATION

**Total Watermark – City as a Catchment is our overall plan for integrated water cycle management until 2018. It provides our broad direction and focus, including high-level targets. All actions outlined in this strategy are subject to budget approval.**

A detailed four-year implementation program will accompany this strategy, setting out a clear timeline for action. The implementation plan will be produced by the end of 2014, and will be evaluated annually. The plan will contain more detail on the flagship projects, specific project-based targets and opportunities for further public/private collaboration.

The implementation plan will include an operational budget. Project costs will also be outlined in City of Melbourne's annual budget, which is publically available.

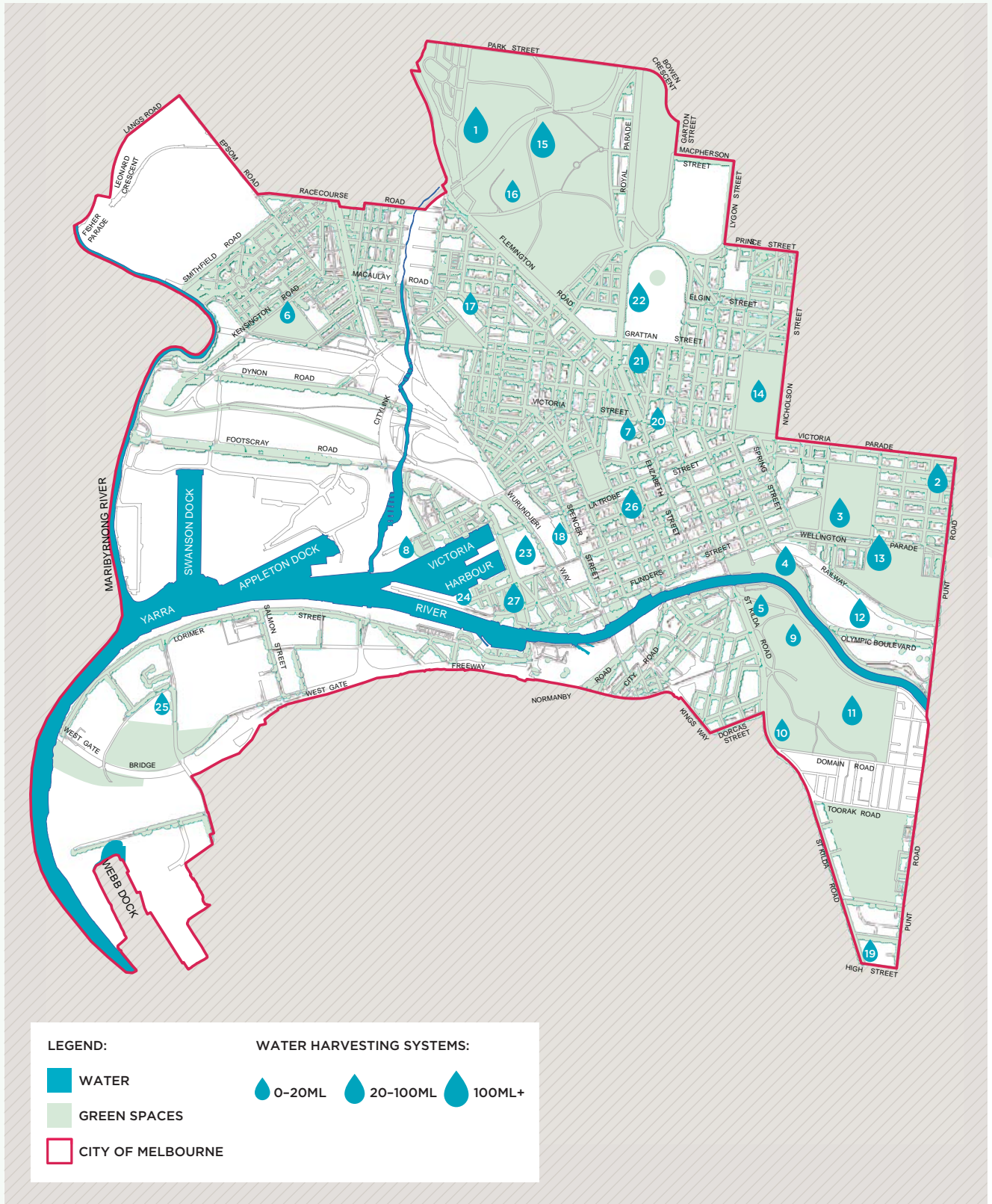
### In implementing this strategy, City of Melbourne will also:

- Consider the four key elements outlined in this strategy (climate change adaptation, liveability, environment and water use), in the design and implementation of City of Melbourne projects that impact on our water cycle.
- Continue to trial innovative approaches to fit-for-purpose water use, and communicate these approaches to our stakeholders.

- Run community education activities including the *Living Encyclopaedia* of water projects, in collaboration with the Office of Living Victoria.
- Work with the Office of Living Victoria to develop and implement *Melbourne's Water Future Strategy and Inner Melbourne Regional Plan*.
- Work with Melbourne Water to review and implement its *Flood Management and Drainage Strategy*.
- Support the implementation of other key strategies across the sector including the *Healthy Waterways Strategy – Melbourne Water's strategy for managing rivers, estuaries and wetlands* and the *Yarra Bay Action Plan*.
- Bring stakeholders together to overcome specific challenges. Through the engagement process around this strategy, key members of the sector have identified City of Melbourne as being uniquely placed to do so.
- Review and update City of Melbourne's *WSUD Guidelines*, which outline our approach to water sensitive urban design.



CITY OF MELBOURNE'S WATER, PARKS, TREES AND WATER HARVESTING SYSTEMS



**WATER HARVESTING SYSTEMS**

**COUNCIL**

- 1 Royal Park Wetlands (160ML)
- 2 Darling Street, East Melbourne (21.3ML)
- 3 Fitzroy Gardens (69ML)
- 4 Birrarung Marr (30ML)
- 5 Queen Victoria Gardens (20ML)
- 6 Kensington Community Centre (12ML)
- 7 Queen Victorian Market (5ML)
- 8 New Quay Park (2ML)

**PUBLIC**

- 9 Sidney Myer Music Bowl (15ML)
- 10 The Shrine (5.8ML)
- 11 Royal Botanic Gardens (40ML)
- 12 Melbourne & Olympic Park (45ML)
- 13 MCC Sewer Mine (180ML)
- 14 Royal Exhibition Building Museum (6.4ML)
- 15 Melbourne Zoo (150ML)
- 16 State Netball & Hockey Centre (19ML)
- 17 Public Records Office (2.7ML)
- 18 Southern Cross Station (5ML)

**PRIVATE**

- 19 Wesley College (20ML)
- 20 200 Victoria Street (4ML)
- 21 University of Melbourne Economics Building (32ML)
- 22 Trinity College (30ML)
- 23 Docklands Stadium (25ML)
- 24 Convesso (20ML)
- 25 Herald Weekly Times - Westgate Park (20ML)
- 26 500 Bourke Street (36ML)

# GOVERNANCE

## An efficient water sector implements integrated water cycle management

### Objectives:

- Private and public organisations working effectively together
- An approach that integrates social, environmental and economic benefits
- Clearly defined water sector roles and responsibilities

Across Melbourne, several levels of government and numerous statutory authorities have responsibility for water use, supply and demand.

### Key challenges

Melbourne’s water system is very complex, involving a number of authorities and government bodies with responsibilities that overlap in some areas.

In the last four years, water sector cooperation has improved significantly, with organisations working more closely together.

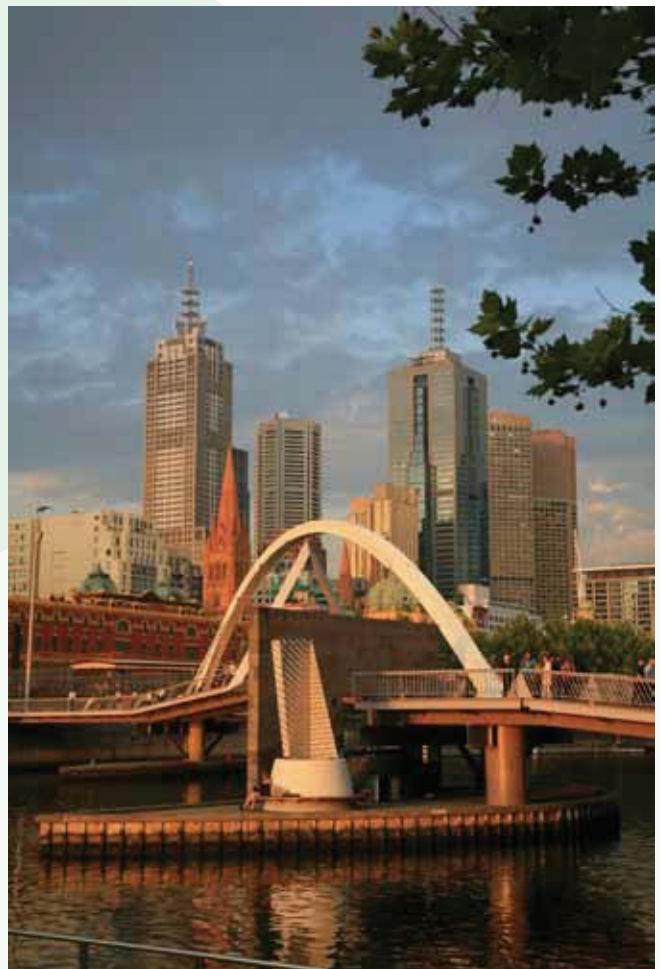
However in order to manage the city’s water supply effectively and remove any uncertainty regarding roles, each organisation’s remit needs to be clearly defined.

There is also an urgent need to further progress integration throughout the water sector. This would involve the sector working together to consider the many values of water including environmental, human health and climate change adaptation. The sector also needs to consistently take timeframes into consideration when making decisions on infrastructure projects.

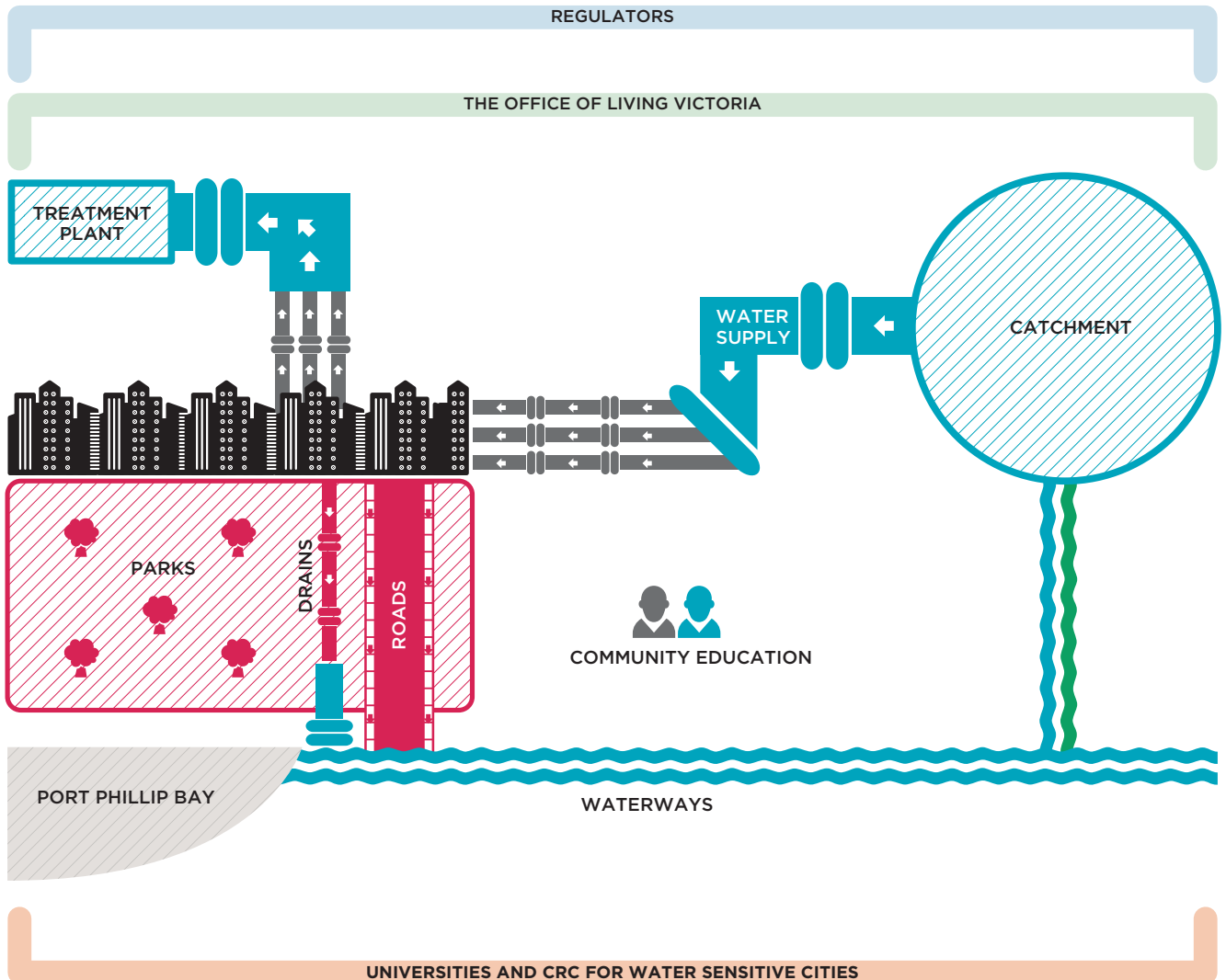
### City of Melbourne will contribute to the water sectors’ work to:

- Undertake extensive multi-disciplinary and multi-agency collaboration on major projects.
- Respond to fast-changing technology. The sector’s planning must include the capacity to implement long-term and large-scale infrastructure projects, while retaining the flexibility to meet future challenges.

- Improve knowledge sharing within the sector. This involves work by the CRC for Water Sensitive Cities, universities, research networks and the Office of Living Victoria.
- Define and communicate clear roles and responsibilities for water management in Melbourne. The Office of Living Victoria will coordinate this work, along with City of Melbourne and other water sector organisations.
- Develop an industry-wide approach to improved data collection and measurement.



## MELBOURNE'S WATER SECTOR



### Roles and responsibilities:

- **City of Melbourne** works across the municipality and is responsible for drainage, implementing and managing alternative water supply projects. We are in charge of water capture, storage and reuse and water usage across the municipality's operations
- **The Office of Living Victoria** (Victorian Government) drives change within the water sector, across both metropolitan Melbourne and Victoria. Its role includes increasing agency collaboration to manage catchments and waterways
- **Melbourne Water** (Victorian Government) manages Melbourne's catchments and bulk water supply, treats and supplies drinking water and recycled water to the retailers, removes and treats most of the city's sewerage. It also manages waterways and the larger drainage systems in the Port Phillip and Westernport region
- **Parks Victoria** (Victorian Government) is the local port manager for Port Phillip Bay, Western Port and Port Campbell, and the waterway manager for the Yarra and Maribyrnong Rivers
- **Port of Melbourne Corporation** is the custodian, developer and strategic manager of the port. It ensures the port continues to deliver economic benefits to its customers and the wider community
- **Water authorities** - City West Water and South East Water (Victorian Government) provide drinking water, sewerage, trade waste and recycled water services to customers in the municipality of Melbourne, as well as the inner, western and south eastern suburbs
- **CRC for Water Sensitive Cities and the universities** bring together multi-disciplinary expertise to undertake research to improve all aspects of water management

# CLIMATE CHANGE ADAPTATION AND FLOOD

A resilient and safe city that is adapted to current and future extreme weather events

## Objectives:

- Adaptation and flood risk embedded into planning process.
- The Melbourne municipality has an aware and prepared community.

## Progressed tracked in terms of:

- The level to which climate change adaptation is incorporated into urban planning initiatives.
- Level of resident and business awareness about climate change and flood risks.

## The case for action

To build a healthy city in a healthy catchment we need to consider current and future changes in climate and take actions to minimise their impact. Adaptation measures reduce the vulnerability of the local natural and human systems, including water, to the effects of climate change by increasing the systems' resilience to it.

Over the next 20 years and beyond, while sea level rise involves critical risks, Melbourne is most at risk from heat waves, drought and intense rainfall events. As outlined in detail in City of Melbourne's *Climate Change Adaptation Strategy*, these events are likely to happen sooner, more frequently, and can have significant effects on the community.

**Flood** – flash flooding is the main threat in an intense rainfall event. Even small flooding events can cause damage to property and transport disruptions. Significant floods can cause mass stranding of passengers, putting more people at risk of injury during the storm. Power outages due to storm damage can also cause transport, traffic chaos and disruption to businesses.

**Drought** – into the future it is likely that Melbourne will experience lower average annual rainfall. From 1998 to 2007, Victoria experienced annual rainfall 14 per cent below average. By 2070, annual average Victorian rainfall is expected to decrease by 11 per cent but come in more intense bursts.

**Heat** – climate change modeling predicts that Melbourne is likely to experience an increase in more days of extreme heat. The city already experiences

on average of nine days per annum over 35°C but by 2030 it is predicted this will increase to 11 days, and to 26 days by 2070. The most significant risk from heat waves is the likely increased levels of heat stress and death. This is of particular concern for the elderly and infirm. Heat waves already kill more Australians than any other natural disasters.

**Sea level rise** – CSIRO predicts that current sea levels will increase by up to 0.8 metres by the end of the century.

## Key challenges

Using our urban planning processes effectively is instrumental to becoming more resilient to future climate changes. We need to design and improve our infrastructure to capture water for use where it is needed most, and to minimise risk in flood prone areas.

Another challenge is finding ways to enhance our waterways and public open spaces, as they help to provide a cooling effect and to retain floodwater. We also need to protect and grow our urban forest, as it provides ecological functions, permeability and shading.

To ensure our city is resilient to flood, drought and heat impacts, we need an educated and aware community. Currently, while Melbourne's residents are most concerned about climate events such as drought and heat waves, 59 per cent feel they are not prepared for flood events. While flood risk is only prevalent in certain areas of Melbourne, the majority of businesses do not view it as a significant risk (ORC social research, February 2012).

### City of Melbourne will work with the water sector and key partners to:

#### Enhance the urban planning process

- Consider the risk of flood in future design and re-design of the public and private realm.
- Further integrate our city with our waterways, both natural and man-made, in order to enhance the city and community's resilience to heat impacts.
- Enhance the *Melbourne Planning Scheme* to consider future flood, heat and drought impacts.

#### Enhance infrastructure

- Design and upgrade the drainage network to cater for current and future flood risk.
- Green infrastructure is used to respond to current and future flood risk.

#### Increasing community education and awareness

- Enhance Melbourne's emergency management processes including warning systems and broadcasting of information.

#### Undertake research

- **Urban heat island effect** – research the impact that health, energy use and different mitigation measures may have on heat.
- **Climate projection updates** – interpret the latest climate change research to update our approaches and inform our decision-making.
- **Soil moisture, structural soils and salinity** – research the effectiveness of current interventions and new approaches.

### City of Melbourne will:

#### Enhance the urban planning process

- Incorporate flood, drought and heat risks into the development and implementation of structure plans and broader strategic plans.

#### Enhance infrastructure

- Ensure we are using fit-for-purpose water in parks, streets, gardens and council buildings.
- Upgrade the drainage infrastructure in the central city and urban renewal areas to cater for a 1 in 20 year flood event by 2030.
- Develop an approach to upgrade the municipality's drainage infrastructure to cater for a 1 in 20 year flood event – based on projected 2100 climate conditions. This will be done in line with Engineers Australia's climate change research findings, to be released in 2015.

#### Enhance the public realm and waterways

- Increase the permeability of the city through installing permeable pavements, converting asphalt to grass and other initiatives.
- Increase canopy cover and urban forest diversity to minimise urban heat island impacts.
- Increase the number of street trees supported by water capture intervention technologies.
- Implement the actions outlined in our *Open Space Strategy* to:
  - » Mitigate the urban heat island effect
  - » Enhance biodiversity
  - » Improve stormwater quality.

#### Increase community education and awareness

- Develop and implement a climate change adaptation awareness program, including preparedness for extreme weather events such as flood and drought, to complement the existing *Heatwave Response Plan*.
- Develop and implement an insurance education and awareness campaign to help community members understand their insurance options related to flood risk.

# WATER FOR LIVEABILITY

**A water cycle that supports the health, wellbeing and enjoyment of everyone who lives, works, visits and plays across and beyond the municipality of Melbourne**

<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>• Water and liveability embedded in planning processes</li> <li>• Access to waterways and public open spaces help support a healthy population</li> </ul>	<p><b>Progressed tracked in terms of:</b></p> <ul style="list-style-type: none"> <li>• Implementation of City of Melbourne's <i>Open Space Strategy</i></li> <li>• Increased frequency and diversity of water-based public activity</li> </ul>
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## The case for action

We are committed to improving and maintaining the wellbeing and lifestyles of our community. A guaranteed supply of clean, affordable water for use by people, businesses and the environment is also fundamental to making Melbourne a place where people want to live.

The municipality of Melbourne is currently experiencing rapid population growth, leading to a transformation of our residential sector. During the last two decades the population of the municipality of Melbourne has almost tripled, increasing from 35,000 in 1991 to 100,000 in 2011. We are expecting this significant population growth to continue, with an increase of 80 per cent on the 2011 population expected by 2030. Our worker and visitor populations are also increasing rapidly, with 1.2 million daily visitors projected by 2030, up from 800,000 daily in 2013.

**Liveability** is defined as a measure of the attractiveness of a location as a place to live and work. Economic, social and environmental factors all influence liveability, such as the quality of the natural and built environments; amenity; access to educational and health services; and cultural vibrancy. (Victorian Competition and Efficiency Commission November 2011).

Demographically the city has also changed, shifting towards smaller households with one or two bedrooms, fewer children and higher incomes. An apartment building boom has meant that 93 per cent of new homes built between 2006 and 2012 were apartments. It is expected that at least 4000 dwellings will be built each year going forward. Our planning processes provide the opportunity to incorporate efficient and fit-for-purpose water design into new developments.

## Key challenges

Changes in population, behaviour and urbanisation all impact our use of and interactions with water. We need to consider these changes in designing our city to remain one of the world's most liveable into the future.

As City of Melbourne works towards being a healthy city in a healthy catchment, another challenge is to recognise and protect the fundamental roles water plays in our city. These roles include maintaining the health of Melbourne's community through access to clean, affordable water; maintaining the health of our waterways, parks and gardens to provide areas for rest, recreation and exercise; and maintaining our drainage infrastructure to manage flood risk.



**City of Melbourne will work with the water sector and key players to:**

**Enhance the planning process**

- Include provisions for water infrastructure in structure plans to cater for future use and allow community interaction with natural water systems.

**Enhance Melburnians' health and amenity**

- Where appropriate, design our city so we are able to see and interact more with our water systems.
- Improve the quality of waterways and public open spaces to enhance use.
- Ensure flood and heat risk management programs are implemented effectively within the municipality.
- Encourage new and existing developments to include public open spaces to enhance amenity and decrease the urban heat island effect.

**Ensure access to clean, affordable water**

- Ensure that Melbourne has a responsive water market with dynamic and equitable water pricing.
- Ensure that incentives and regulation are driving the efficient use of potable water.
- Develop and communicate finance models for businesses and individuals to effectively manage their water use.

**Undertake research**

- Further understand the linkages between human health and access to waterways and public open spaces.
- Further understand the linkages between human health and water quality and availability.

**City of Melbourne will:**

**Enhance the planning process**

- Continue to ensure that waterways and the urban forest are a prominent part of Melbourne's identity.

**Enhance public open spaces and the use of fit-for-purpose water to cool the environment**

- As part of the *Urban Forest Strategy*, City of Melbourne will continue to:
  - » Increase canopy cover and urban forest diversity.
  - » Improve vegetation health and maintain optimum soil moisture levels.
  - » Improve urban ecology and inform and consult the community.
- Help to enhance biodiversity through the development of an *Urban Ecology and Biodiversity Strategy*.
- Develop a *Growing Green Guide* on the installation and maintenance of green roofs, walls and facades.
- Continue to implement the *Municipal Strategic Statement* and structure plan actions relating to water management, in order to enhance Melbourne's parklands, waterways and other open spaces.



# WATER FOR THE ENVIRONMENT

Water managed for biodiversity, healthy public open spaces and clean waterways

## Objectives:

- Our major waterways are healthy and clean
- Soil moisture supports a healthy urban forest
- Optimise stormwater quality

## Progress tracked in terms of:

- Health of waterways (measured by Melbourne Water)
- Decreased runoff (modelled data)
- Increased infiltration (modelled data)

## Stormwater quality targets (baseline year 2000)

- **2018** – 20% reduction in Total Nitrogen contributed to the waterways from the municipality of Melbourne's catchment
- **2030** – 30% reduction in Total Nitrogen contributed to the waterways from the municipality of Melbourne's catchment

## The case for action

Increased urban density, climate change and an increasing population mean that the way we interact with our local catchment and how we consider water in the environment is becoming ever more important. Of the three major waterways in the municipality, the current condition of Yarra and Maribyrnong Rivers is considered moderate, while Moonee Ponds Creek is in very poor condition. The health of much of Melbourne's urban forest declined greatly during recent drought-related water restrictions, at significant cost to the amenity of the city.

## Key challenges

The municipality of Melbourne sits at the bottom of a number of catchments and at the top of Port Phillip Bay, putting us in a uniquely challenging position in regards to the state of our waterways. During the recent prolonged drought, the lack of environmental flows put extreme pressure on certain sections of our rivers and creeks. To enhance the health and biodiversity of our waterways, we need to reduce stormwater pollutants and improve water quality. A whole of catchment approach is needed to manage our waterways.

The way we design, build and retrofit our buildings provides a significant opportunity to enhance the way our city interacts with the local catchment. Incorporating water and public open spaces, where possible, into our built environment, will help towards creating healthy waterways and mitigating the urban heat island effect.

Another key challenge is to protect and enhance our urban forest. Melbourne is internationally recognised for its urban forest and public open spaces, yet many of the city's landscapes were created well over 100 years ago. A significant number of our trees are nearing the end of their lives and landscapes are struggling to adapt to a changing climate.

We need to effectively guide the transition of our landscape to one that is resilient, sustainable, healthy and diverse, and that meets the needs of the community.

**City of Melbourne will work with the water sector and key players to:**

**Enhance our waterways – Yarra River, Maribyrnong River, Moonee Ponds Creek**

- Manage the health of our key waterways including limiting the amount of stormwater entering these systems.
- Work with the food and hospitality sectors around appropriate grease and oil disposal.
- Undertake a whole of catchment management approach to enhancing the state of Moonee Ponds Creek.
- Contribute to Melbourne Water’s 20-year strategic priorities to enhance the Lower Yarra Catchment, including:
  - » Improving water quality and implementing stormwater treatment systems in new urban developments.
  - » Improving vegetation to benefit amenity and birds.
  - » Working with partners to develop litter prevention programs.

**City of Melbourne will:**

**Enhance our waterways – Yarra River, Maribyrnong River, Moonee Ponds Creek**

- Continue to update and implement the *Docklands Waterways Strategic Plan*.
- Continue to run free park ranger education programs for schools and the wider community.

**Enhance stormwater quality**

- Continue to implement new stormwater quality technologies to improve pollutant loads in stormwater releases and reduce runoff through infiltration and reuse.
- Continue to implement the *Municipal Strategic Statement* and structure plan actions relating to water management, in order to improve water quality in waterways and the bay.



# WATER USE

## Efficient use of fit-for-purpose water contributes to the improved sustainability of Melbourne’s water supply system

### Objectives:

- Optimise fit-for-purpose water use
- Water supply infrastructure is planned for current and future demand

### 2018 targets Water use

- Council: 30% of all water use sourced from alternative water sources

- Municipal: 8% of all water use sourced from alternative sources

### 2030 targets Water use

- Council: 50% of all water use sourced from alternative water sources
- Municipal: 20% of all water use sourced from alternative sources

### The case for action

Climate change, development, population growth, upstream impacts and increased demand for water are all putting pressure on our water quality and supply. In every instance where we use water, we need to optimise fit-for-purpose outcomes.

**Fit-for-purpose water use** prioritises the appropriate quality of alternative water sources for different demands. The closer the match in the quality of the water to the level needed for end use, the less treatment is required. Reducing water treatment is both energy and cost efficient.

### Key challenges

The recent prolonged drought highlighted the need to conserve water and use it in the right way throughout our city. This includes increasing efficiency and fit-for-purpose water use where appropriate in infrastructure, buildings, parks and gardens.

It also means incorporating integrated water cycle management design and water efficiency into new developments.

The quality of our groundwater is another challenge. The city’s groundwater and aquifers are generally too saline to be used as a resource. Our aquifers are also not suitable for storage and recovery as they are not porous enough. Stormwater is a more viable alternative water source for the municipality than groundwater.

### City of Melbourne will work with the water sector and key players to:

#### Enhance fit-for-purpose water use

- Work with residents, developers and businesses to explore fit-for-purpose water use options.

- Encourage the uptake of residential water tanks.

#### Enhance infrastructure and buildings

- Undertake new technology trials regarding fit-for-purpose water use.
- Design a third pipe network for urban renewal areas.

#### City of Melbourne will:

As the single biggest water user in our municipality, City of Melbourne recognises the need to take a leadership role in implementing and demonstrating fit-for-purpose water use approaches. The actions listed below outline how City of Melbourne will approach this role:

#### Enhance fit-for-purpose water use

- Continue to implement best practice approaches to stormwater harvesting.
- Use our engagement programs to further encourage efficient water use by building owners, manager and tenants.
- Use fit-for-purpose water supply in our parks, gardens, council buildings and sports grounds.
- Educate the community about how and why City of Melbourne uses water for irrigation.
- Increase the water focus of our 1200 Buildings program.
- Improve water use monitoring and measurement.
- Share information with the public and private sectors about water saving and reuse initiatives.
- Include fit-for-purpose water use considerations into City of Melbourne’s asset renewal program.

**Enhance infrastructure and buildings**

- Continue to implement the *Energy, Water and Waste Efficiency Planning Policy*, requiring all developments to meet water efficiency standards.
- Continue to require developers to incorporate integrated water cycle management design principles into drainage plans prior to receiving planning approval.

**FIT-FOR-PURPOSE WATER USE**



### How to contact the City of Melbourne

**Online:** [melbourne.vic.gov.au](http://melbourne.vic.gov.au)

**Telephone:** 03 9658 9658

7.30am to 6pm, Monday to Friday

(Public holidays excluded)

### Translation services

03 9280 0716	አማርኛ
03 9280 0717	廣東話
03 9280 0718	Ελληνικά
03 9280 0719	Bahasa Indonesia
03 9280 0720	Italiano
03 9280 0721	國語
03 9280 0722	Soomaali
03 9280 0723	Español
03 9280 0724	Türkçe
03 9280 0725	Việt Ngữ
03 9280 0726	All other languages

### National Relay Service:

If you are deaf, hearing impaired or speech impaired, call us via the National Relay Service:

Teletypewriter (TTY) users phone

1300 555 727 then ask for

03 9658 9658

9am to 5pm, Monday to Friday

(Public holidays excluded)

### In person

Melbourne Town Hall

Administration Building

120 Swanston Street, Melbourne

7.30am to 5pm, Monday to Friday

(Public holidays excluded)

### In writing

City of Melbourne

GPO Box 1603

Melbourne VIC 3001



CITY OF MELBOURNE

# COMMUNITY CONSULTATION REPORT

## City of Melbourne Total Watermark Strategy

October - November 2013

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# 1. Introduction

## 1.1. Background

City of Melbourne released its initial Total Watermark- City as a Catchment Strategy in 2004, which outlined Melbourne's commitment to becoming a water sensitive city. This third edition of the Total Watermark- City as a Catchment Strategy sets out plan for integrated water cycle management for the next four years. The Strategy was developed in collaboration with over twenty five key stakeholders and individuals, and outlines how we plan to work together to achieve effective and lasting changes to water cycle management across the municipality.

The Strategy builds on previous successes and outlines City of Melbourne's approach to integrated water cycle management across four key topics; climate change adaptation, water for liveability, water for the environment and water use.

## 1.2. Overview of consultation process

Council endorsed the Draft Total Watermark Strategy for consultation on 1st October 2013. The Strategy subsequently became available for public consultation from 2nd October 2013 until 13th November 2013.

### **Community Consultation October - November 2013**

#### **Purpose:**

- To guide people to the Participate Melbourne website where they were able to comment and provide feedback on the draft strategies
- To raise awareness and excitement about the two strategies

#### **Actions:**

- External reference group meeting
- Key stakeholder workshop
- 10 one-on-one key stakeholder meetings
- Community engagement pop up events and post card hand out's at 7 locations across Melbourne

## Communication and Advertising:

The following communication and advertising actions were used to promote the Total Watermark Strategy Community Consultation and pop up events:

- Email send to 40 Community Organisations and Resident Groups
- Email sent to 69 key stakeholder organisations
- Community radio ads on RRR and PSB, run throughout October during drive time and breakfast
- Social media advertising campaign
- Over 800 copies of a specially designed seeded postcard to promote the consultation period were distributed throughout inner Melbourne (see below).
- City of Melbourne call centre hold message run throughout October
- Posters displayed at City of Melbourne Libraries and Community Centres
- What's On website and Facebook page
- City of Melbourne corporate facebook, Twitter and google+ posts throughout October
- City of Melbourne corporate website homepage tiles were run for two weeks in October to promote
- Enterprise Melbourne homepage tiles to promote were run for two weeks in October to promote
- Melbourne News article in October edition – circulation of approximately 60,000
- Inclusion in City of Melbourne's corporate ad 9 October edition (ran in three publications: Melbourne Weekly Times, Stonington Leader and Weekly Review)
- City of Melbourne's Green Leaflet Newsletter – – circulation of approximately 1,500
- Enterprise Melbourne newsletter – October edition - circulation of approximately 1000
- City of Melbourne's Libraries newsletter – October edition – circulation of approximately 19,000
- Docklands Hub Community Newsletter



**Community engagement pop up events:**

**Pop up Description**

To attract community attention and guide people to the Participate Melbourne website a number of pop up events took place across inner Melbourne.

The pop up activity featured a life-size snakes and ladders style game board; a positive emissions or water outcome progressed players up the board (ladders) and a negative emissions or water outcome took players back down the board (snakes).

**Pop Up Locations**

**Spring Fling Community Festival  
Errol Street, North Melbourne**

Date: Sunday 20th October 2013

Audience: Residents



**Queens Bridge Square - South Bank**

Date: Thursday 24th October 2013

Audience: Workers, commuters



**Garage Sale Trail Event - Carlton**

Date: Thursday 24th October 2013

Audience: Residents



**City Square - Melbourne**

Date: Wednesday 30th October 2013

Audience: Workers, residents, commuters



**Docklands Community Hub**

Date: Friday 1st November 2013

Audience: Workers, resident



**Pop up Attendance**

It is estimated that over 1500 community members attended community consultation pop up events across inner Melbourne.

In addition to 5 pop up events, community engagement via post card handouts was undertaken in Kensington (Thursday 31st October 2013) and on Spencer Street, Melbourne (Friday 1st November 2013).

## Website Submissions

### Overview

A Participate Melbourne website was created to provide an online forum for the duration of the consultation period and was open to all members of the community. The website enabled the community to read the draft strategies, contribute to a forum discussion and provide feedback on a specific section of the draft strategy through feedback forms.



The Participate Melbourne website received:

- 1,179 individual site visitors
- 593 visits to the draft strategy document library
- 196 downloads of the Strategy
- 103 downloads of the Infographic
- 2 forum comments
- 2 comment likes
- 1 feedback submissions

### Social Media Advertising Campaign Outcomes:

The social media advertising campaign also received a strong response from community members.

Social media advertising campaign resulting in:

- 2040 'likes' during the campaign
- 6346 click throughs to online engagement hub Participate Melbourne.
- 305,718 impressions on Facebook (potential people who saw the ad in their feed).



## 2. Outcomes

### 2.1. Summary of Feedback

The Strategy has been revised to reflect feedback received during the consultation period where appropriate. Key feedback included the need for a greater focus on lessons learnt, the role the implementation plan will play and a greater link to external targets and activities.

### 2.2. Resulting Amendments to the Strategy

The Strategy has been revised to reflect feedback received during the consultation period. The following table provides details of what sections have been revised and the extent of those revisions:

**Table 1: Summary of revisions**

<b>Strategy Contents</b>	<b>Comments</b>
1 City of Melbourne's approach	Minor wording changes Include reference to broader water sector targets and CoM strategies.
2 Governance	Minor wording changes Implementation moved into new section before Governance
3 Progress to date	Minor wording changes Moved before governance section Lessons learnt section enhanced. Includes lessons learnt by broader water sector.
3. Climate change adaptation and flood	Minor wording changes.
4. Water for liveability	Minor wording changes Include open space
5. Water for the environment	Minor wording changes Open space moved into 'liveability' section Include water quality Enhance link between river health and water quality Water quality target changed to nitrogen
6. Water use and water quality	Quality moved into 'water for the environment' section Greater focus on using water efficiently

## 2.3 Comments and submissions

The following section provides an overview of the comments made on the website, either submitted directly or via the forum. Comments have been abbreviated in some instances and they have attributed to the public usernames that were published on the site. Anything not regarded as direct feedback specifically on the strategy has not been included – this includes general conversation on the site and general commentary on other people's postings.

Comments have been categorised, based on reoccurring themes, into the following sub-headings:

- Endorsements
- General comments

### 2.3.1 Endorsements

No.	Submitter/Username	Summary of comments
1.	TomQ	Excellent to see the City of Melbourne is exploring integrated approaches to managing and improving all the city's water resources. I think it is crucial that we use the city's infrastructure to better prepare for future droughts, and floods, while enhancing the health of our waterways.

### 2.3.2 General Comments

No.	Summary of comments	Response
2.	<p><b>Username: jamlue</b></p> <p>Looks like a great initiative and I'm glad to see that there is a focus on a government authority working in partnership with other key players. Natural resource management is important to me and I think it should be not only every individuals responsibility to conserve water but for industry and government to conserve, educate, use water sensitive design principles and regulate. I'm glad to see there are targets however I think it is important to regularly report on how you measure up to them so that the Council and industry is accountable. It's in the action!</p>	<p><b>Addressed-</b> to include note on regularity of reporting</p>

## 2.3.3 Key Stakeholder Workshop

### 2.3.3.1 Outcomes

Topic	Comments	Response
<p><i>Targets</i></p>	<ul style="list-style-type: none"> <li>- Numerical is best, where not possible surveys ok</li> <li>- Why haven't included others (eg. Nitrogen) ... however less is best – stakeholder understood the need to have representative indicators</li> <li>- Liveability - Climate adaptation included in planning a bit limited (not sure of relevance – is this a mistake). Others could include:               <ul style="list-style-type: none"> <li>o No. parks and open spaces</li> <li>o How close people are to open space/water</li> <li>o Measure the no. of private open spaces available to the public</li> </ul> </li> <li>- Water business – reference water industry targets</li> <li>- Missing targets – floods – what is successful mitigation?</li> <li>- Links to or replicate targets from other CoM strategies</li> <li>- Liked the clear connection with Urban Forest strategy.</li> <li>- Flooding targets - Melbourne Water would like to see CoM develop a target that both CoM and Melbourne Water can work to.</li> <li>- General targets - they are a little vague. Actions lacking detail that can be quantified.</li> <li>- Water conservation goal - being that CoM is a leader, removing this target may have an impact on wider Melbourne. Conservation should still be noted as important for residential / commercial.</li> <li>- Livability target - (liked the diversity of liveability represented in this strategy), could there be research done around the communities perceived involvement of water in liveability / research to understand what the community thinks liveability is.</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Addressed-</b> Numerical will be used wherever possible.</li> <li>- <b>Addressed-</b> water quality target changed to nitrogen</li> <li>- <b>Addressed-</b> Should read, 'liveability' not 'adaptation' in liveability indicators</li> <li>- <b>Addressed-</b> Various external water targets included. Upcoming OLV targets referenced.</li> <li>- <b>Addressed-</b> Other strategies are referenced</li> <li>- <b>Noted</b> – CoM and Melbourne Water to work together on flooding targets. Existing targets referenced.</li> <li>- <b>Addressed-</b> Strategy shows overall direction and high level targets. The implementation plan will outline specific project based targets.</li> <li>- <b>Addressed-</b> Include importance of water conservation in visual and water use section.</li> <li>- <b>Addressed-</b> Melbourne to participate in liveability research in Melbourne.</li> </ul>



<p><b>What's Missing</b></p>	<ul style="list-style-type: none"> <li>- Value of rainwater tanks vs. cost is questionable for residential – particularly where space is a premium.</li> <li>- What is appropriate size storage for purpose?</li>   <li>- Private storage for public and private realm use eg. @ UoM, QVM</li>   <li>- Trade-waste issues ...             <ul style="list-style-type: none"> <li>o business engagement through EHOs</li> </ul> </li>   <li>- Promoting efficiency of water use in buildings, community, CoM – don't want to lose sight of conservation through technology and within buildings.</li>   <li>- No mention of the cost – to ratepayer. Make mention of (implementation stage?)</li>   <li>- Water for Liveability - reference “visitors” explicitly in the context of “live, work and play” in the city.</li> <li>- Directly refer to Open space contribution in urban developments (8%) - link to OSS</li> <li>- Link to zero net / energy – Integrated “Resource” Management</li> <li>- Ongoing Maintenance – governance of this, especially for building scale/private systems links to infrastructure size and Black water systems</li> <li>- Water use and Quality - rather than standing on its own, could this section be incorporated into other sections.</li>   <li>- It was noted that the Governance section didn't have the content you would expect in a governance section of a strategy - eg. Is progress to date in the right section?</li> <li>- Water Use and Water Quality section - Pervious</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Noted-</b> Fit-for-purpose water use is an approach which allows identification of the optimum water sourcing approach for a particular situation.</li> <li>- <b>Addressed-</b> Through implementation plan we will explore further public/ private collaboration.</li> <li>- <b>Addressed-</b> Action included. CoM to work with retail and hospitality sector around appropriate grease and oil disposal.</li> <li>- <b>Addressed-</b> Include 'CoM's 1200 Buildings Program currently covers water management. CoM will work to enhance the programs water focus.</li> <li>- <b>Noted-</b> Costs will be established through the development of the implementation plan and CoM's annual budget process, which is publically available.</li> <li>- <b>Addressed-</b> include visitors</li>   <li>- <b>Noted-</b> OSS already referenced on page 11.</li> <li>- <b>Addressed-</b> Stronger link to ZNE.</li>   <li>- <b>Addressed-</b> Water quality moved into Water for the Environment section.</li> <li>- <b>Addressed-</b> Progress to date section moved</li>   <li>- <b>Addressed-</b> water quality target changed to nitrogen</li>   <li>- <b>Addressed-</b> Made the role of the action plan clearer in the text.</li> <li>- <b>Addressed-</b> treatment is a key element of fit-for-purpose water use. Made clearer in strategy.</li> </ul>
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	<p>strategy listed nitrogen and phosphorus as well as TSS. Nitrogen has an impact on Port Phillip. Provide reasoning around why these have not been included.</p> <ul style="list-style-type: none"> <li>- Clear direction - Lack of detail about how these actions will be taken / understanding about how these actions will be measured.</li> <li>- Infrastructure - focus on water harvesting - water treatment is not represented as well in this strategy.</li> <li>- Planning - not represented / connection made to urban planning. Specific detail would be good here. Integration of urban planning / transport planning / infrastructure planning.</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Noted-</b> Planning addressed in the 'water for liveability' and 'water for the environment' sections.</li> </ul>
<p><b>CoM's Role and what it should be doing</b></p>	<ul style="list-style-type: none"> <li>- As custodian of place – governance important and clarify how we will work with the community</li> <li>- Enhance connection to ESD planning lever</li> <li>- Leadership and partnership with other councils</li> <li>- Opportunity to work in education institutions on water education in Policy development, infrastructure dev, engineering</li> <li>- Make flood information easier to find – localize flooding and catchment wide</li> <li>- Page 9 what CoM has learnt. Strengthen this section, not enough detail, what have we done to respond to the lessons learnt</li> <li>- CoM to share learning's (infrastructure) with the industry.</li> <li>- Demonstrating progress - CoM to visually communicate what CoM is achieving. Eg. Updating the water harvesting graphic in future and comparing them.</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Addressed-</b> Lessons learnt section enhanced.</li> <li>- <b>Addressed-</b> Progress to be reviewed annually</li> </ul>
<p><b>Partnership/ Collaboration Opportunities</b></p>	<ul style="list-style-type: none"> <li>- Water capture, retention and distribution               <ul style="list-style-type: none"> <li>o private owner may have land/space to capture for other areas/public realm</li> </ul> </li> <li>- Question CoM need to "undertake research" linkage to human health and linkages to open space and water quality. Perhaps make it more obvious that this would be undertaken in collaboration with others (CRCWSC etc.)</li> <li>- Collaborate with others on Lineages research</li> <li>- Collaborate on funding projects</li> <li>- Melbourne Water - Flooding target (amount of area / number of floods?) "if we know what success looks like we can harness activity"</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Addressed-</b> CoM will support, contribute to and undertake research (where there is a local focus or information gap).</li> </ul>

## 3. Definitions

A number of acronyms are used throughout this report. Definitions are provided below:

OLV- Office of Living Victoria

UoM- University of Melbourne

EHO- Environmental Health Officer

CoM- City of Melbourne

OSS- Open Space Strategy

(<http://www.melbourne.vic.gov.au/PARKSANDACTIVITIES/PARKS/Pages/OpenSpaceStrategy.aspx> )

CRCWSC- Cooperative Research Centre- Water Sensitive Cities

ESD- Environmentally Sustainable Development

TSS- Total Suspended Solids

**Total Watermark –Strategy Development**

**Summary of stakeholder engagement that has occurred**

The Total Watermark – City as a Catchment Strategy has been developed with extensive stakeholder engagement including three stakeholder workshops, an external reference group and individual meetings with key government and commercial decision makers and non-government organisations.

**Stage one:** September 2012 - December 2012

**Purpose:** To define the desired outcome and objectives for the review of the strategy

**Actions:**

- One external reference group meeting
- Four international city conversations
- One key stakeholder workshop
- 14 one-on-one key stakeholder meetings

**Stage two:** January 2013 - July 2013

**Purpose:** To define the content and objectives to be included in the strategy

**Actions:**

- Two external reference group meetings
- One key stakeholder workshop with 15+ attendees
- Nine one-on-one key stakeholder meetings

**Stage three:** August 2013 – December 2013

**Purpose:** To obtain feedback on the draft strategy

**Actions:**

- One external reference group meetings
- One key stakeholder workshop with 15+ attendees
- Three one-on-one key stakeholder meetings
- Community engagement (refer attachment 3)

<b>External Reference Group Members</b>
Tony Wong – CRC for Water Sensitive Cities
Claire Blewitt – C40 Melbourne City Director
Kate Auty – Commissioner for Environmental Sustainability
Melbourne Water
City West Water
South East Water
Office of Living Victoria
Melbourne University

<b>Key Stakeholders</b>	
CRC (Water Sensitive Cities)	Green Building Council of Australia
Office of Living Victoria	Energy Efficiency Council
Department of Planning and Community Development (DPCD)	Grocon
Parks Victoria	VECCI
University of Melbourne	Environment Victoria
RMIT University	Commissioner for Environmental Sustainability
Department of Sustainability and Environment (DSE)	Property Council of Australia
Department of Sustainability and Environment - Office of Water	South East Water
C40	City West Water
Melbourne Water	