



Sydney2030/Green/Global/Connected



# Water Sensitive Sydney Summit Summary

21 February 2018



SYDNEY

*city of villages*

A metropolitan collaboration supporting  
Resilient Sydney: A strategy for city resilience, Action 14





Cover image: Summit participants assembled on Sydney Town Hall steps | Image: City of Sydney  
Pyrmont Park | Image: City of Sydney



# About the Water Sensitive Sydney Summit



Nepean River Penrith 2017, one of Sydney's waterways under increasing pressure from urbanisation / Photographer: Sarah Rhodes

This document is a result of the Water Sensitive Sydney Summit, hosted by the City of Sydney on 21 February 2018.

The summit brought together high level representatives from state and local government, businesses, developers, research institutions and peak industry associations. The group discussed the immense challenges of water management in the context of a growing population, aging infrastructure and a warming climate, while maintaining affordability and equity for Sydney's diverse communities.

The summit coincided with a review by the NSW Government into the economic and regulatory barriers to recycled water schemes. It also led to much broader discussion about embedding water sensitive principles into our city's long-term planning, infrastructure and operations.

It was also a powerful demonstration of the value of connecting across boundaries, and working together to advocate for solutions to the challenges we face across metropolitan Sydney.

# Summary



A housing development in western Sydney 2017 / Photographer: Sarah Rhodes

**“We can’t continue to create communities that we know are unfit for the future. Our current communities are not cool, not green, and not that liveable.”**

Lisa Currie, Manager Water Strategy,  
City of Sydney

Water is essential for healthy, sustainable and liveable communities. But Sydney’s growing population, aging infrastructure and hotter climate are challenging how we manage our water.

Urbanisation is exacerbating heat in Sydney’s hottest parts. Waterway health is declining. And the safety, comfort and prosperity of our communities are being compromised.

While there are strategies for a water sensitive Sydney, and some leadership and collaboration at a project level, there is no overarching policy framework for widespread water wise investment. The recent wholesale price determination has stifled private investment and the innovation and change this brings.

The NSW Government’s current review into the economic and regulatory barriers to recycled water schemes is a great start to the broader reform needed in Sydney’s water market. Discussions at the Water Sensitive Sydney Summit confirmed that Sydney needs a clear urban water policy framework to ensure it is fit for the future.

**This policy framework must result in communities that are safe, comfortable and prosperous, regardless of their address by:**

- **ensuring collaboration and community engagement throughout the entire planning and development process, including recognition of and learning from Aboriginal and Torres Strait Islander peoples**
- **including water at the outset of place-based planning and recognising water’s role in liveability and resilience**
- **enabling investment by the private and public sector for equitable and affordable water sensitive outcomes.**

# Locking Sydney into conventional solutions will cost billions and won't provide for our future

**“Heat is the top shock in Sydney. It kills more people as a natural hazard than anything else. Extreme heat affects 100% of the Sydney population, at some point every year.”**

Beck Dawson, Chief Resilience Officer,  
100 Resilient Cities

## Heat related deaths are rising

Heat related deaths are rising and heat is now included on the state risk register.

Water is nature's air conditioner. Water sensitive urban design ensures water is retained in the landscape for greening and cooling across the city. This is critical in Sydney's west. Around 20 days per year reach over 35°C in Penrith compared to three days at Observatory Hill and Penrith receives only about half the annual rainfall. It's time heat became a Premier's priority.

The role of water is changing and our approach to managing it must too. Instead of using restrictions during times of water scarcity, we need more water to keep places green and cool, including maintaining urban waterways and water features and irrigating public spaces.

With increasing densification, there will be less outdoor space on individual lots and more emphasis on creating beautiful urban spaces that feature water and bring the community together.

## Population growth is increasing demands for water

With a population expected to grow from 4.7 million to 8 million over the next 40 years<sup>1</sup> Sydney will need a lot more water.

Rod Simpson, Environment Commissioner at the Greater Sydney Commission describes how the Greater Sydney Region Plan supports a metropolis of three cities: the Western Parkland City, the Central River City and the Eastern Harbour City. With almost half the future population residing west of Parramatta<sup>1</sup>, the plan recognises the vital role water will play in restoring landscapes and combatting extreme heat, especially in the Western Parkland City.

Securing water to support healthy, resilient and liveable communities will require significant investment to diversify our water supply. We need to plan this investment now, with a focus on sourcing new supplies through water recycling. This will defer expansion of Sydney's desalination plant and pumping from the Shoalhaven region, both part of the 2017 Metropolitan Water Plan's portfolio of water supply and drought responses.

Investment in wastewater treatment and pipe systems are also needed to manage the increased wastewater of a growing population. Much of the water infrastructure that has served us well in the past is aging or reaching capacity, requiring large investments<sup>2</sup>. As our city expands further to the west of Sydney's coastal wastewater treatment systems, our inland waterways, many already degraded, will be further polluted by wastewater.

<sup>1</sup> Greater Sydney Region Plan: A Metropolis of Three Cities, Greater Sydney Commission, March 2018

<sup>2</sup> Next Gen Urban Water: The role of urban water in vibrant and prosperous communities, Water Services Association of Australia Ltd, 2016





Conditions in hot dry developments in Western Sydney will worsen as temperatures rise with climate change

**“If we concentrate on just projecting our engineering approach, we’re probably not going to get where we want to go.”**

Rod Simpson, Environment Commissioner, Greater Sydney Commission

### **Urbanisation is degrading waterways and exacerbating flood risks**

As our urban areas develop we are replacing natural vegetation with hard surfaces. This means less rainfall is retained to irrigate and cool our city while more polluted stormwater runoff is discharged to our waterways. Increased density and a trend of larger houses on smaller lots exacerbates this.

There has been an underinvestment in stormwater management in the past and very few (if any) stormwater assets have acceptable levels of flood protection in place<sup>2</sup>. There are also low levels of awareness or preparedness of communities living in floodprone areas.

Our sewage and stormwater management practices will have to radically change to realise the vision for Sydney set out in the Greater Sydney Region Plan. Our approach to expanding our centralised water systems to accommodate growth is no longer viable.

We also need to rectify the legacy of environmental damage to our rivers and natural woodlands from past generations.

### **Lack of people centric planning means our communities are not fit for the future**

Little attention has been given to the knowledge and expertise of our traditional owners who managed our land and waterways sustainably for 40,000 years.

Community values have not been at the centre of water servicing decisions for Sydney. We’ve focused on ‘toilets and taps’ rather than vibrant and liveable places that ensure the health, safety and wellbeing of communities.

The mental and physical health benefits of liveable spaces is now well recognised and we need to prioritise this in place-based planning.

<sup>2</sup> Next Gen Urban Water: The role of urban water in vibrant and prosperous communities, Water Services Association of Australia Ltd, 2016



Sydney Park's water reuse scheme shows the City of Sydney's commitment to water sensitive urban design

### **Regulatory, pricing and institutional arrangements don't support water sensitive cities**

Regulatory reform is required to address current price distortions and cost recovery mechanisms for water servicing. Investing in flexible, place-based water sensitive solutions is often more time consuming and financially risky, particularly compared to conventional large-scale infrastructure. The recent wholesale pricing decision has further stifled private investment in recycled water schemes.

Most boutique developments that embed water sensitive principles are not in the locations that need greening and cooling the most. Some of the hottest suburbs are the least likely to attract investment. They are also the least able to afford price increases associated with large infrastructure augmentations or innovations such as scarcity-based pricing.

Summit participants lauded the current recycled water review, instigated by the Hon. Don Harwin as a great start to creating change. They noted the challenges include moving beyond recycled water to a fair and equitable assessment of all water services with links between planning and integrated delivery.

Management of the water cycle is also siloed and fragmented in planning, funding and operation. For example, stormwater is considered separately to water and wastewater services. Funding and operation of assets are split between local councils and Sydney Water.

Planning instruments to minimise stormwater runoff volumes and pollution are inconsistent across local government jurisdictions. And water sensitive urban design relies on the capacity of individual councils. This results in poor environmental outcomes in areas that often need most attention.



# Good things are happening – but we need collaboration and ‘policy with teeth’



Sydney has numerous plans that outline the importance and changing role of water

**“There was furious agreement across the diversity in the room about the direction that we need to head while recognising the complexity of the issue that no one party can solve alone.”**

Cynthia Mitchell, Deputy Director and Professor of Sustainability, Institute for Sustainable Futures, University of Technology Sydney

## Aligned vision for a water sensitive Sydney

The Greater Sydney Region Plan articulates a strategic vision for Sydney. The 2017 Metropolitan Water Plan recognises the value of water to resilience, liveability, diverse water supplies and adaptive planning. The water sensitive principles in these and other strategies align with those promoted by industry bodies such as the Water Services Association of Australia and the International Water Association. These water sensitive ideals are replicated in plans across Australia, including in Victoria where:

**“Water is now being recognised as a main driver for the resilience and liveability of urban areas”<sup>4</sup>**

<sup>4</sup> Victoria State Government (2016) Water for Victoria – Water Plan. [https://www.water.vic.gov.au/\\_data/assets/pdf\\_file/0034/58849/Water-Plan-summary.pdf](https://www.water.vic.gov.au/_data/assets/pdf_file/0034/58849/Water-Plan-summary.pdf) (accessed 16 April 2018)





Cook's River naturalisation project / Photo provided by Sydney Water

### Projects demonstrate we can create water sensitive outcomes

Projects across Sydney show the leadership, commitment and capacity to world leading water sensitive outcomes. These include: Rouse Hill residential recycled water scheme, Pennant Hills Golf Course sewer mining scheme, Central Park development, Canada Bay stormwater harvesting scheme and catchment-based collaborations to improve the health of the Cooks, Georges and Parramatta rivers.

These examples show successful outcomes can be achieved for small to large place-based projects funded by both public and private investors.

The Metropolitan Water Plan recognises the economic and resilience benefits of investments at multiple scales and sources. Studies in other areas show substantial economic savings (billions of dollars in Melbourne) in opportunistic small-scale investment over large scale investment in desalination<sup>5</sup>. These small-scale infrastructure models also allow for the faster release of land for housing and provide additional social and environmental benefits, such as improved local waterway health, cooling and greening.

If we do not support investment in water sensitive infrastructure now, we will lock Sydney in to further inflexible large-scale infrastructure investments.

### Sydney needs a water policy framework

**“We need to go beyond bespoke solutions in individual locations and embed this management in a way that’s available to all of our communities in an equitable and affordable way.”**

Kaia Hodge, Head of City Futures, Sydney Water

There is neither a statutory base nor a clear leadership and coordination role to encourage widespread water wise investment in Sydney. We need clear policy that enables a diversity of market responses to achieve a water sensitive vision.

<sup>5</sup> Mukheibeir, P and Mitchell C. (2014). “Decision-making under future uncertainty: developing adaptive urban water strategies.” International Journal of Water 8(4): 435-447.

# Recommendations

Sydney needs a clear urban water policy framework that ensures our communities are safe, comfortable and prosperous, regardless of their address.

## 1 Ensure collaboration and community engagement throughout the entire planning and development process.

This means:

### 1.1 broad collaboration underpinned by clear policy and a sense of urgency

The calibre, breadth and enthusiasm of summit participants was testimony to the level of commitment to changing how we manage urban water in Sydney. We need clear policy, clarity around roles and responsibilities and strong leadership to realise the vision for Sydney. We can't afford to wait until the next drought to plan for the future. We need change now.

**“We are going to need a lot more collaboration across all levels of government, public and private water utilities, industry, developers and the community if we wish to realise the vision of a water sensitive city”**

*Kurt Dahl, Managing Director, Permeate Partners*

### 1.2 recognising the value of and learning from Aboriginal and Torres Strait Islander peoples' understanding of managing water in the land for millennia

Our approach to place-based solutions can benefit greatly from Aboriginal and Torres Strait Islander peoples' leadership, wealth of knowledge and connection with land and water. This is particularly relevant to managing our open space and waterways.

**“No one knows better how waterways work and how the water moves with the landscape than traditional owners’... ‘How do we embody that respect for those natural water systems and at the same time perform all the urban functions that we want?’”**

*Rob Skinner, Director Water Sensitive Cities, Monash Sustainable Development Institute*

### 1.3 putting people at the heart of place making so community values are considered in investment decisions

We need to open the dialogue with regulators to make sure we include community values and adequately consider the long-term legacy we create through infrastructure investment. The millennium drought catalysed a change in thinking and decision making in Melbourne where utilities now must consider broader community outcomes in investment decisions. These include recreation, social cohesion, comfort and connectedness.

**‘We need to move towards outcomes based regulation across health, the environment and economics. Outcomes should be determined by the community, not well to do stakeholders and industry people’**

*Adam Lovell, Executive Director, Water Services Association of Australia*





Central Park's iconic green wall uses recycled water / Photo provided by Flow Systems

## 2 Include water at the outset of place-based planning and recognise water's role in liveability and resilience.

This means:

### 2.1 considering water early in place-based planning and mandating water sensitive urban design on a catchment basis

Water sensitive principles must be embedded and roles and responsibilities defined during early planning stages. Water sensitive urban design must be considered on a catchment basis.

**'Make sure you're integrating water planning with other urban planning functions – transport, energy and public health - at the outset, not at the end of the urban planning process'**

*Rob Skinner, Director Water Sensitive Cities, Monash Sustainable Development Institute*

### 2.2 recognising water's role in creating liveable, resilient communities beyond sanitation, safe drinking water and flood mitigation

Water and specifically recycled water, plays a role in promoting drought resilient and diverse water supplies, greening and urban cooling and improved social and environmental health.

**“NSW must make a transition to next generation water management now – we simply cannot continue business approaches that just bring water into and take water out of communities. Such practice is unsustainable on its own, particularly when Sydney needs more affordable water to enhance resilience and liveability”**

*Terry Leckie, Founder and Director, Flow Systems*

### 2.3 integrating water service delivery across the full water cycle

All types of water including drinking water, wastewater, stormwater and recycled water need to be considered and managed in an integrated way. Water infrastructure must align with and support future growth.



Water play enhancing liveability at Pyrmont Park / Image: City of Sydney

### 3 Enable investment by the private and public sector for equitable and affordable water sensitive outcomes through regulatory reform.

This means:

#### 3.1 driving investment we need, not duplicating the past

The investment framework must send clear and timely signals that drive the investment we want – not extend the types of investments we have made in the past. We need a strategic approach that best supports city outcomes.

**‘This is not about number crunching. This is about having a vision that’s so far beyond the individual approaches we’ve taken in the past.’**

*Rod Simpson, Environment Commissioner, Greater Sydney Commission*

#### 3.2 understanding that culture is critical to enabling change

Richard Denniss described the questions around how we manage water in the future as cultural questions as much as economic questions. Culture is critical in shaping our future yet we can’t predict how it will change. Decision makers should be wary of the false precision of models based on assumptions applying over decades, especially options that lock out alternatives.

**‘if we embrace these cultural changes... we can actually make citizens’ lives a much better place’  
‘Models are an important input, but the directions of change matter far more than trying to precisely forecast the timing of particular turning points or when one solution will become cheaper than another’.**

*Richard Denniss, Chief Economist, The Australian Institute*

#### 3.3 encouraging and supporting private sector innovation and moving towards people centric design

Local innovations such as Sydney Science Park and Central Park are only possible by a change in perspective and a move towards people centric design. It is important that our regulatory framework encourages and supports innovation, not stifle it.

**‘We must enable good development, rather than just saying no to the bad stuff.’**

*Jim Bentley, Managing Director, Hunter Water*

#### 3.4 establishing funding mechanisms linked to the shared vision of liveability

Parallels to the energy market were raised during the summit. This included the idea that funding models used to generate investment in alternative energy could also apply to the water sector. Small levies applied across the consumer base could generate large investments in innovative service delivery. Examples include the Renewable Energy Target and the NSW Climate Change Fund.

#### 3.5 recognising the economic and resilience benefits of investment at multiple scales and sources

Incremental small scale investments to diversify our water supply can defer the large investments that will be required to expand the existing system including the Sydney desalination plant. Small scale infrastructure models have been shown to provide additional social and environmental benefits such as improved waterway health, urban greening and cooling.







## Speakers

**Lord Mayor Clover Moore,**  
City of Sydney

**Cynthia Mitchell**  
Deputy Director and Professor  
of Sustainability  
Institute for Sustainable Futures,  
University of Technology Sydney

**Lisa Currie**  
Manager Water Strategy  
City of Sydney

**Professor Rob Skinner**  
Director Water Sensitive Cities  
Monash Sustainable  
Development Institute

**Richard Denniss**  
Chief Economist  
The Australia Institute

**Rod Simpson**  
Environment Commissioner  
Greater Sydney Commission

**Beck Dawson**  
Chief Resilience Officer  
100 Resilient Cities

**Kurt Dahl**  
Managing Director  
Permeate Partners

**Eamon Waterford**  
Acting CEO  
Committee for Sydney

The City would like to  
acknowledge the Institute  
for Sustainable Futures  
for its contribution to this  
document.

## Attendees

**Aither - Sydney Office**

**Wilfred Finn**, Associate Director

**Arup**

**Daniel Lambert**, Australasia Water and  
Urban Renewal Leader

**Aurecon**

**Julian Briggs**, Design Director - Water  
and Wastewater Treatment

**Stephanie Clarke**, Water Leader  
Adelaide Melbourne

**Bayside Council**

**Alexandra Vandine**, Senior  
Environment and Open Space Officer

**Blacktown City Council**

**Keysha Milenkovic**, Waterways  
Rehabilitation Officer (Team Leader)

**Campbelltown City Council**

**Kelly Williamson**, Senior Sustainability  
Officer

**Canada Bay Council**

**Petrina Nelson**, Acting Parks  
Management Coordinator

**Celestino Pty Limited**

**Chris Gantt**, Development Director

**City of Canterbury Bankstown**

**Daniela Santucci**, Manager  
Sustainable Futures

**City of Sydney**

**Cr Linda Scott**, Councillor

**Caroline Andrews**, Campaign  
Manager

**Sarah Greig**, City Conversations  
Operations Team Leader

**David Beaumont**, Community  
Engagement Coordinator

**Tom Belsham**, Manager Sustainability  
Programs

**Syd Cassidy**, Director, City  
Engagement

**Melinda Dewsnap**, Sustainability  
Engagement Manager

**Clare Donovan**, Planning Program  
Manager - Sustainability

**Chris Derksema**, Sustainability  
Director

**Lauren Dragicevich**, Project  
Development Engineer

**Julie Grimson**, Manager, City  
Conversations

**Joel Johnson**, Manager City Greening  
and Leisure

**April McCabe**, Policy Manager

**Anna Mitchell**, Senior Sustainability  
Strategist

**Dustin Moore**, Specialist Planner -  
Strategic (Sustainability)

**Asim Nizam**, Project Manager

**Gina Pavlovic**, Sustainability Manager

**Mathuri Santhirasegaran**, Executive  
Producer

**Mary Watt**, Manager, Environmental  
Projects

**Pratik Patel**, Project Development  
Engineer

**Rachel Ryan**, Policy Advisor

**Ebony Heslop**, Senior Project  
Manager

**City of Parramatta Council**

**Dr Paul Hackney**, Senior Project  
Officer, Environmental Outcomes

**Cooks River Alliance**

**Sue Burton**, Executive Officer

**Colliers International**

**Mr Vijay Gokarn**, Associate Director,  
Engineering & Operations

**Department Planning and Environment**

**Nanda Altavilla**, Recycled Water  
Assessment Specialist

**Zoe Sadiq**, Senior Precinct Planner,  
Land Release

**Prue Gusmerini**, Director Water and  
Utilities

**Gwenda Kullen**, Manager, Land  
Release

**DPE WaterSmart Cities**

**Peter Randall**, Principal Planning  
Officer - Engagement

**Brendan Fletcher**, A/Manager Metro  
Water Policy NSW

**Downer Utilities**

**Rod Naylor**, Executive General  
Manager Water Services

**Ernst & Young**

**Amber Shergis**, Manager,  
Infrastructure Advisory



## Frasers

**Andrew Thai**, Sustainability Manager, Development

## Flow Systems

**Terry Leckie**, Founder and Director

**Lisa McLean**, Executive Manager Corporate Affairs & Marketing and Executive Manager, Climate Positive

## Greater Sydney Commission

**Lyndall Pickering**, GSC South Creek Lead

**Greg Joblin**, Senior Planning Manager

## Green Building Council Australia

**Jonathan Cartledge**, Head of Public Affairs

## GPT Group

**Bruce Precious**, National Manager Sustainability and Safety

## Hunter Water

**Jim Bentley**, Managing Director

**Emma Turner**, Regulatory Economist

**Peter Shields**, Manager Regulatory Policy

## Independent Water Advisory Panel

**Ross Chapman**

## Infrastructure Partnerships Australia

**Lydia Robertson**, Senior policy advisor utilities

**Gavin Chan**, Senior Policy Adviser

## Inner West Council

**Lana Frost**, Urban Ecology Coordinator

## Institute Sustainable Futures

**Simon Fane**, Urban Water Researcher & Consultant

**Chris Briggs**, Research Principal

**Rachel Watson**, Senior Research Consultant

## IPART

**Narelle Berry**, Director, Water Licensing and Compliance

**Jean-Marc Kutschukian**, Director, Water Pricing

## Landcom

**Lobaba Idris**, Sustainability Officer

## Lend Lease Living Utilities

**Frazer Hill**, Senior Commercial Manager

## Metropolitan Water Directorate

**Reid McNamara**, Principal Planning Officer

## Newcastle Council

**Declan Clausen**, Deputy Lord Mayor

## NSW Environment Protection Authority

**Paul Wearne** Branch Coordinator – Strategy & Coordination Unit

## NSW Health

**Graham Burgess**, Deputy Director-Senior Environmental Health Officer

**Katrina Wall**, Senior Project Officer, Water Unit

## Office of Environment and Heritage

**Peter Freewater**, Senior Water, Floodplain & Coast Officer (Greater Sydney)

## Parramatta River Catchment Group

**Simon Leiva**, Sustainability Manager, Development

## Resilient Sydney

**Kristen Gabriel**, Senior Project Manager

**Southern Sydney Regional Organisation of Councils (SSROC) Inc.**

**Helen Sloan**, Program Manager

## Sydney Coastal Councils Group Inc.

**Belinda Atkins**, Manager Projects and Programs

## SPLASH

**Kristy Good**, Splash Coordinator

## Sydney Water

**Phill Birtles**, Service Planning Lead, Liveable City Solutions

**Philip Davies**, Head of Regulatory Economics

**Danielle Francis**, Long Term Strategy Team

**Paul Plowman**, General Manager, Liveable City Solutions

**Emma James**, Water Sensitive Urban Design

**Michael English**, Competition and Licensing Manager

**Freya Hartley**, Principal Advisor Environmental Policy, Customer, Strategy and Regulation

**Kaia Hodge**, Head of City Futures

## Sutherland Shire Council

**Mandy Brady**, Utilities Analyst

**Anthony Russell**, Utilities Technical Officer

## Presync

**Hudson Worsley**, Founder and Community Director

## UNSW

**Stuart Khan**, Associate Professor, School of Civil & Environmental Engineering

**Greg Leslie**, Acting Director, Global Water Institute

## Urban Growth Development Corporation

**Ian Cady**, Assistant Development Director

## UTS

**Professor Rob Roggema**, Professor Sustainable Urban Environments

## UNAA

**Dr Patricia Jenkins**, NSW President

## VEOLIA ANZ

**Robert Horninge**, General Manager - Municipal Water Business Development

**Alban Delpey**, Operations & Maintenance Manager - Fairfield Recycled Water Plant

## Water Services Association Australia

**Adam Lovell**, Executive Director

## WESROC

**Charles Casuscelli**, CEO

