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Reference: StP 2016/00286
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29 July 2016

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Dear Dr Boxall

IPART END OF TERM REVIEW HUNTER WATER CORPORATION OPERATING LICENCE 2012-2017

Newcastle City Council (Council) acknowledges the open and collaborative working relationship held between Council and Hunter Water on a range of initiatives.

Hunter Water and Council have significant interlinking ownership of stormwater assets in the Hunter Region, with much of Councils local drainage system feeding into Hunter Water's trunk drainage system. The shared nature of the system, provides an overarching complexity as the operating requirements of Hunter Water's stormwater assets is undefined. IPART's review of the Hunter Water operating licence presents a unique opportunity to define the role of Hunter Water in managing its stormwater and drainage assets.

The clarity that can be provided by the updating of Hunter Water's Operating Licence will improve the working relationship between stormwater asset owners to achieve sustainable outcomes for the community.

Our review is presented in the following sections:

1. Background,
2. Hunter Water Operating Licence Requirements for Stormwater Drainage,
3. Comparison of Hunter Water and Sydney Water Hunter Water Operating Licence Requirements for Stormwater Drainage and Activities,
4. Hunter Water Approach to Water Quality, and
5. Interpretation of the Hunter Water Operating Licence Requirements.

1 Background

Hunter Water Corporation owns a range of Stormwater Assets including:

i) Throsby Creek Stormwater System, Newcastle & Lake Macquarie – open channel with some small covered sections are in concrete (55 kilometres draining approximately 3,000ha);
ii) Cottage Creek Stormwater System, Newcastle – mainly open, with concrete trapezoidal and rectangular sections up to 12.3 metres wide. Covered sections are in concrete with small laterals of reinforced concrete pipes (18.1 kilometres draining approximately 600ha);
iii) Jesmond Stormwater Channel (Dark Creek System), Newcastle - open section with the portions under roadways constructed of box section (5 kilometres draining approximately 700ha);
iv) Wallsend Plattsburg Stormwater Channel, Newcastle - reinforced concrete open channel with reinforced concrete box culverts or pipe branches (2.7 kilometres draining approximately 2,000ha);
v) Cardiff Stormwater Channel (Winding Creek System), Lake Macquarie – open concrete trapezoidal or rectangular section with the portions under roadways constructed of box section (4 kilometres); and
vi) Cessnock Stormwater Channel System, Cessnock – generally open section, but some lengths in roadways are box section (10.4 kilometres).

Newcastle City Council is responsible for numbers 1 to 4 above, Lake Macquarie City Council is responsible for number 5 and Cessnock Council for number 6.

Hunter Water has responsibility only for the major concrete channels and culverts through many of these catchments and its role is to maintain the current capacity of these stormwater drains. Councils are responsible for the management of street drainage and any 'natural' creeks upstream and downstream of the concrete channels. NSW Roads and Maritime Services is involved in drainage from major roads and highway.

2 Hunter Water Operating Licence Requirements for Stormwater Drainage

Section 1.3.1 of the Hunter Water Operating Licence and section 13(1)(b) of the *Hunter Water Act*, requires Hunter Water to "*provide, operate, manage and maintain a drainage service within the capacity of the drainage service included in the business undertaking transferred under Part 3 by the Hunter Water Board to the Corporation as at the date of the transfer of the business undertaking.*"

For this service Hunter Water charges $73.47pa for houses in its designated drainage catchments (with other charges for other landuses). Hunter Water's income from its drainage charge is not readily published, however, the Hunter Water 2014-15 Annual Report stated that there were 69,732 properties liable for drainage charges (28% of properties served by potable water). Conservatively, if the standard residential change ($73.47) was applied to half of these properties and the multi-unit charge ($27.19) was applied to the other half of properties, Hunter Water would generate over $3.5m in income for stormwater management.

For these funds Hunter Water has a target of 0.7km of stormwater drainage channel rehabilitation per year and undertakes maintenance (mowing, rubbish removal and cleaning of trash racks) for an annual operating expenditure of approximately $1.4m. This is outlined from the following two tables from IPARTs review of Hunter Water pricing.

Between 2017 and 2020, HW's proposed total regulated opex (excluding HW's proposed cost savings) allocated to water, wastewater, stormwater and recycled water amounts to a total of $537.4 million.

Table 4.9 : HW proposed opex ($2016 million)[51]

Area of Expenditure	2017	2018	2019	2020	Total
Corporate	39.5	40.2	41.2	41.5	162.4
Water	43.8	44.3	45.1	45.7	178.9
Wastewater	44.2	47.1	47.1	48.2	186.6
Stormwater	1.4	1.3	1.4	1.4	5.5
Recycled	0.6	0.6	1.2	1.7	4.1
Total	129.5	133.5	136.0	138.5	537.4

4.9.3 Stormwater

Relative to water and wastewater, HW's opex for stormwater is minor. IPART's 2013 price determination allowed for stormwater operating cost was $965,000. HW forecast opex of $1.3 million in 2016, a difference of $358,000.

The main cause of the higher opex is an increase of $312,000 due to an increase in stormwater operating costs due to increasing expectations of customers and the community for higher maintenance of the stormwater assets (mowing, rubbish removal and clearing of trash racks) as well as additional identification of resources working directly on stormwater activities.

There appears to be a significant short-fall between the income generated from the stormwater service charge ($3.5m+) and the expenditure on stormwater (~$1.4m). Newcastle Council firmly believes that:

- All monies raised by Hunter Water under its Stormwater Drainage Charge, should be expended on stormwater services to its customers.

3 Comparison of Hunter Water and Sydney Water Hunter Water Operating Licence Requirements for Stormwater Drainage and Activities

Section 1.3.1 of the Sydney Water Operating Licence and section 14(1)(b) of the *Sydney Water Act*, requires Sydney Water to "*provide, operate, manage and maintain a stormwater drainage system within the capacity of the stormwater drainage system included in the business undertaking transferred under Part 3 from the Water Board to the Corporation as at the date of the transfer of the business undertaking*".

The provisions for drainage between Sydney Water and Hunter Water within each of the organisations operating licences are identical.

Similar to Hunter Water, Sydney Water charges $73.47pa for houses in its designated drainage catchments (with other relevant charges for other landuses). Sydney Water generates approximately $30m per year in income from its stormwater service charge.

Actual expenditure by Sydney Water for stormwater services over 2012-16 and proposed expenditure over the 2016-20 price path are shown in Table 2. The information in Table 2 is based on Tables 8-9 and 8-19 in Sydney Water's Prices for 2016-20[1]. Table 1 clearly identifies three types of activities undertaken by Sydney Water for drainage: flood risk, waterway health and renewal (and maintenance). Hunter Water only undertakes renewal and maintenance.

Table 1: Sydney Water Stormwater Actual Expenditure 2012-16 and Proposed Expenditure 2016-17 ($m)

	2012-13	2013-14	2014-15	2015-16	**Total**	2016-17	2017-18	2018-19	2019-20	**Total**
Renewal (Actual)	4	7	17	17	**46**					
Renewal (proposed)						19	15	24	13	**71**
Waterway Health (proposed)						3	3	7	5	**18**
Flood Risk (proposed)						1	2	4	6	**13**
Total	**4**	**7**	**17**	**17**	**46**	**23**	**20**	**36**	**24**	**103**

In the 2012-16 period Sydney Water invested $46 million to renew and refurbish stormwater assets including open channels, culverts and pipes. The funds also included projects to minimise flooding risk (and associated economic and community impacts) and increases public safety, such as at Green Square.

Over this period Sydney Water has maintained and increased the hydraulic capacity of the stormwater network and are collaborating with local councils to address flooding risks for the community.

As seen above both Sydney Water and Hunter Water have the same Operating Licence provisions (Section 1.3.1) requiring these corporations to:

provide, operate, manage and maintain a stormwater drainage system within the capacity of the stormwater drainage system included in the business undertaking transferred under Part 3 from the Water Board to the Corporation as at the date of the transfer of the business undertaking

[1] Sydney Water (2015b). Our Plan for the Future: Sydney Water's Prices for 2016-20, Sydney Water, Sydney.

The critical difference is that Sydney Water undertakes works to address flooding risk, waterway health and asset renewal, while Hunter Water focuses solely on asset renewal.

Sydney Water is involved and provides resources to floodplain management planning with councils and undertakes works to amplify its stormwater assets. The experience of Newcastle Council is that Hunter Water does engage in floodplain management planning through attendance at Committee meetings but does not undertake works to amplify its stormwater assets. This is despite the fact that Sydney Water and Hunter Water have the same operating licence requirements and charges.

This lack of action on flooding is significant as Hunter Water is responsible for the majority of trunk drainage in the City, noting that approximately one third of properties in Newcastle are flood-prone. Furthermore, Hunter Waters' lack of action impacts on future development such as Newcastle West, where capacity constraints within the Hunter Water stormwater system at Cottage Creek impact on redevelopment of the area.

IPART has expressed an objective of aligning the operations of water authorities (and other utilities). For Hunter Water to be consistent with Sydney Water, and to facilitate further development in Newcastle in line with NSW Government Plans for revitalising Newcastle, Council recommends that:

- Limitations over Hunter Water undertaking works to improve the capacity of the drainage system hindering development within the catchment be removed, such that Section 1.3.1 of the Hunter Water Operating Licence and section 13(1)(b) of the Hunter Water Act, be amended to Hunter Water to "provide, operate, manage, **augment** and maintain a drainage service for its assets".

- Subsequently, Hunter Water should undertake similar roles and responsibilities for drainage that Sydney Water does including:

    - Asset renewal, waterway health and flooding risk. This includes the maintenance, renewal and augmentation of their assets to address flooding issues identified in documents such as Floodplain Risk Management Plans.

    - Hunter Water actively engage in the **preparation and implementation** of Floodplain Risk Management Plans in accordance with the NSW Government's Flood Prone Land Policy.

4 Hunter Water Approach to Water Quality

Hunter Water is responsible for the operation, management, and maintenance of its assets including open concrete channels, culverts, flood gates, gross pollutant traps and pipes in their ownership. The experience of Newcastle Council is that most asset renewal by Hunter Water is replacing like of like, ie replacing a degraded concrete asset and with a new concrete asset.

Hunter Water's approach to stormwater quality is summarised on its website which states "*Our stormwater system directs rainwater and surface run-off to creeks, rivers, lakes and the ocean. Unlike the wastewater, or sewerage system, stormwater does not need to be treated.*"

Newcastle Council disagrees with this statement and the inconsistency of this message with the intent of the *Protection of the Environment Operations Act 1997*. There is a need to treat stormwater not only for environmental health but also for protecting of stormwater assets from degradation.

Section 4.9.3 of IPARTs review of pricing indicated that the community has "increasing expectations ..... for higher maintenance of stormwater assets". This finding is consistent with Customer Surveys by Sydney Water, which show that 3 of the top 8 actions that Sydney Water can undertake to improve liveability, relate to improved stormwater management.

Newcastle Council in its 2030 Community Strategic Plan (CSP), identifies the need for greater efficiency in the use of resources, as well as community desire for minimising pollution as outlined in the following table for the 2030 CSP:

Objective

2.1 Greater efficiency in the use of resources

No.	Strategies	Responsibility	Key Partners	Community Outcomes
2.1a	Improve waste minimisation and recycling practices in homes, work places, development sites and public places	The City of Newcastle	Together Today, NSW Government	• Sustainable supply and use of water • Improved air quality • Sustainable use of resources • Achieving a reduction in waste generation and turning waste into recoverable resources • Increased use of renewables
2.1b	Investigate and implement alternative energy technologies, such as wind, tidal, solar and harnessing landfill gas	Federal Government	Energy Australia, NSW Government, Energy research organisations	
2.1c	Educate, promote and support low consumption, sustainable lifestyles	The City of Newcastle	Together Today, Transition Towns, NSW Government	
2.1d	Maximise water efficiency and recycling through water sensitive urban design, capturing stormwater, encouraging substitution of potable water with alternative supply and improving water usage behaviour	Hunter Water	The City of Newcastle, NSW Government	

Newcastle Council is seeking to collaborate with Hunter Water and other stakeholders to meet the vision of the community and improve stormwater quality in its open channels. Hunter Water has historically undertaken water quality improvement works, specifically the Stormwater Environment Improvement Plan under the direction of the Environment Protection Authority in 2000. Council suggests that Hunter Water adopts this approach to the current management of its stormwater system.

Such an approach is consistent with the current plans for improved water planning in Greater Sydney as documented by the Opportunities for a Water Sensitive Greater Sydney (Sydney Water 2016 - Attachment A). Through such an approach, Sydney Water has renewed its stormwater assets in a cost effective manner which contributes to liveability of the area. This renewal is not replacing concrete with more concrete, but has naturalised sections of the Cooks River, with other works at Alexandra Canal at Tempe, Astrolabe Park at Eastlakes, Johnstons Creek and Whites Creek in Leichhardt. As outlined above Sydney Water has also identified specific funds waterway health activities.

The proposed approach is also consistent with the Department Planning and Environment's *Draft Plan for Growing Hunter City*, which calls for opportunities to connect existing open space and recreation destinations with walking and cycling routes, through a Hunter City Green and Blue Grid.

Hunter Water's involvement in the Thorsby Creek Project[2] shows the positive benefits and value proposition of undertaking a more holistic approach to waterway management.

For Hunter Water to be consistent with Sydney Water, and implement waterway health improvements, Newcastle Council recommends that:

- Hunter Water works cooperatively with Councils and other stakeholders (eg Hunter Local Land Services and community groups such as Throsby Government Agencies Committee) to develop Water Cycle Management Plans for each catchment with common drainage.
- Catchment actions identified in each Water Cycle Management Plan are implemented by Hunter Water and Council as required, to meet the community vision for local waterways.
- Hunter Water seek to rehabilitate and naturalise stormwater assets needing renewal, rather than replacing these assets with concrete to align with community objectives outlined in local and state planning documents (CSP and Draft Hunter City Plan).

5 Interpretation of the Hunter Water Operating Licence Requirements

The way forward for Hunter Water to clarify their role and responsibilities in the operating licence is recommended as follows:

- All monies raised by Hunter Water under its Stormwater Drainage Charge, should be expended on stormwater services to its customers.
- Limitations over Hunter Water undertaking works to improve the capacity of the drainage system hindering development within the catchment be removed, such that Section 1.3.1 of the Hunter Water Operating Licence and section 13(1)(b) of the Hunter Water Act, be amended to Hunter Water to "provide, operate, manage, **augment** and maintain a drainage service for its assets".
- Hunter Water adopt the following flood management responsibilities:
    - Asset renewal, waterway health and flooding risk. This includes the maintenance, renewal and augmentation of their assets to address flooding issues identified in documents such as Floodplain Risk Management Plans.
    - Hunter Water actively engage in the **preparation and implementation** of Floodplain Risk Management Plans in accordance with the NSW Government's Flood Prone Land Policy.
- Hunter Water adopt the following waterway health responsibilities:
    - Hunter Water works cooperatively with Councils and other stakeholders (eg Hunter Local Land Services and community groups such as Throsby Government Agencies Committee) to develop Water Cycle Management Plans for each catchment with common drainage.
    - Catchment actions identified in each Water Cycle Management Plan are implemented by Hunter Water and Council as required, to meet the community vision for local waterways.

[2] The Throsby Creek Government Agencies Committee, chaired by the Member for Newcastle, Mr Tim Crakanthorp MP, seeks to deliver cooperative leadership from numerous government agencies with responsibility for the status of the Lower Throsby Creek. The Committee is seeking to further improve the environment of the Throsby Creek water way and its surrounds, and the amenity of the area for residents, visitors and commercial users.

- Hunter Water seek to rehabilitate and naturalise stormwater assets needing renewal, rather than replacing these assets with concrete to align with community objectives outlined in local and state planning documents (CSP and Draft Hunter City Plan).

Yours faithfully

[redacted]

Ken Liddell
ACTING DIRECTOR INFRASTRUCTURE

Attachment: A – Opportunities for a Water Sensitive Greater Sydney

Attachment A – Opportunities for a Water Sensitive Greater Sydney

Opportunities for a Water Sensitive Greater Sydney

The importance of water in our city's future

Overview

There is currently an exciting conversation occurring about the future of planning in Greater Sydney. *A Plan for Growing Sydney* and the formation of the Greater Sydney Commission sets the direction for a more liveable, sustainable and prosperous city.

Water managers and key stakeholders across the city are discussing the importance of integrating water management in the city's future. Collaboratively, they have identified that adoption of innovative urban water management practice presents a significant opportunity to best achieve many of the directions in *A Plan for Growing Sydney*.

Already, several government initiatives are progressing such outcomes. Clear strategic direction and high-level coordination is necessary to support this work and facilitate the adoption of integrated water planning to deliver the benefits of a water sensitive approach through urban renewal and greenfield development.

The Greater Sydney Commission is uniquely placed to provide the leadership and coordination to achieve a Water Sensitive Greater Sydney and deliver on communities' social, environmental and economic expectations.

The Cooperative Research Centre for Water Sensitive Cities was invited to facilitate a workshop in November 2015 to prepare best practice advice and information.

Attending were representatives from Department of Planning and Environment, Office of Environment and Heritage, Sydney Water, Department of Primary Industries Water, Environment Protection Authority and Roads and Maritime Services.

This document represents the outputs from that workshop. It contains:

- a rationale for the adoption of water sensitivity in planning, including principles for adoption
- risks associated with current approaches to urban development and the benefits of a water sensitive approach
- a demonstration of the alignment between water sensitive outcomes and the Commission's objectives
- opportunities on how to facilitate global best practice and deliver a Water Sensitive Greater Sydney.

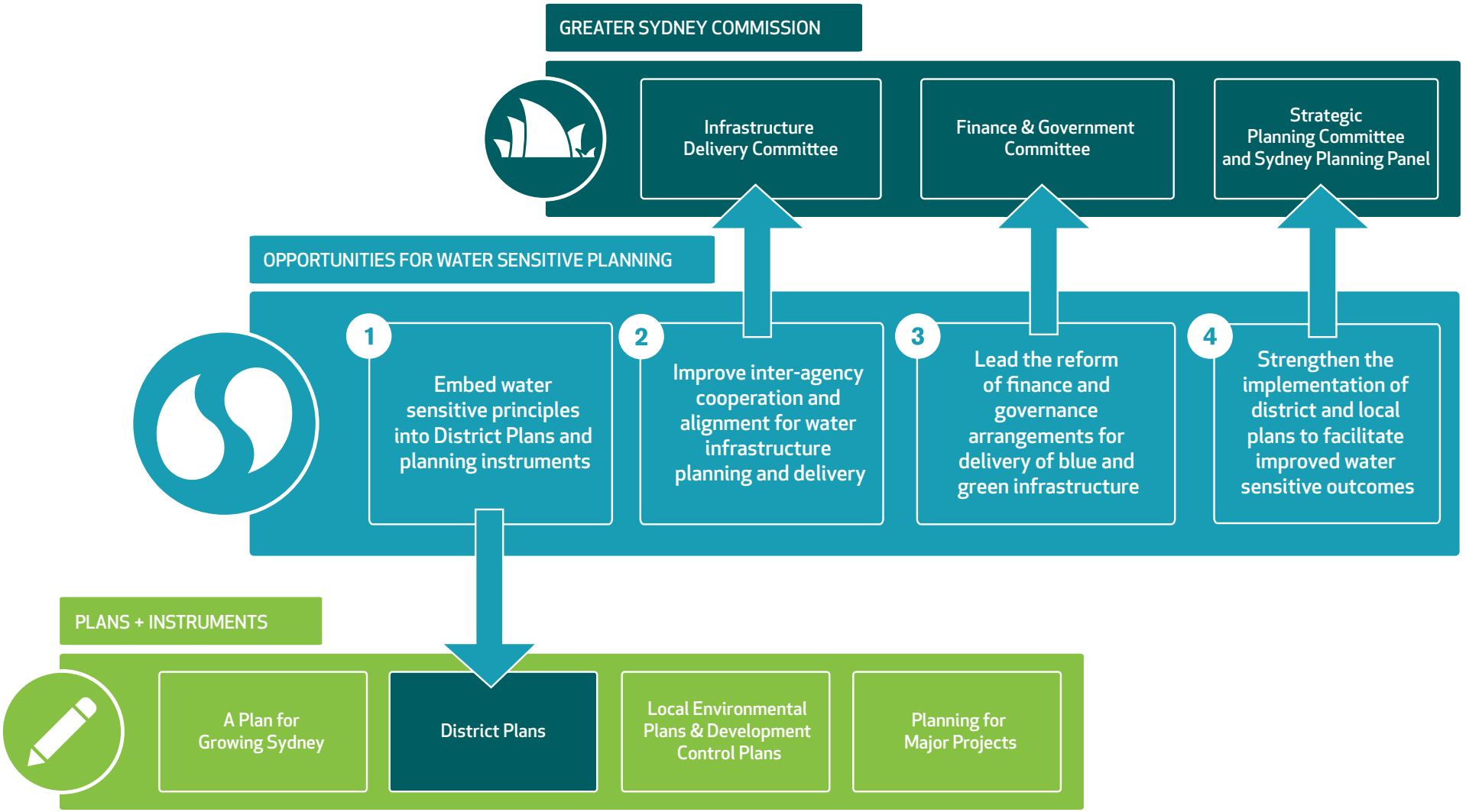
The objective of this document is to encourage further conversation about the great outcomes that water focused planning can contribute to a more sustainable, resilient, productive and liveable Sydney for stakeholders and communities.

Key Messages

To remain internationally competitive in a knowledge economy, cities like Sydney must provide exceptional urban places to attract and sustain investment, and support productive, vibrant communities.

- Current approaches to urban development risk not delivering the social, environmental and economic outcomes that communities now expect.
- A water sensitive approach to urban planning supports more sustainable, resilient, productive and liveable cities.
- The Greater Sydney Commission is uniquely placed to provide leadership and coordination of water and urban planning to achieve these outcomes.

This document contains four opportunities on how the Commission could facilitate global best practice and deliver a Water Sensitive Greater Sydney.


GREATER SYDNEY COMMISSION
Infrastructure Delivery Committee
Finance & Government Committee
Strategic Planning Committee and Sydney Planning Panel
OPPORTUNITIES FOR WATER SENSITIVE PLANNING
1
Embed water sensitive principles into District Plans and planning instruments
2
Improve inter-agency cooperation and alignment for water infrastructure planning and delivery
3
Lead the reform of finance and governance arrangements for delivery of blue and green infrastructure
4
Strengthen the implementation of district and local plans to facilitate improved water sensitive outcomes
PLANS + INSTRUMENTS
A Plan for Growing Sydney
District Plans
Local Environmental Plans & Development Control Plans
Planning for Major Projects

Why Plan for a Water Sensitive Greater Sydney?

A water sensitive approach to urban water planning and management is emerging as global best practice. Water sensitive cities are sustainable, resilient, productive and liveable. They efficiently use the diversity of water resources available within them to enhance and protect the health of urban waterways and mitigate flood risk. They provide enhanced urban amenity through attractive public spaces that also harvest, clean and recycle water, increase urban biodiversity and reduce urban heat island effects[1].

Current approaches to urban planning and development in Greater Sydney typically do not deliver the social, environmental and economic outcomes that communities now expect. A lack of coordination and integration of urban and water planning limits opportunities for effective and efficient delivery of water assets and services. Many communities also face increased vulnerability to economic and climatic risks that impact on liveability.

Several inner Sydney precincts already utilise recycled water and water harvesting to create high quality irrigated open spaces including green walls and green roofs. Integrating water management into the urban landscape through urban planning and design creates more vibrant and liveable places that support higher population density.

However, there are barriers to more widespread adoption of water sensitive urban design and integrated water management in Sydney. Recent research into how water sensitive urban design is enabled across Australia shows NSW is the least progressed in providing the planning, policy and guidance required[2]. This suggests that unless governance and regulatory barriers are addressed, it is unlikely that urban growth areas will be water sensitive, negatively impacting on private investment and liveability.

Communities are becoming more water literate and engaged. Parramatta River and Cooks River communities are advocating for their river to provide swimming opportunities. There is increased demand for the incorporation of water into urban developments, with riverside living and lifestyle becoming a focus of urban developments along the Georges, Cooks and Parramatta Rivers.

Western Sydney is expanding into the South Creek catchment, supported by a new Western Sydney Airport and major investment in road and rail infrastructure. NSW Government agencies are exploring the benefits a water sensitive approach to urban planning could deliver for this region.

1 CRCWSC 2014. Strategic Plan 2014/15 – 2016/17. Cooperative Research Centre for Water Sensitive Cities.

2 Choi & McIlrath (2015) *Policy Framework for WSUD in Five Australian Cities*. Project B5.1, CRC for Water Sensitive Cities.

In greenfield areas, uncoordinated and reactive water infrastructure planning leads to less efficient and more expensive outcomes for future communities through continued reliance on extending large centralised systems, a narrow focus on water and wastewater, and poor integration with urban form. Water infrastructure has the ability to provide multiple benefits to communities. However, the current governance and financing arrangement of service providers, councils and utilities do not encourage such investment.

The District Plan process provides an opportunity for embedding a clear strategic direction on water sensitive cities supported by high-level coordination to deliver healthy water environments, greenspaces and ecologically sustainable growth across Greater Sydney.

The Commission has a unique opportunity to position Sydney as a leader in the global movement towards water sensitive cities. This will support the sustained economic success of the city in an international knowledge economy and offer communities of every district a more sustainable, resilient, productive and liveable place to live and work.

The following vision for a Water Sensitive Greater Sydney has been developed. Embedding these water sensitive principles into district and local planning for Greater Sydney provides a mechanism for delivering ecologically sustainable development from an urban water perspective.

A WATER VISION FOR GREATER SYDNEY:

Sydney will transform to a Water Sensitive City to ensure a resilient, liveable and sustainable future

Sydney's residents, business and visitors have access to high quality landscapes, safe water and healthy waterways.

A Water Sensitive City collects and recycles all sources of water and incorporates a green grid of parks, bushland and other vegetated areas to cool, clean and beautify urban spaces and surrounding landscapes. It empowers communities to make their own decisions about water and creates social connections around urban waterways and water features.

WATER SENSITIVE PLANNING PRINCIPLES FOR GREATER SYDNEY:

1. Promote development that protects, maintains or restores waterway health and the community's environmental values and uses of waterways.
2. Promote integrated water cycle management that holistically considers and drives investment in sustainable water supply, reuse, wastewater, and stormwater infrastructure.
3. Promote development that fosters the relationship between water, landscapes and urban living, to enhance human and social wellbeing and promote community co-design and governance in urban water strategies.

Opportunities for Water Sensitive Planning

Adopting the water sensitive planning principles at a range of scales in metropolitan planning for Greater Sydney provides opportunities to deliver more sustainable, resilient, productive and liveable urban developments. This needs to be supported by strategic direction and interagency coordination, as well as mechanisms for effective implementation.

IMPORTANT OPPORTUNITIES:

1. **Embed water sensitive principles into district plans and planning instruments.**

   This provides clear and overarching direction for the protection and enhancement of urban waterways. It also supports strategic and innovative water infrastructure planning and delivery through local planning. Waterway health and integrated water management outcomes articulated in district plans can be adopted, tailored, and expressed locally for effective on ground outcomes and local community values.

2. **Improve interagency cooperation and alignment for water infrastructure planning and delivery.**

   This enables early consideration of options during the masterplanning of growth areas, and allows alternative servicing arrangements to be explored where they are economically efficient.

3. **Lead the reform of finance and governance arrangements for delivery of green and blue infrastructure.**

   Resolving how green and blue infrastructure is financed and coordinated between local councils, Sydney Water, State Government agencies and developers is critical. Whilst water infrastructure can provide a broad range of community benefits, reform is required to ensure appropriate financing models and value capture encourage this outcome.

4. **Strengthen the implementation of District and Local Plans to facilitate improved water sensitive outcomes.**

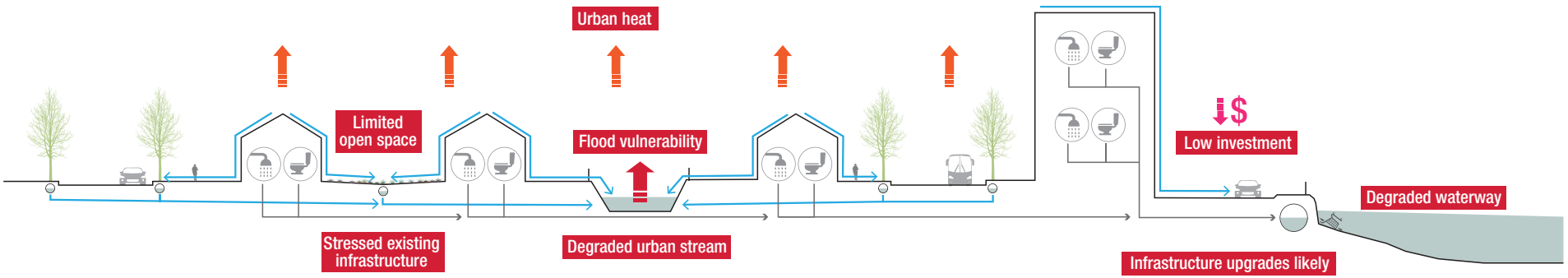
   The GSC Sydney Planning Panel is important in ensuring the intent of the planning development controls and planning policies have an impact on the ground and are supported by regulation.

Risks associated with current approaches to urban development in Greater Sydney

Current approaches to urban development typically do not deliver the social, environmental and economic outcomes that communities now expect. A lack of coordination and integration of urban and water planning limits opportunities for effective and efficient delivery of water assets and services. Risks associated with current approaches to urban development in Greater Sydney are identified here.

CURRENT APPROACHES TO URBAN DEVELOPMENT IN GREATER SYDNEY RESULT IN:

- increased risk of expensive water infrastructure augmentation which impacts on affordability and social equity
- increased flood vulnerability which negatively impacts people and property
- degraded and stressed urban streams and receiving waterways that provide limited ecosystem function and opportunities for human recreation
- increased exposure of communities to urban heat and associated heat-health risks
- competing demands for limited open space, increasing pressure on green infrastructure and associated amenity
- increased vulnerability of irrigated green spaces such as parks gardens and sports fields to drought.

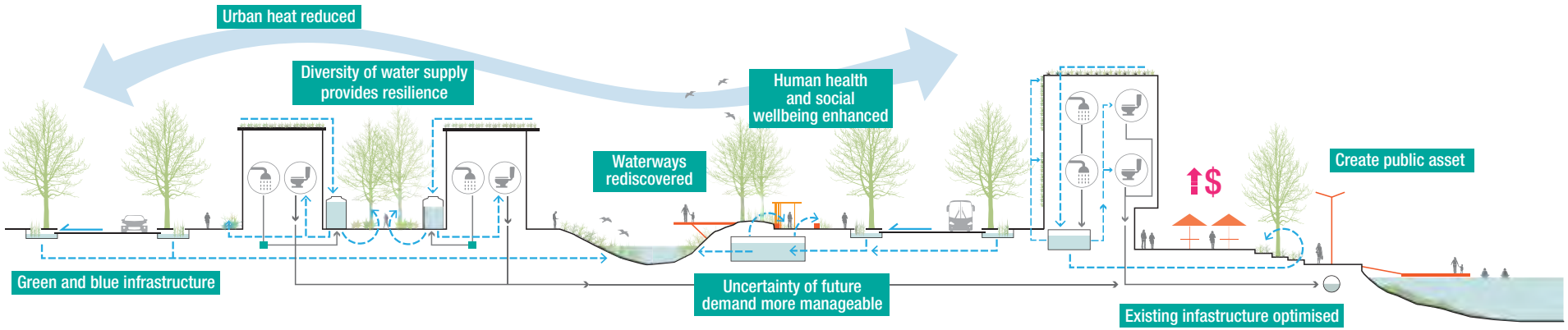


Benefits of a water sensitive approach to urban planning

A water sensitive approach to urban planning supports more sustainable, resilient, productive and liveable cities. This is achieved in-part by more effectively integrating a broad range of urban water considerations into strategic planning and masterplanning, and by identifying how water can enhance environmental, social and economic outcomes. Benefits of adopting a water sensitive approach to planning for Greater Sydney are identified below, and linked to the Commission's objectives on the following page.

IN A WATER SENSITIVE GREATER SYDNEY:

- existing water systems are optimised for greater productivity by using locally sourced water in the city thereby delaying or avoiding major infrastructure costs associated with infill growth
- delivery of green and blue infrastructure is aligned with urban development to manage future water demand and reduce risk of flood damage and insurance burdens
- new and diverse water supply options provide resilience to natural hazards in a changing climate and make the city's growth more sustainable
- irrigated, green open space is allocated strategically to maximize environmental and social outcomes at the lowest cost
- Sydney's urban streams, rivers, bays and beaches are protected, restored and rediscovered as valued public assets. Costly future restoration is avoided
- strategically located and sized open space is incorporated into the urban form to provide habitat and biodiversity, maintain safety from flood flows as well as providing places for communities to connect
- urban heat impacts are mitigated through green infrastructure to enhance community health and liveability, particularly in the west.



ALIGNMENT OF BENEFITS WITH COMMISSION OBJECTIVES

The Influence of Local Context

The water sensitive principles articulated in this document are relevant to all urban development in Greater Sydney. However, the practical expression of the principles will differ according to the regional and local context.

Three examples of how local context could inform different urban responses and associated water sensitive benefits are provided.

This demonstrates the need for flexibility in application of the principles while ensuring the desired outcome is achieved. Improved inter-agency collaboration for water infrastructure planning and delivery, stronger links between State and local government planning processes, and effective planning policies would support this.

EXAMPLE 1
High-density urban development adjacent to a major waterway (eg Parramatta)

- High quality public realm and urban waterway edge encourages people to engage with and celebrate water.
- Diversity of water supply options enables open space to be irrigated with non-potable water, (eg stormwater harvesting or recycled water).
- Trees and green walls mitigate urban heat creating a healthy and attractive environment. Open spaces are designed to also attenuate the impact of major flood events.

Image: McGregor Coxall

EXAMPLE 2
Open space adjacent to a local waterway

- Integration of green and blue infrastructure early in the planning process maximises environmental and social outcomes at the lowest cost.
- Integrated water management initiatives (addressing quality and quantity management) protect and enhance the local waterway and receiving waters.
- Waterway corridors provide a healthy and biodiverse natural environment as well as opportunities for recreation.

Image: McGregor Coxall

EXAMPLE 3
Suburban development in an upper-catchment area

- Green infrastructure (including vegetated open spaces and street trees) assist in mitigating urban heat, encourage healthy lifestyles and enhance biodiversity.
- Access to diversity of water supply options enables non-potable water (rainwater, regional stormwater harvesting or recycled water) to be used for gardens, toilets and laundry.
- Stormwater runoff (quantity and quality) is managed through lot and street-scale initiatives before it enters the local waterway.

Image: Bligh Tanner / Onecollective

Current Initiatives

Many agencies are already working toward water sensitive planning for Greater Sydney.

CURRENT INITIATIVES INCLUDE:

Risk-based decision framework for managing waterway health (Office of Environment & Heritage)

The framework provides an alternate approach for managing waterway health within the strategic planning process based on a more rigorous, transparent and inclusive risk assessment for waterway health.

This process integrates community uses and values of waterways and allows practitioners to assess the performance of various combinations of land use, stormwater and wastewater management scenarios against community expectations for waterways.

Outcomes from application of the framework are translated into management actions and targets in planning instruments. This provides State and local authorities with a clear and consistent strategy for assessing the impacts of proposed developments and a platform for discussing the design of neighbourhoods and precincts with developers.

Metropolitan Water Plan 2016 (DPI Water)

The 2016 Metropolitan Water Plan provides water security to the Greater Sydney Region. It defines an optimal portfolio of measures such as dams, restrictions, desalination, water efficiency and recycling.

These measures work together to reduce costs and maximise available drinking water for a 50 year period. The plan addresses key challenges to water security, including drought, population growth, and climate change. It also seeks to enhance the liveability and resilience of communities and help protect river health.

Water Sensitive Cities Index (CRC for Water Sensitive Cities)

The index is a decision support tool for organisations with urban water responsibilities to benchmark their performance, set targets and track progress towards their identified vision for a water sensitive city.

It provides a robust, evidence-based framework to assist organisations in understanding their role in delivering a water sensitive city, communicating this with their partners and stakeholders, and actively managing their activities and outcomes to deliver on the identified water sensitive vision.

Parramatta River Masterplan (Parramatta River Catchment Group)

This masterplan is currently being developed by a consortium of local and state government organisations to identify opportunities for the vision to "Make the Parramatta River Swimmable again by 2025".

The masterplan will integrate water quality modelling, ecosystem assessment, urban form, community perceptions and an economic assessment to understand options for the River flowing through Sydney's second central business district.

Conclusion

The environmental, social and economic benefits to Greater Sydney of transitioning towards a water sensitive city are significant. However they can only be achieved through improved leadership and coordination of water and urban planning. Current activities in NSW demonstrate the willingness and desire of government organisations and the community to move in this direction. With the support of the Greater Sydney Commission, these activities can form part of the formal growth strategy for Greater Sydney and accelerate the achievement of its objectives.

SOUTH CREEK

Much of the forecast 900,000 population growth for Western Sydney will occur within the South Creek catchment, the longest freshwater creek in Sydney. The transformation of the 630 km^2 catchment from predominantly peri-urban, pasture and market gardens to an urban landscape will radically change the form and ecology of this waterway.

Currently, there is no overarching strategy for the waterway and planning of infrastructure is not coordinated with specific ecological or social outcomes.

Despite this, it is estimated around $3B in stormwater and flooding infrastructure and land purchase will be required to support the growth areas. More will be spent on the delivery of water supply and wastewater infrastructure and ongoing maintenance.

There is an opportunity for the South Creek corridor to be a destination and identity for Western Sydney residents and a waterway corridor that provides amenity, recreation and other ecosystem services, such as urban cooling, to those who are not able to easily travel to the coast.

Opportunities for a Water Sensitive Greater Sydney

The importance of water in our city's future

Prepared by the Cooperative Research Centre for Water Sensitive Cities together with LindseyB and representatives from a number of NSW State Government agencies. Graphics by Container Creative and McGregor Coxall.

The Cooperative Research Centre (CRC) for Water Sensitive Cities brings together inter-disciplinary research expertise and thought-leadership to revolutionise water management in Australia and overseas. In collaboration with over 80 research, industry and government partners, it delivers the socio-technical urban water management solutions, education and training programs, and industry engagement required to make towns, cities and regions water sensitive.

The NSW agencies that contributed to this document include: Greater Sydney Local Land Service, Department of Planning & Environment, Environment Protection Authority, DPI Water, Office of Environment & Heritage, Roads and Maritime Services and Sydney Water.

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Sydney WATER

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Translating technical ideas into policy and practice

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