

Water sensitive urban design

Creating more liveable and water sensitive cities in South Australia





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Foreword

South Australians are passionate about and value water highly. This was particularly evident during the last drought and in the present day in our concern for the future of the River Murray.

Most South Australians live in Adelaide, or in regional cities or towns. How we plan, build and look after our urban areas can ensure more liveable environments and a higher quality of life. Urbanisation has a significant impact on a region's hydrology and if we do not consider how our towns and cities interact with the water cycle, we may be missing opportunities to maximise economic, social and environmental benefits.

Issues such as flooding, the provision of green space, urban heat island effects, impacts of stormwater on coastal environments and maintaining stream ecology can all be managed through a stronger approach to water sensitive urban design (WSUD).

As the Minister responsible for water resources, sustainability and environmental protection, I recognise the opportunities for WSUD to support a strong State economy and healthy communities in concert with socially and environmentally responsible urban land use.

Water sensitive urban design – creating more liveable and water sensitive cities in South Australia sets out the South Australian Government's position on WSUD in a local context, provides State-wide WSUD 'targets' for new developments and details the role that Government will play in collaboration with other stakeholders to maximise the use of WSUD approaches.

This document is an important step towards establishing WSUD as a standard approach in the creation of South Australia's built environment and delivering more liveable towns and cities.



The Hon Ian Hunter MLC
Minister for Sustainability, Environment and Conservation
Minister for Water and the River Murray

1. Introduction

Transitioning South Australia to a water sensitive State is a key objective of the State's water security plan, *Water for Good – a plan to ensure our water future to 2050*, and is an inherent aim of the Planning Strategy which guides South Australia's future urban and regional development.

Both *Water for Good* and the Planning Strategy recognise water sensitive urban design (WSUD), as an important element in delivering more liveable urban environments, and both support much greater prominence of WSUD within South Australia than has occurred to date.

WSUD differs from traditional urban design by better recognising and addressing our impacts on the water cycle. WSUD is:

*“an approach to urban planning and design that integrates the management of the total water cycle into the land use and development process”.*¹

Other Australian jurisdictions have recognised the importance of designing their cities and towns in a way that integrates with the water cycle, so that the negative effects of urbanisation can be transformed into positive community benefits.

The typical effects of urbanisation on the water cycle include:

- Undesirable hydrological impacts (typically increased runoff volumes and peak flow, altered timing of flows and reduced infiltration) – due to covering previously pervious areas by impervious surfaces such as buildings and roads;
- Water pollution – due to the influence of urban land use activities and landscapes designed to rapidly convey water to receiving waterways and without incorporating adequate measures to detain pollutants;
- Catchment drying – due to reduced infiltration and storage of rainfall runoff;
- Increased reliance on imported water – due to reduced area of natural catchment available for harvesting good quality water.

Significant advances have already been achieved by State and Local Government and the private sector with the integration of land use design with the urban water cycle. This is best demonstrated in the significant gains being made with the introduction of stormwater harvesting and re-use schemes in new developments and existing built areas.

This document outlines a comprehensive and multifaceted approach to WSUD and its implementation, recognising the need for a collaborative approach across State and Local Governments, the private sector and the community.

The approach has been developed based on the best available science provided by the Goyder Institute for Water Research, the experience of other jurisdictions and through consultation with Local Government, the private sector and regional Natural Resources Management Boards.

The key elements of this approach include:

- Establishing clear and consistent objectives and targets for WSUD from a State perspective in regard to new urban developments and infrastructure;
- Ensuring stronger linkages between the urban development and planning system and urban water management;
- Ensuring a consistent approach to WSUD across all relevant State policy areas;
- Establishing processes for State Government leadership in adopting WSUD principles in its own developments;
- Providing Local Government and private sector support by building capacity and skills through an ongoing capacity building initiative;
- Supporting ongoing research into WSUD approaches and impediments;
- Establishing arrangements for ongoing monitoring and assessment to demonstrate the benefits of WSUD are achieved and sustained over the long term.

A stronger approach to WSUD is, however, only a starting point for improving the way that we manage our urban water resources so that economic, social and environmental outcomes are maximised. The Government is committed to the development of a comprehensive integrated urban water management plan for Greater Adelaide. The plan will ensure that we consider urban water resources in totality and obtain maximum gains from future infrastructure investments. A blueprint for urban water for Greater Adelaide is in the early stages of development to deliver on this commitment. There will be significant engagement with Local Government, the private sector and the community to build on what we have already achieved in this area.

¹ *Stormwater Strategy – the Future of Stormwater Management*. Government of South Australia, 2011

2. The need for a stronger approach to WSUD in South Australia

WSUD is a well recognised approach to managing water in urban environments in a way that minimises the negative impacts of urbanisation and maximises economic, social and environmental benefits. It has the potential to deliver more liveable cities by providing green space, assisting the management of flood risks and impacts, reducing urban temperatures, maintaining home gardens, higher property values, reducing the flow of pollutants to major coastal recreation areas and minimising the need for expensive infrastructure upgrades.

The recent floods in Queensland and Victoria show the importance of WSUD and integrated urban water management in an urban context.

Other Australian jurisdictions already have in place strong WSUD policies and programs. There is, however, an opportunity within a South Australian context to achieve more through WSUD than is the case in these other locations, by addressing flood, water security and water quality in a holistic manner.

Through the implementation of *The 30-Year Plan for Greater Adelaide* and the development of structure and precinct plans, developers have demonstrated a desire to adopt WSUD principles and objectives. However, until now there has not been a single guiding framework to assist in designing appropriate WSUD solutions.

The apparent costs are largely offset by significant social and environmental benefits. The balance between costs and benefits is best considered at a local level when deciding on an approach to water management in a new development area, as is already required under planning and environmental legislation. In addition, any costs can largely be minimised through strategic approaches to implementation.

The South Australian Government's water security strategy, *Water for Good*, outlines the role of WSUD in reducing our use of water without adversely affecting our lifestyles.

It includes actions to:

- Introduce targets for water sensitive urban design.

² *Adelaide Coastal Water Quality Improvement Plan (ACWQIP)* July 2013.

³ An initiative to improve the health of the urban River Torrens and Torrens Lake. The Torrens Taskforce, in its Summary of Findings (May 2007) articulates, among other recommendations, support for a strong WSUD planning policy framework and implementation of WSUD in all new developments and significant redevelopments.

⁴ *Stormwater Strategy – The Future of Stormwater Management*, released by the State Government in June 2011

⁵ Intergovernmental Agreement on a National Water Initiative

⁶ Water sensitive urban design

- Develop and implement the best regulatory approach for South Australia to mandate water sensitive urban design, dovetailing with *The 30-Year Plan for Greater Adelaide*.

The South Australian Planning Strategy, specifically *The 30-Year Plan for Greater Adelaide*, includes policies and targets that seek to decouple population, economic and housing growth from unsustainable water resource consumption.

WSUD also links with and supports Government initiatives, including:

- Plans to improve the health of Adelaide's coastal waters in accordance with the *Adelaide Coastal Water Quality Improvement Plan* ².
- A goal of improving the health of the River Torrens and Torrens Lake in accordance with the Torrens Taskforce Initiative ³.
- An action in the *Stormwater Strategy* ⁴ to develop an integrated blueprint for urban water for stormwater and wastewater for Greater Adelaide, incorporating a water sensitive city theme.

The State approach to WSUD outlined in this document also aims to align with and where relevant help to inform other policies, strategies and plans, including:

- the National Water Initiative ⁵;
- *South Australia's Strategic Plan*;
- *State Natural Resources Management Plan*, and regional *Natural Resources Management Plans*;
- *Strategic Infrastructure Plan for South Australia*;
- *Prosperity Through People: A Population Policy for South Australia*; and
- Local Council plans (for example Strategic Directions Reports, Development Plans, Asset Management Plans, and Stormwater Management Plans).

Appendix 1 includes information on the above strategies and plans relevant to WSUD.

3. WSUD and integrated urban water cycle management

The National Water Initiative (a national approach to water reform agreed by the Council of Australian Governments in 2004) supports the creation of Water Sensitive Australian Cities. It refers to both WSUD and a related term, Integrated Urban Water Cycle Planning and Management, as a means of delivering on this objective.

Integrated Water Cycle Planning and Management is considered to be overarching and encompassing all facets of WSUD. Integrated Water Cycle Management extends into the regional-catchment scale and incorporates the planning and

management of all potential supply sources linked to an urban centre including surface water, groundwater, recycled waste water, storm water and desalinated sea water.

WSUD is considered to be a sub-component of Integrated Water Cycle Management focusing more on issues at the local scale and within the built environment.

The diagram below illustrates the conceptual relationship between integrated urban water management and WSUD ⁶.



⁶ Diagram adapted from 'Institutional and Regulatory Models for Integrated Urban Water Cycle Management, Issues and Scoping Paper'. February 2007. National Water Commission.



4. Aim, objectives and guiding principles

The aim of WSUD in South Australia is that: ***Urban landscapes are planned, designed and managed to be ‘water sensitive’⁷ and in doing so contribute to the liveability of South Australia’s urban environments and the wellbeing of South Australians.***

The integration of WSUD into South Australia’s urban environments will aim to improve water security and climate resilience, contribute to public health and wellbeing, help to protect or improve the health of receiving water bodies and their ecosystems, help to reduce ecological impacts and support affordable living by reducing long-term costs associated with water management.

Objectives

To support the sustainable use of natural water resources that provide our water supplies and to help ensure that our water supplies are resilient to climate variation through **water conservation** by:

- Encouraging best practice in the use and management of water to minimise reliance on imported water.
- Promoting safe, sustainable use of rainwater, recycled stormwater and wastewater.

To help protect the health of water bodies and associated ecosystems in or downstream of urban areas, by managing and maintaining or improving **runoff quality** by:

- Mimicking a more natural runoff regime.
- Maintaining and enhancing water quality.

To assist the management of flood-related risk associated with urbanisation, by controlling **runoff quantity** by:

- Mimicking a more natural runoff regime.
- Managing rainfall runoff so that it does not increase the potential for flooding.

To promote the potential for WSUD to support other relevant State, regional, and local objectives to achieve multiple outcomes, by encouraging integrated planning and **integrated design** by:

- Recognising the role WSUD can play in supporting other State, regional or local objectives.
- Promoting engagement between those responsible for planning, designing and managing WSUD measures and other relevant stakeholders so as to maximise the potential for WSUD to support multiple objectives.

WSUD Guiding Principles

The following WSUD Guiding Principles to support the State-wide WSUD objectives, will be promoted through relevant actions in Section 7 of this document:

- An integrated water cycle management approach is adopted as early as possible in the land use planning process.
- Water cycle management issues are addressed at regional, catchment and sub-catchment levels.
- Water management planning is precautionary and recognises inter-generational equity, conservation of biodiversity, and ecological integrity.
- Water is protected from adverse pollution, and its efficient use and opportunities for safe reuse are encouraged.
- Opportunities for site-specific WSUD solutions, which may comprise structural and/or non-structural solutions, should be recognised and implemented where suitable.
- Good science, the protection of public health and community values are integrated into decision making.
- Early identification and assessment of costs and benefits in the process of implementing WSUD are undertaken.
- Local indigenous and cultural relationships to water are recognised.

⁷ In this policy ‘water sensitive’ urban landscapes are urban landscapes that are planned, designed, built and managed having regard to the objectives, guiding principles, and WSUD performance principles and performance targets outlined in this policy.

5. WSUD performance principles and performance targets

The table below (continued over page) outlines the State-wide WSUD performance principles and targets relevant to the performance principles discussed in Section 4.

Through an action outlined in Section 7 to establish a WSUD capacity building program, the State will work with relevant stakeholders to develop implementation guidance for the State-wide performance targets, including consideration of how each of the targets might apply at various scales and for various types of development.

It is not intended that the State-wide performance targets prevent locally relevant targets being established by State or Local Government provided they are consistent with the WSUD aim and objectives in Section 4. However, the State-wide performance targets are considered the minimum required to be consistent with the aim and objectives.

State-wide WSUD Performance Principles and Performance Targets and their primary focus

Performance principle	Performance principle intent	State-wide performance target	Primary focus ⁸
Water conservation Water systems are efficient and, where safe and appropriate, sustainable local water resources are given preference over non-local water sources.	Water systems are efficient and water resources are sustainably used.	<ul style="list-style-type: none"> • Demonstrated compliance with South Australian residential building requirements for water efficiency. 	Residential development.
		<ul style="list-style-type: none"> • Non-residential: evidence demonstrating reasonable effort in promoting water efficient techniques in commercial, industrial and other non-residential urban settings. 	Commercial, industrial and institutional development.
		<ul style="list-style-type: none"> • Irrigated open spaces: evidence demonstrating reasonable effort in promoting best practice irrigation management in outdoor irrigated open spaces. 	Irrigated open space areas.

⁸ Primary focus refers to areas which will be initial areas for guidance as to how the State-wide performance targets might be applied. References under this column to 'development' are taken to include re-development.

Performance principle	Performance principle intent	State-wide performance target	Primary focus ⁸
<p>Runoff quality</p> <p>Positively manage the quality of urban runoff through implementing water-sensitive urban design.</p>	<p>To help protect and, where required, enhance, the quality of runoff entering receiving water environments, in order to support environmental and other water management objectives.</p>	<p>Achieve the following minimum reductions in total pollutant load, compared with that in untreated stormwater runoff, from the developed part of the site ⁹ :</p> <ul style="list-style-type: none"> • Total suspended solids by 80 per cent; • Total phosphorus by 60 per cent; • Total nitrogen by 45 per cent; • Litter/gross pollutants by 90 per cent. 	<p>Residential, commercial, industrial and institutional development, and roads, streets and thoroughfares.</p>
<p>Runoff quantity</p> <p>Post-development hydrology should, as far as practical and appropriate, minimise the hydrological impacts of urban built environments on watercourses and their ecosystems.</p>	<ul style="list-style-type: none"> • Help protect waterways and, where relevant, promote their restoration by seeking to limit flow from development to pre-development levels. • Help to manage flood risk, by limiting the rate of runoff to downstream areas to appropriate levels. 	<p>For waterway protection ¹⁰ :</p> <p>Manage the rate of runoff discharged from the site so that it does not exceed the pre-urban development 1 year average recurrence interval (ARI) peak flow.</p>	<p>Residential, commercial, industrial and institutional development, and roads, streets and thoroughfares, where runoff from these land uses drains to an un-lined watercourse.</p>
		<p>For flood management:</p> <p>For development and other relevant infrastructure that will drain runoff to an existing publicly managed drainage system or to a drainage system such as a creek or watercourse on privately-owned land:</p> <ul style="list-style-type: none"> • the capacity of the existing drainage system is not exceeded; and • there is no increase in the 5 year ARI peak flow and no increase in flood risk for the 100 year ARI peak flow, compared to existing conditions. 	<p>Residential, commercial, industrial and institutional development, and roads, streets and thoroughfares.</p>
<p>Integrated design</p> <p>That the planning, design, and management of WSUD measures seeks to support other relevant State, regional and local objectives.</p>	<p>Implement WSUD in a way that promotes establishment of 'green infrastructure' and achievement of multiple outcomes, for example: public amenity, habitat protection and improvement, reduced energy use and greenhouse emissions, and other outcomes that contribute to the wellbeing of South Australians.</p>	<p>Evidence that relevant stakeholders are engaged at appropriate stages of planning, designing, constructing, and managing WSUD measures so as to maximise the potential for WSUD to contribute to 'green infrastructure' and other relevant State, regional, and local objectives.</p>	<p>Residential, commercial, industrial and institutional development, and roads, streets and thoroughfares.</p>

⁹ These targets are aimed at diffuse pollution from multiple sources, and do not override obligations for specific sites under the *Environment Protection Act 1993* and the *Environment Protection (Water Quality) Policy 2003*.

¹⁰ The principle relating to the waterway protection target is such that the target would not be deemed relevant where, for example, a watercourse that is to receive the runoff is degraded and it has limited potential for future rehabilitation.



6. Benefits

Broad-scale consideration and application of the WSUD performance principles and performance targets outlined in this document will contribute to State, regional and local objectives. The benefits, and costs, of WSUD at a particular location will depend on the chosen form and functions of the infrastructure adopted.

The table below lists some of the possible benefits of WSUD. Through actions outlined in Section 7, a sustainable capacity building program will be established to:

- provide quantifiable estimates of the benefits and costs of implementing WSUD measures in typical development types and scenarios; and
- ensure there is a mechanism, supported by relevant research and demonstration where needed, that provides relevant information needed by those involved in the implementation of WSUD.

Potential benefits of WSUD

Economic	Environmental	Social
<p>Capital cost savings – reduced sizing of off-site pipe work, drains and stormwater infrastructure.</p> <p>Construction cost savings – grading and tree clearing.</p> <p>Water quality cost savings – reducing the costs of water quality improvement by maintaining existing waterways.</p> <p>Developer cost savings – reduced developer contributions to downstream drainage capacities and open space requirements.</p> <p>Improved market value – making such developments more desirable and marketable.</p> <p>Improved resource utilisation – offers cost benefits where areas are unsuitable for residential development, but are suitable for passive recreation and contribute to required public space allocation.</p>	<p>Hydrological balance – maintains the hydrological balance by using natural processes of storage, infiltration and evaporation.</p> <p>Sensitive area protection – can contribute to protecting environmentally sensitive areas from urban development.</p> <p>Waterways restoration – supports restorations and enhancement of urban waterways.</p> <p>Impact reduction – minimises the impact of urban development on the environment.</p> <p>Natural habitats enhancement – can enhance the diversity of natural habitats/landscapes.</p> <p>Groundwater recharge.</p>	<p>Amenable urban and residential landscapes.</p> <p>High visual amenity.</p> <p>Linking – opportunities to link community nodes through open space.</p> <p>Ameliorating urban heat island effects.</p>

Notwithstanding these potential benefits, there are a number of risks that need to be considered in the design, implementation and maintenance of WSUD approaches. To ensure that maximum benefit can be derived from the use of WSUD it will be important that:

- Design is sensitive to the specific location to ensure that it integrates into the landscape and appropriately links to existing infrastructure;

- Maintenance plans are developed that ensure the amenity and functionality of WSUD investments are sustained for the long term and help avoid the risk of failure and associated public health and environmental impacts;
- Appropriate cost benefit analysis is undertaken as part of the planning stages for WSUD implementation;
- Design enables WSUD approaches to be self sufficient throughout a broad range of climate scenarios and variable weather patterns.

7. Actions

The South Australian Government has a critical role to play to facilitate the improved adoption of WSUD within our urban environments. In this regard, the Government commits to the following actions.

State infrastructure projects

ACTION 1: Establish a framework (including appropriate cost benefit analysis techniques) to adopt the State-wide WSUD performance principles in future State-managed infrastructure projects, where appropriate.

Purpose: To ensure appropriate consideration is given to WSUD in State infrastructure projects.

How: A framework for considering WSUD targets in infrastructure projects will be developed for Government adoption. Action 12 also provides for monitoring and reporting of WSUD in State-managed infrastructure projects.

By: 2013.

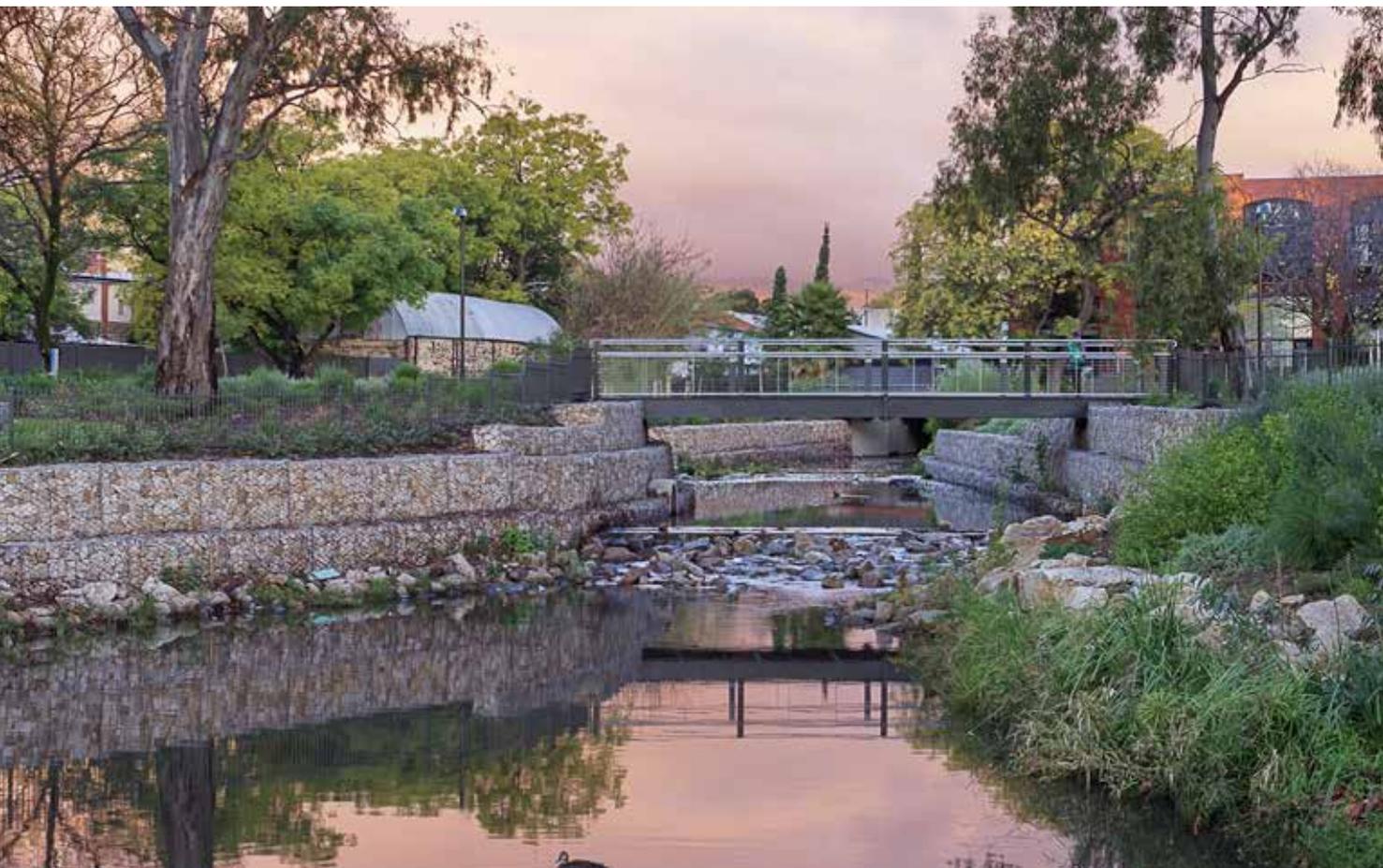
Embedding WSUD in the State's planning and development system

ACTION 2: Ensure WSUD is strongly supported through the State's land-use planning system.

Purpose: To ensure that the WSUD policy is an essential element of the State's land-use planning system.

How: The Department of Planning, Transport and Infrastructure (DPTI), with Department of Environment, Water and Natural Resources (DEWNR) support, will adopt State-wide WSUD objectives and performance principles in structure plans, and local Council development plans. As part of this process, DPTI will review and update the current WSUD and Natural Resources Management related provisions contained within the South Australian Planning Policy Library.

By: 2013 (ensure the WSUD aim, objectives, guiding principles, performance principles and performance targets are reflected in structure planning); 2014 (implement additional measures for the adoption of WSUD in local Council development plans).



ACTION 3: Support the implementation of WSUD through the building approval process.

Purpose: To ensure that the State's building approval process supports WSUD to the extent that this is relevant and justified by the net social, environmental and economic benefits it would provide.

How: DPTI, with DEWNR support, to encourage WSUD through the building consent approval. This will involve consideration of the potential for introducing new South Australian variations to the Building Code of Australia that support the State's aim and objectives for WSUD.

By: 2013 (identify approach and develop technical proposal(s)); 2014 (obtain State approval to incorporate any additional requirements into the Building Code of Australia 2015 as a South Australian variation); 2015 (implement requirements of the Building Code of Australia 2015).

Promoting WSUD through other State instruments

ACTION 4: Consider how the State-wide WSUD objectives, performance principles and performance targets relating to water quality in this policy align with the *Environment Protection Act 1993*.

Purpose: Consider how WSUD objectives, performance principles and performance targets relating to water quality could be addressed under environmental legislation in a manner that complements measures to be put in place through the State's planning and development system under Actions 2 and 3 of this policy.

How: The Environment Protection Authority (EPA), with DEWNR support, to give consideration to whether WSUD water quality objectives, performance principles and performance targets might be developed and implemented under existing environmental protection legislation.

By: 2014.

ACTION 5: Promote the State's WSUD policy in 'green infrastructure' and other integrated design and infrastructure initiatives of State Government.

Purpose: Ensure the State's policy direction on WSUD is supported through promulgation of WSUD by DEWNR's Green Infrastructure Project and other State Government integrated design and infrastructure initiatives.

How: DEWNR will ensure relevant aspects of the WSUD policy are promulgated through its Green Infrastructure Project. Opportunities to integrate relevant aspects of the WSUD policy in other State Government integrated design and infrastructure initiatives will be considered as part of the WSUD capacity building action (see action 7).

By: 2012 (Commenced).

WSUD Capacity Building

ACTION 6: Prepare a business case for a WSUD capacity building program and implement a sustainable and ongoing capacity building program.

Purpose: To establish a business case, including a proposed governance model and funding mechanism, for a WSUD capacity building program and ensure its implementation.

How: A WSUD capacity building business case project, co-funded by DEWNR, the Adelaide and Mount Lofty Ranges Natural Resources Management Board, the South Australian Murray-Darling Basin Natural Resources Management Board, Stormwater Industry Association, EPA and the Local Government Association will be prepared in consultation with relevant stakeholders. Relevant stakeholders include: State and Local Government planners, infrastructure developers and asset managers; planning (including development approval) authorities; peak building and development industry and building trades associations; and the stormwater industry. The business case will also establish an operational model and address funding arrangements to implement the program. This will be used as a basis for implementing an ongoing and sustainable program of capacity building across the State.

By: 2013.

ACTION 7: Commence a WSUD capacity building program that provides for relevant State agencies, Local Government, industry, and others to effectively engage so that WSUD is implemented in the most appropriate way.

Purpose: Commence a WSUD capacity building program that involves relevant stakeholders including State agencies (including DEWNR, EPA and DPTI), regional Natural Resources Management Boards, Local Government, industry and other stakeholders.

How: In accordance with the WSUD capacity building business case outcomes, the operational model for a WSUD capacity building program will be implemented (action 6).

By: 2013 (Commence implementation).

WSUD Research

ACTION 8: Engage relevant research bodies in relation to the development of improved information and guidance on WSUD.

Purpose: To undertake research, including where relevant through WSUD demonstration sites, where this is required to address specific information needs or provide guidance to enhance the capability of relevant stakeholders to implement WSUD.

How: Priority areas for research will be identified through the WSUD capacity building business case project (action 6), and will subsequently be addressed through the WSUD capacity building program (action 7).

By: 2013 (initial research commenced); after 2013 (beyond the initial needs analysis, as determined to be appropriate).

Alignment of WSUD with regional and catchment scale water planning

ACTION 9: Ensure alignment between Natural Resources Management (NRM) planning and the WSUD objectives, guiding principles, performance principles and performance targets.

Purpose: To ensure the WSUD objectives, guiding principles, performance principles and performance targets are reflected in State and regional NRM goals.

How: DEWNR will engage with NRM Council and regional NRM Boards, to identify mechanisms to ensure the State-wide WSUD objectives, guiding principles, performance principles and performance targets are reflected in State and regional NRM goals and implemented in regional NRM activities.

By: 2013 (engage NRM Council and regional NRM Boards).

ACTION 10: Promote support for WSUD in catchment-based Stormwater Management Plans.

Purpose: To facilitate WSUD policy recognition in Stormwater Management Plans.

How: DEWNR will liaise with the Stormwater Management Authority, where appropriate in consultation with other stakeholders, with a view to stormwater management planning guidance issued by the Stormwater Management Authority providing effective recognition of the WSUD policy, and of the opportunities for Stormwater Management Plans that are considered by the Authority to promote WSUD.

By: 2013.

ACTION 11: Promote alignment of WSUD with integrated urban water cycle management planning.

Purpose: To ensure that WSUD is considered in and contributes to integrated water cycle planning initiatives of the State Government.

How: The blueprint for urban water for Greater Adelaide, to be prepared in accordance with the *Stormwater Strategy*, will consider the extent to which WSUD can be further supported within an integrated urban water cycle framework for Greater Adelaide. In addition, the previously mentioned capacity building action (action 7) will ensure relevant stakeholders including relevant planning authorities are engaged on matters they should have regard to in order to address WSUD in an integrated water planning context.

By: 2014.

Monitoring the uptake of WSUD

ACTION 12: Develop a process for recording and reporting the extent to which WSUD is adopted in new developments that the State manages and oversees, for example, arterial roads and other major Government infrastructure projects, and in projects that entail re-development or renewal of existing State-owned infrastructure.

Purpose: To monitor and report on the extent of uptake of WSUD in State infrastructure projects.

How: DEWNR will work with DPTI, Renewal SA, and SA Water to establish an appropriate WSUD recording and reporting framework for new State projects of these agencies. This process will also support, as relevant, the integration of WSUD aims, objectives, performance principles and targets into operational policies and procedures.

By: 2013 (DPTI, Renewal SA and SA Water identify potential processes in discussion with DEWNR); 2014 (agencies finalise and implement appropriate processes).

ACTION 13: Work with relevant approval authorities, including local Councils, to establish suitable processes for monitoring the extent to which WSUD is promoted to and is being addressed in new developments, re-development and urban renewal programs.

Purpose: To monitor the extent to which WSUD is promoted by relevant approval authorities, and monitor the extent to which WSUD is addressed in new developments, re-development and urban renewal programs.

How: This will be addressed through the action to provide for ongoing engagement with stakeholders.

By: 2014 (establish initial process); ongoing (beyond the initial process).

ACTION 14: Report annually on the progress of the actions of this policy.

Purpose: To ensure State agencies identified in relevant actions of this policy provide an annual progress report.

How: Lead agencies identified in actions in this policy will provide an annual progress report against those actions to DEWNR. These reports will contribute to a consolidated progress report to the Minister as part of *Water for Good* annual reporting.

By: 2013 (initial progress reports from lead agencies); years subsequent to 2013 (progress reports from lead agencies for relevant actions that remain to be completed or are ongoing).

Glossary

Objectives	The State-wide WSUD objectives outlined in Section 4 of this statement.
Performance principles	The State-wide performance principles outlined in Section 5 of this statement. The principles link to and support the objectives outlined in Section 4.
Performance targets	The State-wide performance targets outlined in Section 5 of this statement. The targets link to and support the proposed design performance principles which are also outlined in Section 5.
Integrated urban water cycle management	The integrated management of all water sources, to ensure that water is used optimally within a catchment resource, state and national policy context. It promotes the coordinated planning, development and management of water, land and related resources (including energy use) that are linked to urban areas. It directs the application of water-sensitive urban design principles within existing and new urban environments.
Precinct	Localised areas, such as mixed-use neighbourhoods and transit-oriented centres, within structure planning areas.
Structure Plan	Structure plans provide the basis for the design and development of areas in which the population is expected to grow, such as transit corridors, new growth areas and revitalised centres in cities and towns. They guide the planning of services and infrastructure related to transport, health, schools and community facilities, and identify what land is available for industrial, commercial and residential development.
Water sensitive urban design	An approach to urban planning and design that integrates the management of the total water cycle into the land use and development process.
WSUD	Water sensitive urban design.
WSUD Technical Manual	<i>Water Sensitive Urban Design Technical Manual for the Greater Adelaide Region December 2010</i> provides guidance on WSUD techniques that are potentially suited to application in the Greater Adelaide region and, potentially, may also be relevant for other areas of South Australia.

Appendix 1

Existing key plans and strategies

The following describe a number of key plans and strategies that this policy statement is expected to complement and support. (This list is not intended to be exhaustive).

- *Water for Good* – the State’s water security plan. It sets policies and targets designed to secure South Australia’s water supply to 2050, and includes 94 actions of which the following specifically address WSUD:
 - Introduce targets for water-sensitive urban design by 2010 (action 68)
 - By 2013 develop and implement the best regulatory approach for South Australia to mandate water-sensitive urban design, dovetailing with the Plan for Greater Adelaide (action 67)
- *Stormwater Strategy – the Future of Stormwater Management* provides a ‘road map’ for achieving the stormwater-related targets in *Water for Good*.
- *Planning Strategy for South Australia* – outlines the State Government’s direction for land use change and development within South Australia. The Planning Strategy has various volumes covering different geographic areas of the State and includes, *The 30-Year Plan for Greater Adelaide* which sets strategic policy directions for urban planning in the Greater Adelaide area; and plans for regional South Australia. The planning directions outlined in the Planning Strategy are translated into local policy by local Councils when they are incorporated into Council development plans. *The 30-Year Plan for Greater Adelaide* includes the following targets:



- **Water A** - Reduce demand on mains water supply from new development through the introduction of water-sensitive urban design.
- **Water B** - Require all new dwellings to be connected to alternative water sources, which must supply at least 15 per cent of the internal water needs of these households.
- **Water C** - Achieve independence from mains water supplies for new public open spaces in transit corridors through WSUD techniques.
- **Water D** - Achieve alternatives to mains water for outdoor use through WSUD techniques in all new Greenfield developments that are subject to Structure Plans and Precinct Requirements after 2011.
- **Water E** - Protect and maintain the water supply catchment of the Mount Lofty Ranges, which comprises 159,000 hectares as identified in Map D23 (Mt Lofty Ranges Watershed – Water supply catchment and water reservoirs).
- **Water F** - Protect and maintain the water reservoirs as identified in Map D23 (Mt Lofty Ranges Watershed – Water supply catchment and water reservoirs).
- **Water G** - Protect from inappropriate development and maintain prescribed water resources, as identified in Map D24 (Mt Lofty Ranges Watershed – Water resources management areas).
- *Intergovernmental Agreement on a National Water Initiative* – includes specific actions to support innovation and capacity building to create water sensitive cities.
- *South Australia's Strategic Plan* – provides strategic direction for the State. The Plan includes targets related to the protection of water resources and population growth, both of which impact on water management decisions.
- *State Natural Resources Management Plan* – enables the sustainable management of the State's natural resources, including water resources.
- Regional Natural Resources Management Plans – set out policies for the management of the region's natural resources, including water.
- *State Infrastructure Plan for South Australia 2004/5 to 2014/15* – maps out infrastructure priorities for the State. An update of the plan is under way to provide State-wide direction on priorities for investment or policy effort by governments and to integrate infrastructure planning and delivery by the three spheres of government and the private sector with land use planning.
- *Tackling Climate Change: South Australia's Greenhouse Strategy 2007-2020* – includes discussion of WSUD in relation to opportunities to develop sustainable built environments that are responsive to climate change.
- *Prosperity Through People: A Population Policy for South Australia* – recognises the importance of water in supporting a sustainable population in Adelaide and South Australia's regional areas.
- Development Plans – are key documents in the South Australian planning and development system. They contain the zones, maps and written policies to guide property owners and others about what can and cannot be done in the future, on any piece of land in the area covered by the Development Plan. These zones, maps and rules provide the detailed criteria against which development applications are assessed.
- Stormwater Management Plans – may be prepared by local Councils for the purpose of seeking approval from the Stormwater Management Authority. These plans are required to comply with guidelines released by the Stormwater Management Authority (and endorsed by the Natural Resources Management Council) that promote multi-objective approach to managing stormwater. The relevant local Council (or Councils) is also required to consult the relevant Natural Resources Management Board and other Local Government authorities when preparing their plans.
- Infrastructure and asset management plans – relate to the management and development of infrastructure and major assets over a period of at least 10 years. These plans are required by the *Local Government Act 1999* and its regulations to be prepared by local Councils and form part of the Council strategic management plan.

For further information please contact:

Department of Environment, Water and Natural Resources
Phone Information Line 1800 006 120 or see SA White Pages for your local
DEWNR office. Online information available at: www.environment.sa.gov.au

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Design and Production Manager, Department of Environment,
Water and Natural Resources GPO Box 1047 Adelaide SA 5001

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