

## WATER SENSITIVE URBAN DESIGN (WSUD) – POLICY

<b>Policy Number:</b>	2008/05	<b>Directorate:</b>	Engineering & Infrastructure
<b>Approval by:</b>	Council	<b>Responsible Officer:</b>	Manager - Community Infrastructure
<b>Approval Date:</b>	8 May 2012	<b>Version Number:</b>	4
<b>Review Date:</b>	20 August 2015		

### 1. PURPOSE

The purpose of this policy is to provide a consistent approach to the inclusion of Water Sensitive Urban Design (WSUD) principles into Council projects and planning applications wherever practicable.

WSUD principles will guide the design and construction of projects towards improving the quality of stormwater runoff, so as to reduce the pollution and destructive effects to local creeks and streams, harvest stormwater for suitable reuse options, and reduce demands on the use of limited potable water supplies.

The potential also exists to minimise the impact of local flooding by retaining stormwater within the catchment for reuse; or detaining it for treatment during rainfall events, thereby reducing pressure on the local drainage infrastructure and receiving waterways.

Through the appropriate consideration of WSUD principles for all relevant Council projects and planning applications, Council has the ability to invest in WSUD systems where high environmental gains can be made for an optimal financial cost.

### 2. CONTEXT

Water Sensitive Urban Design necessitates innovative approaches to the management of urban stormwater runoff which creates design solutions that fit the existing landscape.

Definition:

Water-sensitive urban design (WSUD) is a land planning and engineering design approach which integrates the urban water cycle (ie. stormwater, groundwater, wastewater and water supply) into urban design, to minimise environmental degradation and improve aesthetic and recreational amenity.

WSUD may be applied at various scales – at the lot level, street and precinct level, as well as regional scales – with the aim of protecting and improving waterway health by mimicking the natural water cycle as closely as possible.

WSUD, and the principles of sustainable water management, are supported by the Commonwealth, Victorian and Local Government sectors. WSUD measures are broadly recognised as being effective approaches for urban stormwater systems.

The inclusion of WSUD principles through a Council Policy allows Council to continue to deliver on the aims established within the Knox Water Sensitive Urban Design (WSUD) & Stormwater Management Strategy 2010, into future Council projects and development applications.

WSUD as an approach to the management of urban stormwater is strongly advocated by State Government, Melbourne Water (Regional Drainage Authority) and its subsidiary branch, Clearwater.

The principles underpinning WSUD were identified as a community priority, during consultation processes held for the Municipal Strategic Statement (MSS), Vision 2025, Activity Centre Structure Planning and the Water Sensitive Urban Design & Stormwater Management Strategy (2010).

**Environmental Benefits** of WSUD applications include (but not limited to):

- Protection of the natural environment by reducing peak flows, thus reducing erosion and improving the overall health of waterways;
- Reduction of urban pollutants (e.g. phosphorus, nitrogen, heavy metals, hydrocarbons, chemicals, litter) to protect waterway water quality, therefore improving local environments, the river catchments and Bays;
- Improved habitat and biodiversity through the establishment of wetlands and other 'natural' treatment alternatives;
- Increased potable water conservation through stormwater harvesting schemes;
- Reduced greenhouse gas emissions by reducing use of prefabricated infrastructure products and opting for 'natural' treatment alternatives that mimic nature;
- Providing cost-effective measures to address climate change impacts such as flooding and urban heat island effects.

**Urban Landscape Benefits** of WSUD applications include (but not limited to):

- Improved 'visible infrastructure' combining functionality, natural elements and aesthetic amenity;
- natural design elements incorporated into drainage infrastructure that provide destination places that attract and connect people (e.g. flood retarding basins with wetlands and boardwalks);
- Enhanced aesthetics through increased vegetation, aquatic elements and landscape features;
- Linked urban and natural environments – connecting communities;
- Flood mitigation by better managing water movement through urban areas safely to waterway systems.

Across the sector, WSUD applications to date have been a positive first step in collectively reducing the impact of urban pollution and stormwater runoff volumes on our waterways. However, a more comprehensive approach across

all responsible authorities and the development industry is necessary to ensure a substantial shift in the integrated management of urban water, both *quantity & quality*.

### 3. SCOPE

This policy applies, wherever practical, to all relevant Council projects and, wherever possible, to all developments within the auspices of Council approvals.

### 4. DEFINITIONS

**Water Sensitive Urban Design (WSUD):** embraces a range of measures that are designed to avoid, or at least minimise, the environmental impacts of urbanisation in terms of the demand for water and the potential pollution threat to natural water bodies (waterways and bay environments) from urbanisation.

WSUD measures are designed to ‘suit the landscape’ and seek to limit the *quantity* of stormwater runoff being discharged to receiving waters (post development) and treats this runoff to improve its *quality* prior to entering a water body.

WSUD marks a shift in stormwater innovation from a pure *drained city* approach to a *waterways city* approach. WSUD is the first step towards a resilient, sustainable and liveable **Water Sensitive City** state – a fully integrated perspective in the management of our valuable water resources to support community wellbeing.

WSUD provides the link towards **Integrated Water Cycle Management (IWCM)** where all water sources are considered a potential resource in a “fit for purpose” application.

**The Water Cycle** includes – rainwater (roof water), stormwater (runoff from hard surfaces), groundwater (natural underground), potable (or mains) drinking water, grey water (shower, basin & laundry), black water (toilet & kitchen), recycled effluent (A-class treated sewage) and sewer mining.

**High Social Areas:** are areas as defined in the Knox Open Space Plan 2025 as “municipal open space” and “neighbourhood open space”.

*Municipal open space: Municipal open spaces are defined primarily by their relationship to an activity centre, their unique character or unique function of the space. Generally, they accommodate a large number of people and can be considered a destination that people would travel from, across the municipality, or beyond, to visit. Municipal open spaces have a place-based relationship.*

*Neighbourhood open space: Neighbourhood open spaces are large parks that are used by a suburb-scale catchment. They can accommodate multiple users and types of activities. They should have some special features unique to the suburb. These open spaces have a*

*place-based relationship involving immediate family, neighbours and friends.*

**High Value Catchments:** are catchment areas where waterways are in relatively good (to excellent) condition and are prioritised for protection.

**Hotspots:** are areas where the Environment Protection Authority (EPA) of Victoria has received multiple complaints in relation to the quality/pollution of waterways.

**Optimised Investment:** refers to prioritising investment in the construction of WSUD systems where high environmental gains can be made for an optimal cost.

**WSUD Working Group:** refers to Terms of Reference for WSUD Working Group (Dataworks: under Project & Contract Tab: Document No.:3421982).

## 5. REFERENCES

- Water Sensitive Urban Design & Stormwater Management Strategy 2010
- Knox City Council – City Plan 2013-2017
- *WSUD Engineering Procedures – Stormwater*, CSIRO Publishing, Melbourne Water 2005
- Stormwater Design Guidelines, Knox City Council 2015
- Council Report “Sustainability of Outdoor Structured Sporting Facilities”, 22 April 2008
- Knox Sustainable Water Use Plan 2008-2018
- Council Report “The Melbourne Environment Report 2007”, 26 Feb. 2008
- Stormwater Quality Management Plan 2001 (Volumes 1 to 3), WBM Oceanics Australia
- Knox Policy “Environmentally Sustainable Development” (ESD) 2010
- Knox Open Space Plan 2025.

## 6. Council Policy

It is Council policy that all Council projects & planning applications where:

- a Sustainable Design Assessment (SDA) is required;
- substantial rehabilitation is likely;
- renewal and upgrade projects are planned;
- landscape/land use change is likely;
- new and redevelopment areas are planned;

*...and likely to have any effect on stormwater*, shall follow the WSUD Procedure to assess if Council and Developers are optimising their investment in a WSUD and integrated stormwater management system.

These include, but are not limited to, projects such as:

- individual/building site projects (eg. residential, commercial, industrial);
- development or redevelopment projects;
- water use and demand projects (eg. oval/landscape irrigation demand);
- reconstruction projects;
- open space and urban landscape design; and
- flood mitigation projects.

**NOTE:** This Policy must be read in conjunction with the Water Sensitive Urban Design (WSUD) Procedures #2012-28-V2.