# KNOX PROCEDURE

# WATER SENSITIVE URBAN DESIGN (WSUD) PROCEDURE

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| **Procedure Number:** | 2012/28 |
| **Authority:**<br>**Include Position & Title** | Chief Executive Officer |
| **Approval Date:** | 8 May 2012 |
| **Directorate:** | Engineering & Infrastructure |
| **Responsible Officer:** | Manager – Community Infrastructure |
| **Related Policy:** | Water Sensitive Urban Design (WSUD) Policy (#2008-05-V3) |

## 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 water discharge and runoff so as to reduce the pollution and destructive effects to existing creeks and streams, harvest stormwater and reduce the use of potable water. The potential also exists to minimise the impact of local flooding.

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. SCOPE

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

## 3. DEFINITIONS

**High social areas** are areas as defined in the Knox Open Space Plan 2025 (Section 3 pg. 20 - Erik) 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.*

*<u>Neighbourhood open space:</u> 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 place based relationship involving immediate family, neighbours and friends.*

**High value catchments** are catchment areas where waterways are in reltively good condition and are prioritised to be protected.

**Hotspots** are areas where the Environment Protection Authority (EPA) of Victoria has received complaints in relation to the quality of the 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 –** Refer to Terms of Reference for WSUD Working Group > Dataworks > under Project & Contract Tab > Document No.3421982.

## 4. PROCEDURE

This procedure will help to assess at concept/design/planning stage if a WSUD and stormwater management system would be an optimised investment to justify its construction.

**There are numerous ways to incorporate WSUD in a redevelopment project to meet water targets. Strategies depend on factors such as:**

- Individual site conditions (e.g. location, geography)
- Building function and occupancy (e.g. residential, commercial, industrial)
- Development or redevelopment scale
- Water use and demand (e.g. garden irration demand, industrial use)
- Water sources available, including local climate (rainfall seasonality)
- On-site catchment area (roof and surface)
- Urban landscape design

**WSUD outcomes could be:**

- Replacement of pipes with natural elements for drainage, such as wetlands.
- Enhanced aesthetics through increased vegetation, aquatic elements and landscaping.
- 'Visible infrastructure' combining functionality and natural elements
- Linked urban and natural environments
- Flood mitigation by slowing down water movement through urban areas to streams.

**STEP 1**

The Project Manager is to follow the checklist below.

If you answer 'yes' to any of the questions please proceed to STEP 2, otherwise the construction of WSUD does not seem to provide an optimum value to justify its construction.

| Question | Data | Yes/No |
|---|---|---|
| Is it in a high value catchment? | GIS layer 419 | |
| Is the area directly connected to a creek/stream? | GIS layer 11, 12 | |
| Is it in a hotspot area? | GIS layer 386 Database 96 (select area of interest) | |
| Is it in an unsewered area (that is, septic systems present rather than trunk sewerage)? | GIS layer 184 | |
| Is there an ongoing litter issue? | Contact Coordinators of Sustainability / Work Services /Park Services | |
| Is there a potential/existing flooding issue/ or land subject to inundation? | Refer GIS layer 158, 167, 168, 213 | |
| Is there opportunity to divert stormwater/ harvest from pipes or hard stand areas…for reuse on site or within surrounding areas? | | |
| Is there area available for use and/or potential need for water on site or within surrounding areas? | | |
| Is it a high social area? | Contact Coordinator of Landscape & Open Space. | |
| Is there a potential community benefit – through potable conservation or water quality awareness raising? | | |
| Is there sufficient space for a WSUD system to be considered? | Dependant on system to be applied. | |

**STEP 2**

**Consult with the Stormwater Team to discuss feasibility of concept and design before determining the WSUD system to be applied.** Must consider:

- Is it in a flooding zone?
- Is it in an overland flowpath?
- Assume low hydraulic conductivity of Knox's soils or test soil's hydraulic conductivity especially if constructing an exfiltration system.

**STEP 3**

***Council Controlled Project:***

In developing a Business case include benefits highlighted in the WSUD policy. Ensure the business case includes financial maintenance requirements (Lifecycle Costings).

***Non- Council Controlled Project:***

Where the project is part of a planning application use the WSUD TOOLS (No. 5 below) in all projects.

**STEP 4**

If required organise a follow up meeting with Stormwater Team before proceeding to obtain a quote/tender.

Note: Include WSUD information into the project brief at inception and quote/tender documents. Ensure a Maintenance Plan is prepared to be implemented at the completion of the project.

**STEP 5**

Complete the WSUD Reporting Form which will be provided to Engineering & Infrastructure Director for presentation in the annual report.

**Annual WSUD Reporting Forms:**

a) ***Council Controlled Project:*** **– Dataworks: under Project & Contract Tab: Document No: 3423507**

| Capital Works No. | WSUD Project Name | Project Officer | Location | WSUD Type | STORM Score/MUSIC Table | Is WSUD Procedure STEP 6 completed? |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |

b) ***Non- Council Controlled Project:*** **– Dataworks: under Project & Contract Tab: Document No: 3215328**

| No.1 | Street Address | WSUD System | Vegetation | Tank size if app | Number of systems | Size/Area m3 | Catchment Area (m2) | Plan No. | File No. | Date Approved | Dataworks No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |

**STEP 6**

**Records for future reference – Dataworks**

Link Project Information into Dataworks: under Project & Contract tab – in Folder/Project Description & Keywords – type 'WSUD' – look for 'project name' and insert relevant information into appropriate fields.

Note: If project name does not exist – contact Water Sensitive Cities Project Engineer (Stormwater Team) to organise the addition of the project file onto dataworks.

PROJECT INFORMATION

a. STEPS(STORM)/ MUSIC/ Sustainable Design Scorecard (SDS) Information for systems (nitrogen, phosphorus and other pollutant removal)
b. Final Design Plans
c. Costings
d. Maintenance Information
e. Annual WSUD Reporting Form

## 5. TOOLS AVAILABLE FOR DETERMINING WSUD SYSTEM.

- KCC WSUD standards – Stormwater Team
- KCC WSUD Guidelines 2001 – Knox website – (includes 'Applicability of measures' pg 23)
- Dataworks - (Project & Contract tab – under Folder/Project Description & Keywords – type 'WSUD'). There is a list of WSUD projects that have been completed by Council and a list for private developments.
- Sustainable Design Scorecard (applies to commercial/industrial and some Council projects)
- STORM assessment tool (applies to commercial/industrial and residential developments)
- STEPS (uses Melbourne Water's STORM assessment tool - for residential building scale developments)
- MUSIC (Model for Urban Stormwater Improvement Conceptualisation – for sites over 1 hectare; for sites with impervious surfaces covering less than 40% of the site; or where a train of treatment measures is proposed. For example a rainwater tank overflow running to a bio-swale.)

## 6. RELATED DOCUMENTS

This procedure should be read in conjunction with the WSUD Policy (#2008-05-V3).