



16 December 2022

Attention: Expert Panel Planning Implementation Review
Planning Commission

Via email: DTI.PlanningReview@sa.gov.au

Dear Mr Stimson

Planning and Design Code – Implementation Review 2022

Water Sensitive SA is pleased to submit this response to the Planning and Design Code (the Code) Implementation review.

Water Sensitive SA has worked closely with our partner Councils, and others, since the release of the Code, to gain an understanding of the challenges they face implementing the performance outcomes of the Code as they related to urban greening and stormwater management aspects of the Code.

In the absence of a range of deemed-to-satisfy solutions (DTS) for water sensitive urban design (WSUD), urban green cover, canopy cover and biodiversity sensitive design, greater guidance for development applicants is required that demonstrates ways in which the relevant performance objectives can be met.

We would welcome any opportunities to assist in refinement of WSUD policy and guidelines that support the Code.

If you require any clarification of the comments raised as part of this submission, please contact the Program Manager, Mellissa Bradley at [REDACTED] or [REDACTED]

Yours sincerely

Sharon Pitman
Chair, Water Sensitive SA Steering Committee

Water Sensitive SA – Submission to Expert Panel – Planning System Review 16 December 2022

Emerging policy and policy implementation opportunities/issues under key discussion themes

1. The Planning, Development and Infrastructure Act

No specific recommendations are offered for the Planning, Development and Infrastructure Act.

2. e-Planning and PlanSA

2.1 Website Re-Design

As part of the website re-design it is recommended that a “design resources” page or similar be established. This page could include any Planning and Land Use Services Design Standards and Advisory material. It could also include links to other relevant government resources that support development applicants.

Water Sensitive SA is a state and local government partnership program building the capacity of water sensitive urban design practitioners to effectively deliver integrated stormwater management solutions at the allotment, streetscape or precinct scale. Key program areas include skill development, communities of practice and access to resources.

RECOMMENDATION 1: That the Planning and Land Use Services (PLUS) website re-design includes a “Design resources” page that links to a range of government resources to assist applicants, including the following resources provided on the Water Sensitive SA website:

- 01 [WSUD for Developers small-scale infill](#)
- 02 [WSUD for Developers major infill and greenfields](#)
- 03 [Insite Water Stormwater management assessment tool](#)

Resources 01 and 02 provide a curated set of resources for the indicated target audience, including design guidelines, case studies, standard drawings, and image galleries for WSUD at a range of scales and contexts. Resource 03 is a stormwater management self-assessment tool that assists applicants of small-scale residential or commercial development to undertake a quick analysis of the performance of their design against stormwater runoff peak flow, volume and quality criteria.

3. Tree Policy in the Code

The tree planting policies alone should not be relied upon to meet the canopy cover targets. An integrated design approach will be key to establishing and sustaining canopy.

The Discussion Paper, *Planning and Design Code Reform Options Expert Panel for the Implementation Review October 2022*, page 38 states, “Trees take years to establish”. While this is true, with suitable space, good soil, good quality root stock and good water supply a tree is more likely to (i) reach its canopy potential and (ii) achieve an extended lifespan. The Code can support

space and water supply requirements. Guidelines that encourage the use of infiltration pits, or trenches, onsite when suitable offset distances can be achieved from the building and property boundaries are needed. A pit located just inside the front property boundary can sustain trees within the front yard of the property and support trees located in the verge.

With the challenges that small allotment sizes present for tree establishment and longevity, we need to consider the private green space and verge in a more holistic way. In particular, the landscaped area between the front of building envelope through to kerb and gutter in the road verge offers excellent opportunities for integrated stormwater and landscape solutions.

A tree planted in a front yard has the benefit of additional soil volume “space” in the road verge to support tree root expansion, and hence tree growth – given we know canopy is constrained by the volume of deep soil. Setbacks at the front of properties are often more generous than the proportions of back yards and hence offer more space for deep soil zones. In addition, Councils and developers of master planned communities can establish infiltration systems in the road verge that can benefit both street trees and trees in the front yards of private properties.

Trees in front yards can contribute to the shading of verge footpaths and support more walkable communities. The orientation of the building may also influence where a tree is best planted on a site. If the front of a property faces south-west or west it may be preferential to plant a tree in the front yard than the back yard, to protect the home from afternoon summer sun.

It is for these reasons that the proposed policy “requirement to plant a tree to the rear of a dwelling site” (see below) should not apply universally.

Questions for consultation within the above Discussion Paper:

- 1. What are the implications of master planned/greenfield development areas also being required to ensure at least one (1) tree is planted per new dwelling, in addition to the existing provision of public reserves/parks?*
- 2. If this policy was introduced, what are your thoughts relating to the potential requirement to plant a tree to the rear of a dwelling site as an option?*

RECOMMENDATION 2: Deemed-to-satisfy solutions and/or guidelines be developed to support integrated design solutions within the allotment that give effect to stormwater management and tree canopy performance objectives.

4. Infill Policy in the Code

4.1 Soft landscaped areas

Development applications site and landscape plans show minimum landscaped areas within small courtyards. In reality, these areas are being paved. A review should be undertaken and policy developed that stipulates a minimum courtyard area for which “permeable soft landscaping” contributions can be claimed.

Possible example new policy: Courtyards of less than XX m² [yet to be agreed] shall not be included in the minimum permeable soft landscape area for the site (or similar).

RECOMMENDATION 3: A review should be undertaken and policy should be developed that stipulates a minimum courtyard area for which “permeable soft landscaping” contributions can be claimed.

5. Carparking Policy in the Code

5.1 Residential development

5.1.1 Flexible car storage design should be encouraged to enable development to adapt to a range of future car ownership scenarios, for example:

- The decoupling of car storage from the main dwelling via a carport, provides opportunities for underutilised car storage areas to be converted to useable shared or private green spaces if predicted declines in car ownership rates over the next 10 to 15 years are realised. This will enable the overall site perviousness and urban green cover to increase overtime.

A permeable pavement can be designed flat which may have design benefits not achievable with a convention crowned pavement required for drainage purposes.

Example includes:

761 Port Road, Woodville

Carpports forward of the building envelope provide for flexible use of this space, including potential conversion to green space, in the future.



5.1.2 Stormwater detention via permeable pavements instead of conventional underground tanks

A shift from underground stormwater detention to manage stormwater runoff peak flows from carparks in favour of permeable or porous pavements located in low points (often parking bays) adjacent to landscaped areas can achieve equivalent peak flow management objectives while also having potential to sustain landscaped areas and contribute to tree canopy targets.

Example include (see next page):

48 Davenport Road, Richmond
(residential flat building) – View 1

Stormwater detention provided
within permeable paving and at
the surface of the carpark



City of Unley
Porous asphalt in road pavement
adjacent verge street tree



5.2 Commercial development

Context

The majority of commercial and industrial carpark continue to drain stormwater runoff away from landscaped areas, which enables stormwater flows to connect directly to underground drainage systems or locks the development into an underground detention tank solution for stormwater management. This design approach should be actively discouraged unless the stormwater is collected for use within the site. Carpark design that directs stormwater flows away from landscaped areas represents one of the largest missed opportunities for stormwater management and urban greening facing development of any kind in South Australia.

- 5.2.1 Carpark gradients slope towards landscaped areas with kerb cut-outs to passively irrigate landscaped areas in combination with WSUD measures** to manage stormwater while also contributing to canopy targets. These WSUD measures may include infiltration systems, raingardens and swales to reduce peak flows and volumes and maximise stormwater quality improvement through greater removal of pollutants. An integrated design approach incorporating WSUD is needed if developments are to achieve the range performance objectives within the Code. Note: in areas of clay soils WSUD systems with suitable underdrainage are needed to ensure vegetation is not adversely affected by the additional stormwater flows.

Examples of best practice, non-residential carpark design:

Adelaide Oval carpark, 2016

Carpark surface levels graded towards landscaped areas with kerb inlet cut-outs, enabling stormwater runoff to passively irrigate trees, which significantly contributes to rapid canopy establishment.



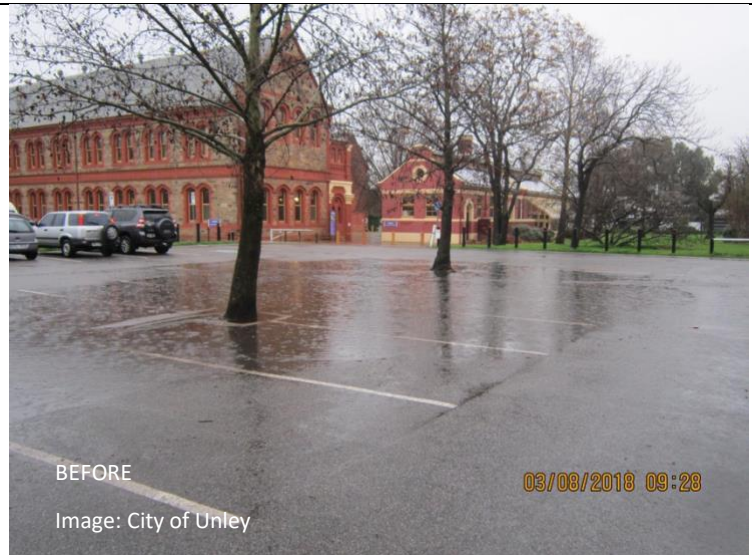
Adelaide Oval carpark, 2018

Plane trees passively irrigated with stormwater plus reticulated irrigation as required, produces significant canopy cover within two years of construction.



Goodwood Orphanage carpark, 2018 before works

Sections of carpark unusable in high rainfall events.



Goodwood Orphanage carpark, 2019 during construction

Stormwater storage within central infiltration garden bed.



Goodwood Orphanage carpark,
2021 after construction

Carpark surface levels graded towards landscaped areas that are flush with carpark surface to enable sheet flow of stormwater into garden bed.

Design supports stormwater peak flow management and landscape/canopy objectives.



RECOMMENDATION 4: Deemed-to-satisfy solutions and/or guidelines are required to give effect to stormwater management and carparking performance objectives within the Code.

6. Other

6.1 Sediment Control

The lack of appropriate erosion control on development sites in the Greater Adelaide area is placing the health of our waterways and coastal environments at risk and is also causing damage to water sensitive urban design assets before they are commission for use. With respect to WSUD assets, sediment laden stormwater is being allowed to flow freely into partially constructed raingardens and other green infrastructure taking years off the asset's operational life and/or requiring rectification works before the development is completed. Better erosion and sediment control of development sites needs to be addressed by government and industry as a priority.

6.1.1 Policy

Reinstatement of sediment and erosion control policies in the Code

In the transition from Development Plans to the Planning and Design Code, all policy regarding construction phase sediment and erosion control was lost. It is important that the sediment and erosion control policies be reinstated in the Code, as current sediment management practices on Adelaide construction sites is unacceptable. Strengthening the Code will underpin compliance and enforcement of best practice sediment and erosion control.

Examples of current poor sediment control on Adelaide construction sites:

Multi-lot land division – poor sediment control, Adelaide 2022



Single lot development – poor sediment control, Adelaide 2022



6.1.2 Current Best Practice Guidance for sediment and erosion control

Updated state guidelines are required to support the development and construction industry to achieve acceptable levels of erosion and sediment control. The NSW Planning and Environment Department document [Department of Planning and Environment Technical guidance for achieving Wianamatta–South Creek stormwater management targets](#) represents best practice sediment control performance objectives for construction sites.

An independent auditor and certification is required to demonstrate compliance.

Extract: [Department of Planning and Environment Technical guidance for achieving Wianamatta–South Creek stormwater management targets](#)

Construction phase targets

Construction phase stormwater quality targets apply to development sites >2,500 m² (Table 2). The targets were designed to strengthen existing requirements in the Managing Urban Stormwater: Soils and Construction (the Blue Book), in particular with regard to treating a minimum volume of annual runoff from a construction site.

It is ideal for independent audits to be undertaken by a Certified Professional in Erosion and Sediment Control (CPESC) to certify that the management of the site complies with these targets, or where not in compliance, specific advice is provided to the proponent to achieve compliance.

Table 2 Construction phase stormwater quality targets

Parameter	Target (reduction in mean annual load from unmitigated development)
Total suspended solids (TSS) and pH	<p>All exposed areas greater than 2,500 m² are to be provided with sediment controls that are designed, implemented and maintained to a standard that would achieve treatment of at least 80% of the average annual runoff volume of the contributing catchment (i.e. 80% hydrological effectiveness) to 50 mg/L TSS or less, and pH in the range (6.5–8.5)</p> <p>No release of coarse sediment is permitted for any construction or building site</p> <p>Sites less than 2,500 m² are required to comply with the requirements of the Blue Book</p>
Parameter	Target (reduction in mean annual load from unmitigated development)
Oil, litter and waste contaminants	No release of oil, litter or waste contaminants
Stabilisation	<p>Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces are to be effectively stabilised including all drainage systems</p> <p>An effectively stabilised surface is defined as one that does not or is not likely to result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation and water contamination</p>

RECOMMENDATION 5:

5.1 Reinstate and strengthen erosion and sediment control policies into the Code.

5.2 Planning and Land Use Services work with the EPA and Local Government to update erosion and sediment control guidelines for South Australia

6.2 Design Standards

It is understood that Design Standards under the PDI Act may only apply to the public realm. It would be beneficial if Design Standards could be developed to support construction of elements in the private realm also, such as rainwater tanks, infiltration systems, permeable paving and biofilters/raingardens.

Water Sensitive SA is currently developing a suite of WSUD Standard Drawings. These designs could apply equally to private property in addition to the public realm.

RECOMMENDATION 6: Broaden the application of Design Standards to include the private realm if necessary.

Conclusion

The Planning System Implementation Review is an opportunity to bring matters affecting the implementation of WSUD and associated policy to the attention of the Minister for Planning, Housing and Urban Development and the Expert Panel appointed overseeing the review. Water Sensitive SA continues to have a role to build the capacity of practitioners to interpret and apply the policies that relate to water sensitive urban design. However, all options within the planning system need to be explored to formalise any policies, design standards or guidelines that support adoption and application of WSUD design principles in new developments. This report provides recommendations for consideration by the Minister for Planning, Housing and Urban Development's Expert Panel.