CRC for Water Sensitive Cities

Planning for water sensitive infill development: case study of Salisbury East precinct

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Planning for water sensitive infill development: case study of Salisbury East precinct *Guiding integrated urban and water planning* (IRP3) IRP3-3-2021

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## **Executive summary**

The City of Salisbury is slowly being transformed through infill development, where older housing stock or vacant land is being replaced by higher density housing. This ad hoc pattern of intensified infill development is taking place in towns and cities across Australia in response to growing populations and is generally not supported by strategic planning. The scale and extent of infill is having a negative impact on the quality and resilience of urban environments through the loss of landscape and porous ground, large building footprints, and poorly designed low-rise developments that lack open space, tree canopy and solar access. Such effects are counter to the ambitions of state government policies for greener, healthier and more liveable neighbourhoods, such as the *30-Year Plan for Greater Adelaide* and *Water sensitive urban design: Creating more liveable and water sensitive cities in South Australia*. This gap between policy intentions and on-ground development practice is in need of urgent attention if our environments and communities are to be sufficiently prepared for increasing climate challenges like urban heat and long periods of drought.

As an alternative approach to current infill practice, this case study explores the extent to which the South Australian planning system could facilitate the implementation of water sensitive infill housing typologies within a greener and connected precinct for the study area in Salisbury East in northern Adelaide. This suburban area is going through urban regeneration, driven by the City of Salisbury *City Plan 2035*, which makes a clear connection between the role water plays in the enhancement of canopy cover and urban cooling, and community wellbeing and economic growth. To date, typical infill activity in this area is characterised by dual occupancies, unit and townhouse developments surrounded by highly impervious paving, and is generally devoid of green space in common or private areas.

The <u>Salisbury East Precinct Plan</u> sets out a range of opportunities for infill development to inform better residential infill practice and urban renewal. It includes a diverse range of water sensitive housing typologies at densities and configurations that are applicable to contemporary infill development scenarios. These innovative housing designs are compatible with the surrounding context and local climate. They maximise planting area and interface with streets and public open spaces. At the precinct scale, the design utilises existing green infrastructure networks to create permeable streets, paths and creek trails that enable increased comfort, access, connectivity.

Considering how to deliver such a precinct is very timely in the context of current South Australian planning reforms that seek better economic, environmental and social outcomes through more streamlined and consistent approaches to decision making and assessment. The new Planning and Design Code (the Code) underpinned by the *Planning, Development and Infrastructure Act 2016* provides a single source of planning policies and rules for assessing development applications across the state. The Code and supporting policies have a strong focus on place-based design, liveability and housing diversity.

This case study undertook an analysis of this new code and tested how it could enable the delivery of the proposed Salisbury East Precinct Plan. The analysis was informed by interviews with local practitioners from the water, planning and development sectors in relation to the Code, existing governance arrangements and other issues that may impact the delivery of the infill designs proposed by the Salisbury East Precinct Plan. In addition, a workshop was held with the City of Salisbury managers to consider Council's role in facilitating such a plan.

The research found that the new Code contains a number of improved water sensitive urban design (WSUD) and urban greening policy directions that could contribute to the delivery of the proposed precinct outcomes for Salisbury East. However, to achieve the ambitions of the precinct plan, further changes would be required to planning mechanisms and governance arrangements.

The study has identified a number of areas to target as part of efforts to strengthen the enabling context for water sensitive urban development in Salisbury. These include:

- the willingness of the development industry to deliver alternative housing typologies that go beyond business-as-usual practices
- market preferences that have not yet broadly embraced the type of higher density living proposed
- the extent of cross-sectoral collaboration across the project lifecycle, to ensure on-ground outcomes are delivered as intended
- the capacity of current Council planners to negotiate suitable water sensitive outcomes for the Precinct
- the ongoing maintenance of trees and landscaped areas in both the private and public areas.

Addressing these challenges may require:

- additional planning policies and requirements that specify desired design qualities, including how buildings relate to private green space, streetscapes and neighbouring public realm
- development of design standards and council guidelines, supported by training and capacity building opportunities, to facilitate a consistent approach to policy interpretation and decision making
- stakeholder engagement to raise community and industry awareness and acceptance of WSUD and greening solutions, coupled with collaboration on specific projects to create and implement a shared vision for change
- development of an integrated water management plan for the precinct and surrounding catchment to identify all potential sources of water and how they can contribute to the proposed Salisbury East Precinct Plan
- further feasibility studies and designs for the precinct, such as (a) an economic evaluation of proposed initiatives to inform the development of a compelling business case, and (b) detailed landscape and concept plans to guide the orderly development of the precinct over time.

These issues and opportunities are not unique to the City of Salisbury. Many other infill contexts in Greater Adelaide, and indeed all other capital cities in Australia, can draw relevant lessons from the findings of this report. These lessons may be used by local governments and water service providers to inform the development of governance and planning interventions to facilitate more water sensitive infill development practices.

## 1. Introduction

Much of the population explosion in Australian cities is being absorbed by intensified infill development in the older middle suburbs that have larger blocks of land and housing at the end of its life, and this is anticipated to continue over the coming decades as the population in cities continue to grow (Coleman, 2017). This development lacks a strategic planning framework and is resulting in piecemeal, ad hoc developments that are having a considerable negative impact on the liveability and amenity of our cities (Government of South Australia, 2017; Jacobson, 2011; Brunner and Cozens, 2013). The water sensitive city approach provides an alternative that aims to support higher density communities while also enhancing the environmental performance of Australian cities. It recognises the substantial impact of intensified infill development due to its scale and extent on city water performance and urban heat (Wong and Brown, 2009).

This case study research focuses on an alternative to this development practice by utilising integrated design, water and planning as a positive strategy that can enable the transition towards water sensitive city outcomes (Newton et al., 2012; Newton and Glackin, 2014). This approach includes efficient and compact housing design that can yield higher quality outdoor space, valuable stormwater infiltration and large tree canopy area, as well as reduce overall water and energy demand per dwelling/person (Murray et al., 2011; Newton et al., 2012). In addition, climate sensitive urban design can be applied to mitigate increases in urban heat associated with higher urban density (Coutts et al., 2013; Bowler et al., 2010). This is in contrast with current business-as-usual (BAU) infill development, which often results in large building footprints and poorly designed low-rise developments that lack open space, tree canopy, solar access and cross ventilation (Thomson, Newton and Newman, 2017).

This research has a particular focus on understanding the enabling context for water sensitive housing development in South Australia. It sought to explore the extent to which the South Australian planning system facilitates the implementation of a range of water sensitive infill typologies within a precinct study area in Salisbury East in northern Adelaide. This suburban area and its surrounding suburbs are going through urban regeneration, driven by the City of Salisbury *City Plan 2035* (City of Salisbury, 2020a) and is expected to yield an additional 2,500 new dwellings in the coming 15 years (Government of South Australia, 2017). Infill activity has commenced within the study area, and includes BAU single dwelling replacements, dual occupancies, and unit and townhouse developments that comply with SA planning system standards.

This case study research is part of a national CRC for Water Sensitive Cities' (CRCWSC) research project, *Guiding integrated urban and water planning* (IRP3). The project seeks to examine how different types of urban development can be deliberately guided to achieve water sensitive outcomes. It asserts an integrated approach to urban and water planning is required to facilitate such outcomes. Drawing on the outcomes of this and other case studies, the project proposes a flexible framework to guide practitioners' design and carry out a fit-for-purpose planning pathway for advancing desired outcomes through the urban development process.

### 1.1 Purpose of case study

This case study investigated whether existing governance, policy and planning mechanisms enable or constrain the delivery of water sensitive outcomes in the study area. It builds on the outcomes of the CRCWSC's project, *Water sensitive outcomes for infill developments* (IRP4), which tested a number of infill designs that can achieve higher quality urban densification and improve hydrological performance and thermal comfort.

Working with key stakeholders, this case study investigated the ability of the South Australian planning system to facilitate the implementation of the proposed water sensitive residential infill typologies in Salisbury East. In particular, the objectives of the research were to:

 analyse the extent to which existing planning and governance systems support or constrain four infill design scenarios for housing development in the Salisbury East precinct, and • explore potential opportunities to improve the enabling context for high-quality development and urban realm outcomes.

This project is very timely in the context of current changes to the South Australian planning and development system. The state is currently rolling out a renewed planning system of a single Planning and Design Code (the Code) underpinned by the *Planning, Development and Infrastructure Act 2016* (Government of South Australia, 2020a). The Code and supporting policies focus on place-based design, liveability and housing diversity, which were tested as part of this case study.

### 1.2 Methodology

This case study adopted a qualitative methodological approach to interpret and describe the extent to which the new Code and related governance arrangements could facilitate the implementation of water sensitive residential infill typologies in the proposed Salisbury East Precinct. The methods included a desk top review of key documents, interviews with water and urban planning practitioners, and a workshop with staff from the City of Salisbury.

### 1.2.1 Policy review

A desktop review was undertaken to understand key state and local government policy and planning documents that relate to the ambitions of achieving water sensitive city outcomes. The emphasis of this work was on the new Code, which was analysed to understand the effectiveness of its policies and provisions that relate to water sensitive urban design (WSUD) and urban greening. The review revealed a number of key strengths and weaknesses relating to the delivery of water sensitive city outcomes, which were further investigated through subsequent practitioner interviews and a workshop.

### 1.2.2 Interviews

A series of semi-structured interviews were undertaken (n=7) with water and urban planning practitioners, who came from the backgrounds of architecture and urban design, urban planning and policy, development and hydrological engineering. Through a series of questions and visual prompts, each interviewee was asked to explore and refine enabling and constraining factors for WSUD and urban greening outcomes within the new Code, and discussed opportunities and challenges for strengthening the delivery of the two water sensitive infill development typologies (single dwelling type and central garden type) that were presented to them.

### 1.2.3 City of Salisbury East Precinct workshop

The workshop had two central aims:

- Test how the infill housing typologies and public realm designs of the Salisbury East Precinct Plan (see section 2) could be implemented.
- Explore potential benefits, opportunities, constraints and partnerships to advance WSUD in Salisbury.

Thirteen City of Salisbury staff members from the areas of economic development, infrastructure, water, planning and development approvals attended the half-day workshop. Workshop participants were asked to assess the potential of the South Australian urban and water planning systems to facilitate the implementation of the propositional infill housing designs for Salisbury, together with the potential of the City of Salisbury's governance and management structures to deliver the WSUD Precinct Plan.

# 2. South Australian policy and planning context

South Australia is, at the time of writing, undertaking one of its most extensive planning reforms in 25 years. Beginning in 2013 with the formation of the Expert Panel on Planning Reform, significant stakeholder consultation and investigations have been undertaken to develop, test and implement (through phases) a new state-wide planning system. Underpinned by the *Planning, Development and Infrastructure Act 2016*, the new planning system introduces a range of tools (see Box 1) to modernise the system, and improve certainty and consistency in decision making and assessment.

The reforms aim to deliver better economic, environmental and social outcomes for South Australians. These include (Government of South Australia, 2021a):

- a shared planning vision that sets out clear, long term goals and adaptive priorities for South Australia
- a more accessible system that enables greater community involvement in planning processes
- one clear set of planning rules that apply across the entire state, by consolidating South Australia's 72 development plans into one planning rulebook
- an electronic planning system to centralise planning and development matters, as well as simplify and speed up processes
- new planning rules that emphasise good design outcomes to support place-making and better built environments
- A consistent and simplified development assessment process through new assessment pathways tailored to the complexity of the development proposal
- introduction of an Accredited Professionals Scheme to ensure development applications are assessed by suitably qualified and experienced professionals
- a more equitable and transparent process for coordinating and delivering critical infrastructure by introducing infrastructure schemes
- regular monitoring of the planning system to allow for continuous improvements in policies, legislation and administration
- protecting the environment and important agricultural assets surrounding metropolitan Adelaide from unrestricted development by introducing Environmental and Food Production Areas.

The new planning system has been in operation since 31 July 2020 across rural (phase 2) and outback (phase 1) South Australia. It will come into operation for Greater Adelaide (phase 3) on 19 March 2021 (Government of South Australia, 2021). The remainder of this section describes aspects of key planning instruments that seek to give effect to WSUD and urban greening outcomes. It also briefly assesses the potential extent to which these components of the new planning system enable those outcomes, informed by the perspectives of practitioners interviewed for this case study. As development applications in Greater Adelaide have not yet (at the time of writing) been assessed in relation to the new planning system, the discussion in this section is speculative and will need to be revisited once the system is fully operational.

# Box 1. New instruments set out by the *Planning, Development and Infrastructure Act 2016* and supporting Regulations

The new planning system operates through a suite of planning instruments that seek to ensure development in Greater Adelaide is appropriately located, designed and considered. Key instruments are:

- <u>State planning policies</u> (SPP) provide the state-wide vision for South Australia's planning and design system. They define the state's planning priorities, goals and interests, and provide a framework for other state-wide planning tools such as Regional Planning, and the Planning and Design Code. Relevant key policy areas include SPP2 Design Quality, SPP5 Climate Change, SPP13 Coastal Management and SPP14 Water Security and Quality.
- <u>Regional plans</u> set the direction for future planning and development of different regions in South Australia. The *30-Year Plan for Greater Adelaide* (2017 Update) is the relevant regional plan governing development of the area subject to this study.
- <u>Planning and Design Code</u> (the Code) will replace all development plans to become the single source of planning policies and rules for assessing development applications across the state. Phase 3 of the Code will govern all new development in the Greater Adelaide Region.
- <u>Design standards</u> (once developed) will prescribe the way in which the public realm and infrastructure should be designed, and will include offset contributions schemes and infrastructure delivery schemes.
- <u>Structure plans</u> guide the design and development of areas where the population is expected to grow, such as transit corridors, new growth areas and urban renewal precincts. In particular, they direct the planning of services and infrastructure for transport, health, schools and community facilities, and identify land available for industrial, commercial and residential development.
- <u>Precinct plans</u> are comprehensive plans for the redevelopment of a specific area, and may be prepared to guide urban renewal, land release for commercial, industrial or residential uses close to public transport, and the establishment of new industries.

Sources: Government of South Australia, 2021b; Government of South Australia 2020b.

### 2.1 South Australia's water sensitive urban design policy

Beyond the SPPs, a number of other policies seek to guide water sensitive outcomes in the urban context. One such policy is the *Water sensitive urban design: Creating more liveable and water sensitive cities in South Australia* (referred to as State WSUD Policy), endorsed by the State Government in 2013. This was the first policy to formally recognise the benefits to be derived from integrating WSUD into SA's urban environments. Key aims include to: improve water security and climate resilience; contribute to public health and wellbeing; help protect or improve the health of receiving water bodies and their ecosystems; and help reduce ecological impacts and support affordable living by reducing long term costs associated with water management.

The State WSUD Policy introduced the following 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.

These objectives are supported by corresponding performance principles and targets for water conservation and stormwater runoff quality and quantity within the policy document. Critically, the State WSUD Policy gave status to performance principles and targets for stormwater runoff quality, paving the way for the eventual mandating of WSUD in the planning system under the Draft Planning and Design Code (the Code) some seven years later as described in Section 2.3. These measurable stormwater runoff targets are:

Achieve the following minimum reductions in total pollutant load, compared with that in untreated stormwater runoff, from the developed part of the site:

- Total suspended solids by 80%
- Total phosphorus by 60%
- Total nitrogen by 45%
- Litter/gross pollutants by 90%.

The Code has validated the equivalent local government engineering requirements and Environment Protection Authority (EPA) conditions of consent within the planning system that have been placed upon new development since the early 2000s.

### 2.2 The 30-Year Plan for Greater Adelaide

The 30-Year Plan for Greater Adelaide (the regional plan for Greater Adelaide) sets six overarching targets that will define the future of urban development for metropolitan Adelaide and the urban growth areas. All six targets are inter-related and influence Adelaide's transition to a water sensitive city.

- 1. Containing our urban footprint and protecting our resources 85% of all new housing in metropolitan Adelaide will be built in established urban areas by 2045
- More ways to get around 60% of all new housing in metropolitan Adelaide will be built within close proximity to current and proposed fixed line (rail, tram, O-Bahn and bus) and high frequency bus routes by 2045
- 3. **Getting active** Increase the share of work trips made by active transport modes by residents of Inner, Middle and Outer Adelaide by 30% by 2045
- 4. Walkable neighbourhood Increase the percentage of residents living in walkable neighbourhoods in Inner, Middle and Outer Metropolitan Adelaide by 25% by 2045

- 5. A green liveable city Urban green cover is increased by 20% in metropolitan Adelaide by 2045, from a baseline of 27.28% in 2017
- 6. Housing choice Increase housing choice by 25% to meet changing household needs in Greater Adelaide by 2045.

Despite these clear directions, much more is needed to shift BAU practices to achieve these targets. For instance, a study of 19 South Australian metropolitan local government areas provides evidence that most Councils have experienced a decline in tree canopy cover of 1.9% between 2013 and 2017 (Amati et al., 2017). This loss of urban green cover increases to 2.6% if grass and shrub cover are included, equivalent to an increase in hard surfaces, which can be largely attributed to changes in perviousness of private land (Amati et al., 2017).

This issue places greater emphasis on the critical role of the Planning and Design Code to inform and shape built form quality and integrated design through strengthened performance-based measures. If government, industry and community are committed to the delivery of the targets in the 30-Year Plan, a substantial reduction in site coverage and/or site imperviousness will be necessary. This can be addressed in part through a water sensitive approach to current housing and open space design in infill suburbs, as well as a new approach to the treatment of hard surfaces (carparks and roofs) in residential, commercial and industrial developments. Applying WSUD policy, design principles and practices will be fundamental to this shift and can offer approaches for reducing the overall site coverage of new developments and increasing the site permeability through connecting to the natural water cycle and improving soil moisture conditions.

### 2.3 Planning and Design Code

The Planning and Design Code is a statutory instrument under the *Planning, Development and Infrastructure Act 2016* for assessing development applications in South Australia. Once fully implemented in March 2021, it will replace all 72 local planning schemes (known as Development Plans) with a single set of planning rules.

Phase 3 (urban areas) of the Code contains a number of provisions that relate to WSUD and urban greening. Overall, the Code recognises the need for greater emphasis on natural systems in urbanised areas and sets out performance objectives for urban green cover and canopy cover for merit based and associated deemed-to-satisfy (DTS) criteria. Detailed objectives include minimum landscaped areas as a proportion of site, deep soil zones, minimum tree plantings for residential and commercial development, and maximum driveway crossover widths to protect trees and/or space for trees within the road verge. These objectives represent a shift from general policy statements on the protection of water quality and reduction of (stormwater) runoff and peak flow management to the introduction of specific, measurable performance-based policy relating to stormwater runoff quality, stormwater runoff peak flow management and stormwater runoff volume management.

WSUD and urban greening policy direction is provided in two distinct places within the Code: Part 3 – Overlays and Part 4 – General Development Policies. These are briefly described in the next two sections.

### 2.3.1 Part 3 of the Code – Overlays

Two overlays provide DTS pathways for small-scale residential development and group dwellings (< 5), and residential flat buildings that incorporate WSUD and urban greening requirements.

The **Stormwater Management Overlay** focuses on rainwater retention and detention solutions that seek to deliver water conservation and stormwater runoff quality and quantity benefits. A sliding scale of tank sizes is offered depending on the allotment size and site percentage imperviousness. However, no detention requirements are in place for sites that are more than 30% and 35% pervious, and for allotment areas of 200-400m<sup>2</sup> and greater than 400m<sup>2</sup> respectively. The consistent approach to retention and detention policies for

stormwater management across all Councils for small-scale residential development can potentially result in better compliance, particularly in light of incentives to discount rainwater tank requirements by allowing reduced minimum volumes if overall site coverage is reduced. However, further incentives may be needed to achieve a greater shift in practice.

The **Urban Tree Canopy Overlay** contributes to the state's urban green cover target. It provides for minimum tree planting based on allotment size, for example sites less than 450m<sup>2</sup> shall provide one small tree combined within between 15% and 20% soft landscaping, depending on lot size (Figure 1). Further criteria are provided to define what constitutes a small, medium or large tree in supporting tables, with the retention of existing trees incentivised through discounts on new tree provisions.



Figure 1. Urban Tree Canopy Overlay deemed-to-satisfy solutions for a range of allotment sizes (Source: Government of South Australia, Attorney-General's Department, September 2020c, Raising the bar on Residential Infill in the Planning and Design Code)

While the Code will ensure minimum standards for site coverage, soft landscaping and tree establishment, it also represents a decline in performance relative to some previous Development Plans. As an example, one metropolitan council Development Plan has a requirement of 25% landscape area for lots >250m<sup>2</sup>. In comparison the Code requires soft landscaping of 20% of the site area for allotments that are between 200m<sup>2</sup> and 450m<sup>2</sup>. The cumulative impact of this 5% loss of soft landscaping for each approved development raises concern for that council area.

Further, the recent announcement of the creation of an Urban Trees Offset Scheme has raised a number of concerns. In particular, the scheme would allow an applicant to forgo the provision of a tree on site by making a financial contribution instead. These contributions would allow councils to plant trees in other areas. While the scheme would apply only to high density housing policy areas and areas with highly reactive soils, it has the potential to reduce the amenity and environmental performance of development sites. And given the space constraints in inner suburbs, it has caused some practitioners to question where in the landscape these trees could be planted.

### 2.3.2 Part 4 of the Code – General Development Policies, Design in Urban Areas

Part 4 provides a suite of assessment provisions that integrate WSUD principles and soft landscaping policy. Desired outcomes include that: 1) development incorporates WSUD techniques to capture and reuse stormwater and 2) development preserves and enhances urban tree canopy by planting new trees and retaining existing mature trees where practicable.

Pollution reduction targets are introduced such as 80% reduction in total suspended solids (TSS), 45% reduction in total nitrogen (TN), and 60% reduction in total phosphorus (TP), relative to a conventional design without WSUD, in accordance with the State WSUD Policy. Introducing pollution reduction targets for both residential development (of greater than four allotments) and all non-residential development is expected to yield improvements for stormwater management, particularly stormwater runoff quality.

The Code continues to encourage use of alternative water supplies, and water use efficiency policy is enhanced for small-scale infill developments, through increased minimum retention tank sizes, relative to the soon-to-be superseded Residential Code under the *Development Act 1993*. Retaining and using harvested rainwater have the additional benefit of contributing to improved outcomes for stormwater runoff quality and quantity.

Design techniques encouraged under the Code include greater integration of stormwater management with landscape design, for example the use of infiltration (where soils permit) and permeable or porous paving to assist site permeability.

Soft landscaping and tree planting are incorporated to: minimise heat absorption and reflection, maximise shade and shelter, maximise stormwater infiltration, and enhance the appearance of land and streetscapes. Under the DTS pathway, residential development must provide for soft landscaping with a minimum dimension of 700mm, in accordance with (a) and (b):

Dwelling site area (or in the case of residential flat building or group dwelling(s), average site area) (m²)	Minimum percentage of site
<150	10%
150–200	15%
201–450	20%
>450	25%

#### (a) a total area as determined by the following table

(b) at least 30% of any land between the primary street boundary and the primary building line.

The role of urban greening and integration of water in the landscape to aid amenity and create microclimate has been captured within the Code. This includes:

**Landscaping** – Development facing a street provides a well landscaped area that contains a deep soil space to accommodate a tree of a species and size adequate to provide shade, contribute to tree canopy targets and soften the appearance of buildings.

**DTS solutions** – At a minimum a development shall provide a 4m x 4m deep soil space, however multistorey developments require deep soil areas that vary in accordance with the total site area.

**Environmental performance** – Buildings incorporate climate responsive techniques and features such as building and window orientation, use of eaves, verandahs and shading structures, water harvesting, at ground landscaping, green walls, green roofs and photovoltaic cells.

*Car parking appearance* – Vehicle parking areas and access ways incorporate integrated stormwater management techniques such as permeable or porous surfaces, infiltration systems, drainage swales or rain gardens that integrate with soft landscaping.

In addition to providing for soft landscaping and tree canopy on private land, the Code aims to provide greater protection to street trees by limiting the width of driveway crossovers to 3.2m for residential developments on narrow allotments, and in turn providing greater protection to existing tree root systems from construction works and/or reserving sufficient space in the verge to aid the establishment of new street trees. These requirements could help to soften the front yards of new developments and improve the connection of the new building and the streetscape.

However, the Code focuses on the traditional layout of a front yard and back yard with the building mass in the middle, which breaks up green spaces and limits any deep soil zone area. As an alternative, a single piece of green space on an allotment may provide a better opportunity to establish tree canopy cover, as greater offsets from structures can be achieved. This approach would require a rethink of setback provisions.

To assist navigation of the Code, Figure 2 provides guidance on the planning approval pathways (performance assessed versus DTS) for WSUD and urban green cover criteria for differing scales of development.



Figure 2. Planning approval pathways for WSUD and urban greening for differing scales of development

Overall, whether or not the Code will improve urban greening outcomes is likely to depend on the site context, the relevant Council and the ability of current Council planners to negotiate a suitable landscape outcome for the site.

A need remains to simplify and systemise polices and interpretation guidance to support the development industry adapt to the changes.

Other factors that may affect the extent to which the Code enables WSUD and urban greening across Greater Adelaide are:

- the agility of the development industry to respond to changes in WSUD and greening provisions
- the willingness of the development industry to deliver alternative housing typologies that go beyond the minimum standards prescribed by the Code, particularly if they are likely to involve greater upfront costs
- the extent of collaboration across disciplinary backgrounds throughout the project lifecycle, to prevent
  non-standard responses to the built form and landscape design from being forfeited or overridden as the
  project progresses to design and implementation stages
- the cost of ongoing maintenance of trees and landscaped area by residents or managers of properties
- cost implications for industry due to the potential impact on footing specifications and the associated insurance risk for new homes and neighbouring properties
- compliance and enforcement to ensure landscape plans and stormwater management solutions are in accordance with the Code
- Local market preferences that have not yet embraced higher density living, or the decoupling of car
  parking from dwellings, which would create greater opportunities to increase connection to green space.

Changes to approvals and appeals processes under the *Planning, Development and Infrastructure Act 2016* may also make it difficult for Councils to work closely with applicants to deliver better outcomes. A responsible authority, generally the local Council, will have 20 days to assess and either approve or refuse a proposed development under a performance assessment application process, in comparison with the 60-day allowance for a merit assessment under previous planning legislation.

Because there is less time to assess all aspects of the proposed development, if an application is deficient there will be limited opportunity to work with the applicant towards an outcome that is consistent with planning objectives. If a decision is not made on an application within 20 days, an applicant can issue a notice on the relevant authority giving rise to a deemed planning consent. These tight timelines combined with the threat of a deemed planning consent could result in a more combative process, with a possible increased likelihood of refusals in the absence of quality applications and a corresponding increase in the number of appeals over decisions.

# 3. Salisbury East Precinct

Against the policy and planning context described in the preceding section, the CRCWSC's IRP3 team collaborated with urban planners and water practitioners to undertake an integrated assessment of greyfield development scenarios for a suburban precinct of approximately 1,900 residents (2019) in the City of Salisbury. The local context and stakeholder aspirations for the precinct (as encapsulated in the Salisbury East Precinct Plan) are described in this section. Then, a number of planning and governance considerations for implementing the Salisbury East Precinct Plan are explored in section 4.

### 3.1 City of Salisbury

The local government area of the City of Salisbury is located 25 km from Adelaide's city centre. It is a large municipality covering a land area of some 160 km<sup>2</sup> that extends from the shores of Gulf St Vincent to the Para Escarpment and the foothills of the Mount Lofty Ranges. It is predominantly a residential area with substantial industrial, commercial and rural areas, including an airport, and is distinguished by its many parks, reserves, wetlands, and walking and bike trails. Industries include market gardens on its western fringes, and high quality food processing and wetlands' technology at Parafield Airport and in Edinburgh (City of Salisbury, 2017a; Lewis, 1980).

The City's population of 143,560 residents is a mixed age, socio-economic demographic ranging from young people to an older population, with an ongoing need for a mix of housing types (id community, 2020). Currently, younger adults are seeking affordable rental housing near public transport and education facilities and are purchasing new higher density housing around Mawson Lakes, whereas mature families are attracted to elevated areas in Salisbury Heights. In recent years, incremental BAU infill development has become an important source of new housing, particularly in older suburbs with larger blocks that can accommodate medium density housing developments such as units and townhouses. This will continue, with more than 9,000 new dwellings needed for an increase in population to 153,520 by 2036 (id community, 2020).

The region of Salisbury enjoys a Mediterranean-style climate, having cool, wet winters and warm to hot, dry summers. It receives its domestic water supply from the streams of the Mount Lofty Ranges, which is the major water catchment for Adelaide's water supply, supplying 60% of the metropolitan area, with the balance coming from the Murray River. In recent years, drought has reduced water supply from the Mount Lofty Ranges bringing water issues to the fore. This may continue with predictions that the Northern Adelaide region's annual rainfall may decline up to 11% and rainfall intensity may increase up to 16%. In addition, temperatures are predicted to rise with annual maximum temperatures, projected to increase by 2.3°C and minimum temperatures by 2°C, as well as extreme heat days per year (i.e. days >35°C) increasing by 76% or the equivalent of 31 days (Adapting Northern Adelaide, 2016).

The local environment includes numerous constructed wetlands, reserves and parks, incorporating biking and walking trails (City of Salisbury, 2005). Most of these are on the path of the Little Para River, a narrow and winding river that flows down from the Adelaide Hills, over the Para Escarpment, to the large alluvial fan on which Salisbury is built. It is a highly modified river system: It has been widened, levees have been added to prevent flooding from heavy rain, and the Little Para Reservoir is built in its path for water storage and flood mitigation. Because the river's catchment is insufficient to fill the reservoir, it is mainly used to store water pumped from the Murray River. Periodically water is released from the reservoir into the river, replenishing groundwater. The river rarely reaches its sea outlet.

The Kaurna People are the traditional owners of the Salisbury area. For thousands of years, Kaurna people have lived in and travelled across the landscapes within the City of Salisbury, in accordance with the seasons. Many significant cultural sites associated with the Kaurna people can be found in the area, such as burial mound sites of Kaurna Ancestors along the western edge of the city (City of Salisbury, 2019). The word Pari meaning a stream of flowing water, comes from the Kaurna language (Government of South Australia, 2007).

The City of Salisbury is a national leader in catchment-scale, integrated stormwater and groundwater management through its use of a network of more than 70 wetlands, managed aquifer recharge and an extensive 'purple pipe' distribution network that supplies 30% of water needs in the local government area. This approach has been progressively adopted by the city for over 50 years, within a framework of evolving national water policies (Radcliffe et. al., 2017). These include the City of Salisbury's water business, Salisbury Water, which uses a mix of treated stormwater and native groundwater to irrigate parks, reserves and schools. This non-drinking water is also used by industry and, to a limited extent, in some new residential developments. This work is recognised internationally as an exemplar in integrated water management.(City of Salisbury, 2020b).

The <u>City of Salisbury City Plan 2035</u> makes a clear connection between how Council manages stormwater, the role water plays in the enhancement of canopy cover and urban cooling, and community wellbeing and economic growth. Initiatives to maximise stormwater use in the public realm, coupled with a flexible approach to asset management, will enable Council to readily adapt to a changing environment.

This is reflected in objectives to create well-designed streets and public spaces that are both welcoming and connected, in both new communities (greenfield development) and regeneration of existing communities (infill development). Council seeks to create healthy neighbourhoods that will: 1) capture economic opportunities arising from sustainable management of natural environmental resources, changing climate, emerging policy direction and consumer demands; 2) have a community that is knowledgeable about the natural environment and embraces a sustainable lifestyle; and 3) have natural resources and landscapes that support biodiversity and community wellbeing.

This existing water servicing arrangement and city strategy provides a strong foundation to expand into innovation in housing and precinct design and planning. The impacts of climate change and steady population growth through infill provide an opportunity for the City of Salisbury to extend its leadership into future proofing new developments and urban environments in readiness for drier and hotter climates, and larger communities.

### 3.2 Salisbury East study area

The case study area in Salisbury East is about 90 ha and bounded by Main North Road, Saints Road, Brian Street, Commercial Road, Park Terrace and the Little Para River (Figure 3). It is representative of small-scale, low to medium density infill development on scattered sites that are predominantly residential with individual privately-owned lots and a public housing site, along with some industrial, commercial and vacant land. It is located in close proximity to the Salisbury town centre and has good access to public transport, with Salisbury train station nearby and metro bus services passing through the precinct.

The nearby town centre is benefitting from some recent investment including the recently opened civic and community facilities at City Centre Community Hub, as well as plans for new parks and upgraded sporting facilities at Salisbury Oval. The precinct is on the edge of the Little Para River, a section of which is currently privately owned, and its corridor is a significant community natural asset, with vegetation along its edge including eucalyptus woodland and native golden wattle, as well as olive, almond and orange trees that are remnants from earlier fruit tree groves (City of Salisbury, 2020c).



Figure 3. Case study area, Salisbury East Precinct

### 3.2.1 Salisbury East Precinct Plan

The CRCWSC's IRP4 team undertook an analysis of opportunities within the <u>case study precinct</u> and provided recommendations for WSUD solutions within the public realm, together with options for developing private land (see Renouf et al., 2020a). The analysis drew on IRP4's <u>infill typologies catalogue</u>, which provides a range of water sensitive housing typologies, at densities and configurations relevant to Australian cities, and applicable to contemporary infill development scenarios. The combined focus of IRP3 and IRP4 on Salisbury as a case study has enabled a holistic examination of water sensitive infill, from design all the way through to implementation.

The study area is in a 'first stage' of urban rejuvenation in accordance with the City of Salisbury Growth Action Plan (City of Salisbury, 2017b). Salisbury East precinct, together with surrounding suburbs, is expected to yield an additional 2,500 new dwellings through urban consolidation (Government of South Australia, 2017). Infill activity within the study area has commenced, and includes replacing older single dwellings with dual occupancies, and unit and townhouse developments. Typical infill activity has been characterised by unit and townhouse developments paving and is generally devoid of any green space in common or private areas (London et al., 2020).

With Little Para River and Cobbler Creek passing through the area, researchers and stakeholders determined Salisbury East to be a suitable precinct to explore innovative solutions for groundwater recharge and for broader urban renewal that links water with greening, thermal comfort and public amenity (e.g. creek daylighting and integrating green corridors within infill development). The case study area also includes a series of vegetated and non-vegetated laneways and corridors that have the potential to increase connectivity (London et al., 2020).

IPR4 selected four infill sites to demonstrate how a design approach that connects people with private and public green spaces as a primary objective, can achieve a number of benefits such as enhancing amenity and walkability, and repairing the environment (see Figure 4). Site plans were developed for residential lots and streets using architectural design and water servicing features that are consistent with IRP4's infill performance

evaluation framework (Renouf et al., 2020b). That framework provides a method for evaluating the water sensitivity of urban designs at precinct and site scales.



Figure 4. Case study area, including four potential development sites that represent a mix of site-responsive residential infill typologies (Source: Renouf et al., 2020a)

Each site plan includes water sensitive residential dwelling typologies that can achieve similar or higher dwelling densities as BAU dwelling typologies. For example the 'Salisbury Terrace' design (Figure 5) demonstrates one way of creating a single mass of green space on an allotment that offers good solar access, ventilation, outlook, and sufficient soil and space for large canopy trees (London et al., 2020).



Figure 5. Salisbury Terrace House, front view (left) and rear view (right) developed by architectural and urban design research team at the CRC for Water Sensitive Cities

Similarly, the central garden design (Figure 6, right image) offers a possible design solution to increase connection to green space, improve amenity and resident wellbeing compared with industry standard practice for medium-scale infill. Provision of the central communal green space and deep soil zones that can support large

canopy cover trees is achieved by decoupling car parking and dwellings, thereby removing the large areas of hard surfaces required for vehicle turning movements into and out of individual garages. The carparking in the central garden design is provided instead via undercroft garages or carspaces, vastly reducing vehicle turning movements on the site. This design creates space in the overall design for landscaping and deep soil zones, representing a 35% increase in soft landscaped areas, relative to standard industry practice (Water Sensitive SA, 2020).



Figure 6. Comparison of standard industry practice for medium-scale infill (left) with a cooler, greener alternative (right). Designs developed by architectural and urban design research team at the CRC for Water Sensitive Cities

In relation to Sites 1 and 2, relevant water sensitive features include the retention of existing trees; permeable public road surfaces; internal living rooms with garden outlooks; vegetation and canopy trees; accessibility and connectivity to public realm green spaces from Fenden Road and Urlwin Road respectively through to Little Para River reserve; and rainwater capture, storage and reuse.

Site 1 is a single large allotment including 1.1 ha of residential-zoned land, plus about 4 ha of Metropolitan Open Space Scheme (MOSS). Figure 7 provides a plan view of the proposed infill design that proposes a subdivision to incorporate the creation of public roads connecting Fenden Road with the Little Para River Reserve.



Figure 7. Site 1, Plan view - combination of apartment and townhouse living, Fenden Road (Credit: IRP4)

The Site 2 design requires amalgamating titles of multiple individual deep allotments of approximately 1500m<sup>2</sup> (76 x 20m) each that run between Urlwin Road and the Little Para River Reserve. Figure 8 provides a plan view of the proposed infill design that seeks to encourage the built form of the development to interface with the reserve and provide connectivity via pedestrian access.



Figure 8. Site 2, Plan view – Urlwin Road multiple deep blocks, combination of apartment and townhouse living (Credit: IRP4)

The Salisbury East Precinct Plan was created by applying the site plans to all lots, streets and public open space within the selected sites under different scenarios. The plan addresses a number of the targets in the 30-Year Plan for Greater Adelaide, such as diverse, medium density housing models (Target 6), while also delivering urban green cover and associated canopy cover (Target 5). Access to the Town Centre and rail and bus transport drives the location of the infill housing (Target 2). The proposed cooler, greener WSUD streets enable a walkable neighbourhood (Target 4) and facilitate active transport (Target 3) to the town centre and local amenities and open spaces.

Overall, the <u>IRP4 analysis</u> demonstrated infill design choices can significantly change the water-related performance of a development. Alternative designs that integrate water sensitive principles were proven to have considerable influence on stormwater runoff, infiltration, evapotranspiration and urban heat, and consequently able to improve liveability, resilience and water security (see Renouf et al., 2020a).

### 3.2.2 Assessment of the Salisbury East Precinct Plan under the Code

The residential areas within the Salisbury East Precinct are proposed to transition to General Neighbourhood Zone policy under the Code (Figure 9), which does not enable the densities envisioned by Salisbury East Precinct Plan, despite the proximity of the area to the Salisbury commercial centre and the rail transport hub.

However, the area is subject to an Affordable Housing Overlay (Figure 9) that enables variations to the typical design criteria in this zone. This allows the minimum allotment size for a row dwelling to be reduced by 20% (from

200m<sup>2</sup> to 160m<sup>2</sup>), which enables conformity to the Salisbury Terrace design, with its lot size of 175m<sup>2</sup>. In addition, the Affordable Housing Overlay allows for the maximum building height to be increased by one building level, from 9m (effectively two levels) to three levels. Therefore, this overlay facilitates the delivery of the Salisbury East Precinct Plan housing typology densities of townhouses and three-storey residential apartment buildings shown in the Site 1 plan (Figure 7). Also of benefit to the delivery of the Salisbury East Precinct Plan, in terms of its social value, are the stipulations in this Overlay that the building must include at least 15% affordable housing (with areas subject to the Character Area Overlay or Historic Area Overlay exempt from this).



## Figure 9. Planning zones (left) and Affordable Housing Overlay (right) for the Salisbury East Precinct under the Planning and Design Code

Rezoning opportunities within the precinct would enable transformation of vacant or underutilised commercial and industrial land that is located adjacent to the existing and proposed linear park to higher value residential land. For example, the Code could enable land from Employment Zone to be rezoned to General Neighbourhood Zone, immediately south-west of the Suburban Activity Centre and continuing either side of the Cobbler Creek drainage reserve to the north-west to Barnidoota Road and surrounds. A particular opportunity to establish a retirement village on the former Rose Farm site on Main North Road has been identified, and would provide residents with walkable access to local shops. This could be in conjunction with widening the drainage reserve to establish usable public open space adjacent the watercourse with a playground or similar. The full potential of any such rezoning would only be realised through Council's associated enhancements to the public realm.

While the planning zones enable the water sensitive infill typologies, additional policies may be required to bring the water sensitive precinct to life, which are discussed in the Section 4. These policies should specify desired design qualities, including how buildings relate to private outdoor space, streetscapes and/or any neighbouring public realm.

# 4. Implementation opportunities for Salisbury East

The City of Salisbury's strategic direction within the City Plan establishes a favourable authorising environment for the cross-departmental, interdisciplinary collaboration needed to address the implementation challenges raised by the proposed precinct design for Salisbury East.

This section highlights a number of opportunities to strengthen the enabling context for water sensitive urban development through changes to planning mechanisms and governance arrangements. These implementation opportunities have been explored in the context of public realm initiatives, water servicing options and planning instruments.

### 4.1 Public realm

Enhancing the public realm is viewed as fundamental to the changes sought in the quality and design of private developments within the precinct. Wellbeing outcomes for the precinct will be significantly enhanced by expanding and rehabilitating existing biodiversity corridors. These linear reserves can serve as major pedestrian routes and bikeways and provide greater opportunities for the community to connect with nature.

Accordingly, the Salisbury East Precinct Plan should be further developed to include a compelling business case, detailed landscape plans and greening strategies. This will enable the City of Salisbury to strategically invest in streetscapes, parks and reserves that bring about the necessary change in the area's character and amenity. Such enhancements to the public realm are expected to result in private developments that better integrate with public spaces, rather than turn their back on green spaces with high fences, as is current practice.

### 4.1.1 Economic evaluation

The public realm initiatives proposed within the Salisbury East Precinct Plan (e.g. irrigated verges consisting of turf and landscaped gardens) may require additional sources of financing and funding to deliver and maintain these assets. Identifying appropriate sources of funding will be key. It is not always possible or sustainable to rely on grant funds to implement initiatives for green infrastructure and WSUD. By cultivating support for a shift to green infrastructure solutions that meet multiple objectives, including climate resilience and wellbeing, the funding base may be broadened to multiple Council program area budget lines compared with conventional asset renewal or capital works programs.

This shift is more likely to occur if the direct and indirect costs and benefits of different options are well understood. Indeed, a benefit–cost analysis that includes monetised social and environmental benefits wherever possible, is an important step in realising the vision for the Salisbury East Precinct Plan. This can then inform the development of a compelling business case.

### 4.1.2 Landscape planning

The Salisbury East Precinct Plan includes a series of biodiversity corridors and green streets, with generous canopy cover to provide a network of walking and cycling routes that connect the precinct with the Salisbury town centre, as well as create intra-precinct connections to new and enhanced recreational destinations. This will require developing *landscape master plans* that identify suitable locations for new or enhanced reserves, coupled with a walkable green streets strategy that establishes an overall hierarchy of streets and typical WSUD/green infrastructure treatments and planting guides to achieve the desired canopy cover. Potential demonstration projects to showcase a range of WSUD solutions may also be considered. By proactively demonstrating the desired design quality in the public realm, Council can raise expectations of the same within the private realm and lead by example.

To give effect to these plans and strategies, it will be critical that proposed WSUD and green infrastructure solutions are incorporated in Councils asset management plans. Existing *asset management plans* and procedures may need to be reviewed and adjusted to ensure they can support the delivery and maintenance of desired solutions. This may require establishing green infrastructure and WSUD asset maintenance plans to ensure higher levels of service can be maintained.

Council should also consider updating its existing *guidelines* to better reflect best practice WSUD and prepare new guidelines for development within the precinct to assist applicants conform to the desired character for the area. Guidelines that offer a visual representation would assist applicants in both conceptual and technical design information. For example, urban greening policies can be supported by visual materials that describe locally appropriate tree species for a range of garden sizes to deliver streetscape quality and urban ecology outcomes. To address concerns regarding maintenance requirements, guidelines that include tips on how to create a low maintenance garden could support uptake of the landscape requirements for private allotments.

To ensure planners assessing development applications are able to interpret WSUD and greening policies, and advocate for best practices, it is important to provide regular training and *capacity building* opportunities. Supporting Council planners on how to interpret technical information, including landscape plans, and ensure their decisions account for local contextual considerations, will help them facilitate quality, place-based outcomes. Professional development programs should incorporate a combination of site tours and in-house training by industry associations like the Australian Institute of Landscape Architects and capacity building programs such as Water Sensitive SA.

Further, as the new planning system allows for design standards to be established to inform the policy intent, a consistent approach to development assessment can be supported, both within Council planning teams and across Council boundaries. by developing urban greening and WSUD *design standards*. For example, standardised checklists can be developed for information to be requested within landscape plans, and matters to be specifically analysed in an assessment. Additionally, standard conditions of approval should be established in relation to Code policies.

More broadly, opportunities to strengthen regulatory requirements for landscape plans and compliance activities should be further explored. In relation to the former, the Planning, Development and Infrastructure (General) Regulations 2017 currently require building consent site plans to include the location of any regulated tree on the site or on adjoining land. These provisions could be broadened to require a landscape plan with any development application, and specify the type of information that should be included in a landscape plan. This should be supported by a clear definition of 'soft landscaping' within the Code to ensure both applicants and assessment authorities understand how it is envisaged that private developments will contribute to urban green cover targets, beyond the provision of trees. Regarding compliance, the frequency and nature of *compliance* checks and certification will need to be revisited to ensure landscape plans are delivered in accordance with the Code. Financial penalties may not be effective as a means to enforce compliance. Rather, methods that tie compliance to certificates of occupancy may be more likely to ensure intended policy outcomes are realised.

### 4.1.3 Collaboration

The delivery of WSUD and urban greening in association with new development in the Salisbury East Precinct Plan requires greater collaboration between government and industry. In particular, the interface between private green space and the public realm provides a valuable opportunity for Council to collaborate with developers to deliver mutually beneficial outcomes. Collaborations that draw on different professional disciplines during project initiation and throughout the design phase, are more likely to deliver integrated design outcomes. Finding collaborators that share the vision for creating greener developments and are open to innovation will be a critical factor in the success of the collaboration.

Further, engaging with the community and stakeholders in relation to the Salisbury East Precinct Plan could help to create the necessary buy-in for the concepts proposed, as well as encourage and support individuals and

organisations to take action in shaping and improving their community. Community advocates for the plan are likely to emerge from this process and have the potential to initiate complementary activities in both the private and public realms.

#### 4.1.4 Market and industry acceptance

When it comes to implementing WSUD and greening solutions in the private realm, greater market demand and industry acceptance will be needed to shift practices. The market advantages of quality designs that integrate green spaces and WSUD principles need to be clearly communicated and widely understood. Evidence of housing products that incorporate these features and sell quickly would help to build a compelling case for changes in practice for the supply of new housing typologies.

Similarly, potential buyers need to be informed of the value of sustainable designs, if they are to demand and choose housing options that reduce the overall lifecycle costs of development. While small pockets of the community are well versed on sustainable design, there is limited understanding among the wider public on why a shift in design outcomes is required. A public awareness campaign can help to raise understanding of the importance of design quality at the allotment scale, and how it can create more liveable homes and contribute to wider community benefits.

### 4.2 Water servicing

Transforming the Salisbury East Precinct from dry unimproved streetscapes and parks to an interconnected network of green corridors for walking, cycling and other passive recreation activities will depend on the availability of a reliable and appropriate water source. An existing treated stormwater main within a nearby road reserve, which forms part of Salisbury Water's treated stormwater network, can be expanded to harvest and treat additional stormwater to meet future water demands in the precinct. However, a distribution network will be required to connect this alternative water source with the priority green streets, existing local parks, proposed local parks, and the linear parks along Cobbler Creek and Little Para River Reserve to provide a reticulated water supply to enhance the overall quality of these public spaces.

Understanding the water demands of proposed initiatives, within the context of the local hydrological system and surrounding catchment is a key part of ensuring the precinct is appropriately serviced. An *integrated water management plan* for the precinct and surrounding catchment is needed to identify all potential sources of water and how they can contribute to the overall Salisbury East Precinct Plan.

Drawing on the experience of the Mawson Lakes development within the City of Salisbury, which is serviced by an SA Water recycled wastewater reuse scheme for toilet flushing and outdoor non-potable uses, Council may wish to consider providing treated stormwater to private allotments in this precinct. However, the viability of a scheme to provide treated stormwater to private allotments is likely to be contingent on regulatory amendments to water pricing made by the Essential Services Commission of South Australia. Further exploration of this option will be required.

### 4.3 Planning

The Code alone will not generate the type of infill envisaged for the precinct. Early intervention and engagement with the development and building industry will be required to encourage applicants to move away from the quick, DTS pathway and instead choose a merit assessment that will potentially increase yield and greening through better design. Further policy development is still needed to strengthen performance objectives relating to infill and the way it interacts with streetscapes and the public realm. Policy precedents exist and should be a priority for Generation 2 of the Code.

### 4.3.1 New planning policy

To enable the greener, water sensitive cities typologies envisioned for Sites 1 and 2 within the Salisbury East Precinct Plan, additional policy may be required to ensure new development within the area provides for the regeneration of the precinct, such that amenity values of the local area are sustained or enhanced by urban infill. For example, current development immediately adjacent to the Little Para River turns its back on the linear reserve due to the condition of the area – largely an unimproved reserve overgrown with weeds. Policy is needed that seeks connectivity between developments and the public realm to address this lost opportunity.

The Oaklands Park Renewal Development Plan Amendment (Government of South Australia, 2020d) provides an exemplar that can partly address this policy gap (see Box 2).

#### Box 2. Oaklands Park Renewal Development Plan Amendment

The <u>Oaklands Park Renewal Development Plan Amendment</u>, approved by the Minister for Planning and Local Government, rezones land at Oaklands Park to enable new medium density residential development.

The redevelopment project seeks to provide increased housing choices by transforming existing, ageing low density development with new medium density residential development. Infrastructure upgrades will also provide for walking and cycling access ways in proximity to shops, services and employment.

The amendment provides a policy framework to guide master planned redevelopment at Oaklands Park. Greater density and diversity of housing types with proximity to green spaces is enabled by a number of key provisions relating to:

- development that is compatible with the surrounding context, and provides active interfaces with streets and public open spaces
- increased policy flexibility to promote a diverse range of housing types and tenures
- a building envelope plan that supports a minimum 15% affordable housing, coordinated private open space and liveability
- setbacks to establish a consistent and attractive streetscape character and integrate development with public open space
- tree planting on public streets and public open space to create a comfortable microclimate
- permeable, safe, attractive, accessible and connected movement networks (streets, paths, trails and greenways) that incorporate green infrastructure.

Source: Government of South Australia, 2020d.

#### 4.3.2 Structure planning

The significant opportunity to regenerate urban communities that infill presents is threatened by the ad hoc nature of this type of development, particularly the incremental erosion of opportunities to create connected, walkable communities. Structure planning can be undertaken to achieve more orderly development, and define how proposed green corridors along watercourses and selected streets will be preserved.

Structure Plans are a mechanism available within the Code to provide a visual expression of the desired development of an area over time. Any new development needs to account for its relationship to and within the Structure Plan and seek to further the intended vision for the area. The Salisbury East Precinct Plan, Figure 4, provides a strong basis for a Structure Plan.

### 4.3.3 Incentives

Policy incentives can be a useful mechanism for encouraging the adoption of sustainable design principles. The Code offers a discount in rainwater tank size for increased site imperviousness as the single incentivised policy for WSUD and green infrastructure. Several other opportunities should be explored as part of the next generation of the Code (see examples in Table 1).

Table 1. Example policy incentives that can used to encourage the uptake of urban greening and WSUD best practices

Policy area	Incentive (example)		
Urban greening	• Incentivise green spaces, such as roof top gardens or planting on footpaths through, for example, a 'green plot ratio' as used in Singapore.		
	• Trade car space for green space, while providing space for electric bikes and hire cars in communal car spaces.		
	Reduce car parking in exchange for corresponding increase in green space.		
	Offer higher density/yields in exchange for more greening.		
	Establish a trading system for green credits.		
	<ul> <li>Provide flexibility (reduction) in front garden setbacks, with provision of more usable space at the rear of the property, thereby increasing the proportion of spaces available for deep soil zones in areas of the site where occupants will spend their leisure time.</li> </ul>		
	<ul> <li>Increase density by retaining heritage or older substantial homes that are supplemented by one bedroom and/or two bedroom units on the same site, sharing facilities including backyards and other facilities.</li> </ul>		
Stormwater	• Offer a decrease in Council rates or Landscape Board levy for best practice stormwater design.		
management	<ul> <li>Integrate stormwater and urban greening solutions, by foregoing on-site stormwater management requirements (in part) by diverting some site runoff to infiltration pits in the road verge for the benefit of street tree health and reduction in stormwater runoff peak volumes and flows.</li> </ul>		
General	<ul> <li>Introduce enhanced performance-based policy targeting wellbeing and sustainability outcomes via an assessment matrix, and reward project designs (development applicants) that score well by fast tracking green development.</li> </ul>		
	<ul> <li>Streamline approval processes for development that are consistent with proposed design guidelines for the Salisbury East precinct.</li> </ul>		
	Offer tax incentives for research and development into sustainable housing methods.		

# 5. Conclusion

Achieving water sensitive development outcomes for the Salisbury East precinct will require alternative approaches to built form, streetscapes and public open space. The proposed Salisbury East Precinct Plan presents a viable design approach that can achieve a number of significant benefits, such as enhancing amenity and walkability, repairing the environment, and improving connectivity to private and public green spaces.

The South Australian planning reforms seek to deliver better economic, environmental and social outcomes through more streamlined and consistent approaches to decision making and assessment. The Planning and Design Code in particular provides a single source of planning policies and rules for assessing development applications across the state. It contains a number of WSUD and urban greening policy directions that broadly appear to enable the proposed precinct outcomes for Salisbury East. However, such outcomes are unlikely to be realised without additional measures to address implementation issues related to:

- the willingness of the development industry to deliver alternative housing typologies that go beyond BAU
- market preferences that have not yet embraced the type of higher density living proposed
- the extent of cross-sectoral collaboration across the project lifecycle, to ensure on-ground outcomes are delivered as intended
- the capacity of current Council planners to negotiate suitable water sensitive outcomes for the site
- the ongoing maintenance of trees and landscaped areas.

Addressing these challenges may require:

- additional planning policies and requirements that specify desired design qualities, including how buildings relate to private green space, streetscapes and neighbouring public realm
- development of design standards and Council guidelines, supported by training and capacity building opportunities, to facilitate a consistent approach to policy interpretation and decision making
- stakeholder engagement to raise community and industry awareness and acceptance of WSUD and greening solutions, coupled with collaboration on specific projects to create and implement a shared vision for change
- development of an integrated water management plan for the precinct and surrounding catchment to identify all potential sources of water and how they can contribute to the proposed Salisbury East Precinct Plan
- further feasibility studies and designs for the precinct, such as (a) an economic evaluation of proposed initiatives to inform the development of a compelling business case, and (b) detailed landscape and concept plans to guide the orderly development of the precinct over time.

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