

## Capacity building project with CRC WSC grant to SA RAP

### Overview

The CRC for Water Sensitive Cities have offered to support capacity building initiatives in South Australia with a grant valued at \$20,000. At the February 2017 meeting of the SA Regional Advisory Panel (SA RAP) it was agreed that a priority for the funds would be to further the adoption of research outcomes from Tranche 1 related to the built form and infill development. This paper explores a number of activities and resources that offer research adoption pathways – which include government and industry engagement, and collaboration to influence South Australian design principles, performance standards and guidelines, for affordable and sustainable infill development. The proposed capacity building activities detailed in Table 3.0 were endorsed by the SA RAP at the March 2017 meeting.

### Background

At the time the *30-Year Plan for Greater Adelaide (2010)* (the 30-Year Plan) was released by Department of Planning Transport and Infrastructure (DPTI), 60% of new housing stock was provided within existing urban boundaries, otherwise referred to as urban infill. The 30-Year Plan (2010) set a target that by 2040, 70% of new dwellings would be provided via infill. This target was reached in 2015. The *30-Year Plan Review (2016)* has set a new target for urban infill at 85% of all new housing in metropolitan Adelaide built in established urban areas by 2045.

Land division trends in the period leading up to the release of the 30-Year Plan (2010) are described in the 2013 report by DPTI, *2004-2010 Residential demolition and resubdivision*. This report provides details of the distribution of new dwellings from three main development types in Greater Adelaide in column 3 of Table 1.0. The infill targets as set out in the *30-Year Plan Review (2016)* are provided for comparison in Column 4 of Table 1.0.

*Table 1.0 Share of new dwellings from the 3 main development types in Greater Adelaide*

Development type	Description	Share 2004-10	Share target 2016
Broadacre (greenfield)	Includes land in fringe, township and infill locations zones for residential use	40-50%	15%
Minor infill	Demolition, re-subdivision and redevelopment of existing suburban blocks	25-35%	85%
Major infill <sup>1</sup>	Designated corridors, precincts and the City of Adelaide	20-30%	

Note 1: The potential for major infill development is vast and was enabled through significant zoning changes post the *30-Year Plan (2010)*.

DPTI (2010) provides the number and percentage of new dwellings by site replacement rates, for the period 2004-10, for finished demolished sites. More than 92% of all demolition and site redevelopments were for three new dwellings or less. Table 2.0 provides a detailed distribution of all demolished dwellings by replacement rate.

Table 2.0 Number of new dwellings by site replacement rate, 2010 – finished demolition sites

	Replacement Rate (1:?)											Total Dwellings
	Dwelling Decrease	No Change	Dwelling Increase									
	<1*	1	1 - 2**	2	2 - 3	3	3 - 4	4	5	6	>=7	
Number of New Dwellings	69	2,506	888	5,984	225	1,611	42	488	120	126	102	12,161
Percent	0.6%	20.6%	7.3%	49.2%	1.9%	13.2%	0.3%	4.0%	1.0%	1.0%	0.8%	100.0%

\* On-sites with replacement rates of <1, fewer new dwellings were built than were demolished. For example, a site with four flats demolished and replaced with two new houses has a replacement rate of 1:0.5.

\*\* A site where two dwellings are demolished and replaced with three new dwellings has a replacement rate of 1:1.5.

The City of Holdfast Bay Development Plan provides an example of typical private open space (POS) requirements for Adelaide suburban areas. POS shall consist of 20% of the total site area for sites greater than 250m<sup>2</sup> or 35m<sup>2</sup> for sites less than 250m<sup>2</sup> (or 14% minimum). The trend in site coverage has evolved from one of less than 40% in the 1950s and 1960s to 80-85% in the current day.

Water Sensitive SA is currently developing an on-line stormwater assessment tool for small-scale development that seeks to:

- increase the efficiency of development application and approval processes
- achieve better outcomes for flood risk, stormwater quality, amenity and microclimate (where possible).

A major impediment to the integration of WSUD elements – including stormwater retention and re-use, infiltration systems, permeable paving and swales – within new small-scale infill developments is site coverage ratios. For example, simple increases in retention tank sizes cannot be accommodated due to limited private open space, and the configuration of the dwelling or building footprint. The current options in the market for home builders are limited, and favour single storey, large footprint dwellings that do not take into consideration the whole of lifecycle costs of the development.

### Opportunities

A continuation of the business as usual approach to infill development, placing the car instead of people as one of the primary design criteria, is greatly impacting on the amenity of our suburbs and resulting in highly impervious allotments. There is limited opportunity to integrate green spaces to aid stormwater infiltration and create local microclimates or other water sensitive urban design measures.

Tranche 1 of the CRC WSC included work by Nigel Bertram, Practice Professor, Architecture in the Faculty of Art Design and Architecture at Monash University; Geoffrey London, Professor, School of Design, University of Western Australia; and others to develop sustainable and affordable solutions for infill development.

Professor Bertram and his colleagues have researched both precinct and allotment scale designs for infill development built form that provide for a reduction in dwelling site coverage, increased private and shared green spaces, with affordability as a key consideration. The principles of design, performance criteria and design concepts are provided in the following references:



- Australian Housing and Urban Research Institute (AHURI) at Monash University (2015) research on regenerating government-owned social housing land in Melbourne at a precinct scale, [Processes for developing affordable and sustainable medium-density housing models for greyfield precincts](#).
- [Infill opportunities: Design research report](#) for the Office of Victorian Government Architect (2011).

The Office of Design and Architecture South Australia (ODASA) has commenced development of residential design guidelines focused on site context and the interface with the surrounding environment, but have yet to investigate opportunities for the allotment scale built form. DPTI will, over the next 18 months, be developing design standards to support the State Planning Policy, and Planning and Design Code that is under development.

The current status of planning policy and associated resources development required to transition to the new *Planning, Development and Infrastructure Act 2016* is an ideal opportunity to influence the nature of built form for infill development for the next 10-20 years. A series of activities are proposed in Table 3.0 that will engage SA practitioners in discussions on the future of infill development in SA, and provide the technical rigour required to inform future design standards and guidelines for the built form on private allotments.

A opportunity exists to collaborate with Renewal SA to influence the built form of housing as part of their [Renewing our streets and suburbs](#) program, which seeks to renew 4500 pre-1968 Housing Trust homes located within 10 kilometres of the city by 2020. A demonstration project for allotment scale solutions, and a precinct renewal model that draws upon the design principles emanating from the CRC for Water Sensitive Cities, would provide the leadership the industry needs.



Table 3.0 Potential Infill design capacity building activities for 2017-18

Activity	Output	Other partners/ target audience	Due	Available budget	Action SA RAP	Funds sought from CRC WSC
<b>Built form design performance standards</b>						
Presentations at (i) Urban infill development – but not as we know it! seminar (ii) Subsequent agency and peak body workshop	Presentations and participation in workshop	DPTI (Planning), Renewal SA, Office for Design and Architecture SA (ODASA), Australian Institute of Landscape Architects (AILA) SA, PIA	20 June 2017 confirmed	CRC allocation to SA RAP and Water Sensitive SA	<ul style="list-style-type: none"> <li>▪ Plan and promote seminar</li> <li>▪ Invite targeted agency and peak body representatives to workshop</li> </ul>	\$2,000
Translate Tranche 1 research outcomes to date into 4 page fact sheet as a discussion starter with potential partners/practitioners/development industry to introduce design concepts	Fact sheet	Australian Institute of Architects (for dissemination) Master Builders	30 Sep 2017	CRC allocation to SA RAP	Prepare brief for fact sheet	\$5,000
Inform the DPTI Planning and Design Code and design standards and guidelines for precinct scale and allotment scale solutions	Design principles/policy and standard drawing library in jpeg & CAD format	DPTI (Planning) and ODASA, Dept. Planning WA, Brisbane City Council	30 June 2018		Liaison with DPTI (Planning) to consider opportunity, following seminar and workshop above	\$13,000 Note: anticipate partnership with other states

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<b>Built form design performance standards</b>						
Case Study – Renewal SA <a href="#">Renewing our streets and suburbs program</a> : Kilburn Blair Athol upgrade of public housing to test the applicability of residential design standards	Detailed architectural and engineering design drawings for a typical 1 into 3 development, 2 into 6 (or similar)	Renewal SA	30 June 2018		Subject to successful response to actions above	Action endorsed by SA RAP, budget yet to be confirmed
<b>Demonstration project</b>						
Work with Renewal SA to deliver the water sensitive 1 into 3 housing project on the ground	Demonstration project	Renewal SA	Within 2 years	Renewal SA	Subject to the above	Unfunded

