

Business plan 2016-17 Annual Review

July 2017



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1. Executive Summary

The Water Sensitive SA program, in its third year of delivering capacity building services to South Australian water sensitive urban design (WSUD) practitioners, has broadened its focus to engage with the development industry and their consultants to provide a greater awareness and depth of understanding of the role of WSUD in the creation of more liveable communities.

This document reflects upon the achievements of the Water Sensitive SA program during 2016-17.

WSUD policy/advocacy

During the reporting period, the Program Manager has continued to advocate for WSUD policy within the planning system via a series of avenues, including:

- briefing Department of Planning, Transport and Infrastructure (DPTI) management and staff and the DEWNR planning team regarding WSUD performance-based policy and Water Sensitive SA tools and resources that will support the development industry to create developments consistent with WSUD principles. This has yielded considerable interest in the *Online stormwater assessment tool for small-scale development*, not only for its ability to facilitate efficient uptake of WSUD features within new developments but also for the tool's potential to track changes in green space and impervious cover in comparison with green space targets, under the *30-Year Plan for Greater Adelaide*.
- submission on the *Draft Review of the 30-Year Plan for Greater Adelaide* in October 2017 to reinforced the importance of the WSUD elements of the plan
- collation of the latest infill development data across metropolitan Adelaide
- contributed to the development of the draft Green Infrastructure and WSUD narrative project, led by DEWNR, anticipated to be released in late 2017.

Stakeholder engagement/awareness raising

This financial year, Water Sensitive SA has strengthened our relationships with peak industry bodies and interstate WSUD capacity building programs, leading to partnerships for events, case studies and technical resources. These outputs are described in Section 3.1. Industry and community engagement highlights include:

- Twelve presentations to a range of industry, education and community forums and events, for over 400 practitioners and members of the community. These presentations are available on our <u>website</u> grouped by themes including: <u>Planning policy and development</u>, <u>raingardens</u>, <u>alternative water schemes</u>, <u>costs & benefits of WSUD</u> and <u>community & schools</u>.
- Collaboration with Urban Engagement team of Natural Resources Adelaide and Mount Lofty Ranges (AMLR) to develop a strategy to bring WSUD concepts to the community, including development and delivery of the WSUD in your backyard course for members of the public.
- briefings and advice to private developers and their consultants, master builders and public housing project managers regarding opportunities to integrate WSUD at the allotment and precinct scales.

Research

Water Sensitive SA has supported two local research projects that address knowledge gaps that align directly with our priorities:

 Masters of Integrated Water Management candidate, Elsie Mann, completed her thesis Adoption of tools to assess costs and benefits of water sensitive urban design with the International Water Centre in October 2016



 University of College London, Economics Master's student Yihan Fu is currently investigating a range of methods for stormwater offset scheme rate calculation using the LeFevre Peninsula as a case study. Ms Fu's thesis is due at the end of 2017.

Water Sensitive SA has contributed to the development of the final three years of the CRCWSC national research program, both as a member of the South Australian Regional Advisory Panel (RAP) and directly through participation in industry partners project steering groups.

- IRP1 Preparing a Water Sensitive Cities (WSC) transition plan for Adelaide. Water Sensitive SA
 has supported the planning and delivery of the first two of three workshops held in Adelaide.
- IRP2 Cost-benefit analysis framework and tool for WSUD and green infrastructure. Water Sensitive SA in conjunction with Adelaide and Mount Lofty Ranges NRM Board, and DEWNR Green Infrastructure Project are collaborating with the CRCWSC to deliver this project. Breakout Creek is the South Australian case study which will value the benefits of the conversion of a degraded watercourse to a living stream. This project will deliver upon Water Sensitive SA Priority Projects 1 and 2.
- IRP3 Evidence-based integrated urban planning across different scales. IRP3 aims to provide guidance on how to effectively advance city shaping and water sensitive practices by applying a framework for integrated urban and water planning. The IRP3 project, currently in proposal drafting stage.
- IRP4 Achieving water sensitive outcomes for infill development. The Program Manager chairs the national industry partner steering committee for this project and has ensured South Australian needs are reflected in the draft project proposal.

The 2016-17 website resources together with our training and seminar series provided research extension on topics including:

- South Australia's planning framework for water sensitive urban design, Statutory planning for water sensitive urban design
- engaging communities in transition to water sensitive cities
- biofiltration/ raingardens
- role of WSUD and stormwater management planning and
- cost-benefit analysis for WSUD and green infrastructure.

Technical resources

The Water Sensitive SA website was reviewed and updated in December 2016 to enhance several features including improved functionality of the interactive map search and re-design of the WSUD project page template and redesign of the case study, news and blog article page templates to feature engaging WSUD images and reduce the text. The <u>Oaklands stormwater harvest and re-use project</u> case study and the <u>Guide to raingarden plant species selection and placement</u> fact sheet were released via our website in the reporting period.

Video recordings were made of two Water Sensitive SA seminars during 2016-17 on the topics of urban infill and Smart stormwater solutions for development, together with an instructional video on how to build a (domestic scale) raingarden. All videos are available on the Water Sensitive SA Youtube channel.

Priority Projects

Priority projects 3 and 4 to develop an online stormwater assessment tool for small-scale/simple development and deemed to comply guideline to accompany the online tool project has had an excellent response from practitioners who have participated in a workshop and survey. The draft



Milestone 1 report comparing the detention and retention policies is at the project management group technical review stage and is due for release to key stakeholders in July 2017.

Reporting against Priority Projects 1 and 2 in relation to cost-benefit analysis tools for WSUD and lifecycle costs evaluations is included under the research program.

Training

During 2017-18, specialist contract trainers delivered three courses for WSUD practitioners on the topics: *How to use the BeST tool from CIRIA – a cost benefit analysis for WSUD, Towards water sensitive design without maintenance requirements for asset owners* and *Streetscale raingardens – design and practice*. In addition, the Program Manger delivered three short courses (one hour) for the public on *WSUD in your backyard* as part of the Living Smart program and targeted training for a diverse range of industry groups, educational institutions and others by invitation to supplement curriculum or address a pressing knowledge gap, listed in Section 3, Table 3.5.

Communications

Feedback garnered as part of the *Three-year program review* practitioner survey indicated the preferred method of receiving information on Water Sensitive SA resources was via our b-monthly e-newsletter.

With 622 subscribers to our e-news, Water Sensitive SA communications activities are seeking to mainstream WSUD practices and create an environment that WSUD is "business as usual" for a growing number of Councils and developers in South Australia. This financial year has seen a review and update of our e-newsletter template to provide a more engaging format that has resulted in an average open rate of 37%, which compares favorably with the 20% industry average.

Our growing social media profile through our Twitter account, with 120 followers, has enabled us to connect practitioners not only with best practice WSUD and events here in South Australia, but also with leading national and international WSUD projects.

Financial statement

The Water Sensitive SA budget allocation for 2016-17 was \$355,000 of which \$88,000 was set aside for contract commitments for priority projects in 2017-18, providing an overall budget allocation for 2016-17 deliverables of \$267,000 + GST. The program's financial position was regularly monitored via monthly reports to the Adelaide and Mount Lofty Ranges NRM Board and quarterly reports to the Water Sensitive SA Steering Committee. For the reporting period expenditure exceeded the budget estimate by approximately \$6,874. However, this deficit will be offset by pending reimbursements of \$7,197 from CRCWSC for Regional Manager functions provided in 2016-17 and sponsorship from SPEL Environmental for our July 2016 event, resulting in an overall surplus of \$323.

Note: All budget figures quoted are exclusive of GST.



2. Background

Who are we?

Water Sensitive SA is a capacity building program that provides stakeholders across all disciplines within the development and urban water management industries, with the support they need to achieve the best water sensitive urban design (WSUD) outcomes.

Developers, planners, urban designers, engineers, landscape architects, scientists, builders and maintenance workers all have roles in the development of our cities and suburbs, and many of them recognise the value of WSUD and incorporate it in new infrastructure projects and developments. Water Sensitive SA provides these professions with access to the latest WSUD information; training on know how to apply it properly; and an opportunity to gain valuable insight from the experiences of other practitioners; guidelines, tools and training to inspire and facilitate the delivery of best practice WSUD.

Every capital works project, infrastructure renewal and new development represents an opportunity for smarter water management that contributes to the creation of a more liveable, water sensitive community. Water Sensitive SA will bring about a cultural shift in which WSUD is widely recognised and embraced.

Our vision

Our vision is that:

- WSUD is an integral component in urban development and major projects to facilitate the transition of the state's cities and towns to water sensitive communities.
- All relevant government and industry sectors and the community have the commitment, knowledge and skills to work towards this common objective.

Our mission is to provide leadership for government, industry and broader stakeholders through innovation and flexibility in WSUD-relevant policy and design. We will bring about a cultural shift in which WSUD is widely recognised and embraced. We will provide practitioners with guidelines, tools and training to inspire and facilitate the delivery of world-class projects and developments.

What we offer

The Water Sensitive SA program has been developed under a logical framework drawing upon the outcomes of extensive consultation undertaken with practitioners throughout the development of the business case (Alluvium 2012), the program establishment project (Designflow 2014) and more recently with the appointment of the program manager.

As the hub for WSUD activity and learning in South Australia, Water Sensitive SA provides:

- WSUD policy development and implementation pathways
- networking opportunities and peer-to-peer learning on strategic, policy and technical matters
- specialist training to address key knowledge and skills gaps
- more accessible WSUD research for practitioners
- resource development, including guidelines and tools
- information sharing through our website, e-newsletter, blog articles and forums.



Our partners



Government of South Australia Adelaide and Mount Lofty Ranges Natural Resources Management Board

LOCAL GOVERNMENT RESEARCH & DEVELOPMENT SCHEME





Our program

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LONGER-TERM OUTCOMES

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ASPIRATIONAL PROGRAM GOAL

Water Sensitive Urban Design (WSUD) is an integral component of any development or infrastructure project and is considered vital in facilitating the systemic transition to water sensitive communities. All relevant government and industry sectors have the commitment, knowledge and skills to meet this common goal.

- Greater connection between communities and their environment (both local and remote)
 Increased amenity values
 - Reduced impact of run-off from stormwater and priority
 - watercourses in aquatic, coastal and marine environments
 - Increased demand and supply of alternative, fit-for-purpose water sources
- Productive uses of alternative water sources maximised and contributing to urban food production
- Urban watercourse protection with high quality aquatic and biodiversity outcomes
- Integrated climate change adaptation using water to green our suburbs and reduce heat island effects.
- Reduced flood risk

		BCTIVITIES
Policy development	 Decision makers and communities understand the multiple benefits of WSUD including enhanced liveability, resilience, sustainability and productivity. Consistency and equity in the application of WSUD in new developments and infrastructure projects. 	 Facilitate the incorporation of practitioner expertise into agency processes to develop an implementation framework for SA WSUD policy. Advocate for changes in WSUD policy and practice in government, industry and public forums.
Technical resources	 Practitioners have the guidelines and tools necessary to inform planning, design, construction and maintenance of WSUD assets. 	 Review existing technical guidelines for WSUD in SA and regionalise several interstate guidelines in partnership with other WSUD capacity building programs. Create resources, including online tools, and deemed to comply guidelines, to support implementation of WSUD policy.
Communications	 Practitioners and the broader community are informed of techniques to apply WSUD over a range of scales. 	 Deliver 'Water for Liveability' campaign to raise practitioner and community awareness of the benefits of WSUD and how it can be applied. Case studies, e-newsletters, blogs and online forums.
Coordinated approach to training	 Practitioners efficiently deliver best practice integrated water management and WSUD technologies, with reduced financial risk. 	 Provide training regarding WSUD planning, detailed design, construction, operation and maintenance including: detailed design of biofilters, WSUD 101 for planners and development assessors, construction and maintenance of vegetated stormwater management systems.
Institutional capacity	 Increased ability of various agencies and industry sectors to collaborate on projects and discuss and debate the technical, political and socio-economic issues associated with mainstream uptake of WSUD. 	 Provide forums for practitioners across government and industry to network and discuss WSUD policy, technical, political and socio-economic matters and implementation challenges (establishing a community of practice).
Protecting our investment	 The whole-of-life costs of WSUD assets are understood. 	 Develop reference materials to document the capital, operational and maintenance costs associated with WSUD to inform budgeting processes of developers and Councils for capital works, operations, maintenance and asset renewal.
Research	 Accessible research increases practitioner trust in the benefits and application of WSUD. 	 Work with researchers such as the Goyder Institute, CRC for Water Sensitive Cities and CSIRO to provide research outcomes of relevance to the practitioner base in an accessible form. Inform future research where appropriate.

Figure 2.1 Water Sensitive SA program outcomes and activities



3. What we have achieved

Our achievements over 3 years



3.1. Three-year independent review

In February and March 2017, an independent <u>*Three-year program review*</u> of the Water Sensitive SA program was undertaken by Wave Consulting with objectives to provide an evaluation against an agreed set of key performance indicators (KPIs) and evaluation questions.

The report is based on two datasets: Perceptions of funding partners (collected through 16 one-onone interviews with individual funding partner representatives), and perceptions of practitioners, gathered through an online survey.

The evaluation revealed that our funding partners and practitioners are very supportive and positive about the work to date, and would like to see the program continue.

There is an issue in managing expectations, and managing the frustration with the change (or lack of change) in regulation to mandate WSUD in new developments. Achieving a 'culture change' is a long-term goal, and has yet to be achieved to date, according to the interviewees.

The key results from the online survey are:

- 84% of practitioners are satisfied or very satisfied with the program to date
- 96% of practitioners believe that the program should continue

The funding partners were reasonably consistent in their perceptions of the program, and these are represented graphically in Figure 3.1.





Figure 3.1 – Funding partner perceptions of the program

The report makes recommendations regarding the potential repackaging of the strategic direction of the program viewed through a new strategic lens, and of the contribution of WSUD to community resilience in an uncertain climate future.

The survey of practitioners identified priorities for training in the areas of:

- preparing a business case for WSUD projects (including cost-benefit analysis)
- maintenance of WSUD assets
- construction of WSUD assets
- design of streetscale raingardens
- WSUD policy interpretation for development.

The <u>three-year review report</u> is available on the Water Sensitive SA website, on the Resources>Publications page.

3.2. High level program goals

Our *Three-year business plan 2014-15 to 2016-17* set out a series of overarching program goals as a means of measuring the impact and reach of the program. An assessment of progress towards the achievement of our high-level goals is provided in Table 3.1. This overview demonstrates whether the program has been effective in its engagement of a broad range of stakeholders, to achieve cultural and behavioural change in the WSUD space.



Table 3.1	Status of	progress	towards	high-level	program	anals
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Program goals	Status
 Where WSUD targets need clarification, these are clarified by June 2016 or research is implemented to confidently allow adoption of defensible mandatory requirements. 	 Research undertaken by Goyder Institute for Water Research detailing the basis for the SA WSUD Policy and implementation pathways include: (i) Cook S, Myers B, Newland P, Pezzaniti D & Kemp D (2015) Pathways for implementation of water sensitive urban design policy in South Australia. Goyder Institute for Water Research Technical Report Series No. 15/51, Adelaide, South Australia. ISSN: 1839-2725 (ii) Myers B, Cook S, Maheepala ., Pezzaniti D, Beecham S, Tjandraatmadja ., Sharma A, Hewa G, & Neumann L (2011) Interim water sensitive urban design targets for Greater Adelaide. Goyder Institute for Water Research, Technical Report Series No. 11/7, Adelaide, South Australia. ISSN: 1839-2725
2. WSUD policy framework for adoption is agreed by June 2016.	 (i) Planning and Design Code Water Sensitive SA, in conjunction with the Department of Environment, Water and Natural Resources (DEWNR), the Adelaide and Mount Lofty Ranges Natural Resources Management (NRM) Board has developed a project brief to review and update the SA Planning Policy Library with respect to green infrastructure and WSUD outcomes. (ii) Design standards Water Sensitive SA has worked with the CRCWSC via a seminar and workshop, and to scope a national research project on water sensitive outcomes for in-fill developments, with a key focus on residential built form typologies.
3. Metropolitan and Greater Adelaide Councils have commenced development plan amendments to incorporate WSUD targets within their development plans by June 2017.	WSUD performance targets were consolidated into the Development Plans of 3 Greater Adelaide and 6 regional Council Development Plans, within the SA MDB region in late 2016/ early 2017. The project described in 2.(i) above seeks to embed the WSUD performance targets into the development plans of the balance of greater metropolitan Adelaide.
4. A close alliance has been established with the development industry HIA/UDIA such that the benefits of WSUD implementation are well understood and the industry, in collaboration with Water Sensitive SA, is working towards supporting its own members to increase their knowledge and practical application of WSUD.	Engagement with individual developers, master builders and architects has identified exemplar developments that demonstrate the benefits of WSUD. These projects will be the focus of our case-study series in 2017-18.
 Council/private practice – planners, landscape architects and engineers report an increased practical understanding of WSUD principles and practical application, relative to the baseline awareness and knowledge levels established by Alluvium Consulting and Kate Black Consulting (2012). 	Figure 4. Change in practitioners' perception of their knowledge of WSUD of the <i>Three-year program review</i> report, indicates there is a clear shift in knowledge of WSUD in the industry.
6. The program has secured funding from a mix of government (local, state and federal) and industry sources to ensure	20 current funding partners:Adelaide & Mount Lofty Ranges NRM Board11 Councils



Program goals	Status
sustainability for another three to five years and beyond	 Local Government Association and Research and Development Scheme
	EPA/ National Landcare Programme
	Stormwater SA
	SA Water
	Stormwater Management Authority
	• DEWNR



3.3. Achievements by program area

In 2016-17, the Water Sensitive SA program was delivered under a series of key program areas that correspond to the needs of our constituents: WSUD policy, stakeholder engagement, research, technical resources, training, and community of practice and communication. This financial year we initiated four of our six priority projects, made possible by a partnership with the Cooperative Research Centre for Water Sensitive Cities (CRCWSC) and a successful grant from the Stormwater Management Authority.

Key outputs and activities during the reporting period are described in detail below. A comparison of our performance relative to our key performance indicators is provided in Table 3.6 and an analysis of our training program and seminar series can be found in Table 5.1 of the Appendix.

WSUD policy/advocacy

The proposed *Planning & Design Code*, and associated instruments, under the new *Planning, Development and Infrastructure Act 2016* provides an unprecedented opportunity to embed WSUD performance-based principles within the planning system.

During the reporting period, the Program Manager briefed Department of Planning, Transport and Infrastructure (DPTI) management and staff and the DEWNR planning team regarding WSUD performance-based policy and Water Sensitive SA tools and resources that will support the development industry to create developments consistent with WSUD principles. There is considerable interest in the *Online stormwater assessment tool for small-scale development*, not only for its ability to facilitate efficient uptake of WSUD features within new developments but also for the tool's potential to track changes in green space and impervious cover in comparison with green space targets, under the *30-Year Plan for Greater Adelaide*.

Water Sensitive SA's submission on the *Draft Review of the 30-Year Plan for Greater Adelaide* in October 2017 reinforced the importance of the WSUD elements of the plan, and how our program can build the capacity of the development industry in this regard. Sadly, the section on WSUD was removed from the final version of the review in the May 2017 release.

Working with DPTI (Planning) and local Councils, Water Sensitive SA has commenced collation of the latest infill development data across metropolitan Adelaide. This will provide guidance on where to allocate our capacity building resources to achieve the greatest impact for new developments.

The Program Manager has contributed to the development of the draft Green Infrastructure and WSUD narrative project, led by DEWNR, anticipated to be released in late 2017.

Stakeholder engagement/awareness raising

This financial year, Water Sensitive SA has strengthened our relationships with peak industry bodies and interstate WSUD capacity building programs, leading to partnerships for events, case studies and technical resources. These outputs are described in Section 3.1.

Community

While Water Sensitive SA has been established primarily to support practitioners in the delivery of best practice WSUD, it is acknowledged that the community are seeking out more information on sustainable practice in their home and backyard. Water Sensitive SA has worked with the Urban Engagement team of Natural Resources Adelaide and Mount Lofty Ranges (AMLR) to provide input into a community engagement plan for WSUD and delivered the *WSUD in your backyard* course for members of the public.



Development industry

A grass roots approach has been taken to network with the development industry, engaging with individual developers of both greenfield and infill type developments to find exemplar projects to demonstrate South Australia's leaders in WSUD. These connections have provided information that will form the basis for case studies currently under development.

Public housing development was identified in the March 2016 WSUD Leadership forum hosted by Water Sensitive SA as a potential avenue for demonstration of best practice WSUD and the built form. In particular, the Renewal SA *Renewing our streets and suburbs* program to replace aged public housing stock within 10 kilometres of the CBD was seen as a major opportunity. The Program Manager has provided briefings and advice to Renewal SA management and staff regarding opportunities to integrate WSUD at the allotment and precinct scales.

Meetings with master builders has identified opportunities to integrate WSUD in conjunction with offthe-plan housing designs within a display village format.

Presentations to industry forums/groups

Presentations made during 2016-17 to key industry stakeholder groups regarding opportunities to integrate WSUD at a range of scales are listed below in Table 3.2.

Stakeholder group & event	Date	No. of attendees
Australian Water Association WSUD in SA and nationally and the policy context	August 2016	50
Vision 202020 Urban Forests Master Class- Streetscape WSUD solutions	September 2016	50
Australian Institute of Landscape Architects Raingarden fundamentals and SA case studies	November 2016	25
National Water Forum, University of SA An integrated urban water future – the key to success for "Living Adelaide	November 2016	60
Adelaide Hills Council Sustainability Advisory Group WSUD at a range of scales	February 2017	8
Mount Lofty Ranges Planners Group Online stormwater assessment tool for small-scale development	March 2017	15
NRM Education Group Science, Engineering, Technology and Maths – Opportunities to integrate WSUD in the curriculum	March 2017	9
Adelaide University, Department of Civil & Environmental Engineering (x2) Opportunities for collaboration & Smart Cities	March 2017	19
SA Local Government Officers Association Streetscape WSUD solutions	May 2017	25
World Environment Fair exhibition (2 days)	June 2017	200
Hollywood Lakes and Gardens STEM Day Integrating WSUD within STEM in primary and secondary curriculum	June 2017	8
Total		411

Table 3.2Presentations to industry forums /groups

These presentations are available on our <u>website</u> grouped by themes including: <u>Planning policy and</u> <u>development</u>, <u>raingardens</u>, <u>alternative water schemes</u>, <u>costs & benefits of WSUD</u> and <u>community & schools</u>.

In addition, Water Sensitive SA has contributed to the following forums and planning processes of our partners and associates including:



- Vision 202020 Engineering Liveable Cities Workshop, March 2017
- Natural Resources AMLR Social issues of concern framework for *Impact of individuals on urban water management* as the basis for future prioritisation of works and investment.

Research

New research to address gaps

Masters of Integrated Water Management candidate, Elsie Mann, completed her thesis Adoption of tools to assess costs and benefits of water sensitive urban design with the International Water Centre in October 2016. This project was co-supervised by the Program Manager and investigated the following research questions:

- How can a cost-benefit tool help to address the challenges faced in achieving wider adoption of WSUD in Adelaide?
- What tools have been developed to assess costs and benefits of WSUD (and related water management approaches) globally?
- What factors might influence adoption and use of a locally appropriate cost-benefit tool by stakeholders in Adelaide?

This study has provided valuable background information to inform SA's input into the broader costbenefit analysis framework and tool being developed by the CRCWSC, as described below.

University of College London, Economics Master's student Yihan Fu is researching a range of methods for stormwater offset scheme rate calculation using the LeFevre Peninsula as a case study. The Program Manager has provided advice and guidance to Yihan and her research supervisor, Carlos Miraldo Ordens, to seek alignment of her research topic with industry needs and to obtain relevant data from the Port Adelaide and Enfield Council and their consultant Southfront.

CRC WSC

The final three years of the CRCWSC research program, referred to as Tranche 2, has commenced. The Program Manager provides input to this national research program as a member of the South Australian Regional Advisory Panel (RAP) and has contributed directly to the following project areas:

IRP1 – Preparing a Water Sensitive Cities (WSC) transition plan for Adelaide. Water Sensitive SA has supported the planning and delivery of the first two of three workshops held in Adelaide to date to (i) benchmark current policy, governance and practice; and (ii) establish a vision of what a water sensitive Adelaide could look like. A third and final workshop scheduled for July 2016 will identify high-level strategies for the transition plan.

IRP2 – Cost-benefit analysis framework and tool for WSUD and green infrastructure. Water Sensitive SA in conjunction with Adelaide and Mount Lofty Ranges NRM Board, and DEWNR Green Infrastructure Project are collaborating with the CRCWSC to deliver a cost-benefit analysis framework and tool. Commencing in early 2017, the project includes a suite of case studies from the sub-catchment to precinct scale for Australian capital cities to monetise the benefits of urban cooling via WSUD and green infrastructure. The South Australian case study centres on valuing the benefits of the conversion of a degraded watercourse to a living stream for Breakout Creek (end Torrens River channel) has been approved.

This project will deliver upon the requirements of Water Sensitive SA Priority Projects 1 and 2. The Program Manager is a member of the industry partner project steering committee on behalf of the SA partners

IRP3 – Evidence-based integrated urban planning across different scales. IRP3 aims to provide targeted guidance to multiple case study regions on how to effectively advance their city shaping and



water sensitive practices by applying a framework for integrated urban and water planning. The IRP3 project, currently in proposal drafting stage, will develop this framework and supporting processes, software and guidelines through a number of industry case studies (CRC WSC).

IRP4 – Achieving water sensitive outcomes for infill development. This project will investigate solutions from an allotment to precinct scale, considering mass water and energy balances and whole-of-lifecycle costs of a range of WSUD solutions. The Program Manager chairs the industry partner steering committee for this project and has ensured South Australian needs are reflected in the draft project proposal, which is due for consideration by the CRC WSC Board in September 2017.

Research adoption pathways

Water Sensitive SA coordinated and collated feedback from SA practitioners on the CRCWSC Guide *Trees for a cool city*, prepared by Andy Coutts, which provides practical guidance on tree height and placement in the streetscape to achieve maximum cooling potential for a given road width to building height ratio and a range of street orientations, e.g. north-south or east-west or angles in between. This guideline is due for release in late 2017.

The 2016-17 training and seminar series provided research extension for five of the nine topics, as indicated in Table 3.4, Note 2. Specific research papers that have been the subject of our seminars or promoted via our e-newsletter include:

- South Australia's planning framework for water sensitive urban design, Statutory planning for water sensitive urban design, Choi L and McIIrath B, CRC for Water Sensitive Cities
- Engaging communities in transition to water sensitive cities (CRC for Water Sensitive Cities, various authors)
 - Community engagement in the water sector
 - Community knowledge about water: Who has better knowledge and is this associated with water-related behaviours and support for water-related policies?
 - Community profiles of engagement with water
 - Social inequality and water use practices in Australian communities
 - A national survey of Australians' water literacy and water-related attitudes.
- Biofiltration/ raingardens
 - Adoption guidelines for biofiltration systems, Monash University
 - Zero additional maintenance WSUD for asset managers, City of Manningham and Monash University
- Role of WSUD and stormwater management planning
 - <u>Water sensitive urban design impediments and potential: Contributions to the urban water</u> <u>blueprint (Phase 1), The potential role of WSUD in urban service provision</u>, Goyder Institute for Water Research
 - <u>Implementing water sensitive urban design in stormwater management plans</u>, Goyder Institute for Water Research
- Cost Benefit analysis for WSUD and green infrastructure
 - <u>Valuation of economic, social and ecological costs and benefits</u>, Pannell D. University of WA,CRC WSC
 - <u>Green infrastructure economic framework</u>, Victoria University

Technical resources

Website

The Water Sensitive SA website was reviewed and updated in December 2016 to enhance several features including:



- Improved functionality of the interactive map search and re-design of the WSUD project page template
- Redesign of the case study, news and blog article page templates to feature engaging WSUD images and reduce the text
- Activate functionality of the Forum page, which had bugs
- Add a video of the month page with a strong visual impact

Youtube channel

The video resources added to our Youtube channel this financial year include:

- Raingarden construction (domestic scale) instructional video
- WSUD solutions to underperforming asphalt seminar
- Urban infill development but not as we know it! seminar

Case studies

Water Sensitive SA will continue to expand its series of case study fact sheets to showcase the range of different approaches to WSUD in SA to include <u>Oaklands stormwater harvest and re-use project</u>

Pending case studies at working draft stage due for release in 2017-18:

- Tea Tree Plaza Interchange Park and Ride facility, commercial
- Crayon House, residential single dwelling
- Lightsview, large scale infill development

Fact Sheets

Released in late 2017, the <u>Guide to raingarden plant species selection and placement</u> fact sheet, provides guidance to both professionals and the home gardener regarding suitable plant choice to ensure functionality and performance of any raingarden, and for nutrient removal while offering species that provide greater amenity and resilience.

Priority Projects 3 & 4 – Cost-benefit analysis tool for WSUD and green infrastructure

The online stormwater assessment tool for small-scale/simple development and deemed to comply guideline to accompany the online tool project has had an excellent response from practitioners who have participated in a workshop and survey. The status of key outputs is as follows:

Table 3.3	Status of progress against milestone for Online stormwater assessment tool for small-
	scale development

Milestone	Status
Milestone 1 – Detention scenario analysis and Consultation Report, regarding nominated "best fit" design criteria	Issued to project steering committee for approval
Milestone 2.1 – Determine water quality modelling methodology	Comment on working draft provided to consultant
Milestone 2.2 – Stormwater assessment tool	The staging site adapted for Adelaide is currently viewable at http://staging.insitewater.net
	Organic Engineering are currently reworking the detention methodology that is compliant with the new ARR 2016 and have included the 2016 IFDs
Milestone 2.3 and 2.4 – Draft and Final Guideline	Subject to the outcomes of Milestone 1
Milestone 3.1 – Draft on-line user interface for the assessment tool	Partially completed as part of staging website



Training

During 2017-18, specialist contract trainers delivered three courses for WSUD practitioners, and the Program Manger delivered three short courses (one hour) for community groups, practitioners and the public as part of the Living Smart program. In addition, the Program Manager delivered targeted training for a diverse range of industry groups, educational institutions and others by invitation to supplement curriculum or address a pressing knowledge gap, listed in Table 3.5.

The *Streetscale raingardens design* training was run for a second time since the Water Sensitive SA program was established, incorporating modifications in response to previous course feedback, and was well attended.

Water Sensitive SA has offset the costs of training content development and delivery of the practitioner courses with full-day course attendance fees set at \$275 (including GST) for investment partners and \$440 (including GST) for others.

Fees for our seminar series have ranged from free to \$50 for members and up to \$85 for nonmembers. The higher fee was introduced to better reflect the cost of delivery and the quality and value of the event. Six seminars were delivered this year, while we had budgeted for four, therefore the fees offered a means to deliver more services within the available budget. The introduction of fees for most seminars has proven to be successful in limiting the number of registered non-attendees, without appearing to affect overall registration numbers.

The regular "open" training and seminar program as delivered for 2016-17 is listed Table 3.4 below. An analysis of participant feedback relative to benchmark targets is provided in Table 5.2 of the Appendix and details of how attendees expect to apply their learnings are described in Section 5.3 of the Appendix.

Date		Training/ Seminar	Торіс
July	2016	Seminar	WSUD solutions to underperforming asphalt (V)
August	2016	Seminar	Engaging communities in the transition to water sensitive cities (R)
September	2016	Training	How to use the BeST tool from CIRIA – a cost benefit analysis for WSUD
October	2016	Seminar / site visit	Bowden Urban Village– working towards a Green Star Community rating through integrated water cycle management
December	2016	Seminar	The new economy, rainwater harvesting, stormwater management and, multi-scale benefits across the city (R)
March	2017	Training	Towards water sensitive design without maintenance requirements for asset owners (R)
May	2017	Training	Streetscale raingardens – design and practice
March	2017	Seminar	Alternative water schemes – managing whole of life cycles cost (R)
June	2017	Seminar	Urban infill development – but not as we know it! (V) (R)

Table 3.4 Delivered training (open courses) and seminar series 2016-17

Note 1: (V) denotes event recorded on video and placed on Water Sensitive SA YouTube channel. Note 2: (R) denotes event included research translation and extension.



Date		Training/ Seminar	Торіс
October	2016	Training	Vision 202020, Urban Forests Masterclass – Streetscape WSUD solutions
November	2016	Training	Introduction to WSUD and raingardens (TAFE SA Horticulture)
May	2017	Training	Water sensitive urban design and urban heat mitigation (Flinders University)
Мау	2017	Training	 Living Smart guest presenter: WSUD in your backyard – community City of Unley City of Mitcham City of Charles Sturt
June	2017	Training	Allotment scale WSUD (small-scale development) (City of Campbelltown)

Table 3.5 Other targeted training by invitation

Communications

Feedback garnered as part of the *Three-year program review* practitioner survey indicated the preferred method of receiving information on Water Sensitive SA resources was via our b-monthly e-newsletter.

With 622 subscribers to our e-news, Water Sensitive SA communications activities are seeking to mainstream WSUD practices and create an environment that WSUD is "business as usual" for a growing number of Councils and developers in South Australia. This financial year has seen a review and update of our e-newsletter template to provide a more engaging format that has resulted in an average open rate of 37%, which compares favorably with the 20% industry average.

To ensure broad access to the themes within our seminars, we have made video recordings of events where budgets allowed. The Water Sensitive SA YouTube channel now includes videos on the following topics:

- Raingarden construction: Step-by-step video
- WSUD solutions to underperforming asphalt: Smart stormwater in development seminar presentation by Andrew King
- Infill development but not as we know it! Residential infill: design quality and an enhanced public realm presentation by Prof. Geoffrey London and Prof. Nigel Bertram

Our growing social media profile through our Twitter account, with 120 followers, has enabled us to connect practitioners not only with best practice WSUD and events here in South Australia, but also with leading national and international WSUD projects.



3.4. Performance against core business KPIs for 2016-17

Table 3.6Performance against core business KPIs for 2016-17

LEGEND – Performance relative to target

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Target exceeded

Completed as per target

In progress and on track

Target not met or yet to commence

Outcome/output	Outcome/output KPI		Actual
Program Business Planning			
Outcome 1 – Transparency and accountabil	ity in business and operational planning ar	nd reporting	
	 Annual business plan prepared. Prepare 3 year business plan (review annually), stakeholder engagement plan and training plan. 	May (preceding relevant financial year)	Annual Review completed
	1.2. # agenda papers prepared, meeting coordinated for Water Sensitive SA steering committee	4 per annum	Aug 2016 completed Nov 2016 completed Feb 2017 completed May 2017 completed
	1.3. # of reports prepared – program performance against KPIs and financial management	4 per annum	Aug 2016 completed Nov 2016 completed Feb 2017 completed May 2017 completed
	1.4. Overall program review undertaken	May 2016 and May 2017	May 2016 Annual review completed. 3-Year independent review completed April 2017
Stakeholder engagement			
Outcome 2 – Inclusivity			
Outcome 2a All relevant practitioners and industry groups are engaged in Water Sensitive SA program development and program delivery.	2.1. # organisations and diversity of industry groups consulted	100% metropolitan Adelaide Councils and key industry associations by July 2015	83% (19 of 23) of greater metropolitan Councils face-to-face)73 organisations



Outcome/output	КРІ	Target	Actual
		60 by November 2015	
	2.2. # of presentations made by Water Sensitive SA to industry forums/seminars	4 per annum	11 (Refer to Section 3.1 for details)
Outcome 3 – Recognised value of program	1		
Outcome 3a Financial partners understand the value of	3.1. % of investment partners providing endorsement of draft business plan	90%	See below. Renewal of partnership deemed to be endorsement of business plan.
their investment and agree the program meets industry needs.	3.2. # of new investment partners following release of business plan	10 additional Councils by Oct 2015 10 other organisations by Oct 2015	 7 x existing partners renewed agreements in 2016-17 (including AMLR NRMB) 1 x grant x Stormwater Management Authority 1 x grant – Green Infrastructure Program for WSUD and green infrastructure performance basis policy. Income to be reflected in 2017-18 business plan 8 in total
WSUD policy adoption and implementation			
Outcome 4 – Adoption of WSUD performan	nce targets		
Outcome 4a Binding performance targets for water conservation, stormwater runoff quality and stormwater will drive a consistent, equitable approach to WSUD, based upon best practice	4.1. # of Councils, organisations or industry groups actively advocating for SA WSUD Policy adoption withir planning and building approvals processes	25 by July 2016	 28 (77% attendees Pathways to WSC through planning seminar who completed survey supported adoption of a WSUD module within the planning policy library/ proposed state planning code (n=37 returned surveys) Established SA coalition to advance the Living Cities agenda including (IPWEA, AILA, Stormwater SA, PIA)
Technical resources development			
Outcome 5 – Technical resources for WSUE			
Outcome 5a Agreement reached with interstate and international capacity builders for sharing	5.1. Sources for all categories of technical information identified and links made on Water Sensitive SA website	Website hits per qtr >1600 by May 2017	1,541 sessions - A session is the period time a user is actively engaged with a website, app, etc. All usage data (Screen Views, Events, Ecommerce, etc.) is associated with a session.



Outcome/output	KPI		Target	Actual
technical information and which elements SA is to lead Outcome 5b	5.2.	Contract(s) signed for provision of missing technical information for which Water Sensitive SA is to take lead	New material on-line by June 2017	PP3&4 – Online Stormwater Assessment tool and deemed to comply guideline for small scale development – Contract currently being negotiated with Preferred Tenderer.
Resources are readily available through a central on-line facility				PP1&2 – Partnership commitment with CRC for Water Sensitive Cities to deliver <i>IRP2 Integrated economic</i> <i>assessment and business case development for Water</i> <i>Sensitive Cities</i> project
Practitioners have the guidelines necessary to inform planning, design, construction and maintenance of WSUD assets.	5.3.	Quality of SA-produced technical guidance is peer reviewed and assessed to be good	New material peer reviewed and approved.	Pending priority projects and additional funding
	5.4.	Proportion of industry sectors (i.e. planning, design, assess, construct and maintain etc.) for which technical support resources are available on line	All sectors by June 2017	Pending priority projects and additional funding
	5.5.	% of practitioners citing Water Sensitive SA website as a primary source of information on WSUD technical matters	70% by May 2017	60% (Source: 2017 practitioner survey)
	5.6.	% of practitioners reporting resources to support their role in WSUD are available via Water Sensitive SA website.	70% by May 2017	 3-year independent review April 2017 instead sought feedback on awareness of Water Sensitive SA resources on our website: 75% very familiar or familiar with fact sheets 53% very familiar or familiar with case studies 50% very familiar or familiar with guidelines 48% very familiar or familiar with image gallery 46% very familiar or familiar with interactive map of WSUD projects and videos on Youtube channel



Training and community of practice				
Outcome 6 – A proficient WSUD Practitione				
Outcome 6a: Practitioners can deliver best practice integrated water management and WSUD	6.1.	% of practitioners reporting improved ability to delivery best practice WSUD	80%	88% average (Refer to Appendix Table 5.2 for details)
into the planning, design, construction and maintenance of WSUD assets.	6.2.	% of practitioners reporting they will apply the learnings in their current role	70%	95% average (Refer to Appendix Table 5.2 for details)
	6.3.	qualitative data on how practitioners will apply the learnings from training	n/a	Refer to Appendix Section 5.3 for details
	6.4.	% of investment partners supportive of Draft Training Plan	85%	Renewal of partnership deemed to be endorsement of business plan and training program
	6.5.	# of collaborations with industry groups/training providers to strengthen the WSUD content of existing courses	2 by May 2017	2 ¹ TAFE, Diploma Horticulture – Nov 2016 NRM Education Unit, WSUD in high school curriculum – Nov 2016
	6.6.	# of full day courses delivered per annum for priority knowledge and skills gaps	4 per annum	3.6 Open courses – 3, (2.2 full day equivalent) Training by invitation – 5 (1.4 full day equivalent) (Refer to Appendix Table 5.2 for details)
	6.7.	# of attendee days in training courses run by Water Sensitive SA	80 per annum	159 Open Courses – 69 Training by invitation – 90 (Refer to Appendix Table 5.2 for details)
	6.8.	# of attendees per year – seminar/workshop series	160 per annum	267

¹ University of Adelaide, Architecture Department, Dr Eliza Palazzo, Opportunities within architecture course to address the built form as it can provide for WSUD. TAFE, Diploma of Horticulture (Urrbrae Campus), Delivered 1 hour presentation on principles of WSUD and fundamentals of raingarden design and plant selection.



		% of course attendees reporting that training increased their knowledge of the topic in question.	80%	97% average (Refer to Appendix Table 5.2 for details)
		% of course attendees reporting that course material and presenter were of a good standard or higher.	80%	99% average (Refer to Appendix Table 5.2 for details)
	6.11.	% of course attendees reporting the course was relevant to their current role.	70%	100% average (Refer to Appendix Table 5.2 for details)
Outcome 6b:	6.12.	# of seminar series held each year	4 per annum	6
WSUD practitioners are well networked through peer to peer learning opportunities	6.13.	# of participants for each seminar series	40 per seminar	44 average (Refer to Appendix Table 5.2 for details)
		% of seminar attendees reporting that training/seminar increased their knowledge of the topic in question	80%	87% average (Refer to Appendix Table 5.2 for details)
	6.15.	% of seminar attendees reporting that the presenter was of a good standard or higher	80%	92% average (Refer to Appendix Table 5.2 for details)
	6.16.	% of seminars attendees reporting the seminar was relevant to their current role	80%	99% average (Refer to Appendix Table 5.2 for details)
		Qualitative data on how practitioners will apply the learnings from seminars	n/a	Refer to Appendix Section 5.3 for details
Communications				
Outcome 7 – Communications				
Outcome 7a Increased awareness of best practice, WSUD strategy, policy, techniques and		# of media releases/media (radio) engagements	3 per year	18/07 – The Advertiser, <i>Greening of our communities through stormwater innovation</i> , Stormwater SA Award, media release, no resulting article
applications.	7.2.	Sponsorship for awards event	\$2,500	nil
Outcome 7b	7.3.	# of practitioners reporting an increased awareness of best practice WSUD strategy, policy and	70%	Refer to Appendix Section 5.4 Figure 5.1. Change in practitioners' perception of their knowledge of WSUD, extract Three-year program review report



Increased trust in WSUD to deliver multiple benefits to the community, environment and economy		practice a Sensitive	as a result of Water SA communications		
		7.4. # of practitioners reporting that Water Sensitive SA communications have demonstrated the multiple benefits of WSUD		70%	Refer to 3-year review report instead sought feedback on practitioner preferred method of receiving technical information. Responses are as follows: 89% prefer email and newsletters 8.5% prefer website 2.1% prefer other industry newsletters (e.g. IPWEA)
		7.5. # of e-newsletter subscribers		700 subscribers by July 2017	622. Revised target for an additional 200 subscribers in 2016-17 was possibly ambitious
	7.6. # of forum conversations per annum		6 per annum in 2015/16	4 total (forum functionality enabled in Dec 2016 website update)	
Research and adoption pathways					
Outcome 8 – Research integration with practice of the second seco	ctitione	ers			
		# of poter address (practition researche	ntial research projects to gaps identified by ers and communicated to ers.	3 by June 2017	3 (Refer to Section 3.1 for details)
		1.2. # of WSUD research programs with clear adoption pathways for SA practitioners		8 by June 2017	9 (Refer to Section 3.1 for details)



Budget estimates 4.

4.1. Income

The income provided in Table 4.1 is based upon existing grant agreements between the Adelaide and Mount Lofty Ranges NRM Board and Water Sensitive SA investment partners. Additional income is pending from event sponsorship and reimbursement for interim Regional Manager services provided on behalf of the CRCWSC.

2014-15 to 2016-17 income summary

Table 4.1	Actual income initial 3 years of program	
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	Income (as per grant agreement) per financial year (+ GST)				
Funding partner	2014-15	2015-16	2016-17	Total	
Adelaide and Mount Lofty Ranges NRM Board	100,000	100,000	100,000	300,000	
DEWNR/Adelaide and Mount Lofty Ranges NRM Board			42,000	42,000	
City of Burnside	5,000	5,000	5,000	15,000	
City of Charles Sturt	5,000	5,000	5,000	10,000	
City of Marion	5,000	5,000		10,000	
City of Port Adelaide Enfield	5,000	5,000	5,000	15,000	
City of Playford	5,000	5,000		10,000	
City of Salisbury	10,000	10,000		20,000	
Local Government Research & Development Scheme	25,000			25,000	
SA Water	5,000	5,000	5,000	15,000	
Stormwater SA	10,000			10,000	
Local Government Association	10,000	10,000		20,000	
EPA Catchments to Coast Program - Australian Government – National Landcare Programme	10,000	10,000		20,000	
City of Tea Tree Gully		5,000	5,000	10,000	
City of Onkaparinga		10,000	10,000	20,000	
City of Mitcham		5,000		5,000	
Rural City of Murray Bridge		5,000		5,000	
Stormwater Management Authority			110,000	110,000	
Sub-total	195,000	185,000	287,000	662,000	
Pending 2016-17 income					
CRC Water Sensitive Cities (Regional Manager, SA Regional Advisory Panel capacity building activities)			6,197	6,197	
SPEL Environmental, Sponsor for July seminar			1,000	1,000	
Total	195,000	185,000	294,197	669,197	



Note: Carry over for 2017-18, PP1 - Case for WSUD – cost benefits analysis 22,000, PP3 - Deemed to comply guideline –15,000, PP4 - Online tool for simple/small-scale developments - 51,000

4.2. Expenditure

2016-17 expenditure

A slight shift in expenditure across program areas saw increases in activity relative to budget estimates for Program Management, due to Three-year program review and strategic planning workshop costs; Stakeholder engagement, due to opportunistic presentations to industry groups well in excess of estimates and Research, due to additional services to CRCWSC and increasing demand and opportunities for research translation.

The additional research expenditure will be offset in part by reimbursements from the CRCWSC for time spent on SA Regional Advisory Panel business and Regional Manager services.

The budget was held in balance given training expenditure was less than anticipated as less formal full day training was provided in response to feedback from practitioners that while they would like to attend several full day training sessions per year, they are unable to take this amount of time from their regular work duties. The training program adapted in 2016-17 to provide a mix of full day and part day training in an attempt to maximise training attendance and provide more variety in training opportunities.

	Expenditure (+ GST)			
Deliverable	2016-17 Budget	2016-17 Actual		
Part A – Core functions				
Program management ^{1,5}	\$25,250	27,388.29		
Stakeholder engagement	\$7,000	10,458		
Research and adoption pathways	\$9,600	15,709		
WSUD policy/implementation	\$5,500	6,490		
Technical resources development ²	\$26,800	25,153		
Training and community of practice	\$38,800	39,992		
Communications ³	\$16,700	15,505		
Sub-total 1	\$129,650	140,696		
Part B: Priority projects				
Case for WSUD – cost benefits analysis	58,500	56,230		
Lifecycle cost analysis		-		
Technical guidelines review and update/adapt – SA and interstate ⁶	7,500	110		
Deemed to comply guideline – urban design code	72,000	77,488		
Online tool for simple/small-scale developments		-		
MUSIC (stormwater quality model) Guidelines for SA ⁶		-		
Sub-total 2	\$138,000.00	\$ 133,828		
Total ¹	\$267,650.00	\$ 274,524		



Note 1: the overspend of \$6,874 during 2016-17 is offset by pending reimbursements of \$7,197 from the CRCWSC for 2016-17 Regional Manager services and part costs of the Urban infill development seminar June 2017 and July 2016 seminar sponsor SPEL Environmental.

	Expenditure (+ GST)				
Deliverable	2014-15 ⁴ Actual	2015-16 Actual	2016-17 Actual	3-year total Actual	
Part A – Core functions					
Program management ^{1,5}	32,725	18,500	27,388	78,613	
Stakeholder engagement	17,450	14,683	10,458	42,591	
Research and adoption pathways	5,450	12,350	15,709	33,509	
WSUD policy/implementation	4,868	10,812	6,490	22,170	
Technical resources development ²	19,930	27,902	25,153	72,985	
Training and community of practice	20,655	66,773	39,992	127,420	
Communications ³	21,990	17,716	15,505	55,211	
Sub-total 1	\$123,068	\$168,736	140,696	432,500	
Part B: Priority projects					
Case for WSUD – cost benefits analysis		5,800	56,230	62,030	
Lifecycle cost analysis			-		
Deemed to comply guideline – urban design code		1,000	110	1,110	
Online tool for simple/small-scale developments		3,500	77,488-	80,988	
MUSIC (stormwater quality model) Guidelines for SA ⁶		500	-	500	
Technical guidelines review and update/adapt – SA and interstate ⁶		4,500			
Sub-total 2	-	15,300	133,828	149,128	
Total	\$123,068	\$184,036	274,524	581,628	

Table 4.2 Program 3-year budget expenditure

Note 1: Reporting to steering committee and DEWNR, Business Plan, Investment Prospectus, Year 1 includes development of scope of works for priority projects. Subsequent years allocation to correct program area, ie WSUD policy and Technical resources, admin.

Note 2: Year 1 includes new website development, interactive map, SA WSUD sites case studies and image gallery

Note 3: Year 1 includes brand development

Note 4: 7 months of program, commencement in 2014-15

Note 5: Year 3 Program Management – Includes independent 3 year revew of program

Note 6: Project deferred subject to additional investment



5. Appendices

5.1. Key performance indicators amendments for 2016-17

A selection of key performance indicators are proposed to be amended for 2016-17 to adjust for available budget or practitioner demand for particular program areas or to set more challenging targets:

Table 5.1	Program	activity	performance	indicators	amendments

KPI		Original Target	Amended Target	Reason for amendment
3.2	# of new investment partners following release of business plan	10 additional Councils by Oct 2016 8 other organisations by Oct 2016	2 additional Councils by Oct 2017 2 other organisations by May 2018	More realistic target
5.1	Sources for all categories of technical information identified and links made on Water Sensitive SA website	Website hits > 1600/month, on average, by May 2017	Website hits > 1700/month, on average, by May 2018	Currently at 1541 sessions/month
7.5	# of e-newsletter subscribers	700 subscribers by July 2017	700 subscribers by July 2018	Currently at 622.



5.2. Training and seminars – survey results

During 2016-17, Water Sensitive SA has delivered 3 courses and 6 seminars. Given the importance of training to the program and our partners, the detailed analysis of the survey feedback is provided below. Qualitative feedback is provided in Section 5.3.

Table 5.2 Training/event participant survey feedback with respect to the quality, effectiveness and relevance of each of the respective courses

Outcome 6a:

Practitioners can deliver best practice integrated water management and WSUD into the planning, design, construction and maintenance of WSUD assets.

KPI	Target	Actual	Actual by c	ctual by course							
		Totals	Training		Seminars						
			How to use the BeST tool from CIRIA – a cost-benefit analysis tool for WSUD	Towards water sensitive design without maintenance requirements for asset owners	Streetscale raingardens – design & practice	WSUD solutions to underperform ing asphalt	Engaging communities in the transition to water sensitive cities	Bowden Urban Village – working towards a Green Star Community rating through integrated water cycle management	The new economy, rainwater harvesting, stormwater management and multi- scale benefits across the city	Alternative water schemes – managing whole of life cycle costs	Urban infill development – but not as we know it!
No. of survey participants			n = 11	n = 22	n = 20	n = 20	n = 12	n = 18	n = 10	n = 20	n = 15
% of practitioners reporting improved ability to deliver best practice WSUD	80%	-	91%	100%	100%	80%	92%	83%	80%	94%	93%
% of practitioners reporting they will apply the learnings in their current role	70%	-	100%	95%	100%	100%	100%	82%	100%	95%	86%
qualitative data on how practitioners will apply the learnings	n/a		See Append	lix 6.2		·	·		·	·	



% of investment partners supportive of Draft Training Plan	85%	Not canvas sed									
# of collaborations with training providers to strengthen the WSUD content of existing courses	5 by May 2017	2 ²									
# of full day courses delivered per annum for priority knowledge and skills gaps	4 per annum	1	4 hours	2.5 hours	Full day	1.5 hours	2 hours	2 hours	2 hours	2.5 hours	2.5 hours
# of attendee days in training courses run by Water Sensitive SA	80	69	17	31	21						
# of attendees per year – seminar/workshop series	160	267				42	40	57	40	36	52
% of course attendees reporting that training/seminar increased their knowledge of the topic in question ^{.1}	80%	-	93%	100%	99%	100%	96%	57%	73%	100%	100%
% of course attendees reporting that course material and presenter were of a good standard or higher.	80%	-	100%	100%	98%	75% (A King – 100%; E Pivnev – 47%)	97%	78%	100%	100%	97%
% of course attendees reporting the course/seminar was relevant to their current role.	70%	-	100%	100%	100%	100%	100%	100%	100%	100%	93%

Note 1 Greatly or somewhat (excludes those indicating improved their knowledge a little)



Table 5.3Training by invitation- summary

	KPI	Target	Actual	Actual by c	Actual by course						
			Totals	Training by	Training by invitation						
				TAFE SA Horticulture Diploma - Introduction to WSUD and raingardens	Flinders University Earth Science Faculty, WSUD and urban heat mitigation	Smart Living Mitcham - WSUD in your backyard	Smart Living, Charles Sturt- WSUD in your backyard	Smart Living Unley - WSUD in your backyard	City of Campbelltow n - Sustainable development, WSUD for planners		
No. of survey participants				N/A	N/A	N/A	N/A	N/A	pending		
1.3.	# of full day courses delivered per annum for priority knowledge and skills gaps	4 per annum	1	2.5 hours	1.5 hours	1 hour	1 hour	1 hour	1.5 hours		
1.4.	# of attendee days in training courses run by Water Sensitive SA	80	69	18	10	16	20	15	11		



5.3. Training & seminar series – qualitative data on how practitioners have indicated they will apply their learnings

5.3.1. Training

How to use the BeST tool from CIRIA – a cost-benefit analysis tool for WSUD

- If more training/support provided
- Happy to have a closer look at the tool what may be relevant to my work
- Cost benefit analysis for project delivery
- In education and capacity development

Towards water sensitive design without maintenance requirements for

asset owners

- Always looking for working solutions
- Potential to incorporate
- Hope to educate colleagues and find sites to trial
- Possibilities to make use of these within Whyalla
- Great starting point for internal conversations supporting WSUD
- New ideas
- Maybe! We need to look more at grassed WSUD have done some with indigenous plants in the past.
- Encourage some to be built
- Currently a student but in future I will, thanks
- Potentially
- Possibly a variation of what was covered today in conjunction with WSUD currently used
- An alternative and option to status quo
- Maybe
- I can now provide feedback to our design team that is more proactive
- Assess current designs for road projects
- Great to see a very practical approach
- Tintinara roadside landscaping

Streetscale raingardens - design & practice

- Design assessment and QA for developers and contractors proposing biofiltration/raingardens in our area
- Having a better technical knowledge will help me share my knowledge with others when building/planning for raingarden
- I will be able to utilise what I have learnt when designing raingardens for various projects
- During design and construction
- Better understanding for construction and installation specs
- Definitely will promote and design raingardens
- I will be providing much more attention to detail to ensure our raingardens function how they should.
- May review our current designs to reflect best practice



5.3.2. Seminars

WSUD solutions to underperforming asphalt in commercial developments

- Encouraging WSUD in Adelaide through the consulting fraternity
- Of all things, some of the spiel from SPEL
- WSUD in larger developments
- A good reminder to push the boundaries of the norm
- Permeable surfaces around street trees etc
- Keep pushing the idea when I can
- Look to implement WSUD in comm. develop.
- Examples of development implementing WSUD these will enable easier discussions with developers

Engaging communities in the transition to water sensitive cities

- As a Living Smart facilitator, the content of the presentations will help me to incorporate information regarding our current situation in SA and what we can be doing about it. The way information is absorbed by the community is very relevant in thinking about my delivery of information.
- We need to clarify the difference between WSUD and IUWP (Integrated Urban Water Planning).
- Designing a community engagement program
- Some of the engagement techniques can be adapted for the development of some new areas north of Adelaide
- Seek to build wider connections relevant to methods and partnerships supporting sustainable design/awareness

Bowden Urban Village – working towards a Green Star Community rating through integrated water cycle management

- Notes on green star rating and process, design issues and solutions
- Was interested in the complications experienced by householders using recycled water for flushing when it failed. Would have like to have heard how they plan to mitigate this in the future, given the different levels of service for recycled water and potable water.
- Getting developer 'buy-in' to WSUD approaches
- Warning others of a model not to follow.
- Seeing WSUD features in a new development and in real-life helps me to understand theoretical/technical concepts better.
- Design of stormwater solutions
- Information presented wasn't overly detailed. The man giving the presentation seemed to know a lot about the concept and theory behind the development, but not that much about how the systems operated on the ground and how the performance was being monitored. More detailed information would have been more useful to me.
- Interesting design with spoon drain in the centre of the road



The new economy, rainwater harvesting, stormwater management and multi-scale benefits across the city

- Development applications.
- Small-scale site works and drainage design using WSUD elements and rainwater harvesting where possible.
- In communicating options and benefits to clients and applying these principles in design.
- I am preparing an AWA OzWater Workshop on value of urban water R&D and Peter Coombes offered to provide inputs ... Highlight was Mellissa's talk that linked canopy cover with stormwater harvesting, and this offers scope for changing WSUD drivers.

Alternative water schemes – managing whole of life cycle costs

- Council is reviewing opportunities for an ASR scheme. The City of Salisbury presentation highlighted a number positives and negatives with these projects that will now be considered.
- Optimisation of operational parameters and energy consumption
- Operational practicalities of operating these systems
- Have a current project looking at MAR in the NAP keen to link up with Salisbury
- Providing ASR and alternative source advice to clients
- Working with sustainable water usage (Bruce's talk assisted with this)
- Provide summary to Council to assist in future water ASR schemes.
- Pump optimisation and costs
- Advocating WSUD and policy change
- Consider model structure for our water modelling. Salisbury knowledge of their business drivers

Urban infill development – but not as we know it!

- Critical the desired and positive design outcomes illustrated cannot be achieved without incorporation into planning policy. Knowledge and expertise on desired outcomes needs to brought to bear on DPTI and new Planning and Design Code in new planning system under PDI Act.
- Increased understanding and awareness to ensure opportunities to support or encourage this work is considered. The issues and some potential solutions are more front of mind.
- Helps to draw in another element of broader sustainability the liveability aspects of the built form. Helps to understand the perspectives of architects who have so far been underrepresented in engagement with state government and NRM Board WSUD/WSC/GI/CC business. Helps to draw in and broaden planning perspectives.
- Thinking differently about the scale of opportunity beyond a single block.
- More conceptually than anything concrete at this stage, great to know these types of projects are happening and know where to go for further information now.
- Assisting planning dept with engineering input.







Figure 5.1 Change in practitioners' perception of their knowledge of WSUD