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VISION AND TRANSITION STRATEGY FOR A WATER SENSITIVE GREATER PERTH – IMPLEMENTATION PLAN

2022–2024

Prepared by the Western Australian
Water Sensitive Transition Network

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Back cover image of Soldiers Cove Waterwise Wetland courtesy of City of Mandurah.



FOREWORD FROM THE WATER SENSITIVE TRANSITION NETWORK CHAIR

The Water Sensitive Transition Network (a leadership group of champions in the urban water, planning and development sectors) continues to work together to investigate opportunities to advance the vision of Perth transitioning to a leading Water Sensitive City.

The members of this network have worked cooperatively to challenge traditional thinking and develop new possibilities for how we achieve water sensitive outcomes in the real world. This is through a combination of strategic directions and pragmatic approaches, to achieve the goals of the Transition Network that normal day-to-day approaches and business as usual (BAU) would not achieve.

This work was all undertaken throughout the difficult working environment of the past two years.

I would like to thank all of the 30 or so stakeholder organisations for allowing their employees the opportunity to contribute to the Transition Network during this period. Without all of this support, the group would not have been able to develop this *Vision and Transition Strategy for a Water Sensitive Greater Perth – Implementation Plan (2022–2024)*. This document identifies recommendations for key areas of strategic and on-ground action to continue Western Australia's collective journey towards water sensitive cities. With the south west of Western Australia as one of the places on the planet most impacted by climate change, the role of water sensitive cities in maintaining amenity and liveability and in adapting to climate change is crucial.

The challenge of urban growth in the face of climate change cannot be solved by one entity alone. The Water Sensitive Transition Network brings together the many players who shape our communities. It provides a unique opportunity for collaboration across sectors to tackle this challenge and develop innovative solutions.

The Water Sensitive Transition Network has successfully delivered projects that address priorities identified under *Implementation Plan 2019–2021*, including forming partnerships to increase understanding of Aboriginal knowledge to inform land and water planning; effective community messaging to influence water knowledge and behaviours; and maintenance and life cycle costs of water sensitive systems. Our Implementation Plan 2022–2024 builds on this success and outlines the next steps towards our shared vision.

Following the successful completion of the Cooperative Research Centre for Water Sensitive Cities on 30 June 2021, the relevant Western Australian government agencies have been negotiating with the newly created Water Sensitive Cities Australia (WSCA), to continue this relationship and the intellectual property, tools and products that were created. Through this process, the Transition Network has been recognised by WSCA to act as Western Australia's Regional Advisory Forum, to be known as the WA Hub. This is a very exciting opportunity for the Transition Network and recognises the role it played in recent years in determining research and implementation projects to progress to the Water Sensitive City we are trying to achieve.

The Transition Network would like to thank all of the funding partners that are supporting WSCA to implement prioritised projects. This work is essential to progress the agreed research and implementation opportunities – many of which are the important things that must be trialled and investigated, but that fit outside any one organisation's mandate or work program. Without this level of cash support and various in-kind contributions to the Network, none of this work would be possible. Equally, without the commitment to collaboration and high levels of trust and innovation between Network members, we would not be achieving the truly place-changing outcomes that we are.

In recent months, the Transition Network has worked tirelessly to develop a list of national and state priorities that should be considered for funding, based on the work done to develop this document. Agreement has been reached on these priorities and the various recommendations are commencing implementation.

It will be the Transition Network's ongoing aim to continue to work across all sectors - state and local government agencies, academia, the not-for-profit sector and the interested private sector to ensure Western Australia continues and is recognised as a leader in the transition to a Water Sensitive City.

John Savell
Chair, Water Sensitive Transition Network



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1 INTRODUCTION

This is the second Implementation Plan, developed by the Perth Water Sensitive Transition Network (WSTN) to deliver the *Vision and Transition Strategy for a Water Sensitive Greater Perth* (Hammer, et al., 2018). It outlines the priority actions identified by the WSTN that are considered important to deliver in the next few years to move towards the Vision for a water sensitive Greater Perth.

The Western Australian Government's two-year Waterwise Perth Action Plan (WPAP) (2019–2021) sets the direction for transitioning Perth and Peel to leading waterwise communities by 2030 and includes actions delivered by state government agencies. A subsequent Waterwise Plan is currently in development. This Implementation Plan articulates a breadth of strategies and actions that could be undertaken by the industry, research and community organisations, local governments and state agencies that make up the WSTN to achieve the extensive objectives of a water sensitive city. There is complementarity and some overlap between the documents and they both contribute to a shared direction.

This Implementation Plan is intended to provide guidance for future policy and planning. It will be used by many different stakeholders as a sector-wide strategic framework to inform the development of intra- and cross-organisational policies, strategies and programs that facilitate a water sensitive Greater Perth (the Perth metropolitan area defined in the Western Australian Planning Commission's [Perth and Peel @3.5 million](#)). It identifies priority actions for 2022–2024, proposing a framework for delivery, monitoring and review of Perth's transition progress.

The content in this document reflects the priorities identified collaboratively by the WSTN based on its collective knowledge. As the WSTN is a voluntary community of practice (see Section 1.2), this document and the actions it describes have no formal organisational commitment or status in government policy.

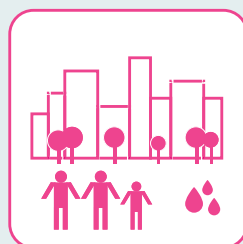
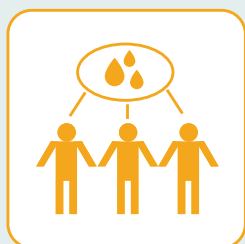
1.1 PERTH'S VISION

Water makes Perth a great place to live. We understand and value our beautiful, healthy water environments, treat them with care and use water wisely.

'Developing a shared perspective of water today, a compelling vision for the future and a framework to guide coherent strategic action is critical for establishing the understanding, motivation and capacity amongst stakeholders to drive their WSC transition' (Hammer, et al., 2018).

The *Vision and Transition Strategy for a Water Sensitive Greater Perth* (Hammer, et al., 2018) describes how water sensitive city concepts are to apply specifically to the Perth and Peel metropolitan region. The report presents the 2065 vision of Greater Perth as a water sensitive city that was developed by members of the Perth WSTN with the help of the Cooperative Research Centre for Water Sensitive Cities (CRCWSC).

The vision is expressed as a suite of outcome statements with accompanying descriptions, organised into four interconnected themes to orient and align the actions of stakeholders over the long term (Figure 1).



1. Fostering stewardship of the system

- People understand the entire water cycle and recognise the need to adapt to uncertain and changing conditions
- People feel a sense of belonging in Perth, identify with its evolving water story and connect with Nyoongar water knowledge and values
- People are appropriately engaged in open and inclusive decision-making processes that are informed by comprehensive information and transparency in people's priorities
- There is continuous investment in developing necessary knowledge, skills and capacity across water-related professions, sectors and the community

2. Protecting and enhancing the wellbeing of people and the environment

- Water is valued and managed with respect for the interdependent and dynamic relationship between people and the environment
- Perth's coastal and inland water ecosystems are protected and thriving with biodiversity
- Flood and inundation risks are managed in harmony with local conditions to minimise impacts on and embrace opportunities for the city

3. Integrating and engaging with the built and natural landscape

- Perth's urban character reflects its unique landscape and water environments
- The urban environment is comfortable, safe, and promotes health and wellbeing
- The city is filled with a network of beautiful, well-designed and high quality places that are diverse, accessible, loved and enhanced by effective water management
- Infrastructure planning and development is coordinated and integrated to deliver multiple benefits

4. Sustaining the long-term use of Perth's resources

- Water is available to equitably meet the needs of people and the environment both now and in the future
- Fit-for-purpose water is supplied through adaptable systems that work across multiple scales
- Efficient use and recovery of resources is ensured through innovative water cycle management

Figure 1: The Vision for a water sensitive Perth in 2065



1.2 THE PERTH WATER SENSITIVE TRANSITION NETWORK

One of the most significant learnings from the research of the CRCWSC is that creating a liveable, productive, sustainable and resilient city cannot be achieved through the actions of one agency or one industry or one project – it requires the collaborative effort of government at all levels, working with industry and the community to bring about lasting change. This supports the creation and purpose of the WSTN.

The WSTN is a community of practice, whose participants are leaders and strategic thinkers of the urban water, planning and development sectors from across state government, local government, academia, the not-for-profit sector and industry. The WSTN is informal and self-organising, with a mutual desire to work collaboratively in partnership towards beneficial outcomes, but with no formal obligations imposed on individuals or organisations with respect to funding/resourcing.

The WSTN is supported by four subcommittees:

- Community Engagement and Communications
- Policy and Governance
- Technical Capacity and Partnerships
- Research.

These subcommittees are chaired by members of the WSTN and assist with implementing the Vision and Transition Strategy.



The Swan River flows through the city of Perth – Image courtesy of Water Corporation



2 GREATER PERTH'S WATER SENSITIVE CITY JOURNEY

Perth has been an active participant in the research undertaken by the CRCWSC that sought to facilitate the transition of a city towards a more liveable, resilient, sustainable and productive city – a water sensitive city (WSC). Perth's assisted journey has consisted of:

- 2015–2016 – Development of a Vision and strategies to move towards a WSC, as documented in *Shaping Perth as a Water Sensitive City*. This document contained 6 focus areas, and 28 critical strategies and actions.
- 2016 – Trial of the WSC Index benchmarking process for Greater Perth. Formation of the Transition Reference Group (TRG), later to be known as the Water Sensitive Transition Network (WSTN).
- 2017 – Trial application of the Transition Dynamics Framework to identify priority strategies to assist in making the practice changes necessary to achieve a WSC.
- 2018 – Redrafting of the way forward into a Vision and Transition Strategy comprising four high level strategies (developed in response to the Transition Dynamics Framework assessment) and 32 strategies aligned to Vision themes.
- 2019 – Preparation of the first Implementation Plan by the Perth WSTN comprising 31 actions and indicators for 2019–2021.
- 2019–2021 – WSTN delivery of the actions in the Implementation Plan.
- 2021 – Re-benchmarking of Greater Perth using the WSC Index Tool and additional Transition Dynamics Framework assessments.
- June 2021 – Conclusion of the CRCWSC and transition to Water Sensitive Cities Australia, an organisation housed in the Monash University Sustainable Development Institute.

2.1 KEY ACHIEVEMENTS TO DATE

The WSTN has been working with its subcommittees to implement the 2019–2021 Implementation Plan. The following achievements are noted:

- Strengthened and expanded WSTN
- Multi-agency funding and in-kind support provided for the University of Western Australia's (UWA) Noongar Water Knowledge project
- Common WSTN online platform developed to share information and facilitate collaboration between members
- Simple WSC messages targeting the public/community to increase water awareness developed and tested
- On-ground Drainage for Liveability program outcomes delivered
- Monitoring and evaluating water sensitive urban design (WSUD) systems to understand their performance and to improve design, construction and maintenance
- Summary of the benefits and costs of the maintenance of WSUD assets compared with conventional drainage assets and an increased understanding of barriers to maintenance prepared for local government
- WSUD principles included as a component of first year planning degrees at UWA, Curtin and Edith Cowan universities
- New WAtER Ways delivery of four 'soft skills' Masterclass sessions
- Work with industry associations to develop training programs for urban professionals and to provide mentors
- 115 Hamilton Hill and East Village at Knutsford by DevelopmentWA showcased as leading projects in WSUD
- Participation in Government policy development initiatives, including input to the WA Government's Waterwise Perth Action Plan launched in October 2019
- 75% of metropolitan local governments have achieved Waterwise Gold status and 19% of local governments are eligible for Platinum status
- Co-investment in research to guide urban water management in high groundwater environments
- Quantified non-market values (benefits/risks) and sharing of effective tools, supported by industry training.



2.2 MEASURING GREATER PERTH'S PROGRESS

Re-benchmarking with the WSC Index Tool revealed Perth progressed substantially towards a WSC, increasing from 5% in 2016 to 18% in 2021 (Figure 2). Greater Perth also achieved 66% Water Cycle City state in 2021, an increase of 22%.



Figure 2: Results of Greater Perth's benchmarking with the WSC Index in 2021



The indicators that showed the greatest progress are listed below. The numbers in brackets are how much the indicator score increased by.

- Indicator 1.4 Public engagement, participation and transparency (1.5)
- Indicator 1.6 Water resourcing and funding to deliver broad societal value (1.0)
- Indicator 1.7 Equitable representation of perspectives (1.5)
- Indicator 2.2 Connection with water (2.0)
- Indicator 2.3 Shared ownership, management and responsibility of water assets (1.0)
- Indicator 2.4 Community preparedness and response to extreme events (1.0)
- Indicator 2.5 Indigenous involvement in water planning (1.0)
- Indicator 3.4 Equitable and affordable access to amenity values of water-related assets (2.0)
- Indicator 4.2 Low greenhouse gas (GHG) emission in water sector (1.5)
- Indicator 4.3 Low end-user potable water demand (1.0)
- Indicator 4.4 Water-related economic and commercial opportunities (1.0)
- Indicator 5.1 Healthy and biodiverse habitat (1.0)
- Indicator 5.3 Groundwater quality and replenishment (1.0)
- Indicator 7.4 Robust infrastructures (1.0).

Greater Perth achieved its Vision score for a number of indicators:

- Indicator 1.4 Public engagement, participation and transparency
- Indicator 1.5 Leadership, long-term vision and commitment
- Indicator 1.6 Water resourcing and funding to deliver broad societal value
- Indicator 3.1 Equitable access to safe and secure potable water supply
- Indicator 3.3 Equitable access to flood protection
- Indicator 4.4 Water-related economic and commercial opportunities
- Indicator 7.4 Robust infrastructures.

Figure 3 shows the indicators with no progress since 2016 and the greatest gap between the 2021 score and the Perth Vision:

- Indicator 2.1: Water literacy
- Indicator 4.1: Benefits across other sectors because of water-related services
- Indicator 5.4: Protect existing areas of high ecological value.

To identify strategies to help transition Perth to a WSC, Transition Dynamics Framework assessments were undertaken for Goal 2, Goal 5 and Indicator 6.2, because these were considered by workshop participants as priority action areas (see results in Appendix 1). These assist in identifying priority enabling strategies that deliver the practice changes required to transition towards a WSC.

The first iteration of the WA Government's [Waterwise Perth Action Plan](#) (2019–2021) focuses on collaborative responses to the impacts of a growing population, urban development and climate change on the urban water cycle. To change practices to improve ecological health, there is a need to focus on developing a community of practice that supports better environmental outcomes. Workshop participants noted the need to define the indicators of success for ecological health and develop agreed targets for protecting, retaining and restoring natural systems.

The results of the assessment for increasing community capital suggest a need for information on why community knowledge and interest in the water system is low. Once there is more clarity in this area, programs to connect stakeholders and the community will be required to share the knowledge and trial projects to build community water literacy.

Workshop participants felt practices to create and retrofit water sensitive urban form and built form were disjointed and ad hoc. Some success was observed in large greenfield developments, but there was a lack of across-the-board support for solutions for infill areas and existing infrastructure. Although new policy was supportive, there was a need to demonstrate outcomes and develop targets.





WSC Index indicator scores for Greater Perth benchmarked in 2016 (italics), 2021 (bold) and Perth's Vision in 2065 (brackets)

Goal 1. Ensure good water sensitive governance 2.9, 3.8 (4.1)	Goal 2. Increase community capital 2.1, 3.1 (4.7)	Goal 3. Achieve equity of essential services 3.8, 4.4 (4.8)	Goal 4. Improve productivity and resource efficiency 2.0, 2.8 (4.0)	Goal 5. Improve ecological health 2.5, 3.0 (4.5)	Goal 6. Ensure quality urban space 2.5, 3.0 (4.3)	Goal 7. Promote adaptive infrastructure 2.8, 3.3 (4.0)
1.1 Knowledge, skills and organisational capacity 3.0, 3.5 (4) 	2.1 Water literacy 2.0, 2.0 (5) 	3.1 Equitable access to safe and secure potable water supply 5.0, 5.0 (5)	4.1 Benefits across other sectors because of water-related services 3.0, 3.0 (5) 	5.1 Healthy and biodiverse habitat 2.0, 3.0 (5) 	6.1 Activating connected pleasant urban green and blue space 3.0, 3.5 (5) 	7.1 Diverse fit-for-purpose water supply system 3.0, 3.5 (4)
1.2 Water is key element in city planning and design 3.0, 3.5 (5) 	2.2 Connection with water 2.0, 4.0 (5)	3.2 Equitable access to safe and reliable sanitation 4.0, 4.5 (5)	4.2 Low GHG emission in water sector 1.0, 2.5 (4) 	5.2 Surface water quality and flows 3.0, 3.0 (4)	6.2 Urban elements functioning as part of the urban water system 2.0, 2.5 (4) 	7.2 Multi-functional water system infrastructure 3.0, 3.0 (4)
1.3 Cross-sector institutional arrangements and processes 3.0, 3.5 (4) 	2.3 Shared ownership, management and responsibility of water assets 2.0, 3.0 (4.5) 	3.3 Equitable access to flood protection 4.0, 4.0 (4)	4.3 Low end-user potable water demand 2.0, 3.0 (4)	5.3 Groundwater quality and replenishment 2.0, 3.0 (4)	6.3 Vegetation coverage 2.5, 3.0 (4)	7.3 Integration and intelligent control 3.0, 3.5 (4)
1.4 Public engagement, participation and transparency 2.5, 4.0 (4) 	2.4 Community preparedness and response to extreme events 2.0, 3.0 (5) 	3.4 Equitable and affordable access to amenity values of water-related assets 2.0, 4.0 (5)	4.4 Water-related economic and commercial opportunities 2.0, 3.0 (3)	5.4 Protect existing areas high ecological value 3.0, 3.0 (5) 		7.4 Robust infrastructures 3.0, 4.0 (4)
1.5 Leadership, long-term vision and commitment 4.0, 4.5 (4)	2.5 Indigenous involvement in water planning 2.5, 3.5 (4)		4.5 Maximised resource recovery 2.0, 2.5 (4) 			7.5 Infrastructure and ownership of multiple scales 2.5, 3.0 (4)
1.6 Water resourcing and funding to deliver broad societal value 3.0, 4.0 (4)						7.6 Adequate maintenance 2.5, 3.0 (4)
1.7 Equitable representation of perspectives 2.0, 3.5 (4)						

Fostering stewardship of the system

Protecting and enhancing the wellbeing of people and the environment

Integrating and engaging with the built and natural landscape

Sustaining the long-term use of Perth's resources

No progress
 Greatest gap

Figure 3: Indicators with the least progress and greatest gap to the Perth Vision



3 STRATEGIES AND ACTIONS 2022–2024

The strategies identified below are drawn from the *Vision and Transition Strategy for a Water Sensitive Greater Perth* (Hammer, et al., 2018) and have been updated, where required, in response to the findings of the 2021 Greater Perth WSC Index benchmarking and Transition Dynamics Framework assessments. They are overarching strategies that will require the collaborative and integrated support and action of government, industry and the community.

To move towards the achievement of the Vision for Greater Perth, the WSTN identified a number of short-term actions that its members will work together to support and deliver during 2022 to 2024. The following action plan has a short-term focus, based on the long-term goal of achieving Perth's vision for a water sensitive city. It is intended to be a 'live' document that is bi-annually reviewed and updated by the WSTN.

3.1 VISION THEME 1: FOSTERING STEWARDSHIP OF THE SYSTEM

Strategy	Action
1.1 Undertake social research to understand community values, benefits, and people's connection to local water assets and use this research in community engagement activities.	a. Conduct a stocktake and literature review of relevant available data. Outcomes communicated to WSTN. b. Review gaps and if necessary, prepare project plan and seek funding for delivery. c. Undertake research and share outcomes.
1.2 Build water literacy within the community through an education program around the principles and outcomes of water sensitive cities in a Perth and Peel context.	d. Develop and agree messages that are used by each agency on WSTN. e. Test and evaluate messages. f. Develop marketing tool kit for use by developers and housing industry.
1.3 Use Noongar water knowledge and stories to inform water management planning and urban design and to enhance community connection and cultural outcomes.	g. Use learnings from Noongar Water Knowledge project and prepare project plan for Aboriginal involvement in water planning and decision making, with input and support from relevant stakeholders and appropriate Aboriginal groups. h. Seek funding for delivery.
1.4 Develop partnerships around projects (on-ground projects and policies development) to connect a diverse range of stakeholders (including non-water sector) to develop shared understanding of technical and governance problems and solutions.	i. Identify key action learning knowledge gaps and identify demonstration projects to de-risk and address key barriers to mainstream adoption by industry and government.
1.5 Continue to build organisational and industry capacity through adequately resourced capacity building programs (e.g. New WAtEr Ways).	j. Support ongoing, secure funding for New WAtEr Ways (at least \$100k pa) and assist to identify capacity gaps and opportunities.
1.6 Build interest and support for water sensitive cities in local governments.	k. Develop a coherent strategic engagement package targeting senior executives, mayors and councillors in local government that includes understanding of linkages to LG roles and decisions.



3.2 VISION THEME 2: PROTECTING AND ENHANCING THE WELLBEING OF PEOPLE AND THE ENVIRONMENT

Strategy	Action
2.1 Partner with researchers to provide evidence to strengthen relationships between water system services and mental and physical health (e.g. urban heat, WSC business case).	a. Conduct a stocktake and literature review of relevant available data. If required, prepare project plan and seek funding for delivery. Use big data to identify where the priority community health issues are/will be located.
2.2 Undertake a coordinated education program to increase the community's understanding of: (1) how urban activities impact the health of the environment (e.g. pollution impact on fauna); and (2) how urban form impacts the health and lifestyle of people (e.g. health benefits of cool, green environment; lower running cost of sustainably designed homes).	b. Scope education program that aims to increase people's 'care factor' and secure funding for delivery. Link to Strategy 1.2.
2.3 Reduce contaminants, including nutrients, organic material and sediment, entering the Swan Canning and Peel Harvey systems and maintain or improve environmental flows and provide access for people.	c. Actively participate in the Swan Canning River Protection Strategy review. d. Undertake flow and nutrient load modelling for the Swan Canning river system. Update Swan Canning Water Quality Improvement Plan once the modelling has been completed. e. Implement Peel Harvey Estuary Protection Plan. f. Undertake drainage retrofit projects to improve water quality and urban amenity.
2.4 Improve ecological health and community benefit associated with wetlands.	g. Support a contemporary policy framework for wetland conservation.
2.5 Implement trials and demonstrations of both technical and governance solutions that aim to improve environmental health, including an explicit learning agenda.	h. Identify specific knowledge gap and then identify and advocate for a demonstration project that could be delivered by a WSTN partner. Document and share outcomes of demonstration project. Links with Strategy 1.4.
2.6 Support urban greening and creation of green linkages that improve the health of the environment and people.	i. Transform 12 Water Corporation assets to increase access to green space in partnership with local government and the community. j. Support establishment and implementation of the Swan Canning Riverpark Urban Forest Program. k. Develop information for local governments and other asset owners to support creation of green linkages within service/ infrastructure corridors and assets. Support delivery of demonstration projects. l. Develop a Perth and Peel green linkages plan that identifies strategic gaps (stage 1) and identify a demonstration project (stage 2). Work with NatureLink to address identified gaps in biodiversity corridors. Links to Strategy 2.7 and 3.6.
2.7 Translate policy goals for the wellbeing of people and the environment into system-wide standards and programs of implementation.	m. Clearly articulate the desired outcomes and support with targets (e.g. potentially related to urban heat mitigation, tree canopy coverage, water quality and quantity management). n. Develop water quality targets for protection of receiving environments. o. Support development of the Perth and Peel Urban Forest Strategy.



3.3 VISION THEME 3: INTEGRATING AND ENGAGING WITH THE BUILT AND NATURAL LANDSCAPE

Strategy	Action
3.1 Undertake applied research to support delivery of WSC outcomes (including secure funding). Research findings to inform the development of policies and guidance.	<ul style="list-style-type: none"> a. Measure performance of a range of WSUD assets in various site conditions and share learnings on performance, design and maintenance. b. Develop guidance that emphasises the need to identify and address the critical water issues within a site and development (place) context. c. Develop a project to assess the level of mosquitoes in a WSUD park compared with a park with a compensating basin.
3.2 Document and quantify benefits of public and private open space and green infrastructure, particularly to support ongoing maintenance commitments by local governments.	<ul style="list-style-type: none"> d. Scope research project to gather financial information on lifecycle benefits and costs of WSUD vs conventional drainage/public open space with a focus on maintenance and share comparison via a database of information.
3.3 Support professional and individual development of water professionals and champions to understand and deliver WSC solutions, including opportunities for academics and professionals to explore emerging knowledge and solutions.	<ul style="list-style-type: none"> e. Support New WATER Ways to optimise delivery of its work program. f. Promote other professional development learning opportunities, e.g. university courses, AWA, WSAA (identify target audience and needs, then how best to deliver).
3.4 Lead and demonstrate delivery of quality water sensitive urban form and multi-functional solutions through state government development agencies and METRONET.	<ul style="list-style-type: none"> g. Embed waterwise outcomes within the METRONET program of projects. Links to Strategy 4.3.
3.5 Support local government and private landowners to deliver liveable communities through revitalisation of single-purpose infrastructure and redevelopment projects	<ul style="list-style-type: none"> h. Develop supporting information for delivery of SPP7 relating to WSUD in (i) small infill and (ii) activity centres. Also links to Strategy 2.5. i. Develop supporting information for asset renewal with a focus on local government assets.
3.6 Participate in Government policy development initiatives and incorporate WSC principles supported by effective governance options and technical feasibility.	<ul style="list-style-type: none"> j. Support the transition of WSC to BAU through its inclusion in new/revised policy and guidelines via participation in consultation processes. k. Explore tools to protect trees on private land. l. Support transparent monitoring and reporting on outcomes of policy. m. Support contemporary policy on allocation of groundwater and alternative non-potable sources of water which considers climate change, scale, use and feasibility.
3.7 Integrate relevant water issues into regional and district water planning to support implementation of Perth & Peel @ 3.5million.	<ul style="list-style-type: none"> n. Provide strategic guidance on integrated water management and non-potable supplies for Perth and Peel in the context of climate change.



3.4 VISION THEME 4: SUSTAINING THE LONG-TERM USE OF PERTH'S RESOURCES

Strategy	Action
4.1 Continue to support local governments through the promotion of WSC tools and principles via the Waterwise Council program.	a. Continue to support local government undertaking benchmarking workshops and the creation of Waterwise strategies.
4.2 Integrate WSC principles into WA's climate change policy and program to address the water energy nexus.	a. Support the inclusion of WSC principles (including resilience of blue-green infrastructure) and the inter-relationship between water and energy in the State Climate Resilience Action Plan. b. Develop tools to better describe and quantify the relationship between energy, carbon and water sensitive city solutions.
4.3 Implement trials and demonstrations of innovative adaptive, multi-functional and resource recovery solutions, including an explicit learning agenda.	d. Identify a viable (including operating costs) demonstration project to design, construct and operate a small-scale water or wastewater system. Consider community title or large apartment or other small community-scale project. e. Support new wastewater treatment and water resource recovery technologies and governance solutions based on sustainability principles.
4.4 Share knowledge and data through strengthened collaboration platforms focused on delivering adaptive infrastructure and resource efficiency solutions across organisations and sectors.	f. Develop a proposal for a data sharing platform for water consultants' water monitoring data.
4.5 Support local government and private landowners to deliver liveable communities through revitalisation of single-purpose infrastructure and redevelopment projects	g. Develop tools to consider total water cycle schemes, including incentives for reuse and recycling that are appropriate at scale and fit for purpose. h. Support contemporary guidance for approvals required for non-scheme and small-scale water and wastewater servicing.
4.6 Explore economic valuation methods that support business cases for creation and maintenance of WSC solutions.	i. Document life cycle cost/benefit information for a range of treatments at various scales. j. Develop a model business case for maintenance which is used by local government to obtain support for appropriate levels of resourcing. k. Work with agencies to support recognition that investment in people to maintain WSUD assets benefits the community. l. Support research to determine the financial benefit to residents with raingardens (including tree pits) in their verges.



4 IMPLEMENTATION

This plan will be implemented by the industry, research and community organisations, local governments and state agencies that make up the WSTN, with assistance from its four subcommittees:

- Community Engagement and Communications
- Policy and Governance
- Technical Capacity and Partnerships
- Research.

Transitioning to a water sensitive city requires multi-disciplinary approaches and the four subcommittees achieve collaborative implementation and support delivery.

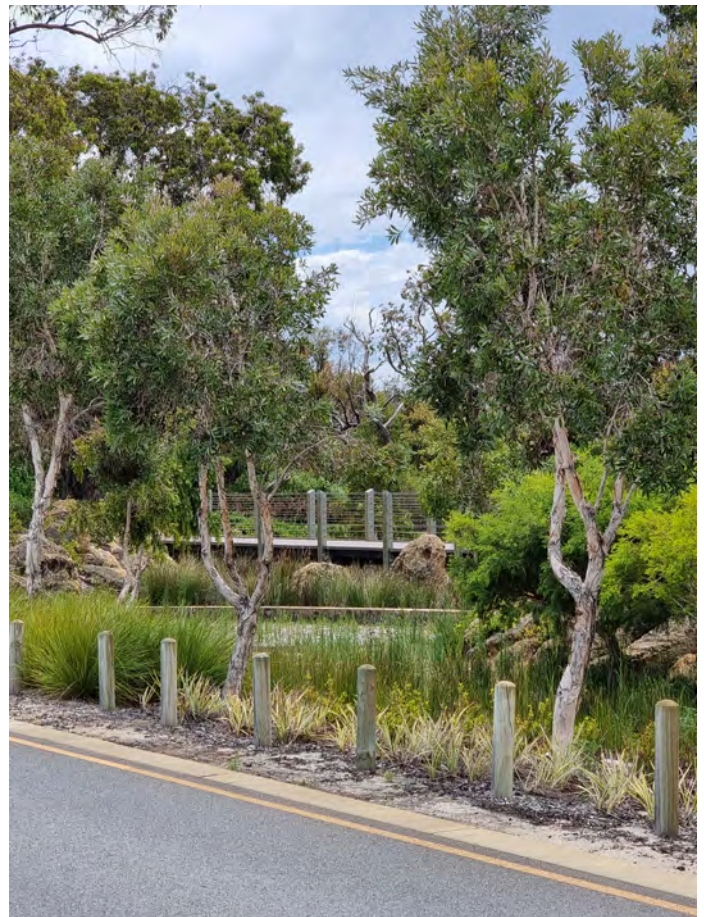
These subcommittees meet regularly and have developed their own work programs to support new ideas, seek opportunities, work constructively through challenges, share lessons and influence others.

The WSTN subcommittees identify implementation pathways, through existing and new member programs and other related opportunities and initiatives. The WSTN member bodies collaborate across the network and with broader partners to facilitate, support and deliver the actions.

Delivery pathways include through WSCA national and WA investment plans, New WAter Ways capacity building program and collaborative agency support, guided by the subcommittees.

Due to the short-term focus of this action plan, it will be reviewed annually, with completed actions recognised in the next version.

New actions for inclusion will be prioritised by the WSTN utilising the tools developed by the CRCWSC and maintained by Water Sensitive Cities Australia.



Biofilter and retained native vegetation on the edge of the Peel Estuary in Osprey Waters residential development, City of Mandurah – Image courtesy of Urbaqua



5 REFERENCES

Hammer, K., Rogers, B.C., Chesterfield, C., 2018, *Vision and Transition Strategy for a Water Sensitive Greater Perth*. Melbourne, Australia: Cooperative Research Centre for Water Sensitive Cities.

Rogers, B.C., Hammer, K., Werbeloff, L., Chesterfield, C., 2011, *Shaping Perth as a Water Sensitive city: Outcomes of a participatory process to develop a vision and strategic transition framework*. Melbourne, Australia: Cooperative Research Centre for Water Sensitive Cities.



ATTACHMENT 1 – TRANSITION DYNAMICS FRAMEWORK MATRICES FOR PERTH 2021

To assist in identifying strategies to help transition Perth to a WSC, a number of Transition Dynamics Framework assessments were undertaken. The results are shown below.

GOAL 5: IMPROVE ECOLOGICAL HEALTH

Transition phase	Champions	Platforms for connecting	Knowledge	Transition phase	Tools and instruments
1. Issue Emergence	Issue activists	N/A	Issue highlighted	Issue examined	N/A
2. Issue Definition	Individual champions	Sharing concerns and ideas	Causes and impacts examined	Solutions explored	N/A
3. Shared Understanding & Issue Agreement	Connected champions	Developing a collective voice	Solutions developed	Solutions experimented with	Preliminary practical guidance
4. Knowledge Dissemination	Aligned and influential champions	Building broad support	Solutions advanced	Solutions demonstrated at scale	Refined guidance and early policy
5. Policy & Practice Diffusion	Organisational champions	Expanding the community of practice	Capacity building	Widespread implementation and learning	Early regulation and targets
6. Embedding New Practice	Multi-stakeholder networks	Guiding consistent application	Monitoring and evaluation	Standardisation and refinement	Comprehensive policy and regulation

GOAL 2: INCREASE COMMUNITY CAPITAL

Transition phase	Champions	Platforms for connecting	Knowledge	Transition phase	Tools and instruments
1. Issue Emergence	Issue activists	N/A	Issue highlighted	Issue examined	N/A
2. Issue Definition	Individual champions	Sharing concerns and ideas	Causes and impacts examined	Solutions explored	N/A
3. Shared Understanding & Issue Agreement	Connected champions	Developing a collective voice	Solutions developed	Solutions experimented with	Preliminary practical guidance
4. Knowledge Dissemination	Aligned and influential champions	Building broad support	Solutions advanced	Solutions demonstrated at scale	Refined guidance and early policy
5. Policy & Practice Diffusion	Organisational champions	Expanding the community of practice	Capacity building	Widespread implementation and learning	Early regulation and targets
6. Embedding New Practice	Multi-stakeholder networks	Guiding consistent application	Monitoring and evaluation	Standardisation and refinement	Comprehensive policy and regulation

INDICATOR 6.2: URBAN ELEMENTS FUNCTIONING AS PART OF THE URBAN WATER SYSTEM

Transition phase	Champions	Platforms for connecting	Knowledge	Transition phase	Tools and instruments
1. Issue Emergence	Issue activists	N/A	Issue highlighted	Issue examined	N/A
2. Issue Definition	Individual champions	Sharing concerns and ideas	Causes and impacts examined	Solutions explored	N/A
3. Shared Understanding & Issue Agreement	Connected champions	Developing a collective voice	Solutions developed	Solutions experimented with	Preliminary practical guidance
4. Knowledge Dissemination	Aligned and influential champions	Building broad support	Solutions advanced	Solutions demonstrated at scale	Refined guidance and early policy
5. Policy & Practice Diffusion	Organisational champions	Expanding the community of practice	Capacity building	Widespread implementation and learning	Early regulation and targets
6. Embedding New Practice	Multi-stakeholder networks	Guiding consistent application	Monitoring and evaluation	Standardisation and refinement	Comprehensive policy and regulation



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