Stormwater Management Planning Priorities for South Australia

2022

SOUTH AUSTRALIA

Government of South Australia

Stormwater Management Authority

Introduction

A key function of the Stormwater Management Authority (SMA) is to facilitate and coordinate stormwater management planning by councils. The Authority has a statutory responsibility to identify priority catchments for which stormwater management plans (SMPs) should be prepared.

This document updates the stormwater management planning priorities published in 2016. Since 2016, there has been:

- Significant progress made in completing or commencing priority SMPs
- Major reforms to natural resources management legislation and planning legislation
- More recent information on water quality risks, flood risks and stormwater reuse opportunities
- A growing need to carefully manage and prioritise the Stormwater Management Fund.

The priorities identified in this document will be used by the SMA to guide the ongoing development and updating of SMPs.

It is important to note that these priorities reflect where there is a need for new or updated investigations and planning. The priorities identified in this document are not priorities for implementing works and measures. Exiting stormwater management plans are at various stages of implementation. Appendix 1 lists existing SMPs already approved.

The Authority welcomes comments on these priorities at any stage. Please direct any feedback to: sma@sa.gov.au

Trunk drain replacement and flood mitigation works in Port Road, Cheltenham

Pump Station upgrade in Liverpool Street, Port Lincoln

Prioritisation Framework

In 2019, following a consultation process, the SMA endorsed five principles for prioritising catchments (see Box right). These principles reflect a stronger focus on managing stormwater to achieve a broad range of objectives beyond flood mitigation.

A new framework has been developed to support the assessment of priority catchments for stormwater management planning. The framework has been developed around the evaluation of key metrics across six criteria that are considered to most strongly reflect the relative need for a stormwater management plan to be prepared in a given catchment, with due reference to the prioritisation principles endorsed by the SMA.

The purpose of the metrics is to support a process through which a relative ranking of catchments with respect to stormwater management planning is produced. They have not been developed to provide a definitive evaluation of a specific catchment, but rather to provide a consistent platform on which to compare and contrast between catchments.

SMP Prioritisation Principles

- The priorities for stormwater management planning should be informed by relevant state government plans and strategies (including the 30-Year Plan for Greater Adelaide and the State Landscape Strategy).
- Priority catchments should be determined, as far as practicable, on the basis of complete hydrological catchments or sensible aggregations or divisions thereof.
- Prioritisation should take a long-term view of future changes to climate, population and landscapes as well as considering past performance. In particular, prioritisation should consider opportunities for better stormwater management to aid climate change adaption, for example management of urban heat or green space.
- Prioritisation criteria should strike a balance between actual flood risk, environmental quality, water security and stormwater reuse.
- Prioritisation should make use of the best available information. Assumptions should be robust and transparent.

Flood-mitigation scheme incorporating a wetland at the Tumby Bay Oval reserve

A rigorous review was undertaken to identify datasets available to support catchment 'scoring' against metrics in each of the framework criteria. It was important that datasets:

- Could provide a reasonable 'proxy' for part or all of the corresponding criteria item
- Were available in a spatial data format
- Provided or supported a quantitative evaluation process, reducing the need for individual judgement to inform the scoring process
- Were available as a state-wide dataset, to enable consistent assessment across all catchments.

'Waterproofing the West' scheme incorporating wetlands and managed aquifer recharge at Old Port Road, Queenstown

Key datasets included:

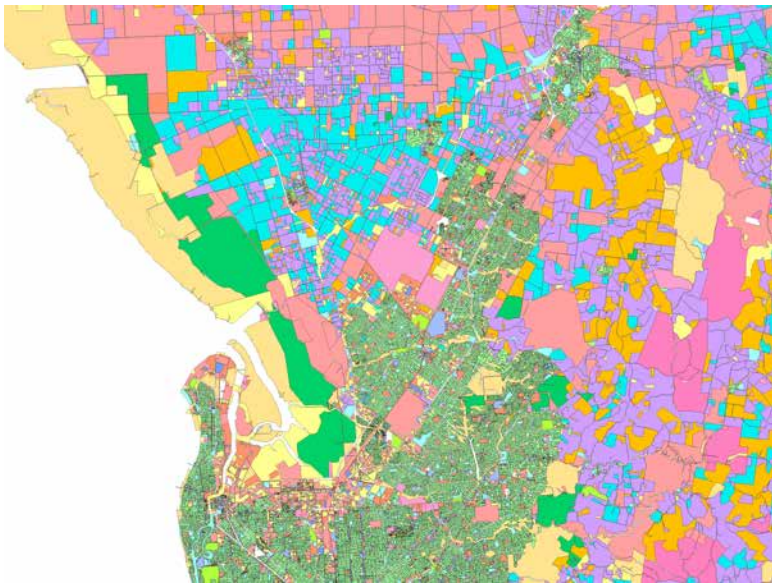
- ABS population statistics and socio-economic indices
- Flood mapping data consolidated by the SA Government
- NASA spectral imagery
- EPA Aquatic Ecosystem Condition Reports
- State generalised land use
- Metropolitan Adelaide tree canopy coverage
- Coastal digital terrain models
- Metropolitan Adelaide stormwater infrastructure age
- State building age
- State Planning & Design Code zones
- State residential development potential data
- State land division application historical data
- SMA register of SMPs approved and in-progress.

In most instances, a number of metrics were produced for a given criterion and a catchment score was produced for that criterion by applying a weighting to each metric. The overall catchment score was derived by applying a weighting against each of the six criteria scores

These weightings were informed by feedback provided during a stakeholder workshop session attended by state and local government representatives.

A higher catchment score is indicative of a greater need for stormwater management planning.

NDVI (greenness), derived from NASA spectral imagery



State generalised land use (2020) data

Prioritisation themes and criteria

		Weighting
Flooding and drainage		
• Areas with properties at risk are more likely to realise financial damage, health impacts or mortality • Vulnerable communities experience disproportionately higher social and economic costs from natural disasters.	FD1: Total number of impacted properties	20%
	FD2: Number of impacted properties per '000 population	
	FD3: Number of impacted properties per area	
	FD4: Population weighted SEIFA index	
Water quality and environment		
• Urban development results in elevated pollutant export • Receiving environments in good condition are vulnerable to future degradation from stormwater runoff • Pollutants in urban stormwater may impact on a critical water supply.	WQ1: Average pollutant potential	20%
	WQ2: Total pollutant potential	
	WQ3: Pollutant potential vs ecosystem condition	
	WQ4: Drinking water catchment	
Water security (and stormwater reuse)		
• Opportunities may be missed for stormwater to be captured and used for recreation, amenity, and to improve water supply security.	WS1: Water supply risk tolerability	15%
	WS2: Average 'greenness'	
Climate change adaptation		
• Catchments with low canopy cover should be a priority for green infrastructure that can be progressed through SMPs • Low lying areas are more vulnerable to sea level rise and storm surge that can impact on drainage performance • Aged infrastructure is unlikely to have been designed considering future rainfall intensity and/or future development.	CCA1*: Proportion of tree canopy cover	20%
	CCA2: Average 'greenness'	
	CCA3: Proportion of low-lying (coastal) areas	
	CCA4*: Proportion of 'aged' stormwater infrastructure	
	CCA5: Proportion of 'aged' development	
Development pressure		
• Development results in increased impervious area and leads to greater stormwater generation • Planning zones intended to facilitate medium- and high-density development are more likely to see future development that results in a greater volume of stormwater • Actual, recent land division reflects trends in development and associated impervious area.	DP1: Short-term development potential (capital:site value ≤1.3)	15%
	DP2: Medium-term development potential (capital:site value >1.3 to ≤1.8)	
	DP3: Development potential by zonings	
	DP4: Recent land division activity	
Existing strategies		
• Areas without current and adequate stormwater management planning are at risk of sub-optimal outcomes.	ES1: Recency and adequacy of existing strategies	10%

**Note: Some metrics cannot be applied to regional catchments where there is insufficient data.*

Priorities for Adelaide and Surrounds

The following general trends are observed in the scoring of individual criteria:

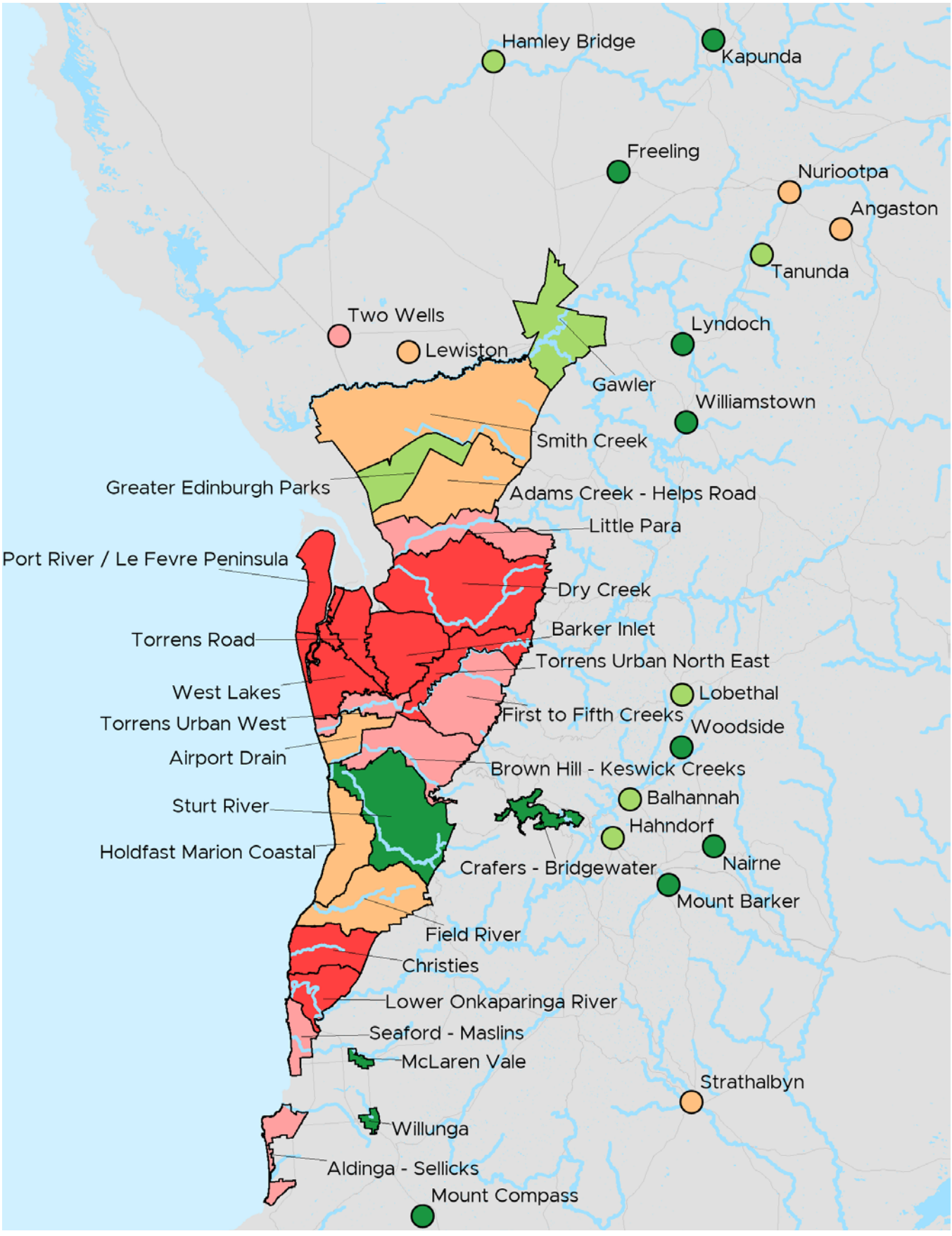
- High Water Quality scores are strongly correlated with metropolitan Adelaide catchments
- Low Water Security and Stormwater Reuse scores across the metropolitan area
- High Climate Change Adaptation scores in the north-western suburbs of metropolitan Adelaide
- High Development Pressure scores correlate with northern and southern metropolitan growth areas, along with a number of large centres including Mount Barker.

The catchments assessed to have a very high priority include:

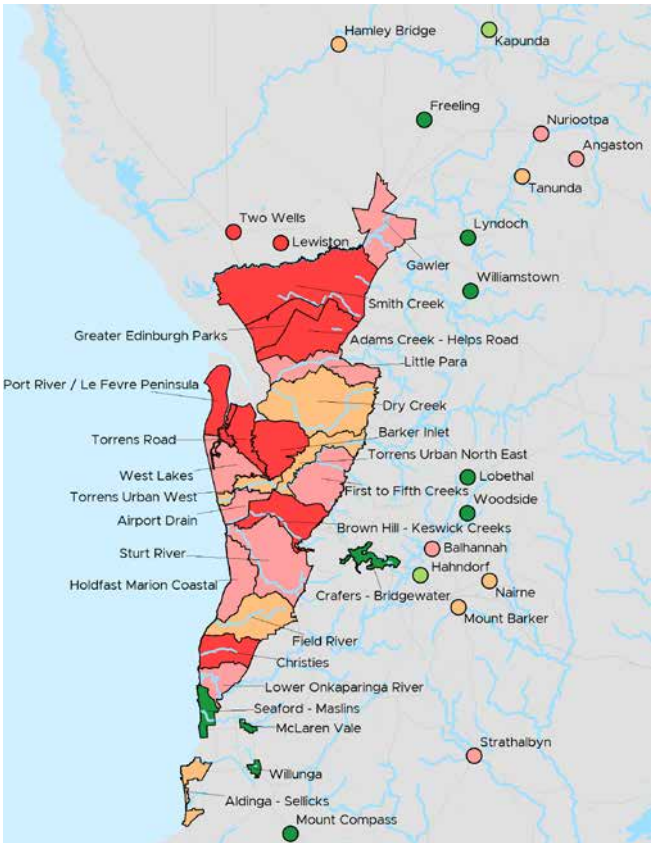
- **Torrens Road** – Scores relatively high across most criteria, with a very high Climate Change score.
- **Christies** – Scores high across Flooding and Drainage, Water Quality and Existing Strategies criteria
- **Barker Inlet** – Scores relatively high across most criteria
- **Dry Creek** – Scores relatively high across most criteria, with a very high Flooding and Drainage and Climate Change Adaptation score
- **Port River/Le Fevre Peninsula** – Scores relatively high across most criteria, with a very high Development Pressure and Existing Strategies score
- **West Lakes** – High Water Quality, Climate Change Adaptation and Development Pressure scores
- **Lower Onkaparinga River** – High Flooding and Drainage, Climate Change Adaptation and Existing Strategies scores
- **Torrens Urban North East** – Very high Water Quality score, and high Development Pressure and Existing Strategies scores.

(Note: see Appendix 2 for all catchment/town priorities.)

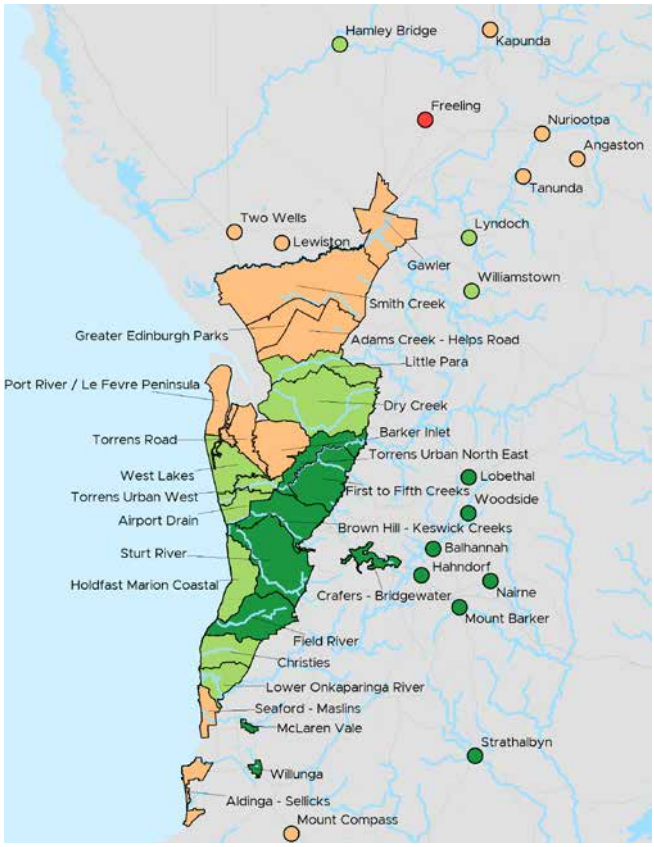
Overall Priority



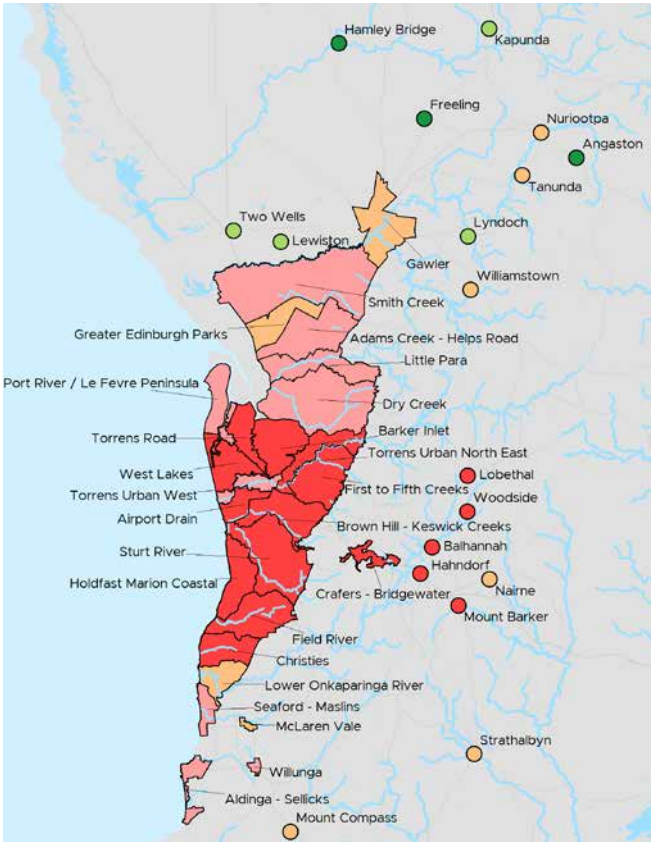
Flooding and Drainage



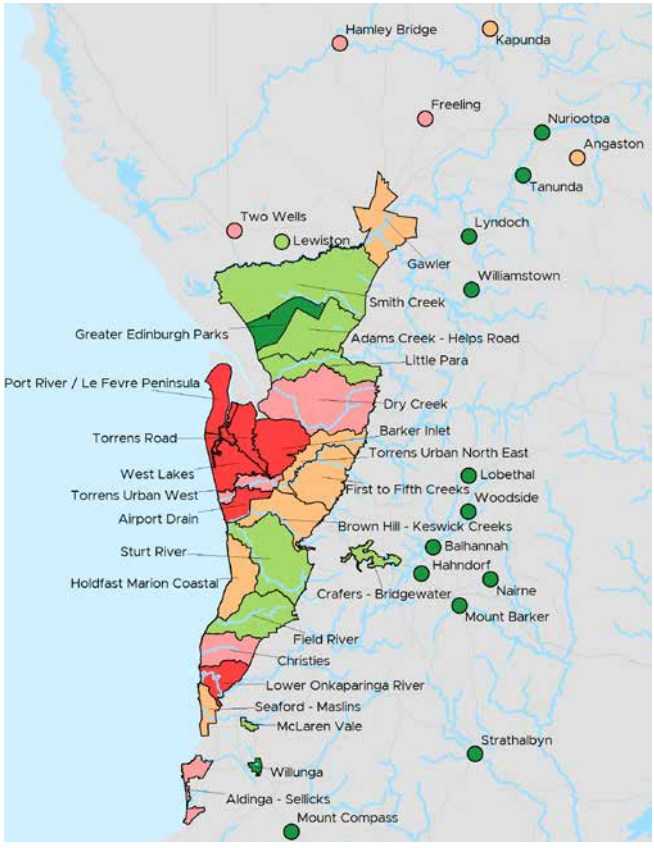
Water Security and Stormwater Reuse



Water Quality

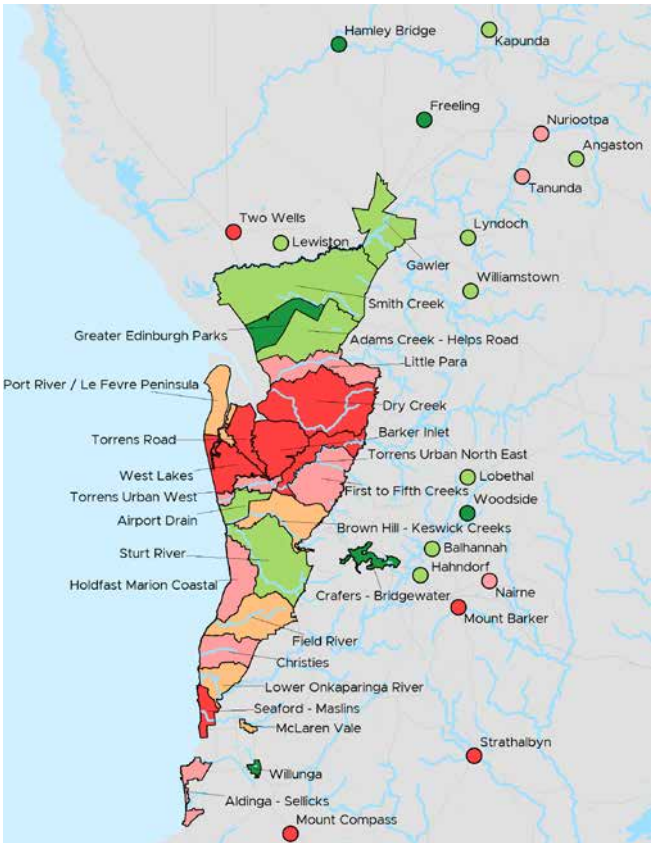


Climate Change Adaptation

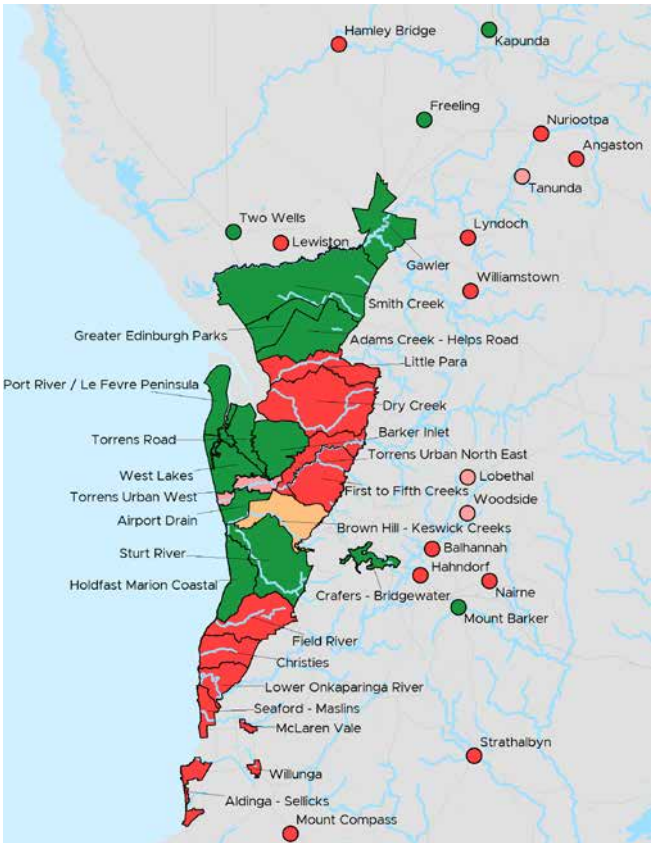


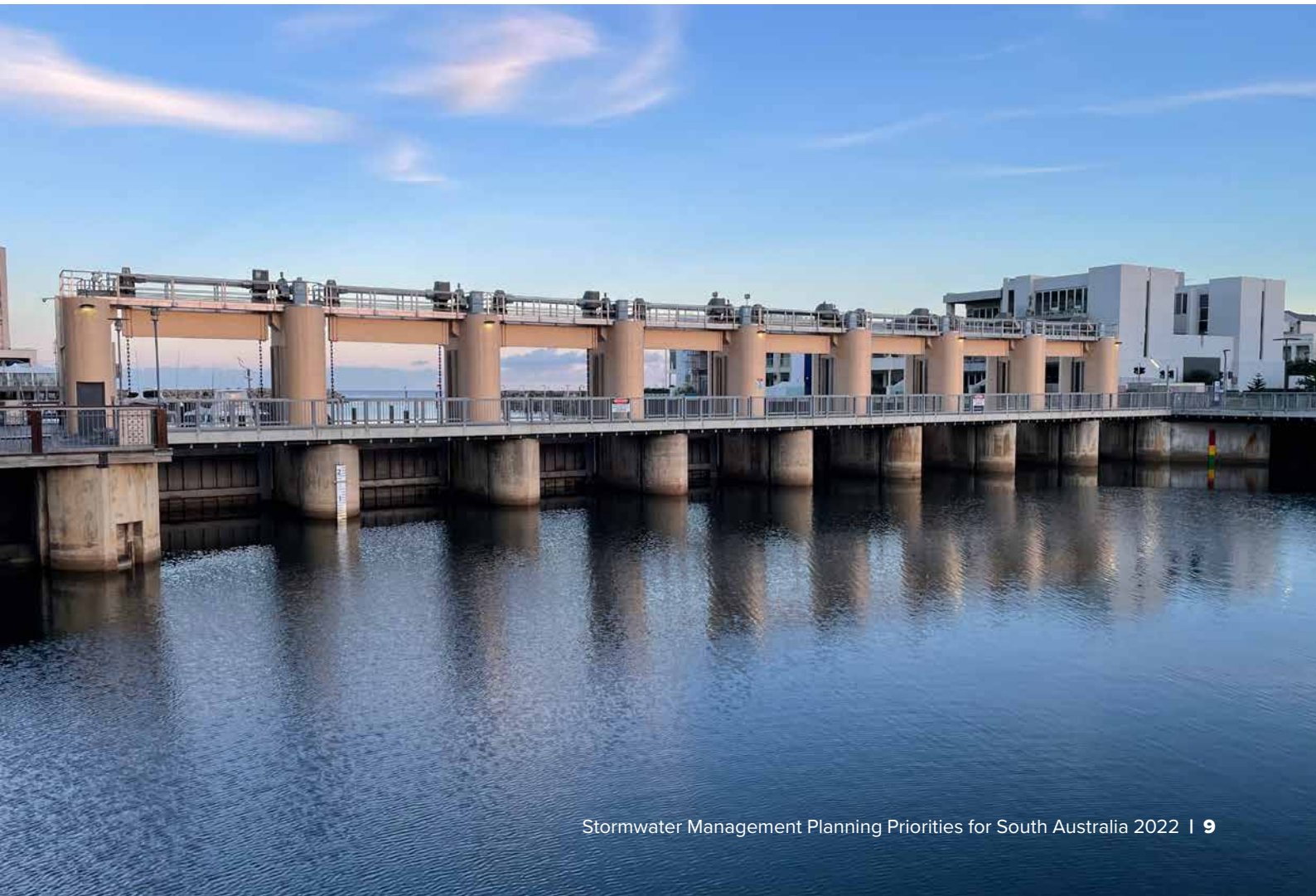
Very high High Medium Low Very low

Development Pressure



Existing Strategies





Priorities for Regional Centres

The following general trends are observed in the scoring of individual criteria:

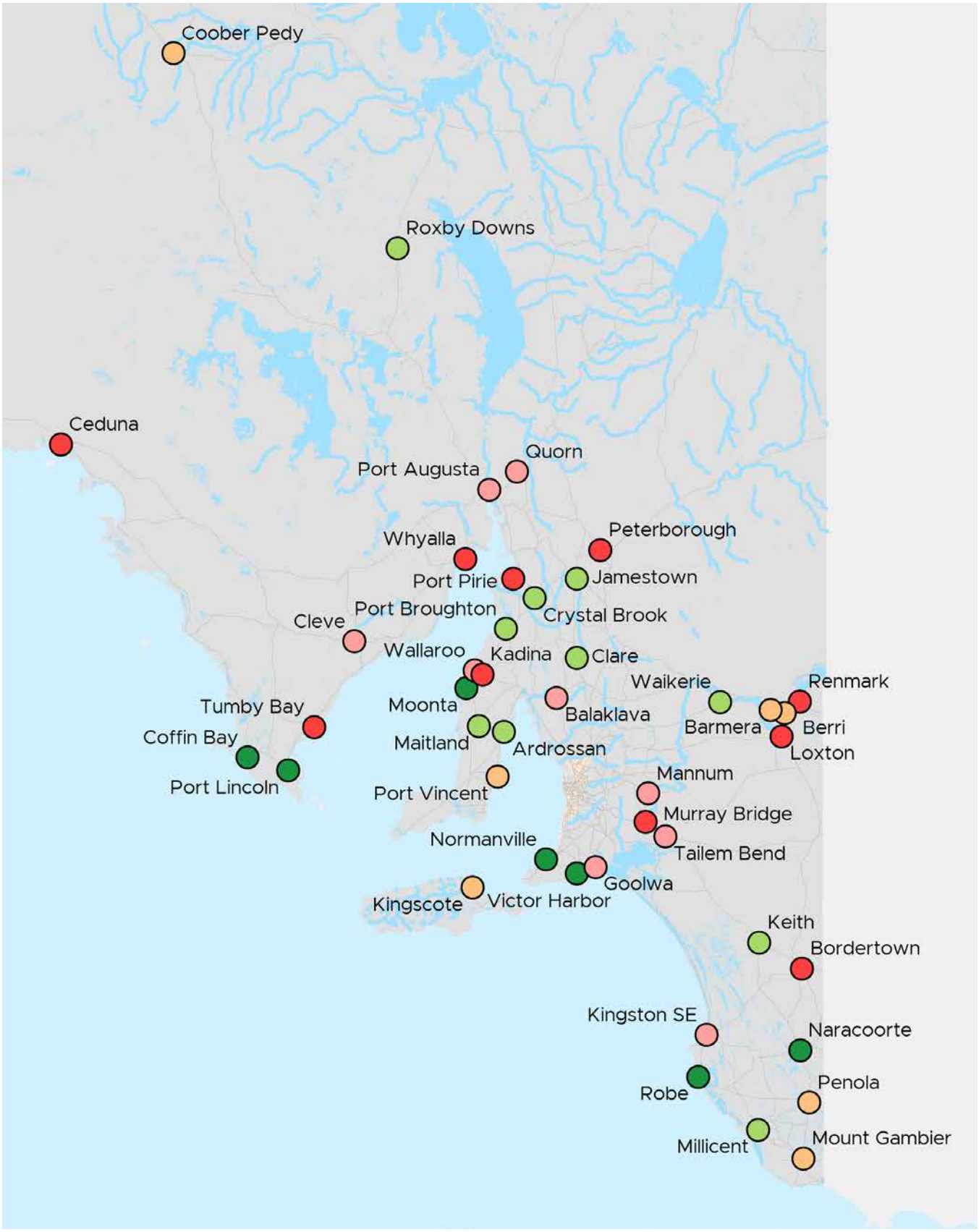
- High Water Security and Stormwater Reuse scores for the mid-north and far northern areas
- High Climate Change Adaptation scores across the mid-northern regional centres
- High development pressure scores correlate with a number of large regional centres including Murray Bridge and Whyalla.

The catchments assessed to have a very high priority include:

- **Port Pirie** – Scores relatively high across most criteria, with a very high Climate Change and Water Security and Stormwater Reuse score
- **Whyalla** – Very high Water Security and Stormwater Reuse and Development Pressures scores
- **Kadina** – Very high Flooding and Drainage, Water Security and Stormwater Reuse and Climate Change Adaptation scores
- **Renmark** – Very high Flooding and Drainage and Existing Strategies scores
- **Bordertown** – High Flooding and Drainage, Water Security and Stormwater Reuse scores, and very high Existing Strategies scores
- **Loxton** – Very high Water Security and Stormwater Reuse, Climate Change Adaptation and Existing Strategies scores
- **Tumby Bay** – Very high Water Security and Stormwater Reuse and Climate Change Adaptation scores
- **Peterborough** – Very high Water Security and Stormwater Reuse, Climate Change Adaptation and Existing Strategies scores
- **Ceduna** – Very high Water Security and Stormwater Reuse and Existing Strategies scores
- **Murray Bridge** – High scores across most criteria.

(Note: see Appendix 2 for all catchment/town priorities.)

Overall Priority



Flooding and Drainage

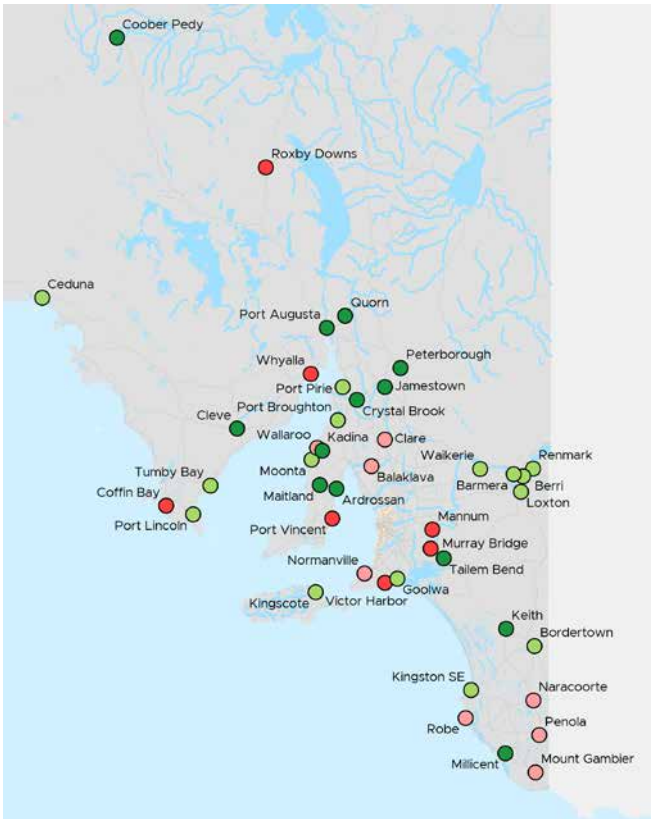
Water Security and Stormwater Reuse

Water Quality

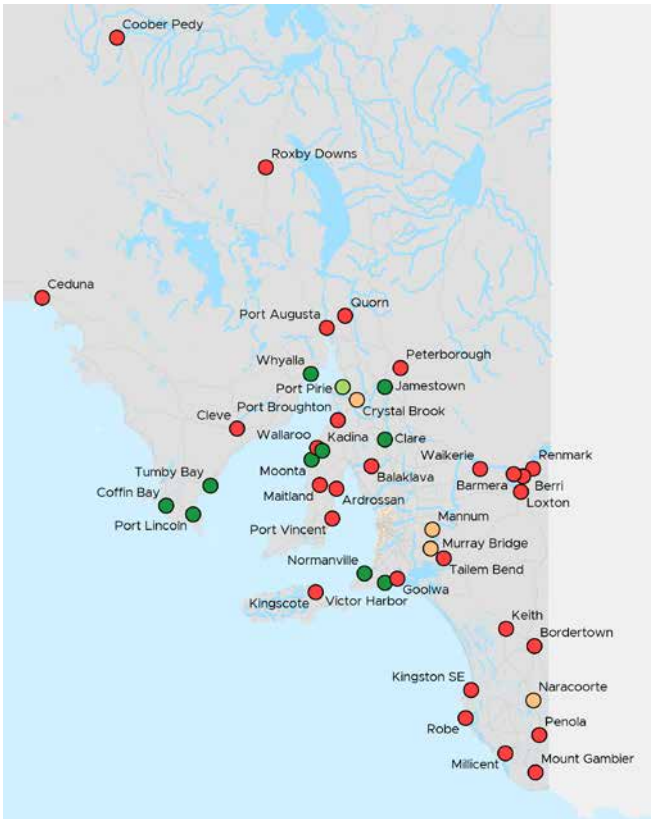
Climate Change Adaptation

Very high High Medium Low Very low

Development Pressure



Existing Strategies



Appendix 1: Approved SMPs

Auburn SMP (2020)

Brown Hill and Keswick Creek SMP (2016)

Burra SMP (2021)

Clare SMP (2020)

Freeling SMP (2018)

Glenelg to Marino SMP (2014)

Greenock SMP (2018)

Hallett Cove Creeks SMP (2014)

Kadina SMP (2020)

Kapunda SMP (2018)

Laura SMP (2011)

Lefevre Peninsula SMP (2018)

Manoora SMP (2020)

Mintaro SMP (2020)

Moonta and Pt Hughes SMP (2014)

Mount Barker, Totness & Littlehampton SMP (2017)

North Arm East SMP (2016)

Port Lincoln SMP (2014)

Port Pirie SMP (2017)

Port River East SMP (2020)

Port Road Rejuvenation SMP (2007)

Rhynie SMP (2020)

Riverton SMP (2020)

Saddleworth SMP (2020)

Stockport SMP (2020)

Streaky Bay SMP (2011)

Tarlee SMP (2020)

Torrens Road Catchment SMP (2015)

Truro SMP (2010)

Tumby Bay SMP (2015)

Two Wells SMP (2017)

Wasleys SMP (2011)

Whyalla SMP (2019)

Yankalilla, Normanville & Carrickalinga SMP (2020)

Appendix 2: All Priorities

	Fooding and Drainage	Water Quality and the Environment	Water Security and Stormwater Reuse	Climate Change Adaptation	Development Pressure	Existing Strategies
Very high priority						
Barker Inlet	Very high	Very high	Medium	Very high	Very high	Very low
Bordertown	Very high	Low	High	Medium	Low	Very high
Ceduna	Low	Medium	Very high	High	Low	Very high
Christies	Very high	Very high	Low	High	High	Very high
Dry Creek	Medium	High	Low	High	Very high	Very high
Kadina	Very high	Medium	Very high	Very high	Very low	Very low
Lower Onkaparinga River	High	Medium	Low	Very high	Medium	Very high
Loxton	Medium	Low	Very high	Very high	Low	Very high
Murray Bridge	Medium	Medium	High	High	Very high	Medium
Peterborough	Medium	Very low	Very high	Very high	Very low	Very high
Port Pirie	Very high	Medium	Very high	Very high	Low	Low
Port River/Le Fevre Peninsula	Very high	High	Medium	Very high	Medium	Very low
Renmark	Very high	Low	Medium	Medium	Low	Very high
Torrens Road	Very high	Very high	Medium	Very high	Very high	Very low
Torrens Urban North East	Medium	Very high	Very low	Medium	Very high	Very high
Tumby Bay	High	Low	Very high	Very high	Low	Very low
West Lakes	High	Very high	Low	Very high	Very high	Very low
Whyalla	Very high	Medium	Very high	High	Very high	Very low

Very high High Medium Low Very low

High priority	Fooding and Drainage	Water Quality and the Environment	Water Security and Stormwater Reuse	Climate Change Adaptation	Development Pressure	Existing Strategies
Goolwa	Very high	Medium	Low	Very low	Low	Very high
Aldinga–Sellicks	Medium	High	Medium	High	High	Very high
Balaklava	Medium	Very low	Very high	Very high	High	Very high
Brown Hill–Keswick Creeks	Very high	Very high	Very low	Medium	Medium	Medium
Cleve	Very low	Very low	Very high	Very high	Very low	Very high
First to Fifth Creeks	High	Very high	Very low	Medium	High	Very high
Goolwa	Very high	Medium	Low	Very low	Low	Very high
Kingston SE	Very high	Low	Very low	High	Low	Very high
Little Para	High	High	Low	Low	High	Very high
Mannum	High	Low	High	High	Very high	Medium
Port Augusta	High	Very low	Very high	High	Very low	Very high
Quorn	High	Low	Medium	Very high	Very low	Very high
Seaford–Maslins	Very low	High	Medium	Medium	Very high	Very high
Tailem Bend	Medium	Medium	Medium	Very high	Very low	Very high
Torrens Urban West	Medium	High	Low	High	High	High
Two Wells	Very high	Low	Medium	High	Very high	Very low
Wallaroo	High	Low	Very high	Low	High	Very high

Medium priority	Fooding and Drainage	Water Quality and the Environment	Water Security and Stormwater Reuse	Climate Change Adaptation	Development Pressure	Existing Strategies
Adams Creek–Helps Road	Very high	High	Medium	Low	Low	Very low
Airport Drain	High	Very high	Low	Very high	Low	Very low
Angaston	High	Very low	Medium	Medium	Low	Very high
Barmera	Medium	Very low	Medium	High	Low	Very high
Berri	Medium	Low	Medium	Medium	Low	Very high
Coober Pedy	Medium	Very low	Very high	Very high	Very low	Very high
Field River	Medium	Very high	Very low	Low	Medium	Very high
Holdfast–Marion Coastal	High	Very high	Low	Medium	High	Very low
Kingscote	Low	Very low	High	High	Low	Very high
Lewiston	Very high	Low	Medium	Low	Low	Very high
Mount Gambier	Medium	Very high	Very low	Very low	High	Very high
Nuriootpa	High	Medium	Medium	Very low	High	Very high
Penola	Low	Medium	Very low	Medium	High	Very high
Port Vincent	Very low	Very low	Very high	Medium	Very high	Very high
Smith Creek	Very high	High	Medium	Low	Low	Very low
Strathalbyn	High	Medium	Very low	Very low	Very high	Very high

Very high High Medium Low Very low

	Fooding and Drainage	Water Quality and the Environment	Water Security and Stormwater Reuse	Climate Change Adaptation	Development Pressure	Existing Strategies
Low priority						
Ardrossan						
Balhannah						
Clare						
Crystal Brook						
Gawler						
Greater Edinburgh Parks						
Hahndorf						
Hamley Bridge						
Jamestown						
Keith						
Lobethal						
Maitland						
Millicent						
Port Broughton						
Roxby Downs						
Tanunda						
Waikerie						

	Fooding and Drainage	Water Quality and the Environment	Water Security and Stormwater Reuse	Climate Change Adaptation	Development Pressure	Existing Strategies
Very low priority						
Coffin Bay						
Crafers–Bridgewater						
Freeling						
Kapunda						
Lyndoch						
McLaren Vale						
Moonta						
Mount Barker						
Mount Compass						
Nairne						
Naracoorte						
Normanville						
Port Lincoln						
Robe						
Sturt River						
Victor Harbor						
Williamstown						
Willunga						
Woodside						

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