Review of stormwater management legislation and policy

Discussion Paper
January 2018

Note: This Discussion Paper has not been endorsed by the LGA Board of Directors. It has been prepared for consultation purposes only, and is subject to consideration by the LGA Board of Directors.
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Introduction

Stormwater has historically been viewed as a nuisance issue (a ‘poor cousin’ to water and sewerage services). Recently however, stormwater has also been seen as a potential resource for harvesting and reuse, and recent floods in Australia have led to greater focus being placed on stormwater. This focus has often resulted in local governments being blamed for failing to provide adequate stormwater management, even when naturally occurring extreme weather events take place.

The purpose of this paper is to highlight that local government does not have sole responsibility for stormwater management, and to also provide analysis of other issues regarding stormwater management in the state.

This paper assesses South Australia’s complex legislative framework encompassing stormwater management, the lack of consistent stormwater definitions, and the lack of clear standards to which stormwater infrastructure must be built and maintained.

Ultimately, the LGA aims to find a solution to the blame that local government is often faced with by identifying and analysing these issues and by comparing South Australia’s stormwater management to that of other states and territories.
# Background

## What is stormwater?

A definition of stormwater is notably absent in South Australian legislation. However, the Environment Protection (Water Quality) Policy 2015 defines stormwater as “rain or melted precipitation that runs off land or structures on land.”¹ The Stormwater Management Authority (‘SMA’) defines stormwater in its 2017 Draft Guidelines for the Preparation of Stormwater Management Plans to be “surface runoff or water normally confined in watercourses, channels or drains (but may overflow during floods) that is generated within and upstream of urban areas as a result of precipitation.”²

South Australian legislation and policy defines the following terms relevant to stormwater:

<table>
<thead>
<tr>
<th>Term</th>
<th>Legislation/policy</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public stormwater system</td>
<td>Environment Protection (Water Quality)</td>
<td>Public stormwater system means any equipment or infrastructure for collecting, treating or conveying stormwater for the purposes of stormwater management, or flood mitigation, conducted by a public authority, and includes catchment management equipment and infrastructure.</td>
</tr>
<tr>
<td></td>
<td>Policy 2015</td>
<td></td>
</tr>
<tr>
<td>Stormwater infrastructure</td>
<td>Natural Resources Management Act 2004</td>
<td>Stormwater infrastructure means infrastructure established for the purposes of stormwater management</td>
</tr>
<tr>
<td>Surface water</td>
<td>South Eastern Water Conservation and</td>
<td>Surface water means water that collects on or flows onto or from the surface of land, and includes the water in any water management works, lake or watercourse</td>
</tr>
<tr>
<td></td>
<td>Drainage Act 1992</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Natural Resources Management Act 2004</td>
<td>Surface water means</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) water flowing over land (except in a watercourse)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(i) after having fallen as rain or hail or having precipitated in any other manner or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) after rising to the surface naturally from underground</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(b) water of the kind referred to in paragraph (a) that has been collected in a dam or reservoir</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(c) water of the kind referred to in paragraph (a) that is contained in any stormwater infrastructure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(d) water in a watercourse if the watercourse, or a particular part of a watercourse, is declared by proclamation under subsection 13 to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>constitute surface water for the purposes of this Act</td>
</tr>
<tr>
<td></td>
<td>Environment Protection (Water Quality)</td>
<td>Surface waters means waters other than underground waters</td>
</tr>
<tr>
<td></td>
<td>Policy 2015</td>
<td></td>
</tr>
<tr>
<td>Underground water</td>
<td>Natural Resources Management Act 2004</td>
<td>Underground water means</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(a) water occurring naturally below ground level;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(b) water pumped, diverted or released into a well for storage underground</td>
</tr>
<tr>
<td></td>
<td>Environment Protection (Water Quality)</td>
<td>Underground waters means waters occurring naturally under the ground or introduced to an aquifer or other area under the ground</td>
</tr>
<tr>
<td></td>
<td>Policy 2015</td>
<td></td>
</tr>
<tr>
<td>Water management works</td>
<td>South Eastern Water Conservation and</td>
<td>Water management works means any drain, artificial drainage hole, dam, bank or other device or works constructed or used for the purposes</td>
</tr>
<tr>
<td></td>
<td>Drainage Act 1992</td>
<td>of conserving, draining or altering the flow of surface water from or onto land or utilising any such water, including any ancillary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>access road, bridge or culvert or other ancillary works and any works constructed for the purpose of</td>
</tr>
</tbody>
</table>

¹ Section 3, Environment Protection (Water Quality) Policy 2015.
² Page 4, Stormwater Management Authority Consultation Draft: Guidelines for the Preparation of Stormwater Management Plans
<table>
<thead>
<tr>
<th>Watercourse</th>
<th><strong>South Eastern Water Conservation and Drainage Act 1992</strong></th>
<th>Watercourse means a river, creek or other natural watercourse</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural Resources Management Act 2004</strong></td>
<td>Watercourse means a river, creek or other natural watercourse (whether modified or not) in which water is contained or flows whether permanently or from time to time and includes—&lt;br&gt; (a) a dam or reservoir that collects water flowing in a watercourse;&lt;br&gt; (b) a lake through which water flows;&lt;br&gt; (c) a channel (but not a channel declared by regulation to be excluded from the ambit of this definition) into which the water of a watercourse has been diverted;&lt;br&gt; (d) part of a watercourse;&lt;br&gt; (e) an estuary through which water flows;&lt;br&gt; (f) any other natural resource, or class of natural resource, designated as a watercourse for the purposes of this Act by an NRM plan</td>
<td></td>
</tr>
<tr>
<td><strong>Environment Protection (Water Quality) Policy 2015</strong></td>
<td>Watercourse means any of the following (whether or not temporarily wet or temporarily dry):&lt;br&gt; (a) a river, creek or other natural watercourse (whether modified or not);&lt;br&gt; (b) a lake, wetland, swamp, dam or reservoir or other body of water that collects water or through which water flows;&lt;br&gt; (c) the Coorong;&lt;br&gt; (d) an artificial channel;&lt;br&gt; (e) a public stormwater disposal system</td>
<td></td>
</tr>
<tr>
<td><strong>Water resource</strong></td>
<td><strong>Natural Resources Management Act 2004</strong></td>
<td>Water resource means a watercourse or lake, surface water, underground water, stormwater (to the extent that it is not within a preceding item) and effluent.</td>
</tr>
</tbody>
</table>

For further analysis of relevant legislation, see ECM 658077.

While extreme weather events do result in an increase of stormwater, local government usually focuses on the impacts of human development, such as built impermeable surfaces.

**What is stormwater management and why is it important?**

The term ‘stormwater management’ refers to the management of surface water runoff. In recent years, water sensitive urban design (‘WSUD’) has been implemented in stormwater management planning and design in order to provide water security for the future.

Poorly managed stormwater can result in erosion and the transportation of nutrients, chemical pollutants and litter into waterways. Stormwater management and the harvesting of stormwater are not only important for improved waterways and coastal ecosystems, but also for flood mitigation, increased local amenity, and reduced reliance on traditional water resources.

While stormwater management has many purposes, this paper is focused on stormwater management for the purposes of flood mitigation.

**Overview of stormwater drainage system in South Australia**

Unlike in other parts of the world, Australia’s stormwater drainage system is separate to the sewerage system.

The arterial stormwater drainage system in metropolitan Adelaide is comprised of natural watercourses (i.e. creeks and rivers) and large constructed underground and open channel drains. Local drains...
connect to the arterial stormwater drainage system and stormwater is carried away by the stormwater drainage network to natural water bodies such as the sea.

**Impact of development on watercourses**

Currently, the *Development Act 1993* (‘Development Act’) regulates the South Australian planning and development system. Development has the potential to affect watercourses by changing the amount and quality of water in a watercourse, or a watercourse’s physical shape. The *Development Act* establishes processes under which Development Plans can designate certain areas, including flood prone areas, watercourse zones and floodplain zones.

**Planning policies**

The state’s planning policies are contained in the South Australian Planning Policy Library. The library encourages best practice policy application and a consistent development plan format across the state. The Planning Policy Library will help to inform and transition to South Australia’s new planning system.

The Planning Policy Library contains the following advisory policies in relation to flooding:³

- Development should not occur on land where the risk of flooding is likely to be harmful to safety or damage property.
- Development should not be undertaken in areas liable to inundation by tidal, drainage or flood waters unless the development can achieve all of the following:
  - It is developed with a public stormwater system capable of catering for a 1 in 100 average return interval flood event
  - Buildings are designed and constructed to prevent the entry of floodwaters in a 1 in 100 year average return interval flood event.
- Development, including earthworks associated with development, should not do any of the following:
  - Impede the flow of floodwaters through the land or other surrounding land
  - Increase the potential hazard risk to public safety of persons during a flood event
  - Aggravate the potential for erosion or siltation or lead to the destruction of vegetation during a flood
  - Cause any adverse effect on the floodway function
  - Increase the risk of flooding of other land
  - Obstruct a watercourse.

**Flood risk and stormwater infrastructure**

**Benchmarks**

There is no definitive benchmark for what standard stormwater systems must be built and maintained to in South Australia. Some stormwater systems may be built to maintain a 1 in 100 year flood (100 year Average Recurrence Interval ‘ARI’ Standard with a 1 percent chance of occurrence each year), while others may be built to maintain as little as a 1 in 5 year flood (5 year ARI standard with a 20 percent chance of occurring each year).

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³ Page 45, South Australian Planning Policy Library Version 6
Factors likely to impact stormwater infrastructure

Population growth is likely to have an impact on stormwater management, given the likelihood of increased infill development and urban fringe growth. Population growth will place a greater demand on existing stormwater infrastructure, and therefore it is important for all levels of government to take this into consideration when planning for the future.

Climate change is also predicted to have a significant impact on stormwater management. On the one hand, extreme weather events resulting in increased rainfall will undoubtedly cause floods and damage to stormwater infrastructure, while on the other hand, droughts will mean that stormwater harvesting and reuse is vital. Given the impacts that climate change will have on stormwater management, it will be important for all levels of government to consider the potential risks when planning for future stormwater infrastructure and this may require consideration of a definitive and uniform building and maintenance standard for stormwater systems and infrastructure.

South Australian councils have started considering the risks to stormwater infrastructure. For example, the Resilient Hills and Coasts Regional Adaptation Plan identifies stormwater management in its adaptation options. The Plan emphasises that within the next 5 years, existing stormwater infrastructure may need to be made larger in size in order to continue to operate effectively if the frequency and intensity of rainfall increases.

Recent major floods in South Australia

Coastal or riverine flooding is uncommon in Adelaide, while ‘flash flooding’ is more typical and results from short-term, high-intensity rain events. Floods are the most economically damaging natural hazard in South Australia, and following major flash floods, the State Government usually blames local government for failing to provide adequate stormwater management.

For example, in November 2005, heavy rain caused flooding across Adelaide, leading former Minister Patrick Conlon to claim that councils were to blame for ‘dragging the chain’ on stormwater.

On 14 and 15 September 2016, the Adelaide metropolitan and hills region experienced heavy rainfall leading to flooding of several homes along Brown Hill and Keswick Creeks. This led to criticism of both the State Government and local government. Premier Jay Weatherill passed the blame onto local government by claiming that “stormwater is fundamentally a local government responsibility” and that the failure to form an infrastructure agreement at that time was due to council disagreement and not the result of low state government funding.

On 28 September 2016, South Australia experienced a once in 50 year storm which involved thunderstorms, destructive winds, large hailstones and heavy rain. In catchment areas, approximately 73 millimetres of rain was recorded within 36 hours. Due to rainfall leading up to 28 September, the ground and all South Australian catchments were saturated. As a result, many rivers broke out and levees were overtopped – affecting a large number of homes and businesses. As all dams (including farm dams) were at capacity, many poorly constructed or maintained dams also lost their structural integrity and caused flooding.

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4 Page 7, Stormwater Management Authority Business Plan 2018-2020
5 Page 55, Resilient Hills and Coasts Regional Adaptation Plan
6 Page 6, Stormwater Management Authority Business Plan 2018-2020
The Northern Adelaide Plains was significantly affected from this extreme weather event, with the Gawler River flooding approximately 1000 hectares of crops and causing an estimated $51 million in horticultural damage. Recovery Assistance Grants for Primary Producers of up to $10,000 were available to those who suffered direct damage as a result of the flood and who intended to re-establish their primary production businesses. Primary Industries and Regions SA (‘PIRSA’) subsequently coordinated a flood waste removal program.

Following this extreme weather event, Ministers Ian Hunter and Geoff Brock wrote to the LGA maintaining that “the local government sector has the primary responsibility for managing stormwater to address the risk of flooding” and that the LGA should conduct a review to determine where and how improvements can be made to mitigate against risk (ECM 657371).

It should be noted that pursuant to the State Emergency Management Plan, the Department of Environment, Water and Natural Resources (‘DEWNR’) is the designated hazard leader for flood and is required to undertake a leadership role for planning emergency management activities pertaining to floods. Consequently, when placing blame on local government for stormwater management (of which the State Government is also responsible), it must be remembered that the extreme weather event that occurred in September 2016 was a natural event and local government should not bear the sole blame for the resulting damage.

**Context of this paper**

The Hydrological Cycle refers to the continuous movement of water on, above and below the earth’s surface. Comparatively, the ‘Hydro-illogical Cycle’ is a term originally used by the University of Nebraska’s National Drought Mitigation Centre, which describes what happens after an extreme weather event, such as a drought or flood. As shown by Diagram 1, the steps of a Hydro-illogical Cycle in relation to a flood are rain, flooding, panic, planning and procrastination.

As depicted by the Hydro-illogical Cycle in Diagram 2, from a local government perspective, local government is frequently blamed for floods.

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11 Page 52 Burns Review
12 Page 39, Burns Review
13 [http://drought.unl.edu/Planning/HydroillogicalCycle.aspx](http://drought.unl.edu/Planning/HydroillogicalCycle.aspx)
The LGA does not agree that local government has sole responsibility for flooding and stormwater management in South Australia and aims to find a solution to the blame that is often placed on local government.

**Recent history of stormwater management in South Australia**

In many ways, South Australia is a leader of stormwater management, especially in relation to stormwater harvesting and reuse. Historically however, South Australian stormwater management is a complex issue, with lack of action and confusion surrounding roles and responsibilities. This confusion has intensified since the 2016 floods.

The following discussion aims to provide a brief overview of significant South Australian stormwater developments.

For a more comprehensive history of stormwater management in South Australia, see Kym Kelly’s paper titled ‘Paper on Powers & Liabilities of Councils Re Creeks & Watercourses on Private Land’ (ECM 45272).

**Stormwater Management Agreement**

In March 2006, a coordinated and cooperative approach between the State Government and local governments saw the execution of the Agreement on Stormwater Management through the *Local Government (Stormwater Management) Amendment Bill 2006*.

The Bill amended the *Local Government Act 1999 (SA)* (‘Local Government Act’) to include Schedule 1A which deals with the implementation of the Stormwater Management Agreement through the SMA.

Schedule 1A was included in the Act in 2007, and updated in 2013 and 2015.

The Stormwater Management Agreement was updated in 2013 (ECM 575865).

**Flood Inquiries Taskforce**

The State Government established the Flood Inquiries Taskforce (‘FIT’) in 2011 to review inquiries into the 2010 and 2011 floods in Queensland and Victoria. The taskforce aimed to evaluate the findings of the Victorian Flood Review (‘VFR’) and the Queensland Floods Commission of Inquiry (‘QFCI’) to assess the implications for the South Australian Government, and to make recommendations to the State Emergency Management Committee (‘SEMC’) regarding changes to managing flood hazards.

The FIT made 15 recommendations in the *SA Flood Inquiries Taskforce 2012 report*, which integrated a number of the recommendations in the VFR and the QFCI. The report determined that the State Government is best placed to have an emergency response role, and while the LGA is a representative of the largely state government led taskforce, all recommendations relate to state government agencies. The report also recommended that the FIT “clarify responsibilities for management of watercourse, levee banks and other infrastructure in relation to flooding.”

Following the report, the SEMC established the Flood Reform Taskforce (‘FRT’) to design and implement solutions for the findings made by the FIT. DEWNR, which is the flood hazard leader under the State Emergency Management Plan, elected to reconvene the FRT as the Flood Working Group (‘FWG’) in late 2017.

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14 Page xiv, Burns Review
Urban Water Plan for Greater Adelaide

In 2011, DEWNR released the South Australian Stormwater Strategy titled ‘Water for Good.’ One of the strategy’s key actions was the development of an integrated blueprint for Urban Water for Greater Adelaide by 2014. The Stormwater Management Agreement identifies the development of a blueprint for urban water for Greater Adelaide to be a priority.

In 2014 an issues paper titled ‘Transitioning Adelaide to a Water Sensitive City: Towards an Urban Water Plan for Greater Adelaide’ was released, with comments to be provided by the end of that year. In late 2015, DEWNR engaged INXURE Strategy Group to help develop the Urban Water Plan (see ECM 630369).

The 2017 updated version of the 30 Year Plan for Greater Adelaide lists the Urban Water Plan for Greater Adelaide as a key government document. However, the plan has not been released and remains under development.

The Burns Review

The Independent Review of the Extreme Weather Event South Australia 28 September-5 October 2016 (‘Burns Review’) was an independent review commissioned by the Premier of South Australia on the state’s extreme weather event in 2016. The Burns Review assessed the emergency management response to the impacts caused by the extreme weather, the response to and management of the impacts of the state-wide power outage, and the adequacy of the state’s prevention, preparedness, response and recovery arrangements.

Recommendations

The Burns Review made numerous recommendations, largely from an emergency services perspective. Of most relevance to stormwater management were the recommendations that the FRT:

- Identify options for dam safety and management. The review highlighted that there is a lack of dam safety legislation and governance. While SA Water owns most large and extreme hazard dams, and voluntarily complies with the Australian National Committee on Large Dam Guidelines, there is no assessment of how a dam is designed or constructed with regard to safety risk or maintenance in relation to small private dams.

- Identify an appropriate mechanism for stakeholder agencies to share information and develop plans and strategies for management of water levels in reservoirs.

- Provide resources to support the implementation of recommendations in the South Australian Levee Bank Management Issues Paper (DEWNR, 2015) given that “there is very little policy regarding management roles and responsibilities for levee banks” and no database as to where levees are located or who is responsible for maintenance.

As of late 2017, DEWNR’s FWG has prioritised the Burns Review’s recommendations.
Brown Hill and Keswick Creeks Agreement

In February 2017, after approximately 10 years of planning, the State Government, five local councils and the SMA reached a historic agreement on a $140 million infrastructure project to safeguard against flooding in the Brown Hill and Keswick Creek catchment. The State Government agreed to fund 50 percent of the works via the Stormwater Management Authority’s (‘SMA’) Stormwater Management Fund (‘SMF’) over the next 20 years. Of the remaining 50 percent, West Torrens agreed to contribute 49 percent, Adelaide 8 percent, Mitcham 10 percent, Burnside 12 percent and Unley 21 percent. The flood mitigation works which will include creek widening, detention basins at Glenunga and the Adelaide Parklands, diversion of water to different creeks, and culverts around railway stations, will help to protect the most at risk area for flooding in Adelaide by reducing the number of properties affected by a 1 in 100 year flood by approximately 98 percent.

Overview of stormwater management roles and responsibilities in South Australia

The community, industries, the local government sector, not for profit organisations, the research sector and state government agencies all have interests in the management of South Australia’s stormwater. The Stormwater Management Agreement states that state and local government have a history of collaborating in relation to the management of stormwater in South Australia.

The following discussion and diagram provides an overview of the different stormwater roles and responsibilities imposed by legislation. The plethora of legislation arguably contributes to confusion of these roles and responsibilities.

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23 Page 3, Stormwater Management Agreement, 2013
Local government

As identified in Jeff Tate Consulting's *Stormwater Narrative Report* (ECM 509073), South Australian councils have roles as regulators, providers of infrastructure, providers of goods and services, consumers of water, advocates for infrastructure, and as environmental managers.\(^\text{24}\)

In South Australia, local government's responsibility for stormwater infrastructure arises from the *Local Government Act*, which states that a council’s function is to provide “infrastructure for its community and for development within its area (including infrastructure that helps to protect any part of the local or broader community from any hazard or other event, or that assists in the management of any area).”\(^\text{25}\)

Local government responsibility also arises from the fact that the *Local Government Act* gives councils responsibility for approximately 75,000 kilometres of roads.\(^\text{26}\) Pursuant to the Act, fixtures and equipment (i.e. stormwater pipes) installed in, on, across, under or over a public road by the provider of public infrastructure remain the property of the provider of that infrastructure.\(^\text{27}\) This means that local councils own a vast network of drainage infrastructure including local drains, kerbs, watertables and side entry pits.

The *Local Government Act* also gives rise to councils’ ability to prepare Stormwater Management Plans (‘SMPs’). SMPs ensure that those with stormwater management responsibilities work together, and usually include flood maps for high risk areas.

Local councils are often liable for the maintenance costs of state government stormwater works. For example, under the *Metropolitan Drainage Act 1935*, certain councils are liable to pay prescribed maintenance costs and interest.\(^\text{28}\) Similarly, under the *South-Western Suburbs Drainage Act 1959*, local councils are liable for maintenance costs for works arising from the Act.\(^\text{29}\)

Councils are able to refuse development applications on the basis of flood risk. For example, in *Reed v District Council of Mallala*, the Court found that the risk to personal harm and safety was sufficiently high as a result of the depth of floodwaters associated with a 1 in 100 year flood, and that the council was correct in rejecting the development proposal.\(^\text{30}\)

**Stormwater Management Authority (‘SMA’)**

As previously mentioned, the SMA was established on 1 July 2007 under the *Local Government (Stormwater Management) Amendment Act 2007*. The SMA is responsible for the operation of the Stormwater Management Agreement between the State Government and the LGA.

The SMA operates as a stormwater planning, prioritising and funding body, and acts as the administrator of the SMF. Among other functions, the SMA formulates policies and provides information to councils in relation to stormwater management planning, liaises with relevant public authorities to ensure the proper functioning of the state’s stormwater management system, and ensures that public authorities cooperate appropriately.\(^\text{31}\)

\(^{24}\) Page 8, Report: Stormwater Narrative, Jeff Tate Consulting, 2013
\(^{25}\) Section 7(f) *Local Government Act 1999* (SA).
\(^{26}\) Section 208 *Local Government Act 1999* (SA).
\(^{28}\) Sections 6,8,10 *Metropolitan Drainage Act 1935* (SA)
\(^{29}\) Sections 6,7,12,13,13A, *Metropolitan Drainage Act 1935* (SA)
\(^{30}\) Paragraph 61, *Reed v District Council of Mallala* [2016] SAERDC 10
As stated in the SMA’s draft Business Plan 2018-2020, the SMF receives revenue from the State Government’s commitment to provide $4 million (indexed) per year until 2036, revenue interest earned on interest bearing and investment accounts, and any bonuses paid by the LGFA. Furthermore, as previously mentioned, the State Government has agreed to provide an additional $70 million over the next 20 years to the SMA under the Brown Hill and Keswick Creek Agreement.

After operating expenses, remaining SMF funding can be held for investment, applied to the delivery of strategic projects, or paid out as grants and subsidies to fund applicants. This means that councils are able to apply for SMF funding towards the cost of floodplain mapping, stormwater management plans, stormwater infrastructure works, research, and community education initiatives. The SMA usually funds approximately half the value of successful applications. The following table highlights the value of SMF projects that the SMA has approved each year since 2012.

<table>
<thead>
<tr>
<th>Financial year</th>
<th>Approved amount towards projects</th>
<th>Total value of projects</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-2013</td>
<td>$5.1 million</td>
<td>$11.0 million</td>
<td>12</td>
</tr>
<tr>
<td>2013-2014</td>
<td>$3.2 million</td>
<td>$6.8 million</td>
<td>13</td>
</tr>
<tr>
<td>2014-2015</td>
<td>$1.7 million</td>
<td>$5.8 million</td>
<td>10</td>
</tr>
<tr>
<td>2015-2016</td>
<td>$1.6 million</td>
<td>$1.6 million</td>
<td>6</td>
</tr>
<tr>
<td>2016-2017</td>
<td>$10.2 million</td>
<td>$28.6 million</td>
<td>5</td>
</tr>
</tbody>
</table>

The SMA resolved to form a Stormwater Reference Group (‘SRG’) in November 2017. The SRG will provide the SMA with access to stormwater management technical, planning, policy and regulatory advice.

In September 2017 the LGA released its consultation response on the SMA’s draft guidelines for the preparation of SMPs. This report highlighted the LGA’s concerns with the draft guidelines and stressed that the SMA did not adequately consult with the LGA on the development of the draft guidelines. The report suggested that the draft guidelines were onerous, would be too expensive for local governments to implement, and that the draft guidelines had the potential to disengage the local government sector.

Projects recently receiving SMA funding

Hargrave Street gravity pipe

Properties and streets on the lower LeFevre Peninsula have been prone to stormwater flooding risk, as the topography of the area consists of low lying areas and trapped low points that cannot be serviced by conventional drainage systems.

To help mitigate the risk of flood, the City of Port Adelaide Enfield has undertaken construction projects, such as the Hargrave Street pump station, which collects stormwater from the Hargrave Street Stormwater Catchment and removes gross pollutants before being discharged into the Port River. The trunk gravity pipe along a section of Hargrave Street received SMA funding of $1,370,00 in 2016.
Mortlock Terrace Flood Mitigation Options Study

The City of Port Lincoln received SMA funding of $35,000 for the Mortlock Terrace Flood Mitigation Options Study. The study investigated a range of flood mitigation options to reduce the frequency of flooding in the vicinity of a trapped low spot in Liverpool Street, as the existing pump station was found to have less than a 2 year ARI standard. The study’s modelling of the Liverpool Street catchment with an upgraded pump station identified the flow rates required to reach a 100 year ARI flood protection standard.

State Government

The State Government is also responsible for stormwater management. The State Government financially contributes to the state’s stormwater management infrastructure through the SMA, and also funds and manages its own stormwater projects. For example, DEWNR is responsible for the Patawalonga works and the portion of Keswick Creek that lies underneath the Adelaide Showgrounds, while SA Water is responsible for the Sturt River Flood Control Dam, and the parts of Adelaide watercourses that it manages pursuant to the Metropolitan Drainage Act and the South Western Suburbs Drainage Act.

Pursuant to the Metropolitan Drainage Act, the Minister for Water and the River Murray has the power to construct and maintain works in relation to the River Torrens. However as mentioned above, under the Act, certain councils are liable to pay prescribed amounts for maintenance costs and interest. Similarly, pursuant to the South-Western Suburbs Drainage Act, the Minister of Local Government may construct and maintain certain works in the South-Western suburbs of the metropolitan area out of moneys provided by parliament, with local councils liable for maintenance costs.

The South Eastern Water Conservation and Drainage Act 1992 provides that the South Eastern Water Conservation and Drainage Board has the power to construct water management works in the South East, and must maintain the works in a good state of safety, cleanliness and repair.

Additionally, the State Government (through the Department of Planning, Transport and Infrastructure ‘DPTI’) manages approximately 25 percent of South Australia’s total road network. DPTI develops stormwater design standards and guidelines and is responsible for building infrastructure that can be drained and protected from flooding. For example, DPTI’s Stormwater Design Guideline specifies the minimum ARIs that must be applied in the design of DPTI maintained stormwater infrastructure (i.e. catch drains on kerbed roads must be designed to a 10 year ARI standard).

The State Government also has responsibility for environmental protection and pursuant to the Environment Protection Act 1993, the Stormwater Protection Authority (‘SPA’) is responsible for stormwater water quality policies.

Natural Resource Management Boards (‘NRM Boards’)

NRM Boards deliver a wide range of programs and projects on behalf of DEWNR. Under the Natural Resource Management Act (‘NRM Act’), NRM Boards have the power to carry out works for stormwater
management and flood mitigation. Under the NRM Act, NRM Boards have responsibility for the management of watercourses and must prepare regional NRM plans and water allocation plans for regional water resources. NRM Boards are also responsible for the control of water affecting activities.

By exercising their powers under the *NRM Act*, NRM Boards can give SA Water the power to erect dams or reservoirs across and in the bed of the River Torrens, and alter the course of watercourses.

**Federal Government**

The Australian Federal Government plays a policy role in relation to Australian water management and has been a major funding partner in large water projects. For example, the 2004 National Water Initiative was a multi-jurisdictional water policy agreement that gave rise to several federal government programs such as the National Urban Water and Desalination Plan.

**Others**

All people are prohibited from polluting the state’s stormwater system under the SPA’s *Environment Protection (Water Quality) Policy 2015*. South Australian private landholders are responsible for maintaining stormwater infrastructure (i.e. gutters) on their property.

Under the *NRM Act*, landowners with a watercourse on their property (i.e. creek beds) are responsible for maintaining that watercourse in good condition. The *NRM Act* does not establish what ‘good condition’ means. The Adelaide and Mount Lofty Ranges NRM Board created a draft Code of Practice for Urban Watercourse Maintenance which provided more insight into ‘good condition’, however the Code was never finalised.

**Case study: River Torrens**

The River Torrens is Adelaide’s most prominent river and is responsible for directing stormwater to the sea. A vast range of legislation has been enacted since the late 1800s to address the pollution, obstruction and maintenance of the River Torrens. This has seen the creation of numerous reservoirs and weirs for the purpose of flood mitigation. Despite this, in September and October 2016 the River Torrens was severely affected by flooding which resulted in damage and erosion of council boundaries. For more information about the flooding of the River Torrens in 2016, see Neville Hyatt’s paper titled ‘Management of the River Torrens Linear Park during and after the high flow events of September 2016’ (ECM 650683).

Currently, the *NRM Act*, the *Linear Parks Act 2006*, and the *Metropolitan Drainage Act* give SA Water, Adelaide City Council, riparian councils and NRM Boards legal rights and duties in relation to the River Torrens. Kelly argues that the plethora of applicable legislation and piecemeal approach to the river gives rise to confusion regarding roles and responsibilities, and that consequently all applicable legislation should be reviewed, consolidated and updated into one comprehensive enactment.
History of LGA involvement in stormwater management

The LGA has been involved with the SMA since its inception in 2007. Pursuant to the Local Government Act, SMA board members are appointed by the State Government and the LGA.\(^{55}\)

Jeff Tate reports and recommendations

In 2012, the LGA engaged Jeff Tate Consulting to develop two reports on stormwater management. The first report, titled ‘Stormwater Narrative’ (ECM 509073), provides a consistent narrative that describes the multiple approaches and objectives to managing stormwater in South Australia. Of particular notoriety is the report’s identification of the need for greater integration of land use and water planning.

The second report, titled ‘Options for funding stormwater management’ (ECM 623280), assesses future options for funding stormwater management in South Australia. The report highlights that South Australia, unlike other states, has limited statutory mechanisms for costs related to stormwater developments.

The report recommends that the LGA and the State Government work together to develop a ‘menu’ approach for stormwater funding, where options are matched to circumstances. The report suggests that if adopting a ‘menu’ approach, consideration should be given to the following:

- Federal, state and local government general revenue
- Levies and charges at the state, catchment or council level
- Separate rates under the Local Government Act and/or embedding additional funds within the existing rate structure
- An enhanced system of infrastructure contributions that recognises the incremental impact of development on the capacity of stormwater systems and provides greater certainty for developers and governments
  - Infrastructure contributions are up-front contributions from developers towards the cost of upgraded or new infrastructure. Open space contributions and car park charges are the only forms of contributions for local government purposes defined under South Australian legislation. Other contributions must be negotiated between councils and developers on a case by case basis throughout development processes. It should however be noted that infrastructure contributions have been criticised for reducing housing affordability by increasing the initial cost of providing housing.
  - The Statutes Amendment (Intensity of Development) Bill was introduced to Parliament on 2 November 2017. The Bill proposes to amend the Development Act 1993 and the Planning, Development and Infrastructure Act 2016 so that the effects of proposed developments are considered. Although the Bill has passed the lower house, it is unlikely to pass the upper house.
- ‘Polluter pays’ charges
- Special purpose funds
- Revenue from the sale of harvested stormwater
- Public Private Partnerships (‘PPPs’)
- Government franchising

\(^{55}\) Schedule 1A, s 6 Local Government Act 1999 (SA)
• Use of debt through general purpose bonds
• Capital grants

The report also recommends that the LGA work with the State Government to review current arrangements for stormwater governance in South Australia against interstate and international experiences, with particular consideration given to the Melbourne Water model where responsibilities are divided for trunk and local drainage. As outlined in the report, to fund stormwater management both Victoria and NSW have implemented stormwater charges (discussed further below), while in the United States, stormwater fees are used by some governments to finance stormwater infrastructure to be administered through Stormwater Utilities. In New Zealand, a ‘menu’ approach has been adopted and stormwater is funded largely from rates, with incremental funding from infrastructure contributions.

**Major advocacy work**

The LGA has produced the ‘Stormwater Management in South Australia’ booklet (ECM 616194), to help raise awareness of the importance of stormwater management.

As mentioned above, the LGA released its response to the SMA’s draft guidelines in September 2017 (ECM 654456).

The LGA maintains that both local government and the State Government are responsible for stormwater management and will continue to advocate this position.

**Stormwater management elsewhere in Australia**

Although stormwater management is often thought to be the sole responsibility of local governments, across Australia, state and territory governments also have responsibility for stormwater planning and management.

In all jurisdictions, landowners have a responsibility to maintain in good condition all stormwater pipes, gutters, downpipes, gully pits and other components of approved stormwater systems on their property.

As a comparison to South Australia, the following discussion provides an overview of stormwater management responsibilities in Australian states and territories.

**Victoria**

In broad terms, Victorian local councils are responsible for local drains, road networks and street and property drainage feeding into regional drains, rivers and creeks, while Melbourne Water (a statutory authority owned by the Victorian Government) owns parts of and is responsible for the larger stormwater drainage system within the region outlined in the *Water Act 1989 (VIC)*. In other Victorian regions, Catchment Management Authorities, rather than Melbourne Water, are responsible for the provision of waterways and drainage services. In Melbourne Water’s managed region, households pay a ‘waterways and drainage’ charge, which Melbourne Water uses to fund drainage, improve flood protection and improve the quality of waterways.

Like in South Australia, lack of clarity surrounds responsibility for stormwater management in Victoria. Given this, and as part of Action 14a of the Victorian Floodplain Management Strategy, in May 2017 the Department of Environment, Land, Water and Planning and the Municipal Association of Victoria

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commenced a review of arrangements between Melbourne Water and local government authorities. The review aims to clarify responsibility for stormwater flood risk management and is expected to be completed in 2018.58

**New South Wales**

Pursuant to the *Local Government Act 1993 (NSW)*, New South Wales councils are responsible for stormwater infrastructure and stormwater management activities in their areas (except for state roads and state controlled trunk drains).

A range of organisations and state government agencies also have stormwater management responsibilities. Sydney Water (a government owned statutory authority) is responsible for trunk drains, while Roads & Maritime Services (RMS) has stormwater responsibilities limited to drains needed to move stormwater across state roads. Other state government agencies, such as the Office of Environment and Heritage and the Department of Natural Resources, have responsibility for establishing the policy framework for environmental and natural resource management.59

In 2005, the *Local Government Act 1993 (NSW)* was amended to give councils the option to levy a stormwater management service charge (‘SMSC’) on eligible residential or business land for improved stormwater management.60 The SMSC monitoring review found councils that implemented a SMSC in 2006-2007 increased their stormwater management spending by an average of 89 percent, and that an average metropolitan council can raise over $1 million per year for stormwater management services by implementing a SMSC.61

**Queensland**

The fatal 2010-11 Queensland floods resulted in the Queensland Floods Commission of Inquiry, which among many other recommendations, stressed the importance of the State Government and local government working together to ensure flood studies are conducted across the state.

Pursuant to the *Local Government Act 2009 (QLD)*, Queensland local governments are responsible for developing and managing assets and infrastructure, and also have an emergency response role. While Queensland councils are responsible for managing and maintaining stormwater networks, the State Government has policy and legislative responsibilities arising under legislation such as the *Environmental Protection Act 1994 (QLD)*, the *Sustainable Planning Act 2009 (QLD)* and the *Water Act 2000 (QLD)*.62

**Western Australia**

Stormwater management in Western Australia falls under the jurisdiction of a number of organisations. Western Australian local governments are responsible for managing local drainage networks by assessing urban development proposals, and constructing and maintaining local roads and drainage systems.

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59 Page 4, Mosman Council Asset Management: Stormwater 2013
60 Page 22, Jeff Tate Consulting, Options for funding stormwater management
61 Page i, NSW Office of Environment & Heritage, Stormwater management service charge implementation monitoring (covering financial years 2006-07 to 2008-09).
62 Page 46, Brisbane City Council’s WaterSmart strategy
The Department of Water and Environmental Regulation provides floodplain mapping for major river systems and prepares drainage and water management plans. The Department also provides stormwater management principles, criteria and guidelines.

The Water Corporation (owned by the Western Australian Government) is a key service provider for urban drainage infrastructure in parts of Perth’s metropolitan region and in rural drains in the state’s south west. The Water Corporation assesses urban development proposals if located in a drainage catchment area containing the Corporation’s drainage infrastructure.\textsuperscript{63}

**Tasmania**

Tasmanian state government agencies have planning, assessment, enforcement and operational responsibilities in relation to stormwater management, while local governments are responsible for land use planning and the provision of local stormwater infrastructure and its maintenance.\textsuperscript{64} Local government’s role stems from the *Urban Drainage Act 2013 (TAS)*, which states that Tasmanian councils have a non-delegable duty to effectively drain urban parts of municipal areas, and must develop stormwater system management plans.\textsuperscript{65}

**Australian Capital Territory (‘ACT’)**

The ACT Government’s *Roads ACT* is responsible for maintaining, managing and monitoring the physical condition of the municipal stormwater network which comprises of, amongst other things, stormwater pipes, stormwater channels, dams and weirs.\textsuperscript{66} *Roads ACT* are also responsible for setting standards for the construction of new stormwater assets and ensuring the effective functioning of the entire stormwater network.

**Northern Territory**

Responsibilities for stormwater management in the territory are shared between the Northern Territory Government’s departments and local councils.

In the Northern Territory, stormwater systems under roads and on road verges belong to the owner of the road.\textsuperscript{67} Accordingly and pursuant to the *Control of Roads Act 2010 (NT)*, the Road Network Division of the Northern Territory Department of Transport is responsible for stormwater management on the Territory Government owned roads, while under the *Local Government Act 2008*, councils have primary responsibility to manage and maintain stormwater drainage on local government roads.

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63 https://www.water.wa.gov.au/urban-water/urban-development/stormwater
64 Page 20, Tasmanian Department of Primary Industries, Parks, Water and Environment State Stormwater Strategy
65 Sections 5(1), 10 Urban Drainage Act 2013 (TAS).
67 Page 16, Northern Territory Environment Protection Authority: A stormwater strategy for the Darwin Harbour region