



# **Stormwater Victoria Position Paper**

**Final**

**October 2010**

## **Stormwater Victoria *Position Paper***

Stormwater Victoria is committed to the achievement of sustainable stormwater management in policy and practice.

Our members work together to provide progressive stormwater services showing leadership internationally in integrated water management.

This *Position Paper* set out our goals and principles for continued improvements in the stormwater industry. These are the principles that we want to see government adopt and apply in regulation, policy, funding and training. We also want to see the development sector adopt and apply these principles in their design and construction.

While we advocate for these advancements in stormwater management, Stormwater Victoria will continue to progress new designs, technologies, services, education, partnerships and demonstration projects to help the community better support sustainable water management.

Future advocacy, education, projects and partnerships for Stormwater Victoria will pursue the goals set out in the *Position Paper*.

## **We welcome your feedback**

Stormwater Victoria welcomes feedback at any time on the positions reflected in this *Position Paper*. We are committed to being as progressive and effective as possible and will review these positions as needed.

With your help we aim to set out clear leadership and direction to help keep the stormwater industry in Victoria as progressive as ever.

[www.stormwatervictoria.com.au](http://www.stormwatervictoria.com.au)

## 1. Position Statement: Flooding Management

**Goal:** Stormwater infrastructure is consistently designed, constructed and maintained to protect both communities and ecosystems from damage.

### Guiding Principles:

Stormwater Victoria applies the following principles for flooding management:

1. Protecting our assets means managing our physical infrastructure alongside our natural resources, our economic resources in commerce and tourism, and our social resources including our heritage and community values.
2. Our built assets are most vulnerable to very large flood events whereas our natural resources such as urban streams are mostly affected adversely by the smaller more frequent flooding.
3. Climate change will result in different infrastructure needs. This is likely to reflect more extreme storm events and less annual rainfall, with attention needed to keep up to date with climate modelling for different regions.
4. The community has increasing expectations on nuisance flood management that defines the target performance of our stormwater drainage network. The industry must keep up with these expectations and educate the community on related nuisance flooding issues.
5. The amount of flooding is directly related to the catchment characteristics. Smaller flooding particularly relates to the amount of impervious hard surfaces that prevents stormwater slowing and entering the ground. Water sensitive urban design and stormwater harvesting can help reduce catchment imperviousness, which in turn helps flood management.
6. The need to accommodate an expanding population through creation of new developments and increasing the density of existing places considerable pressure on downstream infrastructure and natural waterways. Proper planning, investigations and assessment is critical to ensure that communities and ecosystems are appropriately protected.
7. Stormwater systems operate most effectively and when maintenance and monitoring are adequately funded. The true value of flood management needs to be better 'quantified' to help build a stronger business case for its ongoing provision.

### Changing the way we manage flooding

Flood management is arguably the genesis of the stormwater industry. Rain caused flooding, from nuisance flooding on a frequent basis getting our feet wet and causing an inconvenience through to major flooding where property is threatened and safety of our communities are compromised.

In recognising the growing importance of water quality management it is important to embrace new ways of managing the flooding issues inspired by understanding the holistic potential impacts on the ecosystems as well as the community. Flood management does not need a single management response but can adopt related strategies that serve other purposes yet have a benefit to managing flooding.

Augmenting and upgrading drainage assets can benefit from more holistic solutions, improved modelling tools and introduction of new technologies for construction.

## 2. Position Statement: Integrated Sustainable Water Management

**Goal:** All stormwater flows in Victoria are managed holistically to consider flooding, ecosystem protection and community needs particularly in relation to harvesting and reuse in light of other water sources.

### Guiding Principles:

Stormwater Victoria applies the following principles to integrated stormwater management:

1. Prevention of flooding is of the most vital importance, and can be managed whilst preventing pollution.
2. Stormwater management is most effective when supporting the total water cycle including surface water, groundwater, atmospheric water, wastewater, and potable water.
3. A 'city as a catchment' approach of stormwater supports different local water solutions that are linked as needed across catchments and sub-catchments. This reduces reliance on centralised water supplies, particularly those supported by external water catchments.
4. Urban centres to source, treat and wisely use their stormwater from within their own metropolitan catchments to minimise the need to draw from water sources in rural catchments.
5. The design, infrastructure and management of stormwater adapts to changing climate including global warming, and more extreme weather events.
6. Victoria has a dry seasonal climate with water conservation and reuse vital in a time of climate change. Water can be managed and shared efficiently with low risk once good systems are in place.
7. Improving water quality and water saving are not mutually exclusive, instead they are shared goals that all water projects can be designed to deliver. Water sensitive urban design principles and practices are effective in delivering integrated sustainable water management at all scales.
8. All water streams in the urban and rural water cycles are a resource, not just mains water. Water is to be conserved, and where needed sourced from a variety of locations: roofs, open space, roads, footpaths, and dams. Environmental implications help determine the most appropriate 'fit-for-purpose' water source.
9. Continued research, modelling and monitoring stormwater is vital for improved water quality and conservation. Active participation of stormwater practitioners in research and innovation is important to the growth of the industry.
10. Capacity-building programs target professionals, organisations and industry continue to effectively translate the best available research of independent institutions.

### Why just stormwater?

The importance of integrated water management is well recognised by the industry and increasingly by the community. It makes sense to use stormwater infrastructure wherever possible to supply water at the same time as preventing flooding, improving waterway and groundwater health.

So is Stormwater Victoria promoting a single discipline, in a time of multi-disciplinary needs?

Actually we are playing an important transitional role by helping the water and development industry expand its expertise. Stormwater management is often considered the most complex area of water management to provide infrastructure solutions, so we are helping to promote, design and implement more integrated solutions.

We see our role to provide this specialist advice and advocacy until such time that more integrated water solutions are 'automatically' applied by the development industry, government and community.

### 3. Position Statement: Ecosystem Protection

**Goal:** Through effective stormwater solutions with minimal resource use and emissions we will maintain, and where possible restore healthy waterways and ecosystems

#### Guiding Principles:

Stormwater Victoria applies the following principles for environmental stormwater management:

1. Stormwater quality improvements will help protect our water bodies through reduced contamination, turbidity, algal growth, flora and fauna damage. This will aid in biodiversity protection along with economic and aesthetic benefits from healthier waterways.
2. Water related ecosystems are typically the richest in species diversity and abundance.
3. These ecosystems are typically degraded due to unmitigated stormwater flows from developed catchments. This is due to:
  - a. poor quality of untreated stormwater that may be toxic to some fauna, smother vegetation or promote algal blooms and weed proliferation.
  - b. increased flow volumes during runoff events which may cause erosion in stream and changes hydrological response particularly in littoral zones which promotes weed growth.
  - c. more frequent minor flooding commonly expressed as 'bank forming flows' leading to bed and bank erosion
  - d. impervious surfaces limiting groundwater recharge that would otherwise report as baseflows in streams
4. The health of global environments is protected by reducing greenhouse and air pollution, and preventing excessive resource use and waste creation. Stormwater management can be delivered with a reduced environmental footprint by minimising greenhouse emissions, pollution, resource use and waste creation.
5. Environmental targets provide effective, quantifiable goals that government and organisations can work towards. All efforts should be made to have consistent methodology for stormwater related targets.

#### Setting environmental targets

Much more is understood about our environment than ever before. As knowledge and experience grows, there is a greater understanding of our impact today and what our impact needs to be tomorrow to provide sustainable resource use for future generations. Environmental targets provide a measurable way to work towards long-term goals.

Stormwater Victoria will progressively consult, research and develop environmental targets that it can then advocate to achieve. Examples of targets that can be developed and advocated for Melbourne and Victoria include:

1. water quality treatment targets
2. potable water use reduction targets
3. alternative water use targets
4. environmental flow rates for waterways
5. stormwater infrastructure upgrade targets
6. groundwater use and quality standard targets

#### **4. Position Statement: Community and Stormwater**

**Goal:** The Victorian community is involved and engaged in stormwater management in an integrated and holistic manner within a progressive governance system.

#### **Guiding Principles:**

Stormwater Victoria applies the following principles for community and governance of stormwater:

1. Water is vital for life, and is currently priced at a low rate and has opportunities to be adjusted to better reflect its true value. This relates to the ability to harvest stormwater for use, including the ability to improve the landscaping and aesthetics of open spaces, shopping centres and buildings. Any changes to water pricing need to provide access to water for low-income people.
2. Governance is equitable for both current and future generations and across the state of Victoria in both rural and urban areas and addresses the interaction between private and public organisations and individuals.
3. Improved connections across the industry will help improve stormwater management. Regulation and policies from different government agencies should be integrated to achieve the best outcomes on the ground. Stormwater related businesses should find ways to connect where it helps both their business and the industry. Not-for-profits should align advocacy, engagement and projects where it helps promote better stormwater understanding.
4. The role of community is important for stormwater projects across Victoria. Deliberate efforts are made to engage and involve community to transition stormwater management toward ecologically, socially, and economically sustainable practice.
5. Enforcement of stormwater management is essential for the effectiveness and longevity of stormwater infrastructure. Well-communicated enforcement programs to prevent littering and pollution provide better financial and environmental solutions as supported by the community.
6. Stormwater management increasingly involves decentralised, at-source technologies that fundamentally rely on community commitment for wider distribution and effective operation.
7. Innovative stormwater management projects have evolved within local communities, triggered by community groups and their associated municipal organisations, or within new urban development projects designed for environmentally-conscious communities.
8. Integrated water management relies on good communication with the community – residents, businesses, not-for-profit groups and local/State/Federal Government.

#### **Working with community priorities**

The historical view of stormwater has been to see it as a problem, potentially causing floods that pose safety and nuisance threats. In response to this, infrastructure was developed to dispose of the rainwater as soon as possible reducing the risk of flooding and associated damage.

This traditional approach causes problems as the rapid flow of stormwater damages the health of waterways and bays due to erosion, channelling, litter and pollutants. The approach also limited the community awareness and involvement in water flow management. Water flows are removed quickly from view, taking litter and contaminants with them, leaving residents with little understanding of the movement, volume and value of water.

Recent changes in the climate has placed stormwater on the community's agenda which has led to a paradigm shift with stormwater now being considered as an asset when managed appropriately.

The stormwater industry has responded by increasingly developing, implementing and involving people in integrated stormwater management that supports the total water cycle through water sensitive urban design that supports community values.

## Action Framework

To work towards the goals of the *Stormwater Victoria Position Paper*, Stormwater Victoria will implement the actions set out in this framework.

<b>Advocacy</b>		
<b>Advocating for better regulatory support, policy, guidelines and information sharing</b>		
1.	<i>Regulatory development</i>	Best practice stormwater provisions in <i>Victoria Planning Provisions – State &amp; Local Performance standards for stormwater in Building Code of Australia</i> Regulate to support more water sharing.
2.	<i>Streamlined processes</i>	Streamlined processes to approve stormwater harvesting and greywater systems.
3.	<i>Stormwater quality targets</i>	Review and update as necessary the Best Practice Environment Management Guidelines. Apply best practice targets at municipal and regional level. Ensure consistent methodology across Victoria.
4.	<i>Consistent WSUD guidelines</i>	Consistent guidelines and checklists for developers, land managers and planning authorities use.
5.	<i>Mapping</i>	Consistent flood mapping for regional and local drains taking into account climate change scenarios
<b>Advocating to get best practice stormwater infrastructure in the ground and maintained</b>		
6.	<i>Financing mechanisms</i>	Provide a range of financing mechanisms for stormwater management. Government to back private initiatives where appropriate. Set up a water trading systems to help fund different stormwater initiatives.
7.	<i>WSUD in ground</i>	State and local government to build in more water sensitive urban design (using the true value of environmental benefits as a basis)
8.	<i>Maintenance</i>	State and local government to build in more maintenance and monitoring into standard procedures (using the true value of well functioning stormwater systems as a basis)
<b>Advocating to involve all</b>		
9.	<i>Interactive learning</i>	<ol style="list-style-type: none"> <li>1. Developing demonstrations as interactive learning experiments</li> <li>2. Engaging with public in the analysis of options for new stormwater facilities and management approaches</li> </ol>
10.	<i>Deliberative community engagement</i>	<ol style="list-style-type: none"> <li>1. Promoting participatory decision-making forums such as citizen juries and charettes</li> <li>2. Leading by example in pursuit of new stormwater management activities</li> </ol>
11.	<i>Community involvement</i>	Advocating for community involvement in the planning and implementation of all stormwater programs and projects through: <ol style="list-style-type: none"> <li>1. submissions to government inquiries</li> <li>2. consultations with member-affiliated organisations</li> </ol>
<b>Advocating for improved knowledge</b>		
12.	<i>Focused stormwater research</i>	<ol style="list-style-type: none"> <li>1. Support for new research proposals that include stormwater and it management as key elements of analysis</li> </ol>
13.	<i>Monitoring systems</i>	<ol style="list-style-type: none"> <li>1. Up-to-date monitoring system in place to record baseline and improved water management.</li> <li>2. Real time monitoring system in place to improve stormwater infrastructure.</li> <li>3. Up-to-date monitoring system in place to record resource use and emissions by small organisations</li> </ol>
14.	<i>Training for professionals</i>	Improved training at tertiary level for planners, landscape architects, architects, developers, engineers to integrate WSUD into everyday outcomes

<b>Education</b>		
<b>Supporting or developing education opportunities</b>		
15.	<i>Information specific to different audiences</i>	Information for different audiences: <ol style="list-style-type: none"> <li>1. Stormwater professionals</li> <li>2. Land managers and developers</li> <li>3. Planning authorities and decision makers</li> <li>4. Schools and community groups</li> </ol>
16.	<i>Information covering new and emerging areas</i>	Information and training in new and emerging areas including: <ol style="list-style-type: none"> <li>1. new technologies and systems</li> <li>2. stormwater modelling for climate change</li> <li>3. environmental accounting</li> <li>4. community accounting</li> <li>5. new governance models</li> <li>6. landscape architecture and design</li> <li>7. social based marketing and community development</li> </ol>
17.	<i>Engagement approaches</i>	<ol style="list-style-type: none"> <li>1. Provide training around guidelines and checklists that prompt integrated water management</li> <li>2. Encourage interactive learning in stormwater forums and field demonstrations</li> <li>3. Disseminating to members the recommended sources of research and innovation</li> <li>4. Encouraging member involvement in capacity-building programs</li> <li>5. Endorsing independent research through SV seminars and conferences.</li> <li>6. Introducing best-practice techniques in community engagement via information circulations and seminars.</li> <li>7. Acknowledging role of community in all promoted projects undertaken by the association.</li> </ol>
<b>Industry Growth</b>		
<b>Supporting or developing industry growth</b>		
18.	<i>Supporting new technology</i>	<ol style="list-style-type: none"> <li>1. New technology development and implementation</li> <li>2. Assess feasibility of Stormwater Victoria having an endorsement role for new technology</li> <li>3. Assist the financial sector to establish funding options for stormwater management.</li> </ol>
19.	<i>Supporting new industry</i>	Supporting existing and new infrastructure suppliers and consultancies
20.	<i>Developing industry</i>	<ol style="list-style-type: none"> <li>1. Adopting consistent principles for stormwater management within the industry</li> <li>2. Working with industry organisations to develop alternative governance approaches as part of their organisational charters.</li> <li>3. Greater linkages between research and practice in the industry via forums</li> <li>4. Promotion of industry organisations that are deliberately engaging with relevant communities</li> <li>5. Developing case studies of effective industry-community engagement</li> </ol>
<b>Research</b>		
<b>Supporting or developing new research</b>		
21.	<i>Additional research needed into technology and infrastructure</i>	Seeking additional research into the following areas: <ol style="list-style-type: none"> <li>1. Technology and systems for integrated water management</li> <li>2. Modelling and monitoring of sustainable water management</li> <li>3. Modelling and monitoring of environmental footprints and performance</li> </ol>
22.	<i>Additional research needed into governance and community</i>	Seeking additional research into the following areas: <ol style="list-style-type: none"> <li>1. Effective forms of community engagement that can be applied through the development and implementation of new stormwater activities of the association.</li> <li>2. Alternative modes of governance for sustainable stormwater management including community co-management and co-design of stormwater projects</li> <li>3. Learning tools to facilitate new governance principles</li> <li>4. Institutionalising stormwater management within the existing water cycle</li> <li>5. Socio-technical transition pathways for the growth of the industry</li> <li>6. Water pricing and trading options</li> <li>7. True value of well functioning stormwater systems.</li> </ol>