attachment 1 to item 227

Zero Litter to Ocean Policy Paper

Hawkesbury City Council

Zero Litter to Ocean

Policy Paper

STORMWATER
NEW SOUTH WALES

OCEAN PROTECT

Executive Summary

Within Australia and globally, there is unprecedented job loss and economic instability. Australian Government initiatives that can be implemented immediately to create jobs and 'boost' the Australian Economy and provide other tangible benefits should be considered as a priority.

Stormwater NSW and Ocean Protect **are** calling on the Federal Government to establish and work towards a 'Zero Litter to Ocean' target for Australia. Achieving this target would mean that any pollutant larger than five millimetres (like a cigarette butt) would be prevented from flowing to any waterway or ocean from any currently 'high litter generating area' within Australia.

The 'Zero Litter to Ocean' project is an opportunity that is:

- **'Shovel ready':** The solutions to achieve this target can be implemented immediately and cost-effectively.

- **Job creating**: approximately 7400 jobs will be created by the solutions associated with this target over the first ten years alone. The vast majority of jobs associated with the solutions require minimal training, which can be readily provided.

- **Scalable:** Five (5) local governments in NSW and Queensland have already committed to and are working towards a 'Zero Litter to Ocean' (or similar) target by 2030. However, the target is applicable across all populated regions within Australia – with litter 'hot spot' areas generally associated with highly populated areas and areas adjacent to waterways and beaches.

- **Australian-made and owned:** Appropriate and cost-effective technologies associated with this strategy can be 100% Australian made by Australian owned groups, using equipment and materials almost entirely sourced from within Australia.

- **Proven to achieve tangible environmental results:** Achieving this target will significantly improve the health of Australian waterways and waters, and provide associated ecological, economic, social and cultural benefits

To achieve this target, we estimate that the Federal Government would need to invest approximately $5.7 billion over the next ten years, and work in collaboration with State and Local Government to implement the following key actions:

- Enhance existing litter reduction strategies

- Require best practice stormwater quality management for all new development (already legislated by State Government legislation in Victoria, Tasmania and Queensland, and some local governments across Australia)

- Appropriate management of existing stormwater treatment assets (e.g. gross pollutant traps)

- Installation and management of new stormwater treatment assets in high litter generating areas.

These actions will deliver a highly cost effective 'win' for the Australian environment and economy. There is also unlikely to be a more opportune moment for Australia to deliver in this space.

This policy paper puts forward proven, available and cost-effective solutions and recommendations. It is also designed to be a reflection of our concern and core passion for Australia's waterways and oceans.

Alan Benson
President, Stormwater NSW

Jeremy Brown
Co-Founder & Director, Ocean Protect

What a 'Zero Litter to Ocean' strategy will look like in Australia

Key Actions

Enhance existing litter reduction strategies

Appropriate management of existing stormwater treatment assets

Require best practice stormwater quality management for all new development

Installation and management of new stormwater treatment assets in high litter generating areas

$5.7 billion investment over ten years

Key Benefits

AUSTRALIAN MADE AND OWNED
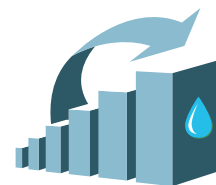
Australian-made and owned technologies: Appropriate and cost-effective technologies associated with this strategy can be 100% Australian made by Australian owned groups, using equipment and materials almost entirely sourced from within Australia.

Scalability: The target is applicable to all populated areas of Australia. Five local governments in Australia have recently committed to and are working towards the target

Shovel ready: Key actions can be implemented immediately and cost-effectively

Cleaner waterways, beaches and oceans: Achieving this target will stop an average of approximately 600 wheelie bins of plastic every day entering Australia's oceans and waterways

Job creation: approximately 7400 jobs will be created by the solutions associated with this target over the first ten years alone.

600 x

7400 x

Issue Snapshot:
Ocean Plastic Pollution

Our oceans and waterways provide many benefits, including the air we breathe, climate regulation, food, recreation, and amenity. However, the amount of plastic in our oceans and upstream waterways is at crisis levels and needs immediate action.

Each year, at least eight million tonnes of plastics flow into the ocean – which is equivalent to dumping the contents of one garbage truck into the ocean every minute. If no action is taken, this is expected to increase to two per minute by 2030 and four per minute by 2050 – and, by 2050, there will be more plastic than fish in our oceans by weight [1].

80% of plastic pollution in our ocean comes from land-based sources flowing through drains to our waterways and oceans via stormwater runoff. According to research, approximately 1,580 kilograms of plastic enters Australia's oceans each hour [2]. Urban stormwater runoff often also contains harmful levels of other less visible (but extremely damaging) pollutants, such as suspended solids, heavy metals, nutrients and bacteria. Stormwater is recognised as the key source of pollution in our urban waterways [3] and the vast majority of marine debris entering Australian waters is land-based and generated locally [4] [5].

The solutions to mitigate these problems are available and cost-effective. However, the future cost to rectify these problems and implement appropriate solutions will only increase unless urgent action is undertaken now.

Of particular relevance to South-East Queensland is recent research that has indicated that 30% of dead sea turtles in Moreton Bay are "full of plastic" [6].

"Protecting our oceans is also one of the world's more pressing environmental challenges. To protect our oceans, Australia is committed to leading urgent action to combat plastic pollution choking our oceans; tackle over-exploitation of our fisheries, prevent ocean habitat destruction and of course take action on climate change"

Prime Minister Scott Morrison, National Statement to The United Nations General Assembly, 2019

1.   Ellen MacArthur Foundation, 2017, *The New Plastics Economy: Rethinking the Future & Catalyzing Action*, https://www.ellenmacarthurfoundation.org/assets/downloads/publications/NPEC-Hybrid_English_22-11-17_Digital.pdf

2.   Jennifer Ninni, Article in EcoVoice, 2018, *1,580kg enters Australia's ocean every hour*, https://ecowarriorprincess.net/2018/06/world-oceans-day-1580kg-plastic-waste-dumped-australias-oceans-every-hour/

3.   Melbourne Water, 2016, *Management of the ecological impacts of urban land and activities on waterways – Issues Paper: understanding the science,* https://www.clearwatervic.com.au/user-data/resource-files/2016_08-waterways-issues-paper-pub.pdf

4.   Dr Britta Denise Hardesty, CSIRO, Committee Hansard, 26 February 2016, p. 1, https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id:%22committees/commsen/439759d8-696a-4708-b877-eaf069b0776f/0001%22;src1=sm1

5.   Britta Denise Hardesty and Chris Wilcox, CSIRO, *Understanding the types, sources and at-sea distribution of marine debris in Australian waters,* https://www.environment.gov.au/system/files/pages/8ff786ed-42cf-4a50-866e-13a4d231422b/files/marine-debris-sources.pdf

6.   https://www.brisbanetimes.com.au/national/queensland/queensland-researchers-hope-sea-turtles-birds-will-benefit-from-plastic-ban-20180530-p4ziei.html

Objective:
Nationwide 'Zero Litter to Ocean' Policy by 2040

Stormwater NSW and Ocean Protect are calling on the Federal Government to establish a 'Zero Litter to Ocean' target for Australia, to be achieved by 2040.

The waste management hierarchy (illustrated below) should be utilised in establishing and achieving this target – with focus on 'avoid' prioritised over subsequent 'steps' in this hierarchy.
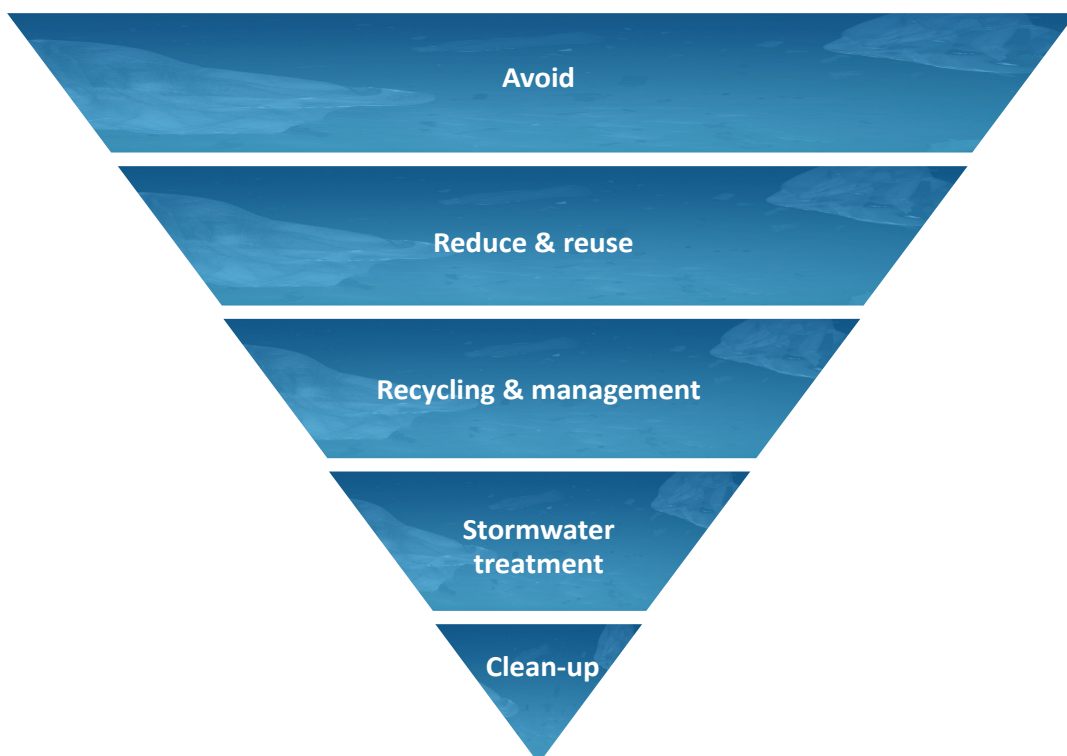
Avoid

Reduce & reuse

Recycling & management

Stormwater treatment

Clean-up

The solutions to achieve this target can be implemented immediately and cost-effectively. However, the future cost to rectify these problems and implement appropriate solutions will only increase unless action is undertaken now.

Achieving a 'Zero Litter to Ocean' target would likely involve the following principal actions:

1. Provision of a sustainable source of funding

2. Establish target

3. Continue and (where appropriate) enhance existing litter reduction strategies

4. Development and provision of nationally accredited training program for inspection, condition assessment and management of stormwater treatment assets

5. Identify, assess and (where appropriate) rectify existing stormwater treatment assets

6. Ensure appropriate management of existing stormwater treatment assets

7. Mandate best practice stormwater quality management for new development

8. Installation and appropriate management of new stormwater treatment assets

01 Provision of a sustainable source of funding

Funding is required for the appropriate implementation and management of principal and supplementary actions. Our proposal is a 10-year investment program at $5.7 billion (an annual cost of $570 million).

We propose that this funding be provided by the Federal Government to State and Local Governments, conditional upon their agreement to working towards the 'Zero Litter to Ocean' target.

The budget estimate is based on calculations by Ocean Protect and Stormwater NSW of a nation-wide implementation of the policy (and associated actions 3 to 7).

During the first ten years, a sustainable funding source should be developed to generate the revenue required to fund ongoing maintenance of the new infrastructure. This could follow a similar format to the existing stormwater management service charge in NSW.

It should be noted that the cost estimate does not consider the economic benefits associated with achieving the given target, such as benefits to tourism, property values, commercial and recreational fishing industries, and public health.

02 Establish target

In technical terms, we would propose a 'Zero Litter to Ocean' target would mean that there would be zero (or at least minimal) discharge of any 'gross pollutant' (i.e. any pollutant larger than five millimetres, like a cigarette butt) from any high litter generating area in the individual local government area to any waterway (creek, river, or ocean) during any rainfall event up to a 3-month rainfall (98.17% annual exceedance probability) event. High litter generating areas could include commercial, industrial, community, tourism accommodation, high density residential, and local/ district centre areas.

It should be noted that whilst the target is associated with achieving a zero (or minimal) discharge of litter, actions necessary to achieve this target would significantly reduce the discharge of other smaller pollutants (e.g. microplastics, heavy metals, sediment) into local waterways and downstream ocean.

The City of Ryde, Burwood Council, Northern Beaches Council and City of Sydney are the first local governments within Australia to commit to achieving a 'Zero Litter to River' target by 2030. Noosa Shire Council has also included a 'zero litter to river' target by 2030 in their draft Noosa River Plan.

Several jurisdictions within the USA are also actively mitigating the discharge of litter to waterways through 'total maximum daily load' (TMDL) targets and/ or stormwater permits, including the State of California which is working towards a 'zero trash' target for all waterways by 2030.

03

Continue and enhance existing litter reduction strategies

Local governments in Australia typically already actively implement a range of initiatives to reduce the amount of litter entering local waterways and downstream ocean.

This includes the following:

- Installation and management of rubbish bins
- Development and implementation of waste education programs and material within the community, including schools
- Enforcement (including issuing warnings and fines for littering)
- Requirement for best practice stormwater quality management for new development (already legislated for Victoria, Tasmania, Queensland and parts of NSW)
- Container deposit schemes
- Installation and management of Council-owned stormwater treatment assets, including several gross pollutant traps (GPTs).

CSIRO research on container deposit schemes, for example, have been shown to reduce the amount of beverage containers on the coasts of both the United States and Australia by 40%. These are already present South Australia, Northern Territory, NSW, ACT and Queensland and will be commenced in all other states by 2023.

Existing litter reduction strategies should be continued (and, where appropriate enhanced) to assist in achieving the aforementioned target and reduce the 'workload' for existing and new stormwater treatment assets.

As part of this task, funding will be used to develop and implement an educational module for primary school children to improve their understanding of key threats and actions to protect our oceans and upstream waterways.

04

Development and provision of nationally accredited training program for best practice inspection, maintenance and reporting of stormwater treatment assets

A review of the National Water Industry Training Package (NWP) reveals only 8 current Units of Competency with the word 'stormwater' in their title. These Units, the building blocks of any nationally accredited training program, cover the key functions 'assessing and monitoring', 'designing' and 'inspecting' – there is no reference to system maintenance in the title of any of them.

There is one general Unit of Competency in NWP, 'NWPNET040 – Maintain and Repair Network Assets for Wastewater' that has broad enough performance criteria that would allow a Registered Training Organisation (RTO) to build an accredited course around the maintenance and repair of sewerage and stormwater assets, but the general nature of the Unit would mean only basic maintenance requirements would need to be covered.

A review of non-accredited stormwater industry training also reveals that there is no state or nationally recognised training program for the appropriate best practice inspection, maintenance and reporting of stormwater assets.

This lack of formal accredited or non-accredited training programs limits the appropriate management and function of these assets and therefore the associated protection of downstream waterways.

It also limits data collection and analysis necessary to make informed decisions about the future management of these assets and the effective protection of waterways.

There is clearly a need for a wide-ranging industry training and professional development program designed to enhance stormwater asset management practice.

This training and professional development program should include a number of components including (but not limited to):

•   Development of web-based training material to inform and guide the appropriate best practice inspection, maintenance and reporting of stormwater treatment assets. It is anticipated that this will utilise existing training documents, including the *Draft Guidelines for the Maintenance of Stormwater Treatment Measure*s (Stormwater NSW, 2020) and *Water sensitive urban design inspection and maintenance guidelines* (Blacktown City Council, 2020).

•   Development of a nationally accredited training program under the Australian Qualifications Framework, aligned to a technically appropriate new Unit of Competency that focuses on the inspection, condition assessment and maintenance of stormwater treatment assets.

•   Development of a tightly focused short course for operational personnel charged with completing routine stormwater maintenance tasks like cleaning out gully baskets and pits. This course would have a significant focus on best practice environmental management and work health and safety.

•   Development and management of a national accreditation program for service providers in the areas of stormwater asset inspection, condition assessment and maintenance.

05 Identify, assess & rectify existing stormwater treatment assets

It is anticipated that tens (possibly hundreds) of thousands of stormwater treatment assets have been installed across Australia to reduce the amount of litter (and other pollutants). Many of these assets are 'gross pollutant traps' (GPTs), which are similar to underground garbage bins that intercept 'gross pollutants' (defined as debris items larger than five millimetres, such as cigarette butts) within the stormwater drainage network during rainfall events.

GPTs subsequently help prevent the discharge of pollution into downstream waterways, and can be large underground chambers or small 'gully baskets' (inserted into stormwater gully pits). Whilst GPTs are highly effective at removing gross pollutants, they also remove other pollutants such as sediment, heavy metals and bacteria.

Anecdotal and published data indicate that stormwater treatment assets owned by local government seldom receive appropriate maintenance and Local Governments rarely enforce the appropriate maintenance/ management of SQIDs on private sites (that are the responsibility of the private site owner/ manager).

Based on our experience and other industry personnel, the lack of any enforcement of appropriate maintenance of SQIDs in private ownership would result in at least 90% of these assets to be in a very poor condition (and subsequently providing very limited stormwater treatment function). In the absence of appropriate maintenance of GPTs, for example, accumulated material will simply fill the capacity of the device – and incoming pollutant loads will bypass the asset (and flow downstream).

As part of this task, Council and privately-owned stormwater treatment assets would be identified and their condition assessed.

Existing Council-owned assets would be identified via a review of Council GIS information (and/ or other data management system), liaison with asset management personnel, and site inspections. Condition assessments would include assigning condition scores for each asset based on methodologies outlined in the aforementioned nationally accredited guidelines, via a review of Council's existing assets register, development application submissions, discussions with Council personnel and liaison with owners/ managers of sites likely to have assets.

Privately-owned stormwater treatment assets would be identified via a review of development application submissions, discussions with Council personnel and liaison with owners/ managers of sites likely to have assets. The owners/ managers of each site would be requested (via written correspondence and, if appropriate, phone conversation) to demonstrate the existing condition and maintenance regime (e.g. in accordance with development assessment conditions) of any assets. Inspections (as required) would be undertaken by Council (or nominated contractors) of selected assets using methodologies outlined in the aforementioned nationally accredited guidelines.

Any necessary rectification works would be appropriately identified, assessed, prioritised and (if appropriate) undertaken.

06

Ensure appropriate management of existing and new stormwater treatment assets

As outlined above, existing stormwater treatment assets seldom receive appropriate maintenance and this is predicted to be the key reason for their poor condition and associated stormwater treatment function. As part of this task, appropriate management of existing stormwater treatment assets would be ensured for both Council and privately-owned stormwater treatment assets.

For Council-owned assets, Council will collate information on the amount and type of pollution removed (and associated asset management costs). It is anticipated that the appropriate management of privately owned assets will require asset owners/ managers to regularly (e.g. annually) demonstrate to Council that the asset(s) are in appropriate condition and being appropriately maintained, providing information on the amount and type of pollution removed (if possible) – with enforcement by Council (or nominated contractors) undertaken, as required.

07

Mandate best practice stormwater quality management for new development

State government legislation in Queensland, Tasmania and Victoria, currently mandates best practice stormwater quality management for new development (above a minimum threshold). Management targets for these states are similar and specify removal targets for litter (or 'gross pollutants'), total suspended solids and nutrients. As a result, stormwater treatment assets (to reduce litter and other pollutant loads discharged downstream from new development) are a common feature.

Across the remainder of Australia, there is no State Government legislation, and stormwater quality management requirements (and associated solutions to mitigate pollution entering downstream waterways) is inconsistent and often absent.

We propose that the Federal Government mandate best practice stormwater quality management targets for new development across Australia, adopting the same (or similar) targets as currently applied in Queensland, Tasmania and Victoria.

08

Installation of new stormwater treatment assets

As part of this task, new stormwater treatment assets would be installed (as appropriate) in high litter generating areas. These assets would be identified, assessed, prioritised and (if appropriate) implemented. A range of asset types may be suitable, including vegetated assets (e.g. bioretention, wetlands) and gross pollutant traps (GPTs).

It is likely that GPTs (as described above) would be a key asset type given that they are highly effective at capturing litter (and other pollutants, e.g. sediment, heavy metals) and can be appropriately integrated in even extremely constrained areas.

For example, 'gully baskets' can be quickly and easily inserted into existing stormwater gully pits, and are highly effective at capturing pollutants that will otherwise enter the stormwater pipe below. These asset types can be easily and safely installed and managed by personnel with minimal training, in accordance with appropriate installation and management guidelines.

Australian Innovation

Appropriate and cost-effective technologies associated with achieving a 'Zero Litter to Ocean' target can be 100% Australian made by Australian owned groups, using equipment and materials almost entirely sourced from within Australia.

Multiple Benefits

Establishing and achieving a 'Zero Litter to Ocean' target for Australia will deliver a wide range of benefits, including (but not limited to):

- Job creation: approximately 7400 jobs will be created by the solutions associated with this target over the first ten years alone. The vast majority of jobs associated with the solutions require minimal training, which can be readily provided.

- Application of Australian-made and owned technologies: Appropriate and cost-effective technologies associated with this strategy can be 100% Australian made by Australian owned groups, using equipment and materials almost entirely sourced from within Australia.

- Cleaner waterways, beaches and oceans: Achieving this target will significantly improve the health of Australian waterways and oceans, and provide associated ecological, economic, social and cultural benefits. For example, this target will stop an average of approximately **600 wheelie bins of plastic** every day entering Australia's oceans and waterways.

A Zero Litter to Ocean Target will stop an average of **approximately 600 wheelie bins of plastic** that are currently entering Australia's oceans and waterways, **per day.**
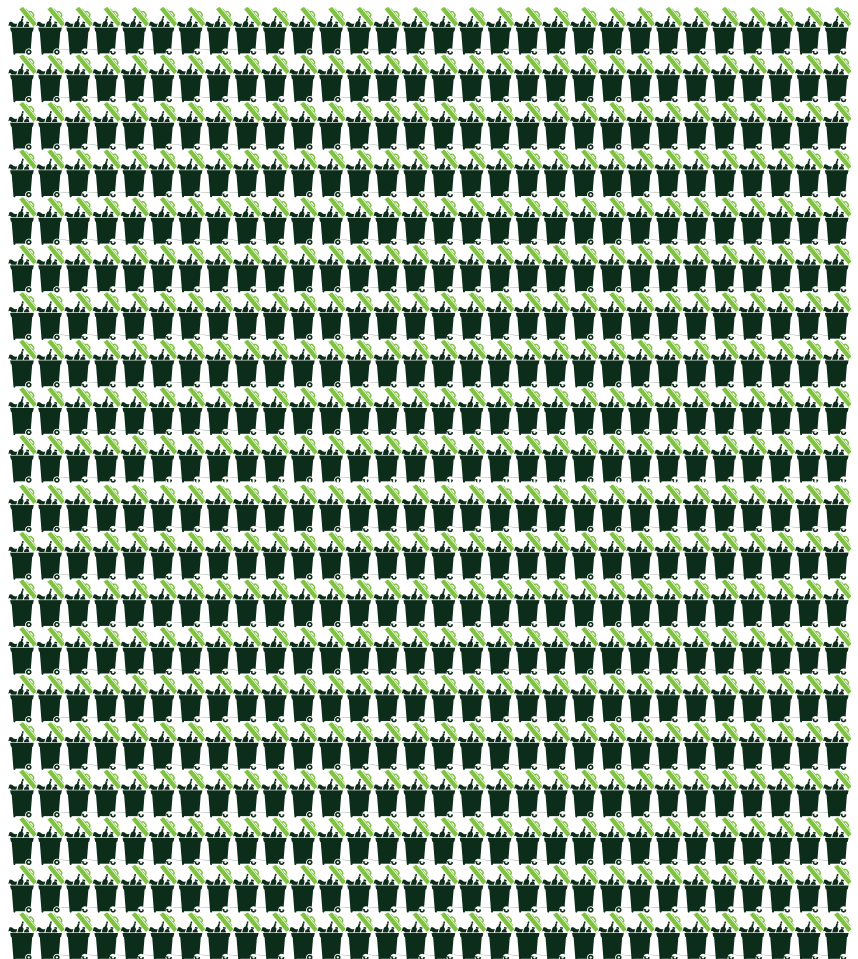
Financial Breakdown: Initial Start-Up Costs

Action Description	Value ($million)	Jobs created (total)
Initial development of educational module delivered to Australian primary school kids each year.	0.48	4
Development of nationally accredited training program for best practice inspection, maintenance and reporting of stormwater treatment assets	0.8	4
Identification and condition assessment of existing Government-owned stormwater treatment assets	20	167
Identification and collation of condition assessment and maintenance information for existing privately-owned stormwater treatment assets	20	167
Development of 'Zero Litter to Ocean' strategies for 'high litter generating' councils	20	17
Total	**61**	**358**

Financial Breakdown: Ongoing Costs

Ongoing Costs		
Action Description	**Value per annum ($Million)**	**Jobs created**
Delivery of education module to Australian primary school kids.	4	67
Enhancement of existing litter reduction strategies:	6	100
Provision of nationally accredited training program for inspection, condition assessment and management of stormwater treatment assets	2	20
Rectification of any Council-owned stormwater treatment assets	40	160
Production and installation of new stormwater treatment assets for high litter generating areas	108	1080
Maintenance of existing Local Government-owned stormwater treatment assets for high litter generating areas	100	1400
Maintenance of new Local Government-owned stormwater treatment assets for high litter generating areas	288	4032
Enforcement of maintenance of privately owned assets	6	100
Monitoring and review	6	100
Total	**560**	**7059**

Total Budget Estimate over First Ten Years

	Total budget estimate over first ten years		
Parameter	**Unit**	**Value**	**Jobs created over 10 years**
Total initial start-up costs (first two years)	$Billion	0.06	358
Total ongoing costs	$Billion	5.6	7059
Total	**$Billion**	**5.7**	**7417**

Who are we?

Stormwater NSW is the preeminent professional urban water management association in NSW, and are a peak industry associated with membership including the majority of councils in the Greater Sydney Region, as well as numerous consulting and manufacturing companies. Stormwater NSW have over 500 corporate, institutional, government and individual members drawn from the engineering, planning, landscape architecture, environmental management, economic management, water resource management, education and community engagement sectors.

Ocean Protect have been leaders in the design, installation and maintenance of stormwater treatment assets and infrastructure for almost two decades. Ocean Protect partnered with Keep Australia Beautiful in 2019 to help deliver an education module titled Keeping Waterways Clean to NSW schools – and partnered with five not-for-profit we're partnering with five charities by donating $50,000 to their collective conservation efforts. This year, Ocean Protect are also partnering with CSIRO to collaborate on marine debris research and education activities, to assist in optimising solutions to reduce the flow of litter into our waterways and oceans.
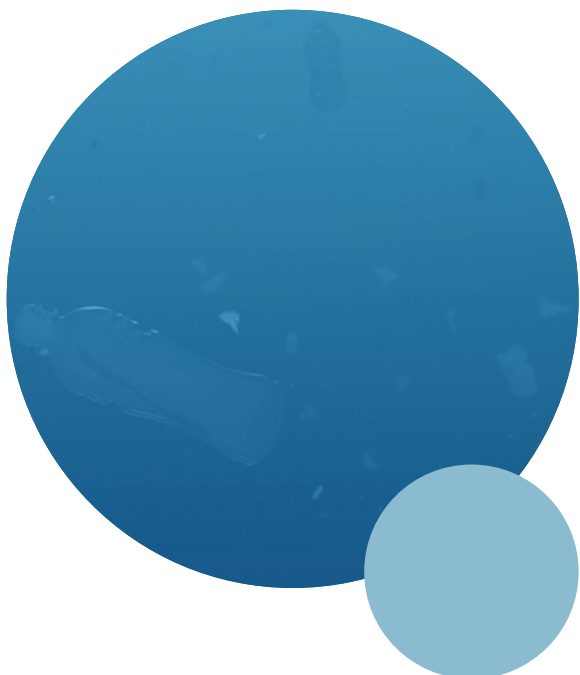
Alan Benson is the President of Stormwater NSW and Catchment Programs Manager at WaterNSW. Alan has extensive experience in source water protection, water management, and environmental sustainability and management projects in the public and resource sector, and has proven skills in establishing partnerships, team development, community consultation, reporting and relationship management.

Jeremy Brown is Vice President of Stormwater NSW and Co-Founder and Director at Ocean Protect. Over the past decade, Jeremy has led various innovation and product developments focused on creating cost effective ways to protect the environment such as using reusable products and natural alternatives. By applying his technical knowledge with his passion for the environment, Jeremy has led the sector and regularly participates in industry groups and conferences.

These groups have provided in-principle support for our program

Councils

Not-for-profit organisations

Private Industry

SP RKS +PARTNERS CONSULTING ENGINEERS

Kingspan

2 DEVELOP URBAN

henry&hymas

mpn consulting

NORTHROP

Rocla
PIPE MANAGEMENT
PMA AUSTRALIA

Adrian Buchan

MORGAN CONSULTING ENGINEERS

Costin Roe Consulting

AWC

Inertia

SGCE

renew SOLUTIONS

assetlogue

optimal stormwater

TOTAL DRAIN CLEANING
Reliable Service › Value for Money

SGC
Engineering Value

CC
CIRCULAR COMMUNITIES

Warren Smith & Partners

MANCE ARRAJ

ADG

C&M CONSULTING ENGINEERS

GEMS Event Management AUSTRALIA

GEMS Environmental Management and Training Services
RTO 90708

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