
4 CATCHMENT VALUES

The catchment values are the particular uses or values that the community expects to preserve.

From October 1994 to December 1995 the Upper Parramatta River Catchment Trust, through a community and government steering committee, worked with the community, local government, and government agencies to determine agreed water quality values, and a strategy to achieve those values. The process was based upon the National Water Quality Management Strategy. The community consultation involved: three consecutive surveys of the 70,000 households in the catchment; placing signage along creek corridors; advertising and releasing articles in regional newspapers and community newsletters; school competitions; and establishing community reference groups (UPRCT, 1996).

The number of responses increased with each survey, and over 2,000 responses to the final survey were received. As well, the community was consulted via focus groups. For that purpose, the catchment was split into four sub-catchments: Darling Mills Creek; Toongabbie Creek; Lake Parramatta; and Parramatta Park.

The values were summarised from the final survey results and were presented to the first meeting of catchment stakeholders on October 1st, 1998. The stakeholders reviewed and made amendments to the values. The resulting catchment values are presented in Table 17.

Table 17: Desired Catchment Values

Catchment Value	Rating
Ecological:	
Diversity and abundance of native plants and animals in and near the creeks	High
Stormwater and the waterways are treated as a living system and an ecological resource	High
Protection, regeneration and rehabilitation of remnant native plants and animals within the entire catchment	High
Reduced impact on downstream catchment	High
Social:	
Appearance of the creeks	High
Access to the creeks and along the riparian zone	High
Knowing the creeks are there	High
Swimming in Lake Parramatta	High
Swimming in other reaches of catchment	Low
Playing, recreation, canoeing and boating	High
Fishing	Medium
Public health and safety	High
Economic:	
Maintain property values adjacent to creeks and tributaries	Medium
Protection from flooding	High
Costs of stormwater management are borne equitably	High

5 STORMWATER MANAGEMENT OBJECTIVES

5.1 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Stormwater Management in the Upper Parramatta River Catchment is based on ecologically sustainable development (ESD) principles. ESD is generally defined as 'development that improves the quality of life, both now and forever, in a way that maintains the ecological processes on which life depends' (National Strategy for Ecologically Sustainable Development, 1992). Such principles are part of:

- each Council's Charter in accordance with section 8(1) of the Local Government Act;
- the Corporate Environmental Policy of the Roads and Traffic Authority;
- the ESD Policy Statement and Environment Plan of Sydney Water Corporation; and
- the Catchment Management Strategy of the Upper Parramatta River Catchment Trust.

ESD requires the effective integration of environmental and economic considerations in the processes of decision-making. ESD is based upon the following ideals:

- a) The precautionary principle - namely, that if there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- b) Inter-generational equity - namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
- c) Conservation of biological diversity and ecological integrity.
- d) Improved valuation and pricing of environmental resources." (Section 6(2) - Protection of Environment Administration Act 1991).

5.2 MANAGEMENT OBJECTIVES

The management objectives are the outcomes that need to be achieved to protect the catchment values.

The catchment values (Section 4) that are classified as 'high priority' have been used to determine the management objectives for stormwater management. The management objectives include:

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- 'Long-term' commitments, (a 'vision' for the catchment up to twenty-five (25) years); and
 - 'Short-term' quantifiable objectives, which are expected to be met within three (3) years of adoption of the plan.

The objectives help form the basis of the actions that are incorporated into this plan.

It is expected that the short-term management objectives will evolve and be refined as our understanding of the catchment and its processes improves. New objectives will also arise to be addressed in the ensuing years. This will sustain a fluid Stormwater Management Plan that will be practically utilised.

Table 20 illustrates the links between the high priority values and the stormwater management objectives for the catchment. The objectives were reviewed and amended by catchment stakeholders at a meeting on October 1st, 1998.

5.2.1 STORMWATER MANAGEMENT OBJECTIVES FOR NEW URBAN AREAS

To satisfy the Section 12 Direction of the EPA, the following interim objectives and pollutant retention criteria have been adopted for proposed developments within the Upper Parramatta River catchment. The objectives define the level of water quality control for various types of development, the priority pollutants for different land uses, and the performance criteria to satisfy the treatment strategy. The objectives will provide criteria that will allow specific developments and construction activities to proceed on the basis of Ecologically Sustainable Development using approved practices in a series treatment approach to control pollution. The objectives have been formulated with the input of individuals representing industry and regulatory authorities. A list of the contributors is located in Appendix 4.

However, the retention criteria for specific pollutants do not provide sufficient information to allow the selection of an appropriate pollution control strategy. These criteria must be related to a Treatable Flow Rate (catchments =5ha) or Average Annual Pollutant Load (catchments >5ha), both of which are dependant on site-specific rainfall and runoff relationships. These vary throughout the catchment and each Council will develop an appropriate Treatable Flow Rate, based on the amount of runoff to be treated, for use within its Local Government Area.

Construction Phase Objectives

Although a consistent approach throughout the catchment is desirable, each council has its own conditions regarding pollution control and site management during construction. Consequently construction activities throughout the catchment will have to comply with the Development Consent Conditions and the Soil Erosion and Sediment Control Policy of the respective Council. These policies are based on current best practice and aim to achieve

the objectives for erosion and sediment control described in "Managing Urban Stormwater: Soils and Construction" (NSW Department of Housing, 1998).

Post Construction Phase Objectives

Each style of development produces a different set of pollutants and consequently the treatment strategies employed on each will vary depending on the size of the catchment, the style of development and the type of pollutants generated by the activities on the site. To assist in developing water quality control strategies for new developments, a set of objectives and the pollution retention criteria that must be achieved are set out in Table 18 and Table 19 respectively. These Objectives and Pollution Retention Criteria will be revised annually on the basis of a long-term strategy to achieve Ecologically Sustainable Development within the Upper Parramatta River catchment.

The approach required to demonstrate compliance with these objectives is described in Appendix F2 p.135, "Managing Urban Stormwater: Council Handbook (Draft)" (EPA, 1997b). Three categories with associated modelling techniques are described in this Appendix, however in the Upper Parramatta River catchment a fourth category is to be included for catchments ≥ 5 ha. This category will specify a Treatable Flow Rate (TFR) for each contaminated hectare of catchment that contributes to the pollution control device. The TFR will be determined by the respective Council in each Local Government Area and will apply to those areas with in excess of 300 m² of impervious area or for subdivisions of land involving the creation of 3 or more building allotments, up to a maximum area of 5 ha.

Rankings are defined in order of their perceived importance from (a) highest to (f) lowest. All devices, or series of devices, must treat all the pollutants but only achieve the pollution retention criteria for Objectives (a), (b) & (c). In addition, the devices must achieve pollution criteria (d) & (e) where the development style is marked with *.

Table 18: Ranking of Interim Objectives for New Development

Development Style	Litter	Coarse Sediment	Nutrients	Fine Particulates	Cooking Oil & Grease	Hydrocarbons Motor Spirit, Oil & Grease
Low Density Residential (single dwellings & residential developments =5ha)	b	c	a	d	e	f
High Density Residential (medium density & residential developments >5ha)	a	d	f	b	e	c
Commercial, Shopping Malls and Retail Outlets*	a	d	f	b	e	c
Industrial*	c	d	f	a	e	b
Fast Food Outlets & Restaurants*	b	c	f	d	a	e
Carparks, Service Stations and Wash Bays*	c	d	e	b	f	a

Where substances are stored on-site or transported across the site or where there is the likelihood of a spillage or leakage of a pollutant, then the water pollution control device shall be specified in accordance with the materials or pollutants, which may escape into the runoff. A device so specified shall not compromise the pollutant retention efficiency of any device specified in accordance with the above table. All areas subject to accumulation of liquid pollutants such as motor oils, greases and motor spirits, must provide a "First Flush" retention system in accordance with the requirements of the NSW EPA and have a minimum capacity of 1,000 litres incorporating a high level alarm, in accordance with the Dangerous Goods Act, 1975.

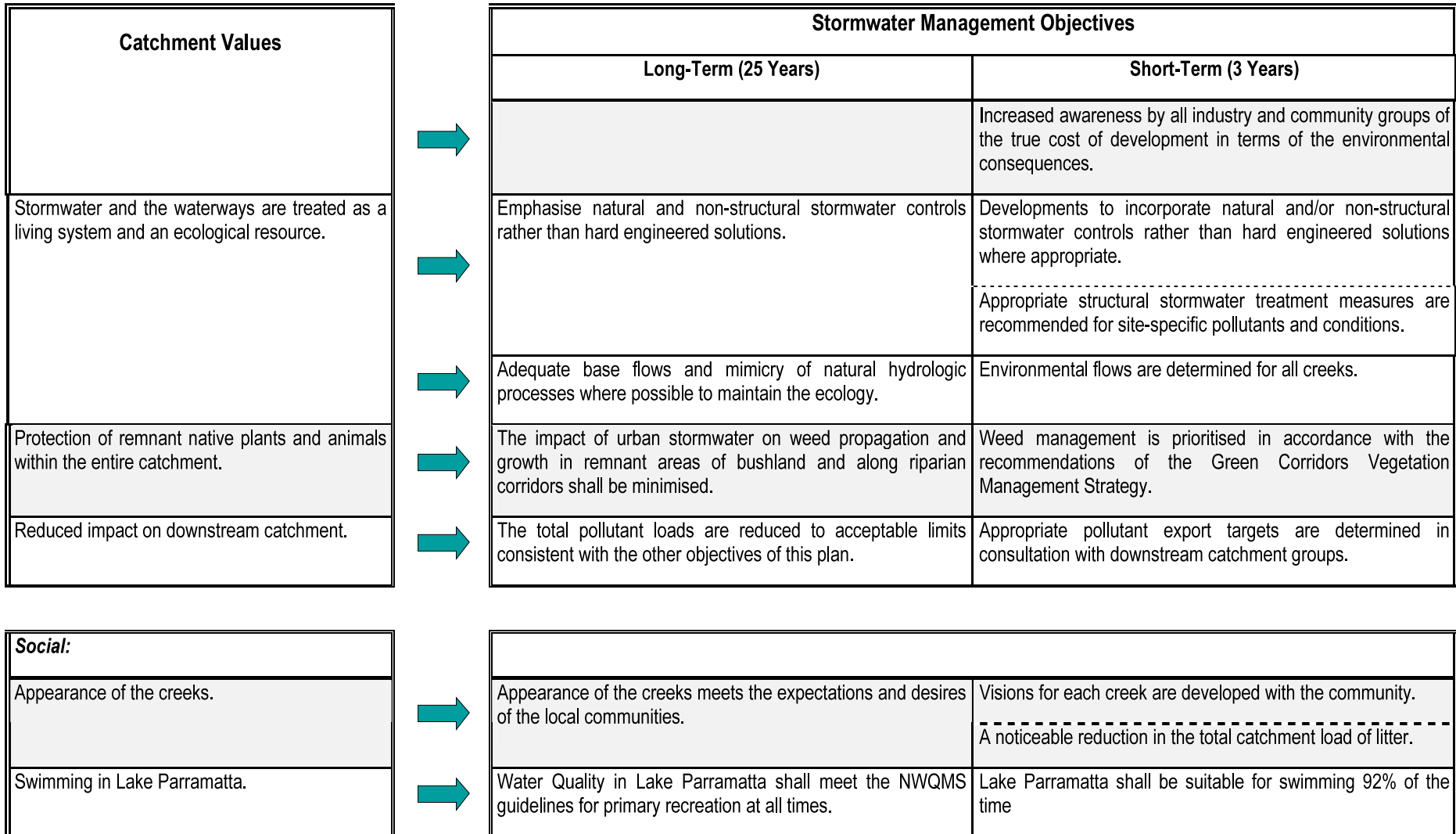
Notwithstanding the above the consent authority reserves the right to approve devices on a site-specific basis, taking into account the development activity and/or the potential for harm to the environment.

Pollutant	Description	Retention Criteria
Litter	All anthropogenic material e.g cans, bottles, wrapping materials etc	70% of objects 5 mm dia. or greater
Coarse Sediment	Coarse sand (≥ 0.5 mm)	80% of the load for particles 0.5 mm dia. or less
Nutrients	Total Phosphorus and Total Nitrogen	45% retention of the load for each.
Fine Particles.	Fine sand (≤ 0.05 mm)	50% of the load for particles 0.1 mm dia. or less
Cooking Oil & Grease	Free floating oils that do not emulsify in aqueous solutions	90% of the load with no visible discharges
Hydrocarbons, Motor Spirit, Oil & Grease	Anthropogenic hydrocarbons that can be emulsified	90% of the load

Table 19: Pollutant Retention Criteria for Stormwater Treatment Devices

Table 20: Stormwater Management Objectives Linked to Catchment Values

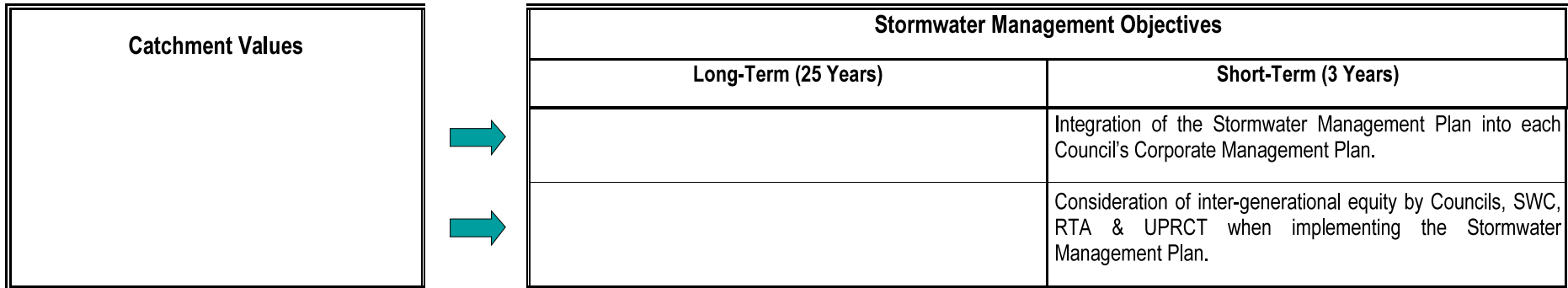
Catchment Values	Stormwater Management Objectives	
	Long-Term (25 Years)	Short-Term (3 Years)
Ecological:		
Diversity and abundance of native plants and animals in and near the creeks.	The water quality of the catchment meets the NWQMS guidelines ⁱ for the protection of aquatic ecosystems.	Ambient concentrations of nitrogen and phosphorus within the catchment are reduced by 5% (based on 1998 concentrations).
	Erosional processes within streams are managed to control erosion up to the "bankfull event".	All major catastrophic failures to be addressed; other sites to be prioritised accordingly.
	The physical habitats for the aquatic fauna within the catchment waterways are to be protected and rehabilitated.	The physical habitats of selected sites ('hot spots') within Toongabbie Creek sub-catchment are rehabilitated ⁱⁱ .
	The value of the indigenous riparian and floodplain vegetation and the associated fauna habitats shall be optimised by maintenance and regeneration.	Indigenous plants are used to improve riparian and terrestrial vegetation in line with the Green Corridors Management Strategy.
	Construction activities will not impact adversely on catchment values.	All Councils committed to enforcement of erosion and sediment controls in accordance with a uniform policy. ----- All construction activities in terms of pollution are controlled in accordance with "Managing Urban Stormwater: Soils & Construction" ⁱⁱⁱ . ----- Pollutant loads and stormwater generally from major developments are managed on site.
	Industrial and commercial activities will not impact adversely on catchment values.	Council industrial auditing programs are undertaken in the whole catchment.





Catchment Values	Stormwater Management Objectives	
	Long-Term (25 Years)	Short-Term (3 Years)
Playing, recreation, canoeing and boating.	Water quality in the catchment shall meet the NWQMS guidelines for secondary recreation at all times.	The waterways in the catchment shall be suitable for secondary contact recreation 100% of the time except up to 3 days after rainfall.
Access to and along the riparian zone ^{iv} .	All creeks and riparian zones to have appropriate access without impacting on vegetation and ecology.	Production of prioritised plans to improve creek access. ----- Land assessment to identify access, lack of access and areas of significance that may bring people to the creeks and riparian zone.
Knowing the creeks.	95% of the community recognises the existence and unique nature (in terms of heritage, culture, ecology, sense of place and pride in place) of the Upper Parramatta River Catchment Waterways.	Community awareness programs are implemented in the catchment.
Public health and safety.	The impact of stormwater on public health and safety shall be minimised.	Identification of areas that pose a threat to public health and safety.

Economic:		
Protection from flooding.	Meet the targets established in the Floodplain Management Policy.	Councils in the catchment shall adopt a catchment based Floodplain Management Policy.
Costs of stormwater management are borne equitably.	Sufficient dedicated funds are available to implement the Stormwater Management Plan and maintain the outcomes.	Funds are allocated by stakeholders to meet the short term objectives and agreement is given on a long term funding strategy.
	Whole of Council, RTA, SWC & UPRCT commitment to the Stormwater Management Plan.	Whole of Council, RTA, SWC & UPRCT commitment to the Stormwater Management Plan.



i. National Water Quality Management Strategy (ANZECC, 1992) as adopted by Upper Parramatta River Catchment Trust in the “Streamly Clean” Project.

ii. The sites undergoing rehabilitation or deemed requiring rehabilitation are:

- Blacktown Creek, Seven Hills - International Peace Park and Orana Park
- Coopers Creek, North Wentworthville (downstream of Hart Drive)
- Finlaysons Creek - scouring near Briens Road, North Wentworthville
- Greystanes Creek between railway line and Station Road, Toongabbie
- Toongabbie Creek between McCoy Park and Johnston’s Bridge, Toongabbie

Please refer to the categories H1 (Vegetation Management) and I1 (Stream Integrity) within Section 7 of the Plan.

iii. NSW Department of Housing, 1998.

iv. Riparian Zone: The area along the banks of a river or other freshwater body.