
EXECUTIVE SUMMARY

The Upper Parramatta River Stormwater Management Plan has been developed cooperatively by the Councils of Baulkham Hills Shire, Blacktown City, Holroyd City, and Parramatta City, and the Upper Parramatta River Catchment Trust to comply with the requirements of a notice issued by the NSW Environment Protection Authority (EPA) under Section 12 of the Protection of the Environment (Administration) Act 1991. The Roads and Traffic Authority and Sydney Water Corporation are required to participate in the preparation of the Plan as stipulated in a notice issued under Regulation 21 of the Clean Waters Regulation 1972 by the NSW EPA. The Upper Parramatta River catchment is located approximately 20-30 km west-north-west of the Sydney Central Business District.

The Stormwater Management Plan:

- describes the catchment (Section 2);
- identifies the existing catchment conditions (Section 3);
- establishes the community-endorsed environmental values of the catchment (Section 4);
- presents appropriate management objectives to protect the values (Section 5);
- identifies stormwater issues in the catchment (Section 6);
- specifies and evaluates potential management options to address the issues (Section 7)
- includes implementation strategies for the four councils which occur within the catchment, the Roads and Traffic Authority, Sydney Water, the Upper Parramatta River Catchment Trust and the Parramatta Park Trust (Section 8);
- presents a performance monitoring program for the Plan (Section 9);
- describes a mechanism for reporting on the implementation of the plan (Section 10); and
- provides a revision timetable for the Plan (Section 11).

Extensive community consultation has been undertaken throughout the process of the Plan.

Catchment Description

Figure 3 shows the location of the catchment in relation to Sydney. The catchment's area of 108 km² includes the cities of Parramatta and Blacktown at

the perimeter, Parramatta Central Business District being located at the catchment outlet, and Blacktown located at the western extremity of the catchment. The resident population of the catchment is 220,500 with approximately 70,000 properties.

The main waterways in the catchment include the Parramatta River and its tributaries, Toongabbie Creek and Darling Mills Creek. Toongabbie Creek and its tributaries drain the southwest area of the catchment, of which the majority is heavily urbanised. The Darling Mills Creek sub-catchment is located in the northeast section of the catchment, the majority of the creeks remaining in a natural or semi-natural state.

The majority of land use zoning in the catchment is urban (94%), of which 72% is residential, 10% commercial and industrial, and 12% infrastructure. 5% of the catchment is open space and bushland, and the remaining 1% is zoned 'rural'. Major transport corridors traverse the catchment including the M2 and M4 motorways, the Great Western Highway, James Ruse Drive, Cumberland Highway and Windsor Road. Industrial areas are located at Seven Hills, Girraween and North Rocks.

Information relating to the catchment's demography, waterways, land use, topography, geology and soils, and climate is provided in Section 2 of the Plan.

Existing Catchment Conditions

A number of water quality studies have been performed in the catchment. Local schools involved in the Streamwatch program have undertaken a regular water-monitoring program since 1993. The Upper Parramatta River Catchment Trust contracts J.H. and E.S. Laxton Pty. Ltd. to undertake water quality monitoring at four locations in the catchment each month. This work has been carried out since 1990 and is continuing. The results from all monitoring programs do not generally comply with water quality objectives for the protection of aquatic ecosystems and recreational water quality (refer to Section 3.4.1). Biological assessment of environmental health using macroinvertebrates as indicators was undertaken in 1997. The results of the macroinvertebrate assessments indicated that there is a significant difference in ecosystem health between the two major sub-catchments, Toongabbie Creek and Darling Mills Creek. According to the results, Darling Mills Creek sustains a more productive ecology compared to Toongabbie Creek.

Pollutant loads (Section 3.4.2) at the catchment outlet have been modelled by Downes (1998), Gamtron (1996) and Sydney Water (1992, 1995). Total pollutant loads were substantially increased during wet weather, and the majority of pollutants loads are in the largest 10 per cent of storm events according to Downes (1998). In contrast, during dry periods the Charles Street Weir (catchment outlet) prevents most tidal flushing of the upstream waters, causing a high retention of pollutants behind the weir.

The main pollutant sources (Section 3.4.3) in the catchment are diffuse pollution from stormwater and sewage overflows. According to modelling results from Sydney Water (1998a), sewerage overflows contribute 94% of

faecal coliform bacteria, whereas stormwater pollution contributes 69% phosphorus and 64% nitrogen of the total pollutant contribution. Investigations carried out by Birch (u.d.) on fluvial sediments indicated high levels of contamination adjacent to industrial areas of zinc, lead, and copper, the highest levels adjacent to the Seven Hills and Girraween industrial areas. Organochlorine pesticide concentrations closely followed the trends seen with heavy metals near the industrial areas. Pendle Creek and Finlaysons Creek also contained high levels of heavy metals.

The original diversity of aquatic flora and fauna has been reduced significantly as a result of urbanisation in the catchment (refer to Section 3.5). Most of the edges of the Parramatta River and Toongabbie Creek and its tributaries have been cleared of vegetation. Remnants of aquatic flora are freshwater macrophytes and phytoplankton (floating algae), with phytoplankton dominating the waters. Elevated nutrient levels have led to algal blooms, particularly in the lower sections of the catchment. Common faunae are eels, carp and invertebrates. Aquatic weeds and alien fish have proliferated with the marked impacts of urbanisation in the catchment.

Small pockets of remnant riparian vegetation and urban bushland are distributed across the catchment and are described in Sections 3.6 and 3.7. Most bushland remnants in the catchment occur along the drainage lines where flood-prone land has been allocated for open space for drainage easements and playing fields. Only components of the Sydney Sandstone Complex are common in the region; the other communities in the catchment are endangered, extant and inadequately reserved. The extent of existing remnants is far below the area where they even approach the levels required for comprehensive, adequate and representative reservation (National Parks and Wildlife Service, 1997).

Catchment Values

Catchment values are the particular uses or values that the community expects to preserve. The Upper Parramatta River Catchment Trust worked with the community to determine agreed water quality values in the catchment. The values were reviewed and amended by community stakeholders from the catchment at a meeting held on October 1st 1998. The resulting ecological, social and economic values are presented in Table 17.

Stormwater Management Objectives

The technical or scientific criteria to protect the values are the management objectives. Short-term (up to three years) and long-term (up to twenty-five years) objectives have been determined for the high priority values. The objectives are listed in Figure 13.

Stormwater Management Issues

Stormwater management issues or problems in the catchment and their possible causes are presented in Table 19. The issues have been placed under the categories: environmental; managerial; and social.

Identification and Evaluation of Management Options

Management options are the actions that the stormwater managers will take to address the problems or issues in the catchment and achieve management objectives. Table 21 provides details of the identified stormwater management options, which issues each option relates to, the priority of each option, and the relevant organisation responsible for the implementation of each option. The options have been placed in the following sections:

- nutrient reduction
- education
- policy and management
- litter
- sediment, oils/greases and toxic chemicals
- monitoring and auditing
- public health and safety
- vegetation management
- stream integrity
- site-specific integrated stormwater management

The management options were prioritised using a ranking methodology loosely based upon EPA (1997b). An explanation of the methodology employed and the ranking calculations are located in Appendices 6a and 6b respectively. The links between the management objectives and the management options are shown in Table 22.

Implementation Strategies

Implementation Strategies for the participating organisations are listed in Tables 22- 30 inclusive. Table 23 represents the strategies which must be implemented by all or most of the participating organisations and hence represent organisational, managerial, and administrative strategies. Coordination will be required between these organisations to achieve the benefits for the total catchment and downstream. The subsequent tables represent the strategies which are purely related to one stormwater manager and largely represent capital and improvement works. In the case of Table 31, the strategies assigned to the Upper Parramatta River Catchment Trust are

those which must be prepared and/or managed by one manager for the entire catchment with little input but liaison from the other managers.

Monitoring, Reporting, Revision

Monitoring, reporting and revision are detailed respectively in Sections 9, 10 and 11 of the report. Monitoring will include continuation of physico-chemical and biological monitoring for water quality and the use of community focus groups to estimate if there is an increase in the general awareness of the problems associated with stormwater and the resources and involvement of organisations and individuals to manage those problems. The participating councils' State of the Environment Reports and the Upper Parramatta River Catchment Trust's State of the Catchment Report will report annually on the progress of the Plan. A revision timetable (Table 32) provides the projected dates for review and revision of the Stormwater Management Plan. The Stormwater Management Plan will be linked with each Council's corporate Management Plan to effect implementation. All management options that have been listed in the implementation strategies will be considered in terms of available resources and incorporated into each Council's program of works, the Roads and Traffic Authority and Sydney Water Environment Improvement Programs, and the Upper Parramatta River Catchment Trust's list of priority projects.