

Section 3 Review of the Year's Achievements 2000-2001

The Trust has identified six key objectives as part of its 1999-2003 Corporate Plan. These objectives are:

- Solve Existing Flooding Problems
- Maintain Flood Protection
- Improve Water Quality
- Improve Riparian Vegetation and Recreation
- Strengthen Community Education, Marketing and Involvement
 - Better Catchment Co-ordination and Planning
 - Enhance Organisational Capabilities.

At its meeting on 16 February 2001 the Trust resolved to include in its revised 1999-2003 Corporate Plan a seventh objective:

- Promote Sustainable Water Usage.

Solve existing flooding problems

To speed up the construction of flood mitigation works and measures, the Trust encourages flood mitigation and drainage activities by the four local councils by co-ordinating, providing technical advice and funding half the cost of approved projects. At the same time, the Trust carries out activities in its own right. It also undertakes strategic activities, such as flood modelling, priority setting, collecting flood data, protecting basin sites and formulating major projects.

Upper Toongabbie Creek Flood Mitigation Strategy

Construction works to enlarge the capacity of the existing Sierra Place flood retarding basin on upper Toongabbie Creek at West Baulkham Hills commenced in September 2000 and were substantially completed in April 2001. The main basin embankment has been raised by 2.5 metres and the secondary levee/wall by 1.5 metres. The basin's culvert has also been modified to improve the flood mitigation performance and make it easier to remove flood debris. The contractor for the works was Trimcoll Pty Ltd of Kellyville, while Willing & Partners provided design and project management services. One of the challenges overcome by the contractor was the provision of safe access for both pedestrians and cyclists through the site during the construction period. Additional paths have improved both recreational and maintenance access to the reserve and the basin infrastructure. Ongoing weed removal, bush regeneration and landscaping works will continue throughout 2001/2002

to complete the project. Baulkham Hills Shire Council has provided additional funding for landscaping to further embellish the reserve and will now project manage this component.

Costing a total of \$1.2M, (with two thirds of the funding provided by the Department of Land and Water Conservation) the works will prevent the basin overtopping in a 100-year flood and help protect 300 homes further downstream in Toongabbie.

North Wentworthville Floodplain Management Study

In the area of North Wentworthville near the confluence of Toongabbie, Finlayson's and Coopers Creeks, many properties are flood liable and the natural creeks are badly degraded and polluted. A Trust-funded floodplain management study of the North Wentworthville area in 1997 developed a draft North Wentworthville Floodplain Management Plan. If implemented, the Plan would substantially protect up to 180 homes from major floods and greatly improve a badly degraded section of creek at an estimated cost of \$1.5M. Its two key elements were a flood culvert under Briens Road to lower upstream flood levels and redevelopment of flood liable, but low hazard, areas adjacent to the creeks for flood compatible multi-unit housing in order to reduce the overall flood risk to the community.

Because of its redevelopment option, Parramatta City Council publicly exhibited the draft plan in early 1999, and again in early 2000, alongside Council's draft Comprehensive Local Environment Plan. In March

2000 Council resolved to seek a supplementary study to provide an economic justification of the proposed Briens Road flood culvert, assess possible downstream impacts, provide a concept design and an accurate cost estimate and examine planning implications of the redevelopment option.

Following the appointment of Council's Waterway System Manager, in February 2001 Council engaged a planning/urban design consultancy, in conjunction with an engineering consultant, to address both rezoning and urban design issues in the area of North Wentworthville closer to the railway station and floodplain management in the flood liable areas adjoining the creeks. The Trust is contributing to the cost of this study, which is due to be completed in August 2001.

The draft Floodplain Management Plan proposed action to fix a large scour hole that has developed immediately downstream of the concrete-lined section of Finlayson's Creek, right next to Briens Road. Sydney Water has agreed to fund the necessary works and engaged consulting engineers to undertake the investigation and design. A preliminary report, submitted to Sydney Water in March 2001, proposed a structural solution. Parramatta City Council and the Trust did not support this. As a result, Sydney Water has agreed to examine a more comprehensive scheme involving removal of the concrete-lined canal at the lower end of Finlayson's Creek and its replacement with a naturally functioning creek.

Pendle Hill Creek Floodway

Since 1992 Parramatta City Council has been constructing the Pendle Hill Creek Floodway from Burrabogee Road to Barangaroo Road, Toongabbie,

with technical and financial support from the Trust. The works are about three-quarters completed. To complete the Floodway, two short sections of creek just upstream of Barangaroo Road still have to be reconstructed. Council has been negotiating with the landowners whose properties are affected by the first section of the Floodway but progress has been very slow. A development application for the work on one section has been submitted but cannot be approved without the consent of all the owners. The Trust has allocated funds for its half share of the cost of the outstanding works and continues to support Council in the negotiations.

Reconstruct Greystanes Creek at Toongabbie Bowling Club

At the Toongabbie Bowling and Recreation Club, Toongabbie, large willow trees, poor soil, poor channel alignment and stormwater lines discharging straight into Greystanes Creek had caused serious bank erosion and the potential to wash away the fencing and a footpath along the creek bank. Following a protracted design and approval process, reconstruction of the creek banks commenced in July 2000 and was completed in October 2000. Parramatta City Council managed both the design consultancy and the construction contractor. The Trust provided half of the total cost of \$750,000. The Club has agreed to give the land over the creek to Council without cost following completion of construction. Negotiations are underway to determine the new boundary.

Wet weather soon after the completion of the reconstruction caused some damage to the works and washed away up to a third of the newly planted



Council and the Trust have agreed to jointly fund a supplementary study to provide an economic justification of the proposed Briens Road flood culvert at North Wentworthville, assess possible downstream impacts, and provide a concept design and an accurate cost estimate



The Sierra Place flood retarding basin on Upper Toongabbie Creek at West Baulkham Hills was raised by 2.5 metres to enlarge the capacity of the basin.



vegetation. The contractor repaired the damage, and a follow up planting will occur in the second half of 2001. The vagaries of the weather are just one of the many challenges to be faced when reconstructing a creek such as this.

Other Flood Mitigation Projects

At a number of locations in the Shire of Baulkham Hills, stormwater surcharging the piped drainage system used to flow through numerous residential properties along the natural flow path. In early 1998 Council engaged consultants to design and negotiate measures to minimise stormwater damages at five such locations. These were the Farnell Avenue to McDonald Street area

are designing and documenting a new 20-year flood capacity bridge having the same hydraulic capacity as the creek channel upstream and downstream. The estimated cost of the new bridge and associated creek bank works is \$1.24M. To avoid the significant extra costs of raising the bridge deck (to provide the required waterway area) and transitioning the roadway either side, it will be much less expensive to lower the creek bed beneath the bridge instead. To do so, a sewer main in the creek bed must be relocated and property services adjusted. Other consultants have been retained to design the sewer adjustments. It appears it will now be necessary to bore beneath Station Road and reconnect the sewer on the downstream side of the road. These investigations are proceeding.

The flood problem along the upper reaches of Blacktown Creek in the Myrtle Street to Ollier Crescent area at Prospect is one of the most significant in the catchment, with an estimated 95 residences affected in a 100-year storm. Following investigations over many years, Blacktown City Council has designed a flood retarding basin and extensive pipe work scheme to relieve the most serious flooding at a cost of \$1.4M. Council and the Trust have voted funds for the project. Construction began in May 2001 and should take four months.

The imminent redevelopment of the former Transfield and Prospect Electricity sites in Powers Road, Seven Hills as a high technology business park, provides a unique opportunity to address the remaining flood threat to this part of the Seven Hills Industrial Area. Blacktown City Council and the Trust have therefore agreed to jointly fund preparation of a Seven Hills

(North Rocks); upstream of Gooden Reserve (West Baulkham Hills); Lindsay Street (Baulkham Hills); Gowan Brae/Gollan Avenue area (Oatlands); and Excelsior Avenue to Roxborough Park Road (Castle Hill). Because of considerable delays in finalising these investigations, Council asked that priority be given to completing studies and design plans for the Gollan Avenue area. Detailed design plans for the pipe augmentation and small detention basin work were prepared. A contractor carried out the work in early 2001 at a cost of \$330,000. The Trust contributed half the cost. Meanwhile Council is seeking to finalise the investigations of the other four areas.

The most-frequently flood road crossing in the catchment is the four-cell box culvert on Blacktown Creek at Station Road, Seven Hills. In conjunction with Blacktown City Council, consulting engineers

Industrial Area Floodplain Management Study to determine the feasibility of various proposed flood mitigation options and the ultimate design flood levels if all cost justifiable options were put in place. The first stage of the Study, involving investigations, concept design of options and preliminary cost estimates, will commence in August 2001.

Maintain flood protection

The need to institute effective catchment-wide development controls was a major reason for establishing the Trust. The flooding and stormwater surcharge problems experienced in the catchment are primarily due to the past failure of decision-makers to consider the cumulative impacts of urban developments on stormwater discharges. Whilst past development controls sought to minimise the impacts of flooding on new developments, the Trust and local councils are now implementing policies aimed at controlling the causes of urban flooding.

Floodplain Management Policy

Despite the expenditure of some \$30M on structural flood mitigation works in the catchment in the past 12 years, none of the four councils has yet adopted a Floodplain Management Plan for any areas within the catchment, as required under the NSW Government's flood policy. (This means that the councils may not have the benefit of the indemnity provided under Section 733 of the *Local Government Act 1993*.) Since 1998 the Trust has been working with representatives of the four local councils through the Floodplain Management Policy Task Group to have a common floodplain management policy and associated Development Control Plan adopted by all councils to provide a basis for site-specific Floodplain Management Plans. By early 2000 the Trust's consultants had prepared draft instruments, but competing demands considered more important than flooding have, to date, prevented the four councils' statutory planners tailoring the drafts and submitting these for consideration by their council.

There are some encouraging signs however. Blacktown City Council has adopted a Floodplain Management Plan for its Hawkesbury Nepean catchment area; Holroyd City Council has programmed the work for mid 2001; Baulkham Hills Shire Council formed a Floodplain Management Committee with councillor membership and is about to revise its Local Environment Plan; and Parramatta City Council plans to revise all its statutory instruments in early 2002. Parramatta City Council is

also currently revising a draft Floodplain Management Plan for North Wentworthville and is about to commence development of a Lower Parramatta River Floodplain Management Plan for its estuarine streams. Meanwhile, the Trust is continuing to prepare the flood level, extent and hazard plans required to implement floodplain management plans.

On-site Stormwater Detention (OSD)

In 1991 the Trust and all four local councils adopted a common on-site stormwater detention policy to control the growth of flooding. Extensive computer simulations by the Trust showed that the discharge from all future developments must be limited to 80 litres per second per hectare to ensure that



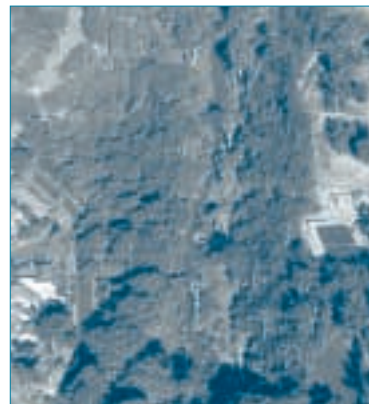
Construction of the Myrtle Street-Ollier Crescent flood retarding basin at Prospect.

downstream flood discharges and levels do not increase. The Trust supports the OSD policy by maintaining a technical manual, operating an OSD database, inspecting OSD systems, conducting training, providing technical advice on specific projects, auditing and providing policy advice. At present there are believed to be in the order of 1,500 OSD systems in the catchment, with a total storage volume of more than 40,000 m³.

Since October 1998 the Trust has employed a contract Stormwater Inspector to inspect and report on the condition of existing OSD systems in the catchment, working in turn out of each of the four local councils. In the year to June 2001, 401 OSD systems were inspected even though the Inspector has only been employed for 25 hours per week since October 2000. He also provided advice to many owners on how to maintain these systems. The inspections have encouraged the councils to add details of completed OSD systems to the OSD database. Since May 2000



Greystanes Creek reconstruction adjacent to Toongabbie Bowling Club, Toongabbie.



Aerial photograph of Toongabbie Creek at Old Toongabbie.





Since October 1998 the Trust has employed a contract Stormwater Inspector to inspect and report on the condition of existing OSD systems in the catchment

the Trust has also employed a casual clerk who works for four hours per week to assist the councils in adding details of completed systems to the database.

For some time local councils have been concerned at the standard of Works-as Executed (WAE) plans and certification of OSD systems and their performance. With the changes to the *Environmental Planning and Assessment Act* in recent years the community relies more than ever on certification by consultants. A number of examples have been found where the WAE plans and/or certifications have been sub-standard and the Trust has referred these matters to the relevant professional associations for disciplinary action. It is intended to send a clear message to the development industry that inappropriate practices will not be tolerated in this catchment.

The first revision of the third edition of the OSD Handbook was released in January 2001. Free copies of the Handbook can be downloaded from the Trust's web site (www.uprcr.nsw.gov.au).

Regular revisions of the handbook will be released to ensure that it accurately reflects current OSD practices.

Another way the Trust supports good design and construction is by sponsoring the Stormwater Industry Association's OSD Excellence Award as part of the Association's Australia-wide environmental management awards. The winner in 2000 was D S Agencies of Perth in association with the Sydney-based Atlantis Corporation. Highly Commended certificates were presented to Rammy Associates of Pendle Hill, NSW, and Haddad Khaicy Partners of Harris Park in NSW.

As part of its changing focus towards sustainable water management the Trust will be examining opportunities of combining its OSD practices with water quality and re-use in the coming year.

Catchment Flood Modelling

In order to understand the flooding characteristics of the catchment, the Trust has developed and maintains detailed computer models: a hydrologic model (using RAFTS-XP) and a detailed hydraulic model (using MIKE-11). The Trust's own technical staff undertake all of the model development, testing and use because of the need to have a consistent and reliable basis for all Trust flood-related activities.

Hydrologic models calculate the flood flows resulting from historical or statistical rainfalls, whilst the hydraulic models compute the flood levels for

particular flood flows. These take account of all land use changes, developments, creek channel modifications and flood mitigation works. All of the local councils use the results of these models to assess the flood liability of properties and the likely flooding impacts of proposed developments. As well, the Trust and the councils use the models to design flood mitigation works.

Because so much of the Trust's and the councils' flood-related activities are based on the Trust's computer-based flood models, in June 2000 the Trust agreed to have two nationally-recognised experts, Dr Allan Goyen and Dr Brett Phillips, review the Trust's flood modelling. Under normal circumstances these models are calibrated to historical flood data. But the last significant flood in this catchment was in 1992. Since then, the catchment has undergone substantial development and many flood mitigation works have been completed, making model calibration to earlier flood data impossible.

An interim report submitted by Goyen and Phillips in March 2001 concluded that the Trust's 100-year flood peak flows are consistent with those determined elsewhere in the Sydney region and recommended specific sets of model parameters, model discretisation and model versions that would provide the most reasonable results. At the request of the two reviewers the Trust modelled the small storm of 27-31 January 2001, which, although its flows were confined within the stream banks, was large enough to provide a useful check under current catchment conditions.

To assist the catchment flood modelling and other activities, the Trust has developed a very powerful geographical information system (GIS) capability. Already, GIS layers containing property boundaries, contours, soils, vegetation community types, roads, creeks, catchment and sub-catchment boundaries and an aerial photo base have been obtained. The Trust has developed layers setting out the location and extent of both the hydrologic and hydraulic models. The Trust GIS database is served on two web sites, one for public access (www.uprcr.nsw.gov.au/gis/gis.htm), the other, a more comprehensive site, only accessible to the Trust, Councils and consultants who are undertaking projects for the Trust or Councils.

Asset Maintenance

One of the Trust's corporate objectives is to ensure proper maintenance, repair and enhancement of waterways, trunk drainage and flood mitigation

systems within the catchment. It is also vital that any shortcomings in structures, which might jeopardise public safety, are promptly rectified. To encourage and assist councils in this regard, the Trust's Safety and Maintenance Working Party, comprising drainage and/or maintenance staff from the four councils, has been meeting every six months since 1995 to oversight the provision of maintenance and remedial work.

In the last year a standard inspection sheet has been developed with each council progressively adapting the sheet to suit the assets under its control. This will reduce the time taken for inspections and help expedite maintenance actions.

The Trust has also commissioned a new web based database, which should be fully operational by August 2001. The database will record essential design and construction information for each asset, which will simplify the provision of this information to other bodies such as the Dam Safety Committee and ensure that council staff has access to the information whenever required. The database will allow councils to record the results of their regular inspections. This will ensure that maintenance records exist to show that the asset owners have fulfilled their duty of care to the community. Much of the database will also be available for public viewing which will both assist the growing numbers of students seeking information and reduce the time needed for Trust and council staff to answer these enquiries.

One of the benefits of regular inspections has been the opportunity to identify prospective problems and program repairs prior to possible failures. By their nature many of the flood mitigation assets only function during larger storms and a failure during a flood could prove potentially disastrous. In the last year inspections have identified the need for substantial repairs of one embankment where some cracking was evident, and joint repairs at another structure. Rectification works have been undertaken or are programmed for both assets. Sediment and weed growth have also been removed from two watercourses where the potential increase in flood levels was reaching critical levels.

Trust staff inspect Loyalty Road flood retarding basin on a regular basis and in the last year three different types of surveys have been undertaken to help in the management of the basin. These involved identifying the levels of the raised sewer vents in the impoundment area to determine critical flood levels at which flood waters could enter the sewer pipes; accurately locating all the cracks on the basin wall so that any changes over time can be monitored;

and installing permanent survey marks to enable any movement of the basin wall over time to be monitored.

Toongabbie Creek Management

For some years the Trust has been urging Parramatta City Council to remove excessive sediment and vegetation in the reconstructed section of Toongabbie



Toongabbie Creek.

Creek (McCoy Park basin to Lister Street, Winston Hills) that has significantly raised flood levels in the adjoining residential areas. With the appointment by Parramatta City Council of a Waterways System Manager, Council has agreed to engage a consultant to prepare a master plan for the above section of Toongabbie Creek. This work commenced in late June 2001. The Trust is contributing half the cost of this study.

Meanwhile, in the past year, Blacktown City Council completed, at its own cost, the removal of excessive sediment and vegetation from a reconstructed section of Toongabbie Creek in Seven Hills. This work was requested by the Trust in early 2000.

Water quality

There are two main systems that collect water in urban areas. Sydney Water's sewage system collects household wastewater from baths, laundries, sinks and other appliances. The wastewater is piped to sewerage treatment plants, partially treated and disposed of through the Deep Ocean Outfalls or discharge to inland streams. Leakage and overflow from the sewerage system is thought to be a major



factor polluting streams in the Upper Parramatta River catchment.

The other major water collection system in urban areas deals with stormwater. This system collects water from roofs, kerbs, gutters and other surfaces and transports it untreated to creeks, via a system of underground pipes and open drains. Stormwater pollution is a major problem in the Upper Parramatta River catchment, particularly in commercial and industrial areas and near major roads.

Stormwater Management Plan (SMP)

In response to a direction from the Environment Protection Authority (EPA) to all Sydney councils, the Trust worked closely with the four local councils and relevant government agencies during 1998/99 to develop a Stormwater Management Plan (SMP) for the Upper Parramatta River catchment. A Catchment Stormwater Taskforce guided the work. Submitted by the four local councils to the EPA in July 1999, the SMP was estimated to have an implementation cost of \$30M, with annual operating costs of \$2M. The Taskforce meets regularly to monitor and co-ordinate implementation of the SMP. Such meetings were held in October 2000, May 2001 and June 2001.

The SMP identifies and ranks a large number of works and measures that could be implemented to improve the water quality of catchment streams, and nominates the most appropriate council or authority to undertake each activity. These are listed in implementation strategies that specify the actions required of each council or authority, and by when. The Implementation Strategy for the Trust includes the actions necessary for the overall management and support of the SMP, such as co-ordinating implementation of the SMP, co-ordinating all water quality monitoring; reporting results; determining pollutant export targets; raising community awareness; running Streamwatch and pollution monitoring at the catchment outlet. By June 2001, two years after the SMP was submitted, the Trust had completed eight, and was working on four, out of the 20 actions assigned to it under the SMP.

The then Lord Mayor of Parramatta City Council, Cr. David Borger, Executive Officer of the Trust, Stephen Lees and Executive Director at Sydney Region EPA, Joe Woodwood, with the specially designed truck used in the Cleanstreams Program to cleanout stormwater drains.

Stormwater Management Projects

To encourage implementation of the SMPs the NSW EPA provided \$55M in three stages through its Stormwater Trust grants scheme. Under Stage 2 of the Stormwater Trust grant scheme, the four local councils jointly received grants totaling almost \$500,000 for demonstration 'source control' projects at Castle Hill Shopping Centre, St Martins Field Mega Centre (Blacktown); Girraween industrial area and Church Street (Parramatta). The Catchment Stormwater Taskforce jointly managed the four projects, which involved installing and evaluating different types of pollution traps to collect pollutants close to their source and complementary education programs aimed at reducing the amount of pollutants generated. The projects concluded in July 2000 with outcomes presented to a seminar attended by almost 100 people and on the internet www.uprct.nsw.gov.au/cleanstreams/. It had been hoped that the councils would continue the education programs, but none were able to due to staffing difficulties.

In addition, with the Trust's assistance Baulkham Hills Shire Council obtained a \$165,040 grant to allow Associate Professor John Argue of the University of South Australia to evaluate the applicability of stormwater infiltration in this catchment. Field trials during 2000/01 have provided the first reliable infiltration capacity data for western Sydney soils and a design procedure for sizing infiltration devices. The project's results were presented at a major seminar held in May 2001.



In Stage 3 of the Stormwater Trust grants, Parramatta City Council in partnership with the Trust, was awarded \$148,000 for a regional stormwater awareness program targeting ethnic communities in western Sydney. A consultant was appointed to undertake this work in March 2001.

Lake Parramatta

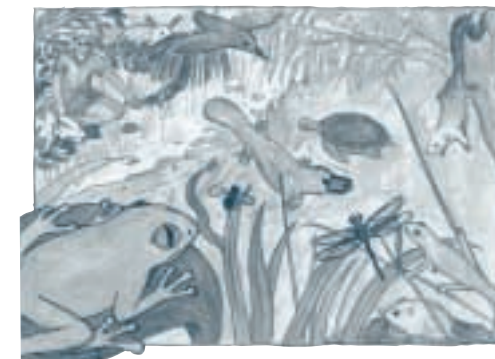
An important project of the Stormwater Management Plan is the "Swim Towards 2005 – Help Clean Up Lake Parramatta" project. This project aims to restore water quality in Lake Parramatta to a level meeting the national standard permitting swimming by the year 2005.

Water quality testing commissioned by the Trust in March and April 2001, showed that during the months tested, Lake Parramatta complied with the national standard for swimming in freshwater. This is an outstanding result, which gives promise that the community may be able to swim again in Lake Parramatta by the year 2005. The results are practical proof that the community support is making a difference to water quality in Lake Parramatta.

Despite atrocious weather, over 1000 people braved the elements to take part in the March 2001, Lake Parramatta Community Open Day. Groups such as the North Rocks Scouts participated with flying foxes and canoe rides and all those joining in had a great time. Music and entertainment created a positive feel and local community interest in the project was extremely strong.

Community Water Quality Monitoring

The Upper Parramatta River Catchment Trust is a member agency of Waterwatch Australia, a network of community water quality monitoring programs



across Australia partly funded by the Federal Government Natural Heritage Trust.

Since the early 1990's the Trust has supported community water quality monitoring in the Upper Parramatta River catchment as part of the Streamwatch Program. In the Sydney Region, this is a partnership between Sydney Water, the Department of Land and Water Conservation, and the Upper Parramatta River Catchment Trust. The Upper Parramatta River Catchment Trust now supports 19 high schools testing at 36 locations across the catchment. We are proud to boast the most active and intensively supported program in Australia. The enormous effort of local teachers, school support staff and students participating in Waterwatch and Streamwatch activities is a testament to the interest in protecting our precious local environment.

The presence of Streamwatchers helped to avert many pollution incidents, including a major oil spill in West Pennant Hills, which was cleaned up after being spotted by students from Muirfield High School. Students from Seven Hills High School found high sediment loads in Lalor Creek coming from a new development upstream. Blacktown City Council followed this up and issued pollution fines to a number of builders.

Improve riparian vegetation and recreation

Green Corridors Vegetation Management Strategy

The Upper Parramatta River catchment retains approximately 700 hectares of remnant bushland, mostly scattered on the fringes of local creeks.

These remnants vary in size from the large reserves, such as Lake Parramatta Reserve and Excelsior Reserve, to isolated fragments of less than a hectare. All of these remnants are of significant conservation value, particularly those identified as threatened communities, such as Cumberland Plain Woodland, Blue Gum High Forest, and Turpentine/Ironbark Forest.

The Green Corridors Vegetation Management Strategy for the Upper Parramatta River catchment,

Elly Klamo from Girraween High School won the Trust's inaugural art competition.



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prepared in 1998 and adopted as a framework strategy by the Trust and the four local councils in 1999, is a major response to address protection of biodiversity in the upper Parramatta River catchment. This strategy is an extension of the Green-Web Sydney project. It recommends planning measures, policies and actions to establish and maintain the network of 'green' corridors in this catchment.

In May 1999 the Trust resolved to commit a total of \$200,000 in the 1999/2000 financial year to help local councils implement the high priority actions of the strategy. This provided grants of up to \$50,000 per council, to be matched dollar for dollar. This funding was again offered in the 2000/2001 financial year.

The following projects were supported by the Trust during the 2000/2001 financial year as part of this program.

Blacktown City Council

Implementation of Stage 5 of the revegetation of Blacktown Creek between the Great Western Highway and William Lawson Reserve. Total Trust contribution was \$40,000.

Baulkham Hills Shire Council

The Trust offered \$25,000 for bush regeneration in Sophia Doyle Reserve at Baulkham Hills and \$25,000 for contract bush regeneration in Hunts Creek Reserve, near Northam Drive at Carlingford.

Holroyd City Council

Continuation and expansion of regeneration and replanting at Greystanes Creek near Oklahoma Avenue Greystanes in conjunction with Holroyd and Blacktown Councils. Total Trust contribution was \$45,897.

Parramatta City Council

Regeneration of bushland adjoining eight bushcare sites adjoining Toongabbie Creek at Toongabbie and Northmead Gully at Winston Hills. Total Trust contribution was \$50,000.

All projects are making an important contribution to managing the biodiversity of the Upper Parramatta River catchment.

Creek Bank Vegetation Projects by Periodic Detainees

The Trust has an ongoing partnership with the Department of Corrective Services to provide labour for weed control and re-vegetation projects in the Upper Parramatta River catchment. The Department has several programs that enable people serving Periodic Detention Order or Community Service Orders to make a worthwhile contribution to the community whilst completing their sentence.

Under this arrangement, with the assistance of funding from the NSW Environmental Trust, in 1999 and 2000 the Trust met the cost of providing a qualified bushland regenerator to ensure proper technical supervision of the work. The program operates under a contract between the Department and the Trust, which guarantees a team of workers for two days per week over 50 weeks a year. The councils contribute by providing technical assistance with program planning and removal of the cleared material.

During the past year periodic detention workers continued to remove noxious plants from creek banks in the catchment. Areas worked included the rear of Northmead High School at Northmead; Duncan Park at Seven Hills; Toongabbie Creek near Briens Road Northmead; the Loyalty Road flood retarding basin

at North Rocks and Metella Reserve at Prospect. A major achievement was the re-opening of a bushwalking track that extends from Speers Road to the Loyalty Road basin at North Rocks. This links to a network of trails in Excelsior Reserve, North Rocks.

Periodic detainees also do a magnificent job of general maintenance at the Loyalty Road flood retarding basin at North Rocks. A team of up to 15 workers remove graffiti, clear the low flow channel, and carry out general maintenance.

A native plant nursery has continued to operate, at Parramatta Goal providing plants for the above projects and community projects. This nursery turned over more than 15,000 advanced native plants during the year.

Strengthen community education, marketing and involvement

The Trust places great importance on making sure the catchment community are aware of the Trust's activities and local environmental issues. This is achieved through a variety of tools including print material, the web site, attending community meetings, displays at community fairs and supporting programs such as Streamwatch and the catchment Environmental Awards.

Publications

The Trust produces a regular newsletter titled "Streamline" distributed to each household in the catchment providing updates on Trust activities. Streamline was published three times in 2000/2001.

The Trust's web site (www.uprct.nsw.gov.au) is a simple and cost effective tool to provide information on Trust projects and catchment facts.

The information provided is targeted towards the two main user groups, students and professional engineers. During the year the web site was redesigned and provided more information. Each year many students request catchment information for school assignments. By providing the information in the web, it significantly reduces the workload of Trust staff.

The most significant addition to the website in the past year was the Trust's geographic information system (mapping) program. This allows any person with access to the Internet to create and download maps of the catchment with a variety of information, including vegetation types, sub catchment boundaries and cadastral information.

Community Events

The Trust is involved in many community events to help promote the Trust, our projects and local environmental issues. In March 2001 the local community was invited to the third annual "Swim Towards 2005 - Help Clean Up Lake Parramatta" day held at Lake Parramatta Reserve. Community members were able to find out how they can help improve their local environment while enjoying free rides on the North Rock Scouts flying fox, playing environmental games with Circus Solaris and learning about native wildlife.

The Trust also had information stalls at local community fairs including Australia Day at Parramatta Park, Blacktown City Festival, Cumberland Forest Fair, a Cultural Celebration at Castle Hill, Sydney Harbour Catchment Management Board's Sydney Harbour Forum and the University of Western Sydney Parramatta Campus Open Day. These days are an important way to access the local community and discuss local issues of concern.



Education involves showing the community how human activity can impact on the water quantity and quality in our waterways and what can be done to improve our creeks



Lancelot Street Wetlands at Blacktown.



Circus Solaris at the Lake Parramatta Day.



Jasper Road Public School students collecting waterbugs to learn about the health of the local creek.



The Trust supported the inaugural Western Sydney Water Festival at Central Gardens in Merrylands, as part of Water Week activities in October 2000.

A significant proportion of the catchment population comes from non-English speaking communities. The Trust has developed new strategies to reach this sector of the community. Articles in Streamline were translated into different languages, and the Trust supported the inaugural Western Sydney Water Festival at Central Gardens in Merrylands, as part of Water Week activities in October 2000.

The water festival was held in conjunction with Holroyd City Council's 'Carnivale – a multicultural celebration' and supported by the Trust, eight western Sydney councils and state government organisations. The water festival provided information on what can be done to improve water quality. The information was targeted at the ethnic communities.

Community Survey

For the first time, the Trust engaged a marketing research company to survey the catchment community to find out the level of awareness of the Trust and environmental issues. A 21-question survey was distributed to all households in the August 2000 issue of Streamline. The results obtained were further verified by a series of three focus group sessions held in October 2000.

More than two thirds of the respondents were strongly in favour of the flood reduction works program being continued. The most important environmental issue was water pollution in the creeks and lakes, followed by the loss and degradation of bushland and vegetation.

Schools Program

Education involves showing the community how human activity can impact on the water quantity and quality in our waterways and what can be done to improve our creeks. Educating school students about the environment is important because they are the decision makers of the future. The Trust's schools program includes the Streamwatch program, catchment tours and talks. The Trust now supports 19 secondary schools and one primary school in the Streamwatch program. Support for Streamwatch includes a Water Quality Officer, teacher support network meetings, annual harbour cruise and awards for the students and assistance with promotions.

The Trust conducted catchment tours for schools designed to teach students about flood mitigation, water quality and vegetation management issues. The Trust's staff and redesigned website also help a large number of students with school assignments throughout the year.

Upper Parramatta River Catchment Environment Awards

The Trust held its inaugural Upper Parramatta River Catchment Environment Awards as part of Western Sydney Environment Week in June 2000. The Awards acknowledged and recognised individuals, community groups, schools and councils that contributed to improving the environment. The nineteen nominations received were of a very high standard. Over 100 people attended the Award presentation at Old Government House in Parramatta Park. The overall

winner was the Jasper Road Public School at Baulkham Hills for its 'Regeneration of Local Reserves and Environmental Education of Students' program. All winners received funding support for future environmental projects and considerable publicity in local newspapers.

Aboriginal Cadetship Scheme

The Trust contributes to an Aboriginal Cadetship Scheme for Natural Resource Management managed by the Department of Land and Water Conservation (Sydney South Coast) along with other western Sydney and Illawarra-based State Government agencies. The cadetship will encourage and assist Aboriginal and Torres Strait Islander students in these areas to study natural resource degrees at university in the expectation that they can make a career in this field. The first three cadets enter the scheme in August 2001.

Achieve better catchment co-ordination and planning

A key role for the Trust is to co-ordinate, on a catchment basis, activities to mitigate natural hazards and improve natural resources. The Trust also seeks to ensure that new developments do not exacerbate existing hazards and threats to the catchment's natural resources by reviewing and providing comment upon draft planning instruments and proposed major developments. The outcome in respect to a 'test case' development at Toongabbie was therefore a particular disappointment to the Trust this past year.

Advice on Significant Proposed Developments

In early 2000 the Trust provided advice to Blacktown City Council regarding a development application for a 20 town house development on 8-10 Metella Road, Toongabbie. This is one of a number of relatively undeveloped properties adjoining Greystanes Creek. Its rear two-thirds is low lying, relatively flat and is considered to be a floodway. Although it is proposed to have all dwellings raised on piers above the 100-year flood level, the Trust urged Council to refuse the application because, being in a floodway, the development would obstruct floodwaters and thereby increase flood depths and flood velocities on adjoining properties. There was also concern that development of this property would inevitably lead to similar developments on the undeveloped adjoining properties. Council refused the development application, largely on the flooding issue, and the applicant appealed to the Land and Environment Court.

During the Court hearing the Trust provided expert evidence. Detailed hydraulic flood modelling by the Trust showed that if the floodway is blocked by intensive development, flood levels in major storms will be raised for 300 metres upstream, increasing the flood risk to dozens of homes and the nearby Toongabbie Baptist Community School.

Despite the strong objections raised by Council and the Trust, the Court upheld the appeal and ordered that the development application be approved subject to various consent conditions. The possibility that the fences and underfloor areas would become blocked over time and the floodway impeded was accepted. But it was determined, based on a legal precedent,



An engineering consultant and a planning consultant presented for consideration a report containing a model floodplain management policy



Students from Catherine McAuleys Westmead recieved a grant from the Trust to revegetate the wetland on school grounds.



that this presumption did not warrant refusal of the application.

The Trust was very concerned by this decision because it appears to have ignored likely cumulative impacts of further similar developments and the possibility of floods larger than the 100-year event. As a result, the Trust made a late submission to the inquiry into the Land and Environment Court citing this particular case. The concerns of the Trust and

Councils have proven to be well founded because, in the past few months, Blacktown City Council

has received two further applications for multi-unit housing developments on four of the remaining eight undeveloped properties. The Trust has requested a meeting with the Attorney General to discuss its concerns.

Co-ordination

Most significant Trust activities are undertaken in co-operation with the four local councils in this

catchment and, on occasions, other State Government agencies. This Trust itself has very few powers or resources and so must work with other parties that possess the required powers and resources in order to achieve common flood protection and environmental objectives. Very often this Trust takes a leadership role in such co-ordinated activities. The Trust is currently represented on 18 groups, committees or working parties.

In addition to these formal working groups, the Trust also informally co-ordinates a number of functions in this catchment, such as rainfall and streamflow data collection; water quality testing; collecting, archiving and disseminating flood data; computer flood modelling; applying for flood and other government grants; responding to proposals for policy changes likely to affect the catchment; archiving relevant reports, maps, photos etc; public education and awareness activities; assistance to researchers, students, international visitors; and commenting on major proposed developments.

Planning

The Trust is very keen to develop and gain adoption by all four local councils of a uniform catchment-wide Floodplain Management Policy and associated Development Control Plan (DCP). To progress this matter, since 1998 the Trust has been co-ordinating and funding consultants' support for a Task Group

comprising engineers and planners from the four councils.

In the past year the Trust has provided detailed comments and advice, frequently within very short time frames, on the Precinct Plans and development applications for the proposed residential and employment areas in the Greystanes Estate (the former Boral Quarry at Prospect) and for the redevelopment of the adjoining CSIRO Animal Research Station. These developments have the potential to significantly worsen downstream flooding, water pollution, creek sedimentation and bank erosion, which would undo the gains made over the past decade. The Trust has also expressed concern about the environmental damage that will result from the loss of dry weather flow in Greystanes Creek once the quarry closes.

The Trust has also provided ongoing advice to consultants preparing more detailed plans for these, and other, major redevelopments in the catchment. By doing so, the Trust can frequently achieve outcomes that provide greater catchment benefits and avoid conflicts when formal approvals are sought.

Late last year the Trust was invited by the Department of Urban Affairs and Planning to join an interdepartmental committee formed to guide preparation of a natural resources Regional Environment Plan for the Sydney Harbour catchment. This is something the Trust has been very keen to see for some time. However it is disappointing to note that the committee has not met again since its initial gathering in November 2000.

Develop the organisation's capabilities

When the Trust was set up it was agreed that the new organisation should only have a small number of staff, but make extensive use of consultants and contractors. The general approach taken is for Trust staff to carry out core activities such as catchment modelling, strategic planning and co-ordination. Consultants and contractors provide specialist assistance with studies, surveys, drafting, detailed designs, construction supervision, instrumentation and water quality monitoring.

Given the broad range of Trust activities, Trust staff undertake a variety of duties. Staff attended various courses and symposia during the year to improve their technical and professional skills and knowledge. All staff members have access to their own personal

computer and are encouraged to develop their ability to use a variety of software packages.

Over the past year the Trust has continued to excel in its use of technology to aid and promote its work. This year the Trust continued to support use of the internet via its website. The addition of the fully interactive web based geographic information (GIS) server allowing public access to all Trust GIS data. This system has already been a success with over 15,000 visits by engineers, students and other interested members of the public. Continued development to this excellent information resource will ensure the Trust website remains very popular.

The Trust also commissioned a web based Water Quality and Control Facilities Database. This database will allow member councils to track all documentation and maintenance of assets within their local government area. Members of the public will also have access to detailed facility structural information via the Trust's website.

A key target each year is to obtain additional external funding for Trust activities. The Trust seeks to supplement its service charge income by obtaining financial contributions to the cost of its various catchment management activities from other parties. As a result of the Commonwealth Government's decision in 1996 to no longer provide grants for flood mitigation projects in urban areas, and the flow-on effect of this on State Government flood grants, the Trust and the four local councils in the catchment received no government grants of any kind for flood-related activities for several years. However, in 1999/2000 and 2000/01, the Trust obtained State Government grants for the enlargement of the Sierra Place Basin on Toongabbie Creek, with \$300,000 provided in 2000/01.

The Trust encouraged local councils and community groups to apply for government grants in the past year. The Trust assisted Parramatta City Council with funding applications to the Natural Heritage Trust to construct a fishway at Marsden Street Weir and Charles Street Weir. This grant will be announced in October 2001. Local community groups were provided with assistance to complete applications to the Natural Heritage Trust for a variety of projects, including Moxham's Reserve at Winston Hills, Lake Parramatta Reserve, Impeesa Reserve at Winston Hills and others.

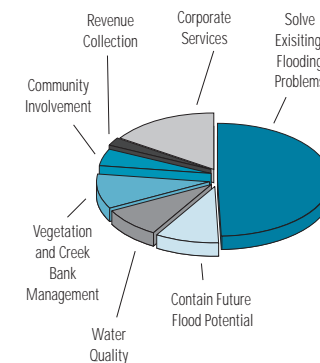
In 2000/01, total spending in the catchment on flood mitigation and drainage works and measures amounted to \$2.555M. Of this, \$1.668M was spent

by the Trust on works, designs and investigations, and \$42,000 on data collection, surveys and mapping. The approximate spending on flood-related activities by the various parties in 2000/01 was as follows

Trust	\$1,710,000
Local councils	\$845,000
Blacktown	\$285,000
Holroyd	\$0
Parramatta	\$375,000
Baulkham Hills	\$185,000
TOTAL	\$3,400,000

If all programmed activities proceed in 2000/2001 the Trust will spend a total of \$2.7M and the local councils will spend a total of \$1.25M – a total of \$3.95M.

Expenditure by Key Performance Areas 2000/2001



Water dragons can be found in most rocky creeks in the catchment.





Streamwatch students from Arthur Phillip High School at Parramatta searching Domain Creek in Parramatta Park for water bugs.

Expenditure by Key Performance areas

Solve Existing Flooding Problems

Designs

Station Road culvert on Blacktown Creek.	\$14,297
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Construction

Upper Toongabbie Creek Flood Works Stage 1A & 1B; reconstruction of Greystanes Creek at Toongabbie Bowling Club.	\$1,525,665
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Investigations

Catchment Flood Modelling; Catchment Floodplain Management Plan.	\$128,604
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Contain Future Flood Potential Development Controls

On-site stormwater detention inspections; On-site stormwater detention audits; On site Stormwater Detention Handbook update.	\$79,727
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Data Collection

Recorder maintenance contract; maximum height recorder network; data collection; basin mapping/surveys.	\$42,134
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Asset Maintenance

Loyalty Road flood retarding basin; Asset Management Database; Greystanes Creek maintenance.	\$186,626
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Water Quality

Streamwatch Program; water quality monitoring; Lake Parramatta; support Stormwater Management Plan.	\$291,824
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Vegetation and Creek Bank Management

Support Green Corridors Management Plan Strategy; creek bank improvement by periodic detention workers.	\$335,629
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Community Involvement

Education; consultation; resident participation in management of studies and works; newsletter and information brochures.	\$164,658
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Corporate Services

Administration; operating expenses; staff; rent; Trustees/Secretariat; equipment purchases; revenue collection; on-line access to Sydney Water database.	\$604,414
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Future directions

Mobbs' Review

A review of the Trust by Professor John Burton AO in 1995 recommended a further review in 1999. In May 1999 the Minister responsible for the Trust, the Hon Richard Amery MP, commissioned a review of the Trust by a consultant, Mr Michael Mobbs. This was undertaken in July and August 1999. On the basis of the Trust's performance over the previous ten years and

future needs in the catchment, the reviewer was asked to advise whether the Trust made satisfactory progress towards achieving its corporate objectives and whether the Trust be permitted to continue.

Mr Mobbs' report, submitted in August 2000, concluded that the Trust:

- has largely achieved the flood mitigation objectives for which it was established, or will do so shortly;
- has proven to be very effective in co-ordinating solutions to catchment-wide problems and it would be a great pity if that capability was lost; and
- should be given the opportunity to take on a new role of promoting water sensitive urban design (WSUD).

Water sensitive urban design is an approach receiving increasing attention from planners, designers and policy makers. It aims to make urban development more sustainable in regard to the use of water by reducing the demand for mains water and the amount of water discharged as wastewater and stormwater. It can be implemented in all types of development and at a range of scales. It includes rainwater tanks to provide water for non-potable uses (gardens, toilet flushing, hot water); maximising pervious areas to infiltrate stormwater and remove pollutants; more water efficient appliances and fittings; at source control of stormwater pollutants; water features for amenity and pollutant removal and on-site stormwater detention. Mr Mobbs proposed the use of financial incentives and development bonuses to promote adoption of water sensitive urban design.

Review of Flood Works Program

One of the key recommendations in the Mobbs' report was that the Trust should have an independent party review its ranked list of outstanding catchment flood projects to determine at what point it is no longer economically, socially or otherwise justifiable to undertake the works.

Mr David Abbott, an independent consultant with extensive senior local government experience, was engaged to review the flood works program. In his report he observed that flood mitigation cannot be considered purely on economic grounds. Social, safety, equity and environmental factors also need to be addressed. He noted that there are still many areas in the catchment where flooding would occur in major storms and that, at the currently available rate of Trust and councils' funding, flood projects already shown to be economically justifiable would take at least six years to complete.

Mr Abbott did not recommend a sharp cut-off of the flood works program. He recommended instead that

the Trust should concentrate on preventing over-floor flooding of homes. He proposed that extra funding be allocated to speed up investigations of each area to find the best solution and its likely cost, and identify any other relevant factors, so that it can be decided if it is worth proceeding to design and construction.

With current or committed high priority flood works expected to be completed in the next few years, the Trust's annual spending on flood works is expected to halve from its average current level of around \$1M anyway. In the absence of a major flood, Mr. Abbott's recommendations would mean the flood works program continuing at this lower rate for many years.

Trust Response to Michael Mobbs' Recommendations

In his letter of appointment dated 7 June 2000 to the Trust's Chairman, George Whitehouse, the Minister asked the incoming Trust to consider Michael Mobbs' recommendations in detail and provide him with a report. He requested that the report include a strategic plan for the implementation of the recommendations where appropriate and advice on the Trust's future relationship with, and responsibilities concerning, the new Sydney Harbour Catchment Management Board.

The Trust welcomed the Minister's request because it provided an opportunity to resolve the uncertainty about the future of the Trust that has existed for the past few years. It decided to undertake a comprehensive assessment and consultation process to select a preferred option. This included preparation and public exhibition of an options paper, the independent review of the future of the Trust's flood

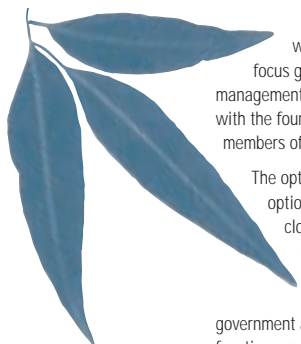


Water sensitive urban design is an approach receiving increasing attention from planners, designers and policy makers.



The Trust funded a community planting day in Blacktown Creek as part of a Blacktown City Council Green Corridors Project.





works program, a series of community focus group sessions; a day-long value management workshop for Trustees and meetings with the four mayors and all local Government members of Parliament.

The options paper identified a full range of options for the future of the Trust – from closing down the Trust; to scaling it back to a maintenance-only role; to becoming self-funding through consultancy work; to being taken over by a larger government agency; to continuing with its current functions; and to continuing, but with increasing focus on promoting water sensitive urban design and sustainable water usage. These were drawn from options raised by Michael Mobbs and models applying elsewhere.

Assessment of Options

The options paper was publicly exhibited and copies were sent to key stakeholders. A community information evening was held to brief residents on the options. A clear majority of the written responses received strongly supported the Trust continuing and promoting the implementation of water sensitive urban design.

To complement this feedback, Owl Research & Marketing Pty Ltd was commissioned to undertake a series of three focus group sessions at Castle Hill, Parramatta and Blacktown, whose participants were randomly selected to reflect the catchment's

demographic characteristics. After each focus group was briefed on what the Trust does, and has achieved, the groups discussed the six options for the future of the Trust. Participants were then asked to sort the options in the order of their own personal preferences. Each group expressed a strong preference overall for the water sensitive urban design option. All of the participants put abolition of Trust last or second last.

The value management workshop was the key element in the process of determining the Trust's recommendation on its future. An independent consultant facilitated the workshop, which was attended by eighteen Trustees and technical advisers from the four councils, Trust and key agencies. After briefing papers were presented and discussed, and a stakeholder's analysis was undertaken, 15 criteria to be used to evaluate the options were identified. Each was discussed and ranked in order. The workshop then scored each option in regard to how well it satisfied each criterion and summed the scores for each option. This showed the water sensitive urban design model to be the preferred option. Weighting the scores to reflect the relative importance of each criterion did not affect the order of preference. The workshop also addressed Mr Mobbs' 17 recommendations, concluding that most should be implemented, except for those outside the Trust's legal capacity.

As part of the consultation process, the Trust's Chairman and Executive Officer met with the Mayors of the four local councils in this catchment and the

Government Members of Parliament whose electorates are within, or are partly within, this catchment. Subsequently, the four councils wrote to the Minister conveying their views that the Trust should continue.

Sydney Harbour Catchment Management Board

In his request to the Trust, Minister Amery also asked for advice on the Trust's future relationship with the new Sydney Harbour Catchment Management Board, whose area includes the Upper Parramatta River catchment.

The Board's regulation prescribes a strategic planning role, focussing on 'critical' and 'first order' concerns. Its first task is to prepare a Catchment Management Plan for its area by October 2001. In contrast, the Trust's charter and approach is more focussed on delivering on-ground outcomes. Implementation of the Board's Catchment Management Plan will require existing agencies with a delivery capability, such as the Trust, to align their future work programs with the Plan. As the Board and the Trust are addressing natural resource issues from different perspectives, and will have different roles to play in achieving solutions, the two bodies are seen as being complementary.

It is expected that a close working relationship will develop between the two bodies as members and support staff collaborate on joint activities in the years ahead. To start to build such a relationship, the Board's Chairperson, Cr Patricia Harvey, toured Trust project sites on 2 November 2000 and 19 May 2001. Mechanisms to improve the relationship

between the two bodies were discussed. On 15 May 2001 the Trust's Executive Officer addressed a Board meeting on the Trust's history, achievements and capacity to help implement the Catchment Management Plan.

Minister's Decision

The Trust submitted its report to Minister Amery on 30 November 2000. In doing so it was noted that the preferred option for the Trust had received unanimous support from all key stakeholders, would not require any legislative or regulatory changes and could be implemented within the Trust's existing funding base.

The Minister replied on 23 January 2001 advising that he had decided to approve the recommendation that the Trust continue on the basis of the water sensitive urban design option, but only for the life of the present Trustees, whose terms expire on 30 June 2002. He further advised that the Trust's future beyond that date would depend upon a review of the Trust's purpose, functions and area of operation, to be carried out in early 2002. He stated that, by then, it should be possible to assess whether the water sensitive urban design option is working and should be pursued beyond mid 2002. It should also be clear by then what role, if any, the Trust may have in implementing the Sydney Harbour Catchment Management Board's Catchment Management Plan. The Minister asked that the Trust complete and submit an amended 1999-2003 Corporate Plan and 2000/01 Business Plan reflecting the changed focus of the Trust's activities.

Since regeneration works have begun, the remnant vegetation in Central Gardens at Merrylands has significantly improved (photograph at left taken in 1993 and at right in 2001).

