



City of Ryde



State of the Environment Report

2004



ENGLISH

If you do not understand this document please come to Ryde Civic Centre, 1 Devlin Street, Ryde Monday to Friday 8.30am to 4.30pm or telephone the Telephone and Interpreting Service on 131 450 and ask an interpreter to contact the City of Ryde for you on 9952 8222.

ARABIC

إذا تعذر عليك فهم محتويات هذه الوثيقة، نرجو الحضور إلى مركز بلدية رايد Ryde Civic Centre على العنوان: Devlin Street, Ryde 1 من الاثنين إلى الجمعة بين الساعة 8.30 صباحًا والساعة 4.30 بعد الظهر، أو الاتصال بمكتب خدمات الترجمة على الرقم 131 450 لكي تطلب من أحد المترجمين الاتصال بمجلس مدينة رايد، على الرقم 9952 8222، نيابة عنك.

ARMENIAN

Եթէ այս գրութիւնը չէք հասկնար, խնդրեմ եկէք՝ Րայդ Սիվիլ Սենթըր, 1 Տելվին փողոց, Րայդ, (Ryde Civic Centre, 1 Devlin Street, Ryde) Երկուշաբթին Ուրբաթ կ.ա. ժամը 8.30 – կ.ե. ժամը 4.30, կամ հեռաձայնեցէք Հեռաձայնի եւ Թարգմանութեան Ապասարկութեան՝ 131 450, եւ խնդրեցէք որ թարգմանիչ մը Րայդ Զաղաքապետարանին հետ կապ հասարարէ ձեզի համար, հեռաձայնելով՝ 9952 8222 թիւին:

CHINESE

如果您看不懂本文，請在周一至周五上午 8 時 30 分至下午 4 時 30 分前往 Ryde 市政中心詢問 (Ryde Civic Centre, 地址: 1 Devlin Street, Ryde)。你也可以打電話至電話傳譯服務中心，電話號碼是: 131 450。接通後你可以要求一位傳譯員為你打如下電話和 Ryde 市政廳聯繫，電話是: 9952 8222。

FARSI

اگر این مدرک را نمی فهمید لطفاً از 8.30 صبح تا 4.30 بعد از ظهر دوشنبه تا جمعه به مرکز شهرداری رايد، Ryde Civic Centre, 1 Devlin Street, Ryde مراجعه کنید یا به سرویس مترجم تلفنی، شماره 131 450 تلفن بنویید و از یک مترجم بخواهید که از طرف شما با شهرداری رايد، شماره 9952 8222 تلفن بزند.

ITALIAN

Se non capite il presente documento, siete pregati di rivolgervi al Ryde Civic Centre al n. 1 di Devlin Street, Ryde, dalle 8.30 alle 16.30, dal lunedì al venerdì; oppure potete chiamare il Telephone Translating and Interpreting Service al 131 450 e chiedere all'interprete di contattare a vostro nome il Municipio di Ryde presso il 9952 8222.

KOREAN

이 문서가 무슨 의미인지 모르실 경우에는 1 Devlin Street, Ryde 에 있는 Ryde Civic Centre 로 오시거나 (월 – 금, 오전 8:30 – 오후 4:30), 전화 131 450 번으로 전화 통역 서비스에 연락하셔서 통역사에게 여러분 대신 Ryde 시청에 전화 9952 8222 번으로 연락을 부탁드립니다.

Contents

General Manager’s Foreword	3
Highlights.....	5
Introduction	9
Chapter 1 - Towards Environmental Sustainability	11
1.1 Community Action.....	13
Chapter 2 – Human Settlement	25
2.1 Urban Development.....	27
2.2 Heritage	38
2.3 Waste Management.....	46
2.4 Noise.....	56
2.5 Open Space.....	59
2.6 Water Conservation	65
2.7 Public Health.....	71
2.8 Social Change.....	87
Chapter 3 – Bushland and Biodiversity.....	95
3.1 Bushland Regeneration and Management.....	97
3.2 Fire Management.....	113
3.3 Pest Management.....	118
3.4 Native Flora and Fauna	122
3.5 Noxious Weeds.....	130
Chapter 4 – Water.....	143
4.1 Water Quality and Stormwater Management.....	145

Chapter 5 - Air	163
5.1 Air Quality	165
5.2 Greenhouse Gas Emissions	171
5.3 Transport	177
Chapter 6 – Soil and Landscape	191
6.1 Soil Erosion.....	193
6.2 Acid Sulfate Soils	196
6.3 Land Contamination.....	198
Conclusion	203
References	205
Acknowledgments	207

General Manager's Foreword

The State of the Environment (SoE) report is fundamentally a statutory obligation but more importantly it is the City of Ryde's opportunity to report on the state of our local environment to the community of Ryde. As required by the Local Government Act 1993, this is a comprehensive report that showcases the many ways the City has embraced the principles of ecologically sustainable development in programs for the local area and in decision making.

Local Government continues to be that level of government closest to the community and because of this plays an integral role in managing, developing and protecting the environment at the community level. Often the challenge is to carefully balance economic, social and environmental protection and how well we do this reflects on the quality of our environment.

The City of Ryde continues to show strong progress by implementing a number of new and ongoing environmental projects throughout the year. These projects proved successful in contributing to environmental control and protection.

Community involvement, for instance, has been a particular focus for the City this year. Work with local historical societies, local environmental groups such as Greening Australia, several bushcare volunteer teams working in 25 bushland parks, the establishment of a Water Quality Monitoring Steering Committee comprising 3 community representatives and a strong association with local sporting groups throughout the City has been particularly effective and rewarding. It is important that the community feels a sense of ownership with their local environment and that the City programs continue to build on this in the future.

The City's Environmental Education Team continued with its endeavours to raise staff and community awareness on various sustainable environmental issues. The team this year produced educational material on energy conservation, water conservation, stormwater pollution, waste minimisation, litter prevention, protecting biodiversity, managing noxious and environmental weeds, bush regeneration, bushcare and mosquito control.

Programs throughout the City have largely reflected many of these important issues with the most notable being adoption of sustainability provisions in the Eastwood Urban Village LEP 110 and DCP 39 and the Macquarie Park Corridor Masterplan, the delivery of the plastic bag avoidance at supermarkets waste minimisation program, the City's in-house recycling and reuse program where office waste, construction and demolition waste are reused resulting in over 4 820 tonnes of City waste being diverted from landfill and the implementation of the street and park tree planting program where 281 and 4 500 trees, respectively, were planted on streets and in parks.

Other notable programs also included the targeting of water conservation strategies from the more intensive water use activities of the City resulting in significant water consumption savings across City operations, the completion of

strategic bushland programs where over 47 projects in 25 bushland areas received professional bushcare attention, the Brush Farm Park Community Noxious Weed Program which is nearing completion, the adoption of a Biological and Chemical Water Quality Monitoring Strategy targeting 5 separate creek systems in Ryde, the completion of a pilot environmental audit project targeting air pollution from automotive businesses in Gladesville and the decision by the City to purchase 10% of the City's total energy consumption as 'Green Energy' which is energy produced from greenhouse friendly sources in order to reduce greenhouse gas emissions from City operations are all worthy of particular mention.

These programs are a few examples of the City's determination to wisely manage the local environment and to effectively achieve sound and balanced environmental strategies. The assistance of volunteer groups, local residents and businesses is crucial to the success of these programs and ongoing community consultation will ensure the City continues to manage its strategies in an ecologically sustainable manner.

Pursuant to the *Local Government Act 1993*, the next 3 reports will be completed as supplementary reports to track any changes until the next comprehensive report is due in 4 years time. We look forward to upcoming years with great optimism and it is with great pride that I present the 2003/04 Comprehensive State of the Environment Report to the Ryde community.



Michael Whittaker
General Manager
City of Ryde

Highlights

Effective Waste Management

The City continued to make residents and businesses aware of their responsibility to reduce waste going to landfill through education at major community events like the Granny Smith Festival, displays in City foyer areas, in libraries and on the City's website. The delivery of an efficient waste collection and recycling service, a program targeting avoidance of use of supermarket plastic bags and the promotion of on-site composting has resulted in a significant decrease in domestic waste per capita going to landfill and an increase in recycling.

From an organisational perspective, in-house recycling of food scraps, office paper and the recycling of construction and demolition waste from City outdoor operations with over 4,820 tonnes of waste being diverted from landfilling and saving costs for purchase of new quarry material have been effective.

The City actively participated in Clean Up Australia Day this year where over 37 tonnes was collected and properly disposed of.

Reduction in Greenhouse Gas Emissions

The City demonstrated its commitment to reducing local greenhouse gas emissions by incorporating specific energy saving measures in its development controls and related planning instruments and by consistently applying those provisions during development activities. The City's Energy Smart Water Wise DCP No 45 is being used in this respect for all forms of development, with residential development to fall under the new State Environmental Planning Policy for Building Sustainability Index (BASIX) tool from 1 July 2004

From an organisational perspective, the City has committed to joining SEDA's Cities For Climate Protection Program (CCP) next year and has also approved funding for a building performance audit of the Ryde Civic Centre complex comprising the Civic Centre, the Civic Hall/existing library and the proposed Ryde Central Library. This audit, which should be completed next year, will assess options available to optimise electricity and water consumption and explore opportunities for energy efficiency and water savings, retrofitting existing and future office space areas and upgrading of building services and elements in the complex.

The City has also this year committed to purchasing 10% of the total energy consumption of the Civic Centre and Civic Hall/existing library as 'Green Energy', which is estimated to reduce greenhouse gas emissions by up to 100 tonnes each year.

Bushcare Management

The City has implemented various strategic and comprehensive bushland programs to encourage passive recreational opportunities and to protect biodiversity. Particular attention has been given to weed management, environmentally sensitive riparian drainage works, bush regeneration and restoration, and fauna management.

Over 47 projects in 25 bushland parks were completed this year and the management of the Blue Gum High forests has been given priority within the area. The City continued to utilise the services of paid professionals and 15 active volunteer bushcare teams to undertake bush regeneration work.

Funding has also been allowed to benchmark native flora within Ryde and this project commenced late this year. Completion of this study next year will allow more strategic targeting of native flora regeneration and rehabilitation management programs in future years.

Water Quality Monitoring and Maintenance of Stormwater Infrastructure

An improvement in water quality of our waterways has been another particular focus this year. Over 47.5 tonnes of waste material was collected from the network of pollution control devices and gross pollutant traps installed around the City to prevent it entering our waterways. A third road sweeper was added to City's Street Sweeping Program and a total of 696 tonnes of litter was collected from roadways across this program throughout the year.

Works on Stage 2 of the Maze Park Creek rehabilitation work continued and a review of existing stormwater management plans for the Lane Cove River, Mid and Lower Parramatta River systems was undertaken with a view to a consolidated program of work being considered for the next 3 years. It is anticipated this process should be completed in the first quarter of the next reporting period and the new program will have a greater focus on at-source solutions.

The City also adopted a seven year Biological and Chemical Water Quality Monitoring Strategy targeting the Shrimptons, Archers, Porters, Buffalo and Terrys Creek systems. This strategy will be implemented from September 2004 and a Water Quality Monitoring Steering Committee, which includes three community representatives and three City of Ryde staff, will be established to oversee its implementation.

This strategy will enable City capital works and community education programs relating to creek restoration and rehabilitation to be better targeted because the monitoring data will enable small changes in water quality trends to be detected and this will allow decisions to be made on projects and programs to address problems found to be unique to each system.

The City's Environmental Education Team was also active in promoting this year's international campaign 'Wanted! Seas and Oceans – Dead or Alive' through displays at City libraries and the Civic Centre foyers area, for World Environment Day in June 2004.

Community Education

Coordination of the City's internal and external sustainability education was enhanced by the continued work of the City's Environmental Education Team.

This year the team conducted in-house education on energy and water efficiency, waste minimization, prevention of littering and protection of biodiversity, management of noxious weeds, mosquitoes and bushcare. Monthly promotions are often tied with National or State environmental themes such as World Environment Day, Solar Month, Weedbuster Week, and National Recycling Week to name a few.

The team also implemented its Community Events and Education Program on World Environment Day in June 2004 with displays on ocean pollution in City libraries and the Civic Centre and then at the Granny Smith Festival in October 2003 by managing the City's stall on various environmental and enforcement issues, including a noxious weeds display, a mosquito display, a Rangers display targeting companion animals, a waste reduction and recycling display, a bushcare and trailer display and promotion of the City's Ryde Aquatic and Leisure Centre.

This page has intentionally been left blank

Introduction



This report has been prepared as a comprehensive report covering the period 1 July 2003 to 30 June 2004 to satisfy the minimum requirements of Clauses 7E and 7F of the *Local Government (General) Regulation 1993*.

This report provides the community of Ryde with updated information about the state of the local environment and the environmental initiatives undertaken since the 2002/03 State of the Environment (SoE) report. In many areas comparisons are made for four years showing how the City is progressing towards sustainability.

The report should be read in conjunction with the last two State of the Environment Supplementary Reports as both these reports have served as building blocks for this year's comprehensive report.

The report highlights the many ways the City of Ryde is working to ensure the local environment is protected from threats and demonstrates how the City is applying the principles of ecologically sustainable development in all local area decision-making.

As in previous years the City of Ryde utilises the OECD's State-Pressure-Response Model and concludes with future actions and links to the City's Management Plan for each of the environmental themes covered in the report namely:

- Towards Environmental Sustainability
- Human Settlement
- Bushland and Biodiversity
- Water
- Air
- Soil and Landscape

The information contained in this report is from a number of sources but is primarily data held within the City of Ryde files, published documents and other data made available by the Department of Environment and Conservation (DEC).

A handwritten signature in black ink that reads "Terry Perram". The signature is written in a cursive, flowing style.

Councillor Terry Perram
Mayor of the City of Ryde

This page has intentionally been left blank

Chapter 1 – Towards Environmental Sustainability



This page has intentionally been left blank

1.1 Community Action

For the past two years, the environmental planning towards sustainability in the City of Ryde was enhanced through conducting community consultations through the City Vision 2022 project, and also by consolidating the work of a special Environmental Education Team within the organisation to interact with staff and the local community on particular environmental initiatives.

The City of Ryde is committed to improving sustainability of both the internal operations and the City as a whole. Involvement by members of the local community in supporting certain programs is welcomed for many reasons including breaking down barriers between local government staff and residents; important inputs into decision making by the community; saving of monetary resources and enabling worthwhile projects that would not otherwise exist.

The planning towards sustainability in the City of Ryde was also enhanced by the formation of a special Environmental Education Team during the previous reporting year. The Team's primary focus is on educational interactions with staff but some promotions are also extended to the local community on particular environmental initiatives.

The community in the City of Ryde is actively involved in various environmental protection and monitoring initiatives. Community groups including local historical societies, environmental groups and bushcare volunteers are active in our local area to varying degrees. The City is also planning to establish a new community based Water Quality Monitoring Steering Committee and to re-establish the City Community Environmental Strategies Group, both in next year's reporting period.

Community activity is highly involved in senior and junior sport administration and operation on Council reserves. The City, in acknowledging the need to assist clubs and associations on managing this involvement, has facilitated seminars for sports administrators in 2003 via the NSW Sport Recreation and Tourism's "It's Your Business" Program. This program provided information and advice to clubs and associations regarding their legal and statutory responsibilities for their office bearers. This innovative and informative program was sponsored by the City of Ryde and coordinated by the Ryde Safe Communities Sports Safety Group.

Local Historical Societies

- Ryde District Historical Society
- Brush Farm Historical Society

Local Environment Groups*

- Friends of Glades Bay Park
- Friends of Darvall Park
- Ryde-Hunters Hill Flora and Fauna Preservation Society
- Brush Farm Park Preservation Group
- Friends of Denistone Park

- Greening of Ryde Task Force

*This list does not include all bushcare groups.



Supporting Volunteer Groups

The City of Ryde supports volunteer groups by providing them with resources and training, meeting room accommodation, offering grants, assisting in grant applications and holding an annual volunteer awards night. The City is particularly active in supporting bushcare volunteers.

The Brush Farm Park Preservation Group is one group that has undertaken significant works at Brush Farm Park and its surrounds. This work has been complemented by an innovative initiative by the City to target weed species on adjoining private residences. Working with the local community and City of Ryde staff, significant improvements to the entire Brush Farm Park surrounds have been made in a co-operative and cost effective process. It is intended that this model now be implemented across the City of Ryde, commencing with the area surrounding the Field of Mars Reserve in a staged program over the coming years.

The Ryde Hunters Hill Flora and Fauna Preservation Society, in conjunction with the NSW Department of Education Field Studies Staff, are working actively with the City of Ryde. The Field of Mars Community Advisory Group meets monthly to nurture and improve the natural resources of the Field of Mars Reserve for the benefit of both the natural inhabitants of the area as well as the residents in the region of Ryde. Significant improvements have been made in terms of strategic

weed removal, track upgrades, signage and track markers and bush regeneration.

The City of Ryde, often in conjunction with community representative groups, has been actively seeking grant income to supplement improvement projects. A broad variety of projects have been successful in obtaining grants this year. Projects such as resurfacing Brush Farm Park Netball Courts with the Eastwood Ryde Netball Association, provision of a cycle way at Blenheim Park with the Blenheim Park Community Group, provision of improved facilities for womens soccer at Morrison Bay Park with the Northern Sydney Women's Soccer Association were completed with the benefit of grants and input from the City of Ryde and the local groups.

In total, externally sourced grants for projects on community land including sportsfields, parks and natural areas totalled in excess of \$358,000 but still almost entirely relied on active community input to complete work.

The Greening of Ryde Taskforce

Due to the prevailing drought conditions the Greening of Ryde Taskforce scaled back its activities this year, compared to last year. Some notable achievements were still made in the Morrison Bay Park, Bremner Park, Mallee Reserve and Tyagarah Park corridor with the last of 6,000 seedlings being planted in this corridor from an earlier Envirofund grant. Seedlings were planted by Taskforce volunteers, students from Putney Public School, St Ignatius College, Ryde TAFE and by the bush regeneration contractor. The planted embankments in Bremner Park now extend all the way to Morrison Road.

Students from Ryde TAFE also embarked on a major bamboo removal program in Mallee Reserve and Tyagarah Park. The Taskforce also co-funded with the RTA the installation of new Koppers Log fencing around the RTA land adjacent to Epping Boys High School on Epping Road. This fencing provides valuable protection of the earlier mass plantings.

Preliminary discussions were also held with Holy Cross College about developing a vegetation corridor through this school, which would represent the last major vegetation corridor link between the Parramatta River and the Field of Mars. The results of these negotiations will be reported next year.

Street tree plantings were very limited with only three major projects being See Street, Meadowbank, Cambridge Street, Gladesville and part of Anzac Avenue, West Ryde. This is in addition to the five completed last year.

Bushcare Volunteers Program

The City's Bushcare Volunteer Program is a program that is growing in popularity because it provides an avenue for the local community and business members to become involved in their immediate area and to feel that sense of responsibility for protecting the local environment. Works such as clearing weeds, building walking tracks and planting local native species are the principle elements of the program.

This year, for instance, has seen the expansion of the corporate workdays. During these programs, staff of local businesses, particularly from the North Ryde corporate sector, engaged in bush restoration works under the City's Bushcare Volunteers.

Some key work completed this year under the program included:

- Ongoing maintenance of a database of 120 active individuals in 15 bushcare groups.
- Coordination of National Tree Day.
- The active care of 10 parks.
- Implementation of a Bushcare Policies and Procedures Manual outlining what Bushcare is and related Occupational Health and Safety issues associated with bushcare work undertaken.
- Completed work of an Envirofund grant for the end of Monash Road – Field of Mars.
- Coordination of Corporate work days and the work of school groups.
- Development of Bushcare site signs to distinguish and promote Bushcare sites. The signage allows workdays and times to be displayed and updated.
- Coordination of school groups in monthly working bees such as the Northern Suburbs Secondary Colleges having monthly allocated time for rehabilitation works in Burrows Park, along Buffalo Creek.



Work Undertaken by Bushcare Groups

Bushcare volunteers have undertaken numerous works in progressing key projects throughout the year. The following make up the key elements of their work:

- weed removal and control
- track maintenance and construction
- fauna and flora management
- site assessment
- planning and monitoring
- seed collection
- revegetation programs
- erosion control
- creek rehabilitation

It is entirely appropriate for the following company's, schools and community bushcare groups working under this program to be acknowledged in this report.

Local companies and schools involved:

- Biochemie Australia
- Omron Electronics
- Ryde Secondary College
- St Ignatius College
- Northern Suburbs Secondary Colleges

The current Bushcare groups include:

- Minga Reserve
- Durham Close – Macquarie Park
- Waterloo Park
- Portius Park
- Darvall Park
- Stewart Park
- Finch Avenue
- Kennedy Street
- Brush Farm Park
- Ross Street/Glades Bay Reserve
- Field of Mars – corner Monash Rd and Kim St
- Field of Mars – Cemetery

Community Environmental Management Strategies Group

The Community Environmental Management Strategies Group, which was created in 1998 in order to facilitate community consultation and assist in the development of the City of Ryde Environmental Management Strategies, has not met this year. The City will be looking at re-establishing this group with fresh terms of reference and new membership next year.

The City has been actively involved in developing the City Vision 2022 and it is anticipated that this group will be called upon to assist in future strategy development to achieve the vision.

City Vision and Strategy

Over the past two years, the City of Ryde has been planning for the future of our City. An extensive participatory community consultation program of people who live and work in the City of Ryde was undertaken in 2002 to help decide what the City should be in 20 years time.

From this process, the community want the City in 2022 to be *safe, clean and green* and the following City descriptors are to be incorporated into future City Management Plans to enable the development of strategies to achieve the vision:

- Descriptor 1 – A vibrant City that is healthy, physically attractive, economically strong and engages the community through cultural and social activities.
- Descriptor 2 – A City that plans for people by identifying their diverse needs and involving them in decision making to improve their quality of life.
- Descriptor 3 – A harmonious community through a culturally enriched and respectful society.
- Descriptor 4 – Well designed streets and paths where motorists, cyclists and pedestrians feel safe.
- Descriptor 5 – Well designed places and spaces that minimise personal harm and where people interact with each other, so that crime is reduced.
- Descriptor 6 – Clean air through protection of natural resources and better integrated transport systems.
- Descriptor 7 – Clean water through control of pollution entering our waterways and through protection of these waterways.
- Descriptor 8 – Attractive streets, public places and buildings through better planning and design which is responsive to community expectations and our local environment.
- Descriptor 9 – A high standard of visual appearance as there is no litter or graffiti, and we care for our public infrastructure and public areas.
- Descriptor 10 – Protected ecological systems and processes that support life and the environment through actions that safeguard them.
- Descriptor 11 – Preserved natural areas which are enhanced and maintained.

Descriptor 12–A leafy City through parks, gardens, trees and the built environment.

Descriptor 13–Sustainable practices in buildings, waste management, transport, energy systems and water use through community commitment.

Descriptor 14–Strong links to the past through protection and conservation of our heritage.

Environmental Education

Coordination of the City's internal and external sustainability education was enhanced through the formation of a cross-divisional Environmental Education Team (Enviro Ed Team) during the previous reporting year.

The Team currently includes members from six sections of the City of Ryde organisation that are able to provide a broad background of expertise when exchanging and putting forward ideas on how to incorporate sustainability into the City's daily activities, to lead by setting an example for the community.

A Team Strategy was formulated during the reporting year and it includes the Team's goals to "improve the level of awareness of staff through development, implementation and on-going promotion of sustainable environmental initiatives and practices", and to "raise the level of environmental awareness in the local community through practice".

Monthly promotions often tie in with National or State environmental themes, such as World Environment Day, Solar Month, Weedbuster Week, and the National Recycling week, or International agendas.

Over the past year the following facets of the City's environmental education program has included:

- Adoption of the Enviro Ed Team's Education and Promotion Strategy 2003-2005, which sets out the monthly educational themes and activities for the next few years
- Implementing a Community Events and Education Display Strategy as part of the main Enviro Ed Team Strategy
- Conducting in-house education program including energy and water efficiency, waste minimisation, littering, protection of biodiversity, noxious weeds, bush care, mosquitoes and stormwater pollution awareness etc.
- Establishing the Enviro Ed Team site on the City of Ryde Intranet to make the Team's monthly themes and promotions available to staff and to promote the Team's work
- Encouraging of staff to access the Team's monthly Intranet information by giving away promotional material, eg. plants to improve office environment

- Producing the City of Ryde Environmentally Sustainable Practices at Work pamphlet into the induction checklist to be provided to new staff as part of the City's Induction Kit
- Providing the recently elected Council members with information packages on sustainability, including the Enviro Ed Team's functions and past educational material

In the past the Enviro Ed Team has also:

- Conducted an in-house office audit of the Civic Centre regarding recycling facilities, staff recycling habits, printers with double sided printing options, manual light switches, in order to minimise waste, recycle and save power
- Delivered demonstrative talks about water quality, waste and biodiversity at Denistone East Public School on their Environment Day
- Hosted an Energy Efficiency Renovators Workshop during Solar Month
- Displayed in libraries and shopping centres on the topics of mosquitoes, energy, and recycling
- Held environment stalls at the annual Granny Smith Festival and Field of Mars Open Day, and handed out great numbers of promotional items and flyers
- Initiated an annual inaugural award for best in-house sustainability efforts
- Produced articles in Ryde City News and local newspapers



Environment Strategy

Next year the community will be consulted on the development of environmental priorities and strategies as part of the City Vision process. At this stage it is anticipated that local environmental programs will be coordinated under a Sustainability Strategy linked to the 3-Year City Management Plans. A key issues paper 'Towards a Sustainable City of Ryde' is scheduled for early next year to commence the strategy development process.

Future Actions

- Continue to foster and support community involvement in as many local environmental programs as possible to protect and conserve the local environment and to develop community ownership.
- Consider the re-establishment of the Community Environmental Strategies Committee to assist in the development of a Sustainability Strategy for the City of Ryde.

Management Plan 2003- 2004 Progress Summary – Towards Sustainability

Objective	Strategy	Measures/Targets	Progress
<ul style="list-style-type: none"> To promote sustainable development. 	<ul style="list-style-type: none"> Assist in the development of a sustainable community by ensuring that planning approaches balance environmental, economic and social needs. 	<ul style="list-style-type: none"> Complete City Vision and Strategy by 30 November 2003. Finalise planning for Macquarie Park Employment Area by 30 June 2004. Complete the residential development strategy by 29 February 2004. 	<ul style="list-style-type: none"> Draft vision completed and final adopted deferred pending review by new council. Master Plan adopted by the Council and LEP under preparation. Review deferred.
<ul style="list-style-type: none"> To promote Community Involvement in Environmental Issues 	<ul style="list-style-type: none"> Encourage volunteers and recognise participation 	<ul style="list-style-type: none"> Create an environment volunteer award category in the Community Volunteer Awards by 31 December 2003. 	<ul style="list-style-type: none"> Completed.
<ul style="list-style-type: none"> To ensure that principles of ecologically sustainable development are implemented within the operations of the organisation 	<ul style="list-style-type: none"> Review the operations of the organisation to determine compliance with ESD 	<ul style="list-style-type: none"> Environmental guidelines/ policy developed for the organisation by 31 December 2003. All Service Groups environmentally audited by 30 June 2004. 	<ul style="list-style-type: none"> Environmental Statement for the City of Ryde included in the 2004 – 2007 Management Plan. EnviroServe, Ryde Aquatic Leisure Centre, and Porters Creek sites audited.

Objective	Strategy	Measures/Targets	Progress
	<ul style="list-style-type: none"> • Develop staff sustainability education and training programs. 	<ul style="list-style-type: none"> • Environmental awareness incorporated into induction training by 31 December 2003. • Environmental responsibilities incorporated into all new position specifications, job plans and work method statements by 31 Mar 2004. • Sustainable building capital works checklist completed by 30 June 2004. 	<ul style="list-style-type: none"> • Environmental sustainability brochure included in induction for new staff. • Environmental responsibilities to be included in job specification progressively in 2004/2005. • Completed.

This page has intentionally been left blank

Chapter 2 – Human Settlement



This page has intentionally been left blank

2.1 Urban Development

In industrialized countries, the consumption patterns of cities are severely stressing the global ecosystem.

The natural and urban environment of the City of Ryde is also affected by these same stresses, particularly as continual urbanisation and previous poor land management practices have led to extensive land degradation.

Given that the overall human settlement objective should be to improve the social and environmental quality of human settlements and the living and working environments of all people, the City of Ryde has been continually developing and implementing strategies to address these aspects.

Goal

To address current pressures and to minimise future impacts on land and the environment resulting from the continual increases in urbanisation and previous poor land management practices.

State

Population

On Census night, 7 August 2001, Ryde had a population of 95,744 people. This was an increase of 3,069 since 1996. Ryde's annual growth rate over 1996-2001 was 0.7% a year, which is below Sydney's rate of 1.3% (Source ABS 2001). Based on these figures it is estimated that Ryde currently has a population of approximately 100,000 people (to be confirmed during next years ABS Census year).

Past Population Trends

The main trends over the last ten years are as follows:

- population increased at a steady rate;
- the number of 1 and 2 person households continued to rise;
- the population over 55 year olds (21,700 people) grew at a rate of 0.35% pa; and
- the population for under 14 year olds continued to drop.

Household size has been dropping steadily over the past ten years. In 1991 there were 2.57 people per household. In 2001 the number had dropped to 2.5 people per household in Ryde making a reduction rate of 2.7%. City Planners have estimated a reduction rate slow down over the next ten years and therefore the estimated household size in 2011 is expected to be 2.43 people.

Future Population Trends

The following assumptions have been made by the City Planners:

- The population will increase at the same rate;
- Household size will continue to drop to an average size of 2.43 people; and
- The number of households will continue to rise.

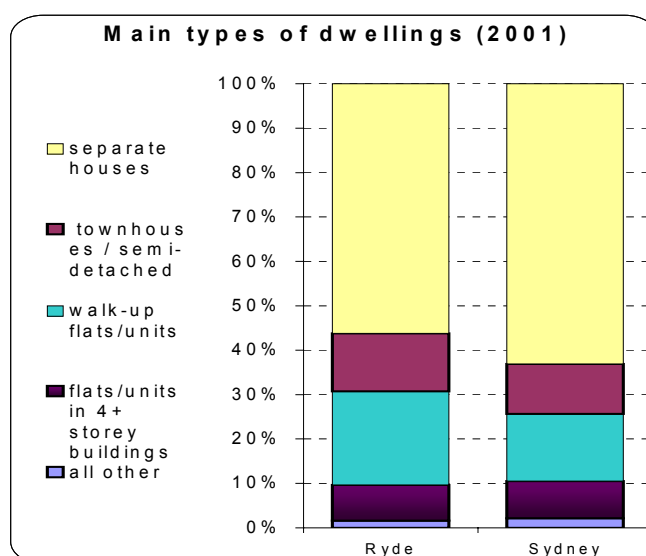
Item	2001	2011	% Change pa	% Change Total
Population	95,750*	101,495	0.60%	6.0%
Household size	2.5	2.43	- 0.27%	-2.7%
No of households	38,833	41,767	0.75%	7.5%

In summary, the population is growing and aging. These factors coupled with the fact that the rising percentage of one or two person households means that more housing will be required in Ryde. More housing choice will be required especially housing that is affordable, accessible and adaptable.

Housing

In 2001, Ryde had 38,833 dwellings, an increase of 1,636 since 1996. The most common dwellings in Ryde are separate houses, of which there were 20,695 in 2001 (53% of Ryde's dwellings compared with 59% over Sydney). Other common types of dwellings are attached houses such as town houses or terraces/villas (4,792 or 12%); units or flats in low-rise buildings (7,753 or 20%); units/flats in buildings over three storeys (2,968 or 8%); with 123 all other (0.3%) (Source ABS 2001).

The most commonly built type of dwelling over the period 1996-2001 were walk-up flats/units, representing an increase of 151% (Source ABS 2001).



(Source ABS 2001)

Past Housing Trends

The number of dwellings has been increasing at a rate of around 10% for the last 10 years making an annual rate of around 1% increase.

The number of detached dwellings continued to drop while the number of other types of housing continued to increase. In 1991 detached housing constituted 63% of all dwellings and in 2001 they constituted 54%.

Villas were highly popular and replaced around 6% of the existing detached dwelling stock over the last decade.

<i>Dwelling Type</i>	<i>1991</i>	<i>2001</i>	<i>% Change pa</i>	<i>% Change Total</i>
<i>Total dwellings</i>	35,087	38,833	1.07%	+10.7%
<i>Detached houses</i>	22,081	20,818	- 0.6%	- 6%
<i>Villas etc</i>	3,387	4,792	4.1%	+ 41%
<i>Residential flats</i>	9,748	10,844	1.1%	+ 11%

Future Housing Trends

Over the next 10 years, large residential blocks will continue to be subdivided for the provision of smaller dwellings and the total number of villas etc. is expected to continue to increase albeit at a lower rate, i.e. at 25%. The reduced rate is because of tighter environmental controls regarding villas and because much of the most suitable land (i.e. flattest) has already been converted to villa development.

In forecasting dwellings over the next 10 years, the following assumptions have been made:

- The number of detached houses will continue to drop but at a rate of 6%;
- The number of villas and attached dwellings will rise at a reduced rate of 25%;
- The number of residential flat units will rise at a rate of 50%.

<i>Dwelling Type</i>	<i>2001</i>	<i>2011</i>	<i>% Change pa</i>	<i>% Change Total</i>
<i>Detached houses</i>	20,818	19,568	- 0.6%	-6%
<i>Villas etc.</i>	4,792	5,990	2.5%	25%
<i>Residential flats</i>	10,844	16,266	5.0%	50%
<i>Total Dwellings</i>	38,833	41,821	0.7%	7.7%

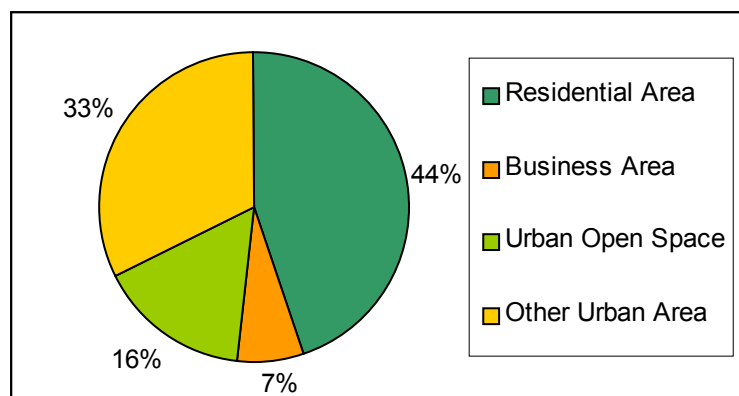
Demand versus Supply

Trends over the past ten years show an increase in new dwellings that appears to outstrip the population rate of increase. But this trend was expected and will continue because the percentage of one or two person households is rising resulting in an increase in the number of households. The number of dwellings required is equal to the number of households.

In 2011 the estimated population is 101,500 with an estimated number of households of 41,767.

Land Use

The following graph breaks down the land use in the City of Ryde into four broad categories. The information is based on 2003/04 figures with land use expressed as a percentage of the total land in the City of Ryde.



Note: Other Urban Area refers to zonings such as special uses that include universities schools, hospitals and churches.

Development Activity

A total of 1,397 development applications were approved this year. The majority related to residential housing but also include continuing development in commercial and retail sectors. This is 89 applications more than were received last year.

Planning Initiatives

Strategic planning at the City of Ryde has sought to deal pro-actively with the economic, environmental and social impacts of development by creating programs that:

- Implement policies to ensure land use is environmentally and economically sustainable;
- Actively involve the community in the planning process;
- Continually update the City of Ryde's website with all codes, policies, DCPs and the Ryde Planning Scheme Ordinance;
- Build a sense of community and identity with a focus on strengthening the relationship between people and their environment;
- Develops comprehensive planning controls such as draft Ryde Local Environmental Plan – For Now and the Future, which will consolidate Ryde's planning documents and create a broad framework for all future development in the City of Ryde.

CityVision and Strategy

The City of Ryde has been planning for the future of our City. People who live and work in the City of Ryde were invited to take part to help decide what the City should become. The CityVision is a 'destination'. It is a description of what the City of Ryde should be in 20 years time. The City Strategy is how we get there – the guiding principles. It is the action plan for achieving the CityVision.

The Strategy is a key policy document able to fulfil Council's legislated role of being responsible for managing, developing, restoring, enhancing and, where appropriate, conserving the natural, physical, cultural and economic environment of the City of Ryde. Its primary purpose is to guide Council's strategic decision-making.

Employment

The success of all Ryde's employment areas continues to drive commercial and industrial development, which is a significant cause of pressures on infrastructure and services.

Employment within the City of Ryde is mostly in the Macquarie Park Business Corridor and the traditional town centres (Eastwood, West Ryde, Meadowbank, Top Ryde and Gladesville); and two small industrial areas (West Ryde and Gladesville).

The Macquarie Park Corridor is the most important employment location in the City of Ryde. Accounting for approximately 30,000 jobs it is the fourth largest office space area in the Sydney Metropolitan Area behind the CBD, North Sydney and Parramatta. The Corridor's role is that of the leading high-tech industrial area in Australia, attracting electronic, scientific, computing, medical, communication and pharmaceutical companies.

In promoting future growth in the Corridor it is intended to use best practice, with a focus on sustainable development outcomes in the design of controls that will guide future development in the corridor and public domain works. This will be achieved by utilising the current planning system through a local environmental plan and supporting development control plan and a developer contribution (Section 94) plan.

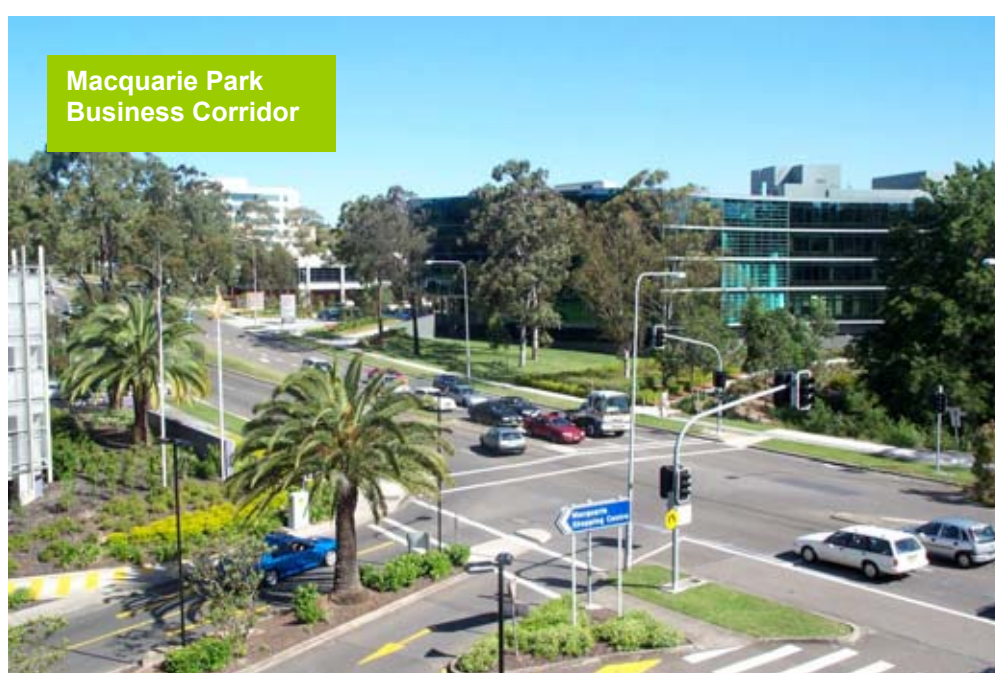
To ensure that the Corridor remains a significant technology and knowledge area attention is being given to the ongoing management of the Corridor. The aim is to provide the ability for the Corridor to:

- fund the future day to day management of the centre;
- develop and implement programs within the Corridor;
- influence future capital expenditure within the centre; and
- successfully promote and market itself.

The role of partnerships with both government agencies and private developers will not be overlooked when implementing the Master Plan or the future management of the Corridor.

Challenging travel behaviour is a key aspect in the future planning of the City's employment areas. It is acknowledged that private vehicles are a significant part of modern society and that many of the people who currently work and live in the City of Ryde use private vehicles as their primary mode of transport. The long-term vision focuses on reduced dependency on cars and environmentally sustainable outcomes through the provision of employment opportunities around rail stations and bus routes.

The City of Ryde has taken an active role in working with the Transport Infrastructure Development Corporation on the construction of the Epping to Chatswood Rail Link in ensuring the environment is not degraded. This will ensure that upon completion of the train line new transport focused business centres will be created that link Macquarie Park to Chatswood and the CBD.



Residential/Employment

The expression “urban village” is a term to describe a place in the city that has all the characteristics of a village. An urban village approach to development control seeks to combine residential, recreational, educational and work activities making them more accessible within a single centre which is well served by public transport. Since 1995, The City has pursued the urban villages concept as a tool for providing a framework for achieving the following local planning objectives:

- Managing traffic on local streets through upgraded and better utilised public transport;
- Allowing more residents to be able to access convenient public transport through higher densities around rail stations and bus routes;
- Revitalisation of local business centres;

- Appropriately located higher density housing;
- Creating safe and attractive public spaces that promote community pride in the City.

This framework is being applied to the City's traditional town centres at Eastwood, West Ryde, Meadowbank, Top Ryde and Gladesville.

Master Plans have been developed with significant community involvement for West Ryde, Eastwood and Meadowbank Centres. These Plans specify the detail for a preferred future urban form, which has the capability to be implemented over a 20-year period.

The Master Plans recommend that development should be pursued at higher densities; that it is in a mixed-use format with an emphasis on street-level activity with living areas above; and that adjacent public spaces be expanded and upgraded.

Development controls have been put in place to stimulate new investment and building activity. The plans together define the overall vision and seek to achieve early redevelopment and high quality embellishment of public spaces.

Residential

The City of Ryde is experiencing a steady change in population structure, growth and composition. It has remained the objective of the New South Wales State Government to address the issues of population growth, equitable access to infrastructure and a safe and healthy environment primarily through urban consolidation.

A range of policies and controls have been adopted as part of its commitment to meeting the needs of its community, especially in the area of housing choice. These policies aim to ensure choice is available while still protecting values that the community values most like safety, amenity, economic and environmental sustainability.

The City of Ryde's community has grown over the last decade and with change comes new needs and expectations, as shown earlier. For example, the community is aging as the population over 55 continues to expand. Households are getting smaller, partly due to the aging population but also due to a reduction in the number of children per family and an increase in the number of one and two people households. All these factors lead to a decreased demand for the 'quarter acre block' but an increased demand for other dwelling options.

Focus has also been given to the protection of specific areas within the City of Ryde that have a unique character or history, which is worthy of retaining. See the Heritage Section 2.2 of this report for details of heritage items and conservation areas.

City policies, like the Urban Village Policy (1995) are increasing housing choice and dwelling numbers. Continued review of the urban housing controls is being undertaken to ensure that they remain current.



Infrastructure

Section 94 of the *Environmental Planning & Assessment Act* enables local councils to levy contributions for public amenities and services required as a consequence of development. These contributions provide an important source of funds and are targeted to a specific sector (new development and incoming population) rather than being a general tax across the whole community.

A major review of the current Section 94 Contribution Plan has commenced and will focus on:

- Expanding the range of facilities and services funded from Section 94 contributions;
- The population projections against the level/type of development occurring in the area; and
- The quality of base information upon which the Plans nexus is built.

The Section 94 Plan is also to be reviewed on a quarterly basis to ensure that the contribution rates are adjusted in line with the indexation rate.

Pressures

- The pressures on the City of Ryde relate to the core values espoused in the “safe – clean – green” theme that developed out of the City Vision process.
- The following issues outline the pressures considered critical to human settlement and serve to integrate the resources and activities of the public and

private sectors and the community generally:

- Providing adequate shelter for all;
- Improving human settlement management;
- Promoting sustainable land use planning and management;
- Promoting the integrated provision of environmental infrastructure;
- Promoting sustainable energy and transport systems in human settlements;
- Promoting human settlement planning and management in disaster-prone areas;
- Promoting sustainable construction industry activities; and
- Promoting human resource development and capacity-building for human settlements development.

Responses

- Eastwood Town Centre Local Environmental Plan No. 110 and Development Control Plan No. 39 were adopted and implemented on 18 July 2003.
- Top Ryde Town Centre Local Environmental Plan No.123 and Development Control Plan No. 40 has been placed on its second public exhibition of the draft Plans.
- Local Environmental Plan No.129 Urban Housing has been amended and re-exhibited based on the requirements of the State government. The making of Local Environmental Plan No.129 is required to ensure implementation of specific controls in Development Control Plan No. 21A, which was adopted in December 2001.
- The Master Plan for Macquarie Park was adopted in 2004. This Plan implements the strategic objectives of integrating land use and transport, reducing car dependency and creating opportunities for employment in areas supported by public transport.
- Draft Ryde Local Environmental Plan – For Now and the Future has been reviewed to ensure its compliance with the requirements of the Department of Infrastructure, Planning and Natural Resources. The Local Environmental Plan, which is to be placed on public exhibition, will be used to manage, develop and conserve the City of Ryde's natural and man made resources.
- The City Vision strategic plan is a new citywide planning initiative that will provide a framework for deciding City progress, priorities and actions over the next 20 years. The City Vision strategy will include directions on a range of topics including transportation, arts, housing and the community.
- Development Control Plan No. 45A - Energy Smart, Water Wise was adopted. The Development Control Plan introduces a minimum energy performance for all development and seeks to reduce the consumption of energy and water.

- Planning studies and community consultation has been undertaken for the preparation of the Draft Master Plan for Gladesville Town Centre.
- There has been continuing work on the revision of the Meadowbank Master Plan, Development Control Plan and Section 94 Contributions Plan.
- A review of the draft Exempt and Complying Local Environmental Plan and Development Control Plan is currently being undertaken
- Two Development Control Plans for Character Areas in Tyrell Street - Gladesville and Coronation/Trelawney Street – Eastwood were adopted.
- A Heritage Study of the Outlook Estate, Denistone was undertaken with a Local Environmental Plan and Development Control Plan being prepared to implement the findings of the study. A Heritage Study of the areas contiguous to the Outlook Estate was also commenced.
- Research into opportunities for new housing opportunities within the City of Ryde is continuing with a review of the residential development strategy.
- All areas within the City of Ryde that are bushfire prone or subject to slope instability were mapped.
- Local Environmental Plan No.134 for 45 Blenheim Road, North Ryde and Local Environmental Plan No.130 for 323 Blaxland Road, Ryde were adopted. Both have site specific Development Control Plans that incorporate Environmentally Sustainable Development principles.



Future Actions

- Continue with the strategic initiative of the Urban Village program by:
 - Preparing a draft Local Environmental Plan and Development Control Plan for Gladesville Town Centre
 - Reviewing the planning documents for West Ryde Town Centre
 - Finalising the planning instruments for the Top Ryde Town Centre
- Continued review of the City's Section 94 Contribution Plan.
- Review of the Dwelling House and Duplex Development Control Plan.
- New landscaping control for all future developments.
- Review provisions of advertising Development Control Plan No. 28 to ensure that the controls meet current best practice.
- Review the provision's of Development Control Plan No. 21A – Urban Housing.
- A Contamination Development Control Plan that contains policies and procedures based on State Environmental Planning Policy No. 55 and current Council practices.
- Prepare a new Leisure Needs Study to identify what leisure facilities and services are available in the Ryde Local Government Area and determine whether or not they fulfill the needs of residents.
- A Local Environmental Plan and Development Control Plan will be developed to implement the Macquarie Park Corridor Master Plan.
- A Section 94 Plan, identifying and costing infrastructure for the Macquarie Park Corridor.

2.2 Heritage

Heritage involves places and landscapes of historic, cultural, indigenous, social, spiritual, archaeological, architectural, natural or aesthetic significance.

We protect our heritage for many reasons including aesthetics and because it maintains our links with the past

Goals

1. To identify, protect and manage Aboriginal, built and natural heritage in the City of Ryde.
2. To increase awareness and understanding of Aboriginal, cultural, built and natural heritage.

Non Aboriginal Heritage

State

The heritage of Ryde is significant because it:

- Is the third area of European settlement in Australia following settlement at Sydney town and Parramatta.
- Represents an important link in the early water transport connection between the early settlements of Sydney and Parramatta.
- Typifies the impact of the early systems of transport on urban growth such as river, road and rail and contains items representative of early urbanisation of Sydney's northern metropolitan area.
- Contains distinctive post-World War II examples of residential, commercial and industrial development within the Sydney metropolitan context.
- Ryde's heritage is protected at a local level by the Ryde Planning Scheme Ordinance, which currently protects over 174 heritage items.



<i>Reporting Period</i>	<i>Total No of Heritage Items</i>	<i>Total No in Conservation Areas</i>
1999/00	4	0
2000/01	4	0
2001/02	4 (174 proposed)	15 (proposed)
2002/03	174	4*
2003/04	174	4

*variation due to reduction in conservation areas

Ryde Library has a local studies collection that is a useful heritage resource for members of the wider community.

Two well-established community heritage groups, the Ryde District Historical Society and Brush Farm Historical Society are based in Ryde.

Pressures

There are considerable redevelopment pressures on the whole of the City. These pressures include the upgrading of family homes, property speculation in the creation of multiple housing such as villa homes, and the revitalisation of urban villages such as Top Ryde and West Ryde and areas such as Meadowbank and the North Ryde Employment Area.

Responses

- The protection of heritage was enhanced with development of Local Environment Plan (LEP) No. 105. The LEP protects 174 individual items and four heritage conservation areas. Individual heritage items that are protected include aboriginal sites, schools, churches, clock tower, fountains, factories, shops and houses. The LEP was gazetted on 17 January 2003.
- The conservation of parts of the City that have a unique architectural and/or streetscape character has been achieved by creating character areas. A character area can be a street, series of streets or parts of a suburb. Character areas are conserved and protected through development control plans. These plans introduce controls into the area to guide future development to ensure conservation and enhancement of the existing built and natural elements. In 2003/04, The City created 2 character areas namely Tyrell St, Gladesville under DCP No. 52 dated 22 October 2003 and Coronation St/ Trelawney St, Eastwood under DCP No. 51 dated 1 October 2003.
- The City employs a part time Heritage Officer. This role includes assessing development applications for items and conservation areas listed in Local Environmental Plan No. 105, for properties in the vicinity of heritage items or within a conservation or character area. Assistance is given to applicants that have properties that are heritage items, potential heritage items or within a

conservation or character area through pre-lodgment advice from the City's Heritage Officer.

- The City has continued to support community heritage groups by providing accommodation for their headquarters and meetings.
- The City has a Heritage Advisory Committee, which has a membership comprising councillors, representatives from local historical groups and interested residents. This committee provides ongoing advice and direction to assist in conserving the heritage of the City. One example of their work is the preparation of a listing of sites, buildings and features that are of significance and worthy of exploring to establish whether the element requires protection and conservation.
- The City also works to protect its own heritage properties. This year conservation management plans for Rockend Cottage and Brush Farm House were developed and the NSW Heritage Office has endorsed both. Work programs are now being framed in accordance with the Plans. With respect to Rockend Cottage, the works are mainly conservative/maintenance based together with landscaping activities that will also include the adjoining Banjo Paterson Park. For Brush Farm House, a restoration program is presently being formulated and will require development approval with work anticipated to commence next year.
- The preparation of a landscape and archaeological assessment for the Brush Farm Estate
- Minor works to the Willandra have been undertaken. Further works to the property, including landscaping, are yet to be undertaken.
- Restoration works to the Parsonage have been completed. Landscaping to link the Parsonage and Westward Cottage has also been finished.
- Research was undertaken on the cultural and architectural significance of 2 dwelling houses, one in Amiens St Gladesville and the other in Eric St, Eastwood. The research was undertaken in accordance with the criterion established by the Heritage Council under the Heritage Act. Following this assessment Council resolved not to list the properties as heritage items as the properties did not adequately address the assessment criteria.
- Council resolved in November 2003 that a draft Local Environmental Plan be prepared to list the Outlook Estate as a Heritage Conservation area. In addition, Council also resolved that a Development Control Plan be prepared to guide future development in order to protect the dominant themes and character of the area.



Future Actions

- Preparation of a Heritage Development Control Plan.
- Continued support of Community Heritage Groups.
- Continuing to seek advice from the community on heritage matters.
- Ongoing identification of sites, buildings and features within the City that may be of heritage significance and worthy of protection by a heritage listing.
- Ongoing research into the cultural and architectural significance of the areas adjoining the Outlook Estate.

Aboriginal Heritage

State

Aboriginal culture is a living, ongoing process and the land and waterways are associated with dreaming stories and cultural learning that is still passed on by Aboriginal Elders today.

Aboriginal heritage isn't just about rock art, it's deeply linked to our entire environment - plants, animals and landscapes. A famous Aboriginal 'dot' painter recently exhibited at the Art Gallery of NSW a canvas of a majestic spiral galaxy formed by using 600 black dots representing every 100 years of Aboriginal ancestry in Australia, with two small white dots on the outer edge. The white dots represented the Australian ancestry for the European people.

Northern Sydney Health Aboriginal Employment Plan - 2001/05

Northern Sydney Health has made a commitment to the employment of Aboriginal and Torres Strait islander people within the Area Health Service.

The Aboriginal Employment Plan is designed to provide the framework for Northern Sydney Health achieving the Government's policy of increased employment in the public sector for Aboriginal and Torres Strait Islander people. Within NSW Health, the Aboriginal Employment strategy was launched in 1997. Area Health Service's have developed and implemented a range of strategies.

The Metropolitan Local Aboriginal Land Council has also boosted Aboriginal employment while protecting Aboriginal culture. Sixteen young Aboriginal men and women from inner city Sydney are training to manage Aboriginal cultural sites as part of a new course introduced by the Metropolitan Aboriginal Land Council.

TAFE NSW – Northern Sydney Institute's Ryde College, with support from the Institute's Gamarada Aboriginal Education and Training Unit, is running this course. Successful completion of the course will lead to a Certificate II in Conservation and Land Management (Natural Area and Restoration Management).

Over the next year, other trainees will learn how to maintain cultural places, recognize and plant native vegetation, guide tour groups and master a range of other practical skills.

The Aboriginal Land Council is determined to find employment opportunities for young people by maintaining Aboriginal culture and will employ a number of the successful trainees at the completion of their course.

Recorded Protected Aboriginal Sites for 2003/04

The National Parks and Wildlife Services (NPWS) have drafted guidelines that must be followed by developers and consent authorities in their assessment of the impacts on Aboriginal heritage under amendments to the *NPWS Act 1974* endorsed by NSW Parliament in 2002.

The Aboriginal Heritage Sites currently listed in the Ryde Planning Scheme Ordinance are mainly those listed by the National Parks and Wildlife Service.

Details of Recognised Aboriginal Sites in the City of Ryde for 2003/04

There are currently 62 recorded Aboriginal Sites in the City on land under its jurisdiction. However a number of new sites have been uncovered this year at Meadowbank Park and are noted below. There are approximately another 40 recognised Aboriginal sites within Lane Cove National Park. These sites include axe grinding grooves, engravings, middens and paintings. It is understood that throughout the Lane Cove Valley that there may be further Aboriginal cultural heritage items.

Update Investigations – Meadowbank Park

A site meeting was held at Meadowbank Park between City officers and the Metropolitan Local Aboriginal Land Council to ascertain if the area contained Aboriginal cultural heritage. Allen Madden, Cultural and Education Officer Metropolitan Local Aboriginal Land Council, has described the area under investigation as an Aboriginal Occupation Site.

There are a number of sites at this park that reveal axe grinding grooves and water holes. It appears that these are unrecorded sites, the only other listed site on the City record is Meadowbank Park, Meadowbank, National Park and Wildlife Service Site No. 45-6-0534, which is classified as an 'Artefact' site. This means that tools or flakes from stone tools have been found here previously.

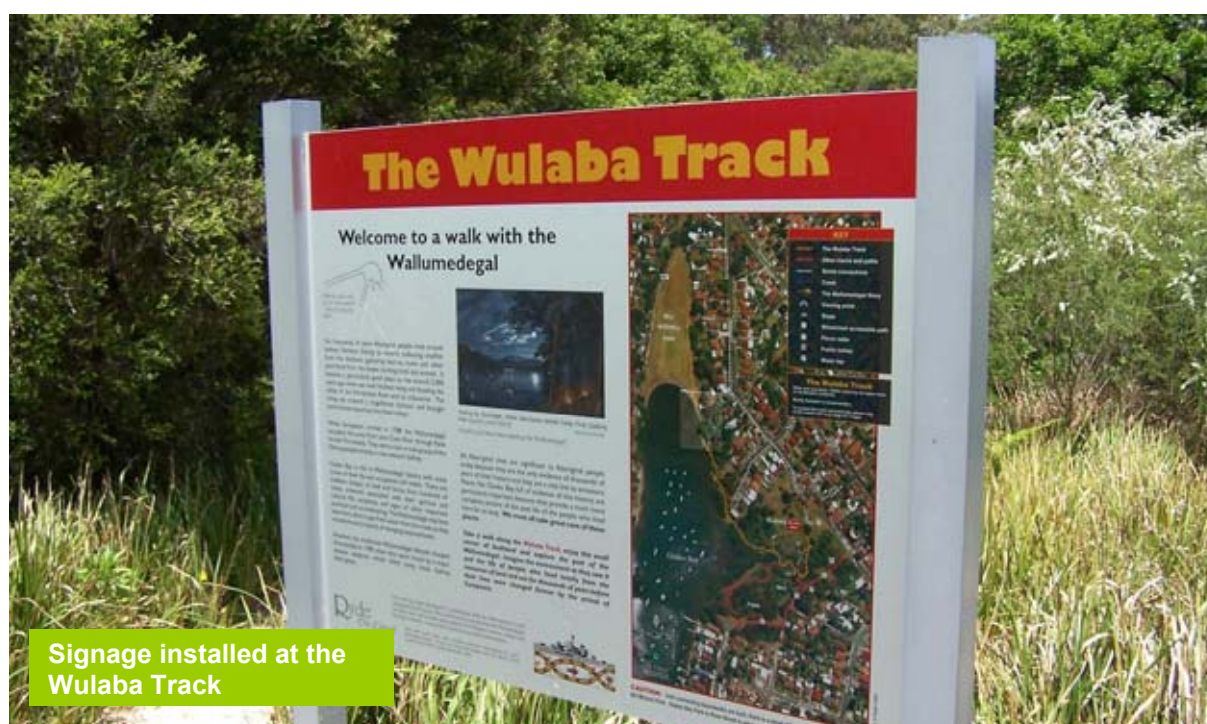
Pressures

- Being able to integrate Aboriginal site data with planning information held by the City where development applications occur near Aboriginal sites.
- No recognised forum for the various Aboriginal and non-Aboriginal groups in Ryde to establish and implement coordinated heritage programs.
- Incidence of vandalism.
- Possible damage to sites when works are undertaken in the vicinity of the site, due to lack of knowledge of site locations.
- Limited grant funding is available to better manage the Aboriginal sites in City of Ryde.
- Erosion damage of engravings.

Responses

- The signage for the Aboriginal Heritage Walk – the Wulaba Track at Glades Bay has been installed and Stage Two of the project is completed. The Mayor of the City of Ryde officially opened the Wulaba Track at Glades Bay Park on 1 May 2004. Extensive foreshore bush regeneration works have been achieved this year as well as ecological hazard reduction burns to stimulate native seedling regeneration.

This walk is very popular with local residents, and was highlighted on the 'Totally Wild' television program. As grant funding opportunities become available on-going works may be achieved to further upgrade the walking track and surrounding natural area, in close consultation with the local residents.



Signage installed at the Wulaba Track

- An Aboriginal Sites Officer from the Metropolitan Local Aboriginal Land Council and National Parks and Wildlife Service is assisting City of Ryde in the investigation of a possible Aboriginal Site located in Meadowbank Park. This will be reported on next year.
- Since the beginning of the year a working party within Northern Sydney Health, has been developing an Aboriginal Employment Plan to address the issue of recruiting and retaining Aboriginal people.

As well as seeking to comply with the current NSW Government and NSW Health Policy in this respect, the plan also seeks to address Northern Sydney Health's "corporate citizen" responsibilities in providing employment opportunities to Aboriginal and Torres Strait Islander people both within and outside its own area boundaries.

- In the development of the Northern Sydney Health Aboriginal Employment Plan, the working party researched other Aboriginal Employment Strategies within Health and other organisations.
- City staff refers to the Heritage LEP No. 105 and the Aboriginal Sites register when assessing development applications. Ongoing work is being undertaken to refine the Aboriginal Sites register and the development application process.
- The Bennelong and Surrounds Residents for Reconciliation Group is an independent group, which is active in the Ryde and Hunters Hill areas and they have delivered several educational talks and set up information displays throughout the year for the benefit of local communities and schools on reconciliation activities.

For more information about the work of this group, contact the City's Urban Landscape Services Section.

Future Actions

- Complete the Indigenous Peoples Needs Paper for the Social Plan by November 2005.
- Review the Aboriginal Heritage items incorporated on the Heritage LEP No. 105.
- Adopt the Northern Sydney Aboriginal Heritage Plan.
- The City is planning to initiate a working party involving Strategic Planning, Urban Landscape Services, the Local Metropolitan Aboriginal Land Council and National Parks and Wildlife Service. The group will examine the issues required to prepare an Aboriginal Heritage Study for the Ryde LGA.
- Further research will be undertaken with National Parks and Wildlife Service to record the new sites. As it appears the sites are unrecorded the Metropolitan Local Aboriginal Land Council will undertake a comprehensive site survey utilising Aboriginal students under the Aboriginal Employment Plan to further address the issue of recruiting and retaining Aboriginal people.

The Metropolitan Local Aboriginal Land Council has expressed interest in working with the City to further document all aspects of the Aboriginal cultural history of this area. This information will be captured on appropriate signs within the park and an appropriate walking track formalised to assist guide and educate the park users.

The 'artefacts' already recorded will have been photographed previously and will be included on the above signs, which will detail the Aboriginal history of the area by Aboriginal students. As well the European cultural heritage will be included for example, Meadow Bank cottage that stood in the 1830's where the current Tennis Court facilities now operate.

2.3 Waste Management

Waste is a product of our industrialised, throwaway society and has been recognised by all levels of Government and communities as a growing problem. Landfill sites continue to fill at an alarming rate and this is causing numerous environmental problems.

As standards of living improve, we are encouraged to consume more goods and materials. As a result, waste is becoming a greater problem with packaging being a major contributor, as well as the shorter lifespan of larger household items.

The most appropriate way to achieve a reduction of waste going to landfill is to avoid generating the waste in the first place. We all need to follow the principles of 'Reduce, Reuse and Recycle' and be responsible for the waste we are creating.

Goals

1. To continue to make residents and businesses aware of their responsibility to reduce waste going to landfill through education programs, recycling schemes, avoiding the use of plastic bags at supermarkets and promoting on-site composting.
2. To encourage resource recovery and waste avoidance to minimise waste going to landfill.

State

In September 2003, The Department of Environment and Conservation (DEC) was developed which consolidated the separate agencies of Resource NSW, the EPA, NPWS, and the Royal Botanic Gardens. The Sustainability Programs Division continued to implement the programs developed by Resource NSW such as the Jurisdictional Recycling Group (JRG), Buy Alliance, Improved Practice Domestic Resource Recovery, Litter & Illegal Dumping & the AWT Assessment Tool.

The City of Ryde continues to support DEC programs and encourages residents to reduce their waste by offering a comprehensive recycling service, as well as promoting composting by providing compost and worm farms at cost price. The household cleanup also encourages residents to separate their greenwaste and metals for recycling.

Waste Service NSW Chullora Materials Recovery Facility continues to accept The City's recyclables for sorting. Items accepted include glass, PET and HDPE bottles, aluminium and steel cans, milk and juice cartons, clean paper, newspaper, magazines and cardboard.

The City of Ryde's Porters Creek Depot continues to recycle excavated materials, bitumen, concrete etc from the City road works. These materials are crushed and

stored before being re-used in the reconstruction and rehabilitation of the City's roads, footpaths and drainage works.

Pressures

- Reduced landfill space creating an increase in waste disposal costs through the development of Alternative Waste Technology (AWT) facilities.
- Increased waste created by a higher standard of living.
- Increased costs associated with development and production of new products due to marketing strategies.
- Littering and illegal dumping.
- Environmental awareness to develop end products from waste disposal, eg compost and gases.

Responses

Domestic Garbage

Approximately 38,300 residences received a weekly garbage service and a separate household cleanup collection on a 20 week collection cycle. This year a total of 30,244 tonnes of solid waste was removed (average of 789 kg per household). Whilst there has been an increase in total tonnage from last year's figures, there has been a significant decrease in the amount of waste per household, which is encouraging.

<i>Period</i>	<i>Tonnages (per annum)</i>	<i>Kgs Per Household</i>
July 1994 - June 1995	31 759	945
July 1995 - June 1996	31 139	895
July 1996 - June 1997	29 547	832
July 1997 - June 1998	30 164	846
July 1998 - June 1999	32 145	892
July 1999 - June 2000	33 093	914
July 2000 - June 2001	31 585	910
July 2001- June 2002	31 300	892
July 2002 - June 2003	29 583	815
July 2003 - June 2004	30 244	789

Total Waste Tonnages

Note: These figures are based on data received from the North Ryde Waste Management Centre and the Collex Waste Management Greenacre Transfer Station.

The City of Ryde's domestic waste is currently being disposed of through Waste Service NSW at the Eastern Creek Landfill site. However, due to a number of alternate disposal sites becoming available, Ryde, in association with the NSROC group are in the process of tendering for a Waste Disposal Contract. The Collex Bio-reactor at Woodlawn is nearing completion with the Clyde Rail Link site due to be

operational by September 2004. The UR3R Globe Renewals Facility at Eastern Creek is also under construction and should be completed later in 2004.

Recycling Service

The City of Ryde offers residents a fortnightly recycling collection in a divided 240 litre mobile bin from houses. However this year, the City changed the divided recycling bins at units to total paper & total container bins in an effort to provide more space for paper and cardboard.

The participation rate of residents has remained around the 80-90% with items such as glass, PET & HDPE bottles, steel and aluminium cans, milk and juice cartons, cardboard, newspaper, magazines and clean paper being recycled at the Chullora Materials Recovery Facility.

A total of 8,766 tonnes of recyclables were collected from 37,300 bins this year. This is an increase of 126.34 tonnes from last year's figures. In addition to the above, residents were able to recycle any excess recyclables at the Waste Management Centre, North Ryde, which is managed by Waste Service NSW.

The City's metal and greenwaste collection, which is incorporated with the household cleanup, continues to assist in increasing the recycling tonnages.

<i>Period</i>	<i>Garbage Tonnages</i>	<i>Recycling Tonnages</i>	<i>Percentage of Waste Recycled</i>
July 1994 - June 1995	32 880	3 904.47	10.91
July 1995 - June 1996	31 139	5 395.24	14.77
July 1996 - June 1997	29 546	7 459.97	20.16
July 1997 - June 1998	30 164	7 947.50	20.85
July 1998 - June 1999	32 127	7 917.29	19.77
July 1999 - June 2000	33 093	8 105.98	19.67
July 2000 - June 2001	31 585	8 066.00	20.34
July 2001- June 2002	31 301	8 065.43	20.49
July 2002 - June 2003	29 583	8 639.24	22.64
July 2003 - June 2004	30 244	8 765.58	22.47

Recycling Tonnages

Note: These figures are based on data received from Waste Services, Collex Greenacre Transfer Station, and Waste Services Recycling Facility, Chullora.

Porters Creek Recycling

The recycling of construction and demolition waste from the City's public works road and drainage construction projects continued during the year. Materials were stock piled for crushing and reuse at Porters Creek Depot saving valuable landfill space and costs for the purchase of new quarry material. There has been a steady progress in the amount being recycled as figures in the following table for the last five years indicate and this has had a positive impact on the environment by diverting this material from landfill.

<i>Period</i>	<i>Concrete Tonnages</i>	<i>Asphalt Tonnages</i>	<i>Compost Tonnages</i>	<i>Total</i>
1999/2000	4 241	10 347	-	14 588
2000/2001	5 962	9 540	-	15 502
2001/2002	8 075	15 286	561	23 922
2002/2003	6 595	10 494	272	17 361
2003/2004	4 165	9 904	531	14 600

Tonnages of Material Recycled from the City's Outdoor Operations

The rehabilitation of road pavement on the job by cement stabilisation has been another important initiative of the City, which has, this year, resulted in 4,820 tonnes of material not having to be excavated for disposal in landfill. This is in addition to the 7,800 tonnes of material rehabilitated last year. Pavement rehabilitation reduces the need for further quarry material and haulage, off site processing and is considered a substantive environmentally sustainable initiative, which will be continued next year.

Garden Waste

A greenwaste survey was mailed out to all ratepayers in July 2003 to ascertain the communities view to implementing a separate greenwaste system. The feedback was that 70% of respondents did not wish to have a separate greenwaste collection as they either did not want a third bin, did not want to reduce the size of the garbage bin or compost on site.

It was decided to wait until the new contract, which commences December 2005 to further establish the viability of separating greenwaste at the disposal point rather than at the kerbside.

The global environmental benefits of having a separate greenwaste collection will be reassessed when the Alternative Waste Technology plant (UR3R) at Eastern Creek & the Bioreactor at Woodlawn becomes operational.

Waste Education

The City of Ryde conducted a number of displays on recycling, waste minimisation and littering during the year coinciding with events such as the Granny Smith Festival, National Recycling Week and Seniors Week.

The Granny Smith Festival was particularly useful in educating the local school children on the hazards of plastic bags. A plastic bag chain was made from the plastic bags brought in by the children from Eastwood Primary's Year 6 and St Kevin's Primary School collected over a three-week period. The chain encircled Eastwood Oval 5 times. Each child received a calico bag. During the festival, residents were encouraged to bring in their plastic bags for recycling and were able to purchase calico bags at the City stall.



The waste education page on the City's website, which contains information about general waste and recycling collection guidelines and dates, waste minimisation practices, and upcoming waste education events, continues to receive a great response from residents using the website. A total of 27,500 hits were made on the Waste Site with over 9,000 of those checking the cleanup map and dates.

The City continued to encourage schools to be active participants in educating the students about waste minimisation. A quarterly Waste Education Bulletin was set up to give students ideas of how they can contribute in reducing waste, with schools being encouraged to share their experiences with others in the bulletin. An art competition was carried out in the schools called "Transforming Trash". The students were requested to develop a piece of art utilising materials that would normally have gone to landfill, giving them a concept of reuse and recycle.

The City of Ryde assisted Ryde Public School in constructing an Eco-Garden on their school grounds. The children were encouraged through their classroom curriculum to learn how to put back into the soil, what they take out of it, through composting, worm farming and organic farming.



A second Waste Collection Calendar was distributed to all residents in July 2003, which identified the garbage, recycling and cleanup dates for their area, as well as detailing the correct items that can be recycled, what to place out for cleanup and other waste minimisation strategies offered by the City.

The City continued its in-house recycling program with food scraps being composted in a worm farm. The cardboard recycling bale system has continued with an average of 8 bales a month being collected. The City also sells compost bins and worm farms at cost, which helps residents to practice ecological sustainability.

Commercial Waste

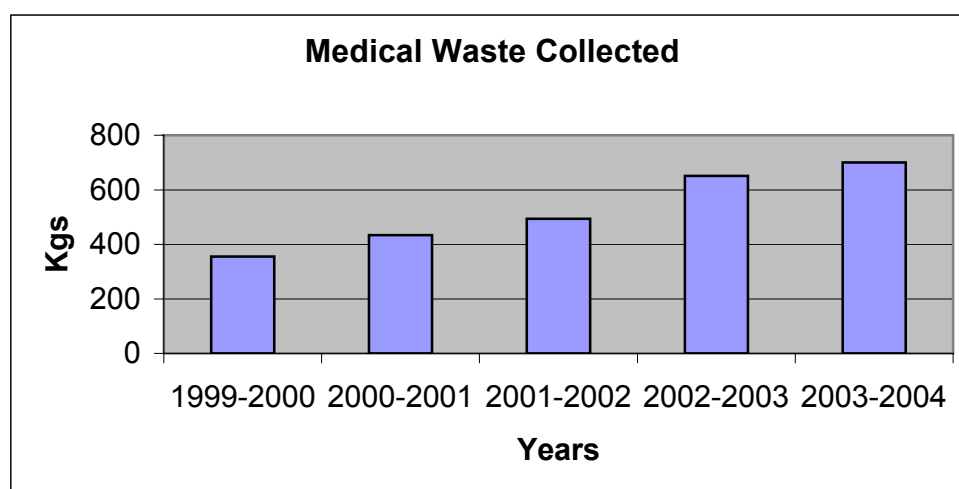
The City of Ryde continued servicing around 1,420 commercial waste bins utilising the new Tiris computer tagging system with a 100% accuracy read. The commercial waste customers are invoiced quarterly in advance, with the correct lift data being adjusted in the following invoice. An average of 80% of these bins are serviced each week with a total of 1,459.94 tonnes of rubbish collected during the year.

Businesses were also encouraged to recycle by introducing a paper or container bin collection service. The bins are serviced on a fortnightly basis and the businesses are only charged an availability fee for the bin.

Medical Waste Collection

The City of Ryde implemented a Medical Waste Collection Service in 1999, involving twelve local pharmacies. The City of Ryde pays for a locked mobile garbage bin at each location for the disposal of syringes and dialysis tubing.

This reduces a large quantity of dangerous items entering landfill. Approximately, 700 kilograms was collected during the year, which is 49 tonnes more than last year.



The City promotes the Return Unwanted Medicines Program, which enables residents to take their unwanted pharmaceuticals to any pharmacy across Australia for free collection. These medicines are then disposed of in a strictly regulated, safe and environmentally friendly way. This program has been successful and will be continued next year.

Clean Up Australia Day

The City supported the work of the Clean Up Australia by encouraging and supporting community and corporate organisations to take part in the clean up of the City's bushland, foreshore and parks.

The City again supervised 20 Cleanup sites with a further 11 schools participating on the Schools Cleanup Day. These sites targeted foreshore and bushland/park areas.

A large number of volunteers turned out on the day and about 37 tonnes was collected in "Clean Up Australia" bags and skips placed at various places around the City area.

There was also a Business Cleanup Day on 2 March, 2004 in which Kyocera Mita, the Body Shop and City of Ryde staff took part.

Toxic Chemical Collections

The City of Ryde in association with Department of Environment & Conservation, Waste Service NSW and Cleanaway conducted its second Household Chemical Collection at the City's EnviroServe Operational Centre on 15th May 2004. 277 participants used this service, up 5% on last year rate and was considered a worthwhile service to continue.

The average quantity per participant was down from 37 kg to about 32 kg with the most predominant material being paints, vanishes, oils, hydrocarbons and batteries. The collection was very successful with nearly 9 tonnes of material being collected and therefore diverted from landfill.

The Waste Management Centre in Wicks Rd, North Ryde accepts up to 20 litres of paints and oils, batteries and gas cylinders all year round and the City advertises this facility at every opportunity to minimise this type of waste material entering the domestic waste stream.



Household Cleanup Service

- The City of Ryde continued to implement the Household Cleanup Collection Program, which was increased to a 20-week rotational service in May 2002. The metal goods and greenwaste are collected separately with the metal goods being taken by Metalcorp for recycling while the greenwaste is processed at Australian Native Landscapes, Eastern Creek.
- This service was established to enable the City to reduce the waste going to landfill from cleanup. This year there was a substantial increase in the tonnage of clean up waste compared to last year but disappointingly a reduction in the amount of greenwaste put out for collection, which is probably due to the drought conditions experienced during the year.

<i>Period</i>	<i>Clean Up Tonnages</i>	<i>Metal Tonnages</i>	<i>Greenwaste Tonnages</i>
1999/2000	2 164	-	-
2000/2001	2 065	-	-
2001/2002	2 090	29	25
2002/2003	1 688	161	333
2003/2004	2 116	148	309

City of Ryde Household Clean up Figures for 5 years

Littering and Dumping

The City Rangers actively enforced littering and illegal dumping and towards the end of the year, The City employed a special Waste & Illegal Dumping Enforcement Officer to educate residents, particularly in medium density areas to take responsibility for unwanted rubbish and to reduce the incidence of littering and illegal dumping.

During the year there were 8 clean up notices and 50 infringement notices issued for littering offences. The impact of the new officer has not yet been felt however early indications are very promising. This will be reported next year.

In-house Recycling and Waste Reduction Programs

The City of Ryde encourages staff to dispose of their paper waste in paper recycling boxes located at desks, which is then disposed of in the paper recycling bins. Larger cardboard items are placed in the Visy cardboard bale system with an average of 7 bales being collected every 3 weeks.

A total of approximately 3.0 tonnes of cardboard was collected last year, down 0.5 tonnes from the previous year, which can be attributed to the efforts being made by the organistaion in minimising paper use.

Recyclable containers are also recycled via dedicated bins located on each floor. Staff food scraps are collected and composted in a worm farm in the basement. The fertiliser liquid and castings are used to fertilise the City's gardens. Staff washrooms continue to use cloth hand towels, which reduce the amount of waste caused by paper towels.

The City continues to recycle 100% of excavated materials, such as bitumen and concrete from road works. These materials are reused in the reconstruction and rehabilitation of roads, footpaths and drainage works. The City reused 14,600 tonnes of material from its outdoor works throughout the year.

Future Actions

- Prepare, evaluate and award a Contract for the Provision of Waste Transfer, Processing and Disposal Services for the NSROC member Councils.
- Carry out community consultation and determine most appropriate collection procedures for the collection of waste, recycling and household cleanup.
- Prepare and advertise tender for the collection of waste, recycling and household cleanup.
- Install Butts Out Bins at various busy bus stops sites to reduce cigarette butt litter.

- Continue to enforce Illegal Dumping and Littering.
- Encourage the reduction of plastic bags from supermarkets through education campaigns and develop a City of Ryde bag for distribution.
- Continue existing waste management programs.

2.4 Noise

Noise pollution is defined as “unwanted offensive sounds that unreasonably intrude into our daily activities” (NSW EPA). The degree of impact of noisy activities varies according to the intensity, frequency, duration, time of day the noise occurs and the sensitivity of the recipient.

Noise can cause a range of adverse impacts on people including loss of sleep, hearing problems and stress. These impacts can reduce the enjoyment of life and can have serious long-term consequences.

Noise related problems continue to be a source of irritation to local residents as the population of the City of Ryde grows and we closer to each other.

Goal

To reduce the number of people that are impacted on by excessive noise levels.

State

In the City of Ryde, no single authority or government body is responsible for the management of all noise pollution. The authority responsible for the management of noise pollution is determined by the source of the noise. Those that deal with noise issues include the Department of Environment and Conservation, the Police, the Waterways Authority, the RTA as well as City officers.

The most common source of domestic noise complaints was barking dogs, with approximately 156 complaints received this year. This number is substantially less than the 500 dog barking complaints received last year.

Other domestic sources of noise complaints are air conditioners, swimming pool pumps, amplified music, band practice, house and car alarms.

Industrial and commercial activities contribute to environmental noise through the operation of plant and equipment, ventilation and refrigeration equipment, public address systems and through the associated traffic that they generate.

While traffic noise makes a significant contribution to background noise, few complaints are received perhaps because there is a degree of acceptance of traffic noise.

Indicator	2000-2001	2001-2002	2002-2003	2003-2004
Number of noise complaints	112	121	105	123

Total Number of Noise Complaints Received for past 4 years

Note: Barking dogs are not included in these figures although they made up 156 complaints this year. Complaints to the DEC about noise are also not included in the figures.

Type/Source	Number of complaints
Construction - commercial	7
Construction - domestic	2
Activities - commercial	36
Activities - domestic	13
Music - commercial	2
Music - domestic	13
Alarms - commercial	10
Alarms - domestic	9
Alarms - vehicle	2
Air conditioners - commercial	0
Air conditioners - domestic	9
Pool/spa - commercial	0
Pool/spa - domestic	5
Fireworks	2
Animals (excluding dogs)	13
Total	123

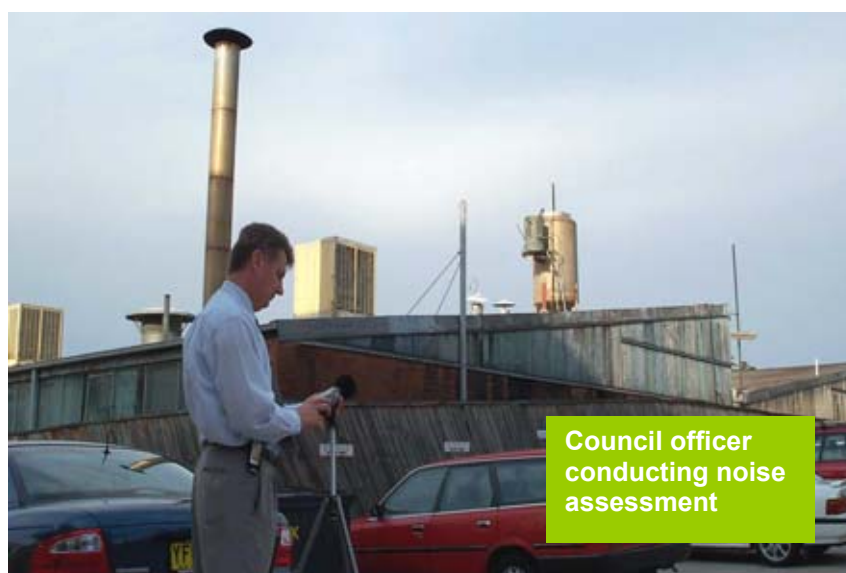
Noise Complaint Numbers by Type/Source 2003/2004 (excludes dog barking complaints)

Pressures

- Urban consolidation resulting in higher density living.
- Trend towards larger houses with correspondingly larger air conditioning systems.
- Increased motor vehicle use resulting in higher traffic noise levels
- Noise complaints relating to dogs usually relate to excessive barking caused by the dog's boredom, loneliness, excitement, inadequate shelter or being chained up.

Responses

- The City's development assessment process considers the noise impact of developments at the approval stage and applies conditions that mitigate the impact of noise on adjoining receivers.



Council officer
conducting noise
assessment

- The City's Environmental Health Officers and Rangers also investigate complaints concerning environmental noise and take action under various Acts and Regulations, where appropriate. The types of noise sources investigated, include:
 - Building construction sites
 - Air Conditioning systems
 - Commercial and industrial plant
 - Animal noise, such as barking dogs and crowing roosters
 - Public address systems and some amplified noise
 - Musical systems and sound reproduction equipment
 - Intruder alarms in private homes, shops and cars
 - Pools/Spa Pumps

Future Actions

- Continue to deal with noise complaints in a timely manner to reduce impact.
- Review Development Control Plans to ensure any noise generating activities are properly managed at the development consent stage.

2.5 Open Space

Open space is essential for the general health and vitality of a community through the provision of natural landscape and recreational areas in an urban environment.

The City enjoys a high level of open space for its size and population when compared to many other local government areas in Sydney.

Residents consider the high rate of open space as an important reason for living in the Ryde local government area and have high expectations that the open space resources are going to be maintained.

There are 3 indicators that demonstrate a healthy open space system. These are the number of trees planted, improvement of regional public space facilities and improved carrying capacity of sporting fields. These are reported separately below:

Number of trees planted

Goal

To increase the total tree canopy in the City of Ryde for amenity purposes and to extend wildlife corridors.

State

Trees and their under-storey provide shade, act as a carbon sink, provide wildlife corridors and fauna habitat, absorb pollution, protect the land from erosion and provide attractive landscaping in an urban environment.

There are now over 65,781 street trees in the City of Ryde and a Tree Preservation Order protects these. There are also 10 parks under the active care of community bush volunteers.

Pressures

- Increased development and higher development densities reducing available area for tree cover.
- Inappropriate or ad hoc planting of tree species in the past.
- Removal of trees for legitimate purposes under the Tree Preservation Order reduces the overall canopy cover.
- Pressure on remnant bushland and habitats via pressures of urban development such as altered moisture and nutrient levels and weed invasion.

- Provision of quality of life for residents, including aesthetic values.

Responses

- The City's Street Tree Planting Program continued this year with over 281 additional trees planted specifically in streets to improve residential and ecological amenity. This is in addition to the 526 street trees planted last year. The program provides advanced trees in streets and is implemented through the City's Street Tree Taskforce and professional staff. Resident consultation in relation to the desire for trees and the preferred species are sought prior to programs being implemented. Local street co-ordinators are encouraged to take the role of undertaking consultation and provides for a source of contact between residents in streets with an interest in being involved in this initiative. Engagement of the local community in these projects also assists with the establishment of the trees via watering and weed removal being undertaken by the locals.
- Trees were also planted in parkland and natural areas through capital works projects, maintenance operations and volunteer undertakings. More than 4,500 trees were planted in open space areas this year. This is in addition to the 9,500 planted last year. The majority of these are local species planted as tubestock. In this way, the chances for survival is maximised in the prevalent drought conditions being experienced. This also adds to the viability of the local fauna species and reinforces vegetated corridors throughout the City of Ryde.
- Tree planting and maintenance specifications were developed.
- Local indigenous plants were sourced for planting adjacent to remnant bushland areas.
- To further promote the use of local natives, the City is currently investigating the establishment of a native seed community nursery to provide local species to projects and the community. Investigations are currently being held for re-use of a portion of the former Works Depot site in Wellington Road (adjacent to the Field of Mars Reserve) following demolition of the main buildings on site. The opportunity to provide this facility in a rehabilitated bushland site is the subject of ongoing assessment and discussion with community and The Department of Infrastructure, Planning and Natural Resources.

Future Actions

- Continue support for street tree planting program.
- Continue the annual community tree giveaway.

Improvement of regional public space facilities

Goal

To provide good quality, safe destination points for family recreation

State

The open space network is made up of over 200 parks and reserves covering approximately 366 hectares with a fairly even distribution across the City. Significant wildlife and open space corridors exist along the main creek lines radiating from the centre of Ryde to both the Lane Cove and Parramatta Rivers. The City's Open Space and Recreational Facilities Plan and various specific plans of management guide this network. Based on a residential base of 95,744 (2001 ABS Census), this represents a healthy 38m² of open space per capita.

Pressures

- Increased development and higher densities placing greater demand for facilities.
- Compliance with relevant standards for safety and construction.
- Risk management.
- Improvement of community health.

Responses

- Major upgrades were completed at Anzac Park, West Ryde and Yamble Reserve, Ryde.
- New improvements were commenced at Blenheim Park.
- The Shepherds Bay Improvement Program on the Parramatta River continued.
- \$1.5 M allocated to parkland improvements throughout the City and \$1.19M to Town Centre improvements at West Ryde, Eastwood and Gladesville.



Future Actions

- Continuation of projects in progress next year
- Ongoing asset maintenance carried to the City's program
- Community needs are to be assessed under a Social Plan and City Vision Strategy both in progress

Improved carrying capacity of sporting facilities

Goal

To provide safe and playable venues for organised sport

State

The City manages 145 sporting fields on approximately 58 hectares of land and many fields are nearing maximum capacity with some being overused.

The development and management of these fields are guided under the City's Sportsground Plan of Management.

Due primarily to drought conditions experienced throughout much of the year, the quality of sports field surfaces deteriorated significantly and grass cover, which has

to accommodate the level of use needed by the community, was difficult to maintain without the application of water.

The City's sports fields are in high demand for weekend sports competitions, weekday training and daytime school use. During the year, it became necessary to restrict night training on traditional fields to minimise the excessive wear on the surfaces.

However, this enabled other fields, previously unavailable for training due to lack of lighting to be used in the early evening by clubs for training.

The impact of the drought on the condition of the sports fields has also necessitated the cancellation of summer soccer and touch football competitions for the upcoming 2004/05-summer season.

This decision was taken in the interests of protecting our facilities and users of these facilities from injury.

Pressures

- Increased populations creating higher demand for facilities.
- Broad diversity and popularity of sporting codes available to the public vs. finite land availability.
- Adjoining residential amenity.
- Risk management.
- Aging facilities and assets.
- Weekend use, daytime hire, night training, summer and winter use of all facilities.
- Management of the City's open space network has been complicated by the persistent drought conditions. The imposition of mandatory water restrictions has presented difficulties in providing standards of presentation expected by the community. This is particularly so in the case of sports fields.

Responses

- Sports safety guidelines and checklist are issued to sports clubs and are regularly monitored.
- Major renovation of fields and sub-surface drainage undertaken last year were maintained this year at:
 - Peel Park, Gladesville
 - Dunbar Park, Marsfield

- Meadowbank Park No. 11 Field and the sealed netball courts, Meadowbank

- Continued use of winter season cricket wicket covers to protect wickets and facilitate their use for summer.
- Sports field drainage works was completed at Dunbar Park.
- The Brush Farm Park Netball Courts were resurfaced.

Future Actions

- Continue to apply for grant funding for renovation of old facilities.
- Ongoing asset maintenance.

2.6 Water Conservation

Water is an essential factor in the lifestyle of nations and in Australia we face a major challenge in sharing limited water resources in climates more prone to drought. The way in which we tackle these water challenges will play an important part in the way we deliver:

- The health of our landscape and environment
- The lifestyle of our community
- The future of our country and planet
- The quality of life of our children's children

Australia is the driest inhabited continent on earth, but we are the greatest consumers of water per capita. 70% of our continent is classified as desert or semi-desert, with little or no rainfall. The average annual rainfall in Australia is 469mm per year, well below the global average of 746mm per year.

The reporting year has seen two mandatory water restriction phases being implemented within the Sydney metropolitan and other areas within New South Wales, as the drought conditions have continued.

The water storage level in the main Sydney metropolitan dam dropped from 62.4% to 47.9% of capacity this year, and the severe situation saw the commencement of Stage 2 mandatory water restrictions in June 2004.

If the total stored water volume reaches 40% of capacity, Level 3 Mandatory Water Restrictions will be a reality and may include a total ban on using irrigation systems and hoses for watering of gardens.

Long-term alternatives to using major dam supplies in the Sydney region may be as drastic as obtaining potable water through desalination of oceanic water on a large scale.

Goals

1. To minimise consumption of water in the City of Ryde
2. To encourage the use of rainwater saving methods, devices and materials for reuse through public education and development controls.
3. To encourage Water Sensitive Urban Design on private and community lands

State

Level 1 mandatory water restrictions introduced late last year resulted in the City of Ryde's domestic, commercial and industrial consumers collectively reducing mains water consumption by 29% in the first quarter of 2004 compared to the same period last year. This figure meant a decrease from 97 to 69 kilolitres per property over the year and it is the average reduction achieved among 44 municipalities across

Sydney Metropolitan, the Illawarra and the Blue Mountains, where reductions varied from 18% to 43%. Restrictions included no hosing of hard surfaces, prohibition of sprinkler systems (except drip irrigation); time limited watering for three days of the week only. (Sydney Water Authority 2004)

Level 2 mandatory water restrictions were introduced in September 2003, which meant the need for businesses and high domestic water users to obtain permits issued by Sydney Water to restrict water use. This has had a significant effect on City operations, particularly for the care and management of parks and other open space and this is of concern to the survival and use of these parks, particularly if the drought does not lift and further restrictions are introduced.

This year, the average household water consumption per dwelling for Ryde was 240 kilolitres, which is better than the 255 kilolitre reported as the Sydney wide average for the whole of the Sydney/Blue Mountains/Illawarra region. The result is also better than the 2002/03 average of 278 kilolitres per dwelling reported for Ryde last year demonstrating an improvement in sustainable water use.

Nevertheless, the majority of household water use continues to be for gardens and the outdoors, with the next highest use being the toilet, shower and laundry facilities and there are still further improvements that can be made to harvest rainwater and reuse grey water.

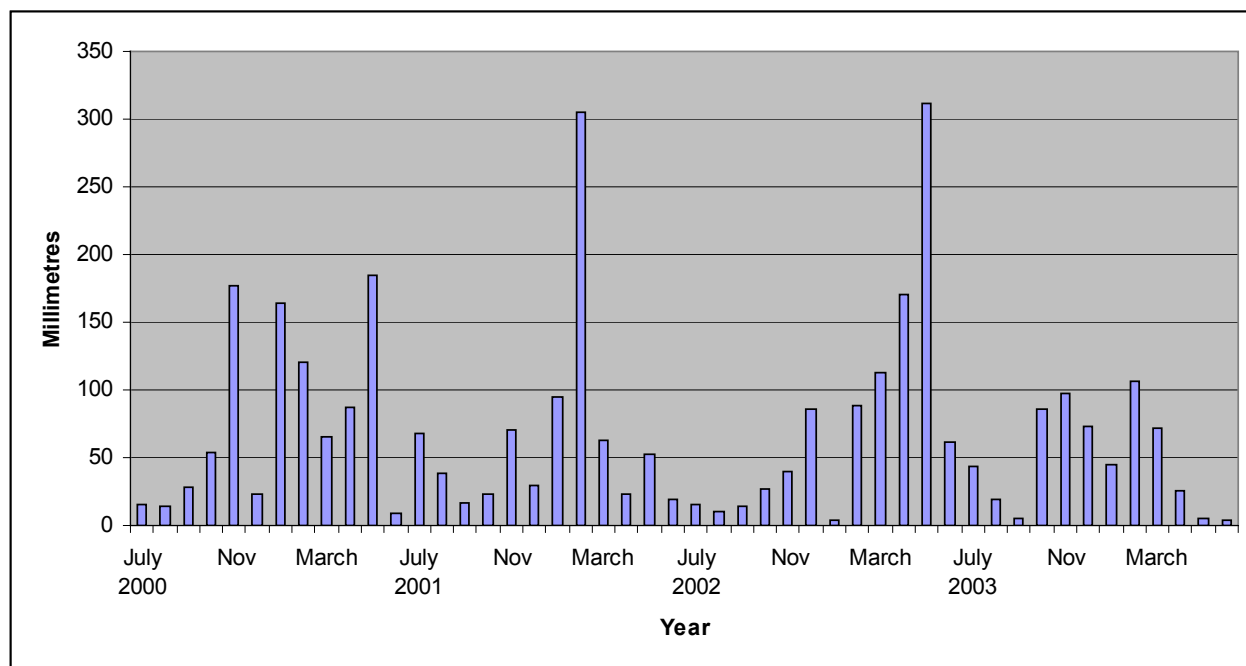
The total water usage in the City of Ryde's local government buildings and public outdoor facilities decreased quite substantially from last year due to water restrictions and other water saving initiatives. From figures provided by Sydney Water, the City of Ryde's water use during 2003/04 is the lowest it has been for the past 4 years, which is a remarkable result. The following table provides these figures.

Reporting Year	Water Consumption (kilolitres)
2000-2001	151 054
2001-2002	154 716
2002-2003	160 597
2003-2004	131 958

Total Water Consumption for the City of Ryde
Source: Sydney Water Corporation 2004

It is anticipated that water use will continue to fall next year primarily because of the mandatory water restrictions the City is operating under and also because it will continue to investigate innovative ways in which mains water use can be reduced by reusing wastewater and harvesting of rain, run-off and ground water. The City's strong commitment to this has been flagged by the recent decision to join Sydney Water's 'Every Drop Counts' Business Program.

Effective development controls and policies together with community education will hopefully ensure long-term sustainability of water consumption within the City. Water Wise education of Council's staff has been implemented and is also being extended to the residents.



Monthly Total Rainfall in Ryde Local Government Area 2000-2004
Source: as monitored by North Ryde Golf Club's weather station

The figure above shows that the monthly totals of rainfall for the City during the last 4 years is notably low except for rare, extreme storm events.

The rainfall pattern during these years is tending towards extended periods of little or no rain interrupted by peaks of unusually high rainfall. Long-term predictions for the El Nino Southern Oscillation weather patterns are not promising and metropolitan water supplies will continue to be depleted. As the total water volume, compared to maximum capacity, was down by over 50% at the end of June 2004 implementation of Level 3 Mandatory Water Restrictions are anticipated.

The current water crisis has also enabled the City to re-assess the demand for water in open space and an investigation of alternative sources of water such as harvesting of run-off, the use of bores and accessing natural springs is under consideration. A range of options is currently being investigated for consideration in terms of both viability and cost implications.

Similarly the City is exploring water conservation strategies for its Ryde Aquatic and Leisure Centre, which is its highest user of water, and the Centre has already introduced water saving initiatives

Pressures

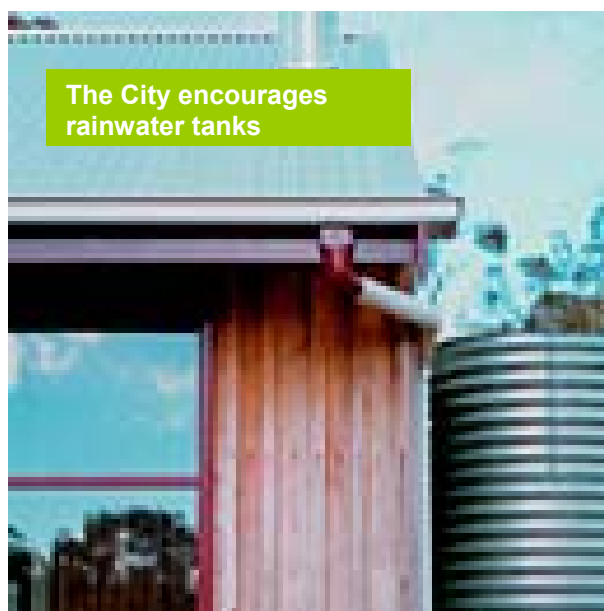
- Low annual rainfall
- Gardens not adapted to Australian climate thus requiring lots of water.

- Pricing structure does not encourage water conservation.
- Little understanding of the need for water conservation.
- A water supply system that results in high quality water being used for watering gardens and flushing toilets.
- Increasing human population.
- New sustainable building policies to meet water saving requirements.

Responses

- Council adopted an Energy Smart, Water Wise DCP No. 45A during the previous reporting year. Water conservation requirements in the DCP include AAA rated taps, showerheads, and dual flush toilets. During 2003/04 building controls have been extended to include aerators on taps. Residential flat buildings, commercial and industrial sites are being required to conduct water efficient landscape assessments. Sites greater than 1,000 m² are required to conduct a comprehensive water cycle assessment demonstrating how demand for water and discharge of wastewater will be minimised. This development control plan will be superseded by the new Building Sustainability Index (BASIX), which will be gradually implemented as a tool starting in July 2004 to ensure that the NSW Government's new residential energy and water use policy objectives are met.
- The Meadowbank Employment Area DCP No. 38, which was adopted in November 2001, and the draft Top Ryde DCP No. 40 include requirements for water conservation, such as water efficient showerheads and dual flush toilets. Both these DCP's encourage water reuse and use of rainwater tanks.
- The Macquarie Park Corridor Master Plan, which was adopted on 17 February 2004, proposes implementing of Water Sensitive Urban Design (WSUD) practises such as on or below ground rainwater detention basins and landscaping with drought resistant plant species to minimise mains water consumption and reduce chance of flooding. New roadway construction within the corridor will also look to apply WSUD initiatives to reduce flooding and maximise capture and reuse of roadway runoff.
- The installation of rainwater tanks for watering gardens is now actively encouraged in the new Stormwater Management DCP No 41, which was adopted in August 2001. Tanks smaller than 10,000 litres are considered to be exempt development and this will be actively pursued in the new BASIX requirements planned to commence from July 1 2004.
- The City of Ryde has during the last few years been actively reducing its own water consumption by converting toilets into dual flush systems and removing self flushing urinals, replacing them with motion sensors urinals. It has also been implementing a program of installing back flow devices on sports field irrigation systems, and testing water retaining materials such as Fytofoam.

- Consolidating the two older City depots into one combined facility, the Constitution Road Operation Centre, was a major step towards saving water. Ground water utilisation for irrigation of Meadowbank Park has commenced, and water restrictions has also urged taking of creek water for the water cart that is used for many City and community needs including roadworks, cleansing, sports fields, new gardens and tree planting.



- The City of Ryde's education on water conservation included the Enviro Ed Team increasing staff awareness through a monthly Intranet campaign, and the production of a new Sustainable Practices at Work pamphlets for staff inductions. A large number of brochures and leaflets on rainwater tanks, water wise gardening, water saving appliances etc. have been distributed to the public through the City's libraries and the Civic Centre foyer. The City has emphasised the Sydney Water Authority's campaigns and media releases in its Mayoral Column, in media advertisements and on the City of Ryde web site, the latter including information on re-use of greywater from households.
- Mandatory water restrictions this year has lead the City of Ryde to implement a range of water saving measures for sports grounds. Moisture demanding Kikuyu turf is now being replaced by drought tolerant Couch Grass varieties. Penetration and absorption of water into the ground is improved by the addition of surfactants, and liquid types to reduce water use have replaced granular fertilisers.
- Absorptive Fytofoam has been injected in strips at the Eastwood Top Oval and trialed for its moisture retaining and non-compacting properties, and the success has urged the City to looking into using the material on a variety of sports fields.
- The City of Ryde is monitoring its own water consumption in individual buildings and outdoor appliances. Water saving devices will be installed in new buildings, such as the proposed annex to the Civic Centre, which is planned house the new library and provide extended office space.

- The City has decided to explore Sydney Water's 'Every Drop Counts' Business Program with a view to joining the program early next year. This program is based on reducing consumption in its top 10 water using facilities, thereby also greatly reducing related costs. The underlying commitment will be for the City to work towards a 15% reduction in its water consumption. Sydney Water will provide free assessments and usage audits within each individual public facility, including certain sports fields, parks and the Ryde Aquatic Leisure Centre.
- The City is instigating the use of an underground water capturing system as a blue print method for parks. The system has already been trialed in Monash Park, where mains water is not used for irrigation. The technique involves installation of extensive pipes that capture water as it drains through the soil, and the capture of collected water for recycling onto the same field. The use of bore water for irrigation will continue on other sports fields, eg. Meadowbank Park. Keeping turfed areas green and soft is an important safety issue particularly where contact sports and physical activities result in frequent falls.

Future Actions

- Include water conservation issues in every environmental education program.
- Encourage porous paving, not including driveways and other soft options to reduce runoff rates and retain and filter water entering the stormwater system.
- Join and implement Sydney Water's 'Every Drop Counts' Program'.
- Investigate ways of incorporating WSUD into City policies and programs.
- Consideration be given to making the installation of rainwater tanks in new residential dwelling mandatory. The new BASIX system gives the owners options to choose between several water conserving methods and devices from 1 July 2004.
- Consideration being given to the capture and treatment of rainwater from the roof and grounds of the Ryde Aquatic Leisure Centre and several options including reuse of the harvested water for swimming pools or outdoor amenities, or watering of parks in the catchment are being investigated. The cost of installing storage and filtering systems will be weighed against payback periods and the feasibility of each reuse purpose. It is also worthwhile to reclaim and filter backwash and "dump" water from the pools, of which 20% of the total, combined pool volume is currently discarded to sewer instead of being treated and reused for pools or gardens.

2.7 Public Health

In terms of sustainability, both public and environmental health are inextricably linked and there are few doubts that good public health has a positive effect on the local environment and vice versa.

The City of Ryde has an important role in promoting and maintaining good public health, including the provision of services and exercising regulatory functions aimed at protecting public health.

These services and functions include:

- Investigation abatement of public health nuisances
- Surveillance of food premises
- Regulation of hairdresser's shops, beauty salons and skin penetration premises
- Inspection and testing of public swimming pools
- Regulation of cooling towers
- Surveillance of tobacco smoking sales to minors
- Regulation of on-site sewage management systems
- Regulation of undertaker's and mortuaries
- Mosquito control
- Immunisation clinics

Public Health Nuisances

Goal

To secure the abatement of public health nuisances.

State

In the current reporting period the City of Ryde received a total of 167 complaints concerning public health nuisances. This was 51 fewer than last year and included complaints about sewer overflows, accumulated rubbish, rat infestations, overgrown land, keeping of animals and birds and defective roofwater drainage.

Under the *Local Government Act 1993*, Councils have regulatory powers to ensure that premises are maintained in a safe and healthy condition and to abate public nuisances.

Nuisance Type	Number of Reports
Overgrown land	81
Sewer leaks and overflows	19
Accumulated rubbish	15
Keeping of Poultry	9
Rat infestations	4

Most commonly reported public nuisance 2003/2004

Pressure

- Public health nuisances may cause annoyance to the public or pose a risk to the health of the community.

Responses

- The City's Environmental Health Officers investigate complaints concerning public health nuisances and took action to abate nuisances, where appropriate.
- There were 24 Orders issued under the *Local Government Act 1993* requiring the preservation of healthy conditions.

Future Action

- Continue to deal with health complaints in a timely manner.

Food Premises

Goal

To ensure that all food businesses comply with the requirements of the relevant food safety standards.

State

Under the *Food Act 2003*, all food businesses are required to notify their business details to the NSW Food Authority and comply with the food safety requirements specified in the *Act*.

As an enforcement agency under the *Act*, the City has powers to prosecute and close food businesses that fail to comply with food safety requirements. Orders may also be issued under the *Local Government Act 1993* requiring food premises to be placed in a clean and sanitary condition.

In the current reporting period there were 521 food businesses operating in the City of Ryde, 34 more than last year. A relatively low total of 33 complaints were received concerning food safety and hygiene issues during the period of this report. This was the same number as last year.

Pressures

- Poor hygiene and food-handling practices may result in contamination of food and food-borne illness.

- Changes in consumption patterns have increased the risk of food poisoning outbreaks with more people eating out or consuming ready-to-eat foods from retail outlets.

Responses

- City Environmental Health Officers carried out regular inspections of food premises to ensure compliance with the food safety standards and investigate complaints concerning food safety and hygiene issues.
- In the current reporting period City Environmental Health Officers carried out 437 food premises inspections, 25 fewer than last year and issued 7 Orders under the Local Government Act 1993.
- One food hygiene course in conjunction with Ryde TAFE was conducted in October 2003 and 20 participants attended this course.

Future Actions

- Increased surveillance of food premises.
- Continue to deal with complaints in a timely manner.



Water-Cooling Systems

Goal

To ensure that all water-cooling systems comply with the requirements of the *Public Health (Microbial Control) Regulation 2000* to prevent the outbreak of Legionnaires' disease.

State

Legionnaires' disease is a rare but serious form of pneumonia commonly associated with water-cooling systems (cooling towers) in buildings.

The warm water in cooling towers provides optimum temperature conditions for the growth of *Legionella* bacteria, which can multiply to large numbers if appropriate measures are not taken to control their growth. The bacteria can then be disseminated into the air in tiny water droplets or aerosols discharged from the cooling tower. Transmission occurs when a susceptible person inhales contaminated aerosols.

To reduce the risk of an outbreak, all water-cooling systems are required to be registered with the City of Ryde and must be installed, operated and maintained in accordance with the requirements of the *Public Health (Microbial Control) Regulation 2000*.

In particular, the systems must be cleaned at regular intervals and be equipped with an effective process of disinfection.

In the current reporting period there were 174 registered water-cooling systems in the City of Ryde. This is 20 fewer than last year.

Pressures

- Poorly maintained water-cooling systems may allow the growth of *Legionella* bacteria and cause an outbreak of Legionnaires' disease.
- Detecting unregistered water cooling systems.

Responses

- The City maintains a register of water-cooling systems to facilitate a quick response in the event of a suspected Legionnaires' disease outbreak. Inspections are also carried out of water-cooling systems following complaint or by request from the NSW Health Department to monitor compliance with the regulations.

- In the current reporting period, City Environmental Health Officers carried out inspections of 12 water-cooling systems.

Future Actions

- Increased surveillance of water cooling systems
- Continue to respond to complaints or requests for inspection in a timely manner.

Skin Penetration Premises

Goal

To ensure that all skin penetration premises comply with the requirements of the *Public Health (Skin Penetration) Regulation 2000*

State

Blood-borne communicable diseases such as HIV and Hepatitis C may be transmitted from person to person through the use of inadequately sterilised sharps and other equipment used to penetrate the skin. Transmission of blood-borne disease may also occur through stick injuries caused by inappropriately discarded sharps.

Under the *Public Health (Skin Penetration) Regulation 2000*, all businesses carrying out prescribed skin penetration procedures are required to register with Councils and comply with the infection control requirements specified in the regulation.

Prescribed skin penetration procedures include the following procedures, except when carried out by registered medical practitioners and certain other health professionals:

- acupuncture
- tattooing
- ear piercing
- body piercing
- hair removal (including waxing)
- colonic lavage
- any other procedure that involves skin penetration.

In the current reporting period 76 premises in the City of Ryde were registered to carry out prescribed skin penetration procedures. This is 11 more than last year.

Pressures

- The use of inadequately sterilised equipment to penetrate the skin may result in the transmission of blood-borne diseases, including HIV and hepatitis C.
- Detecting unregistered operations.

Responses

- The City maintains a register of skin penetration premises in accordance with the *Public Health (Skin Penetration) Regulation 2000*.
- The City's Environmental Health Officers carry out regular inspections of skin penetration premises to ensure compliance with the regulations and investigate complaints concerning poor hygiene and infection control practices. A total of 50 inspections were carried out this year. This is 46 fewer than last year.

Future Actions

- Increased surveillance of skin penetration premises.
- Continue to deal with complaints in a timely manner.



Public Swimming Pools and Spa Pools

Goal

To ensure that all public swimming pools comply with the requirements of the *Public Health (Swimming Pools and Spa Pools) Regulation 2000*.

State

Under the *Public Health (Swimming Pools and Spa Pools) Regulation 2000*, operators of public swimming pools and spa pools must ensure that the water is disinfected to prevent the transmission of scheduled medical conditions.

Operators must also ensure that the pool surrounds, including any toilets or change rooms are maintained in a clean condition.

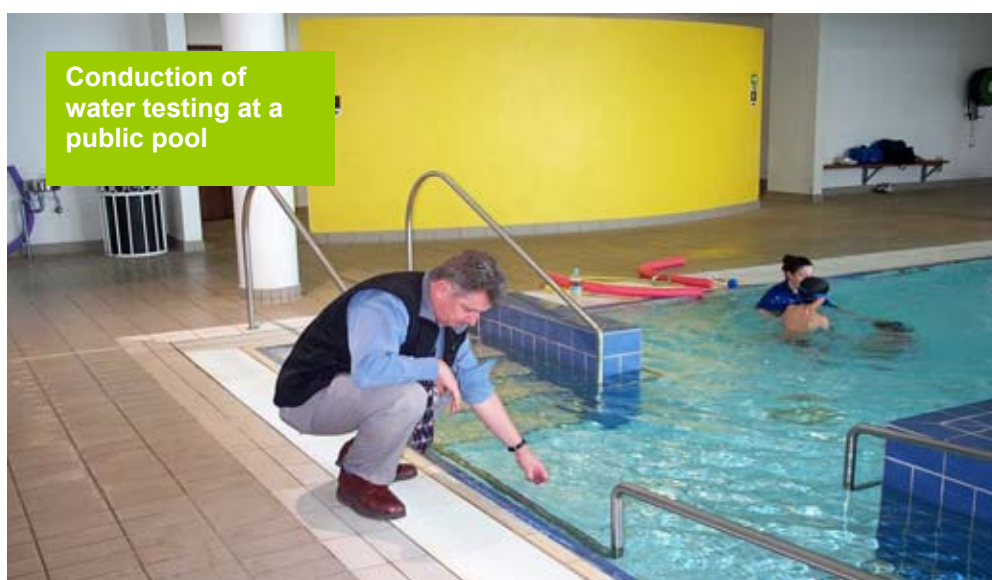
In the current reporting period there were 26 public swimming pools in the City of Ryde. This is 6 more than last year.

Pressure

- Poorly maintained swimming pools may be contaminated with disease causing organisms, which may be transmitted to bathers. Common infections associated with swimming pools include eye, ear and skin infections and gastrointestinal diseases.

Response

- The City's Environmental Health Officers carry out inspections and testing of public swimming pools to monitor compliance with the regulations and investigate complaints concerning poorly maintained pools. In the current reporting period, City Environmental Health Officers carried out inspections of 14 public swimming pools.



Future Actions

- Increased surveillance of public swimming pools.
- Continue to respond to complaints in a timely manner.

PROOF Campaign – Reducing Tobacco Sales to Minors

Goal

To prevent the sale of cigarettes to minors.

State

Smoking is a leading cause of lung cancer and death. In addition, studies have shown that the younger a person is when they start smoking, the less likely they are to quit and the higher the risk of smoking related disease.

A City of Ryde survey of local tobacco retailers in 2001 found that some retailers thought that it was 'OK' to sell cigarettes to minors and failed to ask for proof-of-age.

Pressures

- Under the *Public Health Act 1991*, it is an offence to sell tobacco products to a person under the age of 18 years. However, recent surveys have found that many retailers are ignoring the law.
- Peer pressure and advertising encourages young people to take up smoking.

Responses

With the restructuring of the NSW Health Department's Northern Sydney Public Health Unit, the City's involvement in the Campaign has been reduced to participation in the planning process.

Under the new arrangements the NSW Health Department's Tobacco Control Officer monitors tobacco sales to minors and enforces tobacco laws.

In July 2003, compliance checks of 16 tobacco retailers by City and NSW Health Department officers found that 5 of the businesses sold to minors.

Warning letters were sent to the offenders and there were no further sales to minors when the businesses were re-checked by the NSW Health Department officers in January 2004.

Another 4 businesses were also checked at the same time with no sales to minors.

Future Action

- Assist NSW Health to plan further compliance surveys of local tobacco retailers.

Mosquito Control Program

Goals

1. To reduce mosquito breeding incidence and nuisance through education, monitoring and treatment.
2. To monitor health risks in the area by having samples of mosquitoes tested for arbovirus.

State

The City of Ryde continues to participate in the annual, joint mosquito monitoring and arbovirus surveillance program conducted by NSW Health Authority, the Sydney Olympic Park Authority (SOPA) and other adjacent local government bodies, from December to March.

The cooperative efforts are due to the proximate location of saline wetlands, mainly on SOPA's land, which potentially provide one of the largest breeding ground for saltmarsh mosquitoes within Sydney region.

SOPA has monitored and treated mosquito larvae in their saline environments during summer for a number of years.

In order to reduce the combined nuisance by mosquitoes from local fresh and saltwater environments, water accumulations on residential properties and in natural areas are surveyed for mosquito breeding regularly or subsequent to nuisance reports from residents. Treatment with biological larvicide is carried out when necessary.

Fluctuations of mosquito populations for each individual mosquito type as well as the total population are monitored through the joint trapping program regionally, and results indicate the success of a combination of monitoring, treatment and public education activities.

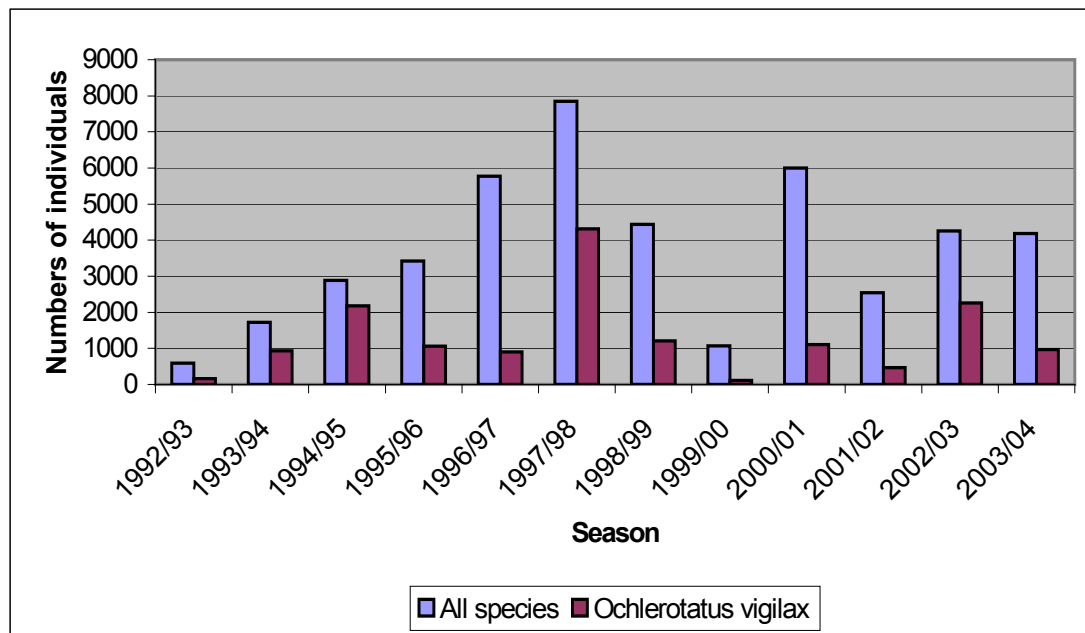
Under the City of Ryde, Parramatta City and City of Canada Bay Council's trapping program, field staff brings collections of mosquitoes to the Westmead Hospital Medical Entomology Department, where samples are processed and tested for arboviruses.

Key features of the 12-year long program in the City of Ryde so far include trapping of adult mosquitoes during the summer at six regular sites to obtain data on population sizes of local mosquito species, and arboviral testing of adult mosquito collections from Lambert Park.

An important constituent of the program is public education including advising on personal protection, and mosquito control and biology through school talks, public stalls and media releases and articles. Annual reports are produced and kept at the Ryde Library.

Although the total number of trapped mosquitoes within the City of Ryde this year was the sixth highest over the last twelve seasons of trappings so far, the saltmarsh species *Ochlerotatus vigilax* comprised 23.1% of the trapped mosquito population and its total numbers was the fifth lowest.

O. vigilax is the foremost pest mosquito locally since it is a particularly voracious biter and the most common type near the river, although its breeding sites have been found outside the City borders only. Both the proportion of this species among all species collected and its total numbers were reduced since previous season. Arboviral tests of pulped samples of mosquitoes from Lambert Park proved negative.



Total annual mosquito trapping numbers for all species and for the main saltmarsh species *Ochlerotatus vigilax*, for seasons 1992/93 to 2003/04

The City received 5 mosquito-related complaints this season, from December to March, and this is the lowest record over 12 summer seasons, and well below the annual average of 19 complaints.

In contrast, the previous season saw the second highest numbers of complaints since the record nuisance season 1997/1998 when the saline wetlands across the river were not treated at all till late in the season. It was a very hot and humid summer and drought conditions continued since previous summer, although rainfall events were more scattered.

Regular larval surveying in selected open areas within the City determined the need for ground treatments and depended on the density of larvae and pupae. Only a few of the many watercourses investigated required regular treatment. Only 2.7 litres of formulated bio-larvicide was used this season.

During a feedback survey of near-shore households in May/June an unusually low number of 46% regarded the local mosquito nuisance a problem, referring to the recent summer season. The figure is less than half of those for similar surveys carried out in previous seasons close to the river.

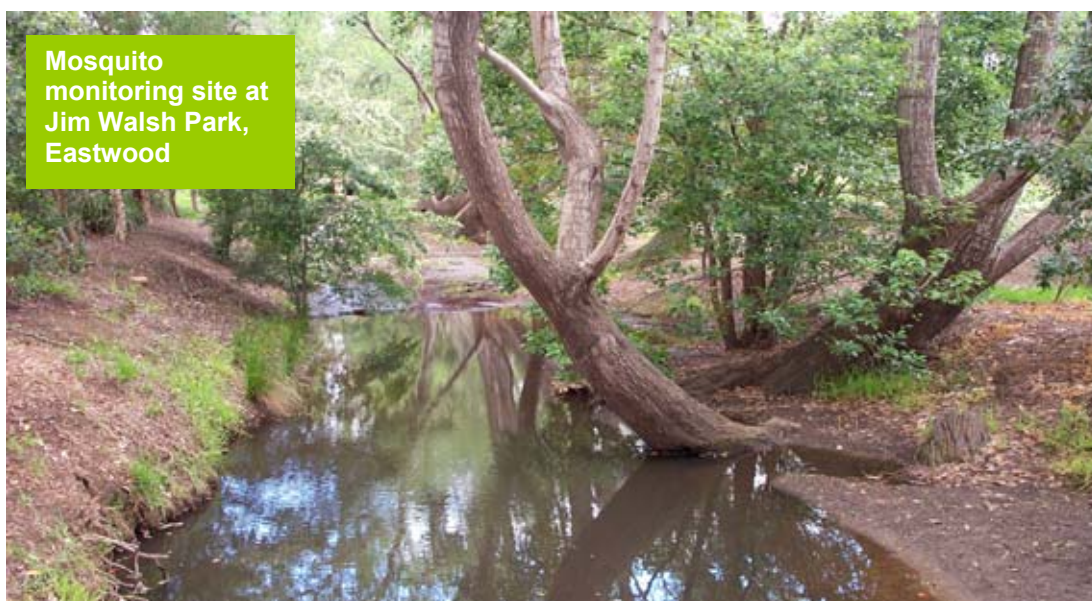
This is supported by the trapping data showing a reduction of the main nuisance species and increased awareness among the interviewed residents.

Pressures

- Protected saline wetlands in the Homebush Bay and Silverwater areas to the south of the City of Ryde are potentially major breeding grounds for widely dispersing saltmarsh mosquitoes, and adjacent Local Governments continue to lobby the State to continue monitoring of the pest species.
- Watercourses are breeding grounds when sufficiently stagnant and/or natural predators are lacking, necessitates seasonal field surveying and treatment, as required.
- City officers are obliged to investigate complaints made by residents about mosquito infestations or nuisance.
- Residential mosquito breeding in ponds, swimming pools and receptacles is still evident, which emphasises the need for continued community education.
- There is a significant increase in Barmah Forest Virus notifications within NSW and requiring continued arboviral testing of local mosquitoes.

Responses

- Aerial larviciding by SOPA of the Wanngal Wetlands (Silverwater) during the four high tides occurring from November to February this season, and ground larviciding during November and December in Bicentennial Park, together with previous channeling works to improve tidal flushing, contributed to reducing the numbers of emerging saltmarsh mosquitoes.



- Public education this season included displays in local libraries, and comprehensive, manned stalls at Granny Smith Festival and in the Macquarie Shopping Centre.
- An article was placed in the December issue of Ryde City News, an advertisement preceded the stall at Macquarie Shopping Centre, and a comprehensive contribution was made to the City's Intranet with the aim of educating staff.



Future Actions

- Continue with the City's Mosquito Control Program
- Prepare a School Education Strategy to renew school talks on mosquitoes.

Vaccine Preventable Diseases

Goal

To ensure children in the City of Ryde are properly immunised in accordance with NSW Health and the National Health and Medical Research Council (NHMRC) recommendations.

State

Vaccination not only protects individuals, but also others in the community, by increasing the general level of immunity and minimising the spread of disease. It is important that the public be made aware of the proven effectiveness of immunisation to save lives and prevent serious illness.

Health promotion and the prevention of disease and illness is ultimately the most economical form of healthcare.

Vaccine-preventable diseases are a serious but avoidable risk to human health. Recent data from the Australian Childhood Immunisation Register indicates that 91% of 12 to 15 month old children in the Northern Sydney Area were fully immunised whilst in the City of Ryde 93% were fully immunised.

This shows that the City of Ryde is not only keeping up, but ahead of other areas in Northern Sydney in our endeavours to immunise the children in our community.

The City's Immunisation Service continues to be popular with the local community with 2,095 children in attendance during the year.

The immunisation clinic is staffed by trained immunisation accredited registered nurses who are able to carry out vaccination programs which are complementary to those performed by medical practitioners.



Pressures

- Some sectors of society question the health benefits of immunisation thus are avoiding vaccination and potentially putting the population at risk.
- Health expenditure globally has escalated dramatically, and as with all health care services there is pressure to continue to provide an accessible, universal high quality service at a local level, which is adequately resourced and sustainable.
- Funding for the Immunisation clinics is currently provided by reimbursement of nurses' wages to City of Ryde from NSW Health. NSW Health is currently assessing this funding with the hope of extra funding in the future. The City of Ryde continues to subsidise the program through salary, administration and accommodation on costs.

Responses

- The City of Ryde conducts immunisation clinics on every second and fourth Tuesday of each month with two sessions on each day, between 2pm and 3.30pm in the afternoon and 7pm to 8.30pm in the evening.
- During the year 5069 childhood vaccinations were administered at the City of Ryde's immunisation clinics, including Diphtheria/Tetanus/Whooping Cough, Oral Sabin for Polio, Haemophilus Influenza, Measles/Mumps/Rubella, Hepatitis B, Meningococcal C and Pneumococcal for Aborigines and Torres Strait Islanders.
- Meningococcal C is now part of the current schedule for new babies, and Pneumococcal will be introduced in January 2005 as part of the normal schedule.
- The Measles/Mumps/Rubella booster campaign for eighteen to thirty year olds continued.
- Due to occasional outbreaks of Whooping Cough, NSW Health is targeting High School children to administer boosters for Diphtheria/Tetanus & Whooping Cough with a new Adult vaccine Boosterix.
- The City of Ryde staff vaccination programme continued during the year with 209 vaccines administered including 172 staff receiving Flu injections. Other vaccinations for "At risk" staff included Hepatitis A, Hepatitis B and Diphtheria/Tetanus.

Future Action

- To continue the City of Ryde's Immunisation program with the view to maintain and improve the percentage of immunised children in the area to the National Immunisation Strategy's desired 95% by June 2005.

On –Site Sewage Management Systems

Goal

To ensure that all on-site sewage management systems comply with the requirements of the *Local Government Act 1993*.

State

On-site sewage management systems (OSMS) include septic tanks, aerated wastewater treatment systems, greywater treatment devices and other systems used for the storage or treatment of domestic wastewater. These systems are mainly found in unsewered areas.

However, domestic wastewater is now being considered for reuse in sewerred areas to reduce demands on potable water consumption.

Domestic wastewater, including greywater, is potentially infectious and a risk to public health and the environment if not managed properly. Consequently, approval is required under the *Local Government Act 1993* to install and operate an OSMS.

Under the *Act*, the City may issue Orders to ensure that OSMS do not pose a risk to public health. This may include prohibiting the use of a system if this is necessary to protect public health.

In the current reporting period there were 24 registered OSMS in the City of Ryde.

Pressure

- With the ongoing drought, there is likely to be increased interest in the reuse of greywater from bathrooms and laundries.

Responses

- The City maintains a register of on-site sewage management systems in accordance with the regulations.
- City Environmental Health Officers assess applications for new OSMS and investigate complaints concerning defective systems.

- Information on greywater reuse has also been posted on the City's website.

Future Action

- Develop a Greywater Reuse Policy.

Undertakers and Mortuaries

Goal

To ensure that all undertaker's businesses and mortuaries comply with the requirements of the relevant legislation.

State

Under the *Public Health (Disposal of Bodies) Regulation 2002*, a person must not use any premises other than an approved mortuary for the preparation of bodies for burial or cremation.

Standards for mortuaries are specified in the *Local Government (Orders) Regulation 1999* and the *Public Health (Disposal of Bodies) Regulation 2002*.

In the current reporting period there were 3 approved mortuaries in the City of Ryde.

Pressure

- Detection of illegal operations

Response

- City Environmental Health Officers carried out inspections of mortuaries to monitor compliance with the relevant legislation.

Future Action

- Continued surveillance of approved mortuaries

2.8 Social Change

With a population close to 100,000 people in 2003, the City prides itself on being a safe, clean, friendly, leafy, pleasant place to live and work with a thriving local economy.

The local population is diverse and multicultural; the community strengths are based on its cultural values, beliefs, customs, symbols, aspirations and expectations. The health and happiness of a community depends on whether a complex mixture of needs is being met and the City of Ryde aims to positively contribute to community well being through its activities.

The local government area is undergoing considerable social change primarily due to its proximity to the Sydney CBD, access to public transport, an ageing population, the influx of newly arrived migrants, increased investment in commercial and residential property. The major challenge is that the City of Ryde adapts and develops to the increasing social demands and expectations of its residents.

Goal

To provide strategies, policies and plans and undertake an advocacy role that promotes the social and cultural well-being of individuals and the community

State

According to 2001 ABS Census data the residential population for the local government area of Ryde was estimated at 95,744 persons, 46,152 males and 49,592 females. Since 1996, the population has grown by 3,069 or 3.2%. Updated figures will be supplied following the next Census in 2005.

According to the 2001 Census, some 56,200 of Ryde's people (63%) were born in Australia with 37% born overseas. The most common overseas birthplaces were China (3,654 people), then the United Kingdom (3,500), followed by Hong Kong (2,652) and Korea (2,024).

While 66% of the population speak only English in their homes, 34% (30,952) speak another language. The most commonly spoken language other than English was Cantonese, spoken by 6,048 people (6.7%), followed by Italian (3 319 or 3.7%), then Mandarin, Korean, Armenian, Arabic/Lebanese and Greek.

Ryde's indigenous population in 2001 were approximately 227 (207 Aboriginal, 13 Torres Strait Islanders and 7 both).

In Ryde 46% of people are aged 25 – 54 years (prime working age) which is similar to Sydney's population. Ryde's age structure varies most from Sydney in the size of the older persons age group (75+), which makes 7.2% of the population, a 27% larger share of the population than Sydney's 5.6%; and in the mature adults age group (55 – 74), which has a 5% larger share. The age groups that are proportionally

smaller than Sydney's are the high school age group (12 – 17) and the primary school age group (5 –11).

Pressures

- The City of Ryde is an area of high migration and growing multiculturalism.
- The increased ageing population places higher demands on local services.
- Increasing land and property prices are preventing young families from residing in the area, which has an above average number of 'empty nesters'.
- Consequently opportunities for Section 94 Development Contributions are limited without significant residential population increases.
- Including work based childcare there is a shortfall of 1,066 long day care places. In the Macquarie Park rail corridor alone the working population of 29,000 will double over the next 15 years increasing the demand for childcare.
- There are limited resources, including State and Federal government funding for community services.
- There are local concerns regarding the affordability of housing, safety and the environment.
- The City has aging infrastructure and community facilities that need to be replaced.

Responses

- The Access and Equity Policy was endorsed to ensure the City's resources and services are distributed equally and in a non-discriminatory manner.
- The City of Ryde consulted widely and specifically with emerging ethnic communities to assess their needs.
- The development and promotion of the Language Aide Program was carried out.
- The City of Ryde facilitated the Community Development Support Expenditure Committee and distributed the sum of \$364,430 to the local community.
- The City of Ryde facilitated and resourced networks, inter-agencies and forums that respond to issues around safety, children, young people, women, older people, people with disabilities, culturally and linguistically diverse people and people from an Aboriginal or Torres Strait Islander backgrounds.
- The inaugural Harmony Festival was held in Eastwood, which included a Migrant Information Expo, multicultural performances and noodle market.

- The City of Ryde is developing a concept plan for a multipurpose Family and Children's Centre in West Ryde with a range of stakeholders. It is intended that this concept will be duplicated to other areas within the City.
- Review the Section 94 Plan and Developer Contributions scheme to address the need for children's services, multipurpose community centres and cultural development.
- A Community Facilities Plan was developed to assess future needs and recommend strategies for the rationalisation and replacement of current assets.
- The consultation and research phases carried out for the Social Plan 2005, Children's, Young People, Older Person's, Culturally and Linguistically Diverse People Needs Papers with the Women's, Men's and the Aboriginal People's Needs Paper will be completed in 2005.

Future Actions

- The completion and implementation of City of Ryde Social Plan 2005
- To develop policies and implement programs in response to identified community needs and to ensure compliance with statutory obligations.
- To advocate for the improvement of services and for those without a voice within the community (including older people, people with disabilities, young people, children, women, people from cultural and linguistically diverse backgrounds, men and Aboriginal & Torres Strait Islanders) to ensure they are given appropriate consideration in the delivery of City of Ryde services
- To deliver a range of services that promote the social and cultural well being of individuals and the community
- Development and use of demographic and profiling software to measure and track changes to the population, to provide more accurate forecasts and to develop proactive strategies to address negative impacts of social change.

Management Plan 2003/04 Progress Summary – Human Settlement

Objective	Strategy	Measures/Targets	Progress
<ul style="list-style-type: none"> To foster and promote the value of Heritage in the City. 	<ul style="list-style-type: none"> Identify, protect and manage Aboriginal, built and natural heritage in the City of Ryde. Increase awareness and understanding of Aboriginal, built and natural heritage 	<ul style="list-style-type: none"> Refine the process for assessing development applications for places located near Aboriginal sites by 30 June 2004. Verify data in the Aboriginal Sites register by June. Establish an education program about Aboriginal Cultural Heritage by 30 November 2003. 	<ul style="list-style-type: none"> Assessment of DAs includes referral to Local Land Council Review planned for 2004/05 Study is being incorporated as part of the broader research into the heritage of Ryde planned for 2004/05
<ul style="list-style-type: none"> To identify and conserve buildings and sites of heritage significance. 	<ul style="list-style-type: none"> Complete the community based review of the inventory. Develop community awareness and appreciation of heritage conservation. 	<ul style="list-style-type: none"> Draft of additional items referred to Council by 30 April 2004 Manage the Heritage Advisory Service. Coordinate the Advisory Committee's bi-monthly meetings 	<ul style="list-style-type: none"> 1 item added and 3 investigated Advice provided to land owners 3 meetings held and new committee established
<ul style="list-style-type: none"> To create integrated policies for 	<ul style="list-style-type: none"> Complete planning strategies and 	<ul style="list-style-type: none"> LEP and DCP gazetted by 30 June 2004. 	<ul style="list-style-type: none"> Re-exhibition conducted in March. Report

Objective	Strategy	Measures/Targets	Progress
areas identified for renewal	instruments for Ryde Urban Centre.		Re-exhibition conducted in March. Report of exhibition pending
	<ul style="list-style-type: none"> • Complete planning for Gladesville Urban Centre. 	<ul style="list-style-type: none"> • Draft LEP and DCP adopted by 30 November 2003. 	<ul style="list-style-type: none"> • Draft Master Plan deferred pending outcome of Heritage Study
	<ul style="list-style-type: none"> • Review planning strategies and instruments for West Ryde Urban Centre. 	<ul style="list-style-type: none"> • Review referred to Council by 31 December 2003. 	<ul style="list-style-type: none"> • Review deferred.
<ul style="list-style-type: none"> • To review key planning instruments. 	<ul style="list-style-type: none"> • Review Master Plan for the Meadowbank Employment Area. 	<ul style="list-style-type: none"> • Review referred to Council by 31 December 2003. 	<ul style="list-style-type: none"> • Amended Master Plan adopted.
	<ul style="list-style-type: none"> • Complete planning study and instruments for the Gladesville Industrial Area. 	<ul style="list-style-type: none"> • Draft Planning Study referred to Council by 31 December 2003. 	<ul style="list-style-type: none"> • Study deferred.
<ul style="list-style-type: none"> • To protect the importance of Macquarie Park Corridor as an employment area and ensure long term viability 	<ul style="list-style-type: none"> • Review Development Contribution Plan base information – update 1991 Leisure Needs Study. 	<ul style="list-style-type: none"> • Review of Plan completed by 30 June 2004. 	<ul style="list-style-type: none"> • Review commenced with preparation of support studies.
	<ul style="list-style-type: none"> • Develop mechanisms to implement the outcomes of the Macquarie Park Corridor Structure Plan/Transport 	<ul style="list-style-type: none"> • Draft program of implementation to Council by 30 June 2004. 	<ul style="list-style-type: none"> • Deferred pending finalisation of planning instruments.

Objective	Strategy	Measures/Targets	Progress
<ul style="list-style-type: none"> • To review the residential development strategy • To foster awareness of Noise issues and implement reduction strategies. 	<p>Management and Accessibility Plan/Master Plan.</p> <ul style="list-style-type: none"> • Complete the planning instrument for the Macquarie Park Corridor. • Ensure that residential planning controls are relevant to Ryde. • Identification of neighbourhood boundaries within the City of Ryde and commence master planning for two pilot areas. • Reduce the number of noise complaints through appropriate development assessment and community education. 	<ul style="list-style-type: none"> • Draft LEP and DCP gazetted by 31 December 2003. • Draft Neighbourhood Study referred to Council by 31 December 2003. • Draft Master Plans referred to Council by 30 June 2004. • Conduct baseline studies of noise levels of an urban location which interfaces with industrial areas by 31 May 2004. • Conduct an industry audit program in the Gladesville Industrial area by 30 June 2004. 	<ul style="list-style-type: none"> • Draft LEP adopted by Council. • Preliminary work commenced. • Project not commenced. • New state government Noise Policies now set criteria for allowing land use planning based on typical ambient condition and agreed limits. • Completed.

Objective	Strategy	Measures/Targets	Progress
<ul style="list-style-type: none"> To encourage recycling and manage waste. 	<ul style="list-style-type: none"> Minimise the amount of waste going to landfill. 	<ul style="list-style-type: none"> Negotiate disposal of waste to landfill with Collex and Waste Service NSW via NSROC tender process in November 2003. Investigate the demand for a separate greenwaste collection service through a survey and report to Council by 30 September 2003. 	<ul style="list-style-type: none"> Submission for the provision of Waste Transfer Processing and Disposal Services for NSROC member Councils has been made to the Australian Competition and Consumer Commission (ACCC) and is awaiting their determination. Survey prepared.
<ul style="list-style-type: none"> To promote Water Conservation. 	<ul style="list-style-type: none"> Minimise consumption of water in the City of Ryde. 	<ul style="list-style-type: none"> Include water conservation in the ongoing environmental education program to commence in August 2003. Investigate ways the City can incorporate Water Sensitive Urban Design into its policies and programs 	<ul style="list-style-type: none"> Program has been incorporated into the Enviro Ed Team Education and Promotion Strategy and is ongoing. Arrangements made to join “Every Drops Counts” program.

Objective	Strategy	Measures/Targets	Progress
		and report to Council by 31 May 2004.	<ul style="list-style-type: none"><li data-bbox="1118 241 1398 383">• Adopted Energy Smart and Energy Wise DCP No. 45.

Chapter 3 – Bushland and Biodiversity



This page has intentionally been left blank

3.1 Bushland Regeneration and Management

Ryde was one of the earliest settled areas in Australia. “The whole of the Eastern Farms (Ryde’s earlier name) and Field of Mars districts were originally covered with a dense virgin forest” (Levi 1947). He also referred to earlier reports of very large old growth trees remarkable in the early days for their enormous size.

The wonderful heritage timber trees our pioneers found most valuable included Blackbutt *Eucalyptus pilularis*, which was most abundant, Red Mahogany *Eucalyptus resinifera*, one of the best hardwoods and Red Bloodwood *Corymbia gummifera* used for fencing, turpentine for wharves and houses, red gum *Angophora costata* furnished material for wheelwrights and knees for vessels, forest oak supplied shingles for the settlers houses.

Only a few of these magnificent trees exist today, one remaining example can be found today in Darvall Park, a giant Sydney Blue Gum with a circumference of 6.5 metres on the “Tall Timbers Walk” currently under construction.

In the 1950’s North Ryde was the exception to the general pattern of residential, commercial and industrial development. Much of the suburb was covered by the green belt zoning under the County of Cumberland Planning Scheme.

The scheme was adopted in the post-war years, with the green belt conceived as “a girdle of rural open space encircling the urban districts...ensuring for all times ready access by urban populations to countryside specially planned and maintained for their benefit”. The scheme was intended to prevent urban sprawl, and among the various restrictions imposed by green belt designation was refusal to permit erection of dwellings on new subdivisions into lots of less than five acres.

Sydney’s expanding population overtook the green belt scheme and the final release of the dedicated land occurred in September 1969 by the State Planning Authority to build a major shopping centre in the area. (Martin 1998)

Over the past two hundred years of settlement it can be seen how large tracts of the original vegetation have been cleared. This has resulted in the loss of habitat for many species of native animals.

However valuable remnants of native vegetation and their associated fauna still survive within the City of Ryde local government area. Some of these vegetation communities are now endangered, and consist mostly of shale-based and saltmarsh vegetation communities.

Goals

1. To implement strategic and comprehensive bushland programs that encourage passive recreational opportunities in natural areas in the City of Ryde.

2. To protect biodiversity through weed management, environmentally sensitive riparian drainage works, bush regeneration and restoration, and fauna management.

State

The City of Ryde's bushland consists of 164 hectares of remnants along riparian corridors that link with the Lane Cove National Park and foreshores of the Parramatta River. Six major plant communities are found in the City namely:

- Turpentine-Ironbark Forest
- Blue Gum High Forest
- Shale/Sandstone Transition Forest
- Sydney Sandstone Gully Forest
- Sydney Sandstone Ridgetop Woodland
- Estuarine complex (Casuarina foreshores, mangrove forests and saltmarsh)



Three plant communities, four flora and three fauna species found in Ryde are listed under the *Threatened Species Conservation Act 1995*. The City of Ryde has the responsibility to implement this *Act* both when assessing development applications and when managing its own land.

The small isolated remnant pockets of vegetation and fauna remaining today in City of Ryde area are currently threatened by weed infestation. The dynamic residential, commercial and industrial development today can create additional pressure on local waterways and associated bushland resulting in clearing of small surviving remnants of native vegetation and isolated large native trees.



Approximately 140 hectare of bush land in the Ryde area is under City of Ryde jurisdiction. There is also Wallumatta Nature Reserve, a portion of Lane Cove National Park within the City boundary and the Saltwater Estuarine Complex and Freshwater Wetland Complex totalling approximately 350 ha. There are 10 community bush regeneration sites, each approximately half a hectare in size. This totals 5 hectares, which is approximately 7% of the total bushland area.

Field of Mars Reserve

Mosaics of natural vegetation communities live in the reserve ranging from various Eucalypt forests to mangroves. Hundreds of species of native plants grow in the bushland, including many types of native orchids and ferns. The Reserve also supports numerous types of mushrooms and other fungi, as well as lichens and mosses.

Since the extensive bushfires of December 2002 the native bushland of the Reserve has vigorously regenerated. The bushland takes some years to flower after a fire and then takes a few years to build up seed, for example, *Boronia ledifolia*, also *Banksia ericifolia*, in the northern portion, north of Strangers Creek, killed in the December 2002 wildfire, need time to mature. At least another 5 to 7 years are required before the burnt areas are regenerated, to allow fire sensitive species to set enough seed and store in the soil seed bank.

A number of weed species are regenerating throughout the burnt bushland within the reserve, e.g. along Strangers Creek. The bush regeneration teams are removing large volumes of these weeds, but it is an on-going process and will take many years of post-fire rehabilitation work. To be successful it requires many different and adequate resources.

The wattle species, *Acacia fimbriata*, which is probably not locally indigenous, was planted some years ago in the cemetery on the north-south fire trial embankment. It appears that seedlings from these plantings are spreading in the Field of Mars Reserve and if this is found to be the case, the seedlings spreading to the Field of Mars Reserve will be removed.

The \$11,000 post fire rehabilitation Premier’s Grant money has been well utilised at ‘cemetery creek No 2’, however further funding is now required to halt the weed invasion after the December 2002 bushfires.

It is proposed that the above former Parks Depot site on Wellington Road be divided so that approximately 4,480m² of this land forms part of the Field of Mars Reserve as Community Land and the remainder (approximately 2,870 m²) is used as a City propagation nursery and held as Operational Land.

As the Field of Mars Reserve is to be placed under its own Plan of Management, it is believed that the separation of the areas will ensure that there is no conflict between the operations of the Reserve and that of the nursery.

The City will also be seeking Department of Infrastructure Planning and Natural Resources (DIPNR) contribution towards the costs of the site remediation and, the level of this contribution will be determined in the immediate future. Over 3,750 provenance seedlings have been prepared and will be planted out on the above community land.



Brush Farm Park

The main creek line gully has rainforest species beginning to re-establish and the reappearance of resident Eastern whip bird (*Psophodes olivaceus*), White-browed scrub wren (*Sericornis frontalis*), Superb blue wren (*Malurus cyaneus*), Red-browed firetail (*Neochmia temporalis*) and Silvereyes (*Zosterops lateralis*) are particularly noted. The biodiversity of native plant food sources may have assisted in attracting this greater variety of native birds.

It may be also due to the grossly reduced weed seed previously available has diminished the population of the larger, more aggressive Pied currawong (*Strepera graculina*). This in turn has allowed the smaller, less aggressive birds to return to the area. Birds Australia has reported that the White-bellied Sea-eagle (*Haliaeetus leucogaster*) has successfully built a nest and bred on the Parramatta River opposite

Homebush Bay. In previous seasons this bird has been driven away from the sight by the aggressive Pied currawong.

A nomination for listing Blue Gum High Forest in the Sydney as an ecologically endangered community under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) has been submitted this year by South Turramurra Environment Protection Inc (STEP). The Blue Gum High Forest is already listed under the NSW Government Threatened Species Conservation Act 1995. Areas in Ryde included Darvall Park, Brush Farm Park, Denistone Park, Burrows Park and Ryde Hospital.

Birds of Brush Farm Park

A record by Werner Klarenaar of birds sighted around Brush Farm Park 2003-04

Common Name	Scientific Name	Common Name	Scientific Name
Hérons, Ibises and Ducks			
Black Duck	<i>Anas superciliosa</i>	Straw-necked Ibis	<i>Threskionis spinicollis</i>
White Ibis*	<i>Threskiornis molucca</i>	White-faced heron	<i>Ardea novaehollandiae</i>
Wood Duck	<i>Chenonetta jubata</i>		
Birds of Prey			
Brown goshawk*	<i>Accipiter fasciatus</i>	Grey goshawk	<i>Accipiter novaehollandiae</i>
Nankeen kestrel	<i>Falco cenchroides</i>	Peregrine falcon	<i>Falco peregrinus</i>
Quail			
Quail Species			
Pigeons and Doves			
Crested Pigeon	<i>Ocyphaps lophotes</i>	+Domestic pigeon*	<i>Columba livia</i>
Emerald Dove	<i>Chalcophaps indica</i>	+Spotted turtledove*	<i>Streptopelia chinensis</i>
White-headed pigeon	<i>Columba leucomela</i>		
Cockatoos, Lorikeets and Parrots			
Yellow-tailed black cockatoo	<i>Calyptorhynchus funereus</i>	Sulphur-crested cockatoo*	<i>Cacatua galerita</i>
Little corella	<i>Cacatua sanguinea</i>	Rainbow lorikeet*	<i>Trichoglossus haematodus</i>
Galah*	<i>Cacatua roseicapilla</i>	Eastern rosella	<i>Platycercus eximius</i>
King Parrot	<i>Alisterus scapularis</i>	Crimson Rosella*	<i>Platycercus elegans</i>

Cuckoos and Koels

Fan-tailed Cuckoo*	<i>Cuculus pyrrhophanus</i>	Indian Koel* Channel-billed cuckoo	<i>Eudnamys scolopacea</i> <i>Scythrops novaehollandiae</i>
--------------------	-----------------------------	---------------------------------------	----------------------------------------------------------------

Owls and Frogmouths

Powerful Owl Barking Owl	<i>Ninox strenua</i> <i>Ninox connivens</i>	Boobook Owl Tawny Frogmouth	<i>Ninox novaeseelandiae</i> <i>Podargus strigoides</i>
-----------------------------	------------------------------------------------	--------------------------------	------------------------------------------------------------

Kingfishers and Rollers

Laughing Kookaburra*	<i>Dacelo gigas</i>	Sacred Kingfisher Dollar Bird	<i>Todiramphus sanctus</i> <i>Eurystomus orientalis</i>
-------------------------	---------------------	----------------------------------	------------------------------------------------------------

Swallows, Cuckoo-shrikes and Bulbuls

Welcome Swallow Cidada Bird	<i>Hirundo neoxena</i> <i>Coracina tenuirostris</i>	Black-faced cuckoo shrike* + Red-whiskered bulbul*	<i>Coracina novaehollandiae</i> <i>Pycnonotus jocosus</i>
--------------------------------	--------------------------------------------------------	-------------------------------------------------------	--------------------------------------------------------------

Flycatchers and Allies

Blackbird* Eastern yellow robin	<i>Turdus mercula</i> <i>Eopsaltria australis</i>	Rose Robin Golden whistler*	<i>Petroica rosea</i> <i>Pachycephala pectoralis</i>
Jacky Winter Leaden flycatcher Satin flycatcher Willie Wagtail*	<i>Microeca leucophaea</i> <i>Myiagra rubecula</i> <i>Myiagra cyanoleuca</i> <i>Rhipidura leucophrys</i>	Black-faced monarch Rufous fantail Grey fantail*	<i>Monarcha melanopsis</i> <i>Rhipidura rufifrons</i> <i>Rhipidura fuliginosa</i>
Red Wattlebird*	<i>Anthochaera carunculata</i>	Little wattlebird*	<i>Anthochaera chrysoptera</i>
Noisy friar bird New Holland honeyeater* Eastern spinebill	<i>Philemon corniculatus</i> <i>Phylidonyris novaehollandiae</i> <i>Acanthorhynchus tenuirostris</i>	Noisy miner Yellow-faced honeyeater	<i>Manorina melanocephala</i> <i>Lichenostomus chrysops</i>
Spotted pardalote*	<i>Pardalotus punctatus</i>	Scarlet honeyeater	<i>Myzomela sanguinolenta</i>
Red-browed fiinch*	<i>Neochmia temporalis</i>	Silvereye*	<i>Zosterops lateralis</i>

+ Common (Indian) myna*	<i>Acridotheres tristis</i> *	Double-barred finch	<i>Taeniopygia bichenovii</i>
Spangled drongo	<i>Dicrurus bracteatus</i>		
Satin bower bird	<i>Ptilonorhynchus violaceus</i>	Common starling* Olive-backed oriole	<i>Sturnus vulgaris Oriolus sagittatus</i>

Magpies, Butcherbirds etc.

Australian Magpie Lark	<i>Grallina cyanoleuca</i>	Grey Butcherbird*	<i>Cracticus torquatus</i>
Australian Magpie	<i>Gymnorhina tibicen</i>	Pied Currawong*	<i>Strepera graculina</i>
		Australian Raven (Crow)*	<i>Corvus coronoides</i>

Various Others

Eastern whipbird	<i>Psophodes olivaceus</i>	Superb blue wren*	<i>Malurus cyaneus</i>
Buff-rumped thornbill	<i>Acanthiza reguloides</i>	White-browed scrub wren	<i>Sericornis frontalis</i>
Welcome swallow*	<i>Hirundo neoxena</i>	White-throated treecreeper	<i>Cormobates leucophaeus</i>

* Recorded in Brush Farm by Terrill Nordstrom in 1999

+ Exotic birds

Roads and Traffic Authority Land DP 2554

Located at the corner of Pittwater Road and Blenheim Road, North Ryde, the above small parcel of bushland contains Sydney sandstone gully vegetation, contiguous to eleven residential properties.

The land has attracted a considerable amount of negative feedback due to rubbish dumping, weeds obstructing motorist views and fire hazard. With the removal of the above weeds it will also halt the spread of weed seed to Lane Cove National Park and Council bushland directly downstream of the catchment.

Pages Creek Gas Pipeline Easement

With the establishment of the pipeline some decades ago, a serious weed infestation spread either side of the pipeline, further spreading into previously undisturbed bushland.

Epping Road and Vimiera Road Corner DP 355071

The Roads and Traffic Authority owned bushland remnant in front of Epping Boys High School at Marsfield had \$2,000 worth of native grasses planted in between the existing local native trees that were planted the year before.

The grasses were donated by a private company and planted by the high school students. Situated near the edge of the shale, this remnant has an interesting floristic composition, and further funding will be spent next financial year on bush regeneration and rehabilitation works as a high priority.

Northern Suburbs Cemetery

Along the road reserve areas of Plassey Road outside the above cemetery there are remnant trees of Turpentine Ironbark Forest e.g. *Syncarpia glomulifera*, *Angophora costata*, and *Eucalyptus paniculata*, as well as locally rare plants such as *Prostanthera howelliae* and *Diuris maculata*.

This area has value as an endangered plant community, heritage and scientific value and a wildlife corridor for birds and insects between Bundara Reserve and Lane Cove National Park.

Potential Impacts of the Lane Cove Tunnel Project on Pages Creek

On the western side of Epping Road from Pittwater Road to Lane Cove River a large strip of the bush land of approximately 250m in length, and of varying width of up to 20m was be cleared to make way for construction of the widening roadway and bicycle path.

Plant species richness within this community is high with 68 species listed by the Flora and Fauna Management Sub Plan, Epping Road Roadwork's & Pittwater Road Worksite-Lane Cove Tunnel Project.

The creation of a new embankment and associated on-going run-off from the embankment will create a weed population requiring bush regeneration funding to manage extended weed infestations.

Chatswood – Epping Rail Link

A work site inside Macquarie University grounds on Herring Road has required removal of some remnant native canopy from a grove of native vegetation.

Pressures

- Habitat fragmentation and clearing of native vegetation.
- Altered fire regimes.
- Domestic pets kill wildlife and dog droppings pollute waterways.
- Foxes and feral cats.
- Noxious weeds displace native vegetation.
- Increasing development results in greater areas of impervious surfaces resulting in greater runoff thus affecting remaining bushland usually found in steep riparian gully areas.
- Increased human population density puts pressure on bushland reserve flora and fauna populations.

Responses

- The City Bushland Teams

With the continuous expansion of the Bushcare Program, the Community Noxious Weed Program and the dedicated bush regeneration contract staff, strategic and consistent progress has been made this year in the regeneration and rehabilitation of bushland areas. The volunteer program has rapidly expanded, reaching out into the educational, corporate and private sector of the community.

47 projects in bushland areas were carried out via professional bush regeneration companies and community volunteer groups.

Reporting Period	No. of Paid Bush Regeneration Hours	Amount Spent (\$)
1997/98	8 211	200 500
1998/99	7 681	200 500
1999/00	7 481	208 000
2000/01	8 261	225 000
2001/02	10 573	310 000
2002/03	10 200	287 280
2003/04	9 042	241 000

Paid Bush Regeneration Hours

The City of Ryde directly funds bush regeneration by professional contractors via an annual allocation in the City of Ryde's Urban Landscape Services Section - Capital Works (General Fund) budget. This year, the bush regeneration contract

allocation totalled \$241,000, a reduction of \$46,280 from the previous years budget.

In addition to this direct funding, various other projects are carried out in the City related to improvements to the City's natural area assets. A total of \$472,899 was expended under this Capital Works program directly on works to improve natural areas.

This year the following twenty-five bushland parks covering 158.753 hectares received professional bush regeneration contract works in particular areas:

Park/Reserve	(ha)	Park/Reserve	(ha)	Park/Reserve	(ha)
Outlook Park	0.063	50 Westminster Road	0.11	Bundara Reserve	0.49
Memorial Park	3.53	Barton Reserve	4.88	Marsfield Park	9.42
Meadowbank Park	1.60	Burrows Park	3.89	Pembroke Park	12.86
Looking Glass Bay Park	2.06	Martins Reserve	1.76	Stewart Park	0.92
Glades Bay Park	3.29	Pryor Park	0.83	Wilga Park	1.84
Field of Mars Res	60.00	Putney Park	4.61	Aitchandar Park	0.56
Denistone Park	5.92	Brush Farm Park	9.00	ELS Hall Park	13.10
Darvall Park	9.03	Lambert Park	2.49	Forrester/Forsyth	3.20
Kobada Park	3.30				

The Green Bush Regeneration Company, the Sydney Bush Regeneration Company, the National Trust of Australia, Gondwana Bush Restoration Bush Restoration and the Terra Australia Bush Regeneration Company are acknowledged for their work in many of the parks and reserves listed above.

- Work on the Field of Mars Reserve

The bush regeneration contract team focussed on key boundary areas where major weed infestations occurred. The traditional Cressy Road and Wellington Road corner has been an ongoing site for over ten years. The removal of Madeira vine from the cyclone fencing was completed.

Directly inside the reserve weeding was undertaken to assist previously planted native seedlings. Further follow-up work removing weeds along the drainage line was achieved, i.e. culling the flowering privet trees.

The team completed a \$6,000 stage one primary weed removal program in the Field Of Mars 'bushland' patch on Wellington Road opposite the former Parks depot site. The area has habitat value and the piles of dried weed will be burnt next year.

Due to the drought conditions, the upper Strangers Creek area dried out and the weedy area slashed; where the willow trees have been removed *Melaleuca decora* will now be planted.

The Strangers Creek weed treatment (culling of privet) starting from the Turpentine Ironbark Forest continued. The forest has benefited greatly from the April 2002 ecological burn.

Cemetery embankment works have progressed this year in association with funding from the Field Of Mars Cemetery Trust.

Pile burns have been completed and the interface between the Cemetery and Field of Mars Reserve is gradually becoming weed free.

The Field of Mars Cemetery fire trail maintenance included the removal of a number of dead trees following the December 2002 bushfire.

On the northeast boundary of the park a comprehensive clearing of the invasive weed Balloon vine was carried out for the first time the firebreak behind the houses on Moncrieff Drive.

For a cost of over \$400,000, this year the Buffalo Creek Stage 4 works undertaken in the Field of Mars Reserve included:

- The Field of Mars Way Finding Strategy with vehicle directional, identification, orientation and directions signs
- Salt Marsh Bush Regeneration Contract on the lower reaches of Buffalo Creek near the entrance to the park.
- Wellington Road Depot Nursery/Rehabilitation
- Site Specific Interpretative Signage
- Pittwater Road Plantings
- Post-Remediation Assessment of the Wetland (Buffalo Creek) by Access UTS
- Security Camera and Bollards installed
- Completion and distribution a Walking Track Brochure
- Botanical Gardens Trust Major soil-borne fungal pathogen tests were carried out



The former City depot in Wellington Road has been removed and a remedial action plan is being implemented. A Community Nursery option is being developed as part of the above plan.

The park has had ongoing drainage and bush rehabilitation works undertaken at the Pittwater Road main entry area. This includes the Kennedy Street rock structure and staircase. A comprehensive signage program for the entire reserve and development of the recreational area also continued this year.

White Feather Honeymyrtle (*Melaleuca decora*) seedlings are being grown from one of the remaining mature trees located in the City. These seedlings will be planted out at the top of Strangers Creek in Field of Mars Reserve replacing mature Willow trees that were removed this year. *Melaleuca decora* no longer occurred in the Turpentine-Ironbark Forest in Field of Mars Reserve, the remaining poor specimen growing in adjacent Tyrell Park.

- Work on Brush Farm Park

Last year, City engineers managed the instalment of a \$90,000 gross pollution device at Brush Farm Park by contractors and paid for by the Roads and Traffic Authority.

The western portion of the park in the Rutledge and Winbourne Streets area has been upgraded. Works included treatment of Rutledge Street road reserve both inside the park and in front of residential properties. These works were carried out in cooperation with the Roads and Traffic Authority and included rehabilitation of the road reserve into a native bushland and turf area, koppers

log fencing, canopy and midstorey weed removal, and educational signage. Inside the Park, the road reserve area is being converted into a bush rehabilitation area.

The entire seed source from mature Privet (*Ligustrum lucidum* and *Ligustrum sinense*) has been eradicated except for the existing soil seed bank, which still has the capacity to create juvenile plants. These will be removed by secondary weeding at the appropriate time. The number of African olives has also been greatly reduced, with the number of native grasses, sedges and herbs subsequently increasing.

- Work on Shrimptons Creek

Regeneration and weed control of the areas along the creek between Waterloo and Kent Roads was undertaken. The areas receiving most attention were those around the Gross Pollutant Traps installed and funded under a Department of Environment and Conservation Stormwater Trust Grant.

- Work on Lambert Park

All the woody weeds behind properties facing Emu, Jayne, Lawrence, John and Lambert Streets have been cut down or poisoned. The weed removal also includes the stairs leading up to John Street, which have been built by the volunteers. Above the silt pond on the eastern side bordering Brush Farm Park primary weeding has occurred, with the removal or poisoning of woody weeds and creeping weed including wandering jew (*Tradescantia fluminensis*). Large amounts of Madeira vine (*Anredera cordifolia*) have been removed on the eastern side below the Koppers log stairs and secondary follow-up works maintained.

The Community Weed Removal Project has continued this year in the lower section of the park. Residents in Lambert Street cleared the weeds in the rear of their property, which is adjacent to Lambert Park. Volunteers further cut down all the remaining Lantana on the park side. The bulk of woody weeds are now gone and treatment of the Lantana stumps is now required.

The bush regeneration contractor has started to drill and poison large Privet trees and cut noxious shrubs and vines on both sides of the stream in the lower section of Lambert Park. This is a major project, which may require grant funding in the near future.

- Work on Darvall Park

Stage 3 of the major creek rehabilitation project in Darvall Park was completed.

An easy graded walking track has been established, giving bushwalkers a unique view of Darvall Park. Four track head signs, six interpretive signs and two generic bushcare panels have been designed and manufactured and will be placed in the reserve in the following months.

One of the signs includes a small inserted portrait from the National Library of Australia of the Philanthropist Jane Darvall, wife of Major Edward Darvall whom the park is named after. These signs will guide bushwalkers through the park, giving park history and environmental information.

The on-going water quality monitoring of the creek line rehabilitation works has been postponed. This has been due to the extended drought condition that has resulted in poor water flow and insufficient water in the critical sampling points. There will be no further sampling until there is sufficient water in the key sampling points along the creek and available funding.

Extensive primary bush regeneration works have occurred in the northern end of the park above Withington Pathway. A number of blue gum seedlings are now well established in this area where once only thickets of weed dominated.

- Work on Roads and Traffic Authority Land DP 2554

To resolve this matter Roads and Traffic Authority have funded a one-off \$5,000 program, to be managed by the City. A contractor has been employed to undertake a twelve-month weed and rubbish removal project. NSW Fire Brigades will burn hazard reduction piles, hopefully to release dormant native soil seed banks.

The threatened species *Epacris purpurascens var. purpurascens* occurred in this bushland previously and fire may germinate new plants (pers.comm. PJ Kubiak).

After the initial twelve months has past, the Roads and Traffic Authority will fund \$2,000 annually for bushland maintenance.

The City will manage the bush regeneration works and mow the main firebreak area behind the houses in Clarence Street.

- Pages Creek Gas Pipeline Easement

In 1998, the Ryde–Hunters Hill Flora and Fauna Preservation Society received a \$40,000 Red–Crown Toadlet Habitat Restoration Grant for Pages Creek. A large amount of weeds eg. pampas grass and lantana weeds were removed and this area again requires follow up work.

As a part of the Lane Cove Tunnel works, the pipeline is going to be decommissioned. There may be funding available to help remedy the ongoing weed problem caused by the initial pipeline work.

The actual easement may be kept as a walking track to Lane Cove National Park.

- Work on Epping Road and Vimiera Road Corner DP 355071

To further protect and enhance the area a double-post and rail Koppers log fence has been erected the length of Epping Road and Vimiera Road paid for by Roads and Traffic Authority and Greening of Ryde Task Force.

- Work on Epping Road, Lyon Park Road and Paul Street North DP 880284

The Roads and Traffic Authority have granted the City \$17,000 to undertake bush regeneration works on the land between Paul Street North and Epping Road. These works follow on from the original Sydney 2000 Olympic Youth Camp where youths from over 90 different countries planted native seedlings.

- Work on Northern Suburbs Cemetery

In consultation with Cemetery management and staff a program of local native plant seed collection, growing on and planting of endemic native trees within the grounds has been established.

This is a long-term project that will span a number of years, cover over two kilometres along the boundary of the grounds, from 3 to 12 metres wide.

The Friends of Lane Cove National Park have been undertaking a long-term bush regeneration program along the western boundary of the cemetery on either side of Plassey Road. City of Ryde is involved in this project assisting with Plassey Road Reserve weed removal activities.

- Work on Vimiera Road DP 775048 Lot 1

The City is in the process of receiving a 1,081 square metre portion of county open space at the rear of 55 Vimiera Road. This additional bushland will create a link from Forrester Park to Forsyth Park. The area will be included in the current Forrester/Forsyth bush regeneration contract.

- Work on Waterloo and Crimea Roads DP 355100 Lot 2

The City will shortly acquire, 101 Crimea Road. The Department of Infrastructure Planning and Natural Resources (DIPNR) are currently undertaking bush regeneration and restoration works prior to the handover.

- Work on Ryde Hospital Blue Gum High Forest

Ryde TAFE staff and students, the City and the Ryde Hospital Engineering Department, are developing a joint project. This project will build on the original plan of management written for the bushland in 1996 by a Bush Regeneration Contractor employed by City of Ryde for the Blue Gum High Forest at the rear of Ryde Hospital.

A three year, \$10,000 Environmental Trust Grant has been submitted by Ryde TAFE to remove weeds threatening forest values, restore natural regeneration processes and promote awareness of the Blue Gum Forest values.

Future Actions

- Continue to apply the *Threatened Species Conservation Act, 1995*.
- Continue implementation of the high quality Volunteer Bushcare Program.
- Further develop the Community Noxious Weeds Program.
- Further water quality monitoring studies to be undertaken next year will detail some insects and invertebrates in the Ryde area. The intrinsic value of environmental assessment, monitoring and reporting these species is because 99% of biological diversity is either invertebrate or microbe.
- A Fauna Survey to update species occurrence such as the Red Crown Toadlet. Later studies could include a species compilation of mosses, fungi and lichen in local bushland reserves.

3.2 Fire Management

Bushfire risk management strategies are directed at addressing the risk to community and environmental assets. This is achieved through addressing those factors comprising the risk, i.e. the bush fire hazard (fuel loads), the sources and patterns of ignition and vulnerability of the assets at risk. Therefore hazard reduction programs are equally important for providing cleared asset protection zones.

Goal

To minimise the impact of fire on both people and property, while maintaining natural fire regimes for native bushland

State

In the City of Ryde much bushland borders onto private property. The possibility of bushfires is therefore a significant concern especially for owners of properties edging onto bushland.

Controlled burns are used to keep the fuel load down so that if a fire is accidentally lit, it will be easier to control.

The problem with controlled burns is that they change the fire regime in terms of intensity, frequency and season, and can affect a species capacity to regenerate.

Maintaining a balance between protecting property and life and maintaining biodiversity is difficult, especially as it is not well understood as to what is the best fire regime for maintaining biodiversity in each plant community.

A priority this year, due to the extreme summer weather conditions experienced in Ryde in recent years has been the need to closely monitor existing firebreaks in the City, and create new ones, as required.

Currently under development is an electronically mapped Fire Breaks Roster service level agreement between the City's EnviroServe Operations Centre and its Urban Landscape Services Section. This will precisely target the maintenance schedule frequency of various firebreak areas across the City. There are over (60) sixty firebreaks listed on the current Firebreak Roster.

As a part of the on-going firebreak study the following ten (10) firebreak works listed below are new sites now listed on an initial one-year firebreak work budget of \$86,000 and an on-going maintenance budget of \$42,000:

1. The southern side of Jeanette Steet, upstream of Kittys Creek to Blue Gum Drive – Potential extreme fire hazard conditions exist, there is no bush regeneration contract, no work has ever been undertaken in the area.

2. Busaco Road – Behind dwellings on the corner of the M2 Motorway and Busaco Road. NSW Fire Brigades recommend hand clearing a substantial firebreak behind dwellings on Busaco Road and they will pile burn treated vegetation on-site. There is no bush regeneration contract in this area.
3. 102-112 Crimea Road - Firebreak clearing, which needs specialised contractor firebreak clearance works in this high fire risk area.
4. Tasman Place - Follow-up hazard reduction firebreak work in 2002/03 to keep the existing 10m firebreak clear.
5. Pembroke Park- Contiguous to Lane Cove National Park high fire risk area adjacent to CSIRO. NSW Fire Brigades have now been able to undertake a broad area burn during the recent winter season.
6. The high quality bushland between 47 Magdala Road and North Ryde RSL requires fuel reduction. Potentially a fire risk area, no fuel reduction activity for 15-20 years.
7. Ivanhoe Reserve – Located on the Terrys Creek catchment bushland area. Very weedy-with a lot of fuel and lacking proper firebreak.
8. Minga Reserve- Although a small area, in extreme conditions would present a bush fire hazard - very difficult to access properties extending into creek line, substantial bushland and steep slopes.
9. Lynn Park - Northeastern ridge top requires firebreak and hazard/fuel reduction. No previous fuel reduction work undertaken here.
10. Symonds Reserve - Neglected Blue Gum High Forest bushland interface with housing needs, fuel reduction, clean up and weed removal.

	<i>Description of Area</i>	<i>Priority</i>	<i>Initial Cost</i>	<i>Annual Maintenance</i>
1	Jeanette Street- Blue Gum Drive - Kittys Creek	Very High	\$20 000	\$8 000
2	Busaco Rd	Very High	\$10 000	\$3 000
3	102-112 Crimea Road	Very High	\$6 000	\$2 000
4	Tasman Place	Very High	\$10 000	\$10 000
5	Pembroke Park	Very High	\$10 000	\$5 000
6	Nth Ryde RSL - 47 Magdala Road	Very High	\$5 000	\$1 000
7	Ivanhoe Reserve	Very High	\$5,000	\$3 000
8	Minga Reserve	Very High	\$5 000	\$2 000
9	Lynn Park: Blue Gum High Forest	High	\$10 000	\$5 000
10	Symonds Blue Gum High Forest	High	\$5 000	\$3 000
	TOTAL		\$86 000	\$42 000

The above sites have been recognised by NSW Fire Brigades as requiring the creation of a firebreak and associated fuel reduction works.

Because all of these areas are newly listed they have all required the creation of an actual firebreak and the resultant fuel loads removed have been stacked and some pile burnt on-site.

None of the listed sites have bush regeneration contract works, except for Pembroke Park, which is the second largest parcel of bushland in the City

As a part of the Fire Breaks Roster service level agreement between the City's EnviroServe and Urban Landscape Service Sections, a number of new firebreaks or additional works were developed.

These included a firebreak at Magdala Road behind houses 10-12 and 18-24 fronting Pages Creek bushland, Field of Mars Reserve at McCallum Avenue and removal of dead and dangerous trees after the summer fire storm, Lucknow Reserve, Somerset Reserve, Caldew Reserve, Forsyth Park, Nundah Reserve, Portius and Pryor Park in Kittys Creek.

Pressures

- Properties which edge onto bushland are susceptible to bushfires
- Current climatic and fuel conditions indicate an early and severe bushfire season

Responses

- Bush Fire Hazard Reduction

Hazard reduction/ecological burns were conducted by NSW Fire Brigade at:

- Darvall Park
- Denistone Park
- Glades Bay Park
- Kobada Park
- Looking Glass Bay Park
- Meadowbank Park
- Field of Mars - Wellington Road
- Pembroke Park
- Tasman Place
- Jeanette Street, East Ryde



- Field of Mars Reserve

Ongoing maintenance works have occurred on the key fire trail strategically placed along the ridgeline of Field of Mars Reserve and surrounding the Cemetery.

The upgrade of the main fire trail included re-grading where appropriate and clearing all overhanging, dead and dangerous vegetation.

A new firebreak has been created behind houses at the end of McCallum Avenue and at the rear of the adjacent Moncrieff Drive. This area will become part of the maintenance work of the bush regeneration contract work.

The bushland restoration in Wellington Road has advanced this year with a number of pile burns assisting natural regeneration where original soil seed bank remain. Further rehabilitation works will occur at this site next year in cooperation with the Field of Mars Cemetery Trust.



- Pembroke Park

NSW Fire Brigade undertook a 5 hectare (ha) burn at Pembroke Park on Wednesday 2 June 2004. The area burnt was the northern corner of the park from Epping Road to Menzies Road on the eastern side of Terrys Creek. Considering the drought conditions after the burn the regeneration of native seedlings has been remarkable.

- Tasman Place DP 10000760 Lot 4

A one-hectare burn has been completed on this parcel of bushland, to create a permanent firebreak and to assist in the natural regeneration of the soil seed bank and re-sprouting native vegetation after fire. A 10m by 60m degraded area near the entry to the land at Tasman Place has been cleared of weed growth, crushed sandstone laid, mulched and planted out. Bush regeneration works in association with the above burn have been on going since the last financial year.

- Community Fire Units

Busaco Road Unit

A 1.5 ha bushland area behind the Busaco Road Medina apartments at Macquarie Park was prepared for a hazard reduction burn by a City bush regeneration contractor and the Community Fire Unit (CFU) volunteers. The hazard reduction burn will occur on Sunday 15 August 2004, and will be attended by NSW Fire Brigade's CFU Coordinator, CFU volunteers and National Parks and Wildlife Services. There are currently 15 fully trained volunteer CFU members with a bush fire-fighting trailer.

Monash Road Unit

This is a new group of 12 CFU volunteers who have recently completed their final training hours at the Gladesville Fire station. Their bush fire-fighting trailer will be delivered in September 2004. It is understood that there may potentially be another 30 residents interested in becoming CFU members in the vicinity of the Field of Mars Reserve. The NSW Fire Brigade CFU Coordinator has indicated that further CFU's may be available next year.

Future Action

- Implement the approved 2004/05 Hazard Reduction/Ecological Burn Program.

3.3 Pest Management

Predation by introduced foxes and increased competition from introduced grazing rabbits and Indian Myna birds is threatening the existence of native mammals in our local bushland and is having a negative social and environmental impact on biodiversity in the Ryde local government area. Unless these pests are properly controlled and managed, we risk further loss of native mammals and destruction of native vegetation.

Goal

To implement community based projects that eliminate primary and satellite infestations of feral species of regional concern.

State

Since 2000 the City has participated in the Sydney North Regional Fox Control Program. The program involves 12 local government areas, the National Parks and Wildlife Service, Taronga Park Zoo and Macquarie University.

Seasonal baiting is conducted in approximately 100 bushland reserves in the Northern Sydney region.

The key non-indigenous invasive terrestrial species established in Ryde include the following 3 species:

European Red Fox (*Vulpes vulpes*).

Anecdotally, the numbers of these foxes in Ryde appear to have decreased dramatically due to the drought, fires and relatively high number of baits taken earlier this year.

Further analysis utilising on-going sand plot monitoring is required to confirm whether this is actually the case.

During the May/June 2004 baiting program, 19 baits were taken from Field of Mars Reserve and 4 baits were taken from Brush Farm Park.

Population levels may require a certain time frame to readjust to normal levels.

Rabbit (*Oryctolagus cuniculus*)

Population levels appear to have stabilised at Christie Park after the baiting program was undertaken last year.

However the Gladesville Hornsby Football Association have reported that the numbers are again fast increasing as have the associated rabbit hole diggings. Numbers have remained constant in other areas including at the Field of Mars Cemetery.

A potential impact of increased rabbit numbers may be to suppress regeneration of native plants following the December 2002 fires. This is difficult to assess particularly as drought conditions are also a factor influencing regeneration. General observations and spotlighting activities suggest that the fires did not significantly reduce rabbit numbers over the long term. However the massive reduction of lantana directly southwest of the cemetery in the Field of Mars Reserve temporarily removed the rabbit habitat.

The removal/suppression of surface vegetation due to fire and drought conditions has provided greater opportunity to locate warrens, and has meant that surface living rabbits are more conspicuous.

Evidence is emerging that areas where active fox control is undertaken that rabbit numbers are also declining, the opposite of what may be expected in such circumstances. Theory proposed for this is that greater interactions between rabbits infected with Rabbit Haemorrhagic Disease (rabbit calicivirus disease) occurs in the absence of foxes.

Common Myna Bird

The common Indian Myna bird (*Acridotheres tristis*) is a relatively new threat to biodiversity, particularly to bird communities in the Ryde area.

This bird competes aggressively with native wildlife for nesting hollows, which are in short supply over much of Australia because of clearing for agriculture.

Mynas reduce biodiversity by fighting for hollows with native birds like Rosellas, destroying their eggs and chicks and stopping them from breeding.

Indian Mynas are capable of evicting even large birds such as Kookaburras several spp and Dollar Birds (*Eurystomus orientalis*) from their nests. They also evict small mammals, like Sugar Gliders (*Petaurus breviceps*), from hollows – which commonly means a death sentence for the Gliders because they have nowhere else to go. It is not uncommon for groups of mynas to mob other birds and mammals like possums.

Pressures

- Loss of small native vertebrate species from fox predation.
- Increased rabbit infestations destroy native vegetation.
- Increased feral populations of Myna birds are destroying habitats for native birds



Responses

- Foxes

Two fox baiting programs were undertaken in September 2003 and May/June 2004 at Field of Mars Reserve and Brush Farm Park. Three “1080” poison baits were taken by fox (es) at Field of Mars Reserve in September only and none at the one baiting station set-up at Brush Farm Park. However in May/June 2004 four bait stations were monitored at Brush Farm Park and four “1080” baits were taken.

Subsequently a number of fox carcasses were found in the park and there have been no further sightings of foxes in the park. During May /June 2004 nineteen 1080 poison baits were taken by fox (es) at Field of Mars Reserve.

- Feral Rabbits

The Field of Mars Cemetery Trust Committee are in the process of developing a feral rabbit culling program in consultation with the City. The Urban Feral Actions Group are organising an educational brochure about feral rabbits. The Rural Lands Protection Board (RLPB) states that a domestic rabbit vaccinated against calicivirus that escapes the owner’s property becomes a pest species because it can cross breed with the European Wild Rabbit. Although there is no legislation to enforce capture (domestic rabbits are not covered under the *Companion Animals Act 1998*), they can be captured if the animal is considered a pest.

- Common Indian Myna

Traps have been developed and proven in pilot trials in urban and semi-urban areas of the ACT to catch Common Indian Mynas and European Starlings

(*Sturnus vulgaris*) and to exclude other birds by means of selective valve traps. An efficient and humane euthanasia system has been designed for use in conjunction with the trap without the need for individual handling of birds.

A Bushcare volunteer in Darvall Park is investigating the above trapping mechanism and may begin a pilot program in Ryde.

Future Actions

- Undertake the fox sand plot monitoring four times a year at Field of Mars Reserve and Brush Farm Park.
- Remove rabbit habitats in Field of Mars.
- Promote a pilot program for trapping of Myna birds in Darvall Park.

3.4 Native Flora and Fauna

The City of Ryde's bushland consists of 164 hectares of remnants along riparian corridors that link with the Lane Cove National Park and foreshores of the Parramatta River.

The City of Ryde has the responsibility to implement the *Threatened Species Conservation Act* 1995 both when assessing development applications and when managing its own lands to protect flora and fauna.

However, existing levels of faunal activity and flora biodiversity in the City of Ryde local government area are not well known.

The City has begun to address this lack of knowledge by commissioning a Native Plant Study to benchmark existing native plants throughout Ryde so that preservation and conservation strategies can be better targeted.

A fauna survey will also be considered next year so that a benchmarking exercise similar to the native plants study can be undertaken.

Goals

1. To implement strategic and comprehensive bushland programs that encourage opportunities for passive recreation in natural areas in the City of Ryde
2. To protect biodiversity through weed management, environmentally sensitive riparian works, bush regeneration and restoration, and fauna management

State

Fauna

There is limited information available on faunal activity in the City except for reported bird sightings around Brush Farm Park (reported in Section 3.1 of this report) and the reporting of the Water Rat (*Hydromys chrysogaster*) in Gladesville on or before 1887 and in Hunters Hill on or before 1930 (1996/97 Ryde State of Environment Report).

There is anecdotal evidence of the presence of the native water rat of the genus *Hydromys* in Kittys Creek upstream from Pittwater Road, until about 1982. Some small mammal trapping has been undertaken since and a number of water rats have been encountered.

There is also anecdotal evidence of the water rat being sighted in the Lane Cove River upstream of Fullers Bridge.

A faunal study to be considered next year will serve to close this information gap.

Flora

Six major plant communities are found in the City namely:

- Turpentine-Ironbark Forest
- Blue Gum High Forest
- Shale/Sandstone Transition Forest
- Sydney Sandstone Gully Forest
- Sydney Sandstone Ridgetop Woodland
- Estuarine Complex (Casuarina foreshores, mangrove forests and saltmarsh)



Threatened Plant Species

Acacia pubescens, *Tetratheca glandulosa*, *Darwinia biflora* (no common names) and *Epacris purpurascens* var *purpurascens* (no common name) are all listed as 'Schedule 2 Vulnerable species' under the *Threatened Species Conservation Act* 1995. The rare Deane's Tea Tree (*Leptospermum deanei*) was recognised in 1996 in the upper Lane Cove River at Pennant Hills Park and at Middle Harbour. It is considered vulnerable and a further study should be done to see if it occurs in City of Ryde bushland.

Three plant communities and five flora species found in Ryde are listed under the *Threatened Species Conservation Act* 1995.

Plant Species	Classification	Locations
<i>Epacris purpurascens</i>	ROTAP Code: 2 K C- Plant Distribution = Restricted – Range extending over < 100km. Conservation Status = Poorly known species suspected of being at risk. Reservation Status = Known to occur within a proclaimed reserve	Field of Mars Reserve; Pages Creek. Isolated bushland west of Vimiera Road, Marsfield
<i>Melaleuca deanei</i>	ROTAP Code: 3 R C – Plant Distribution = Restricted – Range extending over < 100km. Conservation Status = Rare but with no current identifiable threat. Reservation Status = Known to occur within a proclaimed reserve	Lucknow Park, Terrys Creek
<i>Tetradlea glandulosa</i>	ROTAP Code: 2 V C – Plant Distribution = Restricted – Range extending over < 100km's Conservation Status = Vulnerable – at risk over a longer period (20-50 yrs). Reservation Status = Known to occur within a proclaimed reserve	Berriwerri Reserve; Lucknow Park
<i>Darwinia biflora</i>	ROTAP Code: 2 V C a Plant Distribution = Restricted – Range extending over < 100km Conservation Status = Vulnerable – at risk over a longer period (20-50 yrs). Reservation Status = Known to occur within a proclaimed reserve. Also, species is considered to be adequately reserved as 1,000 or more plants occur within a proclaimed reserve.	C.S.I.R.O. North Ryde
<i>Diuris bracteata</i>	ROTAP Code: 1X Plant Distribution = Known only from type used to originally describe species. Conservation Status = Presumed extinct – not collected for 50 years or the only known population destroyed.	Gladesville (Kubiak 1995)

Note: ROTAP = Rare or Threatened Australian Plant Coding System

In last year's report, the small bipinnate wattle *Acacia pubescens* was incorrectly identified as occurring naturally at Putney Park in the southern part of the City near Parramatta River. Further studies have since confirmed that the plants growing in the park were actually planted some years ago. Subsequently City staff planted nursery specimens in the grounds, which were mistaken for endemic plants.

Genoplesium baueri (an orchid) has been listed as a vulnerable species in Schedule 2 of the *Threatened Species Act*. The Ryde State of the Environment Report 1995/96 page 50 reported that Deane last collected this species in the Ryde local government area at Gladesville in the 1880's. It has now probably become extinct locally. Deane has listed *Diuris bracteata* as a presumed extinct species, also listed in the City of Ryde SoE 1995/96, collected in Gladesville before 1889.

Threatened Plant Communities

The preservation of remaining Blue Gum High Forest is considered important on a local and, due to its rarity, on a regional and national level. Ryde is a significant area because it represents the transition from the Wianamatta Shale of the Hornsby

Plateau to the Cumberland Plain. The Blue Gum High Forest is therefore on its southern limit of the community in this region.

The City of Ryde received correspondence from the Federal Department of Environment and Heritage this year advising of a nomination for listing of Blue Gum High Forest as a Critically Endangered Ecological Community under the *Environment Protection and Biodiversity Conservation Act (EPBC) 1999*.

It is estimated that only 138.8 ha of Blue Gum High Forest remain in Australia from a projected estimate of 3,720 ha pre 1750. Blue Gum High Forest occurs only in areas on Sydney's north shore that contains Wianamatta Shale and has a mean rainfall above 1,100mm.

Other remaining communities have been identified in Baulkham Hills, Hornsby, Kuring-gai, Parramatta, Ryde and Willoughby. The City of Ryde has just over 13 ha of this community, which has been rated as Category 1 condition. That is, areas with greatest long-term conservation and restoration potential.

Management of Blue Gum High Forest in the City of Ryde has been given priority with professional bush regenerators engaged in Blue Gum High Forest Reserves from the limited available budget.

Regenerators currently work in Brush Farm Park, Darvall Park, Denistone Park, Outlook Park, Symonds Reserve, Lynn Park and Ryde Hospital Parks. Bushcare Volunteer groups also work in the reserves containing Blue Gum High Forest.

The Oculus Report, which was a report commissioned by the City of Ryde to identify and map vegetation communities in the City some years ago, further identified remnants on private property in the Denistone area.

The listing 'Critically Endangered' under the Federal Act provides an extra level of protection for these lands in the event of a challenge to the State Government listing as Endangered under the *Threatened Species Conservation Act 1995*. The *EPBC Act* also makes for provision for heavy penalties that may be applied for deliberate breaches.

Coastal saltmarsh in the NSW North Coast, Sydney Basin and South East Corner bioregions has been listed as an endangered ecological community in a final determination listing in Part 3 of Schedule 1 of the Act. Part 2 of the Act provides for listing of endangered ecological communities.

Progress Summary – Native Plants of Ryde Project

A very experienced expert in this field – Mr PJ Kubiak, who is also a resident of North Ryde, is completing this project, which commenced late in the reporting year.

The project is due for completion next year, however the following preliminary summary has been provided which may change as more information is collected and verified.

1. Mr Kubiack has produced a provisional total tally of recorded numbers of native plant species indigenous to the City of Ryde local government area, including Lane Cove National Park and Wallumatta Nature Reserve. The tally included an approximate total of 570 plant species.
2. The seven species recorded by Kubiak in the City of Ryde's bushland, and currently listed under the *Threatened Species Conservation Act 1995*, as follows:

Species	Status	Localities
<i>Darwinia biflora</i>	Vulnerable	North Ryde
<i>Diuris bracteata</i>	Presumed extinct	Gladesville
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	Vulnerable	North Ryde, Marsfield and Gladesville
<i>Genoplesium baueri</i>	Vulnerable	Marsfield/North Ryde
<i>Melaleuca deanei</i>	Vulnerable	North Ryde
<i>Pimelea curviflora</i> var. <i>curviflora</i>	Vulnerable	Gladesville/North Ryde
<i>Tetradlea glandulosa</i>	Vulnerable	Marsfield/North Ryde

3. Regionally Significant Plant Species

There are a small number of plant species occurring in bushland within the City that may be considered to be of particular conservation significance within the context of the Sydney region. The number of these may be approximately five species, but requires further study to clarify the exact number in this category. In addition, there may be a number of regionally significant plant species that previously occurred in Ryde's bushland, but may now be locally extinct.

4. Locally Significant Plant Species

There may be approximately 40 species of native bushland plants in the Ryde district that could be considered to be locally significant, owing to their local rarity. This group of species requires further work to clearly identify and define the individual species to be included under this category.

Pressures

- Habitat fragmentation and clearing of native vegetation.
- Altered fire regimes threaten biodiversity.
- Domestic pets kill wildlife and dog droppings pollute waterways.

- Foxes, feral cats, rabbits and Myna birds threaten biodiversity.
- Noxious weeds displace native vegetation.
- Increasing development results in greater areas of impervious surfaces, resulting in greater runoff.
- Increased human population density puts pressure on the bushland reserves, and flora and fauna communities.

Responses

The City of Ryde spent \$241,000 this financial year on bush regeneration contracts primarily to preserve and conserve native flora and fauna. Works were completed in twenty-five bushland parks using paid bush regeneration operators and volunteer bushcare groups.

Key works undertaken this year included:

- A Native Plants of Ryde Study to benchmark existing native flora was ordered and is in progress.
- A comprehensive map of walking trails throughout the City of Ryde was developed. The map produced trails and walks through bushland, cycle/pedestrian paths as well as on-road cycleways. The map is available for viewing through the City of Ryde's website. A follow-up series of brochures are currently being prepared to supplement the large plan with details on the major walkways.
- The overall map has already been useful during regional planning workshops for the Northern Sydney Region. The Department of Infrastructure, Planning and Natural Resources is preparing a Regional Recreation Facilities Plan for this region. The linking of major trails and cycleways across the region is one of the key aims of the study. This regional approach to recreation will enable the value of local links to be expanded to other important areas surrounding the City of Ryde.
- A major project to map all walking tracks in bushland areas utilising the City's portable GIS system was implemented. Mapping of the Glades Bay Aboriginal Heritage Walking Track and in Brush Farm Park and Field of Mars Reserve were completed.
- Major trail upgrades are currently under way for Terrys Creek, Field of Mars Reserve, Brush Farm Park, the Darvall Park Glades Bay Aboriginal Walk and the City's bicycle network.
- The bushfire mapping project utilising the Rural Fire Services guidelines was completed and adopted by the City.

- The City received from National Parks and Wildlife Services a list of the remnant vegetation of the Cumberland Plains (in digital format).
- Stage 3 of the major creek rehabilitation project in northern Darvall Park was completed. The northern portion of Smalls Creek in Darvall Park has now greatly improved creek bank stability to support the tall Sydney Blue Gum (*Eucalyptus saligna*) canopy species. The bushland area is treated and will be prepared for an ecological burn in the near future by NSW Fire Brigades. Stage 4 has commenced with the repair of a major erosional point located at a scour pipe line draining from the 750 mm Mobbs Hill Rising Main Pipe. Utilising creek bedrock control structures and indigenous seedlings, the area has been successfully stabilised.
- Other aspects of the project include further creek line stabilisation, comprehensive weed removal, ecological/hazard reduction burns and replanting in select areas only.



- An in-house staff-training project was conducted, during which an additional rock riffle drain was built to match existing Natural Heritage Project works in Barton Reserve.
- A rock riffle drain was added to the existing stormwater channel works at Martins Creek, and surrounding embankment subsequently planted out with endemic seedlings.
- Rehabilitation of land surrounding Shrimptons Creek bikeway including erosion control, planting and mulching was completed.

Future Actions

- Consideration being given to the undertaking of a Natural History of Ryde Project to document the natural heritage of City of Ryde. This would be to support the local naturalists in their studies of local bushland.
- Further information about the native faunal activities in Ryde local government area remains to be synthesised and collated. This is a project that will be considered by the City.
- Preparation of a Native Flora Conservation Plan for Ryde
- To explore the feasibility of developing a local bush walking program.

3.5 Noxious Weeds

Noxious and environmental weeds pose a great threat to the natural environment and the biodiversity, and are also a great drain on the economy. To combat this threat, an increasing number of local councils in Sydney region have commenced inspectoral programs aimed at educating the community about noxious weeds and enforcing their control.

The City has been concentrating a great deal of resources over the past 3 years to community education aimed at encouraging landholders around the Brush Farm Park to manage and control weeds. A concerted bush regeneration program for inside the park itself has complemented this program.

Similar programs are planned for properties around Darvall Park and the Field of Mars Reserve. Only simultaneous and coordinated efforts by private landholders and local and state governments will prove effective in eliminating noxious and environmental weeds.



Goals

1. To educate the community about noxious and environmental weeds and their control
2. To extend inspection programs to manage and control the incidences of primary and satellite infestations of noxious weeds on community and private land.

State

Surveys have shown that noxious weeds grow on 80-90% of properties in some areas. Noxious and other environmental weeds are also infesting public land,

including urban bushland, and the City's efforts to control them are in vain if weeds continue to spread from surrounding residential properties.

The situation is in part due to landholders' lack of knowledge concerning the identification and control of noxious weeds. Lack of monetary assets and physical impairment may also be factors affecting the ability of landholders to control noxious weeds.

Householders may also find the noxious weeds attractive as garden plants, or consider their control a low priority due to lack of understanding of their impacts on native fauna and flora as well as human health. This is why noxious weed education and control programs are being implemented.

Under the *Noxious Weeds Act 1993*, landholders have an obligation to control noxious weeds on their land as required by their relevant control category.

In the current reporting period, the City received 24 complaints concerning noxious weeds on private land. These complaints were investigated and acted on by City officers.

Pressures

- Many types of noxious weeds spreading with fauna, wind, water, dumping, soil movement, and by illegal planting, sales and distribution
- Reduced biodiversity as weeds displace native vegetation and change survival conditions for fauna
- Public and private land increasingly infested by noxious weeds in some locations
- Public knowledge of local noxious weed listing, and of their identification and control, not adequate
- Human health affected by some noxious weeds
- Bushland restoration requiring long-term, costly and labour intensive efforts paid for by rate payers or carried out by dedicated volunteers



Responses

- Community Noxious Weed Programs

Brush Farm Park Noxious Weed Program

The Brush Farm Park Noxious Weed Program commenced in 2001. So far Stages 1 and 2 have been completed and the final Stage 3 will be completed in the next reporting year. The ongoing Program supports bushland regeneration and conservation of biodiversity in the Park by encouraging control of noxious weeds on surrounding private properties, through educational inspections and incentives.

In Stage 1 of the program, 402 properties were visited during 2001/02 and 80% of these properties were found to contain noxious weeds. Of those 322 properties found to contain noxious weeds, 164 were selected for Stage 2 re-inspections because they contained substantial amounts of mature noxious weeds, or weed types that required complete removal, not only control.

Out of the 164 households reinspected as part of Stage 2 of the program, 30% were found to have taken no action; 70% had carried out various degrees of control out of which 5% had fully complied with control requirements.

Of these, 64.5% (30% from 'no control' and 34.5% from 'some control') of landholders were deemed not to be taking effective control action and received advisory letters, which will be followed up in Stage 3 to be completed next year.

Common Name	Scientific Name	% of properties
Broadleaf Privet	<i>Ligustrum lucidum</i>	40%
Wandering Jew	<i>Tradescantia fluminensis</i>	39%
Camphor Laurel	<i>Cinnamomum camphora</i>	37%
Asparagus Fern	<i>Asparagus densiflorus</i>	37%
Ochna	<i>Ochna serrulata</i>	35%
African Olive	<i>Olea europaea ssp. africana</i>	29%

The most common types of noxious weeds found during Stage 1 of the Brush Farm Program

A residential feedback survey of residents completed during Stage 2 of the program revealed some of the principal reasons for the residents not controlling noxious weeds on their properties. These included weeds spreading from neighbouring land; lack of knowledge; financial hardship; age or disability, access problems; size / amount of weeds).

These findings will prove very useful in designing other programs for the future.

- Noxious Weed Complaints

The City continued to deal with complaints about noxious weeds on private land and 24 private properties were investigated during the current reporting year. This is 5 fewer than last year.

During inspections, City Officers provide advice to the landholders of their control obligations under the *Noxious Weeds Act* 1993 and provide advice concerning the control of noxious weeds growing on their land.

Consideration is also given to issue of Weed Control Notices where the required control actions are not taken after reasonable time has been given.

One weed notice was issued under the *Noxious Weeds Act* 1993 in relation to Rhizomatous bamboo.

Reporting Period	Number of Properties		
	Complaints	Programs	Total
1999/00	50		50
2000/01	43		43
2001/02	43		43
2002/03	29	423	452
2003/04	24	172 *	196

Number of private properties inspected over past 5 Years (by program and by complaint)

* Re-inspections

- Proposal to Amend Regional Weeds List

During the previous reporting year, The City of Ryde adopted the new common noxious weed list that was completed by the Sydney North Regional Weeds Committee.

However, the proposal will not be presented to the NSW Department of Primary Industries for adoption until the outcome of a court case regarding Rhizomatous bamboo, and involving the adjoining Lane Cove Municipal Council, is known.

The City of Ryde Noxious Weeds list as at June 2004 is as follows:

Common name	Scientific name	Category*
African olive	<i>Olea europaea ssp. Africana</i>	W4b
Alligator weed	<i>Alternanthera philoxeroides</i>	W1
Asparagus fern	<i>Asparagus densiflorus</i>	W4c
Balloon vine	<i>Cardiospermum grandiflorum</i>	W4c
Bitou bush	<i>Chrysanthemoides monilifera</i>	W2
Boneseed		
Black knapweed	<i>Centaurea nigra</i>	W1

Blackberry	<i>Rubus fruticosus</i> (agg. Spp.)	W2
Bridal creeper	<i>Asparagus asparagoides</i>	W4c
Broomrape	<i>Orobancha</i> spp.	W1
Cabomba	<i>Cabomba</i> spp.	W4g
Camphor laurel	<i>Cinnamomum camphora</i>	W4d
Cape broom	<i>Genista monspessulana</i>	W4b
Cape ivy	<i>Delairea odorata</i>	W4c
Castor oil plant	<i>Ricinus communis</i>	W2
Cat's claw creeper	<i>Macfadyena unguis-cati</i>	W4c
Climbing asparagus	<i>Asparagus plumosus</i>	W4c
Cotoneaster	<i>Cotoneaster glaucophyllus</i>	W4b
Cotoneaster	<i>Cotoneaster pannosus</i>	W4b
Giant reed/Elephant grass	<i>Arundo donax</i>	W4a
Green cestrum	<i>Cestrum parqui</i>	W2
Harrisia cactus	<i>Harrisia</i> spp.	W4f
Hawkweed	<i>Hieracium</i> spp.	W1
Horsetail	<i>Equisetum</i> spp.	W1
Karoo thorn	<i>Acacia karroo</i>	W1
Kochia	<i>Kochia scoparia</i>	W1
Lagarosiphon	<i>Lagarosiphon major</i>	W1
Lantana (Pink flowered)	<i>Lantana camara</i>	W2
Lantana (Red flowered)	<i>Lantana camara</i>	W2
Ludwigia	<i>Ludwigia peruviana</i>	W2
Madeira vine	<i>Anredera cordifolia</i>	W4c
Mexican feather grass	<i>Nassella tenuissima</i> syn <i>Stipa tenuissima</i>	W1
Miconia	<i>Miconia</i> spp.	W1
Morning glory	<i>Ipomea cairica</i>	W4c
Morning glory	<i>Ipomea indica</i>	W4c
Ochna	<i>Ochna serrulata</i>	W4b
Pampas grass	<i>Cortaderia</i> spp.	W2
Parthenium weed	<i>Parthenium hysterophorus</i>	W1
Pellitory	<i>Parietaria judaica</i>	W3
Prickly pears	<i>Opuntia</i> spp.	W4f
Privet - broadleaf	<i>Ligustrum lucidum</i>	W4b
Privet - narrowleaf	<i>Ligustrum sinense</i>	W4b
Rhizomatous bamboo	<i>Phyllostachys</i> spp.	W4a
Rhus tree	<i>Toxicodendron succedaneum</i>	W2
Salvinia	<i>Salvinia molesta</i>	W1
Scotch English broom	<i>Cytisus scoparius</i>	W2
Senegal tea plant	<i>Gymnocoronis spilanthoides</i>	W1
Senna	<i>Senna pendula</i>	W4b

Siam weed	<i>Chromolaena odorata</i>	W1
Spotted knapweed	<i>Centaurea maculosa</i>	W1
St John's wort	<i>Hypericum perforatum</i>	W2
Wandering Jew	<i>Tradescantia fluminensis</i>	W4c
Water hyacinth	<i>Eichhornia crassipes</i>	W1
Water lettuce	<i>Pistia stratiotes</i>	W1
Willows	<i>Salix</i> spp. excluding <i>S. reichardtii</i> , <i>S. babylonica</i> , <i>S. calodendron</i>	W4g

* For detail on the control categories, see City's website www.ryde.nsw.gov.au

- Noxious Weed Education

The City's participation in the annual Weedbuster Week in October involved an information stall at the local Granny Smith Festival. This year's theme was "Free Weed Identification Aid" and advertisements in local media and on the City's web site encouraged the public to bring weed specimens to the stall to receive advice on identification and control. Information about noxious weeds promotional material from the national Weedbuster Week were distributed at this event.

The City of Ryde's web site provides updated information on the current noxious weeds list, including the control actions required for each control category.

A pamphlet including the City's noxious weed listing, fact sheets and information booklets are offered to landholders during noxious weed education programs and complaints inspections.

City of Ryde Bushcare Volunteers receive extensive training how to identify and control noxious and environmental weeds as a condition of their appointment.

- Control of Alligator Weed

A comprehensive treatment of this notifiable W1 noxious weed (*Alternanthera philoxeroides*) has been undertaken this year in the following parks:

- Melrose Park
- Koonadan Reserve
- Meadowbank Park
- Memorial Park
- Settlers Park
- Bill Mitchell Park
- Glades Bay Park
- Shepherds Bay Park
- Bennelong Park
- Looking Glass Bay Park
- Putney Park.

The following numbers of saltmarsh species have been grown to plant on the intertidal area in an effort to maintain saltmarsh species and also to assist reduction of alligator weed from washing onshore from high tides.

Species	Number
<i>Juncus kraussii</i>	1 200
<i>Triglochin striata</i>	300
<i>Suaeda australis</i>	20
<i>Tetragonia tetragonioides</i>	100

The program has been very successful in the control of Alligator Weed in the City. A large infestation was identified near Melrose Park in the Parramatta LGA, which Parramatta City Council has actioned. Planting, maintenance and spot spraying have been undertaken this year with existing fund. On-going funding is required next year to maintain the program.

- Control of Ludwigia

This weed (*Ludwigia peruviana*) is also a notifiable WI noxious weed and a large infestation was removed from Small's Creek in Darvall Park from Burnett Walkway to the Darvall Park Bowling Club. The weed grows in the creek line area, and is viable for many years, with deep invasive roots that run under damp soil for many metres.

A minor infestation at the Field of Mars Reserve entry on Westminster Avenue has also been treated.

- Control of Asthma Weed

An embankment at Banjo Patterson Park has been successfully treated for a large infestation of Pellitory (*Parietaria judaica*), which is a category W3 noxious weed. This weed requires repeated treatment for complete eradication.

- Control of Bamboo

A large infestation of Golden Bamboo (*Phyllostachys leptomorpha* var. *aurea*), a W4a noxious weed, has been 80% cleared at Pembroke Park. The remaining bamboo will be gradually removed as part of the on-going bush regeneration works.

- Control of Tussock Paspalum (also called Blue Grass)

Public Land

The City of Ryde is administering a \$28,400 Group Project Funding Grant application for the Implementation of the Tussock Paspalum Plan - Sydney North. The project involves seven councils, the Roads and Traffic Authority and National Parks and Wildlife Services.



This project commenced in 2003 and funding was made available through the Northern Sydney Regional Weeds Committee by virtue of them having submitted the 'action plan' to the Department of Agriculture. In this way, all of the Councils in Northern Sydney could undertake a coordinated and concerted effort to control this weed in their local government areas.

The City of Ryde employed the Sydney Bush Regeneration Company (SBRC) to undertake the work in its area. The SBRC have had some years experience working on this weed in the Ryde area. Beginning in 2000, the SBRC worked with the Bundara Reserve Bushcare Group in identifying infestations of Blue Grass, liaising with landholders and undertaking some field trials and treatment by spraying.

The major infestation at this time was on the land previously known as Delhi Park, which was owned by several state government authorities. The SBRC undertook significant work around the edges of this land to prevent the weed's outward spread. This land was cleared recently as part of the Chatswood to Epping Rail Link, but a significant infestation remains in the bottom northwest corner, adjacent to a small bushland remnant near Wicks Road.

Having controlled the above major infestation, the following areas were also treated by controlled spraying using a mix of Glyphosate and the surfactant

'Synertrol', both at 1:100. While some of these areas have already been treated previously, follow up was required.

Areas Treated

- Pages Creek bushland, Gilda Street entrance
- Pages Creek bushland; Epping Road embankment at Blenheim Park and the road verge and adjacent area near the creek
- Wicks Road, near the City's Porters Creek depot and below the Northern Suburbs Cemetery
- City of Ryde owned Porters Creek Depot, off Wicks Road
- Paul Street North restoration area at Shrimptons Creek, downstream of the M2 motorway
- Christie Park at the edge of Lane Cove National Park

A further \$1,000 grant from the Department of Lands and the NSW Department of Primary Industries was utilised to remove the *Paspalum quadrifarium* population growing on the western side of the road and sound barriers on Epping Road at Pages Creek.

Private Land

The owners of private land where this Grass has been found will be identified and regulatory action to enforce control will be taken.

- Control of Bridal Creeper Management in the Sydney North Region

City of Ryde has initiated a Sydney Regional Bridal Creeper (*Asparagus asparagoides*) Management Plan for the Sydney North Regional Weeds Committee. Initially, \$7000 was requested by this committee from NSW Department of Primary Industries to implement the plan.

- Control of Pampas Grass

In April 2002 City of Ryde employed a bush regeneration company to target Pampas Grass (*Cortaderia selloana*) in the North Ryde area, specifically at the old tip at Porters Creek Depot.

The initial scope of the project was limited to this area and was to involve the removal of the mature seed heads from the plants to at least prevent the dispersal of seeds for this season.

Pampas Grass has been growing in the vicinity of the tip for several years. By April 2002 there were over 100 mature plants growing here with copious amounts of seed heads. This highlighted the value of the project, considering that seeds can travel 40 kilometres, and Lane Cove National Park lies directly below this ridgeline.

The project was later expanded to include localities in North Ryde, Marsfield and East Ryde. These were followed up and extensive field surveys undertaken in likely growth locations.

At the end of July 2002, a corridor stretching from Terrys Creek in Marsfield to Buffalo Creek in East Ryde had been surveyed and the bulk of the Pampas Grass controlled.

The project is ongoing, but thousands of seeds have already been prevented from spreading into the Lane Cove National Park, which is a significant achievement.

The areas where work has taken place were re-inspected at the beginning of December 2003 to check that the program is proving effective.

An extensive follow-up program carried over from last years work continued this year. Works targeted wasteland areas adjacent to M2 road reserve, the Northern Suburbs Cemetery, the Talavera Business Park and Riverside Corporate Park

- Control of Dense Water Weed

The aquatic plant Dense Waterweed or Elodea (*Egeria densa*), has spread through the Lane Cove River in the Lane Cove National Park and control techniques will be investigated.

Future Actions

- Complete Stage 3 of the Brush Farm Park Noxious Weed (Community) Program
- Continue to investigate complaints concerning noxious weeds on private land
- Replicate the Brush Farm Noxious Weed Community Program on private properties surrounding Darvall Park. The City of Ryde will continue to offer incentives, including free kerb-side noxious weed pickups.
- The implementation of a grant jointly awarded by the Department of Environment and Conservation to Ku-ring-gai Municipal Council and the City of Ryde to address noxious and environmental weeds during a backyard information program of selected private properties adjacent to Field of Mars Reserve.
- Expand the range of noxious weed information available to the public, including fact sheets covering a wider range of species.

Management Plan 2003/04 Progress Summary – Bushland and Biodiversity

Objective	Strategy	Measures/Targets	Progress/Results
<ul style="list-style-type: none"> To promote Biodiversity and implement programs to protect Biodiversity in the City of Ryde. 	<ul style="list-style-type: none"> Implement strategic and comprehensive bushland programs that encourage passive natural areas and recreational opportunities in the City of Ryde. Protect biodiversity through weed management, bush regeneration and restoration, and fauna management. 	<ul style="list-style-type: none"> Produce a Bushcare Volunteers book which will include occupational health and safety procedures and pesticide policy by 31 May 2004. Complete the bushcare trailer, which will be used for educational displays by 30 November 2003. Construct minor drainage works at Kobada Park and Martin Reserve to eliminate weed seed source and develop volunteer groups by 31 March 2004. Complete Darvall Park drainage and bushland rehabilitation works by 30 June 2004. Research conservation strategies to enhance threatened species population such as Blue Gum High Forest remnants in the western catchment, 	<ul style="list-style-type: none"> Completed Completed Works completed at Martin Reserve and drainage work at Kobada Park under negotiation, however weeds are under control. Works substantially completed. Plans of Management prepared for Brush Farm Park and Field of Mars reserve which include action to preserve and conserve threatened species populations.

Objective	Strategy	Measures/Targets	Progress/Results
<ul style="list-style-type: none"> To protect the environment through active pest management. 	<ul style="list-style-type: none"> Implement community based projects that eliminate primary and satellite infestations of target noxious and feral species of regional concern. 	<p>Turpentine/Ironbark Forest remnants and shale ridgetop Blue Gum Forest remnants in Marsfield by 30 November 2003.</p> <ul style="list-style-type: none"> Investigate replicating the Brush Farm Noxious Weed project in the City's other reserves by 31 August 2003. Undertake the fox sand plot monitoring four times a year at Field of Mars and Brush Farm Park. 	<ul style="list-style-type: none"> Project targeting residential properties around Darvall Park including Outlook Park scheduled for 2004/05 Monitoring ongoing.
<ul style="list-style-type: none"> To maintain a balance between protecting life and property and ensuring biodiversity. 	<ul style="list-style-type: none"> Minimise the impact of fire on both people and property, while maintaining natural fire regimes for native bushland. 	<ul style="list-style-type: none"> Review the hazard reduction map by 31 October 2003. 	<ul style="list-style-type: none"> Hazard Reduction/ Ecological Burn Program was submitted to the District Fire Management Committee and was adopted.
<ul style="list-style-type: none"> To promote the importance of trees in the City of Ryde. 	<ul style="list-style-type: none"> Increase the tree canopy in Ryde for amenity purposes and to extend wildlife corridors. 	<ul style="list-style-type: none"> Continue annual community tree and shrub giveaway. Review and update brochures on appropriate tree species to plant in the City of Ryde by 31 October 2003. 	<ul style="list-style-type: none"> Not funded in budget Updates undertaken and major review proposed for 2004/05

Objective	Strategy	Measures/Targets	Progress/Results
<ul style="list-style-type: none"> To manage and develop the City's Open Space 	<ul style="list-style-type: none"> Provide good quality and safe places for recreation Protect and enhance the natural environment through management of the open space system. 	<ul style="list-style-type: none"> Investigate the feasibility of a City of Ryde community nursery for growing local provenance seedlings by 30 September 2003. Completion of the capital works projects listed in the Urban Landscape Facilities and Services Section of the Management Plan Objectives. Ongoing asset maintenance as specified in the Urban Landscape Facilities and Services Section of the Management Plan Objectives. 	<ul style="list-style-type: none"> The feasibility of using the former Wellington Road Depot as a native plant nursery is being investigated. Substantially completed. Requirement met

Chapter 4 – Water



This page has intentionally been left blank

4.1 Water Quality

Waterways and aquatic systems are fundamental to the global ecosystem. By looking after aquatic systems we are looking after a fundamental component of the environment. Conserving our biodiversity is vitally important.

The City of Ryde straddles the Lane Cove River, Middle Parramatta River, and Lower Parramatta River catchments. Seventy percent of the City of Ryde stormwater catchment drains to the Lane Cove River and the remaining 30% to the Parramatta River. The City of Ryde is a member of three catchment committees and the Lane Cove River Estuary Management Committee.

Constant redevelopment and high population concentrations means that the movement of sediment, the deposition of gross pollutants and pressure on infrastructure such as the sewerage system remain as some of the major factors affecting water quality in the City of Ryde.

Goals

1. To improve water quality of our waterways, including receiving waters
2. To monitor changes in aquatic health
3. To increase community awareness of stormwater pollution
4. To maintain stormwater infrastructure

State

Water quality in the natural waterways of the City of Ryde has been affected by urbanisation over many years. Pollutants from residential, industrial, commercial and recreational areas have increased nutrient levels resulting in weed and algae growth. Oil and grease from petrol stations, cars and roads contain hydrocarbons that destroy aquatic flora and fauna.

The current drought has had a particular impact on the waterways in the City of Ryde. These waterways are essentially entirely rain fed so in periods of extended drought the flow through them can become very slow or stop altogether. At times, some with smaller catchment areas have actually dried up altogether.

Low flow changes the environment of the waterway. Some riparian plant species dependent on moist conditions will die back whilst those tolerant of dry conditions may opportunistically colonise dry creek beds.

Similarly, animal or insect communities will also change. This became evident from a study into macro-invertebrates in Archers Creek at the end of 2003. It concluded that changes in the types and abundance of the macro-invertebrate families found were

undoubtedly attributable to the low flow environment resulting from the drought conditions.

Less runoff in the dry conditions does tend to have the benefit of washing less litter into stormwater system and reduce the amount of sedimentation and sewer overflows.

Improvements in water quality throughout City catchment areas have been addressed through existing Stormwater Management Plans for the Lane Cove River Catchment and the Mid and Lower Parramatta River Catchment areas of the City since 1999 and strategies from these plans continue to be implemented as funds become available.

These Stormwater Management Plans are currently under review and it is anticipated that a new consolidated Stormwater Management Plan – Program of Works 2004/07 will be adopted next year.

Pressures

- Increased hard surfaces associated with urbanisation that results in greater volumes of runoff taking with it collected pollutants
- Community attitudes reflected in behaviour and lack of awareness that contributes towards water pollution
- Lack of integrated baseline aquatic health data to monitor changes in water quality
- An under capacity Sydney Water Corporation Sewerage network including the effects of a deteriorating sewer infrastructure and illegal stormwater connections that may overflow in times of heavy rains causing damage to waterways.
- Limited resources to maintaining aging stormwater infrastructure

Responses

- Water Quality Monitoring Strategy

The City has an ongoing commitment to improving the water quality and the general health of its waterways. The reasoning behind monitoring is to try and determine the effect that capital works, education and enforcement actions have on the water quality.

To date this information has come from spasmodic, inconsistent surveys taken across the City area.

This year the City of Ryde commissioned a report from Biotrack Australia Pty Ltd, who are based at Macquarie University, to develop a draft water quality monitoring strategy for the City.

The draft strategy involves the establishment of 5 core monitoring sites at in the major creek catchments in the City, namely Shrimptons, Archers, Buffalo, Terrys and Porters Creeks. The City of Ryde has now adopted a water quality monitoring strategy based on the Biotrack draft

At the 5 selected core sites, both macroinvertebrate (biological) and chemical sampling will take place in accordance with established, consistent protocols.

The minimum standard for the biological sampling will be to AUSRIVAS biota reporting index with the option to further identify samples to morphospecies level. This will enable the establishment of unique biological signatures for the sites so that small changes in the water quality trend can be detected.

The strategy also provides flexibility through the use of "satellite" sites in addition to the core sites.

These satellite sites can supplement the data from the core sites or to monitor specific projects or works and allow the data to be incorporated into the overall picture of the health of the waterways that will build up over the longer term.

Another component of the strategy is to develop community involvement in the monitoring process. This may incorporate Streamwatch in schools or other community groups interested in environmental health. The protocols that will be established should allow data to be collected by these groups in a rigorous and reliable way.

The first sampling period set out under this strategy is set to commence in Spring 2004 and results will be reported next year.

- Porters Creek Depot - Water Quality Monitoring (Chemical)

Approval from Department of Environment and Conservation (DEC) has been received for the landfill closure plan and the City has forwarded an application for the surrender of the licence. Council is currently awaiting the draft conditions of closure from the DEC.

The water in Porters Creek upstream and downstream of the depot's discharge point has been monitored on a monthly basis since November 1993.

The upstream sampling points occurred in the main channel ("upstream" of the depot's influence) and in the side-channel ("upstream spurline" on the depot) to the main channel.

The downstream sampling point occurred downstream of both branches below the depot.

Sampling and laboratory testing of this water this year found that the differences between the up and downstream sites was less than 1 mg/l for ammonia for 14 out of 15 tests, less than 1.5 mg/l for nitrate and nitrite for 12 out of 15 tests, and less than 1.5 mg/l for Total Kjeldahl Nitrogen for 12 out of 15 tests.

Laboratory results upstream of the discharge point on 3 September 2003 were extremely high compared to corresponding results downstream. The unusually high result can be attributed to a number of factors, including rainfall. Results since have not shown a repeat of this high result and City officers will continue to monitor results for similar spikes.

The leachate collection system that was installed within the stormwater culverts at the site with the approval of the Department of Environment and Conservation (DEC) has been maintaining these results at a consistent level since its installation in 1996 to DEC's satisfaction.

The following tables provide details of these monitoring results for 2003/04.

Porters Creek Depot – Water Quality Monitoring 2003/04

Test	Unit	LOR*	Location	Jul	Au	Sep	Sep	Oct	Nov	Nov	Dec
<i>Ammonia as N</i>	mg/L	0.5	Up	<0.1	<0.1	45.7	<0.5	<0.1	<0.1	<0.5	<0.5
			Spur	0.3	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	0.1
			Down	0.6	<0.1	<0.1	1.2	<0.1	<0.1	<0.5	0.4
				Jan	Jan	Feb	Apr	Apr	May	Jun	
			Up	<0.5	<0.1	<0.5	<0.1	0.7	0.6	<0.5	
			Spur/St	0.1	<0.1	<0.5	<0.1	0.8	0.3	<0.5	
			Down	1	<0.1	<0.5	<0.1	0.7	0.9	<0.5	

Test	Unit	LOR*	Location	Jul	Au	Sep	Sep	Oct	Nov	Nov	Dec
Nitrate & Nitrite as N	mg/L	0.01	Up	0.63	1.05	10.3	0.26	0.27	0.34	0.86	0.44
			Spur	0.27	0.44	0.34	0.38	0.32	0.61	0.32	0.2
			Down	1.81	1.2	1.14	2.6	0.54	0.52	1.08	0.67
				Jan	Jan	Feb	Apr	Apr	May	Jun	
			Up	0.53	0.35	0.24	0.02	0.42	0.34	0.9	
			Spur	0.33	0.06	0.26	0.17	0.6	0.64	0.46	
			Down	2.24	0.46	0.64	0.73	0.58	0.47	0.45	

Test	Unit	LOR*	Location	Jul	Au	Sep	Sep	Oct	Nov	Nov	Dec
Total Kjeldahl Nitrogen as N	mg/L	0.1	Up	0.5	1.6	51.1	0.4	0.5	0.9	0.8	3.7
			Spur/St	1	0.8	2.4	0.5	0.4	0.7	0.5	0.7
			Down	1.9	2.1	1.4	2.4	0.9	1.1	1.4	3.4
				Jan	Jan	Feb	Apr	Apr	May	Jun	
			Up	1.1	0.7	2.2	1.5	2.5	2.4	1.3	
			Spur/St	0.7	1.5	0.3	0.7	2.4	0.8	0.4	
			Down	2.4	0.8	5.8	2	3	3.5	1	

LOR*=Detection Limits in Analysis

- Biological Water Quality Monitoring

During this past year, biological monitoring, which uses aquatic invertebrates as indicators of stream health, was carried out at Buffalo and Porters Creeks as a part of the ongoing program established by Councils in the Lane Cove River Catchment.

As with previous years, this monitoring was carried out in conjunction with Robyn Tuft and associates and produced results in AUSRIVAS¹ and SIGNAL² indices and a RCE³ score.

¹ The AusRivAS (Australian River Assessment System) biotic index is a modeled index which enables comparison between the macroinvertebrate community at one site and a relevant reference site.

² The SIGNAL index is a measure of water quality using the factors of indicator animals and abundance.

³ RCE – Riparian-channel-environmental inventory evaluates the condition of adjacent land, banks, channel and bed and riparian vegetation.

Buffalo Creek this year was found to be in AUSRIVAS band D (impoverished), a move down from band C (well below reference) last year. The SIGNAL index was 3.6 (severely impaired), down from a high of 4.7 (moderately impaired) previously. RCE rating was "fair".

Generally over the past 3 years the monitoring is suggesting that a lowering of the water quality in Buffalo Creek has occurred.

In Porters Creek, the AUSRIVAS band this year was B (below reference), which is the same as the previous years. The SIGNAL index was 3.4 (severely impaired), which is a reduction on a high of 4.6 (moderately impaired), which was reported last year. The RCE score was "good".

Generally over the past 3 years this stream has fluctuated but the identification of shrimp and copepods in this years sampling is encouraging.

A further macro invertebrate study was carried out in Archers Creek from December 2003 to February 2004. The original time for this sampling was postponed because drought conditions had caused the creek to stop flowing. The purpose of this sampling was to measure the effectiveness of stream restoration work that had been carried out.

By comparing the sampling from this study to previous data it was shown that the dry conditions had certainly changed the types of families that were found. For instance, there was an increase of mosquitoes but an absence of dragonflies. The latter requiring more flowing water.

Unfortunately, the conditions were so different from when the previous study had been carried out that the effectiveness of the stream restoration could not be properly assessed at that time.



- Streamwatch

City of Ryde staff responded to enquiries from schools participating in the Streamwatch program as required and in regards to pollution incidences.

No specific Streamwatch events were undertaken during this reporting period other than to respond to any enquires made. The involvement of Streamwatch is an important future consideration of the new Water Quality Monitoring Strategy.

- Community Stormwater Pollution Education

The cross-divisional Enviro Ed Team conducted a one-month Intranet campaign to educate staff about various sources of stormwater pollution and ways to reduce the pollution risks. The Team promoted the international campaign called "Wanted! Seas and Ocean - Dead or Alive?" which was extended to the community through the Team's display in the Ryde Library and Civic Centre foyer for the World Environment Day.

Littering by plastic items, oil spills, overfishing, algal blooms and destruction of marine reefs were some of the threats addressed. The Team's streamlining of pamphlet distribution to libraries resulted in the continuous provision of stormwater pollution information to the community.

The City employed a full time illegal dumping investigations officer who, among other tasks, conducted an illegal dumping campaign by having more than 500 illegal dumping signs installed in unit blocks in notorious areas. Dumped items were marked with ribbons to educate about the illegality of discarding rubbish, whitegoods and furniture onto nature strips outside the City's scheduled clean ups in order to stop the costly, unsightly and hazardous trend, and to stop some of the rubbish from entering stormwater drains and bushland.

The City again participated in the Clean Up Australia Day campaign with several coastal and bushland sites having rubbish and dumped items removed by numerous civil and corporate volunteers.

Last year was the International Year of Freshwater and educational displays about water quality and stormwater pollution were organised during the Granny Smith Festival and the Field of Mars Open Day.

A field day was held for primary school students from Denistone East Public School at Jim Walsh Park in November. Students were trained and assisted in the sampling of aquatic invertebrates.



Education display
at Field of Mars
Open Day

- Sydney Water Dry Weather Overflows

In accordance with a licence requirement set out by the Department of Environment and Conservation Sydney Water advised the City that they had attended 70 sewer overflows during the reporting period.

- Enforcement Actions

This year, the City's Environmental Health unit responded to 46 water pollution reports from the community and 42 referrals from the NSW Department of Environment and Conservation. A number of these related to the periodic release of a suspected hydrocarbon based pollutant into Charity Creek. This subsequently led to one of the most intense water pollution investigations undertaken for sometime.

Thirty-five premises were inspected in the West Ryde industrial area in just a few days in an effort to find the source. An additional 4 premises were inspected later following further incidences. Charity Creek will remain under surveillance to detect any further problems.

Another major incident occurred in Wharf Road, West Ryde involving the spill from a truck of 1,000 litres of a detergent like substance requiring the attendance of the Fire Brigade's HAZMAT Unit and City EnviroServe personnel. In this instance the City also served a Compliance Cost Notice on the driver of the truck to recover the cost of the clean up.

Incidences like those above emphasise the importance of the cooperation from other areas of the City such as EnviroServe and other agencies such as the Department of Environment and Conservation and the HAZMAT Branch of the NSW Fire Brigade in rectifying environmental problems and enforcing the relevant environmental protection laws.

- Stormwater Management - Maintenance

This year the following maintenance work was completed to the Stormwater Infrastructure:

City of Ryde Stormwater Catchment	Work completed
Shrimptons Creek	Urgent drainage replacement in Agincourt Road was commenced
Eastwood	Urgent drainage replacement works completed in Eastwood Park
Buffalo Creek	Urgent drainage replacement works completed in vicinity of 13 Lane Cove Road
River	Stage 1 of the Meadowbank Employment Area drainage augmentation scheme was commenced. This work involved the provision of trunk and secondary drainage facilities in Bowden Street sub-catchment and included the construction of a pollution control device at the system outlet to the Parramatta River.
Eastwood	Stage 1 Eastwood Flood Mitigation Project was completed: This involved construction of improved drainage facilities at the intersection of Trelawney and Rowe Street down to the stormwater channel in The Avenue and a section of the trunk drain along Railway Parade from Rowe Lane to the stormwater channel in May Street. Also included in the latter work was the installation of a pollution control device.



- Stormwater Management – Pollution Control

The City's Stormwater Facilities & Services Section installed an additional pollution control device (PCD) in 2003-04 in Railway Parade, Eastwood, as part of the Eastwood Flood Mitigation Project. The device depicted below was installed as a Continuous Deflection Screen (CDS)-type and is located in the eastern Eastwood CBD sub-catchment.

Along with the previously installed devices including gross pollutant traps (GPT's) in other parts of the CBD (detailed in the following table), the network of PCD's will assist in reducing pollutant load in the Eastwood / Terrys Creek drainage catchment.

The following table shows the amount of waste in tonnes collected by the PCD's during 2003/04. The total amount collected is an increase of 35% on that collected in the previous year clearly demonstrating the effectiveness of these devices.

Stormwater Catchment and PCD location	2002/03 tonnes	2003/04 tonnes
Archers Creek – Maze Park (Brush Road) 1 Continuous Deflection Separation (CDS) unit	4.32	4.06
Archers Creek – Brush Farm Park 1 Humeceptor™	Not cleaned	0.35
Buffalo Creek – Ryde Park 1 CDS unit	11.58	21.8
Denistone Catchment – West Ryde Stormwater Tunnel CDS unit	15.78	18.04
Eastwood CBD carparks – 4 Humeceptors™	1.78	0.71
Eastwood at Railway Parade – 1 CDS unit	-	Nil
Shrimptons Creek Catchment GPTs Between Waterloo Rd & Epping Rd – 3 Net Tech 5 Nicholas Ski Jump	1.64	2.54
Between Epping Rd & Kent Rd - 2 Net Tech 2 Nicholas Ski Jump		
Total	35.1	47.5



- Stormwater Management - Creek Rehabilitation Work

Maze Park

Last year Stage 1 of the Maze Park Creek Rehabilitation project that began in 2001/02 was completed. This project was funded and project managed by the City's Stormwater Facilities and Services Section.

Approximately 100m of creek line from Brush Road in a downstream direction was rehabilitated by private contractor and the City's EnviroServe Group.

Works included:

- Removal of noxious and environmental weeds and dumped rubbish from the creek
- Benching of the creek profile to more effectively convey high flows
- Creek bank stabilisation by rock armouring and revegetation with local native plant species
- Installation of a Pollution Control Device to trap rubbish, organic matter and sediment
- Installation of a fish ladder for trickle flows
- Construction of a low flow pipeline to handle side flows

Stage 2 of this project is ongoing.



Miriam Creek

The Miriam Creek Rehabilitation Project, which was funded and managed by the City's Stormwater Facilities and Services Section began in March 2003, was completed this year.

Following construction of the West Ryde Stormwater Tunnel, flows through Miriam Creek were reduced to 'environmental flows'.

Prior to constructing the tunnel, Miriam Creek was subjected to a much wider range of stormwater flows, which caused severe erosion and scouring of the creek bed and banks, putting dwellings and large trees at risk.

Work included removal of weeds, stabilisation of the creek bed and banks by filling of scour holes, rock armouring of the creek profile and revegetation of the area.



- *Shrimptons Creek*

Regeneration and weed control of the areas along the creek funded by the Stormwater Trust Grant also continued through this year with areas receiving most attention continuing to be around the Gross Pollutant Traps installed and funded by a Stormwater Trust Grant. In particular, the area along the creek between Waterloo Road and Kent Road received attention.

- Stormwater Management - Street Sweeping Program

The City of Ryde utilises three street suction sweepers to collect leaves, litter and silt from street gutters and drainage pits in a program that results in each gutter being swept on a cycle varying between four and ten weeks. This sweeping captures pollutants before they enter the stormwater pipe system and subsequently enter the Lane Cove River and the Parramatta River. In 2003/04, the quantity of pollutants collected was 696 tonnes, which is substantially less than last year tonnage. This is likely to be due to improved at source practices and reduced mobility of leaves, litter and silt from fewer rainfall events.

The table below shows the quantities of litter collected from street sweeping operations over the last five years.

<i>Period</i>	<i>Tonnages (per annum)</i>
July 1999 - June 2000	901
July 2000 - June 2001	828
July 2001- June 2002	679
July 2002 - June 2003	853
July 2003 – June 2004	696

Litter collected from street sweeping – 1999-2004

- Stormwater Management Plans – Program of Works

The process for the review of existing stormwater management plans for the Lane Cove, mid-Parramatta and lower-Parramatta River Catchments continued this year.

It is anticipated that the schedule of activities to be developed in the revised Stormwater Management Plans will be a significant reduction on those structural works nominated in the initial plans. It will have a greater focus on community education and 'at source' controls to more accurately reflect the range of activities, which are able to be undertaken with the resources available.

The schedule of activities will be incorporated into a Draft Stormwater Management Program of Works for 2004/07, which should be adopted and implemented from next year.

- Stormwater Management - Flood Management

As part of a City-wide Flood Management Program, 3 additional properties were acquired during the year to create overland flow paths. To date a total of 24 properties have been acquired for this purpose.

Future Actions

- Implement the adopted biological and chemical water quality monitoring strategy for the City of Ryde.
- Continue community education programs on the prevention of stormwater pollution and raising awareness by dedicated campaigns and library handouts.
- Undertake regular water quality monitoring of local waterways.
- Develop and implement a new Stormwater Management Program of Works covering the next 3 years, including the implementation of Stage 2 of the Maze Park Creek Rehabilitation Project and completion of the Dunbar Park Detention Storage enlargement
- Support Sydney Water Corporation's - Sewer Overflow Abatement Program.
- Continue installation of Gross Pollutant Traps in accordance with the City's program and provision of funds for maintenance.
- Investigate opportunities for further water reuse in parks.
- Further develop volunteer bush regeneration groups to restore degraded riparian zones.
- Undertake audits of automotive businesses in West Ryde and Meadowbank targeting stormwater pollution and awareness.
- Encourage and support Streamwatch programs in local high schools.
- Review Erosion/Sediment Control Strategy for commercial and residential construction sites and increased surveillance.
- Carry out urgent drainage replacement works in Adam Street.
- Undertake stormwater augmentation works in Herbert Street, the Eastwood CBD and Meadowbank Employment Area.

Management Plan 2003/04 Progress Summary – Water Quality

Objective	Strategy	Measures/Targets	Progress
<ul style="list-style-type: none"> To maintain and protect water quality and manage stormwater 	<ul style="list-style-type: none"> Prevent pollution from entering stormwater and improve water quality of our waterways Continue installation of Gross Pollutant Traps. Monitor changes in aquatic health. 	<ul style="list-style-type: none"> Investigate alternative funding sources for Gross Pollutant Trap installation. Identify and prioritise sites for Gross Pollutant Trap installation and report to Council by 31 October 2003. Award a contract and commence works for the upgrading of stormwater drainage and installation of Gross Pollutant Traps in the Meadowbank Employment Area by 31 May 2004. Install a Gross Pollutant Trap at Maze Park, West Ryde and restore riparian vegetation by 31 July 2003. Develop a water quality monitoring strategy for the City of Ryde by 29 February 2004. 	<ul style="list-style-type: none"> No alternative funding sources identified. Completed. Program is ongoing. Bowden Street sub-catchment work nearing completion. Completed. Strategy adopted.

Objective	Strategy	Measures/Targets	Progress
	<ul style="list-style-type: none"> <li data-bbox="496 237 762 342">• Monitor changes in aquatic health. <li data-bbox="496 712 743 817">• Maintain stormwater infrastructure. <li data-bbox="496 1115 738 1294">• Increase the community awareness of stormwater pollution. <li data-bbox="496 1518 751 1659">• Implement the Stormwater Management Plans. 	<ul style="list-style-type: none"> <li data-bbox="799 237 1070 488">• Develop a water quality monitoring strategy for the City of Ryde by 29 February 2004. <li data-bbox="799 533 1070 674">• Restore Miriam Creek at West Ryde by 31 October 2003. <li data-bbox="799 719 1070 1077">• Seek alternate funding sources to assist in replacement of collapsing infrastructure and report to Council by 30 April 2004. <li data-bbox="799 1122 1070 1480">• Conduct community and in-house education programs on stormwater pollution prevention commencing in August 2003. <li data-bbox="799 1525 1070 1883">• Investigate ways the City can incorporate Water Sensitive Urban Design into its policies and programs and report to Council by 31 May 2004. 	<ul style="list-style-type: none"> <li data-bbox="1102 237 1278 309">• Strategy adopted. <li data-bbox="1102 533 1310 568">• Completed. <li data-bbox="1102 712 1358 891">• Seeking alternative funding is part of an ongoing program. <li data-bbox="1102 1115 1358 1435">• Program has been incorporated into EnviroEd Team Education and Promotion Strategy and is ongoing. <li data-bbox="1102 1525 1374 1839">• Joined “Every Drop Counts” program and Stormwater DCP encourages the use of rainwater tanks.

Objective	Strategy	Measures/Targets	Progress
		<ul style="list-style-type: none">• Report to Council on the Stormwater Management Plans and their implementation on a quarterly basis.	<ul style="list-style-type: none">• Draft consolidated Stormwater Management Plan prepared.

Chapter 5 – Air



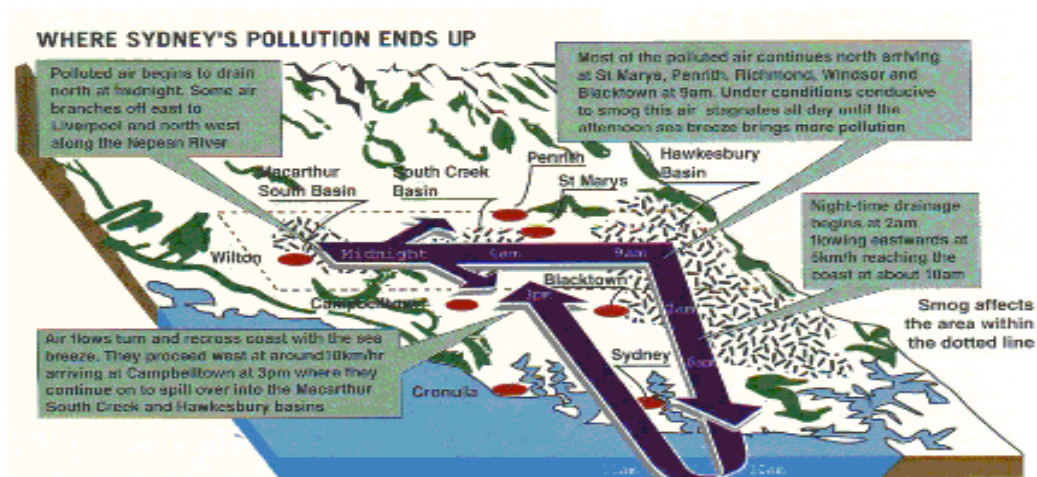
This page has intentionally been left blank

5.1 Air Quality

Australians have consistently ranked air pollution as a major environmental concern. The results of some extensive participatory community consultation last year as part of the Ryde City Vision 2022 Project served to reinforce this is a fundamental concern for the local community. The state of our air is an important factor in the quality of life in Australian cities. It affects the health of the community and directly influences the sustainability of our lifestyles and production methods.

Local Government therefore has an important role to play in improving local air quality through their provision of infrastructure, regulatory activities and the development of planning and environmental policies, both from a local and regional perspective.

The Interaction of Weather and Landform within the Sydney Airshed



(Source: The Sydney Regional Organisations of Councils (1994) Local Air Quality Management – A manual for Local Government ISBN 0 646 22296 1)

Given the nature of air pollution as can be seen from where Sydney's pollution starts and ends up, reporting and strategy development is best considered from a regional perspective however there are still local strategies that can be employed to make a difference.

Simple activities like walking to the shops instead of taking the car or using water-based paints and glues, instead of high solvent ones or replacing solid wood heater with gas systems for winter warmth will make a difference to the air quality in the City of Ryde.

Goal

To improve air quality in the City of Ryde through local initiatives which can have a positive effect on regional air quality.

State

Motor Vehicles Impacts

Motor vehicles continue to be the major source of most pollutants, contributing almost 50% of emissions in the Sydney region. The City continues to lobby State and Federal Governments for better integrated public transport planning systems to reduce reliance on the motor vehicle.

Local Impacts

Industry, bushfires, illegal backyard burning and solid fuel heaters also contribute to air pollution and the City's education and enforcement program has been focussing its attention on minimising impacts from these areas.

The City's Environmental Health Officers have had to respond to 49 air pollution complaints and the following table provides a breakdown of these complaints for the year:

<i>Breakdown of air complaints 2003/04</i>	
<i>Backyard Burning</i>	15
<i>Odour (sewer, composting, chemicals & other smells)</i>	26
<i>Solid wood heaters</i>	5
<i>Dust</i>	3
<i>Total</i>	49

Despite backyard burning being banned by the State Government for almost 20 years, there are still a considerable number of households who continue to pollute their neighbourhood with the fumes and smoke from illegal burning activities.

Smoke from backyard burning may contain hazardous pollutants such as particulate matter, sulfur dioxide, lead and other heavy metals, and hexachlorobenzene and dioxins depending on the type of material burnt. These pollutants can have immediate and long-term health effects including asthma, emphysema or other respiratory illness.

Not only are the people who burn rubbish exposed to these pollutants, but so are their families and neighbours. Children, the elderly and those with pre-existing respiratory conditions can be especially vulnerable.

City Environmental Health Officers investigate all air pollution complaints, and attempt to educate people on appropriate behaviours.

Regional Pollution Index – Eastern Network

It is difficult to quantify how successful the City has been in its programs because the air quality in the City of Ryde cannot be deduced in isolation. However, the number of highs and lows that were recorded by the Regional Pollution Index (RPIs) in the Eastern region (the City of Ryde is in this region) were significantly fewer than last year, which is encouraging.

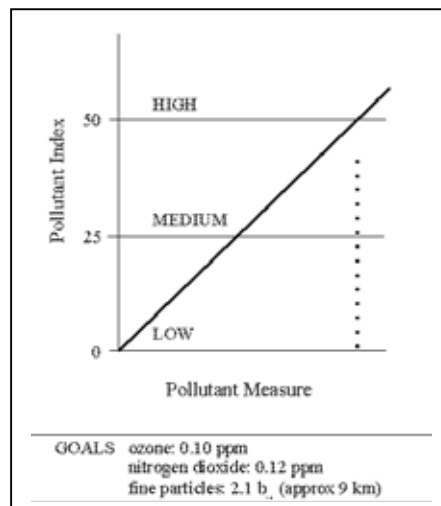
The DEC uses these RPIs to determine whether the levels of air pollution in Sydney's urban areas are high enough to cause damage to human health and the environment.

The RPI is categorised as low, medium or high, as follows:

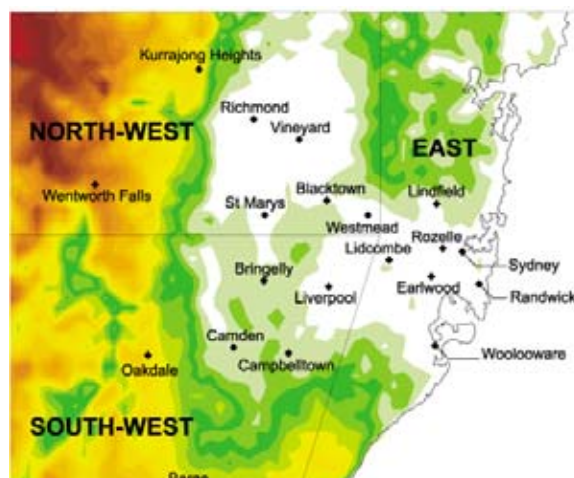
Low: pollution index from 0 to 24

Medium: pollution index from 25 to 49

High: pollution index 50 or higher.



Sydney's RPI Regions



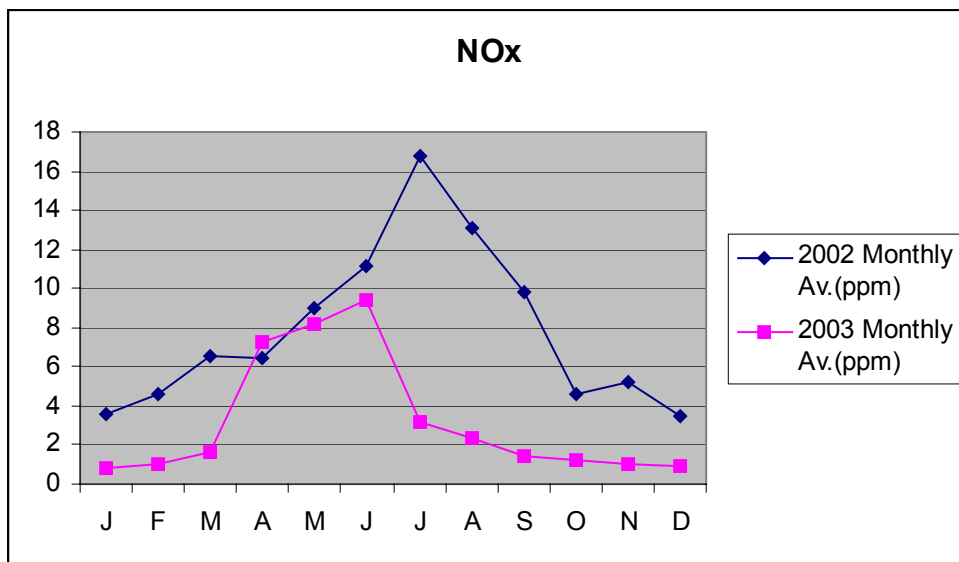
Source: Department of Environment and Conservation

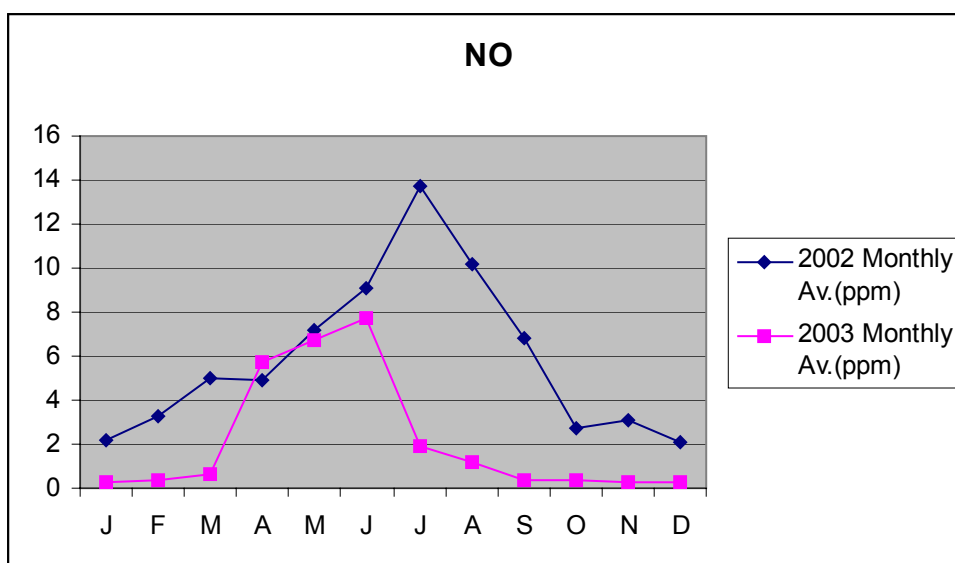
Period	East		North West		South West	
	am	pm	am	pm	am	pm
1999/00	0		7		5	
2000/01	31		13		13	
2001/02	22		37		34	
2002/03	14	(13)	16	(14)	13	(15)
2003/04	8	(4)	5	(4)	7	(3)
Change from 2003	-6	-9	-11	-10	-6	-12

Number of High RPI Pollution Days By Sector – 1999-2004

Whilst it is understood that the air quality in the City of Ryde must be considered in a much broader regional context, the continued decrease in high level RPIs from last year’s substantial fall for the region is encouraging. There were no significant bushfires in the region for the second consecutive year, which is considered to be the main reason why there were not as many high pollution days recorded across Sydney.

From this monitoring data and the national 24 hour exposure standards in Air National Environmental Protection Measure (NEPM), smog levels in the eastern region were exceeded for only 1 day in each of the months of November and December compared to 4 months last year. There were no apparent exceedances during this year in nitrogen oxides, particulate matter (<PM 10), sulphur dioxide, carbon monoxide, lead, heavy metals and ozone. In the case of both nitrogen oxides (NOx) and nitrogen oxide (NO), the following 2 graphs show a definite downward trend starting to eventuate, which is encouraging.





Pressures

- An increasing number of people driving cars. In Sydney, cars release 91% of the carbon monoxide in the air, 82% of the oxides of nitrogen and 49% of volatile organic compounds, such as benzene. Cars emit one-third of the dangerous tiny particles that are present in Sydney's air.
- Increased affluence is resulting in exponential growth in consumption of consumer goods, which use energy in the manufacture or use of the product.
- Most older buildings are inefficient and not designed to conserve energy.
- Continued installation and use of domestic solid fuel heaters.
- Illegal backyard burning activities.
- Local air polluting industries.
- Bushfires during the summer months and the need for backburning creates air pollution.

Responses

- The City of Ryde responds to specific air pollution complaints on a case-by-case basis. This year the City of Ryde received a total of 49 air pollution complaints directly from the community and the DEC received 47 complaints relevant to the Ryde local government area. Of those 47, only 22 were the responsibility of the City as the appropriate regulatory authority and were attended to by the City. The most frequent complaints are about odours from businesses and sewer complaints. Other air pollution complaints include use of solid fuel heaters, dust,

and backyard burning. A small number of complaints were received concerning industry emissions such as spray painting.

- A draft Local Air Quality Management Plan (LAQMP) was prepared to develop a more strategic approach to local and regional air improvement initiatives, while also suggesting alternatives that will continue to allow the community of Ryde to enjoy their contemporary lifestyle. The production of the LAQMP is closely linked with the City of Ryde Management Plan and the environmental objectives outlined in the last State of the Environment Report and the City's overall environmental goals. The LAQMP has been drafted and is presently on public exhibition until September 2004. At the completion of the exhibition the City of Ryde will review the draft and any comments and the final document will be linked to City's Management Plan.
- A pilot automotive Industry Environmental Audit & Education Project was completed in Gladesville. The 'CARe for the air' Pilot Environmental Compliance and Education Project (Automotive Businesses) was jointly supported and funded by the NSW Government Clean Air Fund under its Local Air Improvement Program and by the City of Ryde. The project was completed in June 2004 and targeted the 27 automotive businesses in the Buffalo Creek catchment area in Gladesville. The project involved the City's Environmental Health Officers conducting compliance inspections of the subject premises and its primary aim was to raise the environmental awareness of the owners and operations of these businesses. Issues such as air, water, noise and waste management were addressed.
- Incidents of air pollution arising from solid fuel heaters are declining as a result of a new DEC requirement that all new solid fuel heaters must meet stringent Australia Standards from July 2001. Any complaints received are investigated, and owners and operators are being educated on the correct use of the heaters.
- The principles of ecologically sustainable development are being applied to development through planning controls to minimise air pollution and reduce emissions of greenhouse gases in the region.

Future Actions

- Implement a Local Air Quality Management Plan in conjunction with the Cities for Climate Protection Program. The plan to focus on the key elements of energy efficiency, land use and transportation planning, vegetation management, specific industry source control and education, information and public participation.
- Encourage neighbouring Councils to develop air quality management plans.
- Undertake an audit program targeting automotive businesses in West Ryde and Meadowbank using the checklists, protocols and educative material developed from the Gladesville pilot project.
- Continue responding to air pollution complaints in a timely manner.

5.2 Greenhouse Gas Emissions

“Greenhouse gases are a natural part of the atmosphere. They trap the sun’s warmth, and maintain the Earth’s surface temperature at a level necessary to support life.

Some greenhouse gases occur naturally in the atmosphere, while others result from human activities. Naturally occurring greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

Very powerful greenhouse gases that are not naturally occurring include:

- *hydrofluorocarbons* (HFCs) - are being developed to replace chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) for use primarily in refrigeration and air conditioning equipment. HFCs are the next generation of refrigerants. They will substantially replace all the CFCs and HCFCs, since they do not have ozone-depletion potential,
- *perfluorocarbons* (PFCs) – are used in the electronics and semiconductor industries, as well as a refrigerant blend and a fire suppressant and they occur as by-products of aluminium production, and
- *sulfur hexafluoride* (SF₆) - is a colorless, odorless, nontoxic, nonflammable gas that is used as an insulating gas in electrical equipment, these gases are generated in a variety of industrial processes.

The problem we now face is that human action, particularly burning of fossil fuels (coal, oil and natural gas) and land clearing is increasing the concentrations of these gases that trap more heat and change the climate. This is the enhanced greenhouse effect.” (www.greenhouse.gov.au)

It will take coordinated global measures supported by local actions to develop truly sustainable energy systems to reverse the effect. Unless we do and make greater use of solar energy and other alternative sources, the consequences over the next 50 years could include:

- Significant atmospheric temperature rises (particularly at high latitudes).
- Rising sea temperatures and levels (causing flooding, coastal erosion, damage to coral reefs etc).
- More frequent extreme weather events (such as floods, storms and droughts).
- The need to move agricultural activities and infrastructure to different locations.
- Substantial reduction in biodiversity.
- More severe bushfire seasons.

Goals

1. To reduce greenhouse gas emissions in the City of Ryde
2. To support the Federal Government's Climate Change Action Agenda

State

Figures show that Australia's economy is becoming less greenhouse intensive, with projections showing a 43% improvement from 1990 projected to 2012 in emissions per dollar of Gross Domestic Product. In 2002, net emissions across all sectors totaled 550 million tonnes of carbon dioxide equivalent (which provides the basis for comparing the warming effect of greenhouse gases such as methane, nitrous oxide and perfluorocarbons) under the accounting provisions applying to Australia's 108% Kyoto target.

By sector in 2002, stationary energy was still by far the greatest source of greenhouse gas emission at 47.6% followed by agriculture at 19.2% and transport at 14.4%. Fugitive emissions, industrial processes, land use change and forestry and waste collectively made up the remaining 19% of emissions.

The Federal Government will continue to develop and invest in domestic programs to meet the target agreed to at Kyoto of limiting greenhouse emissions to 108% of 1990 levels over the period 2008 – 2012.

The City of Ryde is committed to reducing local greenhouse gas emissions through related development controls and associated planning instruments and leading by example.

Next year, the City will rate the whole of the Ryde Civic Centre Complex to see how this complex performs on greenhouse measured against industry standards. Part of this process will involve a building performance audit to assess, among other areas, options available to optimise electricity and water consumption. This audit will also explore opportunities for energy efficiency and water savings, retrofitting existing and future office space areas and upgrading of building services and elements in the Ryde Civic Centre Complex.

This coupled with the City's intention to join the Department of Energy, Utilities and Sustainability (DEUS), former Sustainability Energy Development Authority (SEDA), - Cities for Climate Protection Program demonstrates the City's commitment to becoming an ecologically sustainable organisation.

The City is already purchasing 10% of the total power used to operate the Ryde Civic Centre Complex as Green Energy which is energy produced from greenhouse friendly sources. This initiative is estimated to save a significant 100 tonnes of greenhouse gases each year.

Pressures

- An increasing number of people driving cars
- Increased affluence is resulting in exponential growth in consumption of consumer goods, which use energy in the manufacture or use of the product
- Most buildings are inefficient and not designed to conserve energy.
- High cost of harnessing solar energy
- Australian energy policy is currently being driven by short term considerations in favour of the fossil fuel industry, to the detriment of the renewable energy industry

Responses

- Energy efficient buildings

Application of Development Control Plan No 45 and Building Sustainability Index Requirements (BASIX)

On 1 July 2004, the NSW Government will introduce BASIX into the development approval system to make sure our homes use less water and energy. The requirements for a BASIX Certificate with development proposals will be introduced in stages from that date and at this stage will not include commercial, retail or industrial development.

Local Development Applications for new dwellings (lodged after 1 July 2004), which do not have a building contract signed before 30 June 2004 are required to have a BASIX certificate. The new SEPP (State Environmental Planning Policy) for BASIX over-rides DCP 45 for these applications.

Basix certificates are required:

- From 1 July 2004 – for new houses and dual occupancy developments in Sydney, unless a development applicant entered into a building agreement before 1 July 2004 or an agreement on or after 1 July as a consequence of an offer made or deposit paid before 1 July 2004.
- The Minister for Infrastructure, Planning and Natural Resources has postponed the second phase of BASIX to 1 February 2005 when all new residential dwellings in Sydney including new houses, dual occupancy developments and apartment buildings will need BASIX compliance.
- 1 July 2005 All new residential dwellings anywhere in NSW.
- 1 October 2005 all alterations and additions requiring a development application anywhere in NSW.

Other developments (eg alterations and additions to dwellings/villas, commercial, retail, industrial development) are still assessed under DCP No. 45 and standard conditions have been developed to assist applicants in achieving sustainability requirements.



Cities for Climate Protection Program

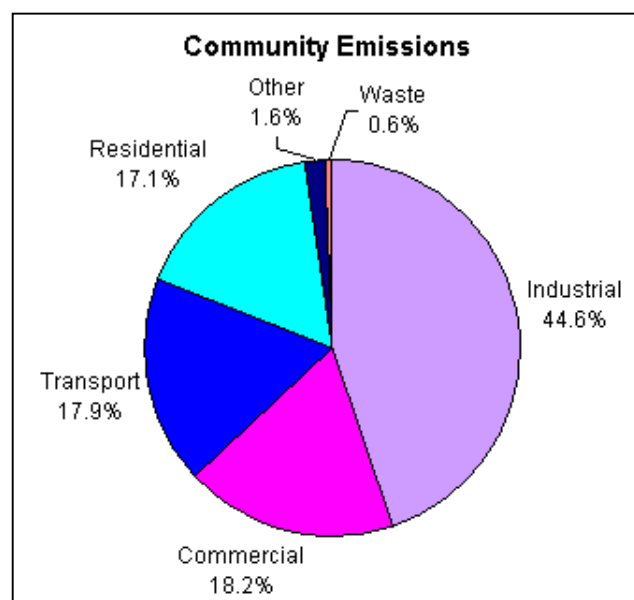
The Kyoto target of 108% of 1990 levels by 2010 is significant and requires the combined effort of all Australians. The Australian Greenhouse Office (AGO) works with local government, industry and the community to reduce Australia's greenhouse gas emissions.

Cities for Climate Protection™ (CCP™) Australia is a program that assists local governments and their communities reduce greenhouse gas emissions. The program is funded through a commitment of \$13 million over 5 years. CCP™

Australia is an international trademarked program of the International Council for Local Environmental Initiatives (ICLEI) delivered in collaboration with the Australian Greenhouse Office (AGO).

The City of Ryde will be applying to participate in this program next year.

The following pie chart illustrates typical community emissions profile.



Source: Cities for Climate Protection™ Australia Program Report 2000-2001.

Building Performance Audit and Improvement Works to the Ryde Civic Centre

The City of Ryde is proposing to conduct a Building Performance Audit and Improvement Works for the whole of the Ryde Civic Centre Complex, which comprises the Civic Centre, Civic Hall/existing library and the proposed new Ryde Central Library.

This audit is proposed for next year and will make recommendations for improving environmental sustainability, refurbishment and upgrading of building services and elements.

This audit will also make recommendations for the installation of an integrated Building Management System capable of monitoring the performance of essential building services and environmental sustainability for the whole Civic Centre. Its findings may also be used to establish an appropriate suite of measures that can be used in other City buildings

Future Actions

- Apply to participate in the Cities for Climate Protection Program and develop and implement a Greenhouse Gas Reduction Program.
- Review Energy Smart Water Wise DCP No 45 and the new BASIX requirements and monitor its uptake through the Development Consent process.
- Apply provisions of Energy Smart Water Wise DCP No 45 to any of the City's capital works program.
- Develop and implement actions that reduce Greenhouse Gas Emissions from the City's transport activities.
- Develop and implement initiatives that reduce greenhouse gas emissions from Council owned and operated buildings.

5.3 Transport

Like most of Sydney, the most dominant form of transport in the City of Ryde is the motor vehicle. This is partly in response to a steady increase in traffic flows through Ryde due to the growth in Western and North Western Sydney, the Central Coast and from urban consolidation.

These increased traffic flows have led to heavy traffic congestion on the State's road network, which has in turn led to increased pressure on the local road network as motorists seek alternative routes.

The heavy reliance on motor cars for transport in, from, to and through the City of Ryde has a significant social and environmental impact on the quality of life of the local community, in terms of amenity and health risks due to declining air quality and increased congestion.

Goals

1. To encourage reduced reliance on use of the car.
2. To promote alternative modes of transport such as public transport to minimise air pollution.

State

All forms of public transport are available in the City of Ryde, however a greater use of these facilities must be encouraged. Buses service most suburbs and the northern railway line services parts of Eastwood, Denistone, West Ryde and Meadowbank. Sydney Ferries service wharves at Meadowbank and Putney.

However, public transport to North Western Sydney is still not easily available and therefore reliance on the private motor vehicle would still be significant for people commuting to and from Ryde to areas of North Western Sydney.

In both developed and rapidly industrialising countries, the major historic air pollution problem has typically been high levels of smoke and sulphur dioxide arising from the combustion of sulphur containing fossil fuels such as coal for domestic and industrial purpose. The major threat to clean air is now posed by traffic emissions.

Petrol and diesel-engine motor vehicles emit a wide variety of pollutants, principally carbon monoxide (CO), oxides of nitrogen (NO_x), volatile organic compounds (VOCs) and particulates (PM₁₀), which have an increasing impact on urban air quality.

In addition, photochemical reactions resulting from the action of sunlight on nitrogen dioxide (NO₂) and VOCs from vehicles leads to the formation of ozone, a secondary long-range pollutant, which impacts in rural areas often far from the original emission site. Acid rain is another long-range pollutant influenced by vehicle NO_x emissions.

In all except worst-case situations, industrial and domestic pollutant sources, together with their impact on air quality, tend to be steady state or improving over time. However, traffic pollution problems are worsening worldwide.

The June 2004 update on the Household Travel Survey (2002) produced by the Transport and Population Data Centre, which is part of the Department of Infrastructure, Planning and Natural Resources, shows that 84% of Sydney residents make at least one trip each day.

The private vehicle remains the most common method of travel, on both weekdays (70%) and weekends (77%). 15.5 million trips are made each weekday resulting in a total of 146.7 million kilometres of travel. On weekends, an average of 13.4 million trips are made each day, with 73% of these trips for social/recreational activities and shopping.

Despite the growth in total kilometres travelled, the time and distance travelled by the average person has remained fairly constant since 1999 – at 35 km and 79 minutes per day.

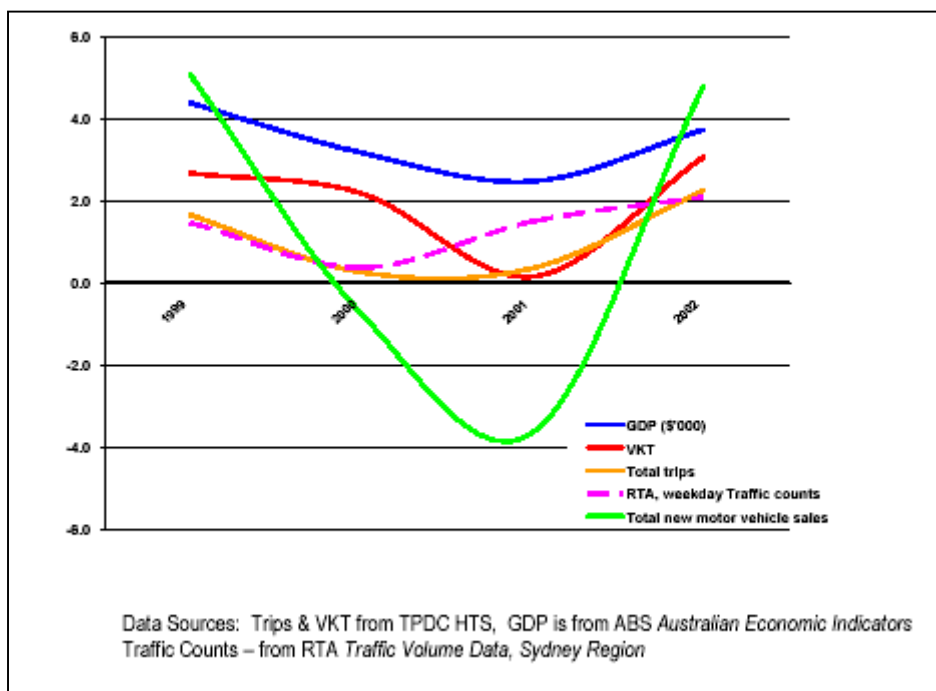


Table 2: Key Transport Indicators for Sydney SD, 1999-2002

Indicator	1999 ¹	2000 ¹	2001 ¹	2002 ¹	Average Annual % change ²			
					1999-2000	2000-2001	2001-2002	
'000								
GENERAL	Population ³	3,957	4,007	4,066	4,108	1.3%	1.5%	1.0%
	Trip makers (%)	83.6%	83.0%	83.0%	83.9%	0.6%	1.5%	2.1%
	No. of households	1,451	1,473	1,499	1,514	1.5%	1.8%	1.0%
	Non-car households (%)	15.1%	15.2%	15.0%	14.3%	2.1%	0.3%	-3.7%
	Vehicles per household	1.40	1.41	1.41	1.45	1.0%	0.0%	2.9%
'000								
TOTAL TRAVEL	Trips av. weekday	15,112	15,152	15,206	15,550	0.3%	0.4%	2.3%
	Trips av. weekend day	12,991	12,878	13,012	13,410	-0.9%	1.0%	3.1%
	Trips per capita - weekday	3.82	3.78	3.74	3.78	-1.0%	-1.1%	1.2%
	Trips per capita - weekend	3.28	3.21	3.20	3.26	-2.1%	-0.4%	2.0%
	Per household - weekday	10.41	10.28	10.14	10.27	-1.2%	-1.4%	1.2%
	Per household - weekend	8.95	8.74	8.68	8.85	-2.3%	-0.7%	2.0%

Vehicle Type	Fuel Type							Total	Change from 2002/03
	Diesel	LPG	Petrol	Petrol and LPG	CNG	Unknown	Others		
Passenger Vehicles	47	607	56275	179	0	576	8	57692	3921
Off-road Passenger Vehicles	381	2	5376	24	0	0	1	5784	961
Small Buses	51	0	274	1	0	4	0	330	-1
Buses	51	1	2	0	88	0	0	142	-2
Mobile Homes	16	1	29	0	0	2	0	48	3
Motorcycles	2	0	1067	0	0	5	0	1074	128
Light Trucks	1186	189	5376	84	0	65	1	6901	915
Heavy Trucks	402	1	10	0	0	6	0	419	12
Prime Movers	33	0	0	0	0	0	0	33	1
Plant	120	7	7	6	0	3	4	147	-11
Trailers	0	0	0	0	0	0	4671	4671	326
Other Vehicles	0	0	4	0	0	0	0	4	-2
Total	2289	808	68420	294	88	661	4685	77245	6249

City of Ryde - Vehicle Registrations 2003/04

Notable changes from 2002/03 figures are:

- An increase of 19% in off-road passenger vehicles,
- An increase of 7% in passenger vehicles,
- An increase of 15% in light trucks,
- An increase of 13% in motorcycles
- There were 4 steam and 3 hydrogen powered passenger vehicles and 88 buses powered from compressed natural gas registered this year

- There were 2 passenger vehicles powered by the combination of electricity and petrol also registered this year
- The RTA no longer provides estimates of vehicles using leaded and unleaded petrol. Data being kept by the RTA on leaded and unleaded use is an artifice of vehicle age.
- In the past data has been based on the false assumption that owners of vehicles built before 1986 would continue to use leaded petrol. This assumption is of course false because there are now many substitutes available.



Lead Replacement Petrol

Federal Government's policy aimed at reducing lead emissions from car exhausts has achieved a strong shift away from leaded petrol over the decade 1992–2002. By 1998 for passenger vehicles, unleaded petrol accounted for almost three quarters (73%) of petrol sold in Australia, and rose to 90% by October 2002.

There was also a shift towards the use of Liquid Petroleum Gas (LPG)/ Compressed Natural Gas (CNG) dual fuel between 1992 and 2002. The amount of such fuel used increased from about 1.3 million litres in 1998 to almost 1.9 million litres in 2002, and gas's share of total fuel consumed by passenger vehicles increased from 9% to 11%.

The Commonwealth Government phased out the sale of automotive leaded petrol in Australia on 1 January 2002. Lead Replacement Petrol (LRP) was developed as a substitute to leaded petrol, which was necessary for most cars produced before 1986.

Road Safety and Pedestrian/Bicycle Amenity

A continued decline in motor vehicle accidents/casualties has occurred on Ryde roads over the past five years however, the recent downward trend in accident number and casualties is leveling off. Total Accidents up to June 2003 are shown in the following table. Figures for 2003/04, which have not yet been released by the RTA will be reported next year.

Year	1998	1999	2000	2001	2002	2003 (Jan to June only)
Total Accidents	895	879	893	879	885	447

Motor Vehicle Accidents/Casualties

The provision of 22.3 km of bicycle paths and 419 km of footpaths encourage cycling and walking in the City. A complete cycle link exists along the foreshores of the Parramatta River as part of the Parramatta-City cycleway. A major cycleway from Lane Cove National Park will eventually connect with the Parramatta River cycleway.

It is important that residents consider the roads to be safe if they are to feel comfortable cycling and walking. In 2003 the number of pedestrian casualties in Ryde dropped significantly from figures recorded over the previous 4 years.

There was also a substantial drop in the number of pedal cyclist casualties in Ryde, down from 22 in 2002 to 12 in 2003.

Both these results are encouraging and the City will continue to monitor this statistic.

Year	Ryde LGA	Sydney
1998	43	2 488
1999	41	2 440
2000	46	2 422
2001	43	2 281
2002	42	2 048
2003	24	No data
Total Accidents	239	11 679*

Pedestrian Casualties

Source: RTA Road Traffic Accident Data

*Does not include 2003 Data which was not available for this report

Year	Ryde LGA	Sydney
1998	17	713
1999	7	743
2000	17	757
2001	11	743
2002	22	857
2003	12	No data
Total Accidents	86	3 813*

Pedal Cyclist Casualties

Source: RTA Road Traffic Accident Data

*Does not include 2003 Data which was not available for this report

Rail passenger journeys

Year	1999 - 2000	2000 - 2001	2001-2002	2002-2003	2003-2004	Change from 2002
Eastwood	1 750 591	1 771 807	1 747 347	1 724 319	1 721 684	-2635
West Ryde	1 250 220	1 218 000	1 127 147	1 072 346	1 096 347	24 001
Meadowbank	695 606	704 010	683 305	666 447	674 116	7669
	3 696 417	3 693 817	3 557 799	3 463 112	3 492 144	29 032

Local Rail Passenger Journeys in Ryde LGA over 5 years

After 4 consecutive years from 1998 to 2002 of declining total passenger numbers using the local railway system, the last 12 months saw an overall increase across the 3 local railway stations of 29,032 passenger journeys by train.

Pressures

- Increasing numbers of cars on the road.
- Majority of Commonwealth and State funding into transport funds is for roads with very little funding allocated to public transport.

Responses

- Public Transport

The “*Better Buses*” proposals continue to be implemented by Sydney Buses to improve the services. Improvements in Ryde included:

- There are more express buses operating between Macquarie Centre, Eastwood and Top Ryde via Victoria Road.
- More transit lanes on Victoria Road in Gladesville and Drummoyne, however this has also caused some traffic congestion problems.
- The RTA are introducing more bus lanes on Victoria Road similar to other areas in Sydney metropolitan area.
- Need regular police enforcement to encourage more people to catch buses.
- At present construction of cross-city tunnel is well in progress, and this presents an opportunity to plan for better public transport on Victoria Road.
- The City’s urban village programs are designed to be pedestrian friendly places, which would encourage people to live in the centres and make it easier and safer to use public transport.

The following public transport projects are currently proposed or have been completed:

- Upgrading the bus interchange at Macquarie Park Shopping Centre, North Ryde to provide Bus only area, separate taxi parking and turning lane on Herring Road and Pedestrian signals on Herring Road.
- Installation of a continuous transit lane by the RTA along Victoria Road, between Bowden Street, Ryde and Cressy Road, Gladesville.
- Construction of traffic signals proposed at the intersection of Anthony Road and West Parade at West Ryde and at the entrance to Macquarie Park Shopping Centre to improve pedestrian safety in Herring Road at Macquarie Park.
- The new traffic signals at the intersection of Marsden Rd and Lawson Street have improved traffic flow and pedestrian safety.
- Relocation of existing traffic signals on Victoria Road at Frank Street, Gladesville.
- A raised wombat crossing on Parry Street outside Putney Primary School, Putney.
- The first phase of Epping to Chatswood Railway between Epping to Chatswood has commenced and it will be operational in 2008. All three stations will be underground and located in the Macquarie Park area.
- Upgrading of the West Ryde Railway Station.

The above projects have assisted in stimulating the shift from private car usage to public transport, a trend shown by the strong increase in rail journeys from local railway stations, particularly at West Ryde Railway Station.



Private Transport

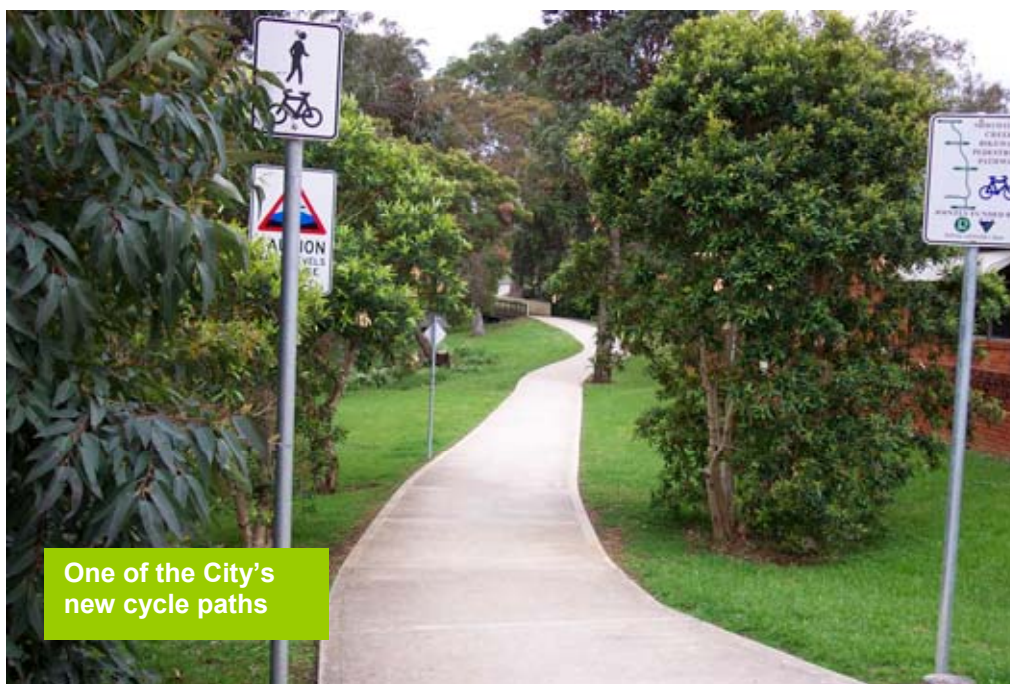
- The efficiency of the operation of the arterial road network within the City is still a concern, especially Epping Road, Victoria Road and Lane Cove Road
- The construction of the Lane Cove Tunnel and Orbital is in progress and is due to be completed in 2005/06.
- The installation of traffic calming measures along selected local roads continues in order to reduce the impact of through traffic spill onto the local traffic network. During this year, two more roundabouts, one on Ashburn Place and Meriton Street, Gladesville and the other on Kenneth Street and Charles Street, Ryde were constructed to reduce speeding and improve efficiency of those intersections. These supplemented the roundabouts built last year on Pittwater Road and High Street and on Morrison Road and Western Crescent. The new roundabout at Gladesville was recommended from Putney-Tennyson traffic study.
- The City has supported policies to improve the attractiveness of public transport, walking and cycling, hence encouraging residents and visitors to rely on modes of transport alternative to private vehicles.
- A shared cycleway and footpath is planned on the south side of Epping Road between Wicks Road and Lane Cove River as part of the Lane Cove Tunnel.



- It did appear last year that the M2 Tollway had reduced traffic in some routes such as Rutledge Street, Lovell Road and Quarry Road. However it seems from this year's data that traffic is slowly increasing again probably due to the continuing expansion of Sydney and the Central Coast areas.
- Congestion on some arterial roads like Lane Cove Road continues to extend beyond peak periods.
- Epping Road has shown gradual increase in traffic within last two years. Recent traffic counts indicates that regional roads like Balaclava Road and Pittwater Road carries about 16,000 Annual Average Daily Traffic (AADT).

Cycling

- The City continued to implement the City of Ryde Bikeways Plan. The Denistone Park cycleway between Denistone Road and Terry Road was completed during the year. Last year saw the Talavera Road (Herring Road to Khartoum Road) and Shrimptons Creek bikeway near Waterloo Road also completed. A revised map of cycleways in the City of Ryde is being prepared and is scheduled for completion in September 2004.



- To encourage cycling the City of Ryde has incorporated requirements for showers and bicycle lockers in development control plans. DCP No. 38 Meadowbank Employment Area and draft DCP No. 40 Top Ryde Urban Village require new commercial and industrial developments to provide showers and bicycle lockers to encourage cycling and walking. The DCPs also aims to enhance cyclist and pedestrian accessibility and connectivity with the streets. DCP No. 29 A (adopted 17 Jan 2003) Car Parking will require bicycle lockers and shower facilities for all larger developments.

Macquarie Park/North Ryde Transport and Traffic Project

In 2003, this link was changed so that it is now only proposed to connect Chatswood and Epping Stations. As a result of this new rail link and the economic importance of the Corridor, the City of Ryde joined forces with the State Government to undertake work to achieve local and regional planning outcomes for the Corridor.

The objectives were to:

- Develop a strategic vision for the area.
- Identify development scenarios consistent with the vision.
- Determine the preferred development option and prepare a Structure Plan.
- Develop transport solutions for the area.
- Develop a detailed Master Plan.
- Implement and manage project outcomes.

As part of the future development of the Corridor, a Transport Management and Accessibility Plan has been developed. This Plan developed a package of measures to be implemented aimed at:

- Upgrading pedestrian and cycleway facilities.
- Managing the demand for car travel.
- Making interchanging between the various modes of transport as convenient as possible.
- Supporting the new rail link.
- Preserving the longterm road accessibility of the area.

The City of Ryde has continued its policy of improving safety and traffic flow at the most critical locations in the City. Traffic calming measures and blackspot programs have improved safety and amenity of the City's road system.

Accident statistics will be monitored continuously and the priority list for improvements updated when more recent information becomes available. The RTA has supplied accident data for year 2003 to the June 2003 quarter.

50 km/hr Urban Speed Limit and Slow Down in Ryde Project

The 50km/h general urban speed limit remains in force including all collector roads, but excluding the industrial precinct in Macquarie Park.

The NSW Police Service is working in conjunction with the City in the 40km/h School Zone and 50km/hr speed education/enforcement exercise. NSW Police have also supported the program through enforcement, and due to the positive effect the program will run continuously in the future adding to the program 40km/h City road work zones.

From 1 November 2002 all residential streets in the City of Ryde were restricted to a speed of 50 km/h unless sign posted. This was the recommendation from Stay Safe Committee to the Minister for Roads. The significant reduction in pedestrian and pedal cyclists accident statistic can be partly attributed to this initiative

Road Safety

Local Government has a major role in increasing community understanding of road safety and initiating road safety improvements at the local level.

The Local Government Road Safety Program includes the RTA, the Local Government and Shires Association (LGSA), the Institute of Public Works Engineering Australia (IMEA) and City Road Safety Officers.

Road Safety Officer within the City provide a means of identifying local road safety problems and population groups who are particularly at risk or who cannot be reached readily by mass media.

Safety Before Convenience - Illegal Parking Campaign

The Safety Before Convenience campaign was initiated following many complaints to the City of Ryde Traffic Committee. The community was concerned that illegal parking and poor parent behaviour around schools was endangering the lives of our school children.

The campaign visited all 22 primary schools within the Ryde LGA during 2003/04, and directly targeted parents of over 7,800 primary school aged children.

The three elements to the campaign were education, engineering and enforcement. The local media assisted in delivering the campaign message, including news stories and mayoral articles, and several Ryde City News articles. Increased patrols by City Rangers and the NSW Police at the schools reinforced the campaign message through warnings and infringements.

An evaluation of the campaign resulted in positive feedback and a recommendation for it to be a continuously running campaign.

Future Actions

- Implement a Local Air Quality Management Plan for the City of Ryde targeting transport.
- Actively take part in the introduction of light rail into the Macquarie Park Corridor linking North Ryde to Epping, Chatswood and the Sydney CBD.
- Support local schools in adopting 'Airwatch' Schools Program and other related air quality programs
- Develop an industry compliance and education audit program targeting automotive businesses at Meadowbank and West Ryde.
- Continue to develop the City Cycleways Network
- Lobby the State Government:
 - to use in-tunnel air filtration systems for all existing and proposed road tunnels
 - to restrict further expansion of the Sydney Metropolitan Area and cutback urban consolidation
 - for a major expansion of the capacity of the State Road network through Ryde by removing bottlenecks, improving and widening major roads
 - to support the concept of 'park and ride' and to improve public transport from Sydney's outer suburbs to reduce regional traffic through Ryde
 - for an integrated plan that provides integrated transport links for easier public access to major public transport services.

Management Plan 2003/04 Progress Summary - Air

Objective	Strategy	Measures/Targets	Progress
<ul style="list-style-type: none"> Reduce greenhouse gas emissions in the City of Ryde. 	<ul style="list-style-type: none"> To promote knowledge and awareness of the impact of Greenhouse Gas Emissions. 	<ul style="list-style-type: none"> Develop a Greenhouse Gas Reduction Program by 30 June 2004. 	<ul style="list-style-type: none"> Council to purchase 10% of energy as Green Energy and Energy Smart & Water Wise DCP No. 45 implemented.
<ul style="list-style-type: none"> Improve air quality in the City of Ryde. 	<ul style="list-style-type: none"> To raise community awareness of air quality issues. 	<ul style="list-style-type: none"> Develop an Air Quality Management Plan by 31 May 2004. Conduct an industry audit program in Gladesville by 31 May 2004. 	<ul style="list-style-type: none"> Draft Air Quality Management Plan placed on exhibition Audit completed
<ul style="list-style-type: none"> To reduce transport impacts on the City of Ryde 	<ul style="list-style-type: none"> Encourage reduced reliance on use of the car. Promote alternative modes of transport to minimise air pollution and reduce use of fossil fuels. 	<ul style="list-style-type: none"> Update Ryde Bikeways Plan by 31 May 2004. Develop and produce a current bikeway network map for the City of Ryde to be available on the Web Site by 30 September 2003. Develop a draft integrated transport plan in conjunction with State Government agencies by 30 June 2004. 	<ul style="list-style-type: none"> Review has commenced. Map nearing completion (should be completed by September 2004) Adopted Master Plan for Macquarie Park corridor has integration of landuse and transport as a primary focus.

This page has intentionally been left blank

Chapter 6 – Soil and Landscape



This page has intentionally been left blank

6.1 Soil Erosion

Most land degradation associated with urban development in coastal NSW results from erosion by water and consequent sediment pollution to downslope lands and waterways.

Other pollutants are often associated with the sediment, including nutrients, pesticides, weed seeds and other contaminants.

In particular, rates of water erosion are likely to be high wherever the vegetative cover has been disturbed and/or water has been artificially concentrated.

The problem remains a serious threat to the environment and is one for which local action can be taken at the source to control this loss.

Goals

1. To minimise land degradation and sedimentation of waterways in the City of Ryde local government area.
2. To ensure that building sites in the City of Ryde local government area have adequate erosion and sediment controls.

State

Sediment from building sites may be washed into stormwater drains and pollute waterways.

In suspension, sediment reduces light penetration resulting in reduced photosynthesis and productivity of aquatic ecosystems. Suspended sediments can also interfere with the feeding mechanisms of filter feeding organisms.

When the sediment settles out, it can smother bottom dwelling organisms or change the nature of the substrate making it unsuitable for certain organisms.

Failure to install and maintain appropriate sediment controls may result in on-the-spot fines. Clean-up notices may also be issued under the *Protection of the Environment Operations Act 1997*.

In the current reporting period the City of Ryde received 25 complaints concerning inadequate erosion and sediment controls on building sites.



Pressures

- The area of land requiring remediation is likely to increase as more industrial land is rezoned for residential use.
- Lack of resources to police poor sediment control practices on building sites.
- Intensive and sustained rainfall events often breach sediment control measures.

Responses

- When granting development consent for building work the City imposes conditions requiring the installation and maintenance of appropriate erosion and sediment controls.
- The City's building surveyors assess the adequacy of sediment controls when carrying out building inspections and investigate complaints concerning inadequate sediment controls.



Future Actions

- Undertake random surveys of building sites under construction during winter months to ascertain compliance and non-compliance levels.
- Increase surveillance of required sediment and erosion control measures on building sites.

6.2 Acid Sulfate Soils

Acid sulfate soil (ASS) is regarded as a key environmental threat in NSW. ASS is the common name given to soil and sediment containing iron sulfides (principally the mineral iron pyrite or the products of the oxidation of sulfides).

ASS exist in thousands of square metres of coastal land in Australia and cause a problem when sediments are exposed to air and become acidic. The impact on soil and water quality in these regions has caused increasing concern to developers, scientists and farmers over the years.

Goal

To identify and manage ASS in the City of Ryde local government area.

State

Significant areas of land adjoining the Parramatta and Lane Cove Rivers have been identified as being affected by ASS.

The areas affected within the City of Ryde are broadly shown on the following map. The community can view larger maps held at the City of Ryde's Customer Service Centre to determine more clearly the extent of affectation.

Excavation or drainage of acid sulfate soils may result in acid runoff to waterways. Environmental impacts associated with acid runoff include fish kills, destruction of fish habitat and loss of biodiversity. Acid corrosion may also damage buildings and infrastructure.

Pressures

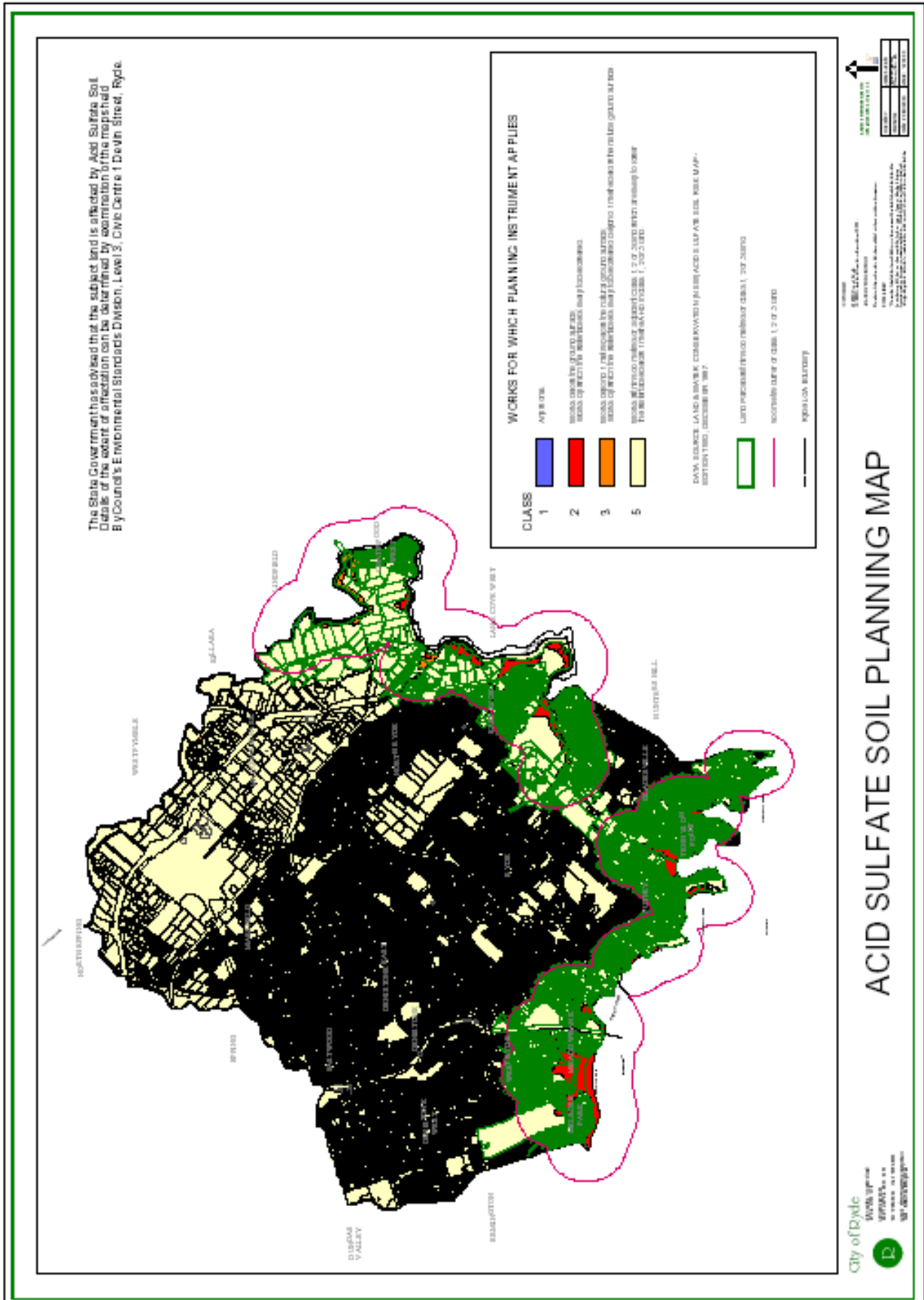
- Development of land affected by ASS may result in the disturbance of soils.
- ASS are expensive to treat and dispose of.

Responses

- Council considers potential impacts associated with ASS when assessing development applications for building work on affected land.
- The City includes information about ASS on Section 149 Planning Certificates.

Future Actions

- Develop an ASS Management Policy
- ASS provisions are incorporated in the City wide consolidating local environmental plan.



6.3 Land Contamination

Human activity and natural occurrence have resulted in sporadic pollution and contamination of land in many areas of Australia.

Contamination may have arisen from activities that took place on or adjacent to the land, including the improper handling and disposal of chemicals, oils or hazardous substances, or the accidental spillage or leakage of these substances during manufacture or storage.

Land uses that may result in contamination include the manufacture or storage of chemicals, service stations, automotive workshops, nurseries and market gardening and burial of industrial/commercial waste.

The identification of such contaminated land requires vigilance on the part of owners, developers, potential purchasers and regulators to identify potential risks to human health and the environment. A considered appraisal of identified risks is required for each individual circumstance.

Goal

To identify and manage development on lands that are contaminated or are potentially contaminated.

State

Land may be contaminated with chemicals as a result of past industrial, commercial or agricultural uses. Land may also be contaminated as a result of spills or improper disposal of wastes, including the importation of contaminated fill material.

Under the *Contaminated Land Management Act 1997* the Department of Environment and Conservation (DEC) regulates contaminated sites that pose a significant risk of harm to human health or the environment.

Local councils through the land-use planning process manage contaminated sites that are not regulated by the DEC.

Councils and the DEC may also require remediation of land through the issue of clean-up and prevention notices under the *Protection of the Environment Operations Act 1997*.

In the current reporting period there were no sites regulated by the DEC in the City of Ryde.

Also in the current reporting period, the City received 2 Notices of Category 2 Remediation Work under *State Environmental Planning Policy No. 55 – Remediation of Land* and 5 Site Audit Statements under the *Contaminated Land Management Act 1997*.

Contaminated Sites	
Sites regulated under <i>Contaminated Land Management Act 1997</i>	0
Number of notifications for Category 2 Remediation Work	2
Number of Site Audit Statements received	5
Sites declared as unhealthy building land (gazetted as low lying)	1

Pressures

- The area of land requiring remediation is likely to increase as more industrial land is rezoned for residential use to meet demands.
- Incomplete records and data gaps.
- Illegal activities and land use that may have contaminated land without knowledge of regulatory authorities.

Responses

- Council considers land contamination when assessing rezoning and development applications, and imposes conditions requiring remediation of land where appropriate.
- The City also includes information about land contamination on Section 149 Planning Certificates.
- In the current reporting period the City issued a series of 3 clean-up notices under the *Protection of the Environment Operations Act 1997* requiring the remediation of land.
- Work has also commenced on a Contaminated Land Management Policy.

Soil remediation of petrol stations usually required



Future Actions

- Complete Contaminated Land Policy

Management Plan 2003/04 Progress Summary – Soil and Landscape

Objective	Strategy	Measures/Targets	Progress/Results
<ul style="list-style-type: none"> • To reduce land degradation. 	<ul style="list-style-type: none"> • Minimise land degradation and sedimentation of waterways. 	<ul style="list-style-type: none"> • Prepare draft policy for managing land contamination by 31 March 2004. 	<ul style="list-style-type: none"> • Draft being prepared.
<ul style="list-style-type: none"> • To improve water quality 	<ul style="list-style-type: none"> • Control pollution 	<ul style="list-style-type: none"> • Appropriate resources be allocated for sediment control and its enforcement. 	<ul style="list-style-type: none"> • Completed.

This page has intentionally been left blank

Conclusion

This report was prepared to provide the community of Ryde with comprehensive information about the state of the local environment for the period 01/07/03 to 30/06/04 and drawing on findings from the previous 3 years of supplementary reporting.

The local environment has remained relatively stable from last year's report and any environmental changes continue to be effectively managed by specific City programs.

Population growth, the wasteful behaviour by sections of the community, an ageing infrastructure and planning changes are putting increased pressures on the local environment that will require constant monitoring.

The City of Ryde will continue applying the principles of ecologically sustainable development in all local area decisions to ensure that balance between the built and natural environments is maintained.

With the implementation of new strategies, programs and regular enforcement and community awareness programs, the City of Ryde can make progress in its aim of ensuring the environment we live in today will also be liveable in the future.

This page has intentionally been left blank

References

Australian Biological Resources Study (ABRS)

[\(http://www.deh.gov.au/biodiversity/abrs/\)](http://www.deh.gov.au/biodiversity/abrs/)

Chessman B.C., Grows J.E. and Kotlash A.R. (1997) Objective derivation of macroinvertebrate family sensitivity grade numbers for the SIGNAL biotic index: allocation to the Hunter River system, NSW. Mar. Freshwater Res **48**, 159-172.

Dangerfield M., Angus C., and Pik A. (2002) Biological Water quality Monitoring of Shrimptons and Archers Creeks, Ryde, Project No 1026, Biotrack, Macquarie University.

Dangerfield M., Brown D. (2004) Post Restoration Macroinvertebrate Sampling Report of Archers Creek, Ryde dated June 2004, Biotrack, Macquarie University.

Department of Infrastructure, Planning and Natural Resources. (2003) Transport Data Centre Newsletter August 2003.

Department of Infrastructure, Planning and Natural Resources. (2003) Trips and VKT from the Transport Data Information Centre reporting on HTS 2002 and Traffic Counts from RTA Traffic Volume Data, Sydney Region.

Department of Environment and Conservation. (2004) www.epa.nsw.gov.au website sourced July - November 2004.

Klarenaar W. (2003) - A Bird List of Brush Farm Park.

Levi. (1947) Wallumetta: A History of Ryde and its districts 1792-1945 Ryde Municipal Council as co-author 1947.

Martin. (1998) A Pictorial History of Ryde 1998 Megan Martin Kingsclear Books.

Pell A.S. and Tidemann, C.R. (1997) The ecology of the common myna (*Acridotheres tristis*) in urban nature reserves in the Australian Capital Territory. EMU **97**: 141-149.

Peterson R.C. Jr. (1992) The RCE: a riparian, channel and environmental inventory for small streams in the agricultural landscape. Freshwater Biology **27**, 295-306.

Pulkownik A. and Burchett M. (2004). Post-Remediation Assessment of the Wetland Field of Mars.

Tuft R. (2002) Macroinvertebrate Sampling Program Lane Cove River Catchment – Report for Lane Cover River Catchment Councils, Project No. RT 178, Robyn Tuft and Associates.

Tuft. R. (2003) Macroinvertebrate Sampling Program Lane Cove River Catchments – Autumn 2003 and Spring 2003 Reports for Lane Cover River Catchment Councils, Project No. RT 178 20/5/03 and 20/11/03, Robyn Tuft and Associates.

This page has intentionally been left blank

Acknowledgements

The following individuals and organisations made contributions to this report and their assistance and advice is greatly appreciated.

Text	Sam Cappelli (Coordinator), Gith Strid, Jude Colechin, Narelle Hanger, Greg Lewin, Henryk Matulewicz, Russell Nash, David Robinson, Mark Purdy, Meryl Bishop, Anthony Powe, Karl Cotter, Stewart Seale, Greg Hunt, Craig Redfern, Carol Ashworth, Margaret Drake, Scott Allen, Warren Latham, Ramesh Desai and Adam Smith
Editing, Design and Layout	Katrina Furjanic
Maps	Elliott Simmons
Photos	Gith Strid, Adam Smith, David Robinson, Carol Ashworth, Scott Allen, Jude Colechin, Mina Salib, Renee Van Koeverden and Marcin Zwolanski

The information contained in this report is from a number of sources but primarily from data held within the City of Ryde's files, rainfall data from North Ryde Golf Club and other data available from the EPA's web site relevant to the City of Ryde local government area.

Sam Cappelli
Manager, The Environment
City of Ryde

This work may be reproduced in whole or part for study or training purposes subject to the inclusion of an acknowledgement of the source and no commercial usage or sale.