

# Manly Local Air Quality and Greenhouse **ACTION PLAN**



prepared by  
**Manly Council 2001**  
Amendment 1—August 2002





# Contents

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1.	FOREWORD.....	1
2.	OVERVIEW .....	2
2.1	MANLY CONSERVATION STRATEGY .....	2
2.2	MANLY GREENHOUSE CHALLENGE PROGRAMME .....	2
2.2.1	Cities for Climate Protection .....	2
2.2.2	Energy Smart Business Programme.....	3
2.2.3	Education.....	3
2.2.4	Green Power.....	4
2.2.5	Alternative Fuels .....	4
2.2.6	Recognition of Success .....	4
2.2.7	Acronyms used in this Report .....	4
3.	BACKGROUND.....	5
3.1	INTRODUCTION: WHY MANLY NEEDS TO RESPOND TO THE CHALLENGE .....	5
3.1.1	International Agreement–the Kyoto Protocol to the United Nations Framework Convention on Climate Change. ....	5
3.1.2	Legislation .....	5
3.1.3	State Government Commitment to Air Quality and Greenhouse .....	6
3.1.4	Local Government Association Policy Statements.....	7
3.2	ENHANCED GREENHOUSE EFFECT AND AIR QUALITY .....	7
3.2.1	Enhanced Greenhouse Effect .....	7
3.2.2	Air Quality .....	8
3.2.3	The difference between Greenhouse and Air Quality Issues.....	10
3.2.4	Why address both air quality and greenhouse together in a joint action plan? ..	11
3.3	STEERING COMMITTEE .....	11
3.4	STATE OF MANLY’S ATMOSPHERE.....	12
3.4.1	Greenhouse .....	12
3.4.2	Air Quality .....	12
3.5	THE CHALLENGE FOR MANLY.....	14
3.5.1	Reduction Goal–Greenhouse Gas Emissions .....	14
3.5.2	Goals .....	14
4.	SUMMARY OF ABATEMENT STRATEGIES.....	15
5.	IMPLEMENTING THE ACTION PLAN, MONITORING PERFORMANCE AND EVALUATION .....	16
6.	ABATEMENT STRATEGIES.....	17
7.	REFERENCES.....	32



The Manly Local Air Quality and Greenhouse Action Plan has been developed in response to goals identified in the Manly Conservation Strategy. It presents a range of actions which are to be implemented by Council and the community with the aim of reducing Manly's greenhouse gas emissions and improving local air quality.

By acting locally, Manly is addressing the international agreement of Agenda 21 set in 1992, and the Kyoto Protocol—the United Nations Framework Convention on Climate, which Australia ratified in 1992 and came into force in 1994.

#### **Amendments to Action Plan since adoption:**

1. Council resolved to sign the Toronto Declaration in November 2001, reaffirming Manly's commitment to greenhouse gas reductions.
2. At the Service Planning and Commissioning meeting of 12th August, 2002, Council resolved to make the following amendments to the Local Air Quality and Greenhouse Action Plan, as recommended by Cities for Climate Protection Australia in response to the Toronto Declaration:
  - a) That Council join the 50% Club, a group of leading Councils from around the world committed to a reduction target of at least 50% by 2010, while recognising that the responsibilities of the levels of Australian government make this target difficult to achieve in comparison to other councils world-wide.
  - b) That Council seek to work with the Federal Government's Greenhouse Challenge companies within the Manly LGA to implement community measures.
  - c) That Council work with the International Council of Local Environmental Initiatives as a 'Greenhouse Ambassador' to build partnerships between rural (regional) and metropolitan Councils and groups of Councils within regions, with the intent of aggregating expertise / resources / political support to achieve larger scale corporate and community reductions. However, the extent of Council's participation in such a programme must be restricted to reflect the limited staff resources that Council has available to the CCP programme.
  - d) That Council continue to work with the SHOROC Councils to raise community awareness of greenhouse issues, threats and opportunities with a view to inspiring cooperative action.

### 2.1 Manly Conservation Strategy

The Manly Conservation Strategy was adopted in April, 1998 to place Manly firmly on track towards sustainability and to address the Global Agreement of Agenda 21.

It is a dynamic Strategy that also addresses the latest amendments to the Local Government (Ecologically Sustainable Development (ESD)) Act 1997 (NSW), integrating ESD and total catchment management principles into every facet of council and community over the next ten years.

The Strategy demonstrates Council's long term commitment to environmental sustainability and improvement, ensuring Manly becomes a model of environmental excellence. It is about encouraging local action on global issues.

The Manly Conservation Strategy was designed with Manly's Vision Statement in mind:

**"A thriving community where residents and visitors enjoy a clean, safe and unique natural environment enhanced by heritage and lifestyle."**

### 2.2 Manly Greenhouse Challenge Programme

Council established the Manly Greenhouse Challenge Programme in February 1999 as a response to actions identified in the Manly Conservation Strategy.

The goals identified in the Manly Conservation Strategy directing the *Manly Greenhouse Challenge Programme* are:

- ▶ to promote the conservation and efficient use of energy in Manly
- ▶ to significantly improve the air quality of Manly
- ▶ to reduce the amount of greenhouse gases emitted from Manly and consider the possible impacts of climate change.

This programme commits Council and community to reducing greenhouse gas emissions and improving local air quality, by combining monitoring, forecasting, education delivered by:

- ▶ the Manly Environment Centre (school, community and council staff)
- ▶ new technologies
- ▶ alternative fuel use
- ▶ policy, design and implementation.

to reduce greenhouse gas emissions, decrease energy use and make significant costs savings in Council and the Community.

#### 2.2.1 Cities for Climate Protection

In December 1998, Council signed a commitment to participate in the international *Cities for Climate Protection Campaign* (CCP), to reduce the production of greenhouse gas emissions.

This committed Council to completing **five major milestones**, each a significant step to reducing greenhouse gas emissions:

1. Establish an inventory and forecast for key sources of greenhouse gas emissions in the Council and community.
2. Set an emissions reduction goal.
3. Develop and adopt a local greenhouse action plan to achieve those reductions.
4. Implement the local greenhouse action plan.
5. Monitor and report on greenhouse gas emissions and implementation of actions and measures.

### 2.2.2 Energy Smart Business Programme

In February 1999, Council signed a voluntary *Memorandum of Understanding* (MOU) with the NSW Government's Sustainable Energy Development Authority (SEDA) Energy Smart Business Programme to develop an energy efficiency action plan and upgrade 75% of Council operations, where profitable, over five years with energy efficient equipment.

SEDA has offered Council free technical assistance through the assigned Partner Support Managers to identify and help implement profitable energy efficient projects.

Council's Action Plan has identified the **six highest electricity consuming sites** as areas for action over the next five years:

- ▶ Council Chambers
- ▶ Manly Library
- ▶ Andrew "Boy" Charlton Manly Swim Centre
- ▶ Manly Council Depot
- ▶ Manly Art Gallery and Museum
- ▶ Whistler Street Carpark
- ▶ Wentworth Street Carpark.

### 2.2.3 Education

The Manly Environment Centre has conducted a comprehensive staff training programme for Council staff including displays, regular educational emails, a regular Energy Link newsletter, stickers, posters and staff competition.

The competition aimed to create staff awareness and encourage involvement in environmental initiatives by providing incentives for the most creative ideas and suggestions regarding energy and water efficiency and conservation, both at work and at home.

Council has sent six representatives to the Australian Municipal Energy Improvement Facility (AMEIF) Green Energy Learning Programme, developed by Newcastle City Council to transfer it's award winning knowledge and experience in greenhouse action. This will be an ongoing initiative.

Primary Schools on the Northern Beaches were involved in the Greenhouse Project, based on the *Watt's What?* energy guide produced by the Manly Environment Centre and supported by Energy Australia.

This guide educates about energy usage/efficiency and acts as a home energy audit kit for the students. Students from 21 primary schools on the Northern Beaches were asked to rate their house or unit depending on the score sheet in the *Watt's What Guide*.

They then drew a picture of their ideal energy efficient house or unit and submitted this as an entry. Great prizes were offered for the winners and their school.

A series of community workshops were held for targeted community groups in the Manly Lagoon catchment.

These workshops, also supported by Energy Australia, were part of an overall community awareness campaign in conjunction with other national, state and local initiatives to reduce greenhouse gases emissions.

The workshops focused on group work and active participation relating to issues such as the greenhouse effect, global warming and how to save money and energy at home and at work.

### 2.2.4 Green Power

Green power is energy that is generated from renewable, sustainable, environmentally friendly sources—for example solar, wind turbine, hydraulic and from landfills.

Council resolved to allocate \$6,000.00 in the 2000/2001 budget for Green Power. This is equivalent to 10% of energy use for Council's contestable sites—the Council offices, Manly Library, Manly Art Galley and Manly Swim Centre, being the greatest energy use facilities.

### 2.2.5 Alternative Fuels

Council has established a LPG (dual fuel) vehicle fleet policy to introduce these vehicles to its fleet. Council also has a programme for conversion to Compressed Natural Gas (CNG) of some units in the heavy fleet, underway.

### 2.2.6 Recognition of Success

Council was awarded the overall winner and division winner of the energy efficiency/greenhouse award for Local Government excellence in the environment awards 1998/99, presented by the Local Government and Shires Association of NSW.

Council was also awarded *highly commended* for the environmentally friendly and renewable energy practices category for the Metro Pride Awards, presented by Keep Australia Beautiful.

### 2.2.7 Acronyms used in this Report

**AGO** Australian Greenhouse Office

**AMEIF** Australian Municipal Energy Improvement Facility

**CCP** Cities for Climate Protection™

**EPA** Environment Protection Authority (NSW)

**ESD** Ecologically Sustainable Development

**LAQMP** Local Air Quality Management Plan

**LGA** Local Government Area

**MAQS** Metropolitan Air Quality Study

**MCS** Manly Conservation Strategy

**NSW** New South Wales

**POEO** Protection of the Environment Operations Act (NSW) (1997)

**ROCs** Reactive Organic Compounds

**SEDA** Sustainable Energy Development Authority (NSW)

**SoE** State of the Environment Report



## 3. BACKGROUND

### 3.1 Why Manly needs to respond to the challenge

#### 3.1.1 International Agreement—the Kyoto Protocol to the United Nations Framework Convention on Climate Change

Australia ratified the United Nations Framework Convention on Climate Change on December 1992. The convention entered into force on 21 March 1994.

The ultimate **objective** of the convention is to achieve stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic (or human induced) interference with the climate system.

Key commitments for all parties under the convention include:

- ▶ preparing national inventories of greenhouse gas emissions and removals
- ▶ developing, implementing and reporting on national programmes to mitigate climate change and develop adaption strategies
- ▶ cooperation in the development and transfer of technologies, practices and processes that control, reduce or prevent emissions of greenhouse gases

- ▶ promoting sustainable development and promoting and cooperating in the conservation and enhancement of SINKS and reservoirs of all greenhouse gases including biomass, forests and oceans
- ▶ taking climate change considerations into account in relevant social, economic and environmental policies and actions
- ▶ promoting and cooperating in research and exchange of information on the implications of climatic change and various strategies.  
(Source: *Australian Greenhouse Office 1998*).

Australia took an active part in negotiating the Kyoto Protocol to the Framework Convention on Climate Change and subsequently signed the protocol on 29 April, 1998. Australia's differentiated target was an 8% increase above 1990 levels.

The six greenhouse gases to be covered by the Kyoto Protocol are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride.

The National Greenhouse Strategy is the primary mechanism through which our international commitments will be met. The strategy extends the programme of actions lodged by Australian

governments through the 1992 National Greenhouse Response Strategy.

By committing to the *Cities for Climate Protection Campaign*, council has initiated its commitment to the principles identified in the National Greenhouse Strategy.

#### 3.1.2 Legislation

##### *Local Government Act 1993 - ESD Amendment (1997)*

The Local Government Act 1993 was amended by the Local Government Amendment (Ecologically Sustainable Development) Act 1997 to enhance the environmental management roles of Councils and incorporating the principles of ESD throughout all the key aspects of the Act to ensure that Councils consciously adopt a fully ecologically sustainable development focus when carrying out their functions.

The amendments have created linkages throughout the Local Government Act between a Council's environmental charter, its approval function, its management planning process, its annual reporting process and its state of environment (SOE) report in relation to the principles of ecologically sustainable development.

Councils are now expected to adopt a strategic *whole of council* approach towards the recognition of ecologically sustainable development and to respond positively to environmental problems in their areas.

### **Protection of the Environment Operations Act 1997**

Council is responsible for the regulation of all non-scheduled premises in the LGA. Scheduled premises are controlled by the NSW Environment Protection Authority.

Under the Protection of the Environment Operations Act (1997), Council can also regulate industrial, commercial and residential air pollution generation. Council's can also regulate air pollution under the orders provisions of the Local Government Act (NSW) (1993)—specifically:

- ▶ Section 124, Environmental damage
- ▶ Health and safety
- ▶ Section 125, Abatement of public nuisances.

### **Smoke Free Zone Environment Act (2000)**

Indoor environmental air pollution is increasing in importance as it also has direct links to human health. The Smoke Free Zone Environment Act (2000) prohibits smoking in enclosed public spaces. Council's authorised officers, Environmental Health Officers (EHO's), are likely to be authorised to educate and enforce commercial and industrial operators of their responsibilities.

### **3.1.3 State Government Commitment to Air Quality and Greenhouse**

The Sustainable Energy Development Authority (SEDA) is an agency created by the NSW Government to reduce the level of greenhouse gas emissions in New South Wales. SEDA accomplishes this by promoting investment in the commercialisation and use of sustainable energy technologies.

Having commenced operation in August, 1996, SEDA has already made a significant contribution to the growth of renewable energy industry.

The New South Wales Environment Protection Authority recognises that Local Governments play a key role in managing air quality at the local level with the powers and mechanisms that are already within its control, and can have a significant impact through education and awareness campaigns.

In recognition of this, the New South Wales Minister for Environment launched *Let's Clear the Air*, a major Local Government air quality management initiative, which worked with five Regional Organisations of Councils within Sydney to develop a manual to assist councils.

The EPA has supported New South Wales Councils by distributing resource materials to assist the preparation of local air quality management plans. While not a statutory requirement, the EPA strongly encourages Councils to develop a Local Air Quality Management Plan (LAQMP) to assist Local Governments to approach

air quality management in a comprehensive manner, with logical integrity, focus, measurable outputs and the ability to evaluate effectiveness.

### **3.1.4 Local Government Association Policy Statements**

The Local Government Association was established more than 100 years ago and primarily promotes the interests of urban councils. The Association has adopted the following policy statements with relation to greenhouse, energy conservation and air pollution.

#### **Greenhouse and Energy Conservation:**

- ▶ local government supports measures that minimise the generation of greenhouse gases, including measures relating to minimising transport impacts and discouraging burning of aquacultural, horticultural and silvicultural crop residues where viable alternatives can be identified.
- ▶ local government supports the use and further development of renewable and ecologically sustainable forms of energy and practices that conserve energy and/or increase energy efficiency
- ▶ local government supports the establishment energy conservation development control plans.

- Local government supports the imposition of a carbon tax on industry in accordance with the principles of economically sustainable development.

**Air Quality Management:**

- Local Government supports the preparation of air quality management plans.
- Local Government supports measures to minimise air pollution from domestic solid fuel burning appliances.
- Local Government supports the minimisation of all forms of pollution.

### 3.2 Enhanced Greenhouse Effect and Air Quality

#### 3.2.1 Enhanced Greenhouse Effect

The Greenhouse effect is a common term given to the phenomenon where certain gases, known as greenhouse gases, build up in the lower atmosphere and prevent heat from the sun's rays escaping into space—see figure 1.

The greenhouse gases are carbon dioxide, methane, nitrous oxide, chlorofluorocarbons, and hydrofluorocarbons, and sulphur hexafluoride. These greenhouse gases come from a multitude of sources. Humans expel carbon dioxide when we breathe, methane is produced by rotting vegetation and volcanoes emit vast quantities of

greenhouse gases during their eruptions. Since the industrial revolution, however, humans have been pumping out greenhouse gases at an ever-increasing rate. Burning fuels such as coal, oil and gas, land fill gases, deforestation, aquaculture and other activities all release greenhouse gases. Conserving electricity reduces greenhouse gas emissions from coal fired power stations.

Greenhouse gases absorb and re-emit infra-red radiation, trapping heat and warming the earth's atmosphere, similar to the glass in a greenhouse. Human activity on earth, largely land use changes and burning fossil fuels like coal and oil have been increasing the concentration of greenhouse gases in the atmosphere.

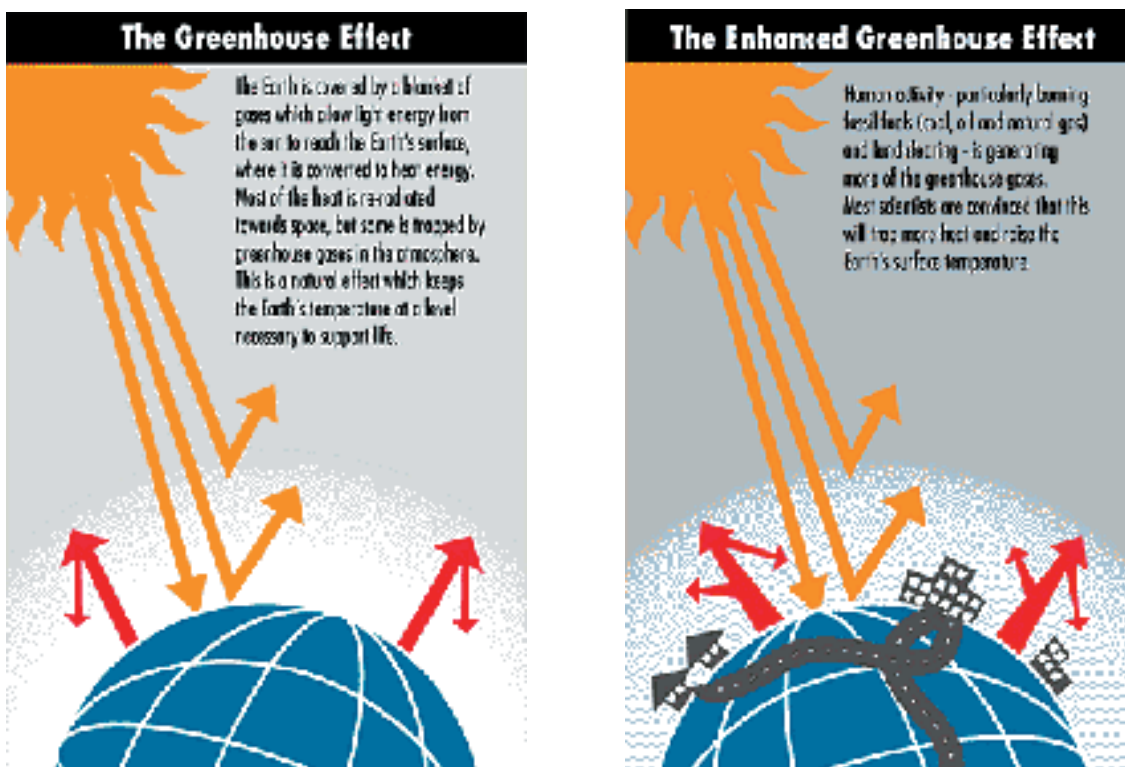


Figure 1—The enhanced greenhouse effect  
 Source: Australian Greenhouse Office website 2000  
[http://www.greenhouse.gov.au/pubs/factsheets/fs\\_effect.html](http://www.greenhouse.gov.au/pubs/factsheets/fs_effect.html)

Scientists fear that increasing concentrations of greenhouse gases may increase the average global temperature and lead to changes in the earth's climate and weather patterns. Already changes have been detected.

- ▶ 1998 was the warmest year since instrument records began in 1861
- ▶ the 1990s was the warmest decade since instrumental records began
- ▶ global sea levels rose 10-20cm during the 20th century, and mountain glaciers experienced widespread retreat
- ▶ arctic sea ice thickness has declined 40%.

Over the next 100 years scientists predict:

- ▶ global average surface temperature to increase by 1.4C to 5.8C

- ▶ global sea level to rise by between 0.1 and 0.9m
- ▶ greater extremes, and increased likelihood of drying and heavy rainfall droughts and floods.

The potential impacts of climate change and sea level rise on coastal areas include:

- ▶ erosion of shores and associated habitat
- ▶ increased salinity of estuaries and freshwater aquifers
- ▶ altered tidal ranges in rivers and bays
- ▶ changes in sediment and nutrient transport
- ▶ new patterns of chemical and microbiological contamination on the coast
- ▶ increased coastal flooding.

(adapted from May, Waterman, Eliot, 1998)

### 3.2.2 Air Quality

In large urban areas air quality is threatened by numerous pollutants emitted from many sources such as industrial, commercial, residential and transport activities. Many of these sources are not restricted to discreet geographical areas, confined within administrative boundaries or subject to a single jurisdiction.

The Earth's atmosphere is 160km deep yet 95% of the earth's total air mass is within only 19km of the ground. Called the troposphere, this is where weather and air pollution problems occur. Pollutants tend to concentrate in the lower troposphere up to 2 kilometres from the ground.

Mountains and valleys affect the air masses travelling close to the earth's surface by creating gusts and eddys. A valley tends to channel wind slow along the valley access, thus increasing velocity in

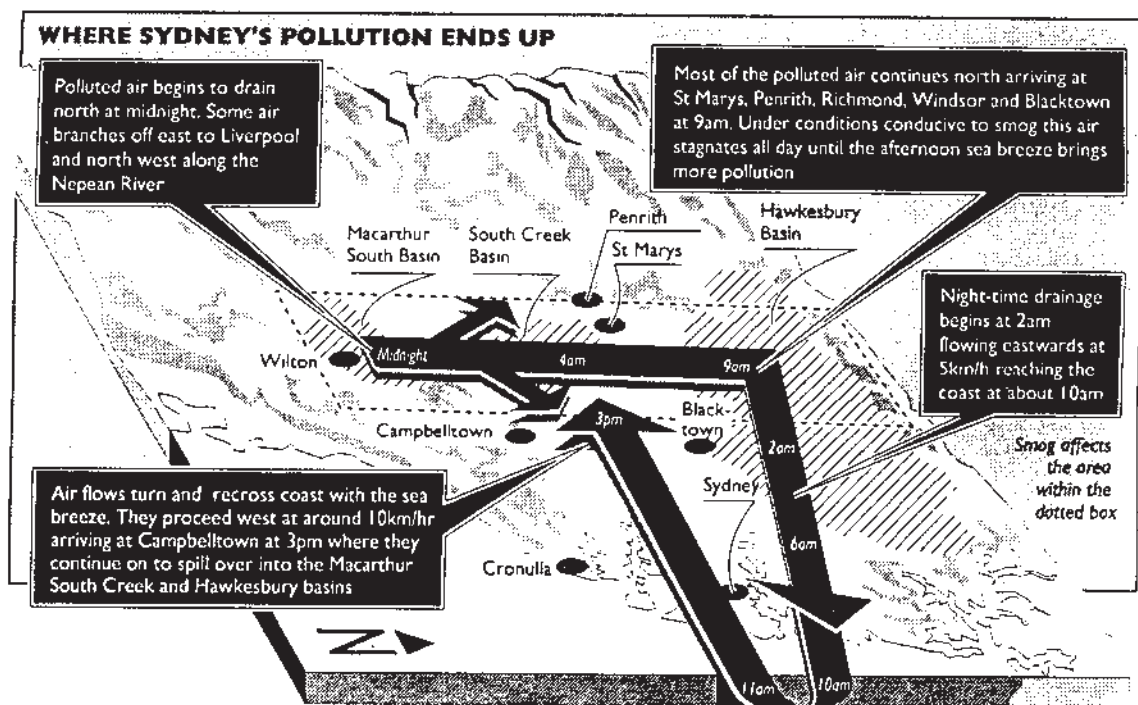


Figure 2: The Sydney Airshed. Source: Sydney Regional Organisation of Councils, 1994

the direction of the wind flow. Near to the ground, the wind is mechanically stirred by objects such as stones, rocks, vegetation, buildings and hills to form eddys.

The Sydney Airshed is defined as the air of the greater Sydney region. This region extends from the Blue Mountains in the west to the coast, and north of Richmond to south of Wilton. The Airshed is composed of three distinct sub-regions. These are the Hawkesbury Basin, the Parramatta River Valley and the Liverpool Basin. Each of these regions has distinct but interacting atmospheric dynamics (*Sydney Regional Organisation of Councils, 1994*).

Air flow across the Sydney Airshed can be divided into three categories:

1. Large scale synoptic flow, driven by synoptic pressure gradients within the region.
2. Sea breezes, formed as a result of temperature differences between land and sea.
3. Cold air drainage flow caused by the air close to sloping ground cooling faster than adjacent air in the free atmosphere. This results in a density difference, with the cooler denser air near the surface flowing down slope towards lower ground, where it combines with other cold air flows and from other slopes to form regional and local drainage flows.

Regional wind flows (sea breezes and drainage flows) are the main mechanism for transport and re-circulation of polluted air. In the morning, pollutant emissions are typically in the drainage flow as it moves towards the coast. Some of this air may then be re-circulated and it is carried inland with the afternoon sea breezes. These transport processes are the main meteorological mechanisms responsible for the occurrence of high concentration of photo-chemical smog in the Sydney Airshed.

**Figure 2** depicts the interaction between the meteorological and topographical effects within the Sydney Airshed. This diagram indicates that night time drainage begins at 2.00AM flowing eastwards at 5 kilometres per hour reaching the coast and Manly, at about 10.00AM. The air flows turn and re-cross the coast with the sea breeze, proceeding west at around 10 kilometres per hour from approximately 11.00AM.

Motor vehicle emissions are the most significant source of emissions in the Sydney Air Basin, particularly with regard to photo-chemical smog production (*Sydney Regional Organisation of Councils, 1994*).

The principle air pollutants in the Sydney Air Shed are:

- ▶ dust—burning fossil fuels, unsealed surfaces, extractive industry
- ▶ oxides of nitrogen—motor vehicle exhausts contribute 60% of total burning fuels

- ▶ carbon monoxide—motor vehicle exhausts contribute 90% of Sydney's load, fuel combustion, industrial and agricultural burning
- ▶ lead—motor vehicle emissions
- ▶ fine particulars (contributing to brown haze)—combustion processes both natural and man made
- ▶ hydrocarbons (contributing to photo chemical smog)—motor vehicle emissions industrial sources paint and adhesives, vegetation
- ▶ carbon dioxide—combustion processes
- ▶ acid gas (rain)—sulphurous emissions from combustion
- ▶ odours—industrial processes, solid fuel heating, waste disposal
- ▶ air toxics—varied—industrial leaks and spills motor vehicles, solid fuel appliances, combustion processes
- ▶ photo chemical smog—mixture of secondary pollutants (ozone oxides), a range of organic products.

### 3.2.3 The difference between Greenhouse and Air Quality Issues

The following table demonstrates the links between Greenhouse and Air Quality impacts.

Pollutant	Source	Air Quality Impact	Greenhouse Emissions Impact
Carbon Dioxide (CO <sub>2</sub> )	<ul style="list-style-type: none"> <li>· Fossil fuel combustion (inc. energy consumption)</li> <li>· Burning of vegetation</li> <li>· Land clearing</li> </ul>		✓
Carbon Monoxide (CO)	<ul style="list-style-type: none"> <li>· Incomplete combustion of fossil fuels</li> </ul>	✓	
Ozone (O <sub>3</sub> ) (Photochemical smog)	<ul style="list-style-type: none"> <li>· The reaction between NO<sub>2</sub> and VOCs in the presence of sunlight</li> </ul>	✓	
Nitrogen Dioxide (NO <sub>2</sub> )	<ul style="list-style-type: none"> <li>· Combustion processes</li> </ul>	✓	
Volatile Organic Compounds (VOCs)	<ul style="list-style-type: none"> <li>· Vehicles and other combustion processes</li> <li>· Small businesses eg dry cleaners, printers and surface coaters</li> </ul>	✓	
Particulates	<ul style="list-style-type: none"> <li>· Combustion processes</li> <li>· Vehicles</li> <li>· Bushfires</li> <li>· Solid fuel heaters</li> <li>· Power generation</li> <li>· Some industrial processes</li> </ul>	✓	
Sulfur Dioxide (SO <sub>2</sub> )	<ul style="list-style-type: none"> <li>· Coal and oil burning power stations</li> <li>· Petrol refineries</li> <li>· Coke ovens</li> <li>· Smelting of sulfur-bearing ores</li> </ul>	✓	
Methane (CH <sub>4</sub> )	<ul style="list-style-type: none"> <li>· Burning of vegetation</li> <li>· Livestock</li> <li>· Landfill</li> </ul>		✓
Lead (Pb)	<ul style="list-style-type: none"> <li>· Exhaust emissions from engines run on leaded fuels</li> <li>· Lead smelting</li> <li>· Waste incineration</li> </ul>	✓	
Air toxics	<ul style="list-style-type: none"> <li>· Motor vehicles</li> <li>· Industrial leaks and spills</li> <li>· Emissions from industry</li> <li>· Solid fuel heaters</li> <li>· Incinerators</li> <li>· Dry cleaning</li> <li>· Paints and surface coatings</li> <li>· Lawn Mowers</li> <li>· Service stations</li> </ul>	✓	
Nitrogen Oxide (N <sub>2</sub> O)	<ul style="list-style-type: none"> <li>· Soil cultivation</li> <li>· Fossil fuel combustion</li> <li>· Fertilisers</li> </ul>		✓
Odour	<ul style="list-style-type: none"> <li>· Industrial and agricultural activities</li> <li>· Manufacturing plants (where solvents are used)</li> <li>· Motor Vehicles</li> </ul>	✓	
Chloroflourocarbons (CFCs)	<ul style="list-style-type: none"> <li>· Refrigeration</li> <li>· Air conditioning</li> <li>· Fire protection</li> <li>· Manufacturing of plastics</li> <li>· Aerosols and solvents</li> </ul>		✓

### **3.2.4 Why address both air quality and green house together in a joint action plan?**

#### ***Milestone 3 Cities for Climate Protection Campaign— Local Action Plan***

As part of Council's commitment to the Cities for Climate Protection Campaign, Council is required to develop and adopt a greenhouse reduction strategy or local action plan. The greenhouse reduction strategy is a blue print for putting together a set of effective and practical measures to reduce the greenhouse gas emissions generated by Council and community.

#### ***Local Air Quality Management Plan***

A Local Air Quality Management Plan (LAQMP) is the structured process by which local government can approach air quality management in a comprehensive manner, with local integrity, focus, measurable output and the ability to evaluate effectiveness. Local Air Quality Planning is a cyclical process and so becomes a permanent part of Council's corporate activity, requiring ongoing management and implementation resources.

#### ***A 'Joint' Action Plan***

The two issues of air quality and the enhanced greenhouse effect are closely interlinked. The majority of strategies identified to address these two concerns usually also address the other, thus presenting an opportunity to take an integrated approach to both issues under the same plan.

## **3.3 Steering Committee**

The Manly Conservation Strategy Management Group is an official sub-committee of council having Councillor, community and Council staff representation. The Group makes recommendation to Council for adoption of policy.

The Management Group is charged with the primary responsibility of overseeing and guiding the implementation of the Manly Conservation Strategy.

In association with this role, the Group is also responsible for overseeing the development and implementation of Manly Greenhouse Challenge Programme, with particular emphasis on the Cities for Climate Protection Campaign.

The Manly Conservation Strategy Management Group therefore have an overseeing role with regard to the development and implementation of this plan.

## 3.4 State of Manly's Atmosphere

### 3.4.1 Greenhouse

**Milestone 1** consisted of developing an inventory and forecast of both community and corporate based year emissions. Corporate is considered all local government operations, community is considered all other emissions from the LGA.

Council's base year has been set at 1996 for both community and corporate sectors. This is due to data gaps existing in the 1994 and 1995 information. Raw data has been entered into the CCP software for the years 1994/5, 1995/6, 1996/7, 1997/8. An analysis of this data allows an emissions forecast to be established. This is an estimate growth in greenhouse gas emissions that would occur in the community and Council from

the base year to the selected target year of 2010, given projected growth in the area and 'business as usual scenario' for greenhouse gas emissions. The graphs below demonstrate this visually.

Total emissions of greenhouse gases by Manly are equivalent to 337,354 tonnes of carbon dioxide per year in 1996 (calculated with CCP methodology). This is forecast to grow to 421,718 tonnes in 2010.

Transport, industrial, commercial and residential sectors are the main sources of carbon dioxide emissions in the Manly community.

Within Council's activities, total emissions of greenhouse gases are equivalent to 10,911 tonnes of carbon dioxide per year in 1996, forecast to grow to 12,874 tonnes in 2010. As the graph below demonstrates, the main sources of carbon dioxide were waste, street lighting and buildings.

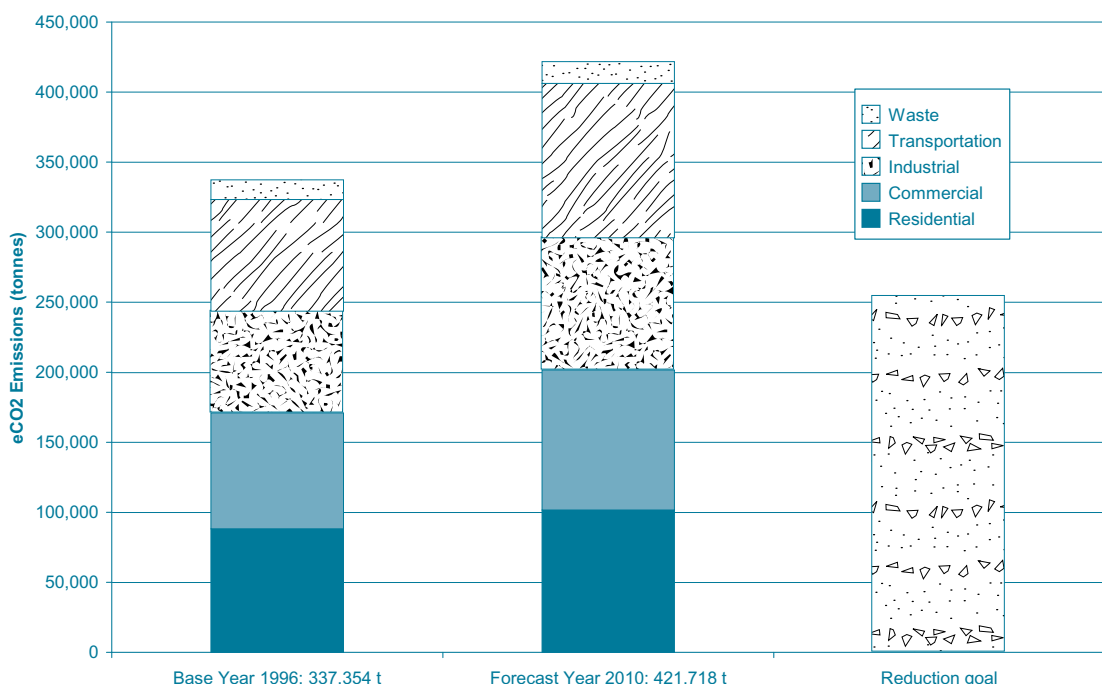
### 3.4.2 Air Quality

Urban areas like Manly suffer the impact of accumulated air pollution—that is, the proximity to the city, and being in a coastal area where natural circulation of polluted air occurs. Air pollution knows no boundaries and is subject to the prevailing weather conditions and atmospheric circulation.

The Metropolitan Air Quality Study (MAQS) showed the summer overnight and early morning land breezes carry pollutants (photochemical smog precursors) out to sea where they begin to react in the sunlight to form ozone; the afternoon sea breezes carry this ozone back on-shore to concentrate in Sydney's south west. This results in the concentration of ozone and other local pollutants in the western areas of the Sydney basin over a number of days.

The Greater Sydney Airshed transports pollutants between the Sydney Basin

## Community Emissions





and the major industrial centres of Newcastle and Wollongong through Inter Regional Transport Mechanisms (IRTM). Similarly, Sydney contributes air pollution to these areas through the same mechanisms.

Activities contributing to air pollution in Manly are:

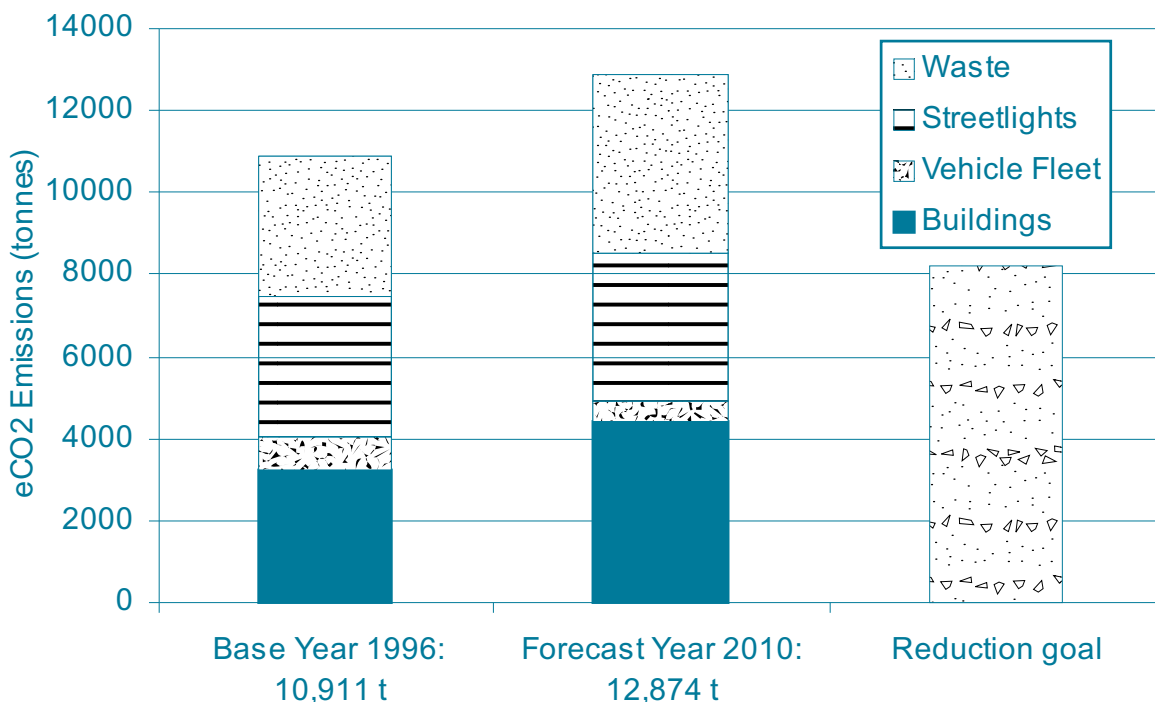
- ▶ transport pollution—arterial roads within Manly service much of the traffic travelling between the Northern Beaches and the City. The SHOROC Transport Policy (1998) has identified more than 8,500 Manly residents travel by car, 1,200 by ferry and 2,600 by bus each day. Further, sludge trucks carrying biosolids from the North Head Sewage Treatment Plant have an impact on the Manly air quality through exhaust fumes

- ▶ through daily activities, such as private vehicle use, commercial cooking facilities (eg. charcoal chicken shops/ takeaways)
- ▶ industry
- ▶ machinery associated with the building industry - heavy vehicles/compressors/ plant equipment etc.
- ▶ bushfires and burnoffs (fire management)
- ▶ domestic solid fuel heaters (includes indoor open fires)
- ▶ illegal backyard burning
- ▶ indoor air pollution such as smoking
- ▶ odours—produced from several sources in Manly, with many complaints received by Council regarding premises

manufacturing and processing food, the sewage pumping stations/treatment plant, overflows, sludge trucks carrying biosolids from the North Head Sewerage Treatment Plant and paint fumes.

Manly is part of the EPA's eastern air pollution monitoring region. This is based on a network of air quality monitoring stations which change sites periodically, including a station in Kur-ing-gai, Leichhardt and Randwick. As a result, this monitoring does not produce data indicative of air quality conditions in the Manly area.

## Corporate Emissions



## 3.5 The Challenge for Manly

### 3.5.1 Reduction Goal —Greenhouse Gas Emissions

The Greenhouse Gas Emissions Reduction Goal is the quantified objective to be set for the local action plan. It represents a quantitative objective for the local action plan against which Council can evaluate proposed measures and monitor progress.

The Cities for the Climate Protection target is a political goal of a 20% reduction in greenhouse gas emissions by the year 2010 relative to the base year. This means that Council's Action Plan needs to contain measures that will reduce emissions in 2010 for whatever they are forecast to be without the plan to a level that is 20% lower than actual emissions in the base year. Depending upon the circumstances of Council this could be, for example, a 20% reduction from the base year total or stabilising emission at the same level as the base level in the forecast year.

Manly's corporate and community reduction goals have been set at 25% by 2010 on 1996 base line figures. The areas that Council and the community would have to address to achieve a 25% reduction by 2010 would be:

- ▶ public, private and alternative transport use
- ▶ waste Minimisation
- ▶ air Quality
- ▶ energy use and alternative fuels

#### **Amendment:**

Council resolved in August 2002 to join the 50% Club, thus committing to a reduction target of at least 50%

### 3.5.2 Goals

The following goals are identified in the Manly Conservation Strategy and have been integrated as goals in this Action Plan.

- ▶ 50% reduction in Greenhouse Gas emissions of community and council by the year 2010
- ▶ to encourage and adopt energy conservation measures that reduce demands for energy
- ▶ to achieve an ecologically sustainable and effectively managed airshed which provides the people of Manly and Sydney with air of consistently good quality
- ▶ to develop and implement policies which address both local and regional air pollution sources.

## 4. SUMMARY OF ABATEMENT

Abatement strategies are located in Section 6 within an “Action” Plan and these have been selected to reduce greenhouse gas emissions and to lower air pollution created within the Manly LGA. This Action Plan consider the following sectors.

A. CORPORATE SECTOR	B. COMMUNITY	C. Aug. 2002 Amendments
<p>A1 Energy Efficiency in Council Buildings</p> <p>A1.1: Office Equipment Efficiency</p> <p>A1.2: Energy Efficient Policy and Management</p>	<p>B1 Residential</p> <p>B1.1: Green\$aver Home Energy Service</p> <p>B1.2: Residential Air Quality</p>	<p>C1 That Council join the 50% Club, a group of leading Councils from around the world committed to a reduction target of at least 50% by 2010.</p>
<p>A2 Council’s Vehicle Fleet &amp; Transportation</p> <p>A2.1: Alternative fuels for council vehicles</p> <p>A2.2: Promotion of Public Transport use for staff.</p>	<p>B2 Commercial and Industrial</p> <p>B2.1: Businesses for an Environmentally Sustainable Tomorrow (BEST).</p> <p>B2.2: Energy Efficient Clubs</p>	<p>C2 That Council seek to work with the Federal Government’s Greenhouse Challenge companies within the Manly LGA.</p>
<p>A3 Street lighting</p> <p>A3.1: Street lighting Audit</p> <p>A3.2: Solar Lighting</p>	<p>B3 Transportation</p> <p>B3.1: Public Transport For the Community\</p> <p>B3.2: Manly Bicycle Plan</p>	<p>C3 That Council work with the International Council of Local Environmental Initiatives as a ‘Greenhouse Ambassador’ to build partnerships between rural (regional) and metropolitan Councils and groups of Councils within regions.</p>
<p>A4 Waste Management</p>	<p>B4 Waste Management</p>	<p>C4 That Council continue to work with the SHOROC Councils.</p>
<p>A5 Adaptation to Climate Change</p>	<p>B5 Source Control</p> <p>B5.1: Operation Air Control</p> <p>B5.2: Put Out Smoky Vehicles Programme</p>	
	<p>B6 Vegetation Enhancement</p> <p>B6.1: Encouraging Urban Vegetation</p>	

## 5.

# IMPLEMENTING THE ACTION PLAN, MONITORING PERFORMANCE AND EVALUATION

Implementing the Action Plan involves incorporation into Council's Corporate Plan. This ensures that strategies identified in the Action Plan are undertaken in accordance with the timeframes identified. However, implementation is dependent upon available funds, and as such, actions requiring considerable funding will be subject to the submission of budget bids for consideration in the distribution of the general budget.

Council is required, as part of the CCP programme, to complete Milestone 4.

**Milestone 4** requirements are:

1. A contextual statement about the direction of the reduction actions.
2. Explanation of each measure to be implemented
3. Quantification of emission reduction from each measure.
4. Details of method used to quantify emissions reductions.
5. Timeframe for measure implementation.
6. Allocation of resources required for measures implementation, both human and financial.
7. Budget approval for measure implementation.

This Action Plan satisfies a selection of the requirements listed above. Further, Council's financial commitment to Greenhouse action to date has already addressed point 7. This will continue to be an annual process, as outlined prior.

Quantification information has been included in the annual Measures Survey undertaken with the assistance of CCP Australia. This is also supported with the services provided by the NSW SEDA programme.

Progress of the Action Plan will be reported annually in Council's State of Environment Report (SoE). Further, an annual report is required by CCP to achieve Milestone 5—*Monitor and Report on Greenhouse Gas Emissions*. This will outline the stages of completion of each strategy and will report on total emissions for each sector. A review will be required after each period to take advantage of new measures council may wish to undertake, and to set out the reviewed strategies.

To adequately monitor the achievement of greenhouse gas reductions it is necessary to reuse the CCP software to identify measures and calculate reductions.

In terms of air quality, the absence of a local monitoring station makes it difficult to measure a quantitative improvement, and there is no tool to develop a software programme similar to CCP.

Progress will therefore be reliant upon assessing the number and type of complaints to Council, and other key indicators.

A review of the performance indicators identified throughout the Abatement Strategies, outlined in this document, will assist to determine progress in terms of strategy implementation. Further, information collected for the annual SoE will also assist with determining progress. An annual report to Council outlining the action plan's implementation progress and indicator review will be presented following each financial year.

Cities for Climate Protection™ have advised that the Action Plan is able to be reviewed and amended annually to incorporate any necessary changes in response to evaluation of performance indicators and quantitative data.

## 6. ABATEMENT STRATEGIES

### A. CORPORATE

#### SECTOR: A1 Energy Efficiency in Council Buildings

Evidence shows that energy management has direct commercial benefits. Audits suggest that most businesses can save between 10 - 25% on energy costs annually. This means that improvements in the way a council uses energy can reduce operating costs and improve profitability. Energy efficiency is a primary means to reduce the emissions of greenhouse gases.

##### Initiatives already underway:

- Council has signed a voluntary Memorandum of Understanding (MOU) with SEDA to develop an Energy Efficiency Action Plan and upgrade 75% of Council operations, where profitable, over five years.
- Council continues to send staff to the Australian Municipal Energy Improvement Facility (AMEIF) Green Energy Learning Programme.
- Council now uses 10% green power for its contestable sites.

#### A1.1 Office Equipment Efficiency

Details of Programme:	Responsibility	Timeframe
A1.1.1: Using equipment efficiently. Enable the Energy Star programme on all Council computers, faxes, photocopiers and printers where possible	FIT	Await software change for computers. 2001 others
A1.1.2: Purchasing energy efficient equipment. Ensure energy efficiency when purchasing new office equipment. Include this in the Purchasing Policy.	CCS & FIT PDE (policy)	Ongoing 2001
A1.1.3: Include energy efficiency considerations in tender specifications for the supply of all new office equipment.	CCS	Ongoing
A1.1.4: Investigate opportunities for the improved use of natural light and air flow in Council buildings.	AMC	Ongoing
<b>Education:</b>		
A1.1.5: Educate staff regarding their roles in turning off monitors when away from desks, turning off equipment when not in use etc.	CICS	Ongoing

##### Performance indicator:

- Energy consumption and Energy Star enabled.
- Purchasing policy includes energy efficiency considerations.
- Percentage of computers left on outside working hours (apart from those with essential functions).
- Proportion of new investments, purchases that meet environmental / energy criteria.

## A1.2 Energy Efficient Policy and Management

<b>Details of Programme:</b>		<b>Responsibility</b>	<b>Timeframe</b>
A1.2.1:	Formulate a policy for energy efficiency and ensure management commitment.	PDE	2002
A1.2.2:	Appoint an Energy Manager -ensure one staff member is responsible for energy efficiency including monitoring the cost of all energy. Communicate problem areas to Site Managers etc.	PDE	Ongoing
A1.2.3:	Ensure a staff member is assigned the responsibility of checking the power factor correction units daily.	AMC	2001
A1.2.4:	Continue to undertake energy efficient retrofitting of Council's facilities including car parking stations through the SEDA's Energy Smart Business Programme. Keep abreast of new technological saving opportunities. Ensure all new building works for Council are energy efficient.	PDE/AMC	Ongoing
A1.2.5:	Encourage Site Managers to strive for reduction in energy use through energy efficient management.	PDE / CICS	Ongoing
A1.2.6:	Lease agreements: conditions such as energy performance targets included.	F&G	2003
A1.2.7:	Ensure energy efficiency and low air pollution when selecting and operating outdoor equipment e.g. fuel used, fuel-efficiency, maintenance, efficiency of operation.	SDBD	Ongoing
A1.2.8:	Report annually to Council.	PDE	Ongoing
<b>Education:</b>			
A1.2.9:	Implement a staff awareness and training programme. Ensure staff are educated continuously in regard to energy efficiency.	CICS	2002 (to support 2000 programme)
A1.2.10:	Include energy efficiency and greenhouse issues in job descriptions.	All areas	2003
<b>Performance indicator:</b>			
<ul style="list-style-type: none"> <li>• Expenditure on energy saving actions relative to expenditure on energy bills.</li> <li>• Relevant policies, guidelines and procedures include consideration of energy efficiency.</li> <li>• Regular reports made to Council of performance on greenhouse gas emissions and energy use.</li> <li>• Adoption of energy management strategy by Council.</li> <li>• SEDA Energy Smart Business Milestones made.</li> </ul>			

## SECTOR: A2 Council's Vehicle Fleet & Transportation

Council's car fleet and heavy vehicles account for a large percentage of energy used and greenhouse gas emissions. Motor vehicles are also major contributors of air pollution, contributing to photochemical smog.

### Initiatives already underway:

- Council has implemented an alternative fuel policy for its light vehicle fleet, progressively changing to LPG dual-fuel and dedicated vehicles. A CNG conversion programme is also under Council's heavy compactor fleet.

### A2.1 Alternative fuels for council vehicles

Details of Programme:	Responsibility	Timeframe
A2.1.1: Investigate the feasibility of using biodiesel as a fuel for Council's heavy vehicle fleet.	PDE	2002
A2.1.2: Investigate the feasibility of using the used cooking oil from Manly restaurants to convert to biodiesel. This would include developing a business plan to determine whether it is cost-beneficial.	As above	As above
A2.1.3: Continue to pursue Council's policy by purchasing alternative fuel vehicles or buying purpose built or dual fuel vehicles for council operations. Fuel options include CNG/LNG, electricity, LPG, ethanol, methanol or hybrid electric vehicles.	SPC & SDBD	Ongoing
A2.1.4: Consider substituting the larger Council vehicle fleet for smaller, more fuel efficient vehicles. Also, consider a reduction in lease-back fee for staff who use the smaller vehicles to encourage use.	AMC	2002
A2.1.5: Ensure continued maintenance of all Council vehicles.	AMC/CM	Ongoing
A2.1.6: Council investigate feasibility of purchasing conventional or electric bicycle use for Council Officers making shorter trips in LGA. This mode of transport offers both financial and environmental rewards.	SPC	2004
<b>Education:</b>		
A2.1.7: Communicate with staff to the benefits of alternative fuels, and the daily use of these fuels internationally.	CICS	In line with above programme

### Performance indicator:

- Energy used by motorised equipment and vehicles.
- Greenhouse gas emissions by Council's vehicle fleet.
- Number of fleet that have not changed to more appropriate environmentally friendlier fuels

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## A2.2 Promotion of Public Transport use for staff

<b>Details of Programme:</b>	<b>Responsibility</b>	<b>Timeframe</b>
A2.2.1: Undertake an initial survey to determine modes of transport used by staff to commute to work and where they commute from.	OSS/CICS	2002
A2.2.2: Consider offering public transport tickets instead of a private use vehicle as part of salary packages.	AMC/OSS	2004
A2.2.3: Assess results from A2.2.1 to develop a car-pooling programme.	OSS	2003
<b>Education:</b>		
A2.2.4 Develop an education package to support the programme.	CICS	As above.

### **Performance indicator:**

- Initial survey undertaken to determine staff modes of transport.
- Re-survey in three years to determine whether staff modes of transport have changed to more sustainable means.



## SECTOR: A3 Street lighting

Of all Council services, street lighting is the one which uses the most energy. In greenhouse gas emissions, street lighting is second only to landfill sites nationally. Good street lighting has an important role to play in the community as it contributes to people's pedestrian and traffic safety as well as making people feel safer.

### Initiatives already underway:

- Council has participated in forums held by the Australian Municipal Energy Improvement Facility to work in co-operation with Energy Australia regarding energy efficient street lighting.
- Council has identified solar lighting as a technology in the Lagoon Park Plan of Management.

### A3.1 Street lighting Audit

Details of Programme:	Responsibility	Timeframe
A3.1.1: Work with Energy Australia to review inventory of streetlight assets provided by them. Include positions, maintenance required etc. Further, work with Energy Australia to reduce energy usage in this area.	AMC	2001
A3.1.2: Transfer data to the GIS system.	PDE	2002/03
A3.1.3: Cross check with accounts received from Energy Australia to assess the accuracy of billing records.	AMC/FIT	2001
A3.1.4: Repeat every four years.	AMC	2005
<b>Education:</b>		
A3.1.5: Encourage residents to monitor and report maintenance of streetlights to Energy Australia.	AMC	2003

### Performance indicator

- Greenhouse gas emissions from street lighting.
- Street lights operating as efficiently as possible.

### A3.2 Solar Lighting

Details of Programme:	Responsibility	Timeframe
A3.2.1: Implement the strategy for solar park lighting in Lagoon Park as identified in the Lagoon Park Plan of Management.	PDE	2004
A3.2.2: Implement solar heating for showers at the Swim Centre.	AMC	2003
A3.2.3: Investigate other opportunities following the determined success of A3.2.1.	PDE	As above.
A3.2.4: Solar café. Investigate the feasibility of creating a cafe and learning centre that is a sustainable showcase in design, construction and operation.	PDE	2005
<b>Education:</b>		
A3.2.5: Support all photovoltaic initiatives with educational signage where feasible, highlighting the function and benefits of solar.	PDE / CICS	As implemented

### Performance indicator:

- Number of photovoltaic operating structures in Manly.

## SECTOR: A4 Waste Management

As the population continues to grow, waste is growing proportionally, placing greater pressure on our waste management systems. Waste is either reused, recycled or disposed of in landfill where it creates methane - a greenhouse gas. We all need to be responsible for our waste, and avoid generating it in the first place.

### Council will continue to:

- Implement the Waste Management Strategy, including develop a Purchasing Policy for Council.
- Continue to monitor and report on the Programme's success.
- Use Council's mobile dishwashing facility at public events, practicing the principles of Container Deposit Legislation and Extended Producer Responsibility.

## SECTOR: A5 Adaptation to Climate Change

The consensus of scientific opinion is that the Enhanced Greenhouse Effect will result in a number of changes, including a world wide sea level (eustatic) rise, and a change of temperature, rainfall, wind and wave climates. The extent of sea level rise, associated changes in weather patterns and major storm events are still highly debated.

### Initiatives already underway:

- Council has resolved to establish a Coastal Management Committee to manage Manly's ocean beach coast line which also has consideration for sea level concerns.

### A5.1 Impacts of Climate Change:

Details of Programme:	Responsibility	Timeframe
A5.1.1: Review outcome of Potential Coastal Hazards Process Study & Management Plan & assess whether this meets the objectives of the Vulnerability Assessment set by the Federal Government's "Responding to Rising Seas and Climate Change" guide. Assess impact of climate change on design standards, infrastructure & community health.	PDE	2003
A5.1.2: Ensure the Coastal Management Committee have regard for climate change & anticipated impacts including potential of sea level rise.	PDE	2001
A5.1.3 Review flood analysis maps indicating probable flood damage in the event of sea level rises and changed rainfall intensity patterns.	PDE	2003
A5.1.4: Monitor the debate on the enhanced greenhouse effect and periodically review the minimum floor level datum	PDE	As necessary
<b>Education:</b>		
A5.1.5: Publicise the findings of the Vulnerability Assessment.	PDE	In line with above

### Performance indicator:

- Vulnerability Assessment undertaken and reported to Council.
- Appropriate measures undertaken as identified from Vulnerability Assessment.

## B. COMMUNITY

### SECTOR: B1 Residential

Households are significant contributors to greenhouse gas emissions and air pollution. Energy is used for water heating, room heating and cooling, swimming pool pumps, cooking, lighting and various electrical appliances. Air pollution can be created from solid fuel heaters and backyard burnoffs.

#### Initiatives already underway:

- Energy Smart Homes Programme
- Energy Efficiency DCP
- Council's Residential Development Control Plan (DCP), currently under revision to incorporate ESD, encourages developers to consider the materials used in the construction of buildings to minimise stationary sources of indoor air pollution. Domestic solid fuel heater recommendations are also included to minimise pollution generated from burning timber.
- The Manly Environment Centre ran the "the Green House Project" for schools based on the Watt's What? Guide to educate about energy efficiency including a home audit kit.
- The Manly Environment Centre delivered a programme for community groups in the Manly Lagoon Catchment focusing on reducing greenhouse gas emissions in the home.

### B1.1 Green\$aver Home Energy Service

#### Details of Programme:

	Responsibility	Timeframe
B1.1.1: Encourage SEDA to integrate their programmes into the Manly community.	PDE	2002
B1.1.2: Council to identify air pollution generating appliances at DA stage and ensure compliance through development consent and the POEO Act Requirements.	LUM/CCS	Ongoing

#### Education:

B1.1.3: Encourage residents to audit their own homes based on CICS Council's "Watt'sWhat? Guide" and contact SEDA for information on energy efficiency, including lighting, appliances and insulation.	CICS	2003 (support 2000 programme)
B1.1.4: Obtain or develop and circulate material on the greenhouse effect. Emphasis to be placed on personal actions to reduce harmful emissions, such as reducing car use and reducing the use of hydrocarbon propelled aerosols.	CICS	2003
B1.1.5: Develop and distribute resource materials through hardware stores and other outlets which outline benefits of incorporating renewable energy inclusions into new and existing dwellings.	CICS	2002
B1.1.6: Council actively make available information to assist Development Applicants to meet Energy Efficiency DCP criteria.	LUM	Ongoing

#### Performance indicator:

- Percentage of Development Applications exceeding minimum requirements regarding energy issues.
- Level of provision of advisory materials on energy issues.

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## B1.2 Residential Air Quality

### Details of Programme:

B1.2.1: Ensure Residential DCP identifies appropriate air quality provisions for Development Applications.

### Responsibility

PDE

### Timeframe

2001

### Education:

B1.2.2: Education programme on air quality, including distribution of pamphlet on the local laws of air pollution. Material to be multi-lingual.

CCS

2003

### Performance indicator:

- Number of complaints made by residents, warnings and notices issued by Council regarding residential air pollution offences.

## SECTOR: B2 Commercial and Industrial

The Commercial and Industrial Sectors contribute to air pollution through manufacturing, spraying and other significant processes. They are also significant contributors to greenhouse gas emissions.

### Initiatives already underway:

- Environmental audits carried out by Council's Environmental Health Team including air and odour pollution.

## B2.1: Businesses for an Environmentally Sustainable Tomorrow (BEST).

Details of Programme:	Responsibility	Timeframe
B2.1.1: Work with the EPA to work with business to undertake voluntary measures of ROCs. Recommend the appropriate control technologies. Gain better controls on existing plant.	CCS	2003
B2.1.2: Improve housekeeping practices in auto repair shops and surface-coating premises through working with the EPA.	CCS	With Env. Audits.
B2.1.3: Council to identify air pollution generating appliances at DA stage and ensure compliance through development consent and the POEO Act Requirements.	CCS/LUM	Ongoing
B2.1.4 Work with the EPA to assist industry in reporting on and reducing fugitive emissions. Better ventilation and building design leading to more efficient capture of emissions to be promoted in industries such as printing etc.	CCS	2004
B2.1.5: Work with the EPA to control emissions and minimising use of chemicals in the dry cleaning industry. This will include appropriate education.	CCS	2004
<b>Education:</b>		
B2.1.6: Encourage business, industry etc to undertake energy audits and adopt a greenhouse policy/energy efficiency policy. Council to develop an information kit which provides ideas for self auditing and work practice assessment in regard to energy consumption.	CCS & CICS	In line with env. audits
B2.1.7: Disseminate environmental best practice information, particularly with regard to energy efficiency to Manly's Businesses. Encourage those who meet the criteria to join SEDA's Energy Smart Business Programme.	CICS	2003

### Performance indicator:

- Percentage of Development Applications exceeding minimum requirements regarding energy issues.
- Level of provision of advisory materials on energy issues.
- Number of Manly businesses involved in the SEDA programmes.
- Reduction in odour/air pollution incidents/complaints.

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## B2.2 Energy Efficient Clubs

### Details of Programme:

	<b>Responsibility</b>	<b>Timeframe</b>
B2.2.1: Encourage those who meet the criteria to join SEDA's Energy Smart Business Programme.	CICS	2004

### Education:

B2.2.2: Council work with SEDA to provide Clubs in the LGA with information and an energy efficient shopping list of key energy efficient features for clubs that will provide the most immediate return on investment.	CICS	2004
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### Performance indicator:

- Percentage of Development Applications exceeding minimum requirements regarding energy issues.
- Level of provision of advisory materials on energy issues.
- Number of Manly businesses involved in the SEDA programmes.

## SECTOR: B3 Transportation

Increasing numbers and usage of motor vehicles has led to increasing traffic congestion, heavy demands on public lands and infrastructure (leading to development of further roadways and carparks), and significant air pollution. The greenhouse gas emissions attributable to community sector transport make a large percentage of the overall community sector emissions. Reducing emissions from motor vehicles is the highest priority if we are to meet our goals in the long term. Public transport is the answer.

### Initiatives already underway:

- Council supports Walking Class Heroes Day annually.
- Council is part of the SHOROC Group of Council who developed the SHOROC Regional Transport Policy in July 1998.
- Council has adopted the Manly Bicycle Plan and continues to progressively implement its strategies.

### B3.1 Public Transport For the Community:

Details of Programme:	Responsibility	Timeframe
B3.1.1: Develop a public transport survey with Sydney Buses & SHOROC to gauge people's perceptions of public transport and determine needs and how to encourage greater use. Re-do in three years.	PDE & Env't Committee	2001
B3.1.2: With above information, review, monitor, identify gaps and inadequacies in current bus routes and suggest improvements to State Transit Authority. Assess Bus routes and timing, to ensure links with Ferry Service are appropriate.	PDE & Env't Committee	2002
B3.1.3: Improve infrastructure such as bus shelters. Transfer between modes must be convenient, cause minimum time delays and be safe. Adequate facilities are required for buses, cyclists, pedestrians, taxis, kiss'n'ride.	PDE	2003
B3.1.4: Lobby State government for improved services such as more frequent, reliable bus services, more frequent and lower cost ferry services.	PDE & Env't Committee	2002
B3.1.5: Create pedestrian dominated environments, where appropriate lighting, seating and other street furniture exist, and allow convenient access for people with disabilities.	PDE	Ongoing
<b>Education:</b>		
B3.1.6: Develop programmes to encourage cycling, walking, public transport, ride-sharing and other alternatives to private vehicle use.	CICS	2003
B3.1.7: Liaise with relevant authorities to produce a kit for residents upon request including bus, train and ferry timetables, bicycle path map and bike rack locations in Manly. "Green Transport Pack". Seek sponsorship / external funding.	CICS	2003

### Performance indicator:

- Number of people using public transport - buses and ferries.
- Perceived number of people using bicycle racks in the Manly LGA.
- Survey undertaken and then re-done in three years to determine level of change.
- Review census data regarding "travel to work" data.

## B3.2 Manly Bicycle Plan

<b>Details of Programme:</b>		<b>Responsibility</b>	<b>Timeframe</b>
B3.2.1	Progressively and actively implement the Manly Bicycle Plan.	SPC	Ongoing
B3.2.2:	Establish destination and distance signs at strategic points to indicate location of important facilities.	PDE	2003
B3.2.3:	Investigate the feasibility of Manly becoming the "Bicycle Friendly Council", including the hire of bikes.	PDE	2004
B3.2.4:	Establish a Bicycle Uses Group (BUG) in Manly.	CICS	2004
B3.2.5:	Provide bicycle parking outside all Council facilities and encourage at existing and new shopping centres and areas.	PDE	2002
B3.2.6:	Encourage new commercial/industrial buildings to include the provision of bicycle racks & showering facilities to encourage bicycle use by staff.	LUM	Ongoing
<b>Education:</b>			
B3.2.7:	Hold an annual day to encourage bicycle use.	CICS	2003
B3.2.8:	Promote recreational and commuter cycling to encourage greater use.	CICS	2003

### **Performance indicator:**

- Perceived use of bicycle racks in LGA.
- Number of bicycle racks in the Manly LGA.

## SECTOR: B4 Waste Management

As the population continues to grow, waste is growing proportionally, placing greater pressure on our waste management systems. Waste is either reused, recycled or disposed of in landfill where it creates methane - a greenhouse gas. We all need to be responsible for our waste, and avoid generating it in the first place.

### **Council will continue to:**

- Implement the Waste Management Strategy in the community.
- Educate the community through the Waste Education Officer's initiatives and the Stella Maris Community Garden where there is composting demonstrations.



## SECTOR: B5 Source Control

The cumulative impact of minor pollutants can be significant on the region's air pollution.

### Initiatives already underway:

- Council is undertaking environmental audits for industry including assessing air and odour pollution. This programme assists businesses to rectify the situation by implementing best management practices through continual improvement.

## B5.1 Operation Air Control

### Details of Programme:

		Responsibility	Timeframe
B5.1.1:	Establish an "air emissions" database to provide a comprehensive, structured way to store, access and manipulate data. This will generate an inventory of premises generating air emissions.	CCS	2002
B5.1.2:	Establish an odour complaint register to facilitate the development of action plans in problem areas.	CCS	2002
B5.1.3:	Control non-scheduled premises including the issuing of notices requiring the remedying of deficiencies. Preventative options include the application of approval conditions to development applications.	CCS	Ongoing
B5.1.4:	Lobby State Government with the assistance from SHOROC for a mobile local air quality monitoring programme to concentrate on appropriate areas. Initiation of a local air quality monitoring programme will provide accurate base line data.	Council, Env't Committee CCS	2003
<b>Education:</b>			
B5.1.5:	Conduct a community education programme regarding wood heater use in conjunction with the EPA.	CCS/CICS	2003
B5.1.6:	Encourage resident's to comply with the EPA's voluntary "Don't Light Tonight" campaign.	CCS/CICS	2004
B5.1.7:	Adopt EPA's guidelines for domestic solid fuel heaters.	PDE	2001
B5.1.8:	Educate the community on open burning restrictions.	CCS/CICS	2002
B5.1.9:	Link the EPA's air quality monitoring data to Council's web site if permissible.	PDE	2002

### Performance indicator:

- Number of complaints made by residents, warnings and notices issued by Council regarding residential and industrial air pollution offences.
- Number of information materials available.
- Odour complaints register established.

## B5.2 Put Out Smoky Vehicles Programme

Details of Programme:		Responsibility	Timeframe
B5.2.1:	Prepare a tear off report sheet and distribute to encourage Council staff to actively report smoky vehicles.	CCS	2001
B5.2.2:	Consult with EPA and police to organise a blitz on smoky vehicles.	CCS	2001
<b>Education:</b>			
B5.2.3:	Encourage and assist the community to report air pollution incidents such as car exhaust and industrial emissions.	CCS/CICS	2001

### Performance indicator:

- Number of smoky vehicles reported in the Manly LGA by staff and community.
- Smoky vehicle blitz carried out by Council/Police.

## SECTOR: B6 Vegetation Enhancement

Vegetation absorbs carbon dioxide as it grows, and thereby removes and stores greenhouse gas from the atmosphere. In addition, trees can provide shade and therefore less reliance on mechanical cooling needs (e.g. air conditioning) and also remove pollutants from the air.

Initiatives already underway:

- Council has many initiatives underway targeting vegetation conservation and restoration, funded by Council's Environment Levy. This includes an extensive tree planting programme.
- Council is currently implementing a street tree strategy based on the Street Tree Study undertaken.

### B6.1 Encouraging Urban Vegetation

Details of Programme:		Responsibility	Timeframe
B6.1.1:	Increase tree planting along roads.	PDE	Ongoing
B6.1.2:	Encourage appropriate endemic plantings in residential development.	PDE/LUM	Ongoing
<b>Education:</b>			
B6.1.3:	Promote the use of endemic vegetation and tree cover to reduce greenhouse gas emissions and save energy.	CICS	Ongoing
B6.1.4:	Educate in regards to benefits of endemic vegetation and promote this to the community.	CICS/AMC	Ongoing

### Performance indicator:

- Number of tree plantings in Manly LGA annually.
- Number of trees removed under the Tree Preservation Order.

## C. AUGUST 2002 AMENDMENTS

Details of Programme:	Responsibility	Timeframe
C1 That Council join the 50% Club, a group of leading Councils from around the world committed to a reduction target of at least 50% by 2010, while recognising that the responsibilities of the levels of Australian government make this target difficult to achieve in comparison to other councils world-wide.	PDE	Ongoing
C2 That Council seek to work with the Federal Government's Greenhouse Challenge companies within the Manly LGA to implement community measures.	PDE	Ongoing
C3 That Council work with the International Council of Local Environmental Initiatives as a 'Greenhouse Ambassador' to build partnerships between rural (regional) and metropolitan Councils and groups of Councils within regions, with the intent of aggregating expertise / resources / political support to achieve larger scale corporate and community reductions. However, the extent of Council's participation in such a programme must be restricted to reflect the limited staff resources that Council has available to the CCP programme.	PDE	Ongoing
C4 That Council continue to work with the SHOROC Councils to raise community awareness of greenhouse issues, threats and opportunities with a view to inspiring cooperative action.	PDE	Ongoing

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