

3 Atmosphere

The atmosphere surrounding the earth consists of a complex balance of gases that supports life. Human based activity, such as burning fossil fuels has rapidly increased the percentage of particular gases in our atmosphere resulting in negative impacts to urban air quality, impacting on human health, and changes to our climate system.



Pressures on our Atmosphere

Key pressures include:

- pollutants from motor vehicles
- increased use of private vehicles, and increased traffic congestion
- smoke from bushfires
- use of woodfires in winter, and
- industrial landuse.

Condition of our Atmosphere

Transport in the SHOROC region is a primary contributor to the emission of greenhouse gases (GHG's), and reduction in air quality. Air quality in the SHOROC region varies considerably depending on natural events such as windy days, bushfires and human activities, with poor air quality impacting on health.

The National Pollutant Inventory Data, presented in Figure 2, - identifies the substances in the airshed, originating from the SHOROC region that may impact on air quality. The atmospheric condition is also measured by the number of air quality complaints, and community and council emissions.

Regional Snapshot

Figure 2: National Pollutant Inventory Data for the SHOROC Region

Percentage of Pollutants Per Source for the SHOROC Region in 2008/2009

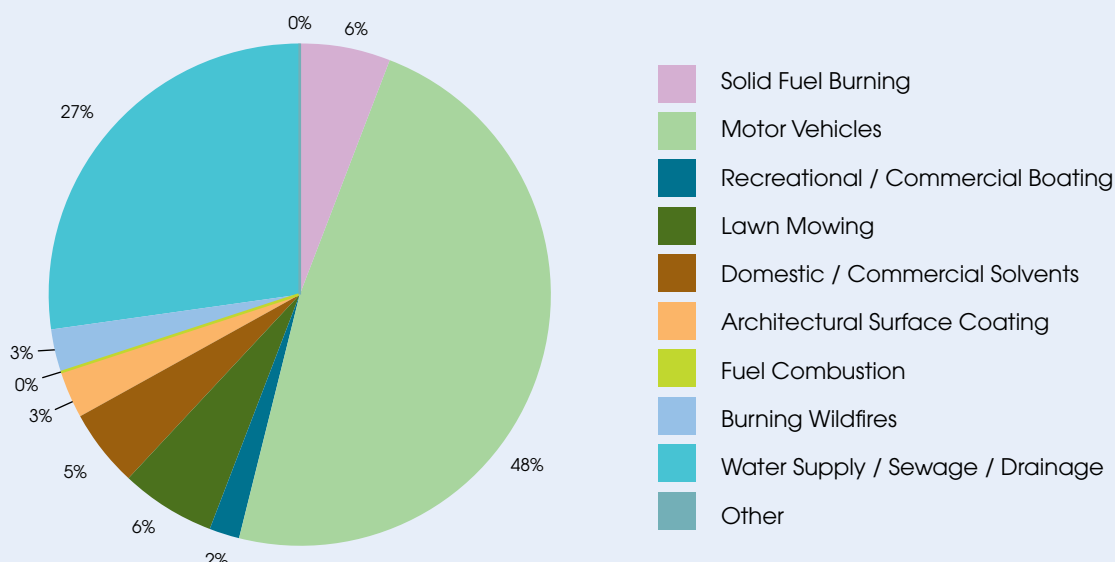




Table 4: Regional Atmospheric Condition

Indicator	SHOROC Region				
	06/07	07/08	08/09	09/10	4 Year Trend
Number of registered vehicles (community)	184,929	188,940	192,555	197,037	↑
Air pollution complaints	142	156	157	191	↑
Number of council fleet vehicles	653	564	573	Data incomplete*	
GHG emissions from all council fleet vehicles (tonnes CO ₂ e)	4,131	3,848	3,719	Data incomplete*	
Electricity use – council operations (kilowatt hours)	19,350,334	20,158,240	20,073,690	20,011,617	↓
GHG emissions from council electricity use (tonnes CO ₂ e)	19,462	19,662	19,063	19,903	↔

*Manly Council data was not available at the time the SoE Report was printed.

Local Snapshot

Table 5: Air Quality

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Air pollution complaints received by council	2006/07	20	2	49	71
	2007/08	8	3	65	80
	2008/09	3	2	63	89
	2009/10	16	3	71	101

Table 6: Greenhouse Gas Emissions

Indicator	Year	Council			
		Manly	Mosman	Pittwater	Warringah
Registered vehicles in council LGA*	2006/07	23,113	16,733	44,968	100,115
	2007/08	23,727	17,305	45,676	102,232
	2008/09	24,585	17,649	46,842	103,479
	2009/10	24,804	17,967	48,247	106,019
Number of council fleet vehicles^	2006/07	170	40	219	224
	2007/08	162	35	156	211
	2008/09	177	28	155	213
	2009/10	Data unavailable*	26	154	178
CO ₂ from council fleet vehicles	2006/07	1335	220	1071	1505
	2007/08	1367	202	1112	1167
	2008/09	1384	157	1104	1074
	2009/10	Data unavailable*	174 [†]	975	995
Electricity use- councils operations (kWh)	2006/07	5,697,935	2,808,530	4,924,714	5,919,155
	2007/08	5,441,382	2,853,297	5,574,036 [#]	6,289,525
	2008/09	5,427,222	2,846,023	5,351,914 [#]	6,448,531
	2009/10	5,561,846	2,847,151	5,257,342	6,345,278
GHG emissions from kWh (tonnes CO ₂ e)	2006/07	5485	2915	4471	6321
	2007/08	5775	2962	4796 [#]	6129
	2008/09	5760	2694	4605	6120
	2009/10	5755	2809	5392	5947

*Figures provided by NSW RTA.

^Includes passenger fleet, light, commercial, heavy truck and plant vehicles (if present in councils fleet).

#kWh figures from Pittwater 07-08 amended to reflect increased carbon accounting accuracy.

[†]Whilst Mosman Council has reduced the number of vehicles in its fleet (average over 12 months), the CO₂e have increased since 2008/09 because Council introduced the Mosman Rider (free community bus) during 2009/10, which runs on diesel and is operational every day on a 30mins loop.

*Manly Council data was not available at the time the SoE Report was printed.



Responding to Atmospheric Issues

Regional Responses

Shaping Our Future

During 2009/10 SHOROC progressed its *Shaping Our Future* Strategy. One of the key priorities of this Strategy is investment in public transport infrastructure across the region. *Shaping Our Future* calls for the State and Commonwealth Governments to invest in Bus Rapid Transit systems from Dee Why along Warringah Road to Chatswood and from Mona Vale along Pittwater/Spit/Military roads to the city. Land use planning will also seek to create more jobs close to home for residents to minimise car use.

Sustainable transport is also a key element of the next part of the *Shaping Our Future* Strategy, to be developed in 2010/11.

Climate Change Inventory

During the reporting year, SHOROC worked with staff from its member Councils to develop a climate change inventory detailing what each council is doing to adapt to and mitigate climate change impacts with a view to identifying where there are common goals, strategies and policies. Meetings will continue to be held in 2010 to identify synergies and opportunities for the SHOROC member Councils to continue to work together on climate change policies and projects for the region.

Climate Action on the Northern Beaches

On 24 October 2009, over 1200 residents from across the Northern Beaches formed human signs in the shape of 350 on Mona Vale, Dee Why and North Steyne beaches as part of a world wide event coordinated by 350.org. On that day, over 5000 actions in 181 countries were delivered around the world, to send a message to decision makers at the UN Climate Change Conference in Copenhagen that urgent action to limit greenhouse gas emissions was needed. The local event was initiated by Climate Action Pittwater and supported by Pittwater Council. Climate Action Manly Warringah joined the effort and were supported by Manly and Warringah Councils in a coordinated effort across the northern

beaches region. Mosman Council supported its community in taking action on climate change, with students from two primary schools in Mosman forming a human sign of 350 on Alan Border Oval.

Earth Hour

Earth Hour, an initiative of WWF-Australia, was supported by the SHOROC member Councils in March 2010, through Council participation, the hosting of local events and promotion of Earth Hour to the community through local media. Manly, Mosman, Pittwater and Warringah Council's all switched off lights and appliances in their main Council buildings for one hour and promoted Earth Hour to the local community. Overall, all Australian capital cities, 56% of local councils and 49% of Australian adults participated in Earth Hour.

Fridge Buyback Program

This program run by Next Energy with funding from DECCW, provides a free community collection service for working second fridges, and offers a \$35 rebate where applicable. All fridges collected are degassed and the metal recycled. SHOROC member Councils have promoted the Fridge Buyback Program across the SHOROC region to the community through the local newspaper, Council websites, noticeboards, letterbox drops and through the rates notice. In total **871** fridges were collected across the SHOROC region during 2009/10. Over the total life of the project, **2,224** fridges have been collected across the SHOROC region, saving **18,494** tonnes of CO₂e and **177.7** kg of CFCs, recycling **199.5** tonnes of metal, and collectively saving residents **\$3,467,000** on their electricity bills.



Fridge Buyback Program. Source: Pittwater Council

Delivering Local Responses

Manly Council

Manly Carbon Emissions Reduction Project

Manly Council resolved on 14 September 2009 that Council's target on carbon emissions be brought in line with the Federal Government's announcement to work towards a 25% carbon emission reduction on the 2000 level by 2020. This amended the previous Council's resolution to become carbon neutral by the end of 2010. This year Council commenced preparation of a Carbon Emissions Reduction Plan to achieve, and where possible exceed, Council's target. Given limitations on data from the year 2000, the Action Plan will use 2008/09 as its baseline from which carbon emissions savings will be measured.

Manly Oval – Energy Efficient Flood Lighting & Recycled Fence

This year Council installed energy efficient flood lighting at Manly Oval to help reduce Council's GHG emissions. Council has also been working with the sporting user groups to raise awareness of their energy use at the site. The lighting installation was funded through the State Government's Public Facilities Program with further funding provided by Council. The lighting was due for replacement, as was the fencing around the oval, which was replaced with a picket fence made from recycled plastic milk bottles.

Climate Change Adaptation Action Plan

During the reporting year, Council completed a "Manly LGA Climate Change Risk and Adaptation Action Plan" Project under the Commonwealth Department of Climate Change's Local Adaptation Pathways Program (LAPP). Council has worked to build on the outcomes of the Project in order to develop a more comprehensive Adaptation Action Plan for Manly LGA. It is anticipated that the Action Plan will be finalised in 2010/11 and will provide a strategic approach to climate change risk management and adaptation for Manly Council and the community.

Hop, Skip and Jump – Manly's Free Community Bus

This free community bus service continued to grow throughout 2009/10, transporting residents and visitors alike to reduce the community's reliance on private vehicles. A total of 383,704 passengers were carried during 2009/10, an increase of 6.5% compared to 2008/09 bringing the progressive total to 1,391,160 passenger journeys. By using the Hop, Skip and Jump community bus, patrons are contributing to a cleaner, healthier and happier future for all Manly residents and making a significant improvement to our environment. The buses operate on a 20% biodiesel blend and it is calculated that the use of this fuel, as opposed to standard diesel, has significantly reduced GHG emissions during the year. This is in addition to the less-quantifiable reductions achieved by residents turning away from private vehicle use to the bus service.



Energy Efficient Lighting At Manly Oval and Recycled Fence Source: Manly Council



Mosman Council

Mosman Rider

The Mosman Rider commenced service on December 1, 2009 as a free shuttle bus servicing the Mosman area. Operating around a 9.1km loop every half hour the bus was introduced as a viable alternative to using a car in Mosman. The Mosman Rider has experienced steady growth in the number of passengers with 21,404 people using the service to the end of July 2010. The bus is decked out with a distinctive blue and pink wrap depicting Mosman's affiliation with Whales, making it an easily recognisable service to locals and visitors. The route and timetable are available on Council's Website or in brochures located in Council facilities.

Car Share Scheme

Council continued its twelve month car share trial in partnership with GoGet Carshare, during 2009/10. Two Car Share vehicles are currently used in Mosman, with one parking space provided in the Mosman Square Carpark and the other in the Raglan Street East Carpark, enabling easy access for the Mosman community. The Carshare Scheme has saved approximately 78.7 tonnes of GHG emissions over the last year.

Energy Efficiency Business Program

Mosman Council supported DECCW's Energy Efficiency Business Program during 2009/10, encouraging local businesses to sign up for the program. The Program involved an energy audit of local businesses and the provision of an action plan report showing businesses what actions they could take to reduce their energy consumption and electricity bills. Approximately 47 businesses registered and participated in the program, undertaking lighting retrofits and other behavioural changes to reduce their energy bills and carbon pollution.

Walk Against Warming

Mosman Council supported the Walk Against Warming on 12 December 2009, to show its commitment to climate change action. Council promoted the Walk to the community through the Council website, community noticeboards, sustainability e-newsletter, Mosman community newsletter, distribution of flyers at the Mosman Festival, and advertisements in the local newspaper. Council also invited staff and members of the community to join in the Walk to support the cause by walking behind the Council banner. A total of 16 staff, councillors and community members joined in the Walk.

Walk to Work Day

Council supported Walk to Work Day on 2 October 2009 to promote a healthy lifestyle and improved air quality, through the use of sustainable transport modes such as walking. Council promoted the Walk to Work Day to the Mosman community, and Council staff also participated in the day and were rewarded with a healthy breakfast, as well as prize giveaways to the three staff members that walked the furthest to work on that day. A total of 28 staff took part, with the winner walking/running 17km to work.



Top: Mosman Car Share. Above: Mosman Rider
Source: Mosman Council

Pittwater Council

Reducing Fleet Emissions

Pittwater continues to pursue the purchase of fuel efficient clean diesel vehicles for both its passenger and commercial fleet resulting in 19,000 litres less fuel being burnt. The move to more widely available E10 fuel has significantly contributed to a drop in Council's overall GHG emissions with an 11% reduction recorded. Maintenance training has commenced with Council drivers with a view to educating them on how to get optimal fuel efficiency from the use of their vehicle.

LED Lighting at Whale Beach Rock Pool

In December 2009, Council energised two new 150 watt marine grade light emitting diode (LED) floodlights at the Whale Beach rockpool with resulting triple bottom line sustainability outcomes – financial, social and environmental. For many years this pool had been serviced with two 1,000 watt flood lights that were mounted on a pole some 30 metres above the pool on the headland. The floodlights were a source of irritation for many residents across the bay as light spilled into people's homes. By installing stainless steel poles, Council was able to focus the new lights directly down onto the pool, eliminating light spillage. Pool users are very happy with the improved lighting as LED lighting penetrates the water allowing swimmers to see the bottom. LED lighting has a longer lifespan, thus reducing maintenance costs and only consumes 20% of the electricity in comparison with the old lights, resulting in GHG emission reductions and lower electricity bills.

Going Solar at Mona Vale Library

In December 2009, Council installed a 2.0 kilowatt solar panel system on the Mona Vale Library and Administration building in Park Street. The panels were funded by Council's Revolving Energy Fund and were installed to offset the additional power consumption involved in upgrading security lighting in the Village Park precinct. The system is grid connected and comprised of 10 x Kyocera 205 watt solar panels. The north-west facing roof of the building is ideal for the solar panel location and the pitch of the roof at 34 degrees is ideal for year round generation of clean, green electricity. Solar panels generate electricity 7 days a week, 365 days

a year and the system has averaged 10 kilowatts per day since installation. To date, the system has generated over 2,400 kilowatts of power. The system is expandable, and it is envisaged that future add-on panels could give a capacity of 10 kilowatts per hour on the existing roof areas.

Climate Change Expert Coastal Advisory Panels

Through the Coastal Environment Centre, Pittwater initiated three popular and interactive community events on Climate Change with live Question & Answer with expert speakers, including a 'Climate Change Forum' with Dr Ben McNeill (University of NSW) and Bruce Thom (University of Sydney); 'The Coast of Australia' including a book launch with Professor Andrew D Short OAM (University of Sydney); and 'Climate Change and the Coast' a regional Teacher Professional Learning Day.



350 at Mona Vale. Source: Pittwater Council



Warringah Council

Warringah Energy Program

Under Council's Energy and Water Saving Program, Warringah has been installing photovoltaic panels and solar hot water systems at a number of community buildings and facilities. In 2009/10 photovoltaic systems were installed at the Dee Why Surf Club, Collaroy Progress Hall, Belrose Community Centre, Cromer Community Centre, Brookvale Children's Centre and Manly Vale Community Centre. Solar hot water systems were installed at the Cromer Administration Building and Old HR House.

Replacement of the air-conditioning thermostats at the Belrose Library was undertaken to improve the efficiency of the system. In addition, it is anticipated that the roof upgrade of the Civic Centre being undertaken in 2010/11 will enable the proposed installation of a large scale photovoltaic system of up to 29.9kw.

Power-Mates on Stand-By at Warringah Libraries

Since October 2009, energy-conscious residents have been able to borrow a Power-Mate Lite from one of Warringah Council's four libraries to measure the electricity, GHG's and costs of running common household appliances. The device connects between an appliance and the power socket to provide accurate measurements of energy consumption when an appliance is running or in stand-by mode, helping households to identify and reduce energy costs and GHG emissions.

The Power-Mate Lite can be used to estimate the energy usage, GHG's and costs of running appliances over hourly, quarterly and yearly periods and can even show whether an appliance left switched on at the wall while not being used, such as a toaster or kettle, is still consuming power. The devices have proven so popular that since their introduction, there is a waiting list for borrowers.



Top: Power-Mate Lite. Source: Warringah Council.
Above: Solar Panels at Manly Vale Community Centre.
Source: Warringah Council