

# **A REVIEW OF**

## **Action for Air**

**- the NSW Government's 25 year air quality plan**

**TOTAL ENVIRONMENT CENTRE**

**September 2001**



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## About Total Environment Centre

Total Environment Centre (TEC) was established in 1972 as an environmental advocacy centre. Since then it has worked on a wide range of environment protection campaigns - natural and urban, coastal and inland, country and city.

The Centre also provides public information on environmental concerns, advises on toxic chemicals and safer alternatives, and provides assistance on how to run a campaign, deal with the media and lobby politicians. It undertakes environmental consultancies, organises conferences and publishes reports and books.

The Centre is a non-profit, non-government organisation funded mainly by donations. A small number of paid staff are assisted by volunteers.

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## Forward

With millions of people in the Sydney-Wollongong-Newcastle region affected by air pollution and escalating health, traffic congestion and other costs – it is time to review *Action for Air*. Released in March 1998, it was described as an “air quality blueprint”. The Premier, Bob Carr said, “My Government has declared war on air pollution – this is the plan to make NSW the world leader in air quality management.”

Excessive use of cars; dirty industry; new public transport; use of cleaner fuels; and stricter emission controls – were all targeted. While some gains have been made in previous years through the introduction of lead-free petrol, the growth in car traffic and increasing use of diesel vehicles is not only countering the gains but increasing the amount of toxic particulate pollutants in the air.

Total Environment Centre was part of the official launch for *Action for Air*. We had been working with the Clean Air 2000 Taskforce to highlight the air pollution crisis and participated in intensive negotiations with government to establish key air quality and traffic reduction targets. We welcomed the plan, but warned that effective implementation was the key test. We promised Total Environment Centre would be an active watchdog.

This first **Review of Action for Air** is the only independent assessment of progress. The NSW Government is undertaking its own review which will be reported to the Clean Air Forum in September 2001. We aim to keep the Government accountable.

Our review has three objectives – to assess progress against targets; evaluate new information and suggest improved targets and programs. In sum there are a few advances but with the most crucial programs, performance is poor.

The results do not auger well for the air we breathe. The investments we make today will take time to have effect and will determine the quality of the air in the next two decades. Efforts should be redoubled. We will have only one chance to give the millions of present and future residents in the region, a clean air future.

Jeff Angel  
Director  
Total Environment Centre

## INTRODUCTION

*Action for Air* is the State Government's 25 year plan to improve air quality in the Greater Metropolitan Region (GMR) of Sydney, the Illawarra and the Lower Hunter. Launched in 1998 it provides a framework for measures to be implemented by a number of government agencies.

As much can be lost in the translation of plan to reality, with bureaucratic and Treasury hurdles, TEC undertook to conduct a comprehensive review of the State Government's implementation of *Action for Air* objectives in the run up to the major air quality summit to be held in September. This report presents the results of that review.

This review has three main objectives:

1. Assess performance in implementing *Action for Air*.
2. Assess new data.
3. Suggest updated targets and actions.

*Action for Air* seeks to improve air quality by tackling the two major air pollution problems in the GMR - photochemical smog and particle pollution.

### **Air quality impacts**

Photochemical smog is the result the atmospheric reaction of oxides of nitrogen ( $\text{NO}_x$ ) and volatile organic compounds (VOCs), triggered by sunlight. Major sources of VOCs are unburnt fuel exhaust emissions and evaporative losses from vehicles (52% of emissions), evaporative losses from industry (6%), solvents (9%), domestic wood heating (12%) and vegetation (3% from lawn mowing). VOCs are sometimes also grouped under the heading reactive organic compounds or ROCs. Major  $\text{NO}_x$  sources are emissions from vehicles (70% of emissions) and industry (24%) (EPA, 2000a).

The principal measure of photochemical smog is ground level concentrations of the major smog component, ozone. Ground level ozone has been shown to have adverse effects on human health including triggering asthma attacks and other respiratory problems and impairing immune function. It has been estimated that the annual national incidence of individual health effects due to ozone are increased mortality (5-10), asthma attacks (1,500-4,500), acute respiratory symptoms (0-31,000), minor restricted activity days (0-

32,000) and minor irritants such as eye, throat and chest complaints (6,000,000-18,000,000) (NEPC, 1997). Recent research also indicates that exposure to high levels of ozone may be harmful to the growth and development of respiratory systems in young primates (with possible relevance to humans) (Miller, 2001).

The seriousness of ozone pollution in Sydney is revealed by National Environment Protection Council (NEPC) estimates that, approximately 1.5 million Sydney people are exposed to the National Environment Protection Measure (NEPM) 1 hour ozone standard of 0.10 ppm at least once a year, while approximately 2.5 million people are exposed to World Health Organisation (WHO) 1 hour standard of 0.08 ppm. (NEPC, 1997). Ozone concentrations are often below these levels, meaning the actual number of people who are exposed to ozone is, in fact, higher (health effects at various concentrations depend on individual sensitivity)

Apart from its role in producing ozone, nitrogen dioxide ( $\text{NO}_2$ ) has also been found to trigger asthma and respiratory problems on its own. It has also been found to increase the effects of some allergens and is associated with increased hospital admissions for heart disease (EPA, 1998a).

Particle pollution arises from a variety of natural and human sources. Fine particles with a diameter under  $10\mu\text{m}$  ( $\text{PM}_{10}$ ) are of greatest concern as they are small enough to be inhaled and remain within the respiratory system. Research indicates that particles with a diameter of  $2.5\mu\text{m}$  or less ( $\text{PM}_{2.5}$ ) are particularly serious as they are small enough to penetrate deep into the lungs and most closely associated with health effects (EPA, 1998a).

Health effects associated with fine particles include increased hospital admissions and mortality from cardiovascular and respiratory diseases, reduced lung function in asthmatic children and respiratory problems in children. Overseas studies have shown a 1% increase in daily mortality (from all causes) per  $10\mu\text{g}/\text{m}^3$  increment in  $\text{PM}_{10}$ . For respiratory and cardiovascular mortality, the observed increases are 3.4% and 1.4% per  $10\mu\text{g}/\text{m}^3$   $\text{PM}_{10}$  respectively. Studies in Sydney have shown that for an increase in  $\text{PM}_{10}$  of  $15\mu\text{g}/\text{m}^3$  to  $40\mu\text{g}/\text{m}^3$  mortality from all causes increases by 2.6%, while cardiovascular and respiratory mortality increase 2.7% and 3.4% respectively. It is estimated that fine particle pollution in Sydney accounts for 397 premature deaths out of a total of 21,500 (NEPC, 1997).

The main sources of fine particles are motor vehicles (especially diesels), industry (18%), solid fuel heaters (25%) and open burning (6%) (EPA, 2000a).

*Action for Air* has seven principal objectives designed to reduce emissions of NO<sub>x</sub>, VOCs and PM<sub>10</sub>. These are:

1. Integrate air quality goals and transport planning.
2. Provide more and better transport choices.
3. Make cars, trucks and buses cleaner.
4. Promote cleaner business.
5. Promote cleaner homes.
6. Manage the impact of open burning.
7. Monitor, report and review air quality.

Each of these objectives include a range of strategies and actions designed to improve air quality in the GMR. Progress on each of these is examined in later sections of this report.

### **State of the air**

The NSW State of the Environment Report 2000 (EPA, 2000a) reveals that the GMR continues to suffer from major air quality problems.

Ground level ozone concentrations are of particular concern. The NSW goal for ground level ozone concentration is currently set at the NEPM standards of 0.10 ppm (averaged over one hour) and 0.08 ppm (averaged over 4 hours). WHO standards of 0.08 ppm and 0.06 ppm (averaged over 1 and 4 hours respectively) are listed as long term goals in *Action for Air* (EPA, 1998a).

The 2001 NSW State of the Environment Report reveals that both NEPM and WHO goals are exceeded on a regular basis. The peak 1 hour average for ground level ozone in Sydney has tended to remain at around 0.15ppm over the last decade (fig 1). The report also notes that it is not unusual for air NEPM standards to be exceeded. The number of days in which 1 and 4 hour standards are exceeded has also remained high (figs 2 & 3). Despite a decline in the late 1980's and early 1990's and very low levels in 1995 and 1996, exceedances in 1997 and 1998 returned to levels seen in the early 1980's (EPA, 2000a).

The summer of 2000/01 also saw alarming concentrations of ground level ozone recorded throughout Sydney (fig 4). In the months of December and January WHO guidelines were exceeded on 23 days, while the NEPM guideline was exceeded on 13 days. The highest ozone concentration was 0.17ppm in Sydney's north west on January 24.

The return to high ozone levels in recent years suggests that emissions of ozone precursors (NO<sub>x</sub> and VOCs) remained high throughout the last decade and that the fall in ozone concentrations in the mid 1990s was a result of relatively cool, wet summers with less atmospheric conversion of precursor compounds to ozone. The 2001 SoE report supports this view, concluding that the data clearly shows that emissions of ozone precursors are sufficient to generate ozone concentrations well in excess of current standards.

This conclusion is reinforced by the statements in the SoE report that underlying NO<sub>x</sub> emissions continue to rise. Significantly, NO<sub>2</sub> peak concentrations over the period 1994-1998 were concentrated around the NEPM standard (fig 5). The significantly lower figures for annual peak NO<sub>2</sub> concentrations and number of exceedances compared to the 1980s (fig 6) are not attributed to a reduction in NO<sub>x</sub> emissions, but rather fluctuations in meteorological conditions or VOCs levels which may have affected the atmospheric conversion of NO to NO<sub>2</sub>.

It is difficult to determine a clear trend in particle pollution figures from the 2000 SoE report. It is significant, however, that annual peak 1 day concentrations (fig 7) have remained above the NEPM standard. Recent figures reveal that fine particles continue to be a problem in Sydney throughout winter.

Regional Pollution Index (RPI) figures show 7 nights in June 2001 in which particle concentrations in excess of the EPA's goal of 50µgm/m<sup>3</sup> were recorded in one or more parts of Sydney. A further 13 nights produced readings in the medium to high range. The worst pollution occurred on the night of 23 June with a reading of 73µgm/m<sup>3</sup> (almost 50% above the air quality goal) recorded in Sydney's north west (EPA website, [www.epa.nsw.gov.au](http://www.epa.nsw.gov.au)). Significantly these readings fell sharply the following day, indicating that overnight fires were contributing most of the pollution.

This conclusion is supported by the findings of a paper presented at a recent firewood conference in Armidale. The paper revealed that carbon dating of air samples taken from 4pm to 8am near the Sydney CBD in July and August 1993 found that 67% of particulate air pollution at that time originated from burning wood. In the Blue Mountains the figure was 81% (Robinson, 2001).

## **Action for Air?**

While a 25 year plan cannot be expected to achieve its goals in 3 years, nor will it attain its longer term goals if the foundations are not firmly in place. A number of the key policies will take some years to make a discernable impact. Poor air quality results over recent years, particularly for ozone, indicate that *Action for Air* faces very significant challenges. A detailed analysis of progress on each objective is provided in later sections of this report. However two areas in particular stand out, continuing rapid growth in vehicle kilometres travelled (VKT) and poor progress in implementing *Action for Air* commitments to improve public transport. Continuing rapid growth in VKT is undermining the benefits of cleaner vehicles and changes to fuel composition in recent years.

It is clear from these trends and new data on health impacts that a major overhaul of *Action for Air* is needed to improve progress in meeting commitments and reaching air quality goals. Recommendations to revitalise *Action for Air* and produce lasting improvements in air quality in the GMR are included in the review of each objective.

Information required to conduct this review was obtained from wide variety of sources including government publications, direct requests to government agencies, local government and regional organisations of councils, industry groups and independent experts. It is worth noting that TEC encountered considerable difficulties in obtaining all information sought from government agencies. Informal requests for information were met with bureaucratic requirements for written questions. Responses to these written requests were often inadequate or, in some cases, provided no information at all. This points to a lack of coordination and ongoing accountability for *Action for Air* responsibilities within and between several government agencies.

## TEC Action for Air Review table 1

### Objective 1. Integrate air quality goals and urban transport planning

Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
<b>Actions</b>					
<b>Strategy A. Integrate urban infrastructure and transport planning</b>	Ministry of Urban Infrastructure Management. Urban Infrastructure Management Committee. DUAP. Public Transport Authority. Public Transport Advisory Council	Long-term transport plan for the Greater Metropolitan Region (GMR)		Urban Infrastructure Management Plans (yearly)	
<b>1.1 Develop a transport plan to reduce vehicle VKT growth</b>	Minister for Transport & Roads. RTA. DUAP. DoT	Stopping VKT per/cap growth Stopping total VKT growth	By 2011 By 2021	Integrated transport plan <i>Action for Transport 2010</i> .	Integrated transport plan released in 1998 as <i>Action for Transport 2010</i> .  Latest figures show Per Cap VKT increased 15.3% 1991-97 Total VKT increased 23.5% 1991-97. Private cars used for 70% of all trips in S Car journeys have increased by 18% since 1991. Train and bus travel have inc only 11% and 5% respectively in the same period.
<b>1.2 Make the reduction of VKT a planning priority across government</b>		Stopping VKT per/cap growth Stopping total VKT growth Reduction of	By 2011 By 2021 2011-2021	Urban infrastructure management plan ( yearly for 5yrs)	Per Cap VKT increased 15.3% 1991-97 Total VKT increased 23.5% 1991-97.  Private cars used for 70% of all trips in Sydney. Car journeys have increased b since 1991. Train and bus travel have increased by only 11% and 5% respecti same period.

		<p>9 % in per/cap VKT</p> <p>Reduce projected VKT growth by 43 %</p> <p>Increase public transport journeys to work (JTW) to 30%</p>	<p>1991-2021</p> <p>By 2021</p>		<p>Environmental Impact Statement (EIS) for Parramatta rail link estimates 180 r km/yr reduction in VKT and peak hour traffic volume reduction of 3-4%.</p> <p>EIS for Liverpool-Parramatta Transitway estimates 13, 825, 000 km reduction 2016, against base case.</p> <p>New roads such as the Western Orbital, Windsor Road upgrade and associated urban/commercial growth are likely to counter VKT reductions in Western Sydn</p>
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Review	Key Agencies	Stated goals	Timelines/\$ \$\$ (where stated)	Related plans/ strategies	Comments
<b>1.3 Integrate transport issues in regional and local planning</b>	DoT RTA DUAP Local councils	<p>Higher-density development close to transport nodes</p> <p>Concentrate retail, commercial, entertainment, community services into centres</p>		<p>Urban consolidation policies</p> <p>Centres policies</p>	<p>1999 RTA Environment Report states "RTA working with DOT, DUAP and local government to improve decision making on transport issues through the status planning process. A high level Travel Management Task Force is to investigate for reducing car dependency." No specifics or reports on progress so far provided.</p> <p>RTA advise (1/3/01) that further information not currently available.</p> <p>TEC wrote to DoT 7/2/01 seeking further information on progress of multi-agency taskforce to promote best practice in road planning, design and maintenance &amp; co-operation with local councils to improve decision making. Reply dated 20/3 provided no information. Reply via EPA July 2001 simply reiterates information RTA Environment report. Provides example of the Parramatta Regional Environment Plan.</p> <p>SEPP 63 introduced to protect corridors for public transport from development makes transitway zonings to protect corridors possible.</p>
<b>1.4 Implement accessibility criteria for new residential development</b>	DoT DUAP	<p>Maximise accessibility to public transport for new residential areas</p>		<p>Metropolitan urban development program (UDP)</p>	<p>Accessibility criteria for new residential development prepared by DOT include accessibility criteria for additions to the Government's Urban Development Program (UDP) in October 1997. These were updated by an inter-agency land and housing forum held in February 2000.</p> <p>The new criteria consider <i>Action for Air</i> goals and require that decision makers consider the capacity of the land use/transport patterns of the site make a positive contribution to the achievement of travel and vehicle use goals. These criteria have been applied in assessments of potential UDP additions since their initial adoption.</p>

					SEPP 5 amendments effective 1/12/00 require consent authority to refuse a D 5 Housing unless it is within 400 metres of certain services or a transport serv take residents to those services. The service must operate Mon-Fri in daylight
<b>1.5 Set targets for JTW by public transport at key centres</b>	Parramatta City Council	Increase pub transport JTW from 25% to 40- 60%		Parramatta Regional Environmental Plan (REP)	<p>REP sets target to increase JTW by public transport from 25% to 40-60% by ii public transport and increasing density and providing mixed use zones around nodes.</p> <p>More detail and specific timelines needed on strategies to improve pedestrian . cycling. REP largely restricted to statements of intent.</p> <p>REP lacks specific details of parking policies needed to support transport initia JTW targets are to be achieved. Need firm commitments and timelines. REP cc only statements of intent and possible strategies.</p> <p>Integrated approach to Parramatta REP, including growth target for public trar line with growth in the workforce, to be used as model for planning developm other centres.</p>

Review	Key Agencies	Stated goals	Timelines/\$ \$\$ (where stated)	Related plans/ strategies	Comments
<b>S.B Improve management of freight transportation</b>		<p>Improve efficiency of urban freight movements</p> <p>Reduce the impact of heavy vehicles in built up areas</p>		More integrated planning for the management of freight	
<b>1.6 Design and implement an integrated freight strategy</b>	Minister for Transport & Roads	Develop integrated strategy	end of 1998		<p><i>Freight 2010</i> not yet finalised. Legislative Council General Purpose Standing Cc No 4, examining Freight Rail privatisation recommended that it be published by 2001.</p> <p>Committee also recommended that 50% of proceeds from any FreightCorp sal to improve rail freight infrastructure.</p> <p>1997 Rail Summit of the Australian Transport Council saw ministerial agreeme formation of Australian Rail Track Council (ARTC). Major goal to harmonise st</p>

					<p>and lift poor speed-weight performance to average 80km/h at 23 tonnes axle load.</p> <p>NSW Government yet to reach agreement with ARTC on how to proceed in NSW Interstate rail freight speed-weight performance poor by United States Class 1 due to poor alignment, light rail and antiquated signalling. Worst sections are : Brisbane (60kph) and Sydney-Melbourne (70kph). Newcastle-Brisbane average 47kph. Pacific Hwy being upgraded to allow B-Double operations over its length. Unless tracks are improved an irretrievable loss of freight to roads may occur.</p> <p>More than 80% of Sydney-Melbourne freight carried by trucks. Journey takes 10hrs by road and 14 by rail.</p> <p>Reliance on road transport adds 500,000 tonnes per annum to CO<sub>2</sub> emissions from freight.</p> <p>Contracts for M2 restrict development of competing rail freight transport.</p> <p>Western Orbital will compete with public transport and rail freight. No equivalent funding for rail freight in this region.</p>
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## **OBJECTIVE 1**

Objective 1 of *Action for Air* has two aims: increasing the use of public transport (Strategy A) and improving the efficiency of freight transport (Strategy B).

Two critical elements of Strategy A are to develop a transport plan to reduce Vehicle Kilometres Travelled (VKT) growth (Action 1.1) and to make the reduction of VKT a planning priority across government (Action 1.2).

In 1998 the integrated transport plan, Action for Transport 2010 was developed. Its aims are to set goals of reducing by 2011 the per capita increase in vehicle kilometres travelled (VKT) and stopping total VKT growth by 2021. This target can only be achieved if there is a major shift to public transport. For instance, at present approximately 23% of journeys to work in Sydney are by public transport. This would need to increase to 30% to meet the VKT target. The latest figures show that VKT increased by 15.3% during 1991-97, with total VKT increasing by 23.5% (Transport Data Centre, 1999). A Department of Transport Household Travel Survey (Transport Data Centre, 2001) reveals that private cars are used for 70% of all trips in Sydney. Car journeys have increased by 18% since 1991, while train and bus travel increased by only 11% and 5% respectively in the same period.

It appears that VKT is continuing to outstrip population growth, eroding the benefits of cleaner vehicles other air quality measures and the *Action for Air* targets. Clearly more effort is needed to improve our public transport system. Unfortunately some major initiatives aimed at reducing VKT have been delayed, such as the Parramatta rail link. Progress on improving public transport will be examined in detail in the review of Objective 2.

There have, however, been some encouraging signs of a trend toward increased public transport use by Sydney residents over the last 12 months. Traffic volume on the M2 in May 2001 was 9.4% below May 2000 figures, while the M4 and M5 recorded falls of 6.1% and 4.5% respectively over the same period. At the same time CityRail has recorded a 4% growth in ticket sales with increases of 4.6% and 5.9% on the Richmond and Campbelltown lines (Daily Telegraph, 13/6/01; Sydney Morning Herald, 13/6/01).

This trend toward increased train patronage is attributed to increased toll charges and rising petrol prices. It is essential that state and federal governments capitalise on this recent development by improving public transport. This will also be discussed in further detail in the review of Objective 2.

The aim of including transport issues when local and regional planning decisions are made is outlined in Action 1.3. These include; higher development densities near public transport: concentrating community facilities into centres that can be served by public transport; improving road design and maintenance. To this end a Travel Management Task Force has been convened. However no reports on its progress have been made available.

A positive step has been the introduction of State Environment Planning Policy (SEPP) 63 to protect public transport corridors from development with transitway zonings.

The Ultimo-Pyrmont residential/commercial development in Sydney shows how the closeness of this area to work and other facilities encourages use of public transport and walking. The 2000 Occupancy Survey Bulletin indicates that 41% of residents walked to work while 58% used the light rail for mainly work and shopping. 26% of households were without a vehicle (Sydney Harbour Foreshore Authority, 2001). Other new residential areas should aim for similar results. This could be possible with Green Square, Sydney Olympic Park and the Lidcombe Hospital site

In Action 1.4 criteria for closeness to public transport in new residential developments has been established. Accessibility criteria for new residential development prepared by DOT included in accessibility criteria for additions to the Government's Urban Development Program (UDP) in October 1997. These were updated by an inter-agency land and housing supply forum held in February 2000 and have been applied to all assessments of potential UDP additions since their initial adoption.

SEPP5 amendments effective 1/12/00 require a consent authority to refuse a DA for SEPP 5 Housing unless it is within 400 metres of certain services or a transport service will take residents to those services.

In Action 1.5, the Parramatta Regional Environmental Plan (DUAP et al, 1999) includes journey to work targets. The aim is to increase use of public transport from 25% to 40-60%, however, the plan lacks specifics in many areas, such as pedestrian access, cycling and parking and is largely restricted to statements of intent.

Strategy B, improving the management of freight transport, has the potential to significantly reduce emissions of fine particles and NO<sub>x</sub> by reducing the growing dependence on diesel vehicles for freight transportation. In Sydney diesels are currently responsible for 15% of Vehicle Kilometres Travelled (VKT). This is expected to rise to 22% in 2015 (NEPC, 2000)

Unfortunately progress on this strategy has been very poor. The aim of Action 1.6 is to develop an integrated freight strategy by 1998. At this stage, the study, Freight 2010, has not been finalised. One goal of the newly formed Australian Rail Track Corporation is to harmonise standards and lift the poor speed-weight ratio to an average 80 km per hour at 23 tonnes axle load (ARTC web site, [www.artc.com.au](http://www.artc.com.au)) However, the NSW Government has yet to reach agreement on this matter with ARTC.

The poor condition of rail freight infrastructure may cause irretrievable loss of business to road transport, with over 80% of freight between Sydney and Melbourne currently being carried by trucks. In addition contracts on tollways, such as the M2, which restrict or prohibit railways in the same corridor, encourage the use of trucks. Reliance on road transport adds 500,000 tonnes per annum nationally to carbon dioxide emissions (Laird, 2001).

### **Recommendations**

1. Bring forward capital works on major public transport initiatives to increase capacity and service levels.
2. Progress reports of the Travel Management Task Force should be made available.
3. The Parramatta Regional Environmental Plan should include more detail on specific areas, firm commitments and timelines.
4. Finalise and release Freight 2010 strategy. This should include a program to dramatically improve tracks and signalling and an agreement with the Australian Rail Track Corporation to improve speed-weight performance.

## Objective 2. Provide more and better transport choices

*"Objective: To improve transport choices and encourage reduction in vehicle trips and kilometres travelled by both passenger and commercial vehicles".*

### TEC Action for Air Review table 2

Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
<b>Actions</b>					
<b>Strategy A. Provide better public transport</b>		Improve public transport - road and rail.		'Greater Western Sydney (GWS) Public transport Strategy'  extend heavy rail,  integrate light rail,  improve public transport on roads,  improve public transport management,  upgrade regional transport strategies	
<b>A.1 Greater Western Sydney Public Transport Strategy</b>		Improve public transport in GWS		'GWS Public Transport Strategy'	

<p><b>2.1 Consider funding for public transport</b></p>		<p>Promote growth in public transport.</p> <p>Allow medium &amp; long-term public transport infrastructure planning</p>		<p>'Integrated Transport Plan'</p>	<p>Integrated transport plan <i>Action for Transport 2010</i> released 1998.</p>
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Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
<p><b>2.2 Enhance the Parramatta rail link</b></p>		<p>Improve rail access to Parramatta, South West, North West and Western Sydney.</p> <p>5 new railway stations and 7 existing stations upgraded. Rosehill-Camelia station to incorporate interchange with Parramatta to Strathfield Rapid Bus Only Transitway.</p> <p>3-4% Peak hour traffic volume reduction. Reduce passenger VKT by 180M km/yr.</p>	<p>Train services to commence 2006</p>	<p>Environmental Impact Statement (EIS) &amp; summary</p>	<p>EIS was released early 2000.</p> <p>Planning and environmental assessment taking longer than scheduled.</p> <p>Parramatta-Chatswood link cost blown out from \$1.4b to \$2b. Project has now been split two with public funding announced for first stage between Epping and Chatswood and an underground bus exchange at Parramatta. No funding for second stage between Epping Parramatta. Completion of 15.5 km Chatswood-Epping link scheduled for 2008. Cabinet committee to examine funding options.</p> <p>Decision to delay rail link announced at same time as additional \$123m to upgrade Wind Road to 4 lanes.</p> <p>Minister for Planning assumed planning authority Jan 01</p> <p>Debate as to whether heavy rail is best option. Some arguments suggest that light rail may be cheaper and more suitable.</p>

<p><b>2.3</b>  <b>Consider fast-tracked public transport for the Hoxton Park to Parramatta corridor</b></p>	<p>DoT</p>	<p>Government to identify most appropriate services for a rapid public transport route on reserved corridor from Hoxton Park to Parramatta.</p>			<p>1999 RTA Environment Report states "The RTA, in conjunction with the DoT, is developing a rapid bus-only transitway to serve this corridor. The first stage of construction of the transitway and bus station in Bonnyrigg Plaza has commenced." No other details on progress provided.</p> <p>TEC wrote to DoT 7/2/01 seeking further information. Reply dated 20/3/01 provided no information. Reply via EPA dated 14/7/01 states that "fast-tracked public transport is being implemented as part of the Western Sydney Transitway network committed in Action for Transport 2010. On target for completion in 2003".</p>
<p><b>2.4</b>  <b>Plan for public transport in north-west Sydney</b></p>	<p>DoT</p>	<p>Work at Mungerie Park begins</p> <p>Richmond line upgrade</p>	<p>By Feb. 2000</p> <p>During 1998</p>	<p>To link Rouse Hill, Mungerie Park, Blacktown &amp; Parramatta</p>	<p>TEC wrote to DoT 7/2/01 seeking information on Richmond Line upgrade, strategic plan link Rouse Hill release area with the Mungerie Park sub-regional centre and other centres, as well as feasibility study of light rail service on Sunnyholt Road transport corridor. Reply dated 20/3/01 provided no information. Reply via EPA dated 14/7/01 simply states: "Comprehensive package of measures for NW Sydney outlined in <i>Action for Transport 2010</i>".</p> <p>Western Suburbs Regional Organisation of Councils (WSROC) advise that Castle Hill to Epping rail line is likely to have a long time frame. This makes completion of Blacktown to Castle Hill and Parramatta to Rouse Hill transport routes more important.</p>

Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
<p><b>2.5 Improve bus services in western Sydney</b></p>	<p>DoT</p>			<p>GWS public transport strategy</p> <p>Transitway policy</p> <p>Upgrading public transport information</p> <p>Road upgrades for bus priority</p> <p>Interchange upgrades</p> <p>Develop cross-regional services</p>	<p>Interchange improvements at Merrylands &amp; Railway Square. Wentworthville commuter car park.</p> <p>Interchanges also completed at Liverpool, Campbelltown, Epping, Mascot, Cabarita, Kiss Point and Yurulbin in 1999-2000 and construction began on interchange improvements at Springwood, Bondi Junction and Manly.</p> <p>7 new cross regional bus services introduced: Parramatta to Sydney City via Gladesville, Castle Hill to Liverpool via Parramatta, Castle Hill to Liverpool via Blacktown, Mt Druitt to Castle Hill via Quakers Hill, Mt Druitt to Parramatta via Quakers Hill. Mona Vale to Macquarie University and Parramatta to Gladesville via Victoria Road.</p> <p>Draft EIS for Liverpool-Parramatta Transitway released August 2000. Only 2.4km complete on government owned land. Consent of councils and other agencies needed for the rest of the route. A major problem with the project is the large number of traffic lights at crossings with major roads which will slow bus travel. Final approval now being sought.</p> <p>Draft Overview Report on Western Sydney Transitways Network being completed (DoT 2001 Annual Report)</p> <p>Performance Assessment Regime (PAR) to ensure best practice standards and service benchmarks are achieved before renewal of private bus contracts still being finalised. PAR to be introduced "once industry and community consultation has been completed" (DoT 2001 Annual Report)</p> <p>Discussion paper on PAR released late 2000.</p> <p>TEC wrote to DoT 7/2/01 seeking further information on bus only transitways and improvements to quality of private bus services. Reply dated 20/3/01 provided no information.</p>

<b>2.6 Provide public transport to new suburbs</b>	DoT	Introduce public transport at the outset of new development			<p>Release of Urban Greenfield Policy to Commercial Contract Holders completed in May 2000. First competitive tender process commenced in area of Blackbutt, Flinders and Shellcove the Illawarra in June 2000.</p> <p>North Western Sydney has a history of mass releases of land with very poor access to public transport.</p> <p>TEC wrote to DoT 7/2/01 seeking further information on requirements for awarding bus contracts in greenfield areas. Reply dated 20/3/01 provided no information. Reply via EP 14/7/01 states only that DoT is working with transport agencies, DUAP and local council to improve public transport to new urban development examples provided of Transport Management Plans for ADI site, Rhodes Peninsula and SEPP 59 (Greystanes).</p>
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Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
<b>A.2 Extend the heavy rail network</b>					
<b>2.7 Complete construction on the new southern railway</b>		Open the New Southern Railway	May 2000 \$600m allocated		<p>Opened but patronage poor. Airport Link in receivership, Government forced to take over line.</p> <p>Problems due to high cost of tickets to Airport Link stations, reliability problems, lack of baggage facilities on trains and at airport.</p> <p>Major shortcoming is that the service does not begin operating early enough to suit airport workers.</p> <p>More than half of trains from Cronulla and Waterfall lines do not stop at connecting Woll Creek Station.</p> <p>Airport Link Stations have insufficient seating.</p> <p>Off-peak services to inner west stations such as Newtown and Stanmore cut back when airport line opened.</p>

<p><b>2.8 Extend the Eastern suburbs railway line</b></p>		<p>Link Bondi beach, high density residential &amp; tourist precinct, to CityRail network</p>			<p>Project abandoned due to rising costs, expected poor patronage levels and environmental issues. Funding announced for constructing a turnaround loop at Bondi Junction to speed up turnaround and increase services on Illawarra line instead. This would increase number of trains on Illawarra line from 14 to 18 an hour. This equals an increase in capacity of 6,000 passengers per hour.</p> <p>Turnaround loop expected to be completed 2005.</p> <p>Annual passenger growth rates at Illawarra line stations since 1996 have been three times network wide growth. Annual growth for Sutherland has been 6 times the network-wide growth.</p>
<p><b>2.9 Construct the Homebush Bay rail loop</b></p>		<p>Make public transport the dominant form of transport to events at Homebush</p>		<p>New rail link Cross-regional bus services Limited car parking Integrated ticketing to events</p>	<p>Line completed. Very successful during Olympics and other major events. Restrictions on parking and vehicle access important factor in encouraging public transport use and need to be retained. 2000 Easter Show, provided discounting parking, however, with parking costing as little as \$11 a day. A family of four travelling from the suburbs would save \$7 by driving rather than purchasing a Showlink ticket (SMH 6/4/01).</p>

Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
A.3 Integrate light rail					
2.10 Integrate light rail		Integrating light rail into transport network		EIS re extension of central-Pyrmont route	<p>Inner West Light Rail extended 3.1km in August 2000 linking Wentworth Park to Lilyfield</p> <p>Feasibility study of further extension to Ashfield Railway Station to be conducted.</p> <p>CBD extension to Circular Quay is needed to ensure financial viability. It should be developed before Cross-City Tunnel is built. Extension shelved in 1998 due to opposition from retail and building owners to route along Pitt St and Castlereagh St. State Government has stipulated that extension should not be built until after completion of Cross City Tunnel.</p> <p>Proposed sale of University of NSW land would create major obstacle to development of Eastern Suburbs light rail.</p> <p>Patronage on western extension to Lilyfield exceeded target of a million passengers in or the first year of operation.</p> <p>Patronage for entire system expected to be 4 million in 2001. Western extension has generated an additional 20,000 passenger trips per week.</p>
A.4 Improve public transport on roads					

<b>2.11 Fund road-based public transport</b>	RTA	To support greater modal share of road trips by public transport	1995-96 to 1998-99  \$170m from RTA budget	'Public transport infrastructure improvement program' (PTIIP)	RTA advise 1/3/01 that information on funding for PTIIP to support greater modal share road trips by public transport not currently available. Will be compiled over next 6 month part of RTA submission to Air Quality Forum.  EPA advise 14/7/01 that funding has been allocated in the RTA's Road-Based Public Transport Priority Program, plus a 10 year funding program for the Western Sydney Transport Network. No specifics provided.
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<b>Review</b>	<b>Key Agencies</b>	<b>Stated goals</b>	<b>Timelines/ \$\$\$ (where stated)</b>	<b>Related plans/ strategies</b>	<b>Comments</b>
<b>2.12 Implement the M2 public transport management plan</b>	RTA DoT				M2 Public Transport Management Plan completed 1997. Included \$1.6m upgrade of interchange at Epping station completed in January 2000.  Following review of plan after opening of M2 addition works were completed including:  Upgrading of bus stops and shelters. Additional car parking at Barclay Road bus stop. Bus only lanes run along over half of the length of the M2 from Winter Road in Seven Hills to Epping Railway Station.
<b>2.13 Implement the M5-East sub-regional air quality plan</b>	RTA DUAP EPA Dept of Health	Reduce 70% of vehicles from residential roads	\$0.5m/yr for 5 yrs (RTA)	Transport plan for M5 east	1999 RTA Environment Report states that development of plan will commence 1999/2000  NSW Parliament General Purpose Standing Committee No 5 Inquiry into M5 East Ventilation Stack recommended that development of the draft plan be completed by 30/6/00.  Sinclair Knight Merz engaged to develop plan. Work began March 2001 with air pollution survey distributed to 3000 randomly selected households re car use, heating, lawn mow etc. Completion of final plan now expected in July 2001.  RTA deleted consideration of modifications to the current stack that would allow heightening of the plume during worst case conditions and options for treatment of stack emissions outside scope of plan.  Development of plan, with objectives of identifying major contributor of particulate matter and NO <sub>2</sub> a condition of approval for the M5 East motorway.

<b>2.14 Implement an extensive bus priority scheme</b>		Develop a CBD bus priority scheme and establish transit lanes		PTIIP Sydney CBD bus priority scheme	Extension of transit lane on Victoria Road in progress.  Bus priority works completed in 98/99 along Warringah Freeway/Falcon St, Crows Nest.  Annual package to give priority to buses and other high occupancy vehicles as part of RT Road-Based Public Transport Priority Program.
<b>2.15 Improve services to the Eastern Suburbs</b>		Implement bus priority plan		Eastern Distributor bus priority plan	Package of works for improved public transport associated with the Eastern Distributor including bus priority plan completed July 2000.  Moore Park Bus Station in Operation 1999.  In July 2001 a \$9 million bus and rail interchange was opened at Bondi Junction railway station. 50,000 bus passengers and 42,000 rail patrons use the terminal each weekday. Each bus arrives at a separate air-conditioned area where sliding doors, triggered by a transponder on the bus, allow passengers access.

Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
<b>2.16 Upgrade the Warringah Peninsula bus system</b>	RTA	Develop a strategy to upgrade the existing bus system on the Warringah Peninsula	5yr period		Trial bus passenger information system, to display advice of bus arrival times at key locations, initially between Manly Vale and Mona Vale commissioned Nov 99. Completed works include bus bays on Spit Road.  Warringah 'Park and Ride' pilot trail at Mona Vale, Collary and Newport has resulted in increased patronage and services. To be assessed by Shore Regional Organisation of Councils.
<b>A.5 Improve transport management</b>		Make public transport more attractive to consumers			

<p><b>2.17 Better integrated ticketing, especially in GWS</b></p>	<p>CityRail State Transit DoT</p>	<p>Improve integrated ticketing</p>		<p>Bus Plus</p>	<p>DoT 2000 Annual Report states only that they are overseeing development and implementation of an integrated ticketing system to provide a single smartcard based fare system for public transport in the greater Sydney area.</p> <p>TEC wrote to DoT 7/2/01 seeking information on progress of implementing integrated ticketing system, investigations into making integrated ticketing available on a casual basis as a result of "Bus Plus" trial and other ticketing initiatives. Reply dated 20/3/01 provided no information. Reply via EPA 14/7/01 states that integrated ticketing across the public transport network planned to be phased in over 2003 and 2004. No details of proposed system provided.</p> <p>Need to improve equity in ticket prices between Western and Inner Sydney. Private bus should be subsidised at the same rate as Government buses. Private buses currently subsidised only for school transport.</p> <p>Pensioner concessions for government buses should be extended to private buses.</p>
<p><b>2.18 Improve transport information services</b></p>	<p>Public Transport Authority</p>	<p>Establish a comprehensive centralised phone information system covering all public transport modes, all providers &amp; all Sydney regions</p>			<p>Service commenced 28/11/99. Service includes a call centre and internet site for all public transport services, including private bus operators, within the CityRail network (North to Scone and Port Stephens, west to Bathurst and South to Nowra).</p> <p>There are problems with the website which is difficult to use. As of March 2001 it is not expected that these problems will be fixed for six months.</p> <p><i>Public Transport Directory</i> launched Nov 98, with route information on every bus, train, light rail and ferry service operating in Sydney. Information 3 years old but no funding from Treasury for new edition.</p>

Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
<p><b>2.19</b>  <b>Develop a metropolitan parking policy</b></p>	<p>Local government &amp; other agencies</p>	<p>Produce a comprehensive parking policy</p>			<p>Little progress since launch of strategy. While RTA has made some progress in the review of preferential parking schemes, there has been little progress on an overall metropolitan parking strategy.</p> <p>Budgetary constraints provide little incentive for councils to adopt a coordinated approach so emphasis tends to be on servicing needs of local residents. Short term time restraints being used in preference to increasing pricing of parking in many residential locations.</p> <p>Parking Space Levy Amendment Act 2000 extended to \$400 per space. Parking Space Levy for CBD and North Sydney to Chatswood, St Leonards, Parramatta, and Bondi Junction. Levy designed to increase the cost of parking in areas well serviced by public transport and make private vehicle use less attractive. Exemptions for retail shops, etc weaken effectiveness however.</p> <p>CBD levy increased to \$800 per space.</p> <p>Parramatta Council endorsed draft plan to install parking meters in city centre 19/3/01.</p>
<p><b>2.20</b>  <b>Promote teleworking in government and the business sector</b></p>	<p>RTA  NRMA clean air 2000 taskforce</p>	<p>Investigate options for the implementation of teleworking</p>			<p>RTA conducted telecentre trial at West Gosford in 1998/99. Following success of trial, West Gosford Telecentre became on-going operation.</p> <p>Penrith Telecentre opened Sept 2000 and accommodated RTA and ORTA staff during Olympics. Will be monitored for 12 months to evaluate effectiveness. Telecentre for NSW public servants also established in Wollongong.</p> <p>RTA has produced two editions of <i>How to set up a Teleworking Program</i>. Also available on internet.</p> <p>ABS figures show 6% of Australians teleworked regularly prior to Olympics. This increased to 10% in Sydney for the two weeks of Olympic competition</p> <p>NRMA Clean Air 2000 Taskforce defunct.</p> <p>1993/94 RTA Teleworking pilot project monitored travel behaviour of staff and other household members.</p>

					<p>Total number of trips by teleworkers on teleworking days by all transport modes fell 53%  Number of trips to work locations fell 86%. Work related trips fell 61% and number of trips for shopping fell 37%.</p> <p>Average number of car trips fell 25% (37% on teleworking days). Number of trips by public transport fell 93%</p> <p>Average total daily travel distances fell 79%, duration fell 75% and average trip length fell 55% for teleworkers on teleworking days. No significant change in travel distances and duration for other household members</p>
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Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
<b>A.6 Implement regional transport planning</b>					
<b>2.21 Develop a settlement strategy for the Central Coast</b>	DUAP Local councils	Develop a settlement strategy for the Central Coast integrating land use and transport planning			<i>Shaping the Central Coast</i> released by DUAP in May 2000. Strategy proposes increased reliance on medium density in established centres, particularly in areas with good access to public transport.
<b>2.22 Develop a long-term strategy for improving transport in the Illawarra</b>	Illawarra sub-committee of the metropolitan strategy committee	Evaluate options for improving transport in the region			<p>Illawarra Subcommittee of the Metropolitan Strategy Committee launched <i>Illawarra's Action for Transport</i> March 99.</p> <p>Illawarra Regional Organisation of Councils has employed a Regional Transport Coordinator and Development Officer based in Shoalhaven City Council and RTA to assist with implementation.</p> <p>The plan contains 6 priority goals with 26 strategies and 130 actions.</p> <p>Goals and strategies aimed at increasing public transport use for journeys to work, schools, shops, recreational destinations and through journeys as well as improving freight transport.</p>

					<p>Plan does not provide figures on funding of actions or timeframes. Performance indicators not completed for all strategies. Some strategies include road widening.</p> <p>A long-term target of public transport mode split for journey to work to be included in <i>Shaping Illawarra</i>, regional planning strategy that is currently being prepared.</p>
<p><b>2.23</b> Prepare a Newcastle- Sydney corridor study</p>	<p>Dot RTA DUAP</p>	<p>Develop an integrated package of land use and employment measures</p>			<p>Sinclair Knight Merz Pty Ltd engaged to conduct study and develop a Central Coast Transport Action Plan. Draft plan to be released in 2001.</p> <p>Feasibility study for stage 1 of the Sydney - Newcastle High Speed Rail Link Upgrade has been completed. Stage 1 to Warnervale due to be completed 2007. Stage 2 to Newcastle due to be completed 2010.</p>
<p><b>2.24</b> Prepare a Penrith to Orange corridor integrated road and rail strategy</p>	<p>Penrith to Orange transport corridor taskforce</p>				<p>Strategy mostly focussed on road upgrading.</p> <p><i>Action for Transport</i> includes commitments for funding of road widening and overtaking lanes.</p> <p>Rail Access Corporation to improve reliability and on-time running of rail services across Blue Mountains through track maintenance and enhancements.</p>

Review	Key Agencies	Stated goals	Timelines/ \$\$\$ (where stated)	Related plans/ strategies	Comments
<b>Strategy B Provide for cycling and walking</b>					
<b>2.25 Improve government support for safer and more convenient bicycle use</b>	RTA Local councils DoT SRA NSW police	Threefold increase in bicycle use  5% reduction in accidents	By 2001  \$5.5 m for cycleways 3m within Sydney  \$8m allocated for programs  \$12m/yr for design and maintenance of existing & new roads	Cycleways program,  Bicycle facilities program,  Bicycle user support program  Bikeplan 2010	<p>BikePlan 2010 lacks targets for increasing cycling.</p> <p>Some major cycleways of the Sydney Bike Network are due to be completed in 2001 such as the Anzac Bridge Cycleway, Parramatta-Liverpool Trail, Concord to CBD Cycleway and development of the Homebush Bay-Fairfield Cycleway. Local Government cycleways are being funded on a 50/50 basis and cycleways facilities are being included as part of road constructions such as Bexley to Mascot, Elizabeth drive, mimosa Road and the Parramatta Liverpool Transitway. Cycleway maps for Sydney, Illawarra, Central Coast and Newcastle regions.</p> <p>Work done to increase cycleways is undermined by continuing loss of cycling access and safety through roadworks unsympathetic to cycling. Requirements are needed that road designs are to be sympathetic to cycling and increase opportunities for safe cycling.</p> <p>Transport Data Centre figures show that bicycle travel on weekdays decreased between 1991 and 1997 from just under 100,000 trips to 90,000. Weekend trips increased from just over 80,000 to 93,000 in same period. Bicycles account for 0.5% of all trips on weekday and 0.6% on weekends. 0.7% of trips to work are by bicycle.</p> <p>RTA has recently initiated a bicycle planning and implementation survey of all NSW councils including surveying the Mayor, General Manager and Transport Planner. The survey, coordinated by the Australian Road Research Board (ARRB) will provide a clear picture of councils' achievements and plans.</p>

<p><b>2.26 Facilitate walking as a mode of transport</b></p>	<p>Shaping up Streets &amp; Roads Taskforce Local councils RTA</p>	<p>Develop a pedestrian policy Recognising walking as a legitimate form of transport</p>	<p>Pedestrian strategy to be released 1999</p>		<p>Pedestrian strategy not completed. Expected to be released late 2001.</p> <p>Pedestrian Access &amp; Mobility Plans trialed with local councils on a dollar for dollar basis. PAMPS undertaken at North Sydney, Burwood, Marrickville &amp; Bankstown. Twenty six furt plans being developed including Shoalhaven, Coffs Harbour and Hastings Councils.</p> <p>Continued implementation of kerb ramps &amp; audio tactile push buttons Continued implementation of School zones Extra 18 supervisor sites for the School Crossing Supervisor Scheme.</p> <p>RTA local urban amenity fund for pedestrian refuges etc cut prior to Olympics. Little attention given to walking in <i>Action for Transport 2010</i>.</p> <p>Leichhardt Council trialing "walking bus" program from March 01. Groups of children wal to and from school along set route are supervised. Aim of program is to reduce short trij car to take children to school. Council audits routes to identify any safety improvements needed.</p>
<p><b>Review</b></p>	<p><b>Key Agencies</b></p>	<p><b>Stated goals</b></p>	<p><b>Timelines/ \$\$\$ (where stated)</b></p>	<p><b>Related plans/ strategies</b></p>	<p><b>Comments</b></p>
<p><b>Strategy C Change travel behaviour through education</b></p>		<p>Bring about a shift in community understanding of the health and environmental consequences of individual travel choices</p>			
<p><b>2.27 Continue to promote school and community education programs</b></p>	<p>NRMA Clean Air 2000 Taskforce Nature Conservation Council</p>			<p>Airwatch for schools City Savers resource kit Smogbusters Travel Smart Day</p>	<p>Airwatch kit for schools not available as of 1/3/01. Should be completed soon</p> <p>Public Transport Day held in 2000</p> <p>Some government support for Smogbusters day in March 2001.</p> <p>Travel Smart Day held annually.</p> <p>Clean Air 2000 defunct.</p>

## **OBJECTIVE 2**

Objective 2 aims to improve transport choices by providing better public transport, promoting cycling and walking and using education to change travel behaviour.

Strategy A aims to provide better public transport. This is the key to achieving VKT targets set out in *Action for Air*. As discussed in the review of Objective 1, latest figures indicate that VKT continues to outstrip population growth. This is largely a result of inadequate public transport and an emphasis on road building.

This approach is out of step with public opinion. A 1999 study by the Warren Centre (Glazebrook, 2001) revealed that 71% of Sydney residents surveyed favoured improved public transport over building more toll roads as the solution to traffic congestion. Of those surveyed, 73% believed there was not enough investment in Sydney's public transport, compared with 52% who believed there was insufficient investment in roads. Only 14% support more investment in roads at the expense of public transport, while 70% would support increasing spending on public transport at the expense of the road budget.

As discussed in the review of Objective 1, there are signs of increased public transport use by Sydney residents over the last 12 months in response to rising petrol prices and toll charges. This shift in preference toward public transport creates an opportunity to address VKT growth by improving public transport to make it an increasingly attractive alternative to private car use.

Unfortunately, progress in improving public transport as outlined in Strategy A of Objective 2 has generally been quite poor. The emphasis on road building as the solution to transport problems continues, as seen in the push to construct the Western Sydney Orbital.

A major focus of improving public transport in Strategy A of *Action for Air* is the upgrading of public transport in Greater Western Sydney (Strategy A.1), an area poorly serviced by public transport. This included Action 2.1, "consider funding for public transport" involving the development an integrated public transport plan. This was released in 1998 as *Action for Transport 2010* (Department of Transport, 1998). It is extremely disappointing, however, that the project which would have had a significant impact on the region's accessibility, the Parramatta to Chatswood rail link (Action 2.2), has been delayed due to lack of funding. Funding has now been designated for the Chatswood to Epping section only and the completion date for this has blown out to 2008. The continuing preference by the Government to support roadworks over rail infrastructure is exemplified by the allocation of \$123 million to

upgrade Windsor Road to four lanes. The decision to upgrade this road was announced with the retrograde decision on the Parramatta to Chatswood rail link.

Another aspect of improving public transport in Greater Western Sydney covered in *Action for Air* was to consider fast-tracking public transport on the Hoxton Park to Parramatta corridor. (Action 2.3). Construction of the first stage of a bus-only transitway began in 1999, however TEC was unable to obtain details of any further progress from the Department of Transport.

The Department of Transport also failed to provide details of progress on services planned for north-west Sydney, including linking the Rouse Hill release area with Mungerie Park, Blacktown, Parramatta and other centres plus assessing the feasibility of a light rail along the corridor to connect with the Blacktown/Riverstone railway line (Action 2.4). Another plan with a long time frame is the Castle Hill to Epping rail line, targeted for 2010.

There has been good progress on some aspect of improving bus services in Western Sydney (Action 2.5) with bus interchanges and new cross-regional bus services. Progress on the Liverpool-Parramatta transitway has been very slow with only 2.4km completed on government owned land. Final approval for the transitway is now being sought. A major problem with the project is that intersections and traffic lights will slow bus travel considerably.

There has also been limited progress on the development of a Performance Assessment Regime (PAR) to improve private bus service standards before renewal of contracts. This is a very important initiative as many areas suffer from very poor standards of service from private bus companies. Development of the PAR has not proceeded beyond the consultation stage.

Some progress has been made on providing public transport to new suburbs (Action 2.6) with the release of the Urban Greenfield Policy to commercial contract holders in May 2000 and commencement of a competitive tendering process in the Illawarra in June 2000. Transport Management Plans have been prepared for the ADI site, Rhodes Peninsula and SEPP 59 (Greystanes).

Projects to extend the heavy rail network (Strategy A.2) have met with mixed fortunes. Extending the Eastern Suburbs line to Bondi Beach (Action 2.8) has been abandoned, due to rising costs, anticipated low patronage and environmental issues. This has been replaced with a plan construct a turn around loop at Bondi Junction to increase services on the Illawarra line. The turnaround loop is not expected to be completed until 2005.

The New Southern Railway (Action 2.7) was opened in 2000 but Airport Link has fallen into receivership and the line has been taken over by the State Government. Patronage has been poor due to high costs of tickets, timetable and access problems, among others. Delays in related infrastructure developments, such as the Green Square residential/commercial project, have also exacerbated the difficulties (Action for Public Transport, 2001).

The Homebush Bay rail loop (Action 2.9) has proven successful during the Olympics and other major events. Restrictions on parking in the precinct need to be retained to ensure the continuing success of the line.

Light Rail has an important role to play in improving public transport in Sydney. This is the focus of Strategy A.3 with Action 2.10 to integrate light rail into the transport network. Good progress has been achieved the extension of the Inner West Light Rail to Lillyfield. Patronage exceeded targets in only the first year of operation (Sydney Morning Herald, 23/5/01), underlining the important contribution that light rail can make to reducing vehicle use. A proposal to extend the system through the CBD was shelved in 1998 and will not proceed until after the completion of the cross-city tunnel. This once again shows the preference of the government for constructing roads over improving public transport. The CBD extension is essential to ensure the long term viability of the light rail system. There are also plans to conduct a feasibility study for extending the network to Ashfield Railway Station.

Little work appears to have been done by the State Government to promote light rail in other parts of Sydney. The Bay Light Express proposal for an Eastern Suburbs and Southern Sydney light rail system has received little support from the government and is threatened by a proposal to sell UNSW land which would form part of the light rail corridor.

In addition to improving public transport by rail and promoting light rail, it is important to improve the performance of road based public transport, i.e. buses. TEC encountered considerable difficulty in determining the success of efforts to improve public transport on roads (Strategy A.4). TEC sought detailed information from the Roads and Traffic Authority (RTA) and Department of Transport (DOT). For a number of actions the replies provided little or no information.

A major factor in improving road based public transport is targeting particular projects and allocating funding to the Public Transport Infrastructure Improvement Program (PTIIP) (Action 2.11). While funds were provided for the periods 1995-96 and 1997-98, no information has been made available on subsequent allocations.

Some goals, such as the M2 Public Transport Management Plan (Action 2.12), have been reached, with a review leading to additional infrastructure. PTIIP funds are to be used to implement an extensive bus priority scheme (Action 2.14). Bus priority works have been completed along the Warringah Freeway/Falcon Street Crows Nest and transit lanes on Victoria Road have been extended.

Other plans which appear to have progressed well include a pilot bus passenger information system on the Warringah Peninsula (Action 2.16) , which was commissioned in November 1999, and improving bus services to the Eastern Suburbs (Action 2.15). In July 2001 a \$9 million bus and rail interchange was opened at Bondi Junction railway station. Each weekday an estimated 50,000 bus passengers and 42,000 rail patrons pass through the terminal. Each bus arrives at a separate air-conditioned area where sliding doors, triggered by a transponder on the bus, allow passengers access.

A major concern is the reduction in air quality standards for the M5 East motorway. The use of an unfiltered stack will result in substantial amounts of particulate pollution from the tunnel. This will have a significant impact on local air quality. Failure to filter emissions from the tunnel will have an adverse effect on regional air quality, particularly given the stack's location within the valley. Emissions from the unfiltered stack will also reduce the amenity of the recently gazetted Wolli Creek Regional Park.

A condition of approval of the M5 was the development of the M5 East Sub regional air quality plan (Action 2.13). The NSW Parliament General Purpose Standing Committee No 5 Inquiry into the M5 East Ventilation Stack recommended that development of the draft sub-regional air quality plan be completed by 30/6/00.

Work on the plan only began in March 2001 with a survey to 3000 randomly selected households regarding car use, heating, lawn mowing etc and wrote to Council seeking information on businesses. TEC believes that this work should have been completed prior to the decision not to filter tunnel emissions. This decision was based on assumptions regarding the impact of solid fuel heaters and local business such as dry cleaning premises. These assumptions should have been supported by the research only now being undertaken for the sub-regional air quality plan.

We note also, from documents obtained by Residents Against Polluting Stacks (RAPS), that the RTA deleted consideration of modifications to the current stack that would allow heightening of the plume during worst case conditions and options for treatment of stack emissions from scope of Sub-regional AQMP.

The decision to construct an unfiltered stack also ignored the findings of the International Tunnel Ventilation Workshop and CSIRO report.

In particular, the CSIRO report found that:

- Stack emissions of particulate matter would be more than double that expected by the RTA
- CSIRO could not agree with the approach taken by RTA consultants in part of their report
- Modeling carried out by the RTA was not valid under certain conditions of calm winds or re-circulation of pollutants by local winds which occur almost half the time.

A major concern with the decision to construct the unfiltered stack is the precedent it will set for other stacks and roadworks such as the proposed Cross-City and Lane Cove Tunnells.

A key factor in promoting public transport is to make it a more attractive option for the traveling public. Strategy A5 of Objective 2 is concerned with making public transport more attractive by improving transport management.

An important step toward making public transport more attractive is to simplify and integrate ticketing arrangements (Action 2.17), particularly by combining private bus ticketing with rail. "Bus Plus" trials in areas such as Gosford, Campbelltown and Blacktown were commenced some time ago. However results of this and other ticketing initiatives have not been made available. Latest information indicates that it is planned that integrated ticketing will be phased in across the public transport network in 2003 and 2004.

A related problem is the inequity in fares between private and public buses, particularly between Western and Inner Sydney. Private buses should be subsidised at the same rate as government transport, including pensioner concessions. At present, private buses are only subsidised from school transport.

Public transport information services have been improved (Action 2.18) with the establishment of a centralised phone information system in November 1999. This includes details of private bus routes. The transport website, however, is difficult to use and is not expected to be improved until late this year. The comprehensive Public Transport Directory (Public Transport Authority, 1998), launched in 1998, should be updated but no funding is available.

A major demand management tool to discourage car use is reducing the availability and increasing the expense of parking. The aim of a metropolitan parking policy (Action 2.19) is to achieve some consistency between the various agencies involved, including councils. There appears to have been little success in establishing this policy, apart from some progress by the RTA in reviewing preferential

parking schemes and in increasing parking space levies for the CBD and major metropolitan centres. Local councils are financially constrained from adopting a coordinated approach to parking and tend to rely on time restraints rather than increase parking fees.

The increase in the metropolitan parking levy is to be welcomed as it has provided extra funding for public transport. This transfer of funds from private vehicles to public transport is a good concept which should be enhanced. The effectiveness of the levy is diminished, however, by exemptions for retail shops.

Teleworking is a potentially significant method of reducing transport usage. According to the ABS 6% of Australians regularly work from home or a local telecentre. Action 2.20 seeks to promote teleworking in the government and business sector. A successful RTA telecentre trial at West Gosford has become permanent. In addition, an RTA/ORTA centre established at Penrith during the Olympics will be monitored for twelve months and telecentre for NSW public servants has also been established in Wollongong. The RTA also provides advice in setting up a telecentre. In 1993/94 an RTA teleworking project found that trips by all transport modes by teleworkers on work days fell by 53%, while journeys to work locations fell by 86% (RTA website: [www.rta.nsw.gov.au](http://www.rta.nsw.gov.au)).

With rapid population growth in regional areas, improved regional transport planning is essential. Failure to adequately provide for growth in travel demand will see a marked increase in VKT in regional areas. Strategy A6 of Objective 2 is aimed at improving regional transport planning.

Reducing urban sprawl and development in areas with poor public transport by promoting increased density in well serviced areas is a vital measure for curbing VKT growth. The Central Coast, expanding by over 2% per annum, is the fastest growing area in the Greater Metropolitan Region. Many people work in Sydney and approximately 62% of commuters do so by car. In 2000 DUAP released a settlement strategy, *Shaping the Central Coast*, (Action 2.21) which includes strategies for increased use of medium density development with good access to public transport. Gosford Council's residential strategy discourages the expansion of its urban areas (Gosford City Council, 2001).

Gosford Council has provided examples of improved public transport access within the area. These include: bus access to the Festival Development site at Kariong, priority to be given to bus services if Erina Fair expands, and extension of the Gosford station commuter car park. A Transport Action Plan for the Central Coast is expected to be available late in 2001

The Illawarra region is also experiencing rapid population growth. This will result in increased vehicle use unless public transport is improved to cope with increased travel demand. In recognition of this *Action for Air* proposed the development of a long term strategy

to improve transport in the Illawarra (Action 2.22). The strategy, *Illawarra's Action for Transport* (Wollongong City Council, 1999), was launched in March 1999. The strategy provides a detailed approach for improving public and freight transport in the Illawarra region. A major deficiency, however, is the lack of figures on funding or clear timeframes for implementation. A further deficiency is that performance indicators have not been completed for all aspects of the plan.

There has been some progress on the development of a Newcastle-Sydney corridor study (Action 2.23) with Sinclair Knight Merz Pty Ltd engaged to conduct study and develop a Central Coast Transport Action Plan. A Draft plan is to be released this year. A feasibility study of phase 1 of a high speed rail link has also been completed.

There also appears to have been some progress on the development of a Penrith-Orange corridor road and rail strategy (Action 2.24) through *Action for Transport*. There is a heavy emphasis on road upgrading, however, commitments to improve rail services are also included.

Strategy B focuses on reducing car dependency by improving government support for safer and more convenient bicycle use (Action 2.25) and facilitating walking as a mode of transport (Action 2.26). In 1999 *Action for Bikes: BikePlan 2010* (RTA, 1999) was released, setting out a 10 year \$251 million program of state-wide cycleway construction. A problem with BikePlan 2010, is a lack of targets for increased cycling, however a recently initiated RTA survey of all NSW councils on bicycle planning may provide a clearer picture.

While some cycleways have now been completed, the program is undermined by loss of access and safety through roadworks which are unsympathetic to cycling. Transport Data Centre figures show that bicycle travel in Sydney on weekdays declined between 1991-97 from just under 100,000 trips to 90,000, while travel on each weekend day increased from just over 80,000 to 93,000 trips during the same period (Transport Data Centre, 2000).

BikePlan also lacks targets for increasing cycling. In addition, information on progress of the Department of Transport's Bicycles and Public Transport Strategy has not been forthcoming. However a recently initiated RTA survey of all NSW councils on bicycle planning may provide a clearer picture.

The RTA is developing a pedestrian policy which aims to encourage people to view walking as an alternative form of transport. Improving safety is an important part of this plan. Currently pedestrian access and mobility plans have been trialed with a small number of councils. Some councils have participated in the RTA's Sharing the Main Street program by, for example, widening

median strips and adding speed humps. Over 180 schools participate in the Safer Routes to School program, launched in 1997. One local initiative is Leichhardt Council's "walking bus" program for school children in which groups of children are supervised on their trips to and from school. In Action for Transport 2010, however, there is little attention given to walking.

Strategy C aims to change travel behaviour through education programs (Action 2.27), particularly through schools and community groups. Initiatives include Smogbuster's Day, Travel Smart Day and Public Transport Day. An Airwatch kit for schools is expected to be available soon.

## **RECOMMENDATIONS**

### Strategy A

1. Bring forward funding for the Chatswood to Epping section of the Parramatta to Chatswood Rail link and announce funding for the Epping to Parramatta section.
2. Provide details of progress on improving public transport on the Hoxton Park to Parramatta corridor and improving services in north-west Sydney.
3. Complete feasibility study of light rail to connect to the Blacktown/Riverstone railway line.
4. Finalise Performance Assessment Regime (PAR) for private bus company service standards.
5. Extend Urban Greenfield policy to other areas.
6. Expedite construction of turnaround loop at Bondi Junction.
7. Improve baggage facilities on airport link line and alter timetabling arrangements to address current problems.
8. Maintain parking restrictions at Olympic Park and Easter Show.

9. Ensure CBD light rail extension is constructed prior to cross city tunnel. Complete feasibility study of extension to Ashfield.
10. Promote light rail as transport in other parts of Sydney including Bay Light Express proposal. Prevent sale of UNSW land which would block development of the system.
11. Provide detailed information on future funding allocations for and work completed under the Public Transport Infrastructure Improvement Program (PTIIP).
12. Install electrostatic precipitators to filter emissions from the M5 East stack. Complete draft M5 East sub-regional air quality plan urgently.
13. Publish results of integrated ticketing trials and extend to other areas. Extend concessions for government buses to private buses.
14. Rectify problems with transport info line website to make it more user friendly.
15. Produce new edition of *Public Transport Directory*.
16. Finalise metropolitan parking strategy. Remove parking space levy exemptions for retail shopping centres.
17. Provide additional opportunities for teleworking in government sector. Promote results of RTA teleworking trial to private sector.
18. Provide detailed funding commitments and timetable for implementation of *Illawarra's Action for Transport*. Finalise performance indicators for all aspects of strategy.

#### Strategy B

19. Targets for increasing bicycle use should be established and incorporated into BikePlan 2010.

20. RTA to produce standards for roadwork designs that do not impede safe cycling.
21. Finalise RTA pedestrian policy to encourage walking as an alternative form of transport. Extend pedestrian access and mobility plans to other councils.
22. Extend "Walking Bus" program to other areas. This would help eliminate many vehicle trips of parents taking children to school.

#### Strategy C

23. Continue school and community programs such as Airwatch for Schools, Public Transport Day, and Smogbusters.

### Objective 3. Make, cars, trucks and buses cleaner

"Objective: To reduce exhaust and evaporative emissions from new and in-service cars, trucks and busses".

#### TEC Action for Air Review table 3

Review	Key Agencies	Stated goals	Timelines/\$\$\$ (where stated)	Related plans/strategies	Comments
<b>Actions</b>					
<b>Strategy A. Reduce car emissions</b>					
<b>3.1 Advocate tighter national emission standards for new cars</b>	National working group reviewing Australian Design Rule (ADR) 37/01 EPA	Further reductions in CO, ROCs, NOx & greenhouse gases (GGs) Implementation of California Low Emission Vehicle Standards	New standards to come into effect from 2003, if agreed to nationally.		<p>New standards not in place. Commonwealth began review of Australian design standards for new vehicles. NSW sought Australian standards similar to overseas standards.</p> <p>New standards as set by Commonwealth: Petrol vehicles 2003/04 Adopt Euro 2 standard 2005/06 Adopt Euro 3 standard.</p> <p>Final decision will mean that standards for petrol vehicles will come into effect to seven years behind the adoption of those standards in Europe.</p> <p>New standards and cleaner fuels (for petrol and diesel vehicles) are expected to reduce emissions of hydrocarbons by 26-27%, CO by 75- 77%, NO<sub>x</sub> by 71% and PM<sub>10</sub> between 2000 and 2020. Lead and sulfur emissions are forecast to fall by 93% and 84% respectively in the same period. Emissions of air toxics (eg benzene) are expected to fall by 50-70%.</p> <p>Fuel efficiency of Australian vehicle fleet at bottom of the list for OECD countries with national average fuel consumption of 8.9L/100km.</p> <p>According to NRMA there has been virtually no improvement in vehicle fuel efficiency over the past 7 years.</p> <p>Fuel efficiency of Australian made vehicles has improved only 7% since 1983.</p>

<b>3.2 Augment the smoky vehicle enforcement program</b>	EPA RTA	Identify smoky vehicles as a priority target for Inspection Maintenance Program (I/M)		Smoky Vehicle Enforcement Program	<p>Over 1000 reports from the public on smoky vehicles received by EPA pollution each month. EPA issued 2,916 warning letters to private vehicle owners and 2 infringement notices to private and commercial vehicle owners in 1998-99. Drc complaints resulted in 20% decrease in warning letters issued during 1998-99. EPA survey work confirms a drop in number of smoky vehicles.</p> <p>RTA vehicle inspectors trained in 1997-98 to observe and report smoky vehicle</p>
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Review	Key Agencies	Stated goals	Timelines/\$\$\$ (where stated)	Related plans/strategies	Comments <span style="float: right;">pg 36</span>
<b>3.3 Implement an inspection and maintenance program for in-service vehicles</b>	RTA	Implement I/M program to reduce emissions from high polluting vehicles	<p>Begin 1998</p> <p>Phase 1 (target high polluting vehicles eg modified and smoky vehicles in Sydney region by expanding 2 RTA testing facilities and random inspections) to begin mid-1998</p> <p>Phase 2 (testing of passenger and light commercial vehicles in Sydney region through network of 20 privately operated testing facilities) during 2000</p> <p>Phase 3 (extend testing program to lower Hunter and</p>		<p>Phase 1 (target high polluting vehicles eg modified and smoky vehicles in Sydney region by expanding 2 RTA testing facilities and random inspections) launched in 1998 with facilities at Botany and Penrith.</p> <p>Phase 2 well behind schedule. No sites selected or tenders called for inspection stations. Only a few mobile testing stations have been introduced. Failure to undertake program allows 371 tonnes of pollution to enter Sydney's air every day.</p>

			Wollongong) in 2004		
<b>3.4 Reduce petrol volatility in summer</b>		Lower emissions from vehicles, lawn mowers, fuel storage facilities & service stations by reducing Reid Vapour Pressure (RVP)	Between 15 <sup>th</sup> November & 15 <sup>th</sup> March from 1997-98 to 2003  Reduce volatility to 70 kPa 98-99, 67 kPa 99-00 and 62kPa 00-01	Phased reductions in RVP  Annual review program  Memo of Understanding (MoU) with oil industry	Reductions in volatility reduced hydrocarbon emissions by 35 tonnes per day in 1998-99 (due to reduction in RVP from 75.5 kPa to 67.5 kPa) and a further 7 tonnes per day in 1999-00. 98% of Petrol sold in GMR complying with agreed lower volatility limits.  Unannounced audits of petrol stations showed all stations examined complied with requirements for fuel vapour recovery.

Review	Key Agencies	Stated goals	Timelines/\$\$\$ (where stated)	Related plans/strategies	Comments
<b>3.5 Investigate merits of reducing sulfur content in petrol</b>	EPA/ Oil Industry Technical Committee	Evaluate environmental benefits compared to economic impacts & feasibility for Australian Oil refineries			Mechanisms for implementation of new fuel standards being established at the national level under the Fuel Quality Standards Act 2000 (commences Dec 01). Adoption of Euro 2,3 and 4 standards will establish a diesel standard for road transport fuel with a sulfur content limit of 500ppm by end 2002 and 50ppm by 2006. Petrol standards equivalent to Euro 3 due 2005 and will limit sulfur in petrol to 150ppm
<b>Strategy B. Reduce diesel vehicle emissions</b>		Reduce emissions from diesel vehicles especially small commercial vehicles and vans			
<b>3.6 Advocate tighter</b>	National Environment Protection	Support national review	Euro 2 standards to be phased in from 2000, if		Euro 2 standards not yet in place. Commonwealth began review of Australian design standards for new vehicles. NSW sought Australian standards similar to overseas standards.

<p><b>national emission standards for heavy-duty diesel vehicles</b></p>	<p>Council (NEPC) EPA/ Oil Industry Technical Committee</p>	<p>through Australian Design Rule (ADR) 70 of the Euro II standards</p> <p>EPA/Oil Industry Technical Committee to investigate feasibility, cost and effectiveness of low-sulphur diesel fuel</p>	<p>agreed to nationally.</p>		<p>New diesel vehicle standards as set by Commonwealth: 2002/3 Adoption of Euro 2 for light duty diesels and Euro 3 for medium and heavy duty diesels. 2006/07 Euro 4 for all diesels.</p> <p>Final decision will mean that standards for Diesel vehicles will be introduced one to two years after adoption of those standards in Europe.</p> <p>New standards and cleaner fuels (for petrol and diesel vehicles) are expected to reduce emissions of hydrocarbons by 26-27%, CO by 75-77%, NO<sub>x</sub> by 71% and PM<sub>10</sub> between 2000 and 2020. Lead and sulfur emissions are forecast to fall by 93% and 84% respectively in the same period. Emissions of air toxics are expected to fall by 50-70%.</p> <p>Prior to being supplied to Australian market new diesel vehicles are certified as complying with Australian Design Rule (ADR) 70/00. Tests used to determine emission performance in accordance with ADR 70/00 are unsuitable for measuring performance in real world conditions. Australia is lagging behind international standards in regulating heavy-duty diesel vehicles. Current standards are equivalent to 1991 USA standards, 1992 European Standards and 1993 Japanese standards. Slow turnover of diesel fleet in Australia means that there will be a considerable time lag before new standards deliver air quality benefits</p>
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Review	Key Agencies	Stated goals	Timelines/\$\$\$ (where stated)	Related plans/strategies	Comments <span style="float: right;">pg 38</span>
<p><b>3.7 Develop a national diesel environment protection measure</b></p>	<p>NEPC</p>	<p>Develop a comprehensive national diesel measure</p>			<p>NEPC decided in 19/9/00 to initiate drafting of National Environment Protection Measure (NEPM) for diesel vehicle emissions. Discussion paper scope and content of proposed measure released November 2000. Proposed measure to include In-service Standards and In-service Strategies to meet standards. May also include I/M program</p> <p>NEPC decided in Dec 2000 to exclude fuel standards from the proposed NEPM. This will reduce effectiveness of NEPM as changes to composition of diesel fuel are needed to ensure effectiveness of control technology.</p> <p>NEPC agreed to make measure 29 June 2001.</p> <p>Diesel vehicles are making an increasing contribution to overall vehicle emissions. Diesel vehicles comprised 8.3% of total national vehicle fleet in 1995. This is predicted to grow to at least 15% by 2015. Distance travelled</p>

					<p>by the Aust diesel fleet expected to increase by at least 134% nationally and by at least 146% in metropolitan areas by 2015 when it will constitute 22% of the distance travelled by all vehicles. Older Vehicles up to 16 years of age continue to contribute significantly to the total distance travelled in metropolitan areas.</p> <p>Diesel vehicles make a disproportionate contribution to emissions of fine particles and NOx. In Sydney diesels produce up to 80% of Total Suspended Particulates (TSP) emissions but account for only 15% of VKT.</p>
<b>3.8 Design an inspection and maintenance program for diesels</b>		Develop an I/M program for diesel vehicles		Smoky Vehicle Enforcement Program	<p>No program in place. EPA advises that NEPC (including NSW) has conducted a research program relating to aspects of in-service diesel emissions over the last two years as part of development of Diesel Vehicles Emission NEPM.</p> <p>Test method identified and trialed to determine cost benefit of repairs to high polluting vehicles. National Road Transport Commission developing in-service diesel standard to which NEPM relates. Australian Transport Council to make decision on standards for in-service diesels by mid August.</p> <p>State in-service management initiatives to be reviewed once NEPM is in place.</p>
<b>3.9 Ensure cutting edge emission technology for the state bus fleet</b>	STA	Ensure the State bus fleet is as clean as possible	<p>Phase 1 from 1997</p> <p>Phase 2 over the next 5 yrs</p>	<p>Phase 1. New diesel buses meet the Euro II standards</p> <p>Phase 2. Purchase an additional 300 natural-gas-fuelled buses</p>	<p><i>104 compressed natural gas (CNG) buses in STA in early 2000. 150 more added prior to Olympics</i></p> <p>Diesel buses are no longer purchased Replacing diesel buses with CNG buses reduces emissions of particulates and other smog precursors as well as CO<sub>2</sub>. CNG buses are also quieter and cheaper to operate.</p>
<b>Review</b>	<b>Key Agencies</b>	<b>Stated goals</b>	<b>Timelines/\$\$\$ (where stated)</b>	<b>Related plans/strategies</b>	<b>Comments</b> <span style="float: right;"><b>pg 39</b></span>
<b>3.10 Support research to identify effective emission control strategies</b>	EPA RTA Sydney Buses Local councils Fleet owners	Reduce emissions from existing buses & other heavy-duty diesel vehicles			EPA, RTA and STA contributed funding and resources to investigate options to reduce emissions from buses and heavy-duty vehicles. Study considered engine servicing, catalytic converters, Euro 2 design, low sulfur diesel, and CNG. Report released June 1999 and available from EPA library.

<b>Strategy C. Promote cleaner fuels</b>					
<b>3.11 Participate in western Sydney natural gas vehicle project</b>	<p>Western Sydney Natural Gas Vehicle Taskforce consisting of:          Liverpool Council          NRMA Clean Air 2000          Planet Ark          Australian Natural Gas Vehicles Council          WSROC          University of Western Sydney          Australian Greenhouse Office</p>	<p>Promote the benefits of a regional compressed natural gas infrastructure</p>			<p>Liverpool City Council first Australian fleet to commit to 100% use of CNG. Currently has 27 CNG cars and 2 CNG trucks. Will convert to 100% CNG by 2002. Also requires CNG to be used as fuel by major contractors eg garbage collection.</p> <p>RTA contributed total of \$75,000 over 3 years to assist Liverpool Council. Also provided project manager for the Western Sydney Natural Gas Vehicle Project.</p> <p>Western Sydney Natural Gas Vehicle Taskforce working to build network of CNG vehicle in Western Sydney. Seeking assistance of AGO to establish infrastructure.</p> <p>CNG service station opened in Moorebank in 1998. Further refuelling stations being developed at Arndell Park and Granville. It is proposed to establish new station in Blacktown.</p> <p>WSROC has established Local Government CNG group to expand CNG trial beyond Liverpool Council. Blacktown and Parramatta Councils have begun trial. Blacktown Council acquiring 9 CNG garbage trucks.</p> <p>Main barrier to increased CNG vehicle use is lack of supporting infrastructure i.e. refuelling. However there is resistance to developing infrastructure without greater commitment to expand CNG fleets. Government has role in promoting infrastructure.</p>

Review	Key Agencies	Stated goals	Timelines/\$\$\$ (where stated)	Related plans/strategies	Comments <span style="float: right;">pg 40</span>
<b>3.12 Develop a cleaner transport fuels and technology strategy</b>	Premier's Dept AGL Australian Natural Gas Vehicles Council NRMA CSIRO	Develop a strategic framework for the adoption of cleaner fuels & technologies	By July1998	Southern Sydney Regional Organisation of Councils Greenhouse Strategy	Government response on cleaner fuels is still being developed. No information available for public release.

### **OBJECTIVE 3**

Objective 3 of Action for Air seeks to reduce exhaust and evaporative emissions for new and in-service cars, trucks and buses. Three strategies are provided to achieve this objective:

- Strategy A - Reduce car emissions,
- Strategy B – Reduce diesel vehicle emissions,
- Strategy C – promote cleaner fuels.

With emissions from cars responsible for about half of Sydney's air pollution in summer, Strategy A, to reduce emissions from cars, has the potential to deliver major air quality improvements. Unfortunately implementation of this strategy has generally been poor.

Augmentation of the smoky vehicle enforcement program (Action 3.2) appears to have been successful in reducing the number of smoky vehicles, as evidenced by a reduction in complaints and EPA survey work. The success of this program, however, is overshadowed by the abject failure to implement an inspection and maintenance program to identify and require repair of high polluting in-service vehicles as promised in Action 3.3. So far only the first phase of expanding testing facilities at Botany and Penrith has been completed. Phase 2, a network of twenty privately operated facilities was due to be introduced in 2000 to test passenger and light commercial vehicles in the Sydney region. As yet no sites have been selected or tenders called for these stations. It appears the RTA are a key obstacle. The failure to implement this promise allows 371 tonnes of pollution to enter Sydney's air every day.

There has been good progress in reducing the volatility of petrol over summer (Action 3.4). As fuel evaporates more readily in hot weather, reductions in volatility as measured by Reid Vapour Pressure (RVP) are only necessary over summer. Progress in reducing the volatility of petrol over summer (from 75 kPa to 70 kPa in 98-99 and 67 kPa in 99-00) is estimated to have reduced hydrocarbon emissions by 35 tonnes per day in the summer of 98-99 and a further 7 tonnes per day in the summer of 99-00 (EPA, 2000b).

Success in reducing petrol volatility is undermined by the slow progress toward tighter emission standards for new cars (Action 3.1) and reducing the sulfur content of petrol (Action 3.5)

Adoption of tighter emission standards for new vehicles lags severely behind overseas practice. Euro 2 standards for Petrol vehicles are due to come into effect in 2003/04, with Euro 3 standards due for implementation in 2005/6. (Environment Australia, 2000) This

essentially places Australian standards seven years behind Europe. This is particularly disturbing, given that Australian vehicle fleet is already at the bottom of list of OECD countries for fuel efficiency. The benefits of new standards will also take some time to become apparent due to the time lag of vehicle turnover

National emission standards for new vehicles are a Commonwealth responsibility. The NSW government should, however, continue to press for the introduction of more stringent Euro 2 and 3 standards to ensure that these improvements are not further delayed.

No action will be taken on the sulfur content of petrol until 2005 when Euro 3 petrol standards limiting sulfur in petrol to 150ppm come into effect. *Action for Air* stated that the EPA/Oil industry technical committee would evaluate the effectiveness of reducing the sulfur content of petrol. Information from the EPA on the implementation of this objective gave no indication of any such activity by this committee. It would appear that progress on this issue by the EPA has been restricted to participation in the development of national standards.

Diesel vehicles make a disproportionate contribution to emissions of fine particles and NO<sub>x</sub>. Despite accounting for only 15% of VKT in Sydney, diesel vehicles produce up to 80% of total suspended particulate (TSP) emissions from vehicles (EPA, 1998a). Inhalation of fine particles (those under 10µm or less in diameter, referred to as PM<sub>10</sub>) has been closely associated with health effects. These include increased mortality from cardiovascular and respiratory diseases, increased hospital admissions for chronic obstructive pulmonary disease and heart disease, reduced lung function in asthmatic children and increased respiratory symptoms in school children. Research indicates that particles with a diameter of 2.5µm or less (PM<sub>2.5</sub>) are particularly serious as they can penetrate deep into the lungs. Some studies indicate that these particles are most closely associated with health effects.

The disproportionate contribution of diesel vehicles to fine particle and NO<sub>x</sub> emissions is set to increase in the future. In 1995 diesel vehicles comprised 8.3% of the national vehicle fleet. This is expected to grow to at least 15% by 2015. Distance travelled by the Australian diesel fleet is expected to increase 134% nationally and at least 146% in metropolitan areas so that in 2015 diesels will constitute 22% of total VKT (NEPC, 2000).

Reducing diesel vehicle emissions as set out in Strategy B is thus a high priority for improving air quality. Unfortunately progress on this strategy has also been generally poor.

Good progress has been made on reducing emissions from the State bus fleet through the application of new technology (Action 3.9). Diesel buses are no longer purchased and prior to the Olympics more than 250 Compressed Natural Gas (CNG) fuelled buses had

been purchased. It is expected that 400 CNG buses will be in service by 2002. CNG powered vehicles produce lower emissions of particulates and other smog precursors than diesels. They also produce less CO<sub>2</sub>.

There has also been reasonable progress on research to identify effective emission control technology (Action 3.10). A project funded by the EPA, RTA and Sydney Buses examined a range of options for reducing emissions. The results of this project were published in a 1999 report. It is not clear, however, to what extent the results of this research have been applied to reducing emissions from in service diesel vehicles.

The benefits of purchasing cleaner buses for State Transit and conducting research on emission control technology are diminished by slow progress in other areas of Strategy B. In particular, the development of tighter national standards for heavy duty diesel vehicle emissions (Action 3.6), a diesel National Environment Protection Measure (NEPM) (Action 3.7) and the development of an inspection and maintenance program for diesel vehicles (Action 3.8).

Current Australian Design Rule 70/00 (ADR 70) standards for new diesel engines are equivalent to 1991 USA , 1992 European and 1993 Japanese standards. *Action for Air* set a goal of 2000 for adoption of Euro 2 standards, if agreed to nationally. These standards are not yet in place and the Commonwealth has set the timetable of 2002/3 for adoption of Euro 2 standards for light duty and Euro 3 for medium and heavy duty diesels. The adoption of Euro 4 standards for all diesels is set for 2006/7 (Environment Australia 2000). This timetable will still place Australia one to two years behind Europe.

Action 3.6 also indicated that the EPA/Oil Industry Technical Committee would investigate the feasibility, cost and effectiveness of low sulfur diesel fuel. Advice sought from the EPA on the progress of Action 3.6 indicates that adoption of European vehicle emission standards (Euro 2, 3 & 4) at national level will establish a diesel standard for road transport fuel with a sulfur content of no more than 500ppm by the end of 2002 and 50ppm by 2006 (Environment Australia, 2000). No information was provided on investigations by the EPA/Oil Industry Technical Committee.

Development of a diesel NEPM has been occurring at a federal level through the National Environment Protection Council (NEPC) which includes state governments. A discussion paper on the scope and content of the proposed measure was released in November 2000. The NEPC agreed to make the measure on 29 June 2001.

The measure will be accompanied by in-service standards and strategies to meet those standards. The Australian Transport Council is due to make decision on standards for in-service diesels by mid August.

The value of the proposed measure has been diminished, however, by the decision of the NEPC to exclude fuel standards from the proposed measure. Improving fuel standards is an essential element in reducing emissions from diesel vehicles as changes to fuel composition are needed to maximise the effectiveness of emission control technology.

Progress on the development of a diesel inspection and maintenance program has been limited to participation in the research by the NEPC on including an I/M program in the proposed diesel NEPM. So far a test method has been identified and trailed.

The failure to design an I/M program for diesels is curious given that one excuse cited for the failure to implement an I/M program for petrol vehicles (Action 3.3) is that the government has made development of a diesel program a higher priority because diesel emissions pose greater risks to human health.

Progress on the implementation of Strategy C, to promote cleaner fuels, appears to have been mixed.

State Government participation in the Western Sydney Natural Gas Vehicle (Action 3.11) project has assisted Liverpool Council to CNG vehicles. It is expected that the Council fleet will be 100% CNG by 2002.

The Western Sydney Natural Gas Vehicle Taskforce is also working to establish refuelling infrastructure for CNG vehicles in Western Sydney. A CNG station has opened at Moorebank with others under development at Arndell Park and Granville. Another station is proposed for Blacktown.

At present the main barrier to increased CNG use is the lack of refuelling facilities, however, the development of these facilities is dependent on government assistance and increased commitment to CNG vehicles by local government. Promoting increased use of CNG by local government would assist in the development of such facilities. This would make use of CNG vehicles more attractive for private sector operators.

In contrast to good progress on the Western Sydney Natural Gas Vehicle Project, there appears to have been little or no progress on the development of a cleaner transport fuels and technology strategy (Action 3.12). No information is available for public release with a government response on cleaner fuels still under development.

## **Recommendations**

1. Provide an immediate commitment to implement phase 2 of the inspection and maintenance program for in-service vehicles promised in Action 3.3. Issue a call for tenders and select sites for the network of twenty privately run testing facilities. Provide a clear timetable for the commissioning of these facilities and progression to phase 3, expansion to lower Hunter and Wollongong.
2. Press Commonwealth and State Governments to implement Euro 2 and 3 standards for new vehicle emissions and fuel ahead of current timetable.
3. Press for inclusion of fuel standards in diesel NEPM.
4. Fast track development and implementation of an inspection and maintenance program for in-service diesel vehicles.
5. Continue support for Western Sydney Natural Gas Vehicle Project. Promote increased use of CNG vehicles by local government and private bus companies. Provide funding and assistance for development of more CNG refuelling infrastructure.
6. Complete development of a cleaner transport fuels and technology strategy. Release for public comment.

## Objective 4. Promote cleaner business

*"Objective: To improve the regulation of industrial emissions that contribute to air pollution".*

### TEC Action for Air Review table 4

Review	Key Agencies	Stated goals	Timelines/\$\$\$ (where stated)	Related plans/ strategies	Comments
<b>Actions</b>					
<b>Strategy A. Reduce industrial emissions</b>		Control of NOx emissions from industry			
<b>4.1 Implement revised clean air regulation 1997</b>	National Health and Medical Research Council EPA	Implement performance based (load based ( LBL)) licensing system	During 1998	Trading schemes	Applies to emitters of scheduled pollutants.  Same regulations throughout all regions of NSW.  Self-monitoring by industry plus EPA auditors.
<b>4.2 Implement load-based licensing (LBL)</b>	EPA	LBL system	Mid-1998 begins phased implementation		Came into effect July 1999. Licence specific limit; fee is deterrent, cannot increase load through extra Assessment from July 1999 to June 2000. Fees commence middle of 200 Fees in two parts  a) Administration and is dependent on size of operation b) load calculation protocol  Program of offsets; fee can be reduced through reuse of emissions or imp practices.

Review	Key Agencies	Stated goals	Timelines/SSS (where stated)	Related plans/ strategies	Comments
<b>4.3 Establish a cleaner industry unit in the EPA</b>	EPA	Industry to put in place environmental management systems		State Cleaner Production Strategy	<p>Cleaner Industry Unit established 1997, consolidated 1998. Unit produced State Cleaner Production Strategy called <i>Future with Cleaner Production</i>. C industry on how to adopt cleaner production.</p> <p>Between November 1998 and March 2001, partnership projects with industry local councils have generated a series of 13 information packages for small business.</p> <p>CIU facilitated project with Printing Industries Association of Australia to reduce products containing reduced or no VOCs. Also worked with Furnishing Industry Association of Australia to reduce solvent use.</p> <p>Government has recently announced \$5M extra funding to Cleaner Production Program to strengthen compliance programs, promote waste and pollution reduction, fund research and provide grants to individual companies.</p>
<b>4.4 Implement the protection of the environment operations legislation</b>	EPA Local councils	Protection of the Environment Operations Act 1997	July 1998		<p>Act came into effect 1 July 1999.</p> <p>Prosecutions to be listed in EPA annual report.</p> <p>EPA conducted survey of 177 Councils and 200 Industry licences to determine effectiveness of communicating requirements to stakeholders. 40% of Councils and 60% of licences responded. Industry and Councils generally understand new requirements.</p>
<b>4.5 Develop a framework to control NOx emissions in the GMR</b>	EPA	Progressively reduce emissions to achieve a long-term cap at 1998 licensing levels	Begins 1999-2000 financial year	<p>Capping total NOx emissions and setting up a trading scheme within a cap</p> <p>National Greenhouse Strategy</p>	<p>Assessing NOx levels &amp; movement within the air-shed during 1998.</p> <p>Devise cap level for implementation in 2003.</p> <p>Reference group examining policy options for NOx trading. EPA still developing options.</p> <p>Public consultation scheduled for 2001</p>
<b>4.6 Enhance leak-detection and</b>	EPA	A program to reduce			<p>Some progress.</p> <p>Pollution Reduction Programs in EPA licence conditions for Basell, Shell, C</p>

<b>repair programs at petrochemical facilities</b>		emissions of ROCs by improving leak-detection and repair.			<p>Qenos require them to report to EPA on mechanisms put in place to recap fugitive emissions.</p> <p>EPA advise 10/4/01: Caltex currently assessing components (eg valves &amp; l and emissions to prioritise sources and a program for each leakage source has identified most sources of fugitive emissions within refinery and comn studies to reduce them. Qenos has identified emissions and implemented programs. Since 1998, fugitive emissions from Botany Industrial Park were reduced by approx 11%, while production increased 7%.</p>
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Review	Key Agencies	Stated goals	Timelines/SSS (where stated)	Related plans/ strategies	Comments
<b>4.7 Negotiate reductions in ROCs emissions from major industry sources through licence conditions</b>	EPA			<p>Improved storage tank operations</p> <p>Improved waste water treatment</p> <p>Technical process modifications</p> <p>Improved transfer efficiency and use of waterborne coatings</p>	<p>EPA advise 10/4/01 that 78 industries identified, where programs may res gains in ROC emissions reductions.</p> <p>EPA developed survey to assess industries' baseline performance and esta priorities. "Subsequent negotiations with individual premises may result in introduction of pollution reduction programs to encourage cleaner product</p> <p>No figures of any negotiated reductions provided.</p>
<b>Strategy B. Develop cost-effective approaches for small business</b>		Reduce emissions of ROC's in the most cost effective manner			

<b>4.8 Implement staged code of practice for commercial printing premises</b>	EPA Printing Assoc of Australia Australian Flexographic Technical Association of Local councils	Code of practice adopting low ROC's or ROC free coatings for premises emitting 35 t/yr of ROC's	Phase 1 begins 2000  Phase 2 begins 2003  Phase 3 Begins 2006	Small Business Solutions to Pollution Program  Phase 1. Improved housekeeping measures  Phase 2. Installation of incineration devices and some conversion to water based adhesives  Phase 3. Installation of control equipment	Code of practice not developed.  Printing Industry promoting VOC reduction scheme embodied in European Commission directive of 11 Mar1999 to apply nationally. National code developed by Environment Australia. EPA considers EC model adequate in and is participating in the development of the national code of practice.  Cleaner Industries Unit (CIU) of the EPA facilitated project with Printing Ir Assoc of Australia to research products containing reduced or no ROCs. Environmental guideline developed with <i>Reducing Solvent use in the Printing Industry</i> released in 1999.
<b>4.9 Improve housekeeping practices in auto repair shops and surface-coating premises</b>	EPA Local council	Implement guidelines & information campaign to improve practices	In 1998	Small Business Solutions to Pollution Program	Small business solutions to pollution program has resulted in guidelines for individual business areas e.g. Auto repair, released in 1998. Available by pdf from the internet (pdf).  Information campaign by peak industry bodies in each sector.  No figures provided by EPA on likely reductions achieved so far.

Review	Key Agencies	Stated goals	Timelines/SSS (where stated)	Related plans/ strategies	Comments
<b>4.10 Install petrol vapour recovery units at rail-loading gantries</b>		Install activated carbon vapour recovery unit on the Parramatta Rail Gantry	In 1998		Vapour recovery unit has been installed but no extension to other areas.

## **OBJECTIVE 4**

Objective 4 of *Action for Air* targets emissions from both major industrial sources and smaller commercial premises.

Strategy A targets reduction of emissions from major industrial sources. In 1992 these sources were responsible for 11% of ROCs, 14% of NO<sub>x</sub> and 33% of particles in the Sydney Region (EPA, 1998a). It was concluded that reduction strategies in the 1980s had been successful in controlling emissions of ROCs from large industrial sources. The potential for worsening smog as a result of substantial growth in NO<sub>x</sub> emissions from new industry in Western Sydney, however, was identified as a major concern. Consequently Strategy A concentrates most heavily on reducing emissions of NO<sub>x</sub> from industrial sources.

In general the regulatory and administrative actions in Strategy A of Objective 4 have been implemented. These include the revised clean air regulation, load based licensing and protection of the environment operations legislation (Action 4.1, 4.2 & 4.3). Each of these Actions has been completed although some of the measures were introduced one year later than the mid 98 timetable specified in *Action for Air*.

The Cleaner Industry Unit of the EPA promised in Action 4.3 was established in 1997 and has completed the Cleaner Production Strategy (EPA, 1998b) as well as a number of partnership projects with industry and local council. The Government has recently announced \$5M extra funding to Cleaner Production Program to strengthen compliance programs, promote waste and pollution reduction, fund research and provide grants to individual companies.

Other aspects of Strategy A have not been implemented as successfully. There has little progress on the development of a NO<sub>x</sub> trading scheme (Action 4.5) which was due to commence in the 1999-2000 financial year. Trading options are still being finalised with public consultation scheduled later this year.

There has been some progress on the enhancement of leak detection and repair programs at petrochemical facilities (Action 4.6) with an 11% reduction in fugitive emissions from Quenos at Botany Industrial Park. More work needs to be done however to ensure that similar reductions are achieved at the Caltex and Shell plants in line with pollution reductions conditions in their licences.

Progress on Action 4.7 to negotiate reductions in ROCs emissions from major industry sources through licence conditions has been limited. Seventy eight industries have been identified where programs may result in ROC emissions reductions. There does not, however, appear to have been any action taken to introduce such programs. Information provided by the EPA states only that

"subsequent negotiations with individual premises may lead to the introduction of pollution reduction programs". Funding from the recently announced enhancement to the Cleaner Production Program should be used to achieve emission reductions from identified industries and individual premises

Substantial opportunities remain to reduce emissions of ROCs from small commercial premises. Strategy B, therefore, seeks to achieve reductions in ROCs emissions from such premises in the most cost effective manner.

There appears to have been some good progress on implementing this strategy. A major problem, however, is the lack of any figures or estimates of reductions in ROCs emissions as a result of these initiatives. *Action for Air* claimed that a code of practice for printing premises (Action 4.8) could reduce emissions by over 2,800 tonnes per year. This code of practice has not been produced. Instead the Cleaner Industry Unit of the EPA produced an environmental guideline (EPA, 1999a) and is participating in the development of a national code of practice. Improved housekeeping practices for auto repair workshops and surface-coating facilities (Action 4.9) were touted as having the potential to reduce ROC emissions in the GMR by over 4,000 tonnes per year. Guidelines have been produced under the small business solutions to pollution program, however, their effectiveness is unclear.

TEC sought data on reductions achieved so far under Actions 4.8 and 4.9, however, information provided by the EPA gave no figures. The absence of such figures makes it impossible to determine the effectiveness of measures adopted so far or to identify scope for future emission reductions.

A petrol-vapour recovery unit has been installed at the Parramatta Rail Gantry as promised in Action 4.10. It was estimated that this would reduce ROCs emissions by 310 tonnes, however no figures are available on the success of the unit in recovering vapour. There has also been good progress on recovery of fuel vapour from service stations with all stations surveyed by EPA complying with fuel vapour regulations.

## **Recommendations**

1. Finalise framework for NO<sub>x</sub> emissions trading scheme, complete consultation and introduce scheme. Provide regular reports on progress of the scheme.
2. Ensure Caltex and Shell introduce measures to reduce fugitive emissions identified by work completed so far, as required by licence conditions.

3. Use some funding from recently announced \$5M enhancement to the Cleaner Production Program to introduce pollution reduction programs for businesses identified as having potential for ROC emission reductions.
4. Provide figures on reductions in ROC emissions achieved so far as a result of Actions 4.8 - 4.10.

## Objective 5. Promote cleaner homes

"Objective: To maximise home energy efficiency and reduce emissions of fine particles and ROCs from domestic fuel consumption".

### TEC Action for Air Review table 5

Review	Key Agencies	Stated goals	Timelines/ SSS (where stated)	Related plans/ strategies	Comments
<b>Actions</b>					
<b>Strategy A. Reduce emissions from solid-fuel heaters</b>	EPA	Reducing emissions from solid fuel heaters		Air pollution from solid fuel heaters	
<b>5.1 Ensure compliance with the clean air regulations</b>	EPA	Ensure new solid fuel heaters comply with emission standards			EPA not responsible for prosecution of home users, councils have power to serve no  Amendments to the Clean Air (Domestic Solid Fuel Heaters) Regulation 1997 require new wood heaters sold from July 2001 meet emission standards that are 25% more stringent than previous standards. EPA has one person to conduct spot checks on retailers to verify certification of heaters.  Australian Home Heating Association (AHHA) supplies certified heaters to approximately 80% of the market.
<b>5.2 Develop a code of practice for installation of heaters</b>	EPA Local councils Australian Home Heating Assoc (AHHA)	Development of a comprehensive industry code of practice	Early 98	<i>Environmental Guidelines: Selecting, Installing and Operating Domestic Solid Fuel Heaters</i>	EPA released <i>Environmental Guidelines: Selecting, installing and Operating Domestic Solid Fuel Heaters</i> in August 1999 but AHHA advises code of practice not finalised. A to release as a national handbook on environmental issues. Currently in late draft stage with funding needed to finalise and release. AHHA seeking funding from Environment Australia to complete handbook. All state EPA's contributed as well as New Zealand.

Review	Key Agencies	Stated goals	Timelines/ SSS (where stated)	Related plans/ strategies	Comments
<p><b>5.3</b>  <b>Conduct a community education program on using wood heaters</b></p>	<p>EPA  Local councils</p>	<p>Guidelines for wood suppliers</p> <p>Regulatory action by councils</p> <p>Incentives to upgrade to certified wood heaters, gas or electricity</p>		<p>Guideline <i>Selecting, Installing and Operating Solid Fuel Heaters</i></p> <p><i>Is your wood going up in smoke?</i> brochure</p>	<p>EPA published Environmental Guideline <i>Selecting, Installing and Operating Solid Fuel Heaters</i>, in August 1999 and brochure <i>Is your wood going up in smoke?</i> Brochure explains ways of minimising smoke emissions.</p> <p>AHHA advises that there are no NSW guidelines for wood suppliers to ensure wood 1 sale is properly seasoned, hard wood. Environment Australia has produced discussi paper <i>A National Approach to Firewood Collection and Use in Australia</i>.</p> <p>No incentive scheme for owners of old heaters to upgrade has been introduced in NS however the government has recently announced a three year \$6M Clean Air Fund. 1 fund will be used to assist householders replace outdated wood heaters. The prograi will commence in Albury, Armidale, Cooma, Orange and Lithgow.</p> <p>For a short period Armidale Council offered low interest loans to a maximum of \$300 (including installation) for people wishing to upgrade old wood heaters to certified w heaters or to gas or electricity. The offer was so popular that Council was eventuall unable to finance the project and chose to discontinue it.</p>
<p><b>5.4</b>  <b>Continue voluntary don't light tonight campaign</b></p>	<p>EPA  Local council  AHHA</p>	<p>Reduce wood smoke emissions on cold and still nights</p>			<p>Voluntary <i>Don't Light Tonight</i> Campaign continuing with education warning of poor weather conditions for solid fuel heaters eg temperature inversions.</p>

Review	Key Agencies	Stated goals	Timelines/ SSS (where stated)	Related plans/ strategies	Comments
<p><b>Strategy B. Improve energy efficiency of homes</b></p>	<p>Local council SEDA Dept of energy</p>	<p>Reduce emissions from pollutants</p> <p>Minimise burning of fossil fuels</p> <p>Encourage renewable sources of energy</p> <p>Reduce GG emissions</p>		<p>Minimum energy performance standards (MEPS) conducted by DoE post 1999</p>	
<p><b>5.5 Implement the energy smart homes program (ESHP)</b></p>	<p>Sustainable Energy Development Authority (SEDA) Local council</p>	<p>60% building approvals (BA's) granted for new homes to have 'minimum' Energy Performance Rating (EPR)</p> <p>90% of new homes &amp; 70% of retrofits with a BA will have an 'improved' EPR</p> <p>Introduce an energy efficiency housing policy into 50 local councils covering 80% of new homes &amp; alterations</p>	<p>Mid-1997 to 2002</p> <p>6m over 3 yrs</p>	<p>Energy Smart Homes program</p> <p>Green Power Scheme</p> <p>Energy Smart Homes Make-Over</p>	<p>65 councils have signed MoUs with SEDA to implement ESHP, this amounts to 76% residential development approvals (DAs). 31 have fully implemented ESHP and meet minimum requirements. This amounts to 42% of residential DAs.</p> <p>DUAP has introduced SEPP 60 for Exempt and Complying Development (Gazetted 3 March 2000). SEPP 60 requires 3.5 Star NatHERS rating for complying residential development. SEPP 60 currently applies to 63 Councils who do not have provision for exempt and complying development in their LEPs.</p> <p>As of May 2001 there were 18,144 residential and 1,796 business GreenPower customers. This represents approximately 0.3% of the customer base in NSW.</p> <p>SEDA sponsors 7 major industry associations under the Energy Smart Industry Partnerships. SEDA sponsors an Energy Efficiency Category at these associations' awards to recognise best practice in each association. From 2001 sponsorship criteria will stipulate all award entries to have a minimum 3.5 star NatHERS rating.</p> <p>SEDA has MoUs with Development Corporations (Landcom, South Sydney Development Corporation) to encourage energy smart development (minimum 3.5 star building envelope, minimum 3.5 star hot water system). SEDA also has MoUs with individual builders and architects to encourage energy efficient design and building.</p> <p>Proposed Sustainability Advisory Council will focus on buildings.</p>

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## OBJECTIVE 5

Objective 5 of *Action for Air* is divided into two separate strategies; reducing emissions from solid fuel heaters (Strategy A) and improving the energy efficiency of homes (Strategy B).

*Action for Air* acknowledges that domestic solid fuel heaters are a significant source of fine-particle pollution as well as carbon monoxide, semi-volatile organic compounds (including carcinogenic polycyclic aromatic hydrocarbons), oxides of nitrogen and reactive organic compounds (i.e. benzene, aldehydes, phenols and organic acids)

There has been reasonably good progress on some aspects of reducing emissions from solid fuel heaters, however, much more needs to be done to fully implement *Action for Air* commitments and achieve greater improvements in winter air quality.

The effectiveness of requirements that new heaters meet more stringent emission standards (Action 5.1) and education campaigns to improve the installation and operation of solid fuel heaters (Actions 5.2 - 5.4) is limited by the continued operation of old, inefficient wood heaters in many homes. An incentive scheme for owners of old heaters to convert to certified wood heaters or gas or electricity has the potential to produce substantial improvements in air quality. Armidale Council briefly operated a scheme to provide low interest loans to people wishing to replace old wood heaters. The scheme proved so popular that Council was eventually unable to continue financing the project. *Action for Air* promised that the EPA would work with industry and local government to assess the benefits of such a scheme. At present no such scheme is in place, however, it is encouraging that the government has recently announced a three year \$6M strategy to assist householders to replace outdated wood heaters. The scheme will begin in Albury, Armidale, Cooma, Lithgow and Orange. Recent fine particle pollution results for Sydney indicate that the scheme should also be implemented immediately in metropolitan Sydney. It is important that the scheme be limited to people with old wood heaters. Where cleaner forms of heating are available, purchase of new wood heaters should be discouraged. It is important not to provide an incentive for people using cleaner technology (i.e. gas) to convert to wood heating. Apart from air quality implications, harvesting of firewood has a severe impact on native forests and animal habitat.

The need for such a scheme in parts of metropolitan Sydney is highlighted by fine particle pollution readings throughout June 2001. Regional Pollution Index (RPI) figures show 7 nights in June in which particle concentrations in excess of the EPA's goal of  $50\mu\text{g}/\text{m}^3$  were recorded in one or more parts of Sydney. A further 13 nights produced readings in the medium to high range. The worst pollution occurred on the night of 23 June with a reading of  $73\mu\text{g}/\text{m}^3$  (almost 50% above the air quality goal) recorded in

Sydney's north west. Significantly these readings fell sharply the following day, indicating that overnight fires were contributing most of the pollution (EPA website, [www.epa.nsw.gov.au](http://www.epa.nsw.gov.au)).

This conclusion is supported by the findings of a paper presented at a recent firewood conference in Armidale. The paper revealed that carbon dating of air samples taken from 4pm to 8am near the Sydney CBD in July and August 1993 found that 67% of particulate air pollution at that time originated from burning wood. In the Blue Mountains the figure was 81% (Robinson, 2001).

Further improvements could be achieved by incorporating the Environmental Guideline *Selecting, Installing and Operating Solid fuel Heaters* (EPA, 1999b) into an industry code of practice as promised in Action 5.2. This code of practice was due to be completed in early 1998. So far the release of the environmental guideline in August 1999 and production of the brochure *Is your wood going up in smoke?* (EPA, 1997) have been the only progress.

*Action for Air* also indicated that the EPA would work with industry to produce guidelines for wood suppliers to ensure that wood for sale is properly seasoned, hard wood. These guidelines have not been produced. A discussion paper titled *A National Approach to Firewood Collection and Use in Australia* has been produced by the Australian and New Zealand Environment and Conservation Council (ANZECC, 2000) - however, NSW is yet to commit to any action.

Strategy B, to improve the energy efficiency of home, appears to have been the most successfully implemented component of *Action for Air*. The Sustainable Energy Development Authority's (SEDA) implementation of the "Energy Smart Homes" program (Action 5.5) has resulted in 65 councils (accounting for 76% of residential development applications) agreeing to implement the program. Of these councils at least 31 have fully implemented the program (42% of residential DAs).

Those councils which have not signed an MoU with SEDA are now covered by State Environmental Planning Policy (SEPP) 60 which requires 3.5 star rating for complying residential development.

Promotion of GreenPower needs to be improved, however, with only around 0.3% of the NSW customer base currently subscribing.

## **Recommendations:**

1. Include metropolitan Sydney in areas to be immediately included in \$6M Clean Air Fund program to assist owners of old wood heaters to upgrade to cleaner technology. This scheme should be modelled on the program formerly operated by Armidale Council.
2. Complete industry code of practice for installation of heaters as promised in Action 5.2. Code should be based on Environmental Guideline *Selecting, Installing and Operating Solid fuel Heaters*.
3. Develop guidelines for wood suppliers including requirements to provide information on wood sources and ensure that wood is properly seasoned and dried.
4. Continue implementation of Energy Smart Homes Program to encourage more councils to progress to full implementation. Increase promotion of GreenPower to increase the number of residential and business GreenPower customers. Additional policies of energy labelling and enforcing greenhouse benchmarks in the electricity industry would also significantly assist objectives.

## Objective 6. Manage the impact of open burning

"Objective: To implement effective smoke management programs, recognising the importance of hazard reduction burning in controlling bushfire".

### TEC Action for Air Review table 6

Review	Key Agencies	Stated goals	Timelines/S \$\$ (where stated	Related plans/ strategies	Comments <span style="float: right;">pg 56</span>
<b>Actions</b>					
<b>Strategy A. Manage the impact of open burning</b>	NSW Rural Fire Service			Bushfire risk management plans & operational plans  Rural Fires Act 1997	
<b>6.1 Release a users' guide to open burning restrictions (March 1998)</b>	EPA Dept of Rural Fire Services (RFS) Councils NSW Fire Brigade State Forests NPWS	Those responsible for hazard reduction and other open burning understand the statutory requirements concerning clean air & open burning management	March 1998	Clean Air & Rural Fires Act	<i>Regulation of Open Burning</i> guide released explaining restrictions on open burning.  Available from EPA Goulburn St Office or phoning EPA pollution line 131 555. General availability in the community i.e from Councils unclear.  Rural Fire Service provided copy 9/2/01 but unable to advise if still widely available. Advised 18/7/01 that the EPA is in the process of producing an updated version.

<b>6.2 Develop smoke management guidelines for open burning (June 1998)</b>	EPA NPWS RFS State Forests Bushfire Coordination Committee	Develop smoke management guidelines  Integrated into bushfire risk management and prescribed burning training programs	Early 1998  Following 2 years		18/7/01 RFS advise that guidelines are currently in draft form. Currently being reviewed by NPWS.
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Review	Key Agencies	Stated goals	Timelines/S \$\$ (where stated)	Related plans/ strategies	Comments <span style="float: right;">pg 57</span>
<b>6.3 Educate the community on open burning restrictions</b>	EPA Local councils Dept of Bush Fire Services Fire Brigades NPWS	Make available community info packages regarding burning restrictions	Early 1998		Information package released 4 May 1998.  Publications available from EPA pollution line 131 500 or internet.  <i>New Protection of the Environment Operations (Control of Burning) Regulation 2000</i> commenced 1 Sept 2000, replacing <i>Clean Air (Control of Burning) Regulation 1995</i> . 93 Councils now listed in Schedule 1 in which some or all burning is restricted.  Under new regulation high-rise domestic incinerators to be phased out by September 2001.

## **OBJECTIVE 6**

As noted in *Action for Air*, the introduction of *the Clean Air (Control of Burning) Regulation 1995*, prohibiting backyard burning in the Sydney and Wollongong metropolitan regions, has seen major reductions in pollution from open burning in recent years. This has been enhanced with the introduction of the *Protection of the Environment Operations (Control of Burning) Regulation 2000*, which replaced the 1995 regulation on 1 September 2000. A total of 93 councils are now listed in Schedule 1 of the regulation, prohibiting or tightly restricting all open burning.

Educating the community on the effect of these restrictions is an essential part of reducing the impact of open burning. In recognition of this, Objective 6 calls for the release of a guide to open burning restrictions (Action 6.1) and an information package for distribution through local councils, Bush Fire Brigade (now Rural Fire Service) depots, fire stations and the EPA pollution line (Action 6.3).

Both of these actions were completed within the timelines set out in *Action for Air*, however the continued availability of the guide (EPA & Rural Fire Service, 1998) and information package are unclear. The publications are available from the EPA by phoning the EPA pollution line but TEC was not able to determine whether they are still readily available from councils, fire stations and RFS depots. Recent advice from the RFS indicates that the guide to open burning restrictions is currently being updated. It is hoped that the new edition will soon be widely available.

While restrictions have been successful in reducing pollution from open burning, *Action for Air* notes that bushfire hazard reduction and forestry management burning remains an important issue for Sydney air quality.

It was proposed in Action 6.2 that the impact of such burning be reduced by developing smoke management guidelines by June 1998. These guidelines were to ensure the implementation of best practice smoke minimisation principles into bushfire risk management and prescribed burning training programs.

Advice from the Rural Fire Service indicates that the guidelines are currently in draft form. They are currently being reviewed by the National Parks and Wildlife Service. It is not clear when they will be finalised.

**Recommendations:**

1. Ensure that restrictions on open burning are better publicised i.e. councils ensure that residents are aware of restrictions. Ensure that information packages and guide to open burning restrictions are freely obtainable from local councils, fire stations and Rural Fire Service depots as well as the EPA.
2. Finalise smoke management guidelines for open burning. Include guidelines in bushfire risk management and prescribed burning training programs.

## Objective 7. Monitor, report and review air quality

"Objective: to provide for the ongoing monitoring and future development of the NSW Air Quality management Plan, based on new scientific, economic and social information, wide collaboration and open consultation".

### TEC Action for Air Review table 7

Review	Key Agencies	Stated Goals	Timelines/ \$\$\$ (where stated)	Related Plans/Strategies	Comments	pg !
<b>Actions</b>						
<b>7.1 Provide internet access to air quality data by mid-1998</b>	EPA	Provide internet access to daily & quarterly reports	mid-1998		Daily reports of Regional Pollution Index (RPI) available on internet. Breakdown of individual pollutants available only in quarterly reports (not on internet).	
<b>7.2 Set up an air quality monitoring interest/ advisory group</b>	EPA	Provide a forum to identify priorities for future modelling		Metropolitan Air Quality Study (MAQS)	Group not as defined in <i>Action for Air</i> ; no community, industry or university input; more narrowly defined.  EPA involved with other jurisdictions in Peer Review Committee to ensure its air quality monitoring network meets requirements of Ambient Air NEPM. Committee consists of technical specialists from each jurisdiction and representatives of Australian Conservation Foundation, Environment Victoria, Holmes Air Science and GHD.  EPA/CSIRO group established to develop air quality forecasting system based on emissions and meteorological information.	
<b>7.3 Report on the results of the air toxics study</b>	EPA	Results of pilot study investigating levels of air toxics in the GMR	Early-1998		Pilot Study released May 1998.  Report of comprehensive data from Air Toxics Research Project due June 2001. As of 20/7/01 report was still in press but expected to be released soon. This project extends work conducted in the Pilot Air Toxics Project. Monitoring conducted in Sydney, Illawarra and lower Hunter regions.	

Review	Key Agencies	Stated Goals	Timelines/ \$\$\$ (where stated)	Related Plans/ Strategies	Comments <span style="float: right;">pg 4</span>
<b>7.4 Reconvene key technical committees with industry groups</b>	EPA/ Industry Technical Committee	Investigate responses to unresolved issues			<p>EPA/Industry Technical Committee meets irregularly. Convenes when an issue or problem arises and a technical solution is required.</p> <p>Discussions with oil industry on engine design and fuel quality now occurring at national rather than state level.</p>
<b>7.5 Metropolitan Strategy Committee to review environmental matters</b>	Metropolitan Strategy Committee	Review achievement of air quality goals	Annually		<p>Metropolitan Strategy Committee formed under DUAP but disbanded. Some sub-committees for more specific issues (eg land and housing supply) have survived.</p> <p>No other information available.</p>
<b>7.6 Convene a public forum to report regularly to government</b>	EPA	Convene a public forum to review air quality status and strategies	6 months after release of each State of the Environment Report SOE)	Action Plan NSW SoE reports	<p>SoE Report released Feb 2001.</p> <p>Forum to be held September 2001.</p>

## **OBJECTIVE 7**

The aim of Objective 7 is to monitor, report on and review air quality. If each of the actions in this objective were fully implemented they would provide a means of assessing the effectiveness of *Action for Air* in improving Sydney's air quality. They would also allow the Air Quality Management Plan to be adapted as new information and research comes to light.

Performance on Objective 7 has, however, been mediocre at best. Only Action 7.3, to report on the results of the pilot air toxics study (EPA, 1998c), has been fully achieved in accordance with *Action for Air* timelines. A more comprehensive report on monitoring data collected throughout 1997 and 1998 is expected to be released soon.

Daily air quality (Regional Pollution Index) figures are available on the internet as promised in Action 7.1, however quarterly figures are not. Daily figures indicate the cause of each reading (i.e. ozone, particles or NO<sub>2</sub>). Monthly figures do not. This makes it difficult to determine the cause of readings over a monthly period. RPI figures on the internet do not show how each reading compares against the relevant World Health Organisation (WHO) and National Environment Protection Measure (NEPM) standards.

Advisory committees and groups have not been set up in accordance with *Action for Air* criteria. The air quality monitoring/interest advisory group (Action 7.2) lacks community, industry and university representation. Discussions that were to be undertaken via EPA/industry technical committees (Action 7.4) appear to have been left to the national level. Although there is considerable merit in taking a national approach these committees could provide a valuable forum for identifying opportunities for environmental improvements and promoting change. The Metropolitan Strategy Committee (Action 7.5) appears to be defunct. No information was available on its activities

The air quality forum promised in Action 7.6 has been set for September 2001. The Forum should be used as an opportunity for the community, environment groups and industry to provide feedback on the success, or otherwise, of the Air Quality Management Plan and set priorities for the future.

## Recommendations:

1. Monthly RPI figures on internet to identify cause of each RPI figure. Quarterly figures, including breakdown of individual pollutants to be made available on-line. All figures should show how readings compare against relevant WHO and NEPM standards.
2. Expand air quality modelling interest/advisory group beyond EPA/CSIRO level to include community, environment group, university and industry representation as originally defined in Action 7.2 of *Action for Air*. This group should conduct future audits and report on progress of *Action for Air* and identify priorities for future work.
3. Revamp EPA/industry technical committees and Metropolitan Strategy Committee to be proactive, improve environmental performance and include community representation.
4. September 2001 Air Quality Forum should have wide representation and assess the success or otherwise of *Action for Air* programs and set priorities for the future.

## REFERENCES

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