

Submission

**INQUIRY INTO NATIONAL ROAD SAFETY**

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Secretary: *Frank Sauer*  
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## Executive summary

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There are a number of strong, potential mechanisms for reducing road trauma which have thus far been overlooked by this inquiry. They include:

- There is potential to reduce by some 12% percent, and possibly by more than 20%, the total numbers of drivers who are likely to be fatigued prior to setting out on a road journey (i.e. due to sleep deprivation resulting from transport noise). This reduction in driver fatigue may be achieved by legislating compliance with the various Australian Standards for acceptable levels of aircraft noise, surface transport noise and other external sources of industrial noise within residences. Funding of such compliance could sourced from “user pays” schemes where the polluter pays.

It must be noted that the transport industry itself is a very substantial, and growing, contributor to the problem of sleep deprivation in cities across Australia.

- Overhaul current transport planning so that it takes negative human impacts into genuine account and compensates, in accordance with National standards, the known negative impacts of ever-increasing transport traffic on public health and safety.
- Legislate for safe setting of headlight angle, such that headlights do not shine directly – via the read vision mirror - into the eyes of the driver of vehicles in front, or oncoming vehicles.

I submit that attention to the following issues would assist substantially to achieve the 'strategic objectives' mentioned in the National Road Safety Strategy 2001-2010:

1. **improve vehicle compatibility and occupant protection:** This objective is quite incompatible with current Federal Government's plans for developing and financing Australian's land transport infrastructure. These plans are based on published expectations for "*domestic non-bulk freight to double in the next twenty years*", "*interstate road freight to almost triple*" and "*urban road freight will increase by 80 per cent*". *Even if private non-freight traffic increases in proportion to growth in road freight, a safer outcome would still be achieved if rail freight were increased instead of road freight. The Federal Government's 2003 Infrastructure finance plans are based on flawed preconceptions, such as the notion that road building does not induce road traffic away from rail, and that in the long term such increased traffic permanently reduces congestion, noise and pollution*". (The Hon John Anderson, 2003 Infrastructure Finance Forum Sydney 20 June 2003)

This objective is also flawed in that it neglects the issue of heavy articulated vehicles 'sharing' road space with cars, and focusses on incompatibility between cars/motorcycles/cyclists and 4WD vehicles.

If this objective is to be achieved, then Federal Government must reverse its plans to very significantly increase interstate and urban road freight and instead increase rail freight and encourage private car drivers to use public transport. The ratio of trucks and vans to cars must not be further increased. The Federal and certain State Governments stand guilty of having ignored public concerns expressed in many tens of thousands of submissions. Instead of properly considering such submissions, governments have instead fulfilled apparent obligations to the corporate sector, apparently as a result of having previously accepted generous gifts and political party campaign donations from the private toll road industry, airport & tourism industry and property developers. Hence, instead of reducing road traffic levels in line with air quality policies, new, privately operated, airport focussed & port focussed tollroads are now inducing commuters away from public transport and into their cars. This can be reversed, by sensible government intervention. The critical public issues of health and safety must to be moved up to first priority instead of being effectively ignored as they have been to date in current transport "planning".

2. **improve road user behaviour:** In light of the points made above, it is crucial to improve to **improve road use behaviour of articulated vehicle drivers**. In particular, where long articulated truck are negotiating a left turn from the inside lane across a left turn only lane, it should be legislated that truck drivers should place their vehicles across both lanes prior to commencing the left turn across a left-turn only lane, and to activate the left turn indicators at a safe distance from the intersection, the appropriate distance to be determined by road safety experts. With truck drivers under pressure to meet difficult deadlines, it is not sufficient to rely on "do not overtake turning vehicle" signs when a proportion of aggressive truck drivers can be seen everyday flouting road safety by not using indicators at all, or deploying them only as the turn is being made, and not looking properly to see whether there is a

vehicle beside them before they commence the turn.

Recently, I specifically made a point of observing trucks approaching a particular intersection near Sydney airport, where articulated vehicles wishing to turn left require more than one lane and must cross a 'left turn only lane' in order to do so. On average, out of every 10 articulated vehicles turning left at that intersection, 2 (the drivers tended to be young males) failed to signal any intention to turn left, 2 (older drivers) approached with considerable care and gave plenty of warning to vehicles in the left turn only lane behind them, while the remainder signalled, but only just before or just as they commenced the turn.

Road traffic from Sydney Airport is increasing rapidly, perhaps four times faster than traffic in surrounding areas. Notwithstanding a temporary lull after "September 11", vehicular traffic generated by operations growth at Sydney Airport is expected to more than double within the next decade or so. Road freight associated with Sydney Airport and Port Botany is already a particular hazard for residents of Inner Western Sydney, particular where trucks and cars are increasingly forced to dodge each other through narrow, ex-residential streets which have been converted into de facto arterial roads.

3. **Regulate safe headlight angle settings**, for example, such as is in force in Germany, I believe. I can see no good reason why this should not be adopted across Australia as a standard requirement of vehicle registration. Whether driving myself, or being a passenger in other vehicles, I have frequently noted that headlights (low beam) often shine too directly at the rear vision mirror of the vehicle I have been driving. Similarly, headlights must be adjusted so as not to shine directly at oncoming vehicles. **Introduce fines for drivers of vehicles whose headlights are not properly adjusted** at such an angle that will prevent low beam headlights from directly shining onto the rear vision mirror(s) of vehicles in front, thus potentially blinding the driver(s) of such vehicles.
4. **Standardise, for safety, the brightness level for headlights.** Some people find the bluish tinted (?halogen) headlights glary and distracting.
5. **More extensive and intensive training for learner drivers** – recommend model used in Germany – long training periods, more extensive coverage of road safety rather than just road rules.
6. **Encourage alternatives to motor vehicle use.** Again, this inquiry's adopted strategy – though admirable -- is in direct conflict with ongoing State and Federal Government actions which are effectively inducing people off public transport and into cars, and inducing freight away from rail and onto roads. This has been evidenced in a multitude of submissions, even motions in Parliament (e.g. NSW Hansard Articles: LC 22/5/03 #36; NSW Hansard Articles: LC 17/9/03 #44) and in various articles, letters and newsitems in the Sydney media, the most recent concerning the Parry Report. The Parry Report criticised the Carr Government of failing to properly fund public transport, among other things.

The failure of State and Federal Governments to plan transport infrastructure and public transport for the long term, in the best interests of the wider community - instead of focussing narrowly on selected, short term, commercial interests - is a strongly recurring issue in public submissions on both air transport and surface transport planning issues -- nationwide.

The failure to implement policies of traffic reduction (and by default air pollution and transport noise reduction) can be traced back to the still current economic ideology which relies on government delegating its traditional decision making role to "market forces". So far, the promotion of public transport over vehicle use has been empty rhetoric without matching action, e.g. see column three in Table 1. Perversely, the result has been the reverse of what the policy promised.

- 7. Reduction of road traffic and increase of rail use:** This has long been a part of government (state and federal) policies for reducing pollution, but the reverse has been achieved. Frequently prior to elections, new rail programmes are announced and received with enthusiasm by the public, but then are later dumped. Evidence for this is the Newcastle to Sydney high-speed rail link and the Parramatta-Epping-Chatswood rail link. The Parry Report refers to these issues.

Several incomplete rail lines outside of Sydney also exist, and several should be investigated for potential completion, thus removing heavy freight off roads. They include:

NSW: Casino - Tabulam: Formation substantially completed but no track laid. The remains are readily observable from many locations along the Bruxner Highway.  
Guyra - Dorrigo: Formation visible for a few kilometres to the north east of Guyra.  
Gulgong - Maryvale: Formation constructed, a tunnel bored and some bridges started.  
Maldon - Dumbarton: Formation substantially completed from proposed Avon Tunnel to Southern freeway. Some bridgework started on Nepean river bridge  
QLD: Far west Queensland mainly: e.g. Winton, Cunnamulla.  
VIC: Robinvale - Koorakee; Nowingi towards Milewa South. The Edenhope line was authorised, but construction never commenced.

It was reported recently in the Sydney media that the Armidale, NSW, rail line is under threat of closure. The Tamworth-Barraba line was closed several years ago. There has been a substantial increase in the size and numbers of large semi trailers and road trains using the Tamworth-Barraba-Bingara-Inverell/Moree roads over the past decade. These roads were never designed for such juggernauts - being relatively narrow and often poorly cambered - they are poorly suited to such heavy vehicle traffic increases.

I note that the trucking industry, which appears to have the inflexible support of Federal Government above all other forms of transport except air transport, does not contribute specifically to the wear and tear on rural roads. State and Federal Government should upgrade and increase rail freight transport and thus minimise the

problem of heavy vehicle numbers posing a growing danger to private family vehicles.

8. **Better management of fatigue in transport must also require that people are able to sleep in their bedrooms when they WANT and NEED to, and not just when it suits the transport industry whose noise prevents many people from getting up to 8 hours of uninterrupted sleep.**

The Federal Government has been warned repeatedly – but has thus far failed to heed such warnings - that fatigue is real public health and safety problem.

**It is no longer a matter of IF the State and Federal Government will some day act to reduce sleep deprivation due to transport noise, but WHEN it will act!**

In 1999, a Federal Parliamentary Committee Enquiry into transport-based noise was reported to have been told that tiredness remains one of the last untouched occupational health and safety issues of this century. On a 26 July 1999 ABC Local Radio "PM" Program (<http://www.abc.net.au/pm/s39074.htm>; Appendix 1), the Director of the University of South Australia's Centre for Sleep Research, Drew Dawson, said of fatigue as a contributor to accidents: "*Oh I think everybody knows it's a problem, but there is a sense of saying is "let's agree not to talk about it, because it's either going to cost us a lot in our next enterprise bargaining agreement, or in many cases we are socialising the costs"; that is, the taxpayer picks up the costs of the accidents and injuries for fatigue-related accidents.*" "I think the principle of transparency and accountability, which are part of the life motif of economic globalisation, is that we need that accountability, and if you are going to create costs for the community, then the organisations and individuals who do that should be held accountable for it."

The National Road Safety Strategy 2001-2010 does not acknowledge the obvious fact that transport noise contributes to potential driver fatigue, and its impact is continuing to increase at unprecedented levels due to unprecedented growth in transport, especially road and air transport.

The Federal Department of Transport has the responsibility and the power to ensure that aircraft noise insulation is implemented in compliance with the Australian Standard AS2021, but has steadfastly rebuffed all calls to exercise this most basic public protection. Similarly, not all homes that are exposed to significant levels of surface transport noise are adequately noise insulated. The numbers of homes which should be insulated for the prudent sake of safety is growing at a pace through poor long term planning.

Therefore, to reduce the total numbers of fatigued drivers, it would be prudent to legislate for adequate noise insulation of homes where transport and other external noise exceeds the World Health Organisation Guidelines for Community Noise or, failing that, introduce legislation to noise-insulate homes to Australian Standards. Transport noise insulation should be in accordance with the more lenient Australian

Standards (such as AS2021 -- aircraft noise) and other relevant standards and guidelines. (WHO Guidelines for Community Noise is accessible on the Internet at <http://www.who.int/peh/noise/guidelines2.html>).

Statements such as: "*We have not sought to address and resolve every issue that contributes to fatigue in the transport industry*" neglect the obvious fact that the transport industry itself is responsible for the majority of communities which are now exposed to potentially sleep-disruptive levels of noise.

9. **Double Standards could make difficult the realisation of 40% reduction in road trauma:** In a "The World Today" program which was broadcast on Local Radio (<http://www.abc.net.au/worldtoday/s180989.htm>) (Appendix 4), Anne Williamson of the University of New South Wales, reportedly said that results of research which show that lack of sleep has a marked effect on a person's capacity to perform tasks "*highlights the double standards in our society, with rules set to alcohol usage, but not for sleep deprivation and exploitation of workers*". Anne Williamson is the executive director at the Injury Risk Management Research Centre at the University of New South Wales.
10. **Legislation to fine drivers for driving when fatigued mustn't be introduced until after legislation is introduced to protect people from exposure to noise penetrating inside homes at levels which prohibit uninterrupted sleep.** If this is not achieved, it would be prejudicial against people who are *involuntarily* living in homes which are increasingly being rendered non-compliant with the various noise standards and guidelines. These people through no fault of their own, are at risk of being unable to sleep without disturbance.

Of the total numbers of drivers on Australian roads at any one time, it is reasonably to assume that a significance percentage may commence their journeys already sleep deprived. This may be due to many reasons, including ill health, but a common reason is noise penetrating bedrooms during the time when a person is attempting to sleep or rest. Noise may come from exterior sources, such as aircraft, road traffic, rail, neighbours, commercial activities.

Federal government has failed to enforce Australian Standard AS2021 in residential areas. In Sydney only some 4000 homes (out of 16,200 in the original management plan) have been insulated by the Sydney Airport Noise Insulation Project. All of those homes which were insulated by the Sydney Airport Noise Insulation project fell considerably short of complying with the AS2021 standard. I submit that the cost of finishing the noise insulation project IN COMPLIANCE with AS2021 would likely be less than the ultimate cost of reduced productivity and driver fatigue.

Many people appear to believe, incorrectly, that all houses affected by unacceptable levels of noise (as defined by the Australian Standard AS2021) have been properly insulated. Until compliance with AS2021 is a legal requirement this situation is likely to continue. The Federal Government's current working policy enables shareholder profits to airport and airline corporations to take precedence over public safety. At the very least government regulations should require that all households

affected by noise comply at the barest minimum with current Australian Standards for noise in homes - or better still, should comply with to World Health Organisation guidelines for community noise.

This unfortunate and obviously foreseeable outcome is due to Federal, State and Local governments having collectively made imprudent decisions - in spite of tens of thousands of public objections - and which are inexorably leading to increased noise impacts. Few people can afford to move house whenever government whim and/or legal loopholes deliver adverse impacts on living amenity, and even fewer have the necessary crystal balls with which to decypher what the Federal Government's real transport plans are; election promises on the environmental impacts of transport decisions typically bear little resemblance to actual outcome. To date, governments have failed to fully or correctly advise residents of likely impacts. Widespread public ignorance about the physical impacts of noise on humans (including, but not limited to, adequate rest and sleep quality) has been mischievously nurtured by politicians, certain radio talkback commentators, corporate interests, international PR firms, and media columnists.

**11. By how much could noise insulation and better land use zoning contribute to reducing driver fatigue? Feasibly, more than 20%.**

National Road Safety Strategy 2001-2010 target is to reduce road fatalities per 100,000 population by 40%, from 9.3 in 1999 to no more than 5.6 in 2010.

This submission asserts that potential exists for reduction to be made in the total numbers of people who commence their road journeys already fatigued due to involuntary exposure to external noise penetration of bedrooms. There is potential to achieve some of this reduction from within the 12% of Australians reportedly suffering sleep deprivation due to road traffic noise (EPA May 1999; <http://www.epa.nsw.gov.au/publications/roadnoise.pdf>), and from within an additional conservative estimate of 10-20% (or more) of Australia's population whose bedrooms are not insulated in compliance with the AS2021 standard. Figure 2 shows the likely future spread across the Sydney metropolitan area of aircraft noise from Sydney Airport - this coloured image was part of a presentation made to the April 2001, SCAN-UK "Environmental Capacity at Airports" conference, held at Manchester Metropolitan University, UK, and is based on a black and white line graphic (Figure 2) published in the 1995 "Falling on Deaf Ears" Report of the Senate Inquiry into Airport noise in Sydney. They illustrate the varying levels of forecast impacts across the Sydney Basin, for annual aircraft movements at Sydney Airport of 360,000 (i.e. 60,000 more jets than currently fly into and out of Sydney Airport, but with a lower proportion of jets than was forecast at that time). Current "official" forecasts are for growth of Sydney Airport traffic to 460,000 aircraft movements per annum, but the actual operational capacity of Sydney Airport is 500,000 movements, with the current runway configuration. The figures also show the small amount of noise mitigation done to date. Figures 1 and 2 do not show the additional noise impact footprints for other non-curfew airports in the Sydney Basin region, e.g.



Bankstown (over 400,000 aircraft movements per annum), Camden, Hoxton Park, however it is obvious that such airports would add “blanket coverage” over most of the Sydney metropolitan area. What is significant is that the current “airport development plan” and “aircraft noise mitigation plan” for the Sydney region concentrates and maximises noise on the most densely populated residential areas, and leaves non-residential areas relatively unscathed. It doesn’t make sense and there are out-of-town primary airport alternatives, such as Wilton and Darkes Forest, which would work very well if only rail access was provided for the majority of airport passengers, workers and freight.

Figure 1

**Noise profile for 353,000 movements/yr (incl. 40% propeller aircraft) ...**

*... but the 'ultimate operational capacity' is 500,000+ jet movements/yr - official noise profiles being withheld.*

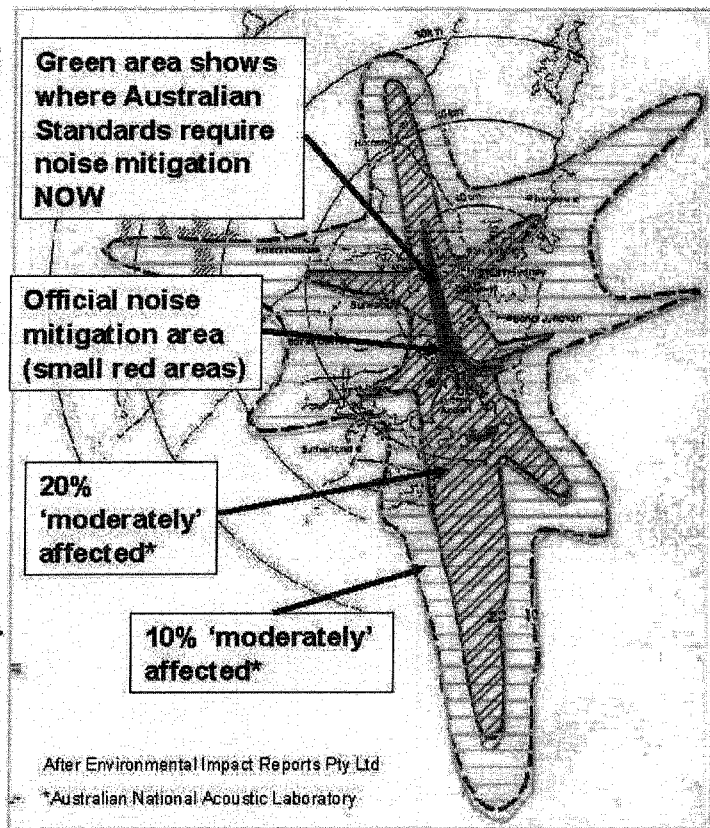
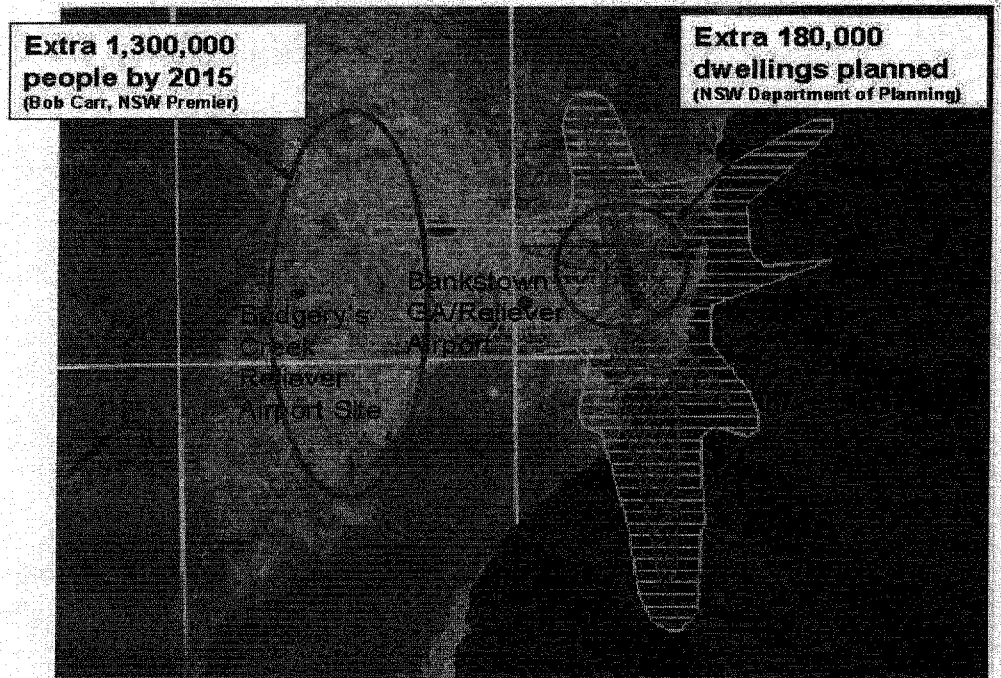


Figure 2



Thus, there is clear potential to reduce the total number of fatigued “pre-trip” drivers by some 10-20% and this would assist reduce road trauma and other accidents in a very sensible and practical way.

WHO Guidelines for Community Noise, 3. Adverse health effects of noise, states: *“Exposure to night-time noise also induces secondary effects, or so-called after effects. These are effects that can be measured the day following the night-time exposure, while the individual is awake. The secondary effects include reduced perceived sleep quality; increased fatigue; depressed mood or well-being; and decreased performance (Öhrström 1993a; Passchier-Vermeer 1993; Carter 1996; Pearsons et al. 1995; Pearsons 1998).”*

It is obviously self-defeating to develop strategies regarding fatigue in transport industry without in-tandem development of strategies to prevent sleep deprivation from forecast increases in transport noise.

It would bode well for the future health and safety of all road users if this Committee were to make a prominent point of the role that sleep deprivation plays in reducing driver alertness.

I will dwell on this point considerably, in an attempt to counteract dishonest and/or inadvertent misinformation about this issue that has been a marked characteristic of Federal government material on transport noise impacts.

The World Health Organisation has acknowledged that, within Australia, there are large communities which are exposed to significant noise levels. Many of these communities are exposed to external noise penetration within their homes at levels which require insulation for an acceptable living amenity. However a very large proportion of these communities remain outside the justice system, and will continue to live in 'unacceptable' conditions without legal recourse until such time as Federal and State Government legislates to protect their health and safety. This requires government intervention. However, to date, the State and Federal governments' preferred decision-maker on transport and other issues, i.e. 'market forces', has demonstrated that commercial interests will not voluntarily incur such costs as they are legally avoidable, even though sustainability of their own industry is at stake in the long term.

In the October 2000 "Beyond The Midnight Oil" report of the House of Representatives inquiry into managing fatigue in transport", Recommendation 26 states "*The Minister for Transport and Regional Services, in consultation with the Treasurer, should direct the Productivity Commission to include fatigue and fatigue management as key features of any future inquiries into transport*". Also, Recommendation 37 states "*The Australian Transport Safety Bureau should take a leadership role in coordinating research and evaluating fatigue issues and initiatives*". From direct experience, I can say that the Federal Government, in particular the Minister for Transport, over the past NINE years, has steadfastly refused persistent requests for it to actively take sleep disturbance and rest disturbance due to external transport into serious consideration when making transport planning decisions, and when planning mitigation of environmental consequences resulting from such transport planning.

As evidence of failure of the scale to which large communities in the Sydney metropolitan area have been involuntarily exposed to the risk of sleep disturbance without protective insulation, and will become increasingly exposed in future years, here is a brief summary of relevant facts. The Sydney Airport noise sharing programme has fallen well short of delivering what it promised in terms of shared percentages of noise in various directions from the airport. For example, noise over some of the most densely populated and worst affected areas has consistently remained above double what was advertised. Also, the plan is unsustainable. At best the noise sharing plan has delivered only a temporary (though welcome) reprieve, however, government has not yet told the public the truth about its limited life span and has repeatedly inferred the opposite, despite an "environmental" representative of Sydney Airport Corporation Limited (now sacked) recently acknowledging to the Sydney Airport Community Forum that the east west runway will "eventually" close, thus voiding the noise sharing "plan". At that stage, Sydney Airport operations will revert to the 1995 situation of almost 100 per cent parallel runway usage, but, because of the increased numbers and average sizes of jets, the impacts will be very significantly more severe than, the concentrated so-called "bennelong funnel" situation of 1995. One mathematical analysis by respected airport designer, Alan Bonham (retired), found that four-five fold increase in noise impact could

be expected.

The issue at stake in the above situation for the current inquiry is that there are NO publicised PLANS to adequately increase the quantity, or quality, of noise insulation of homes to match the forecast noise increases, nor do they acknowledge the obvious future of increased concentration of noise over certain residential areas. On one hand there is evidence that the Department of Transport (Federal) is working towards watering down the Australian Standards for aircraft noise as a planning tool for residential and other urban development, and on the other hand there are NO OFFICIAL PLANS to legislate for compliance with Australian Standards on aircraft noise in homes.

Table 1.

<p><b>Final noise management plan to 2010</b> (third runway forecast) based on some 350,000 annual aircraft movements by 2010, of which some 50% were to be propeller aircraft).</p> <p>(NB: Environmental impacts of converting Sydney Airport to parallel operations i.e. third runway, were calculated on an incorrect assumption that a little over 300,000 annual aircraft movements would occur by 2010!</p>	<p>2003, currently in the order of 300,000 annual movements, of which less than 35% are propeller aircraft. (Approx. 23 million passengers).</p> <p>(The percentage of smaller planes is being decreased as part of the plan to make Sydney Airport even more profitable. I.e. the larger the jets, and the more numerous they are, means larger revenue streams from the car park and shops, which already make up some 60% of the airports profits.)</p>	<p>2024 Forecast annual aircraft movements of 412,000 (mostly jets, despite dishonest political assertions that the mix will contain 40% propeller planes). (Over 68 million annual passengers)</p> <p>(This involves at minimum a fourfold increase of road traffic to and from Sydney airport, above current levels. International best practice is 40-50 percent public transport access to airports, which contrasts with approximately 5 per cent. Airport car park revenue provides the lion's share of the airports profits).</p>
<p>Plan called for insulation of 16,200 homes to be insulated to the Australian Standard 2021 (at an estimated cost of approximately \$70,000 each ) by approximately 1998. (Expected total of over \$1 billion)</p>	<p>Less than 4,000 homes have been partially insulated, at about \$45,000 each due to a post-3<sup>rd</sup> runway, clandestine, ministerial decision. As a result of converting the insulation project from insulating to a budget instead of to a standard, <u>none</u> of the homes insulated by the project comply with the Australian Standard AS2021.</p>	<p>No significant increase in number of homes insulated has been publicised. Federal Government announced that it will cease collecting the airport noise levy in mid 2006, when "the cost of the insulation work around the airport has been recovered". In other words, the government has no intention of insulating all homes that require it even though continuing the noise levy would fairly ensure that the USER PAYS for all insulation work required. Thus the Federal Government's plans ensure that the potential numbers of sleep deprived drivers WILL increase in urban areas affected by aircraft noise, e.g. Sydney, Bankstown, Perth, Adelaide, Brisbane.</p>

**Appendix 2 of the World Health Organisation's publication "Community Noise Guidelines** (See Appendix 3 of this submission) acknowledges that large communities of Australia's largest cities are affected not only by road transport and other city noise, but also by aircraft noise. In a study of road transport noise, "it was estimated that over 9% of the Australian population is exposed to LA10,18h levels of 68 dB or greater, and 19% of the population is exposed to noise levels of 63 dB or greater. Adding the large communities affected by aircraft noise to this group, and adjusting for the few households which have been insulated to the appropriate standards (if any) it is still apparent that a significant proportion of Australian citizens is exposed to noise levels which put them at risk for fatigue during waking hours.

The NSW EPA's May 1999 report "Environmental Criteria For Road Traffic Noise" states: *"A study conducted in 1986 (Hede et al. 1986) indicates the extent of road traffic noise impacts throughout Australia. The study involved interviews with a large random sample of the Australian population. Twenty-one per cent of Australians described themselves as being personally affected by noise pollution—more than for water, air or waste pollution. Of the sources of environmental noise, the most important was road traffic noise, with 17% of the population describing it as the noise they would most like to get rid of. The survey found that 6% of Australians were highly annoyed, and 21% moderately annoyed, by traffic noise, with 13% claiming disturbance to listening activities, and 12% claiming disturbance to sleep."* It went on to state: *"The Hornsby Shire and Sydney City councils have codes for internal noise level criteria in place. Sleeping areas are usually the most sensitive to noise impact, so in the absence of any local codes internal levels of 35–40 dBA at night are recommended. As a guide for other living areas, internal noise levels 10 dB below external levels are recommended on the basis of openable windows being opened sufficiently to provide adequate ventilation (refer to Building Code of Australia for additional information). For most residences this equates to a minimum of 20% of the window area left open"*.

For New South Wales, at least, road traffic noise standards mainly apply to greenfields road developments (noise barriers), and to new housing, but not to existing housing. This is clearly a problem for people who live in areas such as the inner west of Sydney, where residential streets in old suburbs are increasingly being transformed into de facto arterial roads - without any meaningful effort made to protect those people from the associated rise in noise levels. Thus the transport industry itself is contributing to a significant potential rise in fatigued drivers in established urban areas.

**Australian management of noise as a community health issue is poor compared with Europe.** Within Europe, noise legislation is following the pattern set by new European air quality legislation, (which requires that the Continent be divided up into thousands of air quality management zones. Within each zone, local authorities are required to model and then manage local air quality. If levels of agreed pollutants exceed threshold or guide limits then the Local Authority is required to work with the major sources of emissions within that zone in order to ensure compliance within a given time period. Failure to ensure compliance could in theory result in action by the local authority to

enforce compliance. This (in theory) could be achieved by e.g. reducing traffic access to airports). Noise mapping of Europe has recently started. The UK government is looking at enforced buy out of houses, compensation payments and sound insulation, new legislation is due in November 2003. European Governments, whilst wanting to enjoy and encourage the benefits of aviation growth are aware that they need to take a more radical approach to dealing with the environmental consequences. The Australian Federal Government is taking the ostrich approach.

The following table provides the WHO guidelines for noise effects in outdoor living areas, indoor living areas and bedrooms. (Note: explanations of the terms used in the above table are provided in Section 2. Noise sources and their measurement at [http://www.who.int/environmental\\_information/Noise/Commnoise2.htm](http://www.who.int/environmental_information/Noise/Commnoise2.htm); (See Appendix 2 for full table)

Specific environment	Critical health effect(s)	L <sub>Aeq</sub> [dB(A)]	Time base [hours]	L <sub>Amax</sub> fast [dB]
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-
Dwelling, indoors	Speech intelligibility & moderate annoyance, daytime & evening	35	16	45
Inside bedrooms	Sleep disturbance, night-time	30	8	
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60

It is estimated that some 35,000 households north of Sydney Airport are located between the most recently calculated 25 and 35 ANEI contours. There are an additional 1500 dwellings south of the airport and significant numbers in the Eastern Suburbs. These dwellings were referred to in the 1995 Senate Inquiry into Sydney Airport noise impacts, which recommended that all such dwellings be noise insulated, however no such noise insulation has been provided to them.

Bankstown airport, particularly if developed to handle small jets, will also expose a number of dwellings to such levels of noise. Adelaide, Perth, Brisbane and Melbourne airports also have similar noise issues, and importantly there is the additional issue of the lack of a curfew at those airports.

The existing curfew for Sydney airport only allows a window of 7 hours for "uninterrupted sleep". On average approximately 1 to 2 medical emergency aircraft flights occur each night in areas most severely affected by aircraft noise, many of which are uninsulated. The lack of insulation, and the provision of sub-standard noise insulation in these areas is of particular relevance for shiftworkers – the majority of whom drive to and from work.

Figures 1 and 2 show the noise profile for Sydney for annual aircraft movements at

Sydney Airport of 360,00. It must be noted that the National Acoustic Laboratories claim that dwellings within the 15 and 10 ANEF (Australian Noise Exposure Forecast) contours can also be seriously affected. Around 50% as many households outside the areas which were originally targeted for aircraft noise insulation, are also seriously to moderately affected.

The Government has this information, in submissions from the public, and especially after the 1995 senate inquiry into the third runway impacts, but it has done NOTHING to protect these large communities from unsafe levels of external noise penetrating inside the home.

The cost of providing noise protection for residents affected by transport noise above certain levels, should be set against the potential cost of not taking that action when assessing its potential for decreasing fatal road accidents.

State and Federal Government both have policies not to increase housing inside the 20 ANEF contours, however, due to outdated and thus legally invalid noise contours – combined with both State and Federal Government failing to intervene to prevent urban consolidation in these areas – urban consolidation has continued apace (no insulation provided) within these areas! Yet jet aircraft noise is set to rise as total numbers and size of jet aircraft increase, and that noise will be more sharply concentrated in certain areas,

#### **WHAT GOVERNMENT CAN DO:**

**State governments** can establish standards for safe noise inside homes and legislate for compliance, utilising the “user pays” model to fund implementation of the new law. It is important to establish Maximum Level Criteria for noise in homes, and particularly in bedrooms. This submission recommends that the World Health Organisation noise guidelines would provide a suitable benchmark for insulation projects.

State Governments can also give priority to the issue of sleep deprivation in transport planning, urban planning, and construction design, instead of leaving it in the ‘too hard basket’.

**State Government** can prevent urban consolidation from occurring within 25 ANEF contours, and ensuring that all residences constructed inside the 20 ANEF contours be insulated to the AS2021 standard. They have the power to legislate that, in the absence of a legal ANEF document, that the most recent legal 25 ANEF contour, or the 20 ANEF contour be adopted instead for planning purposes.

**Federal Government** can legislate for compliance with the Australian Standard AS2021 for aircraft noise in homes, using the “user pays” principle to fund it. The aviation and tourism industry will no doubt object to this, as they have been ‘insulated’ from having to pay for the damage their industry causes, however they already know from their own organisation Airports Council International and other international aviation study groups

that the obvious future will require major airports to be located well away from residential areas OR that the industry will have to pay for the negative urban impacts of increasing transport noise and toxic transport emissions. (It is noted that such emissions may also cause sleep difficulties for people prone to respiratory diseases).

Federal Government can put into action the recommendations in the November 1995, the "FALLING ON DEAF EARS" Report of the Senate Select Committee on Aircraft Noise in Sydney: Two particularly relevant recommendations from that report are:

- 15. (p265) that the noise insulation scheme be extended to all residences within the 25 ANEF contour as included on the maximum capacity map; and
- 16. (p265) that the maximum level of outdoor noise be determined by the method preferred in the Draft Noise Management Plan

It also can ensure that a legally valid ANEF is always available, and they should publish 10 and 15 ANEF contours, as these contours show more clearly the patterns of harshest noise impacts outside the 20 ANEF. For far too long, the Federal Government has put economic rationalist politics in front of fair treatment of the wider public. From 1997 to the present day there has been no legally valid ANEF, and this has provided developers (the largest donors to political party campaign funds in NSW) with a legal loophole which allowed the legal construction of new housing, and renovation of existing, buildings for residential use inside the 20-25 ANEF contours without any form of insulation whatsoever. State and Federal governments have sat on their hands and done nothing to prevent this stupidity from happening. In doing so State and Federal governments have made the future situation (people exposed to unacceptable levels of noise inside their bedrooms) much worse than need be.

It is important to note that "the overwhelming majority of aircraft noise complaints in Australia now come from areas outside the 20 ANEF (55 DNL) contour" (Southgate, Feb 2001). Prior to the commissioning of the new parallel runway (third runway) in Sydney Airport, the National Acoustics Laboratory had already made the point that as many people living outside this contour are as significantly affected as the number of people living within it! Thus has the real situation been hidden from the public during public "consultations", and thus responsible people have no grounds for asserting that "people knew what the noise was going to be like" and now must suffer at their own cost. That cost includes the heightened potential for a fatal road accident.

Government bureaucrats inaccurately claim that the system ANEF is "very strict by international standards with building restrictions applying within areas with exposure levels in excess of 20 ANEF (55 DNL)" (ref xxx). There are several examples of recent building construction in the inner west of Sydney which put the lie to this claim. Equally, it is inaccurate to claim that "quieter aircraft" have solved future noise problems, when the fact is that increasing numbers of jet aircraft have already overtaken any noise reductions made by (slightly) quieter jet engines. The noisiest jets were already a very minor percentage of all aircraft as of a decade or more ago. Operational Constraints such



as movement caps, noise sharing and curfews are constantly under pressure to be lifted from the aviation and travel industry. Several capital city airports have no curfew. The approach to noise control is piecemeal, biased against community health and safety, and is a costly failure.

**Failing to plan is planning to fail.**

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## APPENDIX 1

**Tiredness and workplace health and safety (ABC Radio: PM Archive - Monday, 26 July, 1999 00:00:00 -- Reporter: Matt Colvin)**

COMPERE: Now what's the most underestimated cause of accidents in the workplace and on the roads? It's neither alcohol nor other drugs, it's just plain feeling tired. A Federal Parliamentary Committee Enquiry into transport-based fatigue has been told that tiredness remains one of the last untouched occupational health and safety issues of this century.

The Director of the University of South Australia's Centre for Sleep Research, Drew Dawson, spoke to Matt Coleman.

DREW DAWSON: In most jurisdictions we don't have a formal articulation of fatigue as what's called an identifiable workplace hazard. We would argue that once that occurs, and fatigue is formally defined as an occupational health and safety issue, there's as a whole range of measures which organisations are required to undertake. At the moment that doesn't happen, because they're not required to.

MATT COLEMAN: So are they doing nothing because they simply don't identify fatigue as a problem in their workplace?

DREW DAWSON: Oh I think everybody knows it's a problem, but there is a sense of saying is "let's agree not to talk about it, because it's either going to cost us a lot in our next enterprise bargaining agreement, or in many cases we are socialising the costs"; that is, the taxpayer picks up the costs of the accidents and injuries for fatigue-related accidents.

MATT COLEMAN: So how should workplaces deal with fatigue in ways that they're not doing now?

DREW DAWSON: Well I think probably the most important point is to agree that it's okay to talk about it. And it's a requirement that under Occupational Health and Safety Law there should be an organisation-formulated policy for managing fatigue. And yet when we look at organisations for whom fatigue is clearly an identified hazard, it's very rare that we find any policy formulation other than the award. And we see truck-drivers all the time who complain to us the fact that drug usage is so high, is an implicit acknowledgment of the fact that people are tired; you wouldn't take the drugs unless you were tired. Truck-drivers, in our experience, are not what we would call recreational drug users.

So I think it's very clear. But the economic pressures are such that in many cases people are guilty of the heinous crime of trying to feed their family. And the structure of payments in the industry is such that it's very difficult for people to make a decent living unless they work seventy, eighty or ninety hours a week.

MATT COLEMAN: The trucking industry has had this issue highlighted for them, but what about just the average motorist?

DREW DAWSON: I think the thing that we're probably most interested with this particular enquiry is to look at the organisational and the community consequences of this, and to say "can we formulate some guidelines for managing fatigue?", at least at an organisational level.

In the long run, I think training and education, community awareness programs can start to develop models whereby it's no longer acceptable to drive for long hours. But I think social costs associated with globalisation, and increasing economic productivity and those things, are all very well and good, and we should applaud those increases in productivity. But I think it's also important that we acknowledge that they sometimes come at a cost and we need to manage both the costs and the benefits of those industrial changes. And at the moment we're not.

MATT COLEMAN: What do you think'll be needed to have that cultural shift?

DREW DAWSON: Well I think it's happening already. The courts are starting to rule that hours of work and fatigue are an organisational responsibility. And whereas in the past it would be the driver, or the doctor who was working the long hours who would be blamed, now they're saying it's the organisation responsibility for producing that work schedule, and as a consequence the shift supervisors, the line managers and the company directors are now liable, under Corporate Governance and Occupational Health and Safety Law.

I think the principle of transparency and accountability, which are part of the life motif of economic globalisation, is that we need that accountability, and if you are going to create costs for the community, then the organisations and individuals who do that should be held accountable for it.

COMPERE: Drew Dawson of the Centre for Sleep Research, at the University of South Australia, talking to Matt Coleman.

Source: World Health Organisation Community Noise Guidelines  
[http://www.who.int/environmental\\_information/Noise/ComnoiseExec.htm](http://www.who.int/environmental_information/Noise/ComnoiseExec.htm)

**Table 1** presents the WHO guideline values arranged according to specific environments and critical health effects. The guideline values consider all identified adverse health effects for the specific environment. An adverse effect of noise refers to any temporary or long-term impairment of physical, psychological or social functioning that is associated with noise exposure. Specific noise limits have been set for each health effect, using the lowest noise level that produces an adverse health effect (i.e. the critical health effect). Although the guideline values refer to sound levels impacting the most exposed receiver at the listed environments, they are applicable to the general population. The time base for LAeq for "daytime" and "night-time" is 12–16 hours and 8 hours, respectively. No time base is given for evenings, but typically the guideline value should be 5–10 dB lower than in the daytime. Other time bases are recommended for schools, preschools and playgrounds, depending on activity.

It is not enough to characterize the noise environment in terms of noise measures or indices based only on energy summation (e.g., LAeq), because different critical health effects require different descriptions. It is equally important to display the maximum values of the noise fluctuations, preferably combined with a measure of the number of noise events. A separate characterization of night-time noise exposures is also necessary. For indoor environments, reverberation time is also an important factor for things such as speech intelligibility. If the noise includes a large proportion of low-frequency components, still lower guideline values should be applied. Supplementary to the guideline values given in Table 1, precautions should be taken for vulnerable groups and for noise of certain character (e.g. low-frequency components, low background noise).

**Table 1: Guideline values for community noise in specific environments.**

Specific environment	Critical health effect(s)	L <sub>Aeq</sub> [dB(A)]	Time base [hours]	L <sub>Amax</sub> fast [dB]
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-
Dwelling, indoors	Speech intelligibility & moderate annoyance, daytime & evening Sleep disturbance, night-time	35	16	45
		30	8	
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60
School class rooms & pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	during class	-
Pre-school bedrooms, indoor	Sleep disturbance	30	sleeping-time	45
School, playground outdoor	Annoyance (external source)	55	during play	-
Hospital, ward rooms, indoors	Sleep disturbance, night-time	30	8	40
	Sleep disturbance, daytime and evenings	30	16	-
Hospitals, treatment rooms, indoors	Interference with rest and recovery	#1		
Industrial, commercial shopping and traffic areas, indoors and outdoors	Hearing impairment	70	24	110
Ceremonies, festivals and entertainment events	Hearing impairment (patrons:<5 times/year)	100	4	110

Public addresses, indoors and outdoors	Hearing impairment	85	1	110
Music and other sounds through headphones/earphones	Hearing impairment (free-field value)	85 #4	1	110
Impulse sounds from toys, fireworks and firearms	Hearing impairment (adults)	-	-	140 #2
	Hearing impairment (children)	-	-	120 #2
Outdoors in parkland and conservations areas	Disruption of tranquillity	#3		

#1: As low as possible.

#2: Peak sound pressure (not LAF, max) measured 100 mm from the ear.

#3: Existing quiet outdoor areas should be preserved and the ratio of intruding noise to natural background sound should be kept low.

#4: Under headphones, adapted to free-field values.

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Extract:

World Health Organisation

Guidelines for Community Noise

[http://www.who.int/environmental\\_information/Noise/Commnoise5.htm](http://www.who.int/environmental_information/Noise/Commnoise5.htm)

### 5.4.2 Precautionary measures

With careful planning, noise exposure can be avoided or reduced. A sufficient distance between residential areas and an airport will make noise exposure minimal, although the realization of such a situation is not always possible. Additional insulation of houses can help to reduce noise exposure from railroad and road traffic. For new buildings, standards or building codes should describe the positions of houses, as well as the ground plans of houses with respect to noise sources. The required sound insulation of the façades should also be described. Various countries have set standards for the maximum sound pressure levels in front of buildings and for the minimum sound insulation values required for façades.

**Land use planning.** Land use planning is one of the main tools for noise control and includes:

- a. Calculation methods for predicting the noise impact caused by road traffic, railways, airports, industries and others.
- b. Noise level limits for various zones and building types. The limits should be based on annoyance responses to noise.
- c. Noise maps or noise inventories that show the existing noise situation. The construction of noise-sensitive buildings in noisy areas, or the construction of noisy buildings in quiet areas may thus be avoided.

Suggestions on how to use land use planning tools are given in several dedicated books (e.g. Miller & de Roo 1997). Different zones, such as quiet areas, hospitals, residential areas, commercial and industrial districts, can be characterized by the maximum equivalent sound pressure levels permissible in the zones. Examples of this approach can be found in OECD 1991 (also see OECD-ECMT 1995). More emphasis

needs to be given to the design or retrofit of urban centres, with noise management as a priority (e.g. "soundscapes").

It is recommended that countries adopt the precautionary principle in their national noise policies. This principle should be applied to all noise situations where adverse noise effects are either expected or possible, even when the noise is below standard values.

***Education and public awareness.*** Noise abatement policies can only be established if basic knowledge and background material is available, and the people and authorities are aware that noise is an environmental hazard that needs to be controlled. It is, therefore, necessary to include noise in school curricula and to establish scientific institutes to study acoustics and noise control. People working in such institutes should have the option of studying in other countries and exchanging information at international conferences. Dissemination of noise control information to the public is an issue for education and public awareness. Ideally, national and local advisory groups should be formed to promote the dissemination of information, to establish uniform methods of noise measurement and impact assessment, and to participate in the development and implementation of educational and public awareness programmes.

Appendix 2 of the World Health Organisation's publication "Community Noise Guidelines) states:

### **"Examples Of Regional Noise Situations**

#### **WESTERN PACIFIC REGION**

*Australia (Andrew Hede & Michinori Kabuto)*

*Exposure.* Australia has a population of 18 million with the majority living in cities that have experienced increasing noise pollution from a number of sources. The single most serious source of noise is road traffic, although in major cities such as Sydney, Melbourne and Perth, large communities are exposed to aircraft noise as well. Other important sources of noise pollution are railway noise and neighbourhood noise (including barking dogs, lawn mowers and garbage collection). A particular problem in Australia is that the climate encourages most residents to live with open windows, and few houses have effective noise insulation. A study of road-traffic noise was conducted at 264 sites in 11 urban centres with populations in excess of 100 000 people (Brown et al. 1994). Noise was measured one metre from the façade of the most exposed windows and at window height. From the results, it was estimated that over 9% of the Australian population is exposed to LA10,18h levels of 68 dB or greater, and 19% of the population is exposed to noise levels of 63 dB or greater. In terms of LAeq values for daytimes, noise exposure in Australia is worse than in the Netherlands, but better than in Germany, France, Switzerland or Japan."

*"Control.* In the mid-1990's, when a third runway was built at Sydney Airport, the government funded noise insulation of high-exposed dwellings. (ED: See comments in text regarding substandard aircraft noise insulation work and incomplete project.)

*Increasingly, too, major cities are using noise barriers along freeways adjacent to residential communities. In most states barriers are mandatory for new freeways and for new residential developments along existing freeways and major motorways. There has been considerable testing of noise barriers by state agencies, to develop designs and materials that are cost effective. Brown AL et al. (1994) Exposure of the Australian Population in Road Traffic Noise. Applied Acoustics 43: 169-176. OECD (1991) Fighting Noise in the 1990's. Organization for Economic Cooperation and Development, Paris, France"*

#### APPENDIX 4

This is a transcript from The World Today. The program is broadcast around Australia at 12:10pm on ABC Local Radio.

**Sleep deprivation proved to affect performance – The World Today Archive - Tuesday, 19 September, 2000 00:00:00;  
Reporter: Camielle Funnell**

COMPERE: A new survey out today shows long hours without sleep can affect a person's performance in much the same way as a few drinks of alcohol.

The survey involved testing a group of truck drivers and others working in the transport industry, over a three to four-day period. They tested on performance under the influence of alcohol and then again after sleep deprivation for up to 19 hours.

The results picked up and published by the British Medical Association show that lack of sleep had a marked effect on a person's capacity to perform tasks.

It's a result that one of the researchers, Anne Williamson of the University of New South Wales, says highlights the double standards in our society, with rules set to alcohol usage, but not for sleep deprivation and exploitation of workers.

Camille Funnell asked Anne Williamson, who is the executive director of the New South Wales Injury Risk Management Research Centre at the university, why measure tiredness against alcohol?

ANNE WILLIAMSON: Well alcohol's one of the few community standards that we have agreed on, because we've obviously needed to agree to legislate. Where we can say that there is a level of effect of a certain amount of alcohol that we regard as a limit for our safety.

So that the point... once you reach a 0.05 per cent blood alcohol level, it's deemed that over that and you're too unsafe, your performance is likely to be too impaired for you to drive safely.

CAMILLE FUNNELL: So basically your study showed that long hours without sleep can impair the mind, or impair the performance in much the same way as alcohol?

ANNE WILLIAMSON: Yes it did. We found that after... between about 17 to about 19 hours of sleep deprivation, that is over a waking day, we found was equivalent to the kind of performance effect of having 0.05 of alcohol in your system.

CAMILLE FUNNELL: So do you believe that we need standards or laws in place to monitor tiredness in people, where tiredness matters in the performance of their job?

ANNE WILLIAMSON: I think certainly where performance is of concern to either public safety or personal safety, I think we cannot ignore fatigue and sleep deprivation as important factors that need to be controlled, and there's approaches like regulation or at least controlling the work rest schedule would seem to be the way to go, yes.

CAMILLE FUNNELL: Do you think there is gaps in the legislation now?

ANNE WILLIAMSON: Well, of the people who are legislated for, regulated - that would be groups like the long-distance road transport industry - I think it's generally agreed that the regulations that have been in place for something like since the '30s, are leaving a bit to be desired. There's considerable interest in trying to redress that and look at it at the moment in terms of trying to allow a bit more flexibility for people to manage fatigue better. Perhaps not necessarily through legislation itself, but through good guidelines that will help drivers, and other people who are working such long hours, to manage their fatigue better.

CAMILLE FUNNELL: Do you think that people don't take the concept of tiredness seriously enough?

ANNE WILLIAMSON: Oh I think that that's absolutely right. I think people assume that "I can overcome it", and clearly I think our research demonstrates that you might think you can, and one of the issues here is that there isn't necessarily a good relationship always between "how tired I feel I am and my performance". We've demonstrated that from other studies of drivers on the road, that they can say "no I'm not very tired", but actually show performance effects. So that, yes, I think as you get more tired, you become less able to discern that you are actually showing performance decrements.

COMPERE: Anne Williamson is the executive director at the Injury Risk Management Research Centre at the University of New South Wales.  
<http://www.abc.net.au/worldtoday/s180989.htm>