

National Transport Issues

Summary of addresses given to Newcastle and Sydney Transport Panels, 2005, by David Kilsby (Immediate Past Chairman of NCTR)

1. The NCTR

NCTR stands for the National Committee on Transport. It is a Committee of practicing professionals who voluntarily give some of their professional time to Engineers Australia (formerly the Institution of Engineers, Australia).

Engineers Australia is the peak body which represents over 80,000 professional engineers in this country. It supports 13 National Committees (others deal with Coastal and Ocean Engineering, Geomechanics, Fuel & Energy, for instance) and 34 further technical societies (eg RTSA, the Rail Technical Society of Australia), so NCTR is not an unusual arrangement.

The ten full members of NCTR come from the Divisions of Engineers Australia all over the country (except, currently, from the Northern Territory and from Tasmania, a situation which NCTR hopes to remedy in due course). I am one of two representatives from the Sydney Division on the Committee, and I had the pleasure of acting as Chairman in 2003 and 2004. I handed this role over to Doug Bowers, from South Australia, in February 2005.

2. NCTR Priorities

The NCTR has several strategic objectives, one of which is the provision of expert guidance on transport issues to Institution members and others.

One strategy for doing that is the preparation and publication of policy papers. At the moment these are NCTR policy papers, as they haven't yet been adopted by National Council as institutional policy, but (I hope) that is just a matter of time. Other ways we're going about this include interacting more with the Divisional Offices and Head Office, and maintaining our own web site <http://www.nctr.org.au>.

Five issues were identified some time ago as being of top priority, and there are now position papers on all of these. A sixth has recently been added. You can read them on our website. They are:

- Road Safety
- Changing Travel Behaviour
- Land Transport Infrastructure Funding
- Land Transport Infrastructure Condition (in terms of Fitness for Purpose)
- Environmental and health issues related to transport.
- Energy Futures for Australian Transport

Four out of the six papers have already had some professional exposure - the ones that haven't are the first one, on road safety, and the sixth, which is very recent. Three of the others have also been published in recent issues of 'Transport Engineering in Australia', the Institution's transport journal, and the fourth one (on Infrastructure Condition) was the subject of a paper presented at the 27th Australasian Transport Research Forum last year, in Adelaide.

3. Road Safety

The first issue we tackled was road safety. We were lucky to have a road safety specialist on the Committee for a while, from Monash University, the President of the Australasian College of Road Safety, and our policy is mainly the result of his work.

He showed us that we are far too blasé about the scale of the road toll. If you add up the fatalities from all the disasters that have scarred the Australian psyche in the last forty or more years (Cyclone Tracey in Darwin, Ash Wednesday in Adelaide, the Granville rail disaster in Sydney, the Bali bombings, the Sydney to Hobart yacht race, the Thredbo landslip, etc) you will not approach half the number of Australians who are killed every year on the roads. For every fatality there are about 12 serious injuries, too

There is a National Road Safety Strategy, which we support. It is basically trying to reduce the per capita fatality rate by nearly 50% over ten years. The ten year period started five years ago. The fatality rate is coming down, and is roughly on target (to meet the target with a "straight-line" decline, the fatality rate should have been 7.6 by 2004. It was actually 7.7, as per Table 1.

	Road Fatalities	Population (m)	Fatalities per 100,000 people
1999	1,764	18.97	9.3
2004	1,598	20.24	7.7
2010	????	????	<5.6 (target)

Table 1: Road fatality rate per head 1999 and 2004

Source: Australian Transport Safety Bureau, Australian Bureau of Statistics

	1999	2004	% change
Vehicle Drivers	820	772	-6%
Vehicle Passengers	428	361	-16%
Vehicle Users	1248	1133	-10%
Pedestrians	299	223	-25%
Cyclists	40	43	+8%
Motorcyclists	176	196	+11%
Vulnerable Road Users	515	462	-9%
All Road Users	1764	1598	-9%

Table 2: Road fatalities by road user type 1999 and 2004

Source: Australian Transport Safety Bureau

Table 2 shows that the decline in fatalities affected both vehicle users (drivers and passengers) and vulnerable road users (pedestrians, cyclists and – classified as vulnerable for the sake of this analysis – motorcyclists) to a roughly equal extent. However within those two groups, safety initiatives have reduced vehicle passenger deaths to a greater extent than vehicle driver deaths, and while pedestrian deaths fell significantly those for two-wheeled road user deaths actually rose. What will the further safety initiatives be between now and 2010?

The basic premises of our detailed policies are that for foreseeable accidents the road system must be intrinsically safe and tolerant of human error, and that whenever someone is killed or seriously injured, the necessary steps must be taken to avoid similar events or rectify the system to lower human injury levels.

Our policies relate to a number of detailed points – at the last count there were 26 of them - regarding road design, vehicle design and driver behaviour. Those are the big three, and the causes of road accidents tend to spread roughly equally between them.

4. Changing Travel Behaviour

The second issue is changing travel behaviour. This is mainly an urban passenger issue, not a freight issue or a rural one. It is generally acknowledged that our present urban travel behaviour patterns, with their built-in car dependency, have got to change because they are unsustainable, and the first thing we should acknowledge is that current practice isn't enough to achieve whatever strategic objectives we might have. We need to do more.

Part of the reason is that the issues aren't widely enough understood, so we need a public awareness or education campaign.

Much of longer-distance travel at peak times is people going to or from work – and so we would like to see more of an effort made with workplace travel programs.

The poor quality of information on travel choices is seen as a significant barrier to change and so we'd like to see that improved (and developments in ITS, Intelligent Transport Systems, now offer us the technology to make those improvements)

Then, of course, there must be alternatives if we expect people to change behaviour, and many aren't good enough for that yet. We need them to be improved: public transport, walking, cycling.

Finally, one of the reasons why car dependence is so high is that the pricing signals people receive are so favourable to car use. And we would like to see the way in which transport is priced – and charged for – reviewed to reduce this.

5. Infrastructure Funding

This is something that Federal Government has recognized as a national issue, and has developed its *AusLink* initiative to address.

Our policy paper first saw the light of day as a response to the *AusLink* Green Paper, which was released in November 2002. The Green Paper generated an unprecedented number of submissions, including the one that Engineers Australia developed, and dealing with them slowed down the process considerably. (The EA submission was a bottom-up one: we canvassed the views of Institution members all over the country, and then summarised those views so it was what working engineers thought, not what the National Committee or Head Office thought). The process is that the Government floats ideas in a Green Paper, reviews comments on those ideas, and then says what it is actually going to do in a White Paper, which forms the basis for a legislative Bill that eventually gets passed by Parliament as an Act. The *AusLink* White Paper appeared in June 2004, and the Bill was turned into legislation – the *AusLink* Act – in July 2005..

To many observers, the Green Paper was much more interesting than the White, which was a bit of a disappointment. It was a fairly conventional expenditure program, and apparently as prone to political intervention as previous programs. It dealt with hardly any of the issues that Engineers Australia raised in its submission on the Green Paper. We raised nearly 20 issues but they basically fell into four groups.

There were some observations on the project appraisal methodology – it was central to the *AusLink* process that there should be an objective analytical methodology at the heart of it, but when the White Paper and the Bill appeared there was little sign of it. There was, it is true, a list of projects that would be funded over the next five years, but no indication as to why these projects and not others had been selected.

Then there was the use of the “sustainability” concept in the Green Paper. It seemed to many members that this was just introduced as a sort of aerosol deodorant – a quick squirt of “sustainability” would transform a bit of a whiffy argument into a better-smelling one. Our members couldn’t quite follow what the Green Paper thought the implications of sustainability were, but thought it was something that deserved to be taken more seriously. Therefore, among other things, we asked the Commonwealth to undertake a case study so we could see what their ideas meant

It seemed obvious that the Commonwealth Government was not in charge but only one of a number of players – others being State Governments, local governments and the private sector – and they would all have to be thinking the same way for *AusLink* to succeed. The initial response from all State Governments, at least, was fairly hostile. The general feel of the *AusLink* proposals was that it did not deal with institutional issues – who does what, and when – very deeply, and therefore that this was something that the Commonwealth Government and the “Big End of Town” were going to impose whatever anybody else thought about it.

Finally, there were issues around how much money should be spent on transport infrastructure. The Green Paper was silent on this, Although the total sum committed by the Bill – now the *Auslink* Act - is about 11 billion dollars over five years (about 3 billion dollars more than comparable recent expenditure levels – and subsequent commitments have raised the amount again), there was no explanation of this. So by implication the approach was more of a managerial one (reallocation of the existing order of funding) than a strategic one (spending what is needed) and the *AusLink* expenditure proposals seemed to be a justification for spending less on roads and more on railways and multi-modal facilities. “What is needed” is considered in the next section.

But not all is gloom and doom regarding the *AusLink* proposals, of course. We now have a relatively long-term (five year) federal expenditure plan, which we’ve never had before, and whatever you think about the way in which infrastructure projects were selected, the total committed expenditure will be higher than it was, which has got to be good news for engineers.

But the issues we raised still remain to be addressed in future – the project appraisal methodology, sustainability, institutional realism and the funding level

6. Infrastructure Condition

Engineers Australia has been producing “infrastructure report cards” for a while. A national report card appeared in 2000 and again in 2001; a NSW report card in 2003; a Queensland report card in 2004; a Victorian report card in 2005; and report cards for other states are in progress. Relevant information published to date (nothing to do with NCTR) is summarized in Figure 3.

Category	2005 Victoria Grade	2004 Queensland Grade	2003 NSW Grade	2001 National Grade
National Roads	C	C+	C+	C
State Roads	C-	C	C+	C-
Local Roads	C-	C	C-	D
Rail	C-	C+	D	D-
Freight railways	D	n/a	n/a	n/a

Figure 3: State of land transport infrastructure nationally and in Queensland, NSW and Victoria (Source: Infrastructure Report Cards, Engineers Australia. Scoring runs from A-E: Very Good, Good, Adequate, Poor, Inadequate. “A score of D or lower means that the infrastructure is in a disturbing state and requires immediate attention. For those sectors that have scored a C, early attention is needed in one or more areas”)

Figure 3 shows that rail infrastructure, both nationally and in NSW, is in poor condition, and that the condition of our roads tends to improve the higher the level from which funding derives. The question NCTR asked was “Is our land transport infrastructure fit for the purpose for which it is being used?”

Over the last ten years or so, the amount of private travel in our cities has increased by about 20%, with massive congestion costs as a result. As for freight, official forecasts are for a doubling of the freight task over the next 20 years. This is of great concern.

The rail lines used for bulk mineral exports are among the best in the world for performance, but the more seasonal grain lines have a lot of problems. Much of Victoria's country freight railways are still broad gauge lines, which is a limiting factor. Most of the East Coast Main Line is very old, and it falls below the standard expected in many places. The cities with the worst urban rail problems are probably Sydney and Adelaide: in Sydney, the suburban rail system is so extensive and so heavily used at peak times it has got beyond the capacity of its managers to run it reliably, and also freight movement is greatly affected by the passenger peaks taking priority; whereas in Adelaide, the problem is different – such little use made of urban rail that its whole future is in jeopardy.

The picture for the road system is more variable, partly because roads are more ubiquitous. The biggest problems (for rail as well as for road) appear to be in NSW, but NCTR recognizes that there are troubles everywhere. In our capital cities, we have major traffic problems. Building more and more urban motorways to alleviate congestion is no solution – it does not result in long term traffic improvement. And there is a rising problem in country areas now – many of our regional roads were built in the immediate post-war period and they're now coming to the end of their design life, so there is major maintenance or rehabilitation or reconstruction work ahead.

In total, we need something like \$30 billion to bring the railways up to scratch, and on some estimates a similar amount in NSW alone to make the State's roads "fit for purpose". So in that context, committed federal expenditure of \$11 or \$12 billion over the next five years doesn't actually go very far, even without adding new infrastructure.

Our roads and rails are not "fit for purpose" and we are not spending enough to upgrade them.

7. Transport, Environment and Health

The fifth issue which NCTR has been looking into is rather different, and it was prompted by the growing awareness of the connection between transport, the state of the environment and public health.

Environmental issues are fairly well-known, and our public authorities are rather better at dealing with small-scale impacts (like habitat loss, or noise pollution) than they are with large-scale ones (like climate change). Public health problems are increasingly appearing on the agenda, and we found it helpful to classify these by the timescale in which they apply (whereas for the environmental issues, the scale was more spatial than temporal). So short-term health impacts mainly related to road trauma; medium term impacts mainly to effects on human respiratory and other physiological systems; and long-term impacts,

mainly to the adverse effect of the sedentary lifestyle which our transport systems encourage.

NCTR was rather concerned that, while these trends are generally recognized as unsustainable, the remedy – sustainability – means different things to different people. We therefore recommended that anyone advocating sustainability as a solution should say specifically what they mean by this.

We made ten recommendations, not all to the same group of people.

First of all, there were three things where a bit more leadership was called for, so these recommendations are aimed at our politicians. These were:

- Greater clarity regarding what our public transport is actually for;
- A public awareness campaign to increase understanding of the implications of our personal transport choice; and
- More questioning of the freight forecasts being used: it seems that no consideration has been given to demand management, especially through greater regional self-sufficiency.

And then, even within current political visions, we thought there were at least four ways in which public authorities could manage our transport systems to give better environmental or health outcomes. These were:

- Weakening of the connection between car ownership and car usage;
- More attention given to the movement of goods and services;
- Review and amendment to present pricing and charging systems for transport with more emphasis to access rather than usage for public transport and vice versa for private transport; and
- More forceful management of our roads – driving a private motor vehicle anywhere is not an automatic right (and, again, ITS is increasingly developing appropriate technology for this)

Then, there are things that basically call for individual action by transport engineers, irrespective of the actions of our public authorities or our politicians. These are:

- encouragement of the use of vehicles of appropriate size (ie smaller, in many cases) for the tasks they undertake; and
- analysis of the energy requirements of a project or system.

And finally, with all these issues, Australia is not that unique and we should be aware of what is happening elsewhere in the world so that :

- there is no re-invention of other people's wheels!

8. Energy Futures for Australian Transport

NCTR is very concerned that the era of cheap oil for transport may be soon over, and that this will give road transport and aviation, in particular, major problems. At present there is no consensus even that a problem exists, but we have collected evidence that the trend

in energy demand (upwards) is incompatible with the trend in oil supply (plateau-ing, and then falling). The price mechanism will ensure that prices will rise steadily. There will be some technological development to extract more oil from known fields, but the trend in new discoveries of more oil is downwards. To the extent that more oil from reserves is produced, encouraged by the higher prices, the eventual drop-off in supply will be a little steeper than otherwise because the world's endowment of conventional oil is finite.

The conclusion is that we're heading for a huge problem, and probably within the next ten years. This is probably the biggest national transport issue that we face.

A number of possible mitigation strategies exist and we see these as falling into four groups. We do not consider "doing nothing" to be a responsible strategy. These groups are:

- Business as usual ("BAU") – application of BAU policies to greater degree than has been contemplated so far. Land use/transport integration, development of better public transport, pedestrian and low-energy networks (eg cycle paths), etc
- Technological development – alternative fuels, more fuel-efficient automobiles, intelligent transport systems, promotion of hydrogen and electricity in transport, etc.
- Economic instruments – reliance on market forces, government intervention via taxation and other pricing policies where necessary.
- Behavioural change – public education and awareness campaigns, behaviour change programs, encouragement of individual responsibility.

9. Future Issues

NCTR is currently working on three further issues, and this presentation will finish by giving a foretaste of them.

Professional Education

NCTR is concerned about the structure of the transport engineering profession. Australian educational institutions are cutting back all the time on the courses they offer and we are already quite reliant on enough young transport engineers being trained overseas. However there is also some evidence that the problem lies not so much with the initial training as with the initial opportunities to gain professional experience. As a first step, NCTR is trying to collect details of where our transport engineers are trained in this country and what they do with that training once they graduate.

Economic productivity

Then there's the issue of ensuring adequate economic returns from our national investment in transport infrastructure. This is essentially a continuation of our work on the *AusLink* proposals, and takes the thoughts generated there further. NCTR will apply

its expertise to the question of *how* this should be done: it will be left to better-resourced bodies to implement these ideas.

Social Inclusion

The transport systems we have now depend to a large extent on access to a private car, which means that younger Australians and older Australians particularly - but not exclusively – tend to be disenfranchised from using our main transport systems. We don't want to end up with a “them and us” society, where “us” are the people who drive and “them” are the ones who don't. But what should we do about that? ...