

# TRANS SCAN

A scan of emerging trends in mobility and the built environment

Volume 4

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## Is the world heading for a split on transport energy policy?



Photo: © Rostra Precision Controls Inc

A QUICK scoot across the driveway can be risky business for a small child. Research for the Australian Transport Safety Bureau has found an average of 12 youngsters are killed each year because they have not been seen when a driver backs out.(a) One possible technical solution is to fit proximity sensors. In the United States where authorities reported 116 children killed in driveway accidents last year vehicle accessory company, Rostra Precision Controls, has just launched a microwave sensor that will flash a red light and warning alarm if an object or child is detected.(b)

(a) "Driveway deaths: Fatalities of Young Children in Australia as a Result of Low-Speed Motor Vehicle Impacts" Australian Transport Safety Bureau Apr 2002 <<http://www.atsb.gov.au/road/rpts/cr208/index.cfm#summ>>

(b) Rostra Precision Controls Inc <<http://www.rostra.com>>

*"The European Union and the United States are beginning to diverge in the most basic aspect of how a society is organised: its energy regime."*

Jeremy Rifkin

President of the Foundation on Economic Trends  
Washington Post 25 September 2002

IN April this year *TransScan* reported how the US and Europe appeared to be going in separate directions in their efforts to develop alternatively fuelled vehicles.(1) As this latest edition shows the Transatlantic divergence is also becoming apparent in aviation where Europe now has contingency plans for hydrogen passenger planes (See page 3) and has drawn up a list of strategic progress targets for reshaping aviation into a more environmentally-friendly industry. (See page 7)

Jeremy Rifkin's comment quoted above came from a Washington Post article in which he warns American policy makers that the European Union is beginning to mobilise its industrial sector, its research institutes and public "for the task of making the transition from oil to renewable resources and a hydrogen future".(2)

Mr Rifkin says there is no such trend in the US and instead America is pursuing an "increasingly desperate search to secure access to oil".

This policy divergence is already apparent in environmental policy. Now the environmental policy is reshaping transport policy as well. For example, within the EU's targets for aviation is the aim to halve aircraft noise, and cut aircraft CO2 emissions by 50% by 2020.

It may be too early to suggest where the divergence will lead, but Mr Rifkin has no doubt about the outcome. He believes sooner or later America will have to mobilise to catch-up.

(1) "New urgency to find a hydrogen alternative" *TransScan* April 2002 p.17

(2) "End of the Fossil-Fuel Era: Will the European Union take the lead in staking out the future of energy?" Washington Post 25 Sept 2002 <<http://www.washingtonpost.com/wp-dyn/articles/A3445-2002Sep25.html>>

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the Department for Planning and Infrastructure  
and Main Roads Western Australia  
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Strategic Scan  
PO Box 1484  
Victoria Park East  
Perth, Western Australia 6981

Tel/Fax: (08) 9362 6248  
Email: [scanasia@highway1.com.au](mailto:scanasia@highway1.com.au)

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version. Initial requests should be made to  
Strategic Scan  
(Tel: 08 9362 6248).

## Editorial Committee:

George Brown, Planning and Infrastructure  
Tel: 92168486 <[gbrown@transport.wa.gov.au](mailto:gbrown@transport.wa.gov.au)>

John Chortis, Planning and Infrastructure  
Tel: 9264 7777  
<[john.chortis@planning.wa.gov.au](mailto:john.chortis@planning.wa.gov.au)>

Bob Peters, Main Roads WA  
Tel: 93118434 <[bob.peters@mrwa.wa.gov.au](mailto:bob.peters@mrwa.wa.gov.au)>

Peter Terry, Strategic Scan  
Tel: 93626248 <[scanasia@highway1.com.au](mailto:scanasia@highway1.com.au)>

For information about distribution,  
please contact:  
Alan Colegate on 9323 4594

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*TransScan* reports a variety of views from around the world.  
None are necessarily those of the publishers.

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## About TransScan

*TransScan* monitors change world-wide and is based on analy-  
sis of information scanned by staff of the Department for  
Planning and Infrastructure and Main Roads Western Australia,  
and the research organisation, Strategic Scan.

The aim is to stimulate the informed discussion neces-  
sary for the departments to operate more effectively in a period  
of rapid change. The subject matter will often challenge assump-  
tions. At the same time it seeks to familiarise readers with an  
ever-changing environment. It is not possible to predict tomor-  
row, but it is possible to make calculated assessments about the  
future. Fundamental to this approach is the recognition that the  
future is here now. When decisions are made on what is thought  
the future will bring, those decisions help shape that future.

Information which appears in *TransScan* does not repre-  
sent definitive research. The contents are the result of a scan  
made in the past few months. On an ongoing basis, such scans  
will expose ever more new and emerging themes.

## It can be done - planes that will fly on hydrogen



Artist's impression: © European Aeronautic Defence and Space Company

*At first glance this may look like a conventional jet but closer inspection reveals an artist's impression of an entirely new type of craft – one that flies on hydrogen. It is one of a new breed that could be operational as early as 2015 – if worsening climatic change forces the abandonment of kerosene as the fuel of choice by the airline industry.*

*This commuter jet is one of a range of hydrogen-powered alternatives being proposed by the European Aeronautic Defence and Space Company, the international consortium that builds the Airbus. While*

*aircraft designers do not envisage any insurmountable problems in making the fuel switch, they do say it poses some unusual challenges.*

*For the fuel to be stored aboard a plane, it must be cooled down until it becomes liquid at minus 253deg.C – just 20 deg C above absolute zero. The new planes will need more space to carry the new fuel because although hydrogen's energy output in relation to its weight is greater than kerosene, its equivalent mass is also much higher. The jet shown is carrying the extra fuel in wing tanks and in tanks on top of the fuselage. (See page 6)*

Aviation management

## Finding a sustainable balance

BY the end of November Western Australia will publish a new policy blueprint for promoting its intra-state air services. It will be the first of its kind in the country and one largely dictated by the new economic realities following the collapse of domestic carrier Ansett and the worldwide down turn in aviation that has come since the September 11 terrorist attack.

*TransScan* has not before covered the aviation industry but WA's new policy framework and the increasing integration of air services with other transport

services provides an opportunity to review what is happening both locally and internationally.

The terrorist attack on America has had a profound impact on aviation – but no uniform effect. Everywhere people are changing their flying habits. Business flights are fewer, more companies are using video conferencing, and tourist flights are down.

Internationally this is particularly apparent on flights between the Middle East and North America and Japan and

North America. Thousands of Arab and Japanese tourists are simply choosing not to travel or fly to the US. In the year since the attack, air traffic in the US has fallen by 15%. (1)

In Europe, the decline has only been half as great and while today some US airlines are close to bankruptcy (2) there are still some European airlines turning a profit.

The International Air Transport Association (IATA) believes losses on international

*Continued next page*

## Aviation management

*Continued from previous page*

## Finding the balance

services will top \$US 5 billion this year and that it may be 2005-06 before flights in and out of the US reach their 2000 levels.(3) In the meantime air travel within Asia and between Asia and Europe is expected to grow strongly – in fact according to the Airports Council International (ACI) passenger traffic through Beijing is currently so strong the Chinese airport is leading the world with a growth rate of 16%.(4)

The growth in Asia and the stronger showing in Europe has aviation economists still predicting that worldwide air traffic is likely to grow by between 4% and 5% annually over the next decade. (5)

Here in Australia the collapse of Ansett and a reduction in international air traffic has had severe repercussions. According to the Bureau of Transport & Regional Economics, the total number of passengers carried domestically in Australia for the year ending June 2002 was 27.14 million – down 8.4% on the previous 12 months.(6)

In Western Australia the

decline has been even more severe. The State's Minister for Planning and Infrastructure, Alannah MacTiernan, was in July quoting a 20% fall in intrastate passenger numbers since September 11, 2001.(7)

The national annual figures for international airline movements into Australia were not available before TransScan's publication, but since September 2001, the monthly total of international passengers (with the exception of March) has been consistently down on the same month the previous year. The latest figures available, for May 2002, show 1.2 million international passengers carried in Australia – 2.8% down on the previous year.(8)

There have been some beneficiaries – and Qantas has been the chief among them. Without rival Ansett it was able to enlarge its hold on domestic services to at least 80%, cushion itself against the worst effects of the international downturn, and end the financial year with a \$428 million profit.(9) Ansett had controlled much of Western Australia's intrastate services and the sharp decline in passengers can be attributed in part to the collapse disruptions.

"We had begun to review part of our intrastate policy before the Ansett collapse," said Nick Belyea, Director – Aviation Policy, with the Department for Planning and Infrastructure.

"But September 11 made us realise we had to look at everything.

"Until that moment, WA had been a very good market for Ansett and its subsidiary, Skywest Airlines. It had been underpinned by major contracts from the mining industry."

That strength had allowed the airlines to cross-subsidise feeder services but the new economic climate brought the stability to an abrupt end.

Now the government's priority is to maintain services and the new policy is having to balance sustainability with the desire for deregulation.

The first part of the review found that in the southern half of the State, only services between Perth and Geraldton might be able to sustain competition – and even there some protection was needed to enable cross-subsidisation of services to smaller centres.

As the Minister, Ms MacTiernan said: "Regional communities gave us a clear

*Continued page 6*

## All some tourists will need is a lot of space ...

*At present only Russia is offering space flights to tourists but within three years such trips could become almost common place. An American company, Space Adventures Ltd, is developing this sub-orbital rocket plane just to offer tourists a view of space.\* The company already has more than 100 passengers willing to pay \$US98,000 for the hour-long flights and believes the potential annual market to be worth more than \$US 1 billion. The Xerus rocket plane being developed for the business will be able to climb 100km into space before returning to Earth having let passengers experience "several minutes of weightlessness".*

\* <<http://www.spaceadventures.com/>>



Photo: NewsCom ©

## WA takes world lead in detecting explosives

SEPTEMBER 11 has sparked a worldwide boom for the airport security industry – and put Western Australia at the cutting edge in the development of one of the most advanced security systems.

When the attack occurred, a Perth-based company, Thorlock International Ltd, was working to perfect a new airport screening device which can automatically detect plastic explosives if they are being hidden in passenger luggage. \*

“It looks something like an airport luggage X-ray machine – but it has a much higher degree of accuracy,” says Thorlock’s executive director, Justin Hollyock.

It is this degree of accuracy which is now so vitally important – not just because of the risk involved if an explosive substance gets through conventional security but because of the growing numbers of false alarms which particularly in the US are causing costly delays.

“X-ray machines have a very high false alarm rate for plastic explosives primarily because the density of plastics is close to other common materials,” said Mr Hollyock.

“X-ray machines are good at identifying guns and knives which are typically 20 times as dense as other items you might find in a suitcase. But plastic explosives are only five times as dense and almost indistinguishable from most normal suitcase items.”

Thorlock has overcome the problem by scanning for plastic explosives at the atomic level – using so-called “Quadrupole Resonance”(QR) a radio frequency spectroscopic technique that can identify more than 10,000 chemical substances.

The QR machine de-



Photo: © Thorlock International Ltd

*The new screening equipment for identifying plastic explosives is given its first test run at Perth International Airport.*

signed for airport baggage security and building security will identify the presence of a range of plastic explosives and mixtures in 20 seconds – and flash a red warning light if explosives are present.

Ultimately the machine could also be used to identify narcotics or biochemical hazards but initially Thorlock is concentrating on explosives.

In the ideal situation an airport X-ray machine and QR machine would operate in tandem and would probably be sold to airports as a combined system.

Airport tests have already been successfully conducted in

Australia, Europe and the United States and the equipment has completed successful tests with the US Transportation Security Administration, the UK Home Office, and the Canadian Air Transport Security Corporation. Thorlock has also signed a cooperative research and development agreement with the US Federal Aviation Administration.

Currently the company is in negotiation with X-ray machine manufacturers to form partnerships to commercialise the machine and technology.

\* <<http://www.thorlock.com>>

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## Aviation management

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## A sustainable balance

message that their primary concern was that we ensure that air services be maintained at least at their current level.”

The second part of the review is examining air services on the main jet routes from Perth to Kalgoorlie and to those in the north of the State.

Before September 11 and Ansett’s collapse, WA may have moved towards a more deregulated air service market, but not in the present climate.

“We can only expect a modest growth in air passenger numbers,” said Mr Belyea. “The tourism market has potential and will build again, but it’s seasonal. The general population outside of Perth is not going to grow significantly and in reality it is the resources sector that is the backbone of air services, particularly in the North of the state - mining is the key.”

The scan also showed:

### A 30 year blueprint

Early in 2003 Britain will publish a White Paper outlining its policy for air transport over the next 30 years.(10) It is expected to have a profound impact on all form of transport and economic planning in the country as it comes to grips with the country’s astonishing growth expected in aviation. Today half the population makes at least one flight a year. In fact since 1970, air travel in the UK has expanded sixfold and today a third of the country’s exports are carried by air. Within 30 years air services are expected to triple in size. It is against this background that the UK government, Scottish Executive and Welsh Assembly have been conducting consultations with interested parties on how air services and airports

should be developed. “We need to address how we should respond to the continued growth in demand for air travel; how much additional airport provision is needed; and where it should be located,” said the UK’s Transport Secretary, Alistair Darling. “Just as importantly we need to deal with the environmental impact of expansion and its effects on the people living close to airports.”

### Hydrogen planes

Today’s aircraft are just as dependent on fossil fuels as surface transport but the search for an alternative source of energy appears to be surprisingly less problematic in the aviation industry than it does in the automotive. The European Commission has been helping fund a joint research project with industry to identify alternatives and calculate the consequences of a change over.(11) The alternative they have chosen is liquid hydrogen – because it is environmentally sustainable and actually has a higher energy content than kerosene. (2.8 times greater for the same weight.) That means a hydrogen-powered plane will either be able to take off with less weight of fuel or will be able to carry a higher payload. The space and insulation needed on the aircraft to carry hydrogen will be different from one carrying kerosene and consequently the design of plane is likely to change quite radically. (See page 3) By Europe’s estimates there are sufficient fossil fuel deposits to keep the world’s aviation industry flying for another 50 years. But it believes the demands of global warming will force a change much earlier – possibly as early as 2015. Currently air traffic contributes 3% of the world’s greenhouse gas

emissions – primarily in the form of carbon dioxide. By comparison, the hydrogen jet will primarily discharge water vapour. Current research suggests this will have little climatic effect but tests are continuing.

### Low-cost future?

Another vision for the future of aviation is being offered by America’s National Aeronautics and Space Administration (NASA). (12) It believes the world is about to witness the advent of a new generation of advanced, low-cost and easy to fly aircraft able to carry 4 to 10 passengers. In fact the newly launched Eclipse 500 jet, is seen by NASA as representing the start of that trend. But NASA’s concept goes further and was recently the subject of a highly critical report by the Transportation Research Board of the National Research Council – the peak scientific organisation in the US. NASA had suggested that a five year research program be launched to enable small airports without traffic control towers and radar surveillance, to handle the new aircraft without risk. In fact NASA wanted to build an entire “Small Aircraft Transportation System” (SATS) to take advantage of the new planes and encourage their use as a means of relieving congestion at the major airports. The research council has argued against the plan on the grounds that SATS would go against the trend in aviation development. Nonetheless, it has urged NASA to find ways to make small airports safer.

### More business aircraft

Aviation market analysts, the US-based Teal Group, believe business aircraft have a big future.(13) In its most recent report, the group predicts 6908 new business aircraft worth \$US 95.2 billion will be produced worldwide over the next ten years making the market segment

*Continued next page*

# TRANSNet

A regular review of Internet sites related to mobility and the built environment



*THERE is always room for new views on city development but in Liverpool, England the local Liverpool Architecture and Design Trust has taken perhaps a unique step in appointing its own, part-time Poet-in-Residence to provide a running commentary.*

*Andrew Taylor, who is completing a PhD in poetry, now also has a resident spot on the trust's website <<http://www.ladt.org.uk/indep.html>>*

*CANADA has a hotel rebuilt every year entirely from ice. It is one of the oddest examples of international architecture featured on a new site: "The Art of Architecture" from The American Institute of Architects. The site has poetry too on <<http://www.glasssteelandstone.com/>>*

*RESEARCH plays an increasingly important role in transport policy decisions. Reflecting the trend Britain's Department of Transport has created a webpage to provide links to its various activities in the natural sciences, engineering and technology as well as social and economic research. < <http://www.dft.gov.uk/research/index.htm>>*

**Disclaimer:**The inclusion of these sites does not mean endorsement by the publishers. They have been selected for interest value only.

## Aviation management



Photo: © Sky Tower

*THE next ten years could see totally different types of aircraft take to the skies over Western Australia – including vehicles like this pilotless, solar-powered flying wing. It goes by the name "Sky Tower" and is being developed by a NASA consortium to offer a new form of telecom service.\* In the words of consortium vice president, Stuart Hindle, Sky Tower is a "stratospheric telecommunications platform". It will operate about 20km above the Earth – out of reach of both weather and commercial aircraft – and provides a considerably less expensive alternative to both satellite broadcasting and terrestrial transmission towers. From 20km up, it would be able to offer broadcasting services across a radius of up to 960km. For receivers on the ground, Sky Tower would appear like a geostationary satellite although in reality it would be flying in a tight, small circle. Current versions of Sky Tower will only stay in flight during day time. But the production model due in about three years will have fuel cells able to keep it in the air for six months or more.*

\*Sky Tower <http://www.skytowerglobal.com>

"considerably larger than the fighter aircraft industry". Teal also believes that if Boeing goes ahead with its plans for a supersonic passenger jet, the so-called Sonic Cruiser, then supersonic business jets will be "just a matter of time".

### Wing designs

Teal is not alone in predicting the advent of the supersonic business jet. Professor John Ffowcs Williams, one of the world's leading authorities on aircraft noise reduction, believes that with radically re-designed wings, a supersonic business jet could be built that would produce little or no sonic-boom. (14) Prof Ffowcs Williams has even designed the wing – a double-wing that does not disturb the air-flow rushing over it. According to the Royal Academy of Engineering which has been promoting the new

concept, the professor's earlier wing designs have been largely responsible for the relative quietness of today's jets.

### Targeting improvements

Europe's policymakers strongly favour setting targets both as a way to measure progress and to better direct research and development. Although this approach failed to win US support at the recent Earth Summit in Johannesburg (15) it is at the core of Europe's new aviation policy and the sheer size of European aviation will ensure a global impact. In July the European Commission set targets for its Strategic Research Agenda in aviation. (16) These aim to reduce CO2 emissions by 50%, cut accidents by a factor of five, halve aircraft noise, and provide near perfect punctuality – ie: 99% of all

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## Aviation management

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### Finding a balance

EU flights landing and departing within 15 minutes of schedule. The target is to have all the improvements in place by 2020 or earlier. As reported above (See Hydrogen planes) the target on CO2 emissions could be forced much earlier – if global warming gets worse. The EC will be investing \$1720 billion in research to achieve the targets. For example, one research project will aim at designing a new type of aircraft

wing that will reduce air drag by between 5% and 7% and so cut noise levels by two decibels on takeoff and landing.(17)

#### Air pollution

Health risks posed by airports have been underlined by a study just completed for the UK Government on the implications of building a third major runway for London's Heathrow Airport. (18) It suggests that if more is not done to solve the air pollution problems caused by aircraft, 10,000 homes would have to be demolished to meet EU health laws.

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**17th Annual Polis Conference,**  
(Promoting Excellence in Transport for Sustainable Cities)  
21-22 Nov 2002,  
Brussels, Belgium  
URL: <<http://www.polis-online.org>>

**International Conference on Seamless and Sustainable Transport Conference**  
25-27 Nov 2002  
Singapore  
URL: <<http://www.ntu.edu.sg/cts/S2T/>>

**1st Asia Pacific Injury Prevention Conference & 6th National Conference on Injury Prevention and Control**  
(Includes road traffic injuries)  
16-18 March 2003  
Perth WA  
URL: <<http://www.congresswest.com.au/injury/>>

**9th International Conference on Urban Transport and the Environment**  
10-12 Mar 2003  
Crete, Greece  
URL: <<http://www.wessex.ac.uk/conferences/2003/urban03/index.html>>

**PIA National Planning Congress**  
Adelaide, SA  
31 Mar-2 Apr 2003  
URL: <<http://www.planning.sa.gov.au/congress>>

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# New ways to manage city water

IS urban sprawl aggravating the ability of cities to replenish ground water supplies? Three US conservation groups have pooled their resources to investigate the phenomena and are convinced that sprawl is so damaging it is contributing to drought. (1)(2) According to one of the organisations, the National Resources Defence Council, paving over increasing areas of land is sending billions of litres of water, which would have once recharged aquifers, directly into rivers and streams as polluted run off. “The implications of this phenomenon is tremendous,” says the council. “On average 40% of Americans get their water directly from underground sources. Groundwater also supplies, on average, 50% of the water in the rivers and lakes that serve everyone else.” The council says urban sprawl is currently “gobbling up” the American countryside at a rate of 365 acres an hour. It says the only solution is more “smart growth” and “low-impact” development.



Photo: © Moule & Polyzoides

## City water

Could Australian cities be planned to harvest water so efficiently that extra water would be available for agriculture and the environment? According to CSIRO scientist, Dr Tom Hatton, not only is it possible but efficient harvesting should be the ultimate target if the country is not to outstrip its sustainable water supplies.(3) As WA prepares for another year of water restrictions, Dr Hatton thinks the country should move towards better technologies and water re-use so that existing resources can be redistributed “more sensibly”.

## Green tops

“Greening” city rooftops is one way not only to harvest urban water but reduce energy demands.

*THE growth in inner city living has meant the sacrifice of considerable areas of private space. In cities like Perth, hundreds of private backyards are being turned into building blocks as higher density housing spreads through the inner suburbs.*

*But the change in density does not have to mean an end to “private space”. In some parts of the world, architects and landscape designers are working on new ways to recreate at least a limited form of outdoor “privacy”. For example, in the US “community greens” are now becoming popular whereby neighbours agree to pool what green space they have and communally manage the new “garden”. (a) Program advocates say the creation of such “secret gardens” not only builds strong communities but also provides easily accessible and safe play areas for children. In places where it has been tried, the gardens also increased property values and raised neighbourhood security.*

*Another way to recreate “private space” is through the development of private Spanish-style courtyards like the one shown above.(b) One of the main advocates for the concept is a Pasadena-based firm of architects and urban designers, Moule & Polyzoides. They have just completed this courtyard apartment complex that connects 20 units on a site adjacent to the famous Sunset Strip. This part of California was famed for its courtyard buildings but the Moule & Polyzoides project is the first of its type to be built in 70 years. According to the architects: “The courtyards not only create a sense of privacy and provide an illusion of green space for their inhabitants, they also provide a viable option for housing in dense urban areas.”*

(a) “Community Greens” website < <http://www.communitygreens.org/>>

(b) Moule & Polyzoides media statement < <http://www.mparchitects.com/>>

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## Urban planning

# Managing city water

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Germany has been a pioneer in the field and the concept has begun to catch on in the US and Canada. (4) According to the New York Times, the city of New York could cut its energy bills by \$32 million annually if it grew plants on its rooftops to help eliminate the “heat island” effect of roof asphalt. Moreover, green roofs use 75% of the rain that falls on them – thereby cutting the amount of water flowing into drains.

## Building codes

In Britain, designing buildings for easy access to the disabled is proving to be an economic as well as a social success. (5) According to official figures, visitor numbers to London’s National Portrait Gallery have increased 20% since the gallery improved access and in Chester the city’s Grosvenor Museum has seen visitor numbers increase 15.7% since it made improvements. Now the govern-

ment plans to broaden the access rules still further and require all public and commercial buildings to provide easy access to people pushing prams, carrying luggage or shopping; and those suffering temporary injuries such as a broken arm or leg. Proposals for changing the main building regulations have been issued for comment. (5a)

## Building better

The CSIRO has launched a collaborative research program to develop what it hopes to be a new generation of commercial buildings that are “ecologically, socially and economically sustainable”. (6) The long term aim is to have commercial buildings that are 30% faster to construct; use 50% less water in operation than today’s building; have a zero net energy use; produce zero waste; and are worth 20% more than existing buildings. Dr Greg Foliente who heads the so called, Evergen Program, said the project was the first of its kind in Australia. He said the aim was to construct a concept building that would showcase the innovations.

## Blending reality in illusory space

WINDOWS normally provide a vista onto the real world – but not the ones planned for a new medical research centre being built in Bristol, England. (9) There the idea is to turn five large arched windows into screens of interactive and constantly changing images. The technology to be used will, it is said, “blend reality and illusion”. Depending where you stand, looking in or looking out, the image of whoever passes by will become part of the illusion. The work is the brain-child of artists Anna Heinrich and Leon Palmer who have been collaborating for ten years to create new interior and exterior architectural spaces. For the work at Bristol University’s new research centre they will be incorporating a transparent film material called Duraclear and a specialised glass, Privalite, which can be switched from opalescent white to



Artist's impression © Bristol University

clear when a small electrical charge is passed through. At the same time, they will use pictures stored on DVD to project onto the glass surfaces and interact with images on the Duraclear film. What happens inside and outside the building will then appear to any viewer as half-glimpsed shapes moving through illusory space. The aim is to use art to “convey something of the depth, complexity, uncertainty and excitement of the scientific process.”

clear when a small electrical charge is passed through. At the same time, they will use pictures stored on DVD to project onto the glass surfaces and interact with images on the Duraclear film.

## Throw-away homes

A building researcher at Holland’s Delft University of Technology believes that a shortage of construction sites in Europe’s major cities could be used to promote a new type of building industry based on continual replacement. (7) Caspar van den Thillart suggests houses should be given a 25-year use-by date and consumers encouraged to upgrade with the latest prefabricated model. He says such a system would enable city building companies to gear themselves for an expanding market and continually develop new, advanced componentry. Mr van den Thillart is calling for a change to European planning laws to encourage such a development.

*Continued next page*

## Presenting the case for more transit



Photo: © Ian Britton - FreeFoto.com

One of the fleet operated by the Massachusetts Bay Transportation Authority - the Sierra Club wants lots more.

*America's Sierra Club claims too much government money is being spent on building new highways when the more effective way to cut traffic jams would be to invest more in new transit systems.\* It says recent polls show 62% of Americans would try bus or rail services if they were convenient, accessible and safe. "Nonetheless, public transit projects receive merely one-fifth of the federal funding that highways get," it says. But it says there are parts of the US where innovative systems are being introduced. It has created a map of the best – along with details of what it judges to be the worst. See: <<http://www.sierraclub.org/sprawl/report02/images/sprawlmap2.pdf>>*

\* "Sierra Club map highlights transportation achievements and fiascoes" Sierra Club media statement 30 July 2002 <<http://www.sierraclub.org>>

*Continued from previous page*

### Reality TV

For those who are housebound, there is now another technology to keep them "moving around" – closed circuit television.(8) It was never planned this way, but "Channel 13", a security sur-

veillance system installed in a multi-story retirement complex in Wilmington, North Carolina, has become, for its 115 residents, the most watched channel on their televisions. One viewer tells of her favourite character "Biscuit" who dances "hip-hop" every time he passes a camera. Others talk about

the late night visitors who are entertained in some of the apartments. Civil liberties organisations are concerned – but the residents are not breaking any US laws.

### Changing Outback

Within five years advanced communications are likely to have transformed life in Outback Australia and ended the two centuries of "tyranny of distance". (10) That is the prediction of two CSIRO researchers, Gary Doherty and Terry Percival, who have been studying how information technology is set to change the way the remote regions receive health care, education, business communications, entertainment and the links that join them to the rest of the world. "The whole field of communications is changing at dramatic speed and its effects will be most noticeable in areas where, till now, communication has been difficult and patchy," said Mr Doherty. "Wherever you roam with your phone, your laptop computer or your audiovisual terminal, you will be able to communicate locally - or with the world. It will transform the Outback way of life like no other advance."

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# The multi-billion dollar cost of underestimating

HOW common and how large are the differences between the actual and estimated costs of transport infrastructure projects? According to Professor Bent Flyvbjerg of Denmark's Aalborg University the difference is significant enough on average to form "a significant barrier to the effective allocation of scarce resources for building important infrastructure".(a)

His assessment is based on the detailed examination of 258 projects in 20 nations ranging from the Anglo-French Channel Tunnel which came in at 80% over budget to Boston's underground highway project which after 15 year's work is now running \$US10 billion above the original estimate of \$US 4.5 billion.

Understandably, Professor Flyvbjerg's findings have sparked widespread debate in both North America and Europe since they were first published by the Journal of the American Planning Association. (b)

The projects he studied covered a period from 1910 to 1998 and on average the costs of each one of them was 28% above estimate – representing in total many hundreds of billions of dollars.

Prof Flyvbjerg emphasises that in no way should his findings be interpreted as an attack on transportation versus spending on other projects – as he believes the costs of other major public works projects are just as likely to be



Photo: © Ian Britton - FreeFoto.com

*Eurostar heads off for the Channel Tunnel - the cost was underestimated by 80%.*

underestimated as well. Some of his key findings were that:

- *Internationally, in nine out of ten transportation infrastructure projects, costs are underestimated.*
- *For rail projects actual costs are on average 45% higher than estimated.*
- *For tunnels and bridges actual costs average 34% above estimates.*
- *For road projects actual costs average 20% above estimates.*
- *Poor estimating is a global phenomenon.*

- *Cost underestimation has not decreased over the past 70 years and no learning that would improve cost estimate accuracy seems to take place.*

"The key policy implication for this consequential and highly expensive field of public policy is that those legislators, administrators, bankers, media representatives, and members of the public who value honest numbers should not trust the cost estimates presented by infrastructure promoters and forecasters," Prof. Flyvbjerg writes.

"Another important implication is that institutional checks and balances— including financial, professional, or even criminal penalties for consistent or foreseeable estimation errors— should be developed to ensure the production of less deceptive cost estimates."

## Fire hazards

According to the CSIRO, current methods for estimating how a fire might spread in a road or rail tunnel includes a large element of guesswork. (c) As many States plan to build underground links, the organisation has decided to develop an advanced computer model to calculate the hazards more accurately. Vince Dowling who is heading the project says the model will enable more appropriate emergency measures to be taken in the event of a fire. "For example, if it is known that fire will not spread from one carriage to another for say 45 minutes, then calculations can be made about whether the train should proceed to the closest station for evacuation of passengers, or to the nearest emergency exit stair case."

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# Air pollution and congestion charging

TWO major research projects in Europe may well change the way governments view and respond to city air pollution.

One seeks to map “hot spots” and define how lifestyle can effect an individual’s exposure.(1) The other is examining ways to make hot spots less unhealthy and aims to discover the pollution differences between road zones where traffic accelerates and larger areas where traffic is queuing.(2)

The second project centred on London and due to start in November, will also provide new ways to measure the benefits of congestion charging.

## *The PEOPLE Project:*

The first project, funded by the European Union, will monitor 2000 volunteers wearing pollution detectors as they go about their daily routine in ten cities. This, the so-called PEOPLE project (Population Exposure to Air Pollutants in Europe), will cover both road traffic pollution and pollution caused by smoking.

According to EU Research Commissioner, Philippe Busquin, previous research suggests traffic is responsible for between 70% and 80% of a city’s pollution problems with Benzene, a carcinogenic substance, being seen as the most serious health hazard.

He says it is known that high exposure is killing thousands of people a year and that in Europe, a recent study showed 40,000 people die each year in France, Austria and Switzerland from the effects of air pollution.

“It is clear therefore, that air pollution has a long-term negative impact on EU citizens’ health in general, despite tight EU emission standards,” Mr Busquin said.

He said the PEOPLE project will centre on Brussels, Bucharest, Budapest, Dublin,

Krakow, Lisbon, Ljubljana, Madrid, Paris, and Rome, and as well as providing decision makers with a comprehensive snapshot of city pollution, it will also help citizens decide how best to limit their exposure.

The project will assess busy road junctions as well as quiet parks and volunteers will be selected for their use of different modes of transport.

Their experience will be compared with control groups including people who stay at home and people who smoke.

The EU hopes to publish the results next February and include city maps showing pollution levels in different urban settings.

## *The DAPPLE Project:*

The four-year so-called DAPPLE Project (Dispersion of Air Pollution and Penetration into the Local Environment) is being lead jointly by the University of Surrey and Imperial College and brings together experts in transport and air dispersion studies. While it will focus on London, the researchers are hoping the results could be applied to any city.

Questions the project seeks to answer include:

- *What controls the amount of pollution people are exposed to on urban roads, and in the buildings alongside?*



Photo: © Ian Britton - FreeFoto.com

*Not much congestion - but what about pollution? La Petite Rue des Bouchers, the gourmet centre of Brussels. Brussels is one of the cities chosen for comprehensive investigation by the EU research team.*

- *How large is the area of influence of a zone where traffic accelerates, compared with that of a larger area where traffic is queuing?*
- *What are the most effective ways of making localised pollution hot spots less unpleasant and unhealthy?*
- *What kind of decision support tools are needed to assess localised pollution hot spots, and what simplifying assumptions can these make? For example, does most of the pollution reach backstreets by going over buildings, or around them?*

*Continued next page*

Transport health issues

Continued from previous page

- *Can the same tools be used for transport-related air quality management as for assessment of the impact of accidental or terrorist release of toxic or flammable gases?*
- *What about stationary roadside sources such as dry cleaning outlets and small industrial units?*

The scan also showed:

**Sitting risks**

Britain's RAC, is advising everyone who travels long distances by road to take more breaks as a precaution against deep vein thrombosis (DVT). (3) Evidence is emerging from a number of sources that not just air passengers are at risk but people who sit immobile for long periods of time – perhaps four hours or more.

## Australian commuters who depend on their feet

NEW Census figures published by the Australian Bureau of Statistics show that on Census Day (7 August 2001) an average 4.8% of the working population walked or cycled to work.\* The Northern Territory had the highest percentage of walkers and cyclists (14.8%) but in terms of pure numbers, NSW led with 132,657. Taking the car to work was by far the most popular form of commuter travel – 5,329,832 Australians did it or 64.2% of the working population. The ACT led in the car stakes with 69.9% of its workers opting for the travel mode followed by South Australia (67.7%) and Tasmania (67,3%). Western Australia ranked fifth with 66.4%. Australia-wide 265,102 workers (3.2%) travelled to work by train only, while 208,294 people (2.5%) travelled only by bus. (There were another 59,863 people nation-wide who used both bus and train – 0.7%) By comparison in Western Australia 9502 (1.1%) travelled to work by train only, and 24,493 (3.0%) took a bus. Another 5344 people (0.6%) used both bus and train. On these results more Western Australians walk or cycle to work than use transit. The opposite is the case nationally.

### Where they walk and cycle

State / Territory	People	Percentage
Northern Territory	13,407	14.8
Tasmania	11,215	6.1
ACT	8,856	5.5
Queensland	80,781	5.1
NSW	132,657	4.8
WA	36,586	4.4
SA	27,442	4.3
Victoria	83,642	4.0
AUSTRALIA	394,846	4.8

Source: Australian Bureau of Statistics

\* "Census Second Release: Summary" Australian Bureau of Statistics 4 Aug 2002 <<http://www.abs.gov.au/Ausstats/ABS%40.nsf/e8ae5488b598839cca25682000131612/7a47659326fb44b3ca256c2900797644!OpenDocument>>

**Walking down**

Fewer people in the UK are selecting walking as a travel mode.(4) A new National Travel Survey conducted for the Department for Transport shows walking declined 20% during the 1990s and now accounts for under 3% of the distance travelled by the average person each year. However, 80% of all trips under a mile (1.6km) were travelled on foot. The last decade has also seen a further decline in the number of UK children walking to school. While in 1989/1991 62% of primary-aged children walked to school, last year it was down to 54%.

**Taking chances**

While fewer US high-school students smoke or use marijuana, than a decade ago, they are more prepared to risk injury on the roads, according to a survey by the US National Centre for Chronic Disease Prevention and Health Promotion.(5) The survey showed, 14% of students rarely or never wore seat belts; 85% had ridden bikes without helmets in the past year; and 31% in the previous 30 days had rode with a driver who had been drinking. (See "Changing attitudes" page 17.)

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## Examining the case for freight roads

MAIN Roads WA is currently investigating the benefits or otherwise of roads or road lanes dedicated to freight transport.

As reported in the last edition of *TransScan*, it is an issue now attracting attention of road authorities around the world and one US-think tank, the Reason Foundation, has already put the case for self-funded freight tollways.(1)

Before the Reason report was published, Main Roads had asked ARRB Transport Research Ltd to provide an issues paper of the dedicated freight road concept.(2)

A joint study last year by the CSIRO and Queensland University of Technology found that intercity freight trips could increase 50% over the next decade and the distance travelled by urban delivery trucks could jump 100% over the same period – thanks largely to e-commerce and online purchasing.(3) The ARRB paper says that as far as it is able to

discover there are no publicly-funded roads exclusively dedicated to freight anywhere in the world. But truck lanes are prevalent either as part of optional or mandatory traffic schemes.

However where they have been introduced in many cases the objective is not directly related to enhance truck efficiency.

Instead they are there to reduce the impact slow-moving trucks have on general traffic, and to reduce environmental and social impacts in sensitive urban areas.

In fact ARRB finds many significant questions raised by the “truck road” concept. There are questions of objectives and rationale, vehicle eligibility, and which choice of measures would offer the best value for money.

“It is likely that dedicated truck lanes on existing corridors would lead to significant congestion for other road users, and result in a significant increase in delay to all users, if implemented

by a “lane take”, rather than a “lane addition” intervention,” says the paper. In ARRB’s view it is becoming increasingly difficult to provide optimum facilities for all modes of vehicle transport on all roads without “judicious and focused” management strategies.

It believes objectives for the management of urban trucking should be viewed in the broader context of overall community objectives for urban freight management and performance.

It lists these objectives as including:

- Reduction of truck travel times and improvement of schedule reliability.
- Enhancement of road safety for trucks, and for all road users.
- Reduction of environmental and social impacts of trucks.

*Continued next page*

## Americans are finding more reasons to car-share

A REVIEW of US car sharing by the San Francisco-based, Mercury News, reports that although the concept goes entirely against the American ideal, it is, nonetheless, slowly making inroads.(12) For example, the CarShare company which operates in San Francisco, Oakland, and Berkley has 1600 members and is adding 150 a month to the list. There is also an interesting assortment of people and organisations using the service: a furniture company which decided to save money on leasing a new utility delivery truck and a woman who car shares so she can have a vehicle for holidays. (See too next page: “Holding up the US” .)

Photo: © Ian Britton - FreeFoto.com



*Would more sharing make a difference?  
Rush hour on Boston's Interstate 95.*

## Road Management

*Continued from previous page*

# Do we need freight roads?

- Promotion of regional economic efficiency and competitiveness.

The scan also showed:

### **Buses and motorbikes**

Motorcyclists are being allowed to join taxis and coaches on the “bus only” lanes of the M4 expressway into London.(4) The idea is to increase motorbike safety and to keep riders clear of other vehicles changing lanes. The Highways Agency is now monitoring the change before deciding whether to open up other bus-only lanes to motorbike riders.

### **‘First’ plastic bridge**

The US is claiming a significant milestone in road infrastructure after building what it describes as the world’s first “plastic bridge”

in Morristown, Vermont.(5) Although the new Ryder Brook bridge still has a concrete deck, all reinforcement bars which would normally have been made from steel, have been constructed with glass-fibre reinforced polymer. The 43m bridge is expected to carry 7000 vehicles a day. In April TransScan reported that Britain was testing the same material as a reinforced bridge framework which could support vehicles directly on its surface.(6)

### **Measuring congestion**

From the road user’s viewpoint, what is the best way to measure traffic congestion? Britain’s Commission for Integrated Transport has been looking at the problem and has come up with a few new suggestions.(7) Currently the UK Department of Transportation uses “average

delay per vehicle kilometre” as a progress indicator. The commission says while such a measure is sound, there are others that would be more meaningful to motorists. For example: a measurement that would let drivers know what congestion on a particular road is likely to do to their journey times. The commission is recommending that the Department look at the idea.

### **Holding up the US**

America’s annual survey of traffic jams has found congestion is getting worse.(8) The time penalty for peak period travellers jumped from 16 hours a year in 1982 to 62 hours in 2000. The period of time when travellers might experience congestion increased from 4.5 hours in 1982 to 7 hours in 2000. And the volume of roads where travel is congested grew from 34% in 1982 to 58% in 2000. The survey was conducted by the Texas Transportation Institute.

### **Horror drive**

Britain’s busiest stretch of expressway, the much congested M25 ring road around London, has been voted the nation’s “Number One Horror” in a phone-in poll conducted by BBC Radio’s Today program.(9) In fact transport infrastructure figured prominently in the list of top seven horror spots. Heathrow Airport was given forth position, and Birmingham’s New Street Railway Station came fifth. Second spot went to London’s Millennium Dome – although it, of course, failed to create any congestion.

### **Fine place**

In an attempt to persuade residents to be more prompt in paying their parking tickets, Chicago city authorities are posting the names and addresses of its 100 top offenders on the internet on [www.cityofchicago.org](http://www.cityofchicago.org). (10)

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## How computers can teach children road skills

COMPUTERS could play an important roll in teaching young children better skills in road safety - at least according to UK research. After a two year investigation involving more than 150 Scottish primary school children researchers have found computer-based training can lead to a "substantial improvement" in a child's roadside behaviour. (1) Compared to a control group, all the children aged between 5 and 11 who received the special training developed new practical skills to cope with traffic.

But the UK Department for Transport which conducted the research does not suggest computer training programs could be used to replace "real life" roadside training. Instead it believes such training can provide a valuable new supplement.

The program seems also to have produced an unexpected side benefit. The researchers reported that those children who took the course appeared to increase their verbal skills.

The Department developed its own training program for the project and designed it to focus on four broad areas of pedestrian skill:

- *Safe place finding* - identifying dangers posed by road layouts, such as blind bends and junctions, and adjusting a crossing route to deal with them.
- *Roadside search* - being aware of potential and actual vehicle movements and their implications for crossing a road.
- *Gap timing* - coordinating crossing a road with vehicle movements; and

- *Perceptions of others' intentions* - being aware of the cues given by drivers of their future actions and adjusting a decision to cross a road to fit in with those cues.

Each of the training modules formed the basis of four training sessions of around 30 minutes. The children were split into groups of three and allotted an adult trainer - a parent trained to deliver the course.

On the computer screen the children were taken into a small town setting, introduced to a common cast of characters, and asked to decide where, when or whether it was safe for a character to cross a road. The Department says none of the four listed skills was too difficult for younger children to grasp or too easy for older children to show benefit.

"There is, therefore, no age within the primary school age range at which use of any section of the training software would be inappropriate," it says.

The scan also showed:

### Changing attitudes

Swedish traffic authorities are reporting an unexpected upsurge in the number of young people involved in fatal accidents. (2) Sweden's National Road and Transport Research Institute has found road deaths among 18-24 year olds have jumped more than 30% in the past 5 years - despite the fact that in the current demographic cycle, fewer young people are on the roads. The institute says there are numerous factors to blame - including alcohol abuse, not wearing seat belts and high speed. It wants immediate action to improve driver training, change young people's attitudes to driving and increase surveillance on young drivers. (See: "Taking chances" page 14.)

### Accident insurance

The European Union is planning new laws to use motor vehicle insurance to cover the cost of  
*Continued next page*

## Are road accidents an illness?

COULD some road accidents be caused by disease? A research team from the Czech Republic believes there is mounting evidence to suggest toxoplasmosis is the culprit.\* Until now the parasitic disease was thought to be harmless. In fact it effects between 30-60% of the world's population. But the Czech team has found evidence to suggest that people with the disease have twice as much chance of being involved in a road accident. They say the reason is that toxoplasmosis

causes cysts to form in nerve and muscle tissue - and these cysts according to separate research, may reduce an individual's ability to concentrate. The Czech team found people with latent toxoplasmosis were 2.65 times more likely to be involved in traffic accident - no matter what their age.

\* "Infection with toxoplasmosis increases the risk of being involved in a road traffic accident" BioMed Central media statement 5 Aug 2002 <<http://www.biomedcentral.com/info/pr-releases.asp?pr=20020805>>

## Safety management

## More Aboriginals involved in road accidents

THE death rate of Aboriginals involved in road accidents may be three-times higher than that of the non-indigenous community.\* In fact road accidents have become a significantly greater threat to Aboriginals comparable to diabetes and stroke as a major cause of death.

Within the broad Australian community, road accidents account for 1.7% of all deaths. Within the Aboriginal community they are 5.6% - and possibly higher.

These are the key findings of research completed by the Australian Transport Safety Bureau in 2000 and just released on its website.

It is based on an analysis of data from Western Australia, South Australia and the

Northern Territory between 1994 and 1997. But the bureau believes that if figures were available for the whole of the country, a similar picture would emerge.

It suggests the national rate may even be higher if more attention were paid to the ethnic origin of those killed in road accidents.

It says reliable data is required to develop adequate road safety countermeasures but that there is a clear need for improved Australian-wide information.

\* "Estimating road trauma in the Australian Indigenous population" by Michael McFadden et al Australian Transport Safety Bureau <<http://www.atsb.gov.au/road/res-exec/or22ex.cfm>>

*Continued from previous page*

## Computers teaching road skills

accidents to pedestrians and cyclists - regardless of whether the driver is to blame. The legal changes(3), which will have to be introduced by all EU member states, are part of a package of measures designed to ensure that driving insurance policies bought in one EU country operate in the same way no matter where in the EU an accident may occur. Some member states like France, Belgium, Germany, the Netherlands and Scandinavian countries already have similar laws as far as pedestrian and cyclists are concerned. But the idea has caused uproar among British motoring organisations who fear that putting extra liability on vehicle drivers will encourage "guerrilla cyclists" who disregard traffic rules. Britain's RAC also estimates the new laws could add \$140 to the annual cost of motor insurance. The EU says it believes the additional cost will be minimal.

### Private messages

An Australian fuel transport company, the Mitchell Corporation, has launched its own road safety campaign using its own

trucks as "mobile billboards". (4) According to a media statement from Western Australia's Minister Responsible for Road Safety, Michelle Roberts, the move was prompted by an accident near Perth in which a vehicle overtook a Mitchell truck and then abruptly stopped. The truck was unable to brake in time and sent the vehicle careering into other cars. At a later meeting company drivers and managers decided to use truck advertisements to warn motorists of the breaking distance needed by a fully laden road tanker. It is estimated the "mobile billboard" will be seen by more than 100,000 motorists over a 12-month period.

### Mobile phones (1)

Britain is considering new laws totally prohibiting drivers from using hand-held mobile phones. Although it is already possible to prosecute offenders on the grounds that they are failing to maintain proper control of their vehicles, the Department of Transport believes a specific offence proscribing mobile phone use is now necessary. Since 1998 Britain has run various campaigns

warning drivers of the risks they take if they use a phone while driving. Now evidence is growing that more drivers are prepared to take the chance. According to a department consultation document (5) four surveys conducted since November 2000 have shown a steadily rising trend in drivers using mobile phones. By April this year 2.2% of drivers were using them - up from 1.5% in 2000. Currently Britain has a fixed penalty notice of £30 (\$AU 108) for failing to have proper control of a vehicle - although drivers can face higher fines if convicted. Making the use of a mobile phone a specific breach of the law would mean any offender could also risk disqualification. According to the document it is acknowledged that the use of hands-free phones can be just as distracting but the department believes a law prohibiting their use too would be largely unenforceable.

### Mobile phones (2)

Britain's efforts to ban motorists from using mobile phones (see above) contrasts markedly with the

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## Safety management

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US where manufacturers have been largely successful in their lobbying to prevent restrictions. According to a CNN report, manufacturers argue that while mobile phone users have jumped from 10 million in 1988 to 120 million now, there has now been a huge corresponding increase in car crashes.(6) Nonetheless, 30% of the country's road accidents are believed to be caused by driver distraction - including the use of mobile phones.

### Measuring campaigns

Strong anti-drink driving campaigns and strict law enforcement does change peoples' driving habits according to the US Centre for Disease Control and Prevention. (7) It has just completed a detailed study of the way individual US States approach the problem and has found that tough campaigns work best. States were graded according to the countermeasures they used to discourage alcohol-impaired driving. The data was then compared with the results of a national telephone survey in which motorists were asked if, in the last month, they had driven after drinking. In States graded with the lowest level of countermeasures,

motorists were 60% more likely to report driving while impaired.

### Dangerous penalties

Britain is increasing its maximum penalty for causing death by dangerous driving from 10 years to 14 years jail.(8) At the same time disqualified drivers will have the chance to earn remission if they are willing to pay for themselves to be retrained. Those successfully retrained would have their period of disqualification cut by a fifth.

### Faulty vehicles

Traffic authorities in both America and Britain say they are discovering large numbers of unsafe, faulty vehicles using the roads. Part of the blame is being attributed to high maintenance costs which are encouraging some drivers to forgo repairs. In the US, Pennsylvanian traffic authorities have discovered safety breaches are widespread among commercial vehicle operators.(9) During a five day period in July, 2927 commercial vehicles were stopped and inspected - and 2625 were found to be in violation. More than 900 were found so unsafe they had to be taken off the road. Meanwhile in the UK, almost a quarter of the 4700 cars tested by vehicle inspectors last year were found so dangerous they

needed to be ordered off the road.(10)

### Impact research

When a 4WD collides with a small passenger car its usually the small car which comes off worse. With increasing numbers of 4WD on the roads the problem can be expected to grow. (11) Now the US National Highway Traffic Safety Administration is proposing an investigation to determine whether a change in safety rules could help tackle the problem. (12) The study is one of a number of research projects it is proposing over the next three years including investigations into ways of reducing headlamp glare, improving head restraints and enhancing side crash protection.

### Size and risk

Advocates of 4WD vehicles often argue that the sheer size of the vehicle provides its occupants with a higher degree of safety. That argument was challenged earlier this year in a report by the Australian Transport Safety Bureau (11) and more recently by US research headed by the University of Michigan.(13) According to the American study, vehicle quality is a far better predictor of safety. According to Michigan physicist, Marc Ross,

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## Drama in the campaign sleeper



*IT is not only Australia that has been running TV campaigns warning of the dangers of driving when tired. This series of stills (above) are taken from from a similar \$1.5 million advertising campaign in Britain.*

*The 30 second film shows driver "John"*

*falling asleep at the wheel before losing control of his car as it turns over and skids across a deserted stretch of expressway. Copies of the film are being made available for download in RealPlayer format on:*

*< <http://www.think.dft.gov.uk/fatigue/index.htm> >*

## Safety management

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# Teaching children road skills

the study showed that in America popular midsize cars, minivans and imported luxury cars have the safest record. 4WDs (or sports utility vehicles SUVs) are about as risky as the average midsize or large car and no safer than most small cars when "risk" is defined as "the number of deaths per year per million vehicles".

### Level crossings

The Australian Transport Safety Bureau has drawn on unpublished data to provide the first national overview of Australian fatalities at level crossing accidents.(15) They show that between 1997 and 2000 the annual number of deaths ranged from 21 to 44. The data provides a detailed breakdown of the types and causes of the accidents and ATSB is hoping it will assist policy makers in their attempts to deal with the problem.

### Safety cut-backs

Increasing numbers of Americans are buying motorcycles - and having accidents with them. The US Motorcycle Riders Foundation is not blaming extra machines for the toll but State and Federal cutbacks in safety programs. (16) Last year was the fourth in succession that the toll increased reaching 3181 killed - the highest figure since 1990. (14) The foundation admits that in the same period motorcycle sales have soared too - from 303,000 in 1990 to 710,000 in 2000. But it claims the prime reason for the increasing accidents is cuts in training programs made worse by the September 11 terrorist attacks. Until last September waiting lists for rider training could extend up to a year. Since the attack governments have been focusing their budgets on security - and spending on motorcycle training

and safety programs has been reduced still further.

### Remote response

General Motors says that its in-vehicle safety service introduced in the US is already having an

impact in reducing road accident deaths in remote locations.(17) The system uses in-vehicle detectors and global positioning satellites to provide immediate notification of a crash to emergency authorities. According to GM while only 20% of US road accidents occur in remote areas, they are responsible for 60% of death - most because of emergency service delays.

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