

TRANS SCAN

A scan of emerging trends in mobility and the built environment

Volume 4

Number 2

July 2002

Events throw a new perspective on planning cities and promoting equity

NO one predicted the September 11 terrorist attack and no one could have anticipated the impact it is now having on transport and planning.

In the US where the events have changed almost every aspect of life they have altered the way cities are viewed and the way in which mobility is organised.

In this issue of *TransScan* some of the current discussion is examined. For example, among architects and engineers, destruction of the World Trade Centre has generated an international debate on the future of tall buildings and how they can be made safer. (See page 3)

At the same time, planners are now questioning fundamental aspects of urban design and are seeking a new approach that can reduce community alienation and promote social equity. (See page 4)

Even a city's natural landscape is being given new importance. (See page 5) In Europe one of the responses to September's events has been to promote a higher degree of self-reliance - including investment in a new system of global positioning satellites. (See page 8) This action itself is likely to speed the development of Intelligent Transport Systems (ITS) and create new competition to sell such systems to traffic authorities.

At the same time sheer growth of transport and new findings about its effect on community health is creating new challenges for planners. (See Environmental management pages 13-15.) It has brought a new report on options for a greener transport policy and warnings from the CSIRO that the challenge of urban noise levels is growing. (See page 15) Safety issues are still paramount - particularly with new figures showing the high impact road accidents have on an economy. (See page 16)



Photo by Billie Fairclough

PERTH resident Jean Tattersall may not feel revolutionary but she has now become one of the growing number of local residents to adopt electric scooters as a primary means of travel. She has owned the vehicle six months and says her life would have been much easier had she bought one much earlier. Any initial reluctance on the part of the aged community to use scooters now appears to be evaporating. We look at the vehicle's future on page 11.

Volume 4 • Number 2 • July 2002

ISSN 1440 - 8996

TRANS SCAN

A scan of emerging trends
in mobility and the built environment

Website: <<http://www.transscan.com>>

TransScan is an initiative of
the Department for Planning and Infrastructure
and Main Roads Western Australia
and is produced by

Strategic Scan
PO Box 1484
Victoria Park East
Perth, Western Australia 6981

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

TransScan is available in alternative formats to
assist people who are unable to read this
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>

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

Bob Peters, Main Roads WA
Tel: 93118434 <bob.peters@mrwa.wa.gov.au>

Peter Terry, Strategic Scan
Tel: 93626248 <scanasia@highway1.com.au>

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

Letters to the Editor

TransScan welcomes letters for publication, preferably by email. They should be no longer than 150 words and while every effort will be made to publish such letters in full, *TransScan* reserves the right to publish them in extract if necessary.

Disclaimer

Strategic Scan takes all reasonable care in the preparation of this document which represents the results of scanning and analysis over the past three months from sources listed within, but accepts no responsibility for any loss which may be sustained by any person or organisation that relies on information in this document.

Contents

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

Page 1	Events throw a new perspective on planning cities and promoting equity
Page 3	New questions about the future of cities
Page 4	The difference between 'arranging' and 'planning'
Page 7	CSIRO predicts the technologies that will most change Australian cities
Page 7	TRANSNet (Internet review)
Page 8	Navigation satellite competition could speed ITS rollout
Page 8	Events up-date
Page 9	Should trucks have their own roads?
Page 11	Scooters are changing ideas about mobility
Page 13	Options for a greener transport policy
Page 15	Better urban design can beat growing noise levels
Page 16	How the hidden costs of road accidents can damage an economy
Page 16	New focus on pedestrian wellbeing
Page 16	4WDs are increasing the road toll
Page 19	Could pedestrian air bags cut the toll?
Page 19	No belts for buses

About TransScan

TransScan monitors change world-wide and is based on analysis 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 necessary for the departments to operate more effectively in a period of rapid change. The subject matter will often challenge assumptions. At the same time it seeks to familiarise readers with an ever-changing environment. It is not possible to predict tomorrow, 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 represent 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.

A 21st Century makeover for street awnings



Artist's impression: PR Newswire Photo Service

*INTERNATIONAL architect, Rafael Vinoly *, is calling it his "Urban Canopy" – a giant elevated loggia of interlocking girders that will climb 30 metres above the road and envelope the new Tampa Museum of Art his company has designed for the Florida city. The idea is to provide a modern reminder of the street awnings that use to shade the shops and sidewalks of the old city. When the building is complete in December 2004 the Urban Canopy will be illuminated at night to provide a new landmark for everyone driving into the city and its cultural district.*

* <http://www.rvapc.com/newindex/newindex.html>

Urban planning

New questions about the future of cities

ONE major side effect of the September 11th attack is that it has sparked a worldwide reappraisal of city planning and the future of tall buildings. Some have been arguing for the status quo and more efforts to protect and strengthen tall buildings.

Others want an entirely new approach to city planning that encourages community participation and leads to more environmentally sensitive development. (See next page)

In London in April Britain hosted the first of what looks like becoming a series of international conferences sponsored by the International Council for Research and Innovation in Building and Construction to discuss how tall

buildings could be made safer.(1)

Most of the answers have yet to be found but delegates did identify a list of issues which need to be addressed, such as re-researching:

- Risk characterisation
- Risk-based design tools and design objectives consistent with acceptable risk
- Standards for tall buildings based on acceptable risk
- Management strategies for occupants in various emergency scenarios
- Data on behaviour; evacuation time and "pre-movement" time in actual evacuations

- Interactions between emerging evacuation flows and contraflows from firefighters
- Emergency use of lifts in tall buildings
- Design robustness
- Physical property/product tests with modelling to assess in-use performance
- Performance prediction of extreme events
- Holistic design of fire risk and building load combinations.

But whether or not such questions are actually addressed is another matter and delegates expressed concern that there would

Continued next page

Urban planning

Continued from previous page

Rethinking the future of cities and tall buildings

be little progress unless research funding is forthcoming.

The next meeting of the conference is scheduled for April next year in Kuala Lumpur - the site of the Petronas Towers complex now the tallest buildings in the world.

Yet while some seek to make tall buildings safer there are others who are questioning whether in the long term tall buildings will continue to be built. One such challenger is Richard Carson,

a practicing urban planner, lecturer, and one of America's leading commentators of planning issues. As he views events, September 11 not only put the future of tall buildings in doubt but hastened the end of New Urbanism and its replacement by what he calls "Urban Realism".(2)

He says in planning terms Urban Realism will be marked by its ability to:

- Provide personal safety

- Provide personal space
- Be truly market-driven and about freedom of choice
- Be rational, practical and functional
- Embrace real citizen involvement and be populous

According to Mr Carson, New Urbanism gives the sense of being on the set of "The Truman Show". Urban Realism would "embrace real citizen involvement, the serenity of backyards and the return of the quiet backwater of the cul-de-sac.

He also predicts that Corporate America will move out of its inner city office blocks and into

Continued next page

The difference between 'arranging' and 'planning'

AMERICA'S approach to city planning has always been radically different from that of a country like Australia. As explained by Edward Blakely, a leading US authority on urban policy: "Our role as city and community planners has been to pave the way for consumerism. We do not plan cities but arrange them."*

But now in a post September 11 era, he wants America's urban planners to think again - to stop organising cities as economic space and to concentrate on social space. "Americans are not connected to their homes; we own consumer commodities called housing units," he said in a speech to the American Planning Association. #

"We planners have arranged house location for maximum economic exchange and not as habitation. That is, the average American is more in touch with his or her home value as a commodity than as a domicile."

He says the gated community has become a substitute for communal interaction. "The gates, guards, caretakers and rules substitute for any need to know or care for the persons within the same space," he said. "This is planned community. Planned to save time and to dehumanise." But according to Mr Blakely American attitudes are changing - and that change has accelerated since New York lost its Twin Towers. He says today there is little appetite for large new skyscrapers or giant projects that reshape the skyline.

To him the changing attitude has presented an opportunity to stop planning cities for economic consumption but for people. In fact he goes further and suggests that a change in the approach to planning will do much to improve safety by creating an environment where people did not want to become terrorists.

With this in mind he wants to see international guideline set whereby planners work actively to ensure that whatever plans they produce take into account environmental considerations and minimise the impacts. If governments or local authorities do offer any development incentives they should only be to spur more environmentally sensitive development. At the same time he

believes equity planning should become the foundation for all planning at every level.

"Planning development by income is the mode to inequality," he said. "We need a dedication to plan places for people to live over planning for commodity housing to exist."

* Edward Blakely is Dean of the Robert J. Milano Graduate School of Management and Urban Policy at New York's New School University.

"Beyond the Fort: The American City in the 21st Century" by Edward J. Blakely 14 Apr 2002 < <http://c1.planning.org/features/pdf/blakely.pdf> >



Time Square, New York: Arranged or planned?

Photo: © Ian Britton - FreeFoto.com

Continued from previous page

the “more academic-research suburban campuses with 4-6 storey mid-rise buildings”.

“This will happen because Corporate America needs to attract employees who want to be psychologically safe,” he said.

The scan also showed:

Natural solutions

A Western Australian who was working in New York at the time of the terrorist attack believes the event underlines the importance communities place on open space. In fact landscape architect, Emma Carr, believes the events clearly demonstrated how planning natural landscapes could ease social stresses. (3) Writing in *Landscape Australia*, she says in the days that followed the attack it was clear many New Yorkers were visiting the city parks to calm their emotions. She said the *New York Times* later commented that for many of the city’s traumatised inhabitants, parks would be an important part of the rebuilding process.

Growing creatively

The greatest stimulant to a city’s economic and social development is not a plethora of graduate degrees but a high concentration of creative workers – at least according to two researchers from Pittsburgh’s Carnegie Mellon University.(4) After examining the growth rates of 244 American cities during the 1990s, they have found that spawning a “Creative Class” is the best guarantee of success. The creative jobs that bring the most benefits are those in composing, designing, problem-finding and problem solving. These would include engineers and musicians, scientists and actors, software writers and novelists. The researchers found that cities with a high percentage of creative people were growing

at a rate up to twice that of other cities. As a rule of thumb, a city of a million that started 1990 with 300,000 university graduates – but none in a creative occupation – could expect to add 90,000 people to its population by the end of the decade. Conversely a city of a million that started the decade with 300,000 creative workers could have expected to add 250,000 to its population by 2000. They judged America’s most creative cities – and fastest growing – as Washington, Raleigh-Durham, Seattle, San Francisco and Austin.

Growing greener

Another perspective on the benefits of creativity (See above) has come in the final report of Britain’s Urban Green Spaces Taskforce.(5) After more than a year’s deliberations it has presented a detailed report to the government arguing for a renaissance in park development, private sector involvement, and a five year \$1500 million investment program. It says good quality green spaces enhance a neighbourhood’s image, raise property values, and build business and community confidence. They can underpin regeneration programs and play a vital roll in promoting healthy living, preventing illness, countering pollution and increasing biodiversity.

The taskforce wants the government to use the country’s lottery to help raise the necessary funds. The government is expected to give its response later this year.

Landscaping sprawl

If the next 25 years is going to see Australia’s urban sprawl expand as much as it did in the last quarter century, then landscape architecture must be given a greater role in planning, says NSW environmental designer, Bruce Mackenzie.(3) Writing in *Landscape Australia*. (Also see above) Mr Mackenzie says it is obvious that the patterns of urban “spread, infill and overfill” will prevail and simply to escape the city and its demands will become more difficult. “Landscape architecture can and must play a much more important part in the planning and conceptualising of this inevitable expansion,” he says.

Disappearing lawns

In parts of the US where the battle of sprawl has become acute, a new fight has started over the continuing loss of suburban front gardens.(6) In places like Berkeley, where there are 500,000 registered vehicles and 320,000 legal street parking spots, there is considerable pressure to pave front lawns and park cars on top. According to some, the trend is depressing property prices as once green suburbs turn increasingly grey. Now some local authorities are moving to outlaw the practice – or at least ensure some garden space is reserved for plants.

Designing the future

Could the methods designers use to develop new products and

Continued next page

Have you collected
your *FREE*
download yet?

www.transscan.com

Urban planning

Rethinking cities

Continued from previous page

services be used to help government anticipate people's future needs? The European Union is hoping they can and is funding a five-nation research project to explore the potential use of such design techniques as brainstorming and visualisation to boost quality of life.(7) According to the project leader, Clive Grinyer of Britain's Design Council, the research will attempt to pinpoint the social, economic and industrial trends that could be addressed through design forecasting techniques. "We will be examining the overlap between design and policy and assessing the extent to which design skills are either transferable or specific to design itself. In some cases it might be appropriate for planners to adopt elements of design thinking and practice themselves, while in others designers could be brought on to existing forecasting teams. Either way, we want to

ensure that design is placed firmly on the policy agenda." The researchers hope to report their findings in November.

Democratic designs

Good urban design could be employed to foster the democratic process according to Britain's Design Council and Institute for Public Policy Research.(8) Concerned by the apathetic voter turnout at recent local government elections, they have joined together in a project which will use design to help boost civic pride – and hopefully encourage people to become more actively engaged in local democracy. According to the Design Council's chief executive, Andrew Summers, the focus will be on "reinventing the spaces people use to engage in the democratic process." He says years of under-investment have left the country with a legacy of dilapidated or ugly civic buildings. In fact a recent survey has found four in five municipal councils

think their town halls are "inappropriate and lack public appeal". The so called "Designs on Democracy" project will seek to develop design-led solutions and, through public consultations, identify ways to make existing town halls, civic spaces, council meetings and ceremonies more appealing.

Falling back

One American city which is not doing well at the moment is Chicago where a recent survey of key indicators found incomes are so low in some poorer suburbs that it is now impossible to tax households sufficiently to pay for basic municipal services.(9) The survey, funded by the city's business lobby, says such inequities are now posing a threat to the city's economic strength. It says another serious worry is traffic congestion. Rising house prices are now forcing people to commute long distances to work. In the past five years traffic jams and longer travelling distances have added 17% to the time it takes the average commuter to complete a rush hour trip.

Tickets for housing

Under a new scheme introduced in Massachusetts people willing to use buses and trains to commute to work can now qualify for no-deposit, low interest housing loans.(10) The aim is both to encourage home ownership and garner greater support for public transport. To qualify a would-be home purchaser has to prove they have been regular transit users for at least a year. The scheme is being operated jointly by the Massachusetts Bay Transportation Authority and the State Government's Massachusetts Housing Finance Agency. Those qualifying for a loan must buy close to a transit route and within an area where household incomes are at or below 135% of the city or town's median income.

References:

- (1) "Minister addresses CIB Global Leaders Summit on Tall Buildings" 2 May 2002 <<http://www.bre.co.uk/news.jsp?id=32>>
- (2) "Urban Realism" by Richard Carson PlanNet 22 Apr 2002 <<http://www.plannet.com/features/urbanrealism.html>>
- (3) "The future of the practice of landscape architecture" by Bruce Mackenzie, Emma Carr et al Landscape Australia 1-2002 pp59-60
- (4) "Creativity has more to do with growth than education" by Mark Lisher and Bill Bishop The Austin American Statesman 12 May 2002. <http://www.austin360.com/statesman/editions/sunday/news_1.html>
- (5) "Green Spaces, Better Places" Report of the UK's Urban Green Spaces Taskforce May 2002 < <http://www.urban.dtlr.gov.uk/greenspace/taskforce/final/index.htm>>
- (6) "Pave the lawn, spoil the neighbourhood?" by Mark Sappenfield The Christian Science Monitor 7 June 2002 <<http://www.csmonitor.com/2002/0607/p01s03-ussc.html>>
- (7) "EU turns to design for help" UK Design Council media statement Mar 2002 <http://www.designcouncil.org.uk/design/content/news_story.jsp?contentID=09009e0d80063513&design_process=>
- (8) "Designs on democracy" UK Design Council media statement April 2002 < http://www.designcouncil.org.uk/design/content/news_story.jsp?contentID=09009e0d8006b1b5>
- (9) "Metropolis Index" PRNewswire 29 Apr 2002 (See also: <<http://www.chicargometropolis2020.org>>
- (10) Massachusetts Housing Finance Agency May 2002 <<http://www.masshousing.com/>>

TRANSNet

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



AS a prelude to the World Summit on Sustainable Development (Johannesburg 26 Aug-4 Sept) the UK-funded SciDev Net is sponsoring a website and discussion group on how science and technology can contribute to sustainable development: <<http://www.scidev.net/sustain/>>

A WEEKLY radio program is syndicated in the US to discuss developments in urban lifestyle and "smart city" concepts. Transcripts are published on <<http://www.colettaandcompany.com/public/images/smartcitytop.gif>>

AS a way to promote development of hybrid electric vehicles, a team of UK engineers are hoping to use "green power" to establish a new land speed record. See how on: <<http://www.greenspeedrecord.com>>

STATE authorities in New Jersey are sponsoring an interactive website to promote brownfield development: <<http://njgeodata4.state.nj.us/i-map/brownfields/default.htm>>

ROADS have a huge impact on history – so much so that the US Federal Highway Administration has dedicated a whole website to the subject: <<http://www.fhwa.dot.gov/infrastructure/history.htm>>

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

City management

CSIRO predicts the technologies that will most change Australian cities

THREE "space-transforming" technologies are set to change the shape of Australian cities and help minimise the environmental impact of the country's growing population, according to CSIRO researchers.*

They predict that high-speed trains like the one that will link Perth to Mandurah, together with the Internet and "green high-rise buildings" will help minimise many of the negative aspects of contemporary city life. The researchers, lead by Professor Peter W. Newton of the CSIRO's Building, Construction and Engineering division, have been published as part of the Federal Government's report, "State of the Environment Australia 2001".



High speed change

The report says that the new Mandurah railway, like the high speed rail link planned for Melbourne, Ballarat, Bendigo and Geelong, will go a long way to combat future sprawl. Instead future development will be concentrated along the rail corridor with demonstrated environmental benefits. In effect, the high-speed trains will transform areas along the route into outer-suburban commuting zones and allow them to be "more closely integrated into the economic engines of the capital cities".

At the same time the report sees the maturing "Internet economy" redefining residential areas through the growth of home-based work and creating "a more sustainable landscape of self-contained villages".

"The dominant impact is likely to remain focused on urban areas; although the opportunity for remote access to personal computers and personal digital assistants anywhere, anytime is now with us," says the report.

Meanwhile the report sees the advent of "green high-rise" (see also page 13) as delivering significant environmental benefits through the closed loop treatment and reuse of wastewater; new facades that better control energy, ventilation and noise transmission; and greater energy and greenhouse effectiveness. The report also finds that changing employment patterns is in turn altering travel patterns and making public transport less attractive.

It says although the population is aging, the elderly may not put greater demands on public transport as so many are maintaining their driving licences.

"Indeed, social and recreational trips by retirees may increase car travel", it says.#

*<http://www.ea.gov.au/soe/2001/settlements/settlements06-1.html#futurescale>
#<http://www.ea.gov.au/soe/2001/settlements/settlements06-2.html#changeinurban>

Traffic management



Illustration: ©European Space Agency-J. Huart

An artist's impression of navigational satellites in Europe's new Galileo network. When in operation it will be able to pinpoint positions on Earth to within 45 centimetres.

Navigation satellite competition could speed ITS rollout

EUROPE'S decision to launch its own independent network of navigation satellites will almost certainly speed the development of intelligent transport systems (ITS) and the competition to market such systems to highway authorities.(1)(2)

Transport ministers from the European Union gave their backing to the so called Galileo Project in March and since then all member governments have given their approval – despite objections from the United States. The US has been concerned not to cede its current prime position in satellite navigation. At the same time Europe is concerned that such control enables America to block rival commercial developments.

(For one analysis see Will

Hutton's commentary in the London-based Observer.(3)) Like the US Global Positioning System (GPS) and Russian Glonass system, Galileo will be available worldwide for road, sea and air navigation – but it will offer a far higher degree of accuracy than is currently provided for civilian use through the US Defence Department's GPS.

In its civilian guise GPS will pinpoint an object within 100 metres. Galileo will do it within 45 centimetres. Galileo will be compatible with both GPS and Glonass.

The Europeans intend to have Galileo and its network of 30 satellites operational in 2007 – about the same time as the plans to update the US system.

References:

- (1) "Green light for Galileo project" BBC News Online 26 Mar 2002 <http://news.bbc.co.uk/low/english/sci/tech/newsid_1893000/1893022.stm>
- (2) "Galileo Design Review" European Space Agency June 2002 http://www.esa.int/export/esaSA/ESAXGVG18ZC_navigation_0.html
- (3) "How Osama won Europe the space race" by Will Hutton The Observer 3 Mar 2002 <<http://www.guardian.co.uk/Archive/Article/0,4273,4366576,00.html>>



Australian Rail Summit

30-31 July
Sydney, NSW
URL: <http://www.amevents.com.au/railsummit>

Brownfields 2002

International Conference on Prevention, Assessment, Rehabilitation and Development of Brownfields Sites
2-4 Sept
Cadiz, Spain
URL: <<http://www.wessex.ac.uk/conferences/2002/brownfields02/index.html>>

Fourth International Conference on Environmental Problems in Coastal Regions

16-18 Sept
Rhodes, Greece
URL: <<http://www.wessex.ac.uk/conferences/2002/coastal02/index.html>>

34th International Conference on Making Cities Livable

15-20 Sept
Alpbach & Salzburg, Austria
URL: <<http://www.livablecities.org/Alpbach.htm>>

International Public Transportation Expo,

23-25 Sept
Las Vegas, USA.
URL: <http://www.apta.com/expo2002/index.html>

Items for "Events up-date", should be emailed to the Editors at <scanasia@highway1.com.au>

Disclaimer: The inclusion of items in this column does not represent endorsement by the publishers. They have been selected because of their possible interest to *TransScan* readers.

Should trucks have their own roads?

WITH more trucks on the road and a trend towards lighter cars, has the time come to start separating the two? An American think-tank, the Reason Foundation, believes it is and has published a detailed feasibility study advocating physically separated "freeways-within-freeways".(1) The truck section would be self-funded as a tollway and as an incentive to the transport industry would permit far heavier individual loads to be carried than now.

Depending on the size and weight of trucks permitted to use the tollways, Reason calculates US trucking costs could be cut by between \$US10 billion and \$US40 billion a year – more than sufficient to enable a toll high enough to pay for the original investment and on-going maintenance costs.

Separating the roadways would also save thousands of lives. According to Reason there are currently more than 450,000 accidents a year in the US involving collisions between cars and trucks. At least 5000 people are killed – 80% are occupants of the cars. (The US National Highway Traffic Safety Administration calculates that each road death represents an economic loss to the country of \$US977,000. See page 16)

Reason suggests separation could be achieved by adding extra lanes to America's existing interstate freeways and separating them from car lanes with concrete barriers. The trucks would have their own entrance and exit ramps where the trucks would enter and leave new load assemble terminals.

According to Reason, the concept has some Congressional support and the backing of the National Safety Council.

The scan also showed:

Road pressure

Even before the Reason report (see above) the US Government was coming under pressure to consider at least "truck only" lanes as a way to ease road congestion.(2) At a Congressional hearing on road congestion the American Road & Transport Builders Association claimed building more roads was the only way the country could hope to accommodate the travel

demands caused by the expected 60 million rise in population over the next 20 years. The association is lobbying for a multi-billion dollar program of truck-only lanes, double-decking road systems and tunnelling.

Barrier performance

Publication of the Reason report on truckways (see above) coincides with the release of a series of international reports on

Continued next page

Concrete ideas for walking on glass



Photo: © CSIRO

ALTHOUGH Australia recycles much of its waste glass many thousands of tonnes still gets dumped. Now CSIRO believes it has a solution: use the glass as a construction material for bike paths, footpaths, kerbs and gutters. The organisation has been testing the concept at a research site in Laverton where these construction workers are seen using waste glass instead of sand for their concrete mixture.* According to the project leader, Dr Kwesi Sagoe-Crentsil, the tests were so successful that the go ahead can now be given for waste glass to be used in concrete construction. He said the success also means that almost all the glass now being dumped can be recycled. For its mixture CSIRO used up to 20% crushed glass blended with conventional sand to meet industry grading specifications. A guide to using the mix can be obtained from Victoria's EcoRecycle website <<http://www.ecorecycle.vic.gov.au>>

* "Making concrete with glass" CSIRO media statement 13 May 2002 <<http://www.csiro.au/index.asp?type=mediaRelease&id=glassandconcrete>>

Road management

Having a road of their own

Continued from previous page

the performance of road barriers.(3) The reports are papers presented at an international gathering arranged by the US Transportation Research Board and include one by Australian consultant, Peter Casey.

Star-rated roads

Maps identifying highways by their safety record are now making an appearance in Britain in what it is hoped will become a Europe-wide system of star-ratings for roads.(4) So far three other countries, the Netherlands, Sweden and Spain have signed up for the program and France, Italy and Ireland are expected to join in the next 12 months. Initially the ratings are being calculated on the safety performance of routes in relation to the amount of traffic they carry. Proponents believe this provides drivers with a more accurate picture of "true risk". Ultimately it is intended that the rating system will also include

inspections of a road's design to assess how it is equipped to protect road users. The program, known as EuroRAP (European Road Assessment Program) (5) is the highway equivalent to EuroNCAP (European New Car Assessment Program) (6) which crash tests new cars and awards them a star rating for safety. EuroRAP is being led by Britain's Automobile Association and its AA Foundation for Road Safety Research. Other active participants include the UK's Transport Research Laboratory, the Dutch Government's Traffic Research Centre, Sweden's National Road Administration, the Catalonian Highway Administration and a consortium of European motoring organisations. After 18 months research the program has been able to give star ratings to more than 2800 major roads – and in the process identify some of the most dangerous. For example, the A889 near Dalwhinnie in the Scottish Highlands has been found the most dangerous in the British Isles

with double the accident rate of the road judged the second most dangerous. Of the 833 UK roads assessed, 23 were too bad to achieve any star rating and only 92 attracted the high four star rating.

International help

Mexico City has sought international help to find ways of easing congestion on the city's streets.(7) According to one report, one of the problems is how the city's old narrow streets feed into six-lane expressways – and an apparent lack of driving rules as three million vehicles a day try to navigate their way through. Commuting across the city can take two hours. One solution being investigated is how to encourage more people to use bicycles. The investigation is being funded by the London-based Shell Foundation and carried out by the Washington-based World Resources Institute and city officials.

Picture signs

England's Highway Agency is to begin testing a new generation of variable road signs able to display pictures as well as text. (8) The trial is part of a Europe-wide program which is seeking to harmonise the types of picturegrams used to alert motorists to road dangers. The new signs use high-resolution, light emitting diodes to create both picture and text. Testing is expected to be complete by August next year.

Equity fines

In a bid to achieve social equity in its system of traffic penalties, Finland has managed to impose what is believed to be the world's highest fine for speeding – \$206,000 for driving a motorbike at 46.5 mph in a 30 mph zone. (9) The country has long based its penalties on both the severity of the offence and the offender's annual income. In this case the fine was based on the offender earning \$10 million a year.

References:

- (1) "Toll Truckways: A new path towards safer and more efficient freight transport" Reason Public Policy Institute 6 June 2002 < www.rppi.org/ps294.pdf>
- (2) "ARTBA offers solutions to alleviate growing traffic congestion" American Road & Transport Builders Association media statement 21 May 2002 < http://www.artba-hq.org/news/press_releases/2002/05-21-02.htm>
- (3) "Standards for testing, evaluating, and locating roadside safety features" US Transportation Research Board June 2002 < <http://gulliver.trb.org/publications/circulars/ec038/ec038.pdf>>
- (4) "AA identifies the killer roads – and the safest" EuroRAP media statement 18 Feb 2002 < <http://195.167.162.57/news/180202.htm>>
- (5) EuroRAP website < <http://195.167.162.57/inside.htm>>
- (6) EuroNCAP website < www.euroncap.com>
- (7) "American think-tank, Mexico City government study ways to reduce megatraffic" San Francisco Chronicle 31 May 2002 < <http://www.sfgate.com/cgi-bin/article.cgi?f=/news/archive/2002/05/31/international1238EDT6413.DTL>>
- (8) "New generation signs to boost driver information" Highways Agency media statement 2 May 2002 < http://www.highways.gov.uk/news/press_releases/m4/02_05_2002a.htm>
- (9) "A six-figure speeding ticket tests Finland's egalitarian instincts" Boston Globe 15 April 2002 < http://www.boston.com/dailynews/105/world/A_six_figure_speeding_ticket_t.shtml>

Scooters are changing ideas about mobility

THE appearance of electric scooters on suburban roads and footpaths has happened almost imperceptibly. Yet according to one industry estimate Perth today has more than 10,000 of the tiny vehicles. Suddenly their development is offering new mobility and a new sense of independence both to the disabled and Western Australia's growing population of frail elderly.

Whereas once such scooters seemed no more than a fad, today even supermarkets are rearranging their product lines to give maximum access to people using the vehicles while they shop.

In fact the advent of the electric scooter is posing many implications for transport and urban planners – especially if the vehicles become widely adopted as a “transitional” mode of transport for aging motorists unable to maintain their driving licences.

There could also be an increasing demand for using the vehicles in conjunction with buses and trains. (If and when personal navigation systems become widely adopted, their use in conjunction with scooters and public transport could prove highly effective.)

Sandy Spence, managing director of Daily Living Products, one of Western Australia's largest distributors of electric scooters, says the market for scooters is already strong and the long term prospects are excellent.⁽¹⁾ The aging population is ensuring a growth market and technical developments are broadening potential uses for scooters.

“We are constantly seeing new design innovations and the vehicles themselves are extremely reliable,” she says. “People no longer seem to feel self-conscious

about driving them.”

She has sold scooters to people for use on farms and one recent client planned to drive his vehicle around the deck of a cruise ship. Meanwhile out on the golf course electric scooters have made an appearance as an alternative to the buggy.

Scooters themselves come in three or four-wheel versions and either one or two seats. The average single-seater four-wheeled model costs about \$3500, has a top speed of 7km/h and a range of up to 30km. It can be recharged over night from a domestic power point and its battery will last a number of years depending on the quality of batteries fitted. According to Ms Spence the cost of recharging works out at about \$10 a year. Maintenance costs are minimal although Daily Living Products recommends an annual service that costs \$40.

Electric scooters have clearly benefited from recent efforts to make footpaths, buildings, and transport readily accessible to wheelchairs. But more than that they have been able to combine such accessibility to achieve unprecedented levels of mobility for people who usually

What other vehicle can you drive from your front room to the shops via the train?



For thousands of people, electric scooters are offering mobility and a new sense of independence

find all forms of transport a serious challenge.

It is now possible for a scooter owner to drive from their lounge room down the street, onto a suburban train, and into a city-centre department store – something that was never before achievable with a self-driven powered vehicle.

“Of course we still have access problems,” says Ms Spence. “Not all footpaths have sloped access and the other day a client from Kalgoorlie was surprised to discover that you can't drive a scooter on and off the Prospector. (A Western Australian inter-city express.) If you want to take a scooter to Kalgoorlie you have to dismantle it and send it as freight.”

Today there are few legal controls on the use of an electric scooter. In WA the main require-

Continued next page

Aged mobility

Coping with the expected rise in elderly road accidents

AS Australia's population ages, the number of elderly people involved in fatal and serious road accidents is certain to grow.

New US research suggests the impact will be significant with drivers aged 65 and over accounting for one in four fatal crashes by 2030. *

On current figures that would represent a 155% increase. The researchers, from the Insur-

ance Institute for Highway Safety, say the problem is not that older motorists drive more dangerously.

In fact the over-65s are under-represented in accident statistics. What will be changing is that general driving population will become increasingly older and from 2010 onwards that fact will be reflected in accident statistics.

The policy implications are

broad and the authors of the study suggest a range of interventions involving road engineering, hospital administration, vehicle design and licensing.

"Research suggests that addressing older drivers' fragility should receive greater emphasis from sponsors of motor vehicle safety research because fragility is the over-riding factor in the increased involvement of older drivers in fatal accidents," said the researchers.

"Older drivers are more likely than younger drivers to die when involved in crashes because of increased vulnerability to injury from physical impacts," they said.

Because of this the authors suggest:

- More research on how to modify vehicles to prevent injuries and death due to frailty.
- Making vehicles easier to drive by introducing larger instrument displays that would reduce the cognitive burden.
- Improve the design of road intersections – the place where many accidents involving older people occur.
- Introduce stricter controls on licence renewals once a certain age is reached. (However the authors point out that no one test has yet been developed which can reliably identify at-risk drivers.)

"... Efforts to restrict driving in older populations need to be carefully balanced against any decrease in elderly mobility," they say.

* "Older driver involvements in police reported crashes and fatal crashes: trends and projections" Dr Stephen Lyman et al British Medical Association journal, Injury Prevention, June 2002 pp116-120

Changing attitudes to scooters

Continued from previous page

ment is that it should not exceed a maximum speed of 7km/h. If it does go faster it is treated as a road vehicle and the driver needs a licence. (2) At 7km/h the driver is considered a pedestrian and is required to follow the same rules such as using a footpath if one is available. If a scooter does have to be taken onto a road then the driver it expected to travel along the edge of the roadway facing oncoming traffic.

"In the past two years I have only known of two accidents involving scooters," says Ms Spence.

Today it is usually a relative or the manager of a retirement village who decides when a scooter driver has become too hazardous for their own and others' safety.

Generational differences can also present potential problems. According to Ms Spence some women who are today in their 70s and 80s are ideal

candidates for electric scooters – but have never before driven any type of vehicle. Yet they still buy and drive electric scooters.

Ms Spence believes that ideally people should take up scooter ownership as soon as old age claims their driving licences. She says the loss of such licences can be devastating for many people – both psychologically and physically when they confront life without the easy mobility they enjoyed with a car.

"I think if people moved straight from the loss of their car licence to owning an electric scooter, a lot of the distress they now suffer would be eased," she said. "Scooters would then be seen as a natural progression – and not something you should only use when you're frail.

"We have just fitted a scooter for a retired airline pilot who is now 92. It's given him a complete new lease on life. He's mobile and independent again. His only regret is that he did not get one years ago."

References:

(1) Daily Living Products website: <http://www.dlp.com.au>

(2) "Exempt Motor Chairs - Information for Road Users" Western Australia's Department of Planning and Infrastructure Mar 2002 "<http://www.transport.wa.gov.au/licensing/myvehicle/safe/publications/300_95.html>

Options for a greener transport policy

IT was never going to be easy to make substantial reductions in transport greenhouse emissions but only now has a new Australian report shown the complexity of the policy options available.(1)

The report, Greenhouse Policy Options for Transport, is the work of the Bureau of Transport and Regional Economics and it has been researched and compiled at the request of the all-States' Australian Transport Council.

It was published just days before the US Government acknowledged for the first time that oil refining, power generation and

transport emissions are playing a significant part in global warming.(2)

Even though Australia has chosen not to sign the Kyoto Protocol for targeted reduction of greenhouse gases, the BTRE report finds that there are some measures governments can take which will both benefit the environment and improve economic efficiency. What the report does not cover is some of the costs that are likely to increase if actions to reduce emissions are not taken. (See next page)

The report outlines three sets of policy options, all of which

could be programmed together:

- (a) *Win-win measures that would both cut emissions and produce efficiency.*
- (b) *Economy-wide initiatives that would cause only minimal cost to the economy.*
- (c) *Measures that require case by case consideration.*

The report says, in the example of the "win-win" options, it could be argued that they should

Continued next page

Building a world beater for a better environment

*EDIFICIO Malecon it is called and this new office block built on redevelopment land in Buenos Aires has just been selected by the American Institute of Architects as one of the world's most environmentally friendly buildings.**

It is also the type of building identified by CSIRO as likely to play a significant role in the development of Australian cities. (See page 7).

The building has been constructed as a long north-south orientated narrow slab to minimise solar gain and at the same time, both the east and west edges "pinched" to reduce the sun's effect even further. The architects, HOK, have fitted the building's exposed northern face with screens that track the sun and keep solar radiation to a minimum.

There is a "green roof" as well to further assist insulation. According to the Institute, many new buildings around the world are now starting to reflect the need for more environmentally friendly designs. "Corporations and other organisations are becoming increasingly aware of the benefits of sustainable design – to people, to the environment, and to the bottom line," says the institute.

** <http://www.aia.org>*



Photo © Daniela Mac - Adden Photography

New policy options for greener transport

Continued from previous page

be introduced whether or not there is a problem about global warming. In this case top of the list would be:

- (a) *Road pricing to better reflect resource costs and in particular congestion pricing.*
- (b) *Removal of the “distortions” in the supply and demand for parking spaces. This would include regulations on the minimum parking requirements for new buildings and the “undercharging” of employer-provided parking spaces.*
- (c) *A review of the efficiency and equity case for some fixed costs of car use applied on a variable basis (e.g. insurance and registration costs); and*
- (d) *Reductions in passenger motor vehicle tariffs.*

According to the report, for some of these policies, the assertion that they can improve economic efficiency needs to be qualified.

“They can be implemented in ways that reduce or even reverse the potential efficiency gains, for example, road pricing where the prices imposed are well above marginal social costs with the result that the priced road space is underutilised,” it says.

“Policies that improve economic efficiency and reduce emissions levels are the top

ranking policies and should be considered first for implementation. However, they are unlikely to provide a sufficient level of greenhouse gas abatement in respect of the Kyoto target.

“That being the case, measures that have positive abatement costs need also to be considered.”

The scan also showed:

Air pollution and children

Separate research studies in the US and Germany have indicated that children with asthma still suffer breathing problems when air pollution levels are below what is normally considered safe.(3) The US study assessed 847 asthmatic children from eight urban areas and found their breathing problems increased each time there was a rise in the levels of nitrogen dioxide, ozone and sulphur dioxide. According to the German findings there was not enough evidence to prove that air pollutants might actually cause asthma but it was found that when air pollution rose children aged two and below were likely to develop a dry cough.

US pollution grows

Using the US standard measurements to determine when air pollution becomes “unhealthy”, the American Lung Association has found only a quarter of the population is breathing “clean air”. (4)(5) (See also above) According to its latest annual

study, air pollution in the US is getting worse with 142 million people now living in areas where high levels of ozone are endangering health. Los Angeles is the country’s smoggiest city, it says. The association is stepping up its campaign for stronger clear air laws and says a recent US Court ruling upholding public health regulations that requires trucks and buses to use cleaner diesel fuel is a “huge victory”.

Car ban

Air pollution was so bad above Milan, Turin, Parma and Bologna earlier this year that Italian authorities stopped motorists from entering central areas of the cities in the hope that the air would clear.(6) The one day ban attracted a \$110 fine for any motorist who tried to ignore it.

Future costs

Higher temperatures brought about by global warming may aggravate urban air quality and undermine past efforts to bring improvements, according to Barbara Young, Chief Executive of England’s Environment Agency. (7) She says

spending now to reduce the impact of climate change is the only way to lower future damage and costs. “Reducing greenhouse gas emissions will pay off,” she said. “Research shows the earlier the emission cuts the lower the damages and the costs. But unless we aim for a 60% cut in carbon dioxide emissions by 2050, we will not constrain change to low levels – which still have serious consequences – but commit ourselves to the potentially overwhelming climate impacts predicted under high scenarios.”



Photo: © Ian Britton – FreeFoto.com

Is any level of pollution now safe?

Continued next page

Continued from previous page

Coastal settlements (1)

There is still considerable uncertainty about just how Australia will be effected by climate change although the Federal report "State of the Environment Australia 2001" does provide some pointers.(8) In particular it highlights changes to sea levels. Its says parts of the Australian coastline and the rapidly growing coastal settlements and infrastructure is vulnerable to an increase in coastal flooding and erosion. It says the threat will come from an expected increase in the number of cyclones, their intensity and with storm surges. "Climate change and sea level rises are not well represented in current coastal management planning," says the report.

Coastal settlements (2)

An expert in coastal erosion at the University of London says he is concerned that new housing developments are being built along parts of England's south-east coast that could become unstable as a result of climate change.(9) "It's extraordinary that some recent developments have been allowed to go ahead in the full knowledge that they will require millions of pounds of public money to protect them from the sea in years to come," said Dr Peter French, with the University's Department of Geography.

Fuelling up

Strong growth in the transport sector is being blamed for Europe's problems in meeting its long term targets to improve energy efficiency under the Kyoto Accords.(10) A report from the European Environment Agency says while energy efficiency is improving slowly, the rate of improvement will need to double if 2010 targets are to be reached.

Better urban design can beat growing noise levels

AUSTRALIA'S cities are becoming noisier and stress levels are rising as a consequence according to research by the CSIRO.* The organisation is recommending that planners do more to counter the problem both by using better insulative materials in housing and through improved urban design.

The findings and recommendations are contained in a Federal Government report, State of the Environment Australia 2001".* (See page 13)

It says Australians spend more than 90% of their time indoors and therefore it is the sounds that penetrate buildings that are of the highest concern. More than 70% of urban noise is caused by road traffic and although Australia compares well to some other countries the problem is increasing.

"Many complaints about

excessive environmental noise relate to concerns about disturbed sleep," says the report. "While physiological symptoms such as headaches are reported, the most palpable human impact is general annoyance. Contrary to popular belief, studies also show that people do not become accustomed to excessive noise. They do become less likely to be startled by expected noise events. This is perhaps why people are more tolerant by a factor of 5 dB(A) to noise from trains, which run regular services, than to noise from trucks."

The report says noise is increasing in all Australian cities and so is the number of people being exposed.

* <<http://www.ea.gov.au/soe/2001/settlements/settlements04-2.html#noise>>

References:

- (1) "Greenhouse policy options for transport" Bureau of Transport & Regional Economics May 2002 <http://www.dotars.gov.au/btre/docs/r105/gpot_contents.htm>
- (2) "Humans cause global warming, US admits" BBC News Online 3 June 2002 <http://news.bbc.co.uk/low/english/sci/tech/newsid_1893000/1893022.stm>
- (3) "Urban air 'worsens asthma'" BBC News Online 1 Apr 2002 <http://news.bbc.co.uk/low/english/health/newsid_1897000/1897646.stm>
- (4) "State of the Air Report 2002" American Lung Assn May 2002 <<http://www.lungusa.org/air2001/index.html>>
- (5) "Statement by John L. Kirkwood CEO and President, American Lung Assn" 3 May 2002 <http://www.lungusa.org/press/envir/air_050302.html>
- (6) "Italian cities fight smog" BBC News Online 21 Jan 2002 <http://news.bbc.co.uk/low/english/world/europe/newsid_1773000/1773433.stm>
- (7) "Floods and droughts to increase during current lifetimes" Environment Agency media statement 26 Apr 2002 <http://www.environment-agency.gov.uk/news/287262?lang=_e>
- (8) "Infrastructure impacts and adaption to climate change" State of the Environment Australia 2001 <<http://www.ea.gov.au/soe/2001/settlements/settlements06-2.html#changeinurban>>
- (9) "Scientist issues warning over UK's coastal development" University of London media statement 14 May 2002 <http://www.rhul.ac.uk>
- (10) "EU energy sector makes insufficient progress in reducing its environmental impact" European Environment Agency media statement 30 May 2002 <<http://org.eea.eu.int/documents/newsreleases/energy-en>>

Safety economics

How the hidden costs of road accidents can damage an economy

NEW research in the US indicates that the impact of road accidents on the national economy has now reached 2.3% of GDP - far higher than originally calculated.*

Six years ago when the first detailed assessments were made of the non-social cost of vehicle crashes the figure was put at \$US 150.5 billion annually. The latest calculation puts the sum at \$US 230.6 billion – about 50% higher.

The US National Highway Traffic Safety Administration (NHTSA) which conducted the research based its original figure on 1994 data. The latest draws on 2000 data.

During that year 41,821 people were killed on American roads, 5.3 million people were injured and 27.6 million vehicles damaged.

Although 20% of the cost increase can be attributed to inflation, one of the main causes for the jump was a serious underestimation of certain cost categories – in particular lost productivity among those who suffer serious injuries. But by far the greatest contributor to the rise was a higher estimation for travel delay costs.

NHTSA provides the following breakdown of the \$US 230.6 billion figure:

Medical:	14.15%
Emergency services:	0.63%
Market productivity:	26.45%
Household productivity	8.74%
Insurance admin.	6.58%
Workplace cost	1.94%
Legal costs	4.82%
Travel delay	11.09%
Property damage	5.60%



Photo: © Newstream

THERE are a variety of ways to persuade motorists to stop speeding but a grandmother in North Carolina seems to have come up with a winning new concept: suggest they sign a “pledge” not to exceed speed limits. Sherry Williams tried out her idea by erecting a homemade sign outside her home. It quickly gained support from friends and neighbours and created a community groundswell that is now sweeping America. These children are placing one of the pledge signs outside their school.*

** US national campaign organisers: Carsmart.com <<http://www.carsmart.com>>*

NHTSA warns however that if policy decisions were based purely on these figures, the social consequences, which are the most tragic and often the most expensive, would be overlooked.

Nevertheless NHTSA calculates that based on 2000 data the economic costs of an average road

fatality was \$US 977,000. The economic costs associated with a critically injured crash survivor were \$US1.1 million.

NHTSA highlights the vital importance of wearing seatbelts. From the 2000 figures it can show that the use of belts prevented 11,900 deaths and 325,000 serious injuries – and saved the country \$US 50 billion in medical care, lost productivity and other injury re-lated costs. Conversely, because not all people used seatbelts there were also 9200 unnecessary deaths and 143,000 needless injuries, costing society \$US 26 billion.

NHTSA’s study under-scores the huge economic costs associated with alcohol-involved crashes. It estimates there were 16,792 deaths in 2000 caused by drink driving as well as 513,000 nonfatal injuries. The total economic cost to the community was \$US 50.9 billion.

The study found driving at excessive speed caused 12,350 deaths in 2000 and 690,000 injuries – at a cost to the community of \$US 40.4 billion.

About 9% of the economic costs are paid from public revenues, 50% from private insurers, individual crash victims pay about 26% and charities, health care providers and uninvolved motorists delayed in traffic, pay about 14%. Overall, nearly 75%

of the costs are paid by those not directly involved.

* “The Economic Impact of Motor Vehicle Crashes, 2000” US National Highway Traffic Safety Administration 9 May 2002 <<http://www.nhtsa.dot.gov/people/economic/EconImpact2000/index.htm>>

New focus on pedestrian wellbeing

HONG KONG has just ruled that bull bars are an “unnecessary attachment” for road vehicles and from June next year any motorist who has not removed them will risk losing their licence.(1)

The action is the latest in what is becoming a worldwide trend to ensure vehicle designers pay more attention to pedestrian safety and that four wheel drive vehicles (4WD) in particular are adapted more safely to urban road conditions.

The problem is also serious in Australia where a soaring road toll caused by 4WD vehicles has brought new demands for the Pedestrian Council for an immediate ban on “killer” bull bars. (See box)

In Europe car manufacturers have now agreed to not to fit rigid bull bars on new vehicles and the European Union has also secured what is for the moment a voluntary agreement for manufacturers to design cars that will cause less injury if they hit a pedestrian.(2)

The European action has caught the attention of researchers at the University of Virginia who have calculated that if all vehicles were made to comply with the EU’s voluntary standards for frontal impacts, pedestrian fatalities around the globe could be cut by 20%.(2)

Their findings and commentary have just been published by the British Medical Journal. On current figures pedestrians make up more than a third of the 1.2 million people who die each year in road accidents around the world. (In Australia pedestrians represent 18% of annual road fatalities. (3))

According to the researchers most pedestrian victims die from head injuries while those who survive are more likely to

suffer serious multiple injuries than is usually apparent among car occupants involved in separate accidents.

The researchers say that as a consequence the overall cost to the community for pedestrian accidents can be much higher than for accidents involving motorists and their passengers. They quote as an example recent UK figures which show the average pedestrian accident costs almost twice as much as other road accidents. (4) (Also see page 16)

The researchers believe crash engineers have long been aware that the same principles of car safety design used to benefit car occupants can be extended to provide a safer environment for pedestrians. Some of these “pedestrian” designs have already begun to make an appearance and the researchers highlight efforts by such companies as Sweden’s Autoliv to make cars less dam-

aging to pedestrians. For example Autoliv has developed a car bonnet that “pops up” 10 cm if a pedestrian is hit and provides a softer landing place for the pedestrian as he or she comes crashing down. (See photo 19)

The Autoliv concept also incorporates an airbag that prevents the head of the falling pedestrian hitting the hardened structure supporting the windscreen.

Although the centre of the windscreen has sufficient “give” to reduce head injuries, most pedestrians hit the supporting structure.

The scan also showed:

Health issues

The World Health Organisation is urging public health authorities to take a more direct role in framing road safety policy. It says

Continued next page

4WDs are increasing the road toll

STUDIES by the Australian Transport Safety Bureau (ATSB) show the advent of 4WD vehicles has clearly increased the country’s road toll. Between 1990 and 1998 when they steadily began replacing traditional passenger cars on urban roads, fatal injuries involving 4WD vehicles increased by 85%. By comparison, fatal crashes involving traditional cars fell by 25%. ATSB says that the high rate for 4WD can be partly explained by the fact that they travelled more. Between 1995 and 1998 the distance covered by 4WD vehicles almost doubled while for vehicles in general over the same period the increase was only 4%. Nevertheless, 4WD vehicles are becoming involved in more fatal crashes when measured at the rate of 100 million vehicle kilometres travelled. For traditional cars the rate is 1.0 while for 4WDs it is 1.2. Interestingly ATSB has found differences between those motorists who have fatal crashes in cars and those who have fatal crashes in 4WDs. For example while 21% of car drivers are drunk when they have a fatal crash, for 4WD drivers the figure is 28% - the highest rate for drivers of any type of vehicle.*

* “Monograph 11: Four Wheel Drive Crashes” Australian Transport Safety Bureau Mar 2002 <<http://www.atsb.gov.au/road/mgraph/mgraph11/mono11.pdf>>

Safety management

Vehicle designers to focus more on pedestrians safety

Continued from previous page

worldwide the impact of road trauma and other forms of violence are growing at such a staggering rate in some cases it poses a threat to development. (5) According to WHO's Director General, Dr Gro Harlem Brundtland, five million people die each year from injuries and 25% or those injuries are caused by road accidents. (The other main contributors are suicide 16% and homicide 10%.) Dr Brundtland said these figures were dwarfed by the number of people who survived injuries, many of whom suffer life-long disabilities. He said in addition to death and disability, injuries and violence contribute to a variety of other health consequences - including depression, alcohol and substance abuse, smoking, eating and sleeping disorders. (See US economic report page 16) "In strict economic terms, the costs associated with surgery, prolonged hospitalisation and long-term rehabilitation for victims of injuries and violence, in addition to their lost productivity costs, represent tens of billions of dollars each year," he said. "The human, social and economic burden of injuries and violence is staggering." Later this year WHO will be releasing its first international report on violence and health. It will identify key risk factors, summarise the kind of responses employed to date and describe what is known about their effectiveness.

New risk factors

Research in New Zealand has opened the way for safety campaigns against driving while tired to be more highly targeted.(6) While sleepiness has long been recognised as an important risk

factor in car crashes, the association has not been reliably quantified. For example research in the US suggests sleepiness is responsible for 1-3% of crashes, France estimates 10% and one Australian estimate puts the figure at 33%. (The Australian figure is closer to that reported in recent UK research – see *TransScan* April 2002 p12.) Now New Zealand research published in the *British Medical Journal* suggests perimeters for more targeted safety campaigns. After a major study of 571 car crashes in the Auckland region, researchers say 15-25% can be attributed to sleepiness. Importantly they have also identified three specific risk factors:

- *Driving while feeling sleepy (this produced an eightfold increase in the risk of a car crash resulting in serious injury or death.)*
- *Driving with five hours or less sleep in the previous 24 hours. (A threefold increase in risk)*
- *Driving between 2am and 5am. (A fivefold increase in risk.)*

Sleep laws

America's National Transportation Safety Board believes the sleep problem is so serious that transport agencies should develop "scientifically based regulations" to "limit the duty hours and provide adequate rest periods for all people who drive vehicles".(7) According to the board's chairman, Marion Blakey, 100,000 road crashes in the US each year involve "drowsy driving" and 1500 people are killed because of

it. Added to that 16% of marine accidents can be blamed on lack of sleep. In the past decade, 20 rail accidents have cited driver fatigue as the main contributor and in 1999 a plane crash in Arkansas which killed ten people and injured 105 was found to be the result of pilot fatigue.

Phone performance

Anyone driving when making a mobile phone call poses a greater danger than they would if drunk according to research by Britain's Transport Research Laboratory.(8) Whether the motorist is using a hand held phone or a hands free mobile their driving performance still falls below that of the drunk driver. The research, funded by insurance company Direct Line, monitored the reactions of 20 healthy, experienced drivers aged between 21 and 45 as they handled realistic tasks in a driving simulator. Separate measurements were taken while they used a phone and after they had drunk more alcohol than the UK's legal limit for driving, 80mg/100ml. The results showed that on average the participants' reaction times when on the phone were 30% slower than they were when drunk. Although it has long been known that phone use impairs driving performance, this is the first time that a direct comparison has been made with drinking.

Higher penalties

From July 1 motorists caught using a hand-held mobile phone while driving in NSW will for the first time lose three demerit points - plus face a \$220 fine.(9) Since 1989 it has been illegal under NSW law to use mobiles while driving yet in the past four years police have caught 40,000 offenders.

No penalties?

Most countries with comprehensive road safety laws insist that

Continued next page

Continued from previous page

motorbike riders and cyclists wear crash helmets but in California lobbyists are pressing the State Legislature to make helmets optional.(10) In May they succeeded in obtaining support from local Republican member, Denis Mountjoy, to put forward legislation to allow motorbike riders over 21 to ride without helmets – if they take out a \$US 1 million insurance policy. Lobbyists argue it's their “natural-born right” to have the wind blow through their hair.

Belts beat bags

In road accidents, seatbelts offer far greater protection than air bags according to a study led by Seattle's Harborview Injury Prevention and Research Centre.(12) Researchers examined data from all passenger vehicle crashes in the United States between 1990 and 2000 and found that while air bags reduced the risk of death by 8%, using seat belts reduced the risk by 65%. If both the seatbelt and air bag were used together, risk of death was reduced by 68%. Their findings have been published by the British Medical Journal.

Belts for kids

Although standard seatbelts are designed for adults, Canadian researcher have found they still offer at least as much protection to school-aged children.(13) Researchers led by Toronto's Hospital for Sick Children used as their study sample data on 7853 road crashes that occurred between 1984 and 1992. They found that for children aged between 4 and 14 those wearing adult seatbelts were 2-10 times as safe as unbelted children – and at least as well protected as adults. What the research did not show was whether the degree of protection offered by standard belts is sufficient.

Could pedestrian air bags cut the toll?



Photo: © Autoliv Inc.

Normally a pedestrian hit by a car at 40km an hour will not survive this type of accident. Their head will smash into the hardened metal supports of the windscreen and the injuries that will result will be sufficient to kill them. Automotive companies like Sweden's Autoliv are now attempting to address the problem by designing a bonnet which will rise instantly on impact and cushions the pedestrian's fall.(11) At the same time air bags inflate across the windscreen to stop the head hitting the supports. According to Autolive the system reduces the threat of a fatal injury to less than 15%. (Also see page 17)

No belts for buses

Because school buses are comparatively so safe, the US National Highway Traffic Safety Administration has decided not to press school authorities to install seatbelts.(14) It believes any advantages the belts might offer will be far outweighed by the disadvantages. Although the decision may at first appear surprising it has been taken in the knowledge that school buses in America represent the safest form of transport

on the roads. For children it is eight times safer to travel to school in the school bus than it is by the family car. A detailed assessment by the administration has found that if shoulder strap seat belts were introduced to the already “safe” buses, they would only save one extra life a year. However, equipping every bus would present an ongoing cost of \$US 100 million a year and reduce the seating capacity of the buses. If that reduction were to lead to more children travelling to school by the comparatively “unsafe” car the entire purpose of the exercise would be defeated.



Photo: © Ian Britton – FreeFoto.com

Don't belt the kids...

Continued next page

Safety management

Focus on pedestrians

Continued from previous page

More worry

Opinion polls in Europe have shown rising public concern over the safety of the road system.(15) Now a similar poll in Canada indicates Canadians too are getting worried.(16) A survey conducted by the local lobby group CRASH – Canadians for Responsible and Safe Highways – found 55% of people think roads have become less safe and 91% want more restrictions on truck drivers to reduce working hours and stress.

Tyre warnings

The US National Highway Traffic Safety Administration has launched an on-going campaign to persuade motorists to check their tyres once a month after discovering few drivers know even the basics about tyre care. (17)

Children's health

Two reports from the Australian Institute of Health and Welfare have highlighted the impact road injuries are having on children and young people. One report (18) shows that while the general health of children has improved over the past decade, roads and transport can still pose a significant threat to their well-being. Injury is the leading cause of death for 1-14 year olds and the prime reasons are vehicle accidents, drowning and pedestrian accidents. After asthma, vehicle and pedestrian injuries are the most common reason for 1-14 year old being admitted to hospital. The institute's second report (19) highlights how road crashes have become the prime cause of spinal injuries for Australian's 15 to 24 year olds. Half the 261 new cases of spinal cord injuries reported in 1999-

2000 were transport-related, according to the report. Of those, 82 cases involve vehicle occupants and 49 were "unprotected road users" – primarily motor cyclists. As well as the personal cost of the

accidents (51% result in complete paraplegia ie: loss of function in the arms, legs, trunk and pelvic organs) the institute estimates community costs at \$200 million a year.

References:

- (1) "Proposal to ban aggressive bull bars fitted to vehicle fronts" Hong Kong Transport Department June 2002 < <http://www.info.gov.hk/td/eng/whatsnew/consultation.htm>
- (2) "Designing road vehicles for pedestrian protection" J R Crandall et al British Medical Journal Vol 324 11 May 2002 pp1145-1148
- (3) "Assessment of Pedestrian Protection Afforded by Vehicles in Australia" by Michael P. Paine and Christopher G Coxon Institution of Engineers Australia Mar 2000 < http://www1.tpgi.com.au/users/mpaine/ped_veh.html>
- (4) "Highways economics note No 1: 2000. Road safety" UK Department for Transport, Local Government, and the Regions <<http://www.roads.dtlr.gov.uk/roadsafety/en2000/index.htm>>
- (5) "Preventing death and disability due to injuries is both an economic imperative and a health priority" World Health Organisation media statement 14 May 2002 < <http://www.who.int/inf/en/pr-2002-39.html>>
- (6) "Driver sleepiness and risk of serious injury to car occupants: population based case control study" Jennie Connor et al British Medical Journal 11 May 2002 Vol: 324 pp 1125-128
- (7) "Fatigue a key in accidents, NTSB says" CNN 4 Apr 2002 <<http://www.cnn.com/2002/US/04/03/sleep.accidents/index.html>>
- (8) "Talking on a mobile phone whilst driving is more dangerous than being drunk behind the wheel" Direct Line media statement Mar 2002 <<http://www.directlinegroup.com>>
- (9) "Driving and using your mobile: lose three points" Sydney Morning Herald 9 May 2002 <<http://www.smh.com.au/articles/2002/05/09/1019441524347.html>>
- (10) "Bikers push for relaxed helmet law" Los Angeles Times 13 May 2002 <<http://www.latimes.com/news/printedition/front/la-000033892may13.story?coll=la%2Dhome%2Dtodays%2Dtimes>>
- (11) Autoliv research report on the Active Hood pedestrian protection system <[http://www.autoliv.com/appl_alv/Autoliv.nsf/Files/AutolivPedestrian010320/\\$file/AutolivPedestrian010320.pdf](http://www.autoliv.com/appl_alv/Autoliv.nsf/Files/AutolivPedestrian010320/$file/AutolivPedestrian010320.pdf)>
- (12) "Association of driver air bags with driver fatality: a matched cohort study" Peter Cummings et al British Medical Journal 11 May 2002 Vol 324 pp 1119-1122
- (13) "Are seat belt restraints as effective in school age children as in adults? A prospective study" Stephen I Halman et al British Medical Journal 11 May 2002 Vol. 324 pp 1123-1125
- (14) "NHTSA sends school bus report to Congress" PRNewswire 7 May 2002 (For full NHTSA report: <<http://www.nrd.nhtsa.dot.gov/departments/nrd-11/Crashworthiness.html>>
- (15) "Soaring road toll makes Europeans worry more about personal safety" TransScan Dec 2001 p16
- (16) "Big trucks big problems, poll shows" Oliver Moore Globe and Mail 25 April 2002 <http://www.theglobeandmail.com/servlet/RTGAMArticleHTMLTemplate/C/20020425/wtruk?hub=homeBN&tf=lgam%252Frealtime%252Ffullstory.html&cf=lgam/realtime/config-neutral&vg=BigAdVariableGenerator&slug=wtruk&date=20020425&archive=RTGAM&site=Front&ad_page_name=breakingnews>
- (17) "Rubber Manufacturers Association finds US drivers don't know the basics of tyre care" PRNewswire 29 Apr 2002 (See too; <<http://www.rma.org>>
- (18) "Australia's Children: Their Health and Wellbeing 2002" Australian Institute of Health and Welfare 15 May 2002 < <http://www.aihw.gov.au/media/2002/mr020517.html>>