

Changes and Challenges in Road Safety

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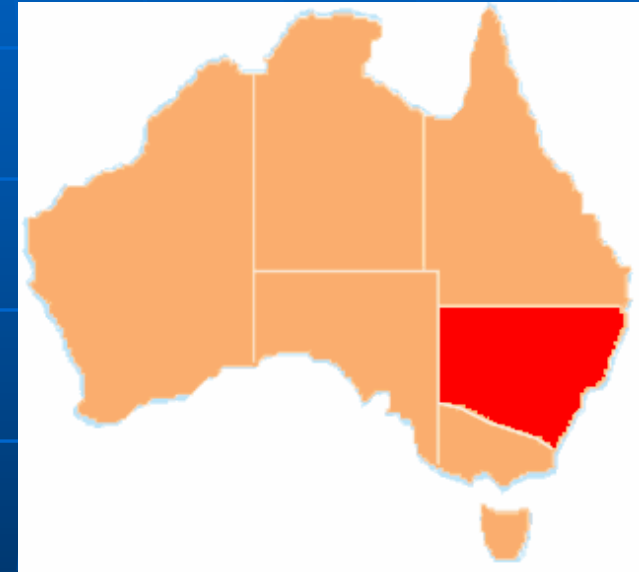
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Introduction

- Has much really changed in the Australian road transport system over the past two decades?
 - Airbags
 - Mandatory helmet wearing for motorcyclists and bicyclists
 - The rise of the 4WD (SUV)
 - Introduction of B-double truck configuration
 - Elimination of most blackspots within the road network
 - Lowered urban speed limits (60 km/h to 50 km/h)
 - Speed cameras
 - Widespread use of RBT, introduction of alcohol interlocks
 - Introduction of roadside drug screening
 - Widespread use of mobile telephones
 - New road technologies - better signage retroreflectivity, improvements in road markings
 - New vehicle technologies - electronic stability control, vehicle telematics
 - Major freeway construction (divided motorways, often toll roads in metropolitan areas)
 - Road tunnels
 - Extensions to graduated driver licensing systems for novice drivers

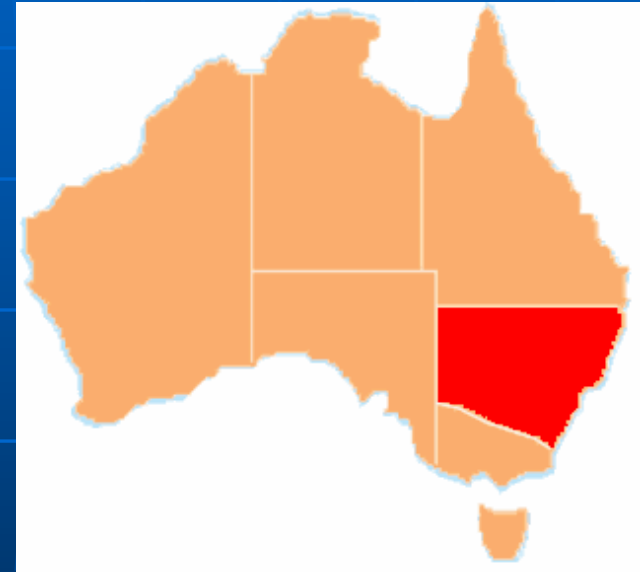
Some road trauma statistics

- Australian jurisdictions have made impressive gains in tackling road trauma and improving road safety, for example, in NSW the standard indices of road trauma have fallen 60% over the past two decades, 2006 [1988]:
 - Fatalities per 10,000 vehicles – 1.18 [3.37]
 - Fatalities per 10,000 licensed drivers – 1.11 [2.83]
 - Fatalities per 100,000 persons – 7.26 [18.2]
 - Fatalities per 100 million vehicle km – 0.81 [2.02]
- Over the same period, indicators of road use (population, vehicle registration, driver licensure, vehicle distance driven) have more than doubled

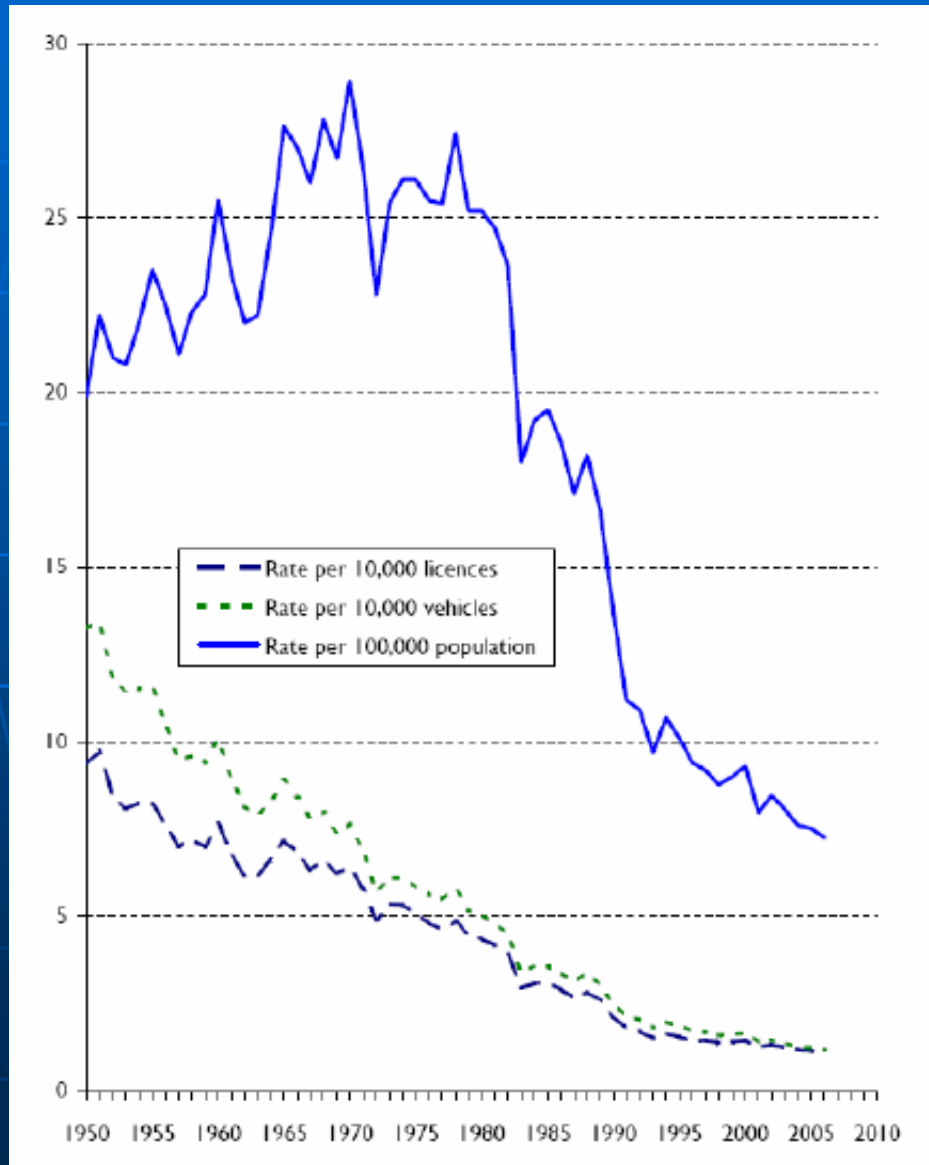


More road trauma statistics

- The NSW road toll also reflects this in absolute numbers, 2006 [1988]:
 - Road deaths – 496 [1.037]
 - Road injuries – 25,439 [36.616]
 - Reported crashes – 45,528 [64,012]
 - Fatal crashes – 449 [912]
- Road trauma in New South Wales in 2008 is predicted to show even more compelling reductions]:
 - Road deaths – down by 23% again three year average (2005-2007)
 - Fatal crashes – down by 20% again three year average (2005-2007)



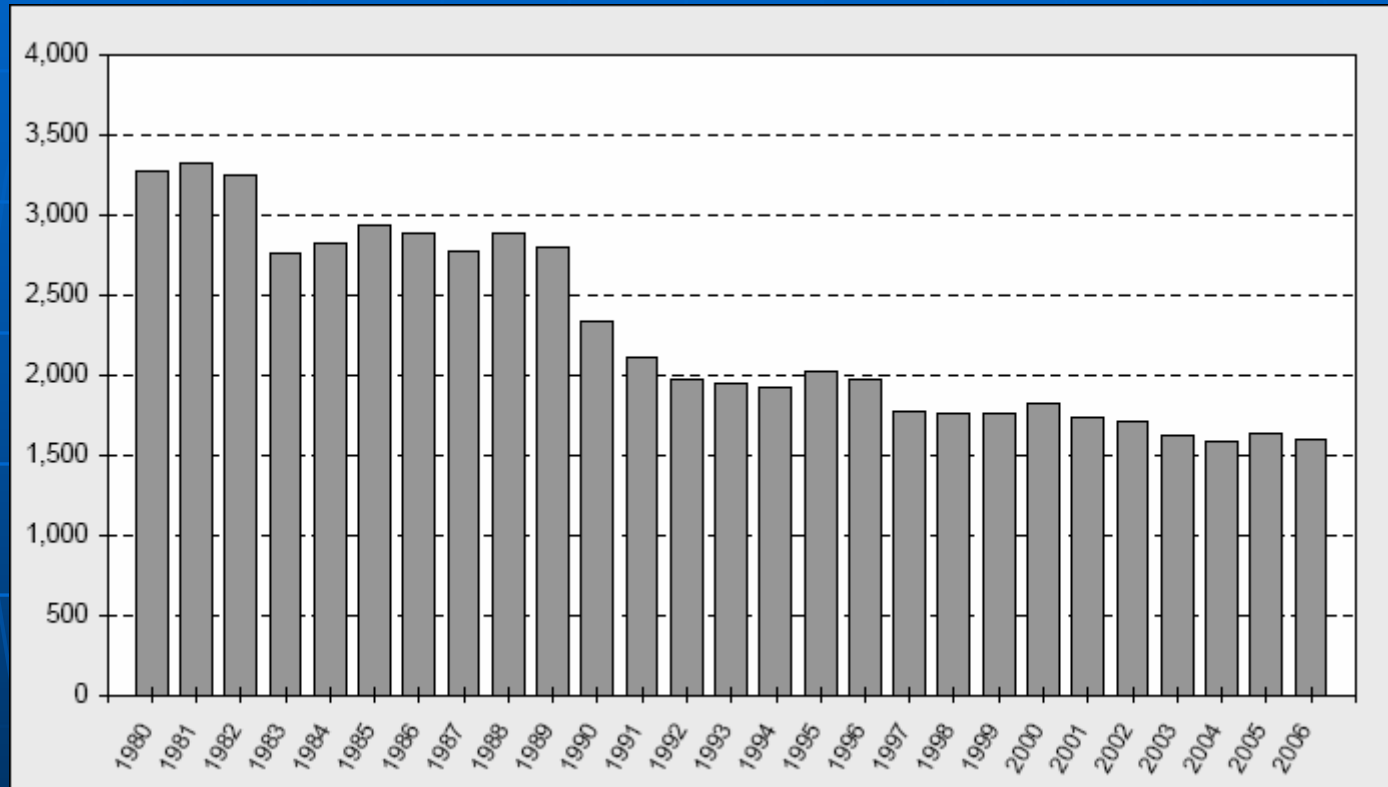
New South Wales road fatality rates, 1950-2006



The improvements
in road safety are
impressive

From:
Road traffic crashes in New
South Wales, 2006

Australian road fatality rates, 1980-2006



The improvements
in road safety are
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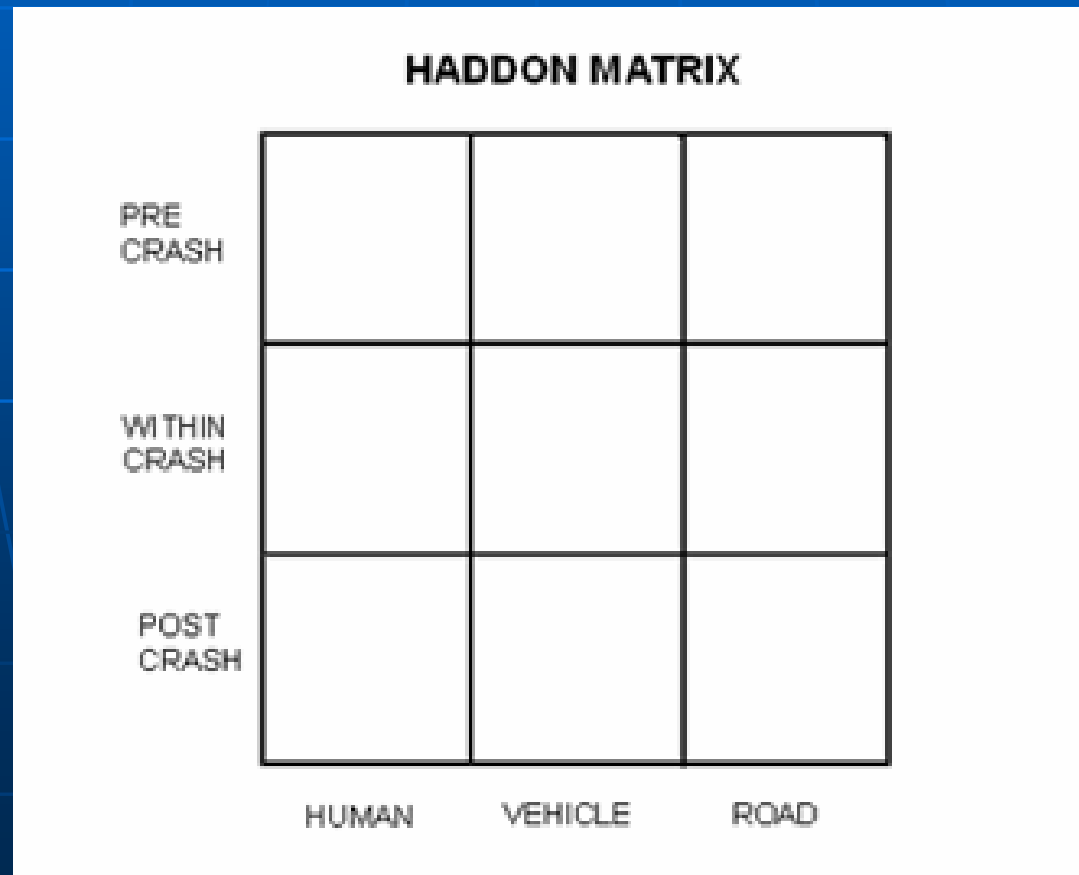
From:
Road deaths in Australia
2006 (ATSB, 2007)

What has been achieved is bold and extraordinary

- What did we do?
 - Improved occupant protection
 - Improved driver licensing systems, particularly graduated driver licensing for young drivers
 - Improved alcohol enforcement for drink drivers
 - Improved speed enforcement
 - Better vehicle design and safety (market-driven and associated with ANCAP)
 - Improved rider protection for motorcyclists, bicyclists
 - Improved road technologies (signage, roadside barrier systems, road markings)
 - Community-based road safety interventions (including school curriculum materials, local council road safety officers, widespread use of advertising)

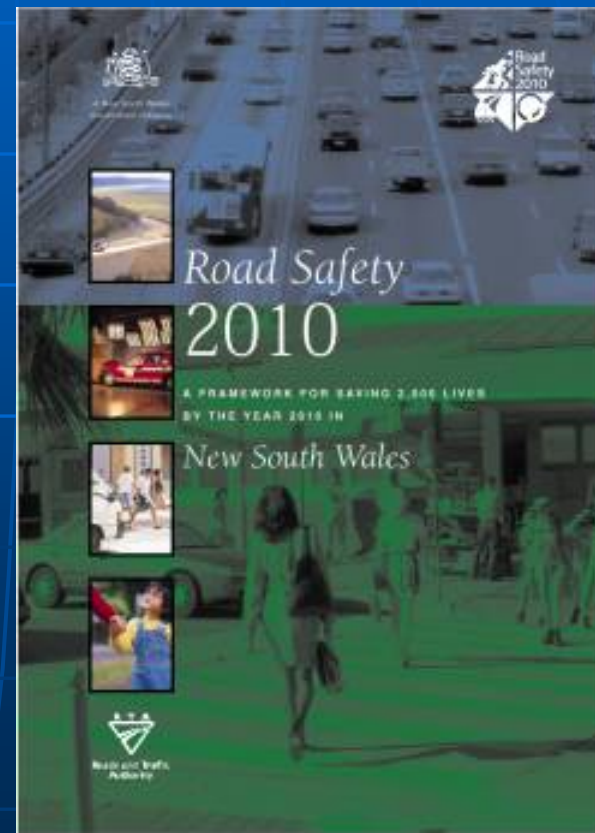
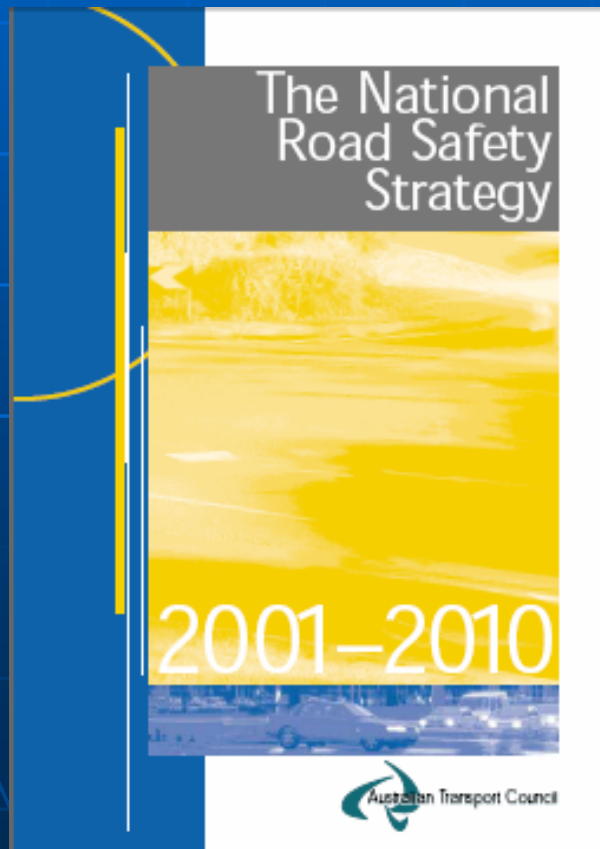
How did this armamentary of road safety countermeasures come about?

- Establishment of science-based approach with countermeasures aimed at road users, vehicles and the environment, based on conceptual matrix developed by Haddon



How did this armamentary of road safety countermeasures come about?

- A strategic focus, attempting to integrate road safety actions throughout all three tiers of government in Australia.



How did this armamentary of road safety countermeasures come about?

- This has led to a recognition that we are dealing with a system



Safe Vehicles

NCAP *****

SBR, ESC, pedestrian protection
ISA, alcohol interlock



Safe infrastructure, rural
(speed limits fully aligned
with infrastructure safety)



Safe drivers

100% speed compliance
100% seat belt use
100% sober/drug free

▶ **Safe traffic** ◀

Safe infrastructure, urban



From: Johnson (2007), in
STAYSAFE 70

How did this armamentary of road safety countermeasures come about?

- Opportunities arising from developments in information technology, communications technology, materials technology, as well as better design, engineering and manufacturing techniques
- Explicit and methodical approaches to control road user behaviour, particularly in terms of driver licensing



How did this armamentary of road safety countermeasures come about?

- Occurrence of a unique political process to support and facilitate road safety interventions . . . parliamentary road safety committees staffed by road safety specialists - the STAYSAFE Committee (in New South Wales), the Road Safety Committee (in Victoria), and the Travelsafe Committee (in Queensland)
- Reflecting similar approaches in Europe - PACTS (Parliamentary Advisory Council on Transport Safety, in the United Kingdom), and ESTC (European Transport Safety Council, in the European Union)

So where to from here?

- In 1997, Peter Makeham, then Head of the Federal Office of Road Safety, asked: "How many deaths and injuries [on Australian roads] will we choose to accept?"
- Is there a 'natural level' of road trauma inherent in a road transport system?
- Have we exhausted the possibilities to further reduce road trauma?
- Are there more 'silver bullets'?

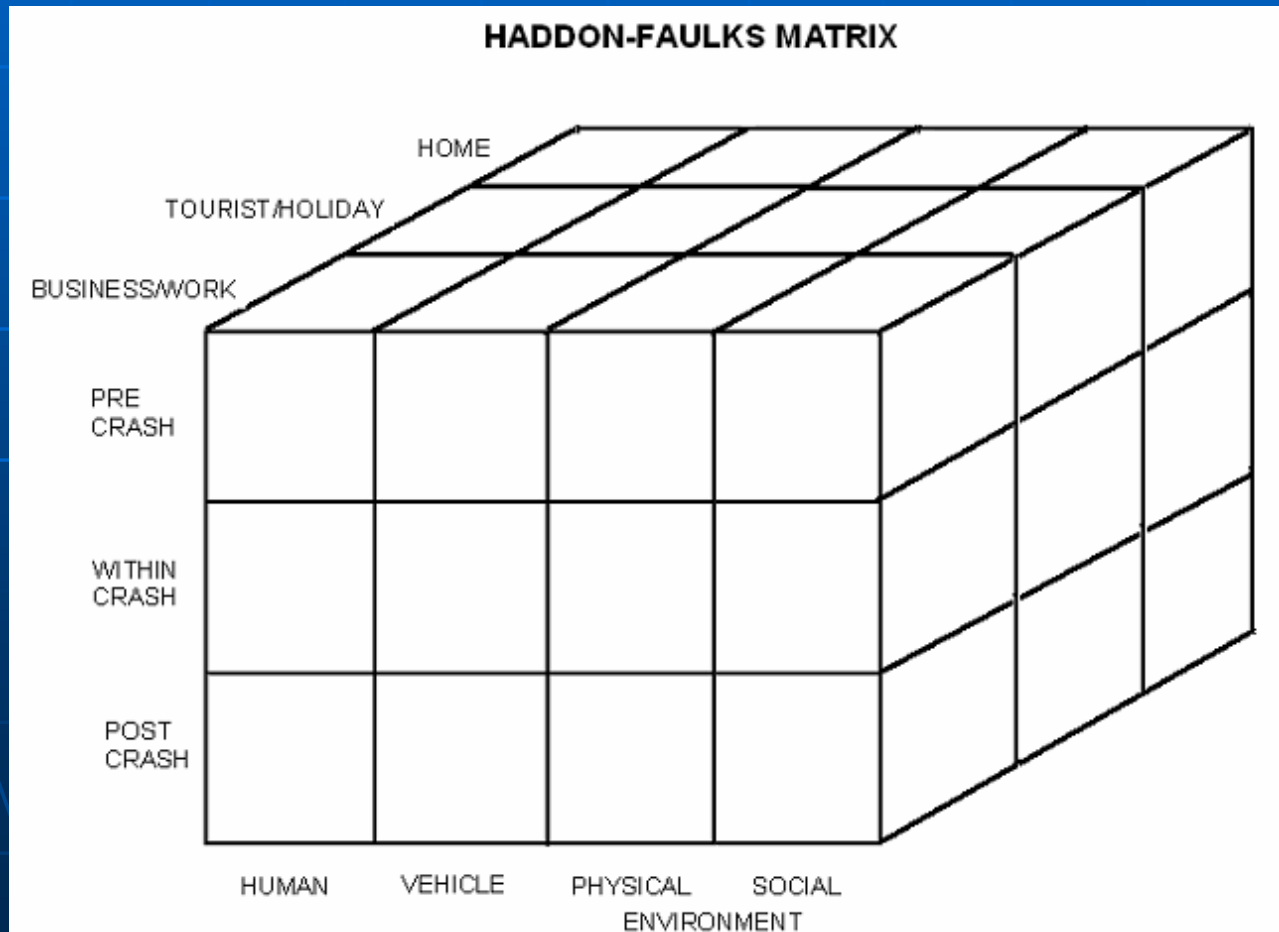


New ways of thinking about trauma within the road transport system

- Vision Zero - the protection of human life and well-being must be the basis in designing, operating and maintaining the road transport system
- The road transport system used by people must minimise the risk of a person making a mistake, and must, when an incident occurs, prevent serious human injury (typically stated as preventing death or lifelong disabling injury).
- Adopted as the underlying philosophical approach in Sweden and Norway; similar to concept of 'Sustainable Safety' used in The Netherlands

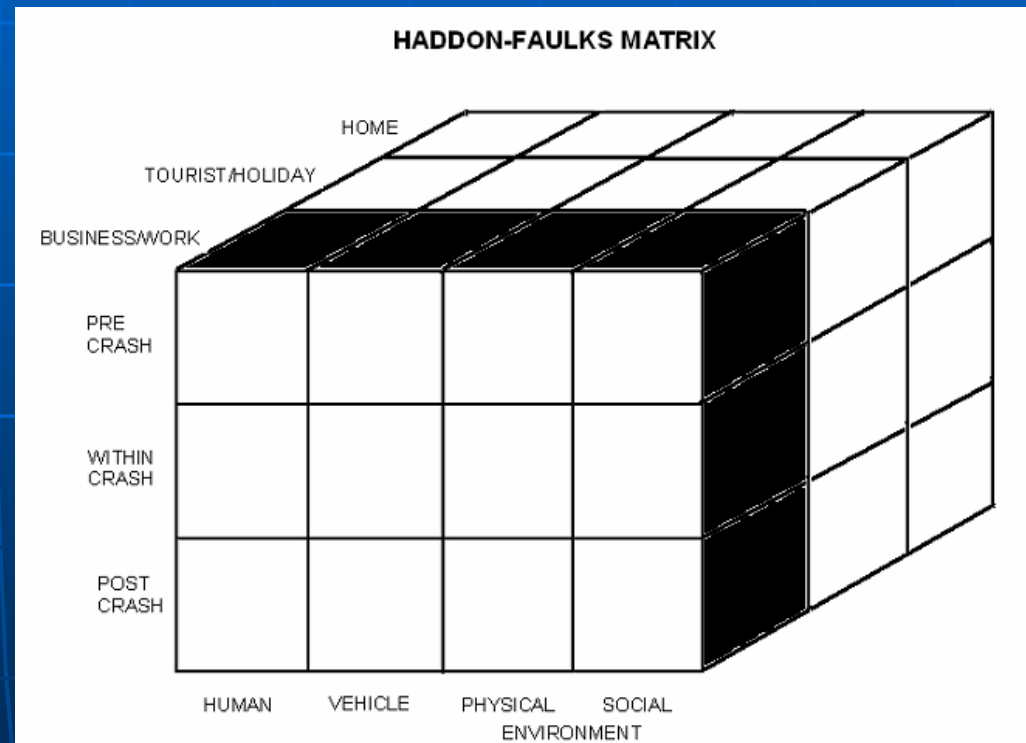
New ways of thinking about trauma within the road transport system

- An extended Haddon matrix - Haddon-Faulks matrix, incorporating trip purpose or motivation for travel



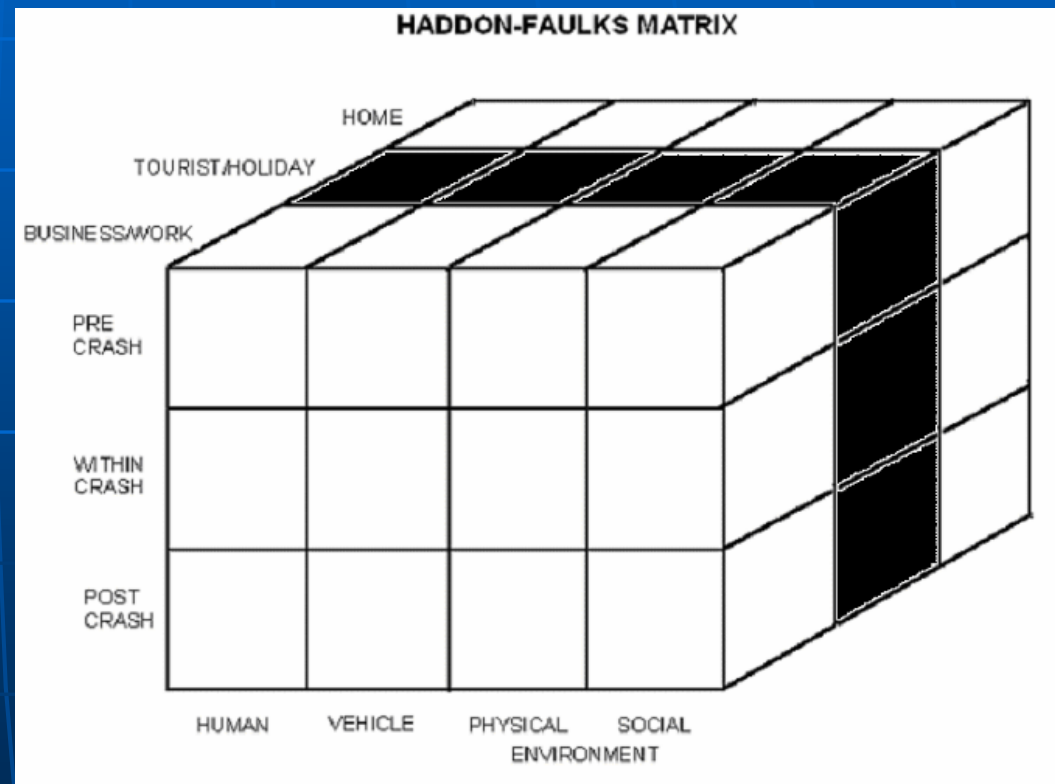
New ways of thinking about trauma within the road transport system

- An extended Haddon matrix - work-related travel
- Trips for work, commuting and business-related activities
- People
- Vehicles
- Roads
- Context



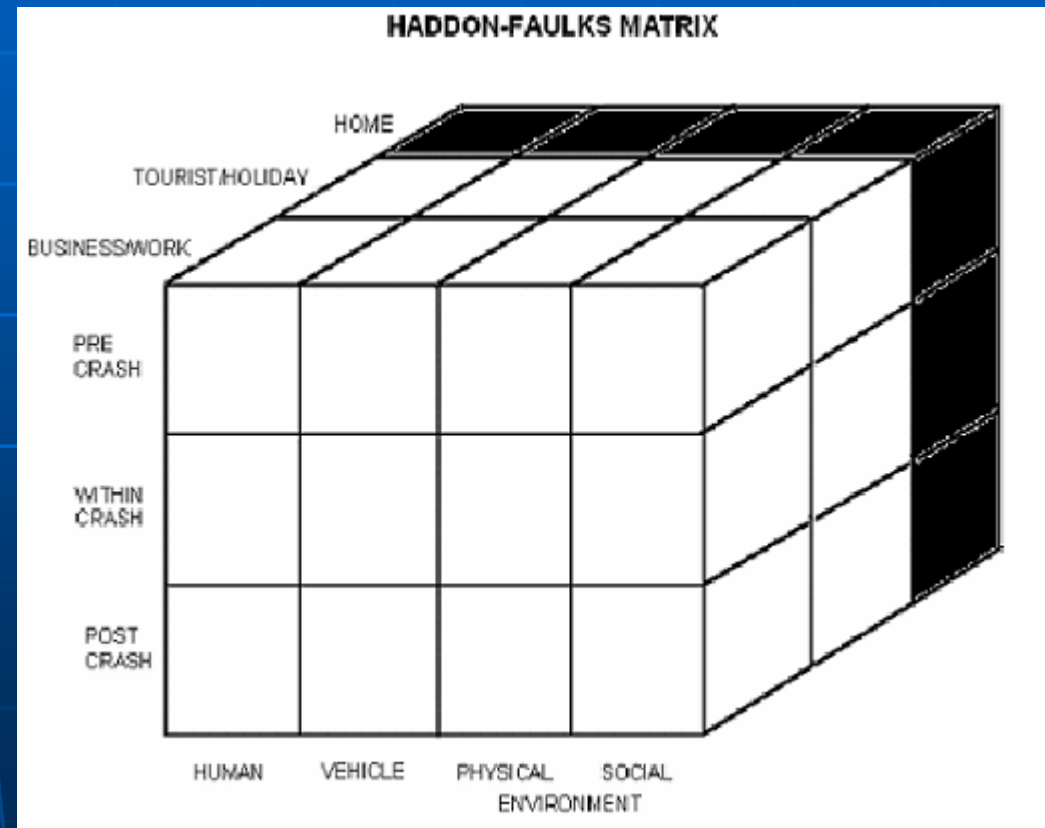
New ways of thinking about trauma within the road transport system

- An extended Haddon matrix - holiday and recreational travel
- Trips for tourism, recreation and holiday activities
- People
- Vehicles
- Roads
- Context



New ways of thinking about trauma within the road transport system

- An extended Haddon matrix - everyday mundane travel
- Trips for shopping, home visits, the school run, church attendance, and other habitual family-related activities
 - People
 - Vehicles
 - Roads
 - Context



New ways of thinking about trauma within the road transport system

- Intelligent Speed Adaptation (ISA) systems monitor the location and speed of the vehicle, compare this data to a defined set speed (the speed limit at that section of roadway), and take corrective action such as advising the driver and/or governing the top speed of the vehicle
- Intelligent Speed Adaptation systems are also in-vehicle data recorders
- Intelligent Speed Adaptation systems have been thought of as future technologies, something “out there – in the future”
- **But commercial Intelligent Speed Adaptation systems are available, here and now, in Australia**

New ways of thinking about trauma within the road transport system

- Transport and logistics industry has been evolving over the last 20 years, mainly in the freight sector, although passenger logistics is also important. In the last 20 years many transport firms have recognised that they belong to a supply chain and that logistics is “birth to death” in terms of delivery of products, of which they are just a component
- When we talk about transport and logistics, we are recognising that these agents have got to work co-operatively in the supply chain to minimise the impact of what they do on society as a whole. This poses a challenge, as current local and state governmental structures are too much focused on subcomponents, rather than on the integration of the supply chain
- Indeed, as proposed by David Hensher to the STAYSAFE Committee a few years ago, should we have a Department of Accessibility and a Department of Safety?

Need for better speedometer displays

- Major challenge for road safety is the sheer size of the Australian continent . . . large distances between urban centres, predominance of coastal settlements, long freight routes



What are the challenges?

- The road transport system in New South Wales has to be modified to take better account of the needs, mistakes and vulnerabilities of the diversity of road types, vehicle types, and road users.
- The design of the New South Wales road transport system, either as built or as modified, must minimize the risk of people dying just because they want or need to travel. In particular, we need to recognize that vehicle speed is the most important regulating factor for safe road traffic. If we can effectively control vehicle speeds, then we can begin to better regulate the road transport system so that when crashes occur—and they will, it is human fallibility—people don't die.
- Continuing advances and innovations in technology will produce changes in highway, vehicle, and driver performance

Introducing the future

- I began today by asking what had changed in the New South Wales road transport system over the past 20 years. The changes have been extraordinary. What then will be the changes over the next 20 years, out to 2030?
- Nils Bohr: "Prediction is very difficult, especially if it's about the future."
- But I will comment . . .
 - our driver population is ageing, and their mobility needs must be addressed
 - distraction and impairment of drivers – through use of communications technologies, drink-driving, drug-driving, driving while tired, will remain as problems.
 - the failure of vehicle occupants to wear seat belts remains a major problem
 - speeding by drivers is likely to remain a major problem
 - truck numbers, and the distances travelled by trucks will continue to increase
 - the demand on the New South Wales road freight routes, which are our major regional highways, will continue to increase

Introducing the future

- The next twenty years promise, as has occurred over the past twenty years, dramatic increases in knowledge and scientific achievements.
- We can likely continue to expect major advances in available technologies, including new materials, advanced computer technologies, new management structures (transport logistics), and different types of vehicles becoming predominant.
- We may also see new ways to produce energy, such as the development of a biofuels economy, and perhaps even the beginning of a hydrogen economy.

What are the challenges?

- If our road transport system is going to pose risks, it places a mandate on the road manager to understand the risks and to manage the risks for the benefit of our rural, regional and metropolitan communities.
- Perhaps the question now is: "How many deaths and injuries can we expect within the road transport system?"

Thank you, and I invite discussion . . .