OBJECTIVES

- Tell you a little about C-MUARC
- Describe the paradigm shift in road safety thinking from “blame the victim” to “safe system”
- Illustrate some Safe System measures

In Western Australia, road deaths have averaged around 200 per year over the last decade.

Road deaths per 10,000 vehicles 1975-2004, as an index of the 1975 rate

How did we get there?

- The three Es in theory but our primary focus was on legislation, regulation, enforcement and public education to modify individual risky behaviours
- Based on “blame the victim”
The need for a new strategy ...

- Gone about as far as we can with behaviour controls without major social change?
- Understand the thinking behind the best safety performers (SUNflower)
- November 2003: Austroads accepted, in principle, a Safe System approach. Subsequently reflected in the national strategy and action plans;
- On 19 March 2009 Western Australia became the first to get political commitment to a Safe System approach – Towards Zero

Safe System is ...

Think Swedish – Vision Zero

Think Dutch – Sustainable Safety

Safe System is ...

A philosophical statement by government:

- It is not acceptable for a road user to be killed or maimed for making a mistake
- It is an ethical imperative to pass on the safest possible system to the next generation

Safe System is ...

- An operational statement that defines accountability for road system designers and operators
- Crashes will always occur BUT the system must be designed to ensure that impact forces do not exceed the level at which irrecoverable injury occurs
Safe System is ...

A recipe:

EITHER
Prevent the impact
OR
Manage the impact forces:

Maximum permissible impact speeds:

- Car/pedestrian 30 km/h (c20 mph)
- Car/motorcyclist 30 km/h (c20 mph)
- Car/tree or pole 40 km/h (c25 mph)
- Car/car (side-impact) 50 km/h (c30 mph)
- Car/car (head-on) 70 km/h (c45 mph)

Source: Tingvall & Howarth (1999); Wramborg (2005)

Safe System is ...

A management structure:

- A lead agency that assumes overall responsibility and coordination
- Enlistment of all agencies that have an interest in a safe transport system – and that leads to some interesting bedfellows as fellow supporters

Safe System management

Some creative bedfellows:

- roads with clear road sides and underground power as firebreaks
- in Sweden the new speed camera system with reduced speeding tolerances and doubled fines saved up to 300,000 tons of CO2 (c15 % of 'climate target' for the Road Transport System)

The Austroads Safe System Approach

Find the road user???
Re-structuring the road user problem

- Scenario – a driver crashes into a telephone pole
- The ‘old’ question: why did that bloody idiot crash into the pole?
- The additional ‘new’ question: what bloody idiot put that pole there to be crashed into?

The Dutch have put it more eloquently:

- the road user is the weakest link in the transport chain: the individual road user is largely unpredictable and cannot be relied upon to behave safely over the long term, education and information efforts notwithstanding.

Most safety efforts that aim to eliminate unsafe behaviours by directly targeting road users cannot be the whole solution (eg drink driving).

But:

- road users are expected to comply with road rules, need to demonstrate adequate skills (managed especially through licensing requirements) and can expect sanctions to control unacceptable driving and other behaviours.

An unsafe system

- if all road users complied totally with all road rules, fatalities would fall by around 50 per cent and injuries by 30 per cent;
- under optimum conditions therefore, around one-half of fatalities and 70 per cent of injuries would remain.

**A bizarre system?**

- Speeding - but fast cars ... and so marketed;
- Vehicle incompatibility – have subsidised the purchase of 4WDs;
- Seatbelts and drink driving – the solutions are there in the form of interlocks but not implemented. Why?
- etc.

**Safe System and countermeasures**

- the Safe System approach continues many existing efforts but puts a focus on institutions (the four Cs)
- It goes beyond it to consider the system as a whole – especially the interaction between key components
  - eg: speed and road interaction

**Safe System countermeasures**

Road related:

- flexible wire barriers
  - along the centre and sides of roads, to prevent run-off-road and head-on crashes;
  - to separate vulnerable road user groups (pedestrians, cyclists) from vehicles;
- roundabouts
  - to simplify drivers’ decisions, to reduce possible impact speeds and to alter crash types;

**Intersections as an example of road improvements**

- **Provision of roundabouts**
  - Traditional approach – signage, sight distances, signals etc
  - Roundabouts:
    - Simplify the gap selection task
    - Reduce vehicle speeds
    - More favourable collision angles
Vehicle design improvements

- Choice of vehicles that will provide ‘optimum’ conditions in event of a crash
  - Newest and largest vehicle that drivers can afford and handle
  - Vehicles that have maximum safety features including airbags, good restraint systems (force-limiting seat belts, active head restraints), ABS, etc.

In-vehicle technologies

- to prevent crashes (alcohol and seatbelt interlocks, crash-warning devices, automated vehicle control)
- to reduce injuries in a crash (sophisticated seat belts and air bags)

Note the Volvo goal – no deaths or serious injuries by 2020

Safe System countermeasures

Speed related

- e.g. reduced speed limits:
  - around high densities of vulnerable road users (e.g. shopping areas and school zones)
  - along high-risk road sections without immediate engineering solutions.

BUT also need consider road, vehicle and speed (and user) interactions

- ‘safe speed’ a function of road circumstances
  - intelligent speed adaptation requires road-vehicle interaction.
  - occupant protection features partly depend on nature of occupant: e.g. older drivers
Implications for WA and
Towards Zero

THE FOUR Cs:
Constituency - public support/demand
Commitment – political will
Cooperation – institutional will
Coordination – institutional will into action