SAFETY, ENVIRONMENT AND AMENITY

Regulating Heavy Vehicles for Safety and Amenity: Australia as a Case Study

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SAFETY, ENVIRONMENT AND AMENITY

- Current Australian road safety situation
- Community concerns on heavy vehicles
- International Benchmarking
  - National Road Safety Strategy
- Regulatory responses to improve safety and environmental performance
  - Fatigue Management
  - Speed and Braking
  - Engine Brake Noise
Australia’s road toll

- In 2006
  - 1456 fatal crashes
  - 1601 deaths
- Deaths have fallen
  - by 12% since 2000
  - by 45% since 1986
- Heavy vehicles (over 4.5 tonne)
  - Involved in 14% of fatal crashes
Australia’s road toll

- **Heavy vehicles (over 4.5 tonne)**
  - Involved in 14% of fatal crashes
- **Articulated heavy vehicles**
  - 9.4% of fatal crashes
  - 9.8% of all fatalities
- **Rigid heavy vehicles**
  - 4.8% of fatal crashes
  - 5.1% of all fatalities
Australia’s road toll

- 5% of all heavy vehicles crashes result in at least one fatality
- 9% of articulated heavy vehicles crashes result in at least one fatality
Australia’s road toll

- 68% of fatal articulated heavy vehicles crashes occur on roads with speed limits of 80 km/h or more.

- 18% of rigid heavy vehicles and 45% of light vehicle fatal crashes occur in these high speed zones.
Australia’s road toll

- Only 27% of fatalities are heavy vehicles occupants
- 44% of heavy vehicles occupant fatalities did not wear a seatbelt
- 7% of heavy vehicles occupant survivors did not wear a seatbelt
Australia’s Road Fleet 2005

- 13,946,362 Vehicles
- 68,509 Articulated Trucks (over 4.5 tonne)
- 366,875 Rigid Trucks (over 4.5 tonne)

- 206,383 million Kilometres travelled
- 6,308 million Kilometres travelled by Articulated Trucks
- 7,671 million Kilometres travelled by Rigid Trucks
## Annual average vehicle usage

<table>
<thead>
<tr>
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<th>Articulated Trucks</th>
<th>Rigid Trucks</th>
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<tbody>
<tr>
<td>Kilometres per vehicle per year</td>
<td>92,100</td>
<td>20,900</td>
</tr>
<tr>
<td>Tonne-kilometres per vehicle per year</td>
<td>2,015,900</td>
<td>98,000</td>
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To provide access to the goods that people want when they want them
Added Diamind to encompass temporal considerations
Anya Richards, 21/06/2005
While protecting the health and safety of transport system users and others

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Without causing avoidable damage to the physical environment
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Without causing avoidable damage to the physical environment

While preserving residential amenity and respecting other social values
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While protecting the health and safety of transport system users and others

Without consuming excessive resources

To provide access to the goods that people want when they want them

While preserving residential amenity and respecting other social values

Without causing avoidable damage to the physical environment
Added Diamind to encompass temporal considerations

Any Richards, 21/06/2005
Future transport constraints

- Community demands for
  - amenity/quality of life
  - access
  - noise
  - air quality

- Community concern over heavy vehicles on road
Meeting the Freight Task

- Number of trucks
- Road Space (00 units)
- Fuel (000 litres)
- NOx (10 kg)
- PM (100 g)
- CO2 (t)
B-Double Safety Record

Source: NTI (derived from claims data)
Bigger trucks for safer roads?

- Banning artics could increase truck vs car crashes 18% by 2010
  - Assumes continued improving trends in crash rates

(Source: MUARC 2007)
PUBLIC PERCEPTIONS VS REALITY

B-DOUBLES (1988)
‘ROAD MONSTERS ARE HEADING OUR WAY!’

B-TRIPLES (2006)
‘OVERSIZED TRUCKS TO ENTER CITIES!’
Sustainable urban freight

- ‘Best practice’ environmental standards
- Accreditation requirements
- Operating conditions
- Route compliance (GPS tracking)
- Demonstrable safety gains
Identifying priorities for safety improvement

- Benchmarking heavy vehicle safety 2002

“To benchmark the performance of Australia’s heavy vehicle industry against the safety performance of similar industries in a range of OECD countries.”
Benchmarking heavy vehicle safety 2002

- Comparisons of fatality rates for trucks above 4.5 tonnes GVM
- Both rigid trucks & articulated trucks
- Buses excluded
- Injury data were not used because of different reporting criteria & incomplete data
Benchmarking heavy vehicle safety report 2002

Heavy vehicle fatalities per 100 million km
National Heavy Vehicle Safety Strategy 2003-2010

- Developed from findings of 2002 Benchmarking Study
- Complements Australian National Road Safety Strategy
- Targets safety improvements in heavy vehicle operations
National Heavy Vehicle Safety Strategy 2003-2010

- 2005-07 Action Plan – 5 strategic objectives
  - increased seatbelt use by heavy vehicle drivers
  - safer roads
  - more effective speed management
  - reduced driver impairment
  - safer heavy vehicles
Reduced Driver Impairment

- Fatigue Management Reform
  - Implementation from September 2008

- Roadside rest areas
  - Guidelines, audit, construction

- Reduce use of stimulants and other drugs
  - Roadside screening
  - Driver Well-being Pilot
Fatigue Management Reform

- System developed on expert safety advice
  - Overlay with pragmatic approach

- Recognise that fatigue is not just an issue for the driver
  - Assign responsibilities to all parties

- Provide reward for effort
  - Better fatigue management = more flexibility
Fatigue Management Reform

A three-option approach –

- increased flexibility linked to increased responsibility by operators to manage fatigue:
- a general duty to manage fatigue to minimise road safety risk
- much greater consistency with occupational health and safety requirements
Fatigue Management Reform

- 3 options
  - Tier 1 - standard hours
    • up to 12 hours of work per day or 72 hours per week
  - Tier 2 - basic fatigue management - BFM
    • up to 14 hours of work per day or 72 hours per week, on average for accredited operators (night/long hours bank)
  - Tier 3 - advanced fatigue management - AFM
    • for accredited operators who can demonstrate the effective management of all factors which affect fatigue
Fatigue Management Reform

- Not just working hour limits
  - general duty to manage fatigue to minimise road safety risk
  - chain of responsibility for off-road parties
  - Need to demonstrate reasonable steps
  - guidelines and codes
Fatigue Management Reform

- Strengthened record keeping provisions
  - Option of electronic record keeping
- A revised range of sanctions
- Enhanced enforcement powers for police and transport inspectors
- Applies to trucks over 12 tonnes and buses with more than 12 seats.
Safer Heavy Vehicles

- Front under-run protection / axle mass package
- Alternative to mandatory regulation
  - Faster implementation
- Increase steer axle mass limit by 500kg if
  - Front under-run (ECE R93) and
  - Minimum cab strength (ECE R29) and
  - Euro 4 engines (required from 2008)
- Similar package applied to allow 26m B-double trucks
Speed Compliance

- If all heavy vehicles comply with all speed limits
  - estimated 29 per cent reduction in heavy vehicle crashes

- Heavy vehicles over 12 tonne speed limited to 100km/h

BUT

- 10 to 15 per cent of articulated trucks exceed 100km/h by 5 km/h or more
Speed Compliance

- Three-Strikes Policy
  - Registration cancelled for vehicles detected for third time at 115km/h or more
  - Currently under review
- Extending chain of responsibility to speed and speed limiter maintenance
- Requires reasonable steps from operator, consignor, customer, schedulers and loading managers
Speed Compliance

Extending chain of responsibility to speed compliance

- Requires reasonable steps to ensure compliance from
  - Operator
  - Consignor
  - Customer
  - schedulers and
  - loading managers
- Doesn’t reduce driver’s responsibility to obey speed limit
Speed Compliance

- Extending chain of responsibility to speed limiter maintenance
- Requires reasonable steps from operator and maintenance provider/mechanic to ensure speed limiter works correctly
- Doesn’t reduce driver’s responsibility to obey speed limit
Heavy vehicle braking

- Braking system compatibility is a significant safety issue
- Combinations of prime-movers and trailers adopt a variety of braking systems including non-ABS, ABS and EBS with load sensing
- Ensuring compatibility with internationally sourced prime-movers (mostly from Europe, US and Japan) and locally built trailers is a challenge
- Industry Guide on Braking Compatibility
Engine Brake Noise

- Major source of community complaints
- Not a problem for some engine brake designs
- Curable with efficient muffler

BUT

- Not apparent in static testing
- Hard to define in regulation
- Modulation pattern – not decibel level – is critical
Engine Brake Noise

- Engage experts to design methodology
- Pick a reasonable threshold during public consultation
- Put it in a camera and run a trial
www.ntc.gov.au

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