Inquiry into Improving Safety at Level Crossings

Parliamentary Road Safety Committee
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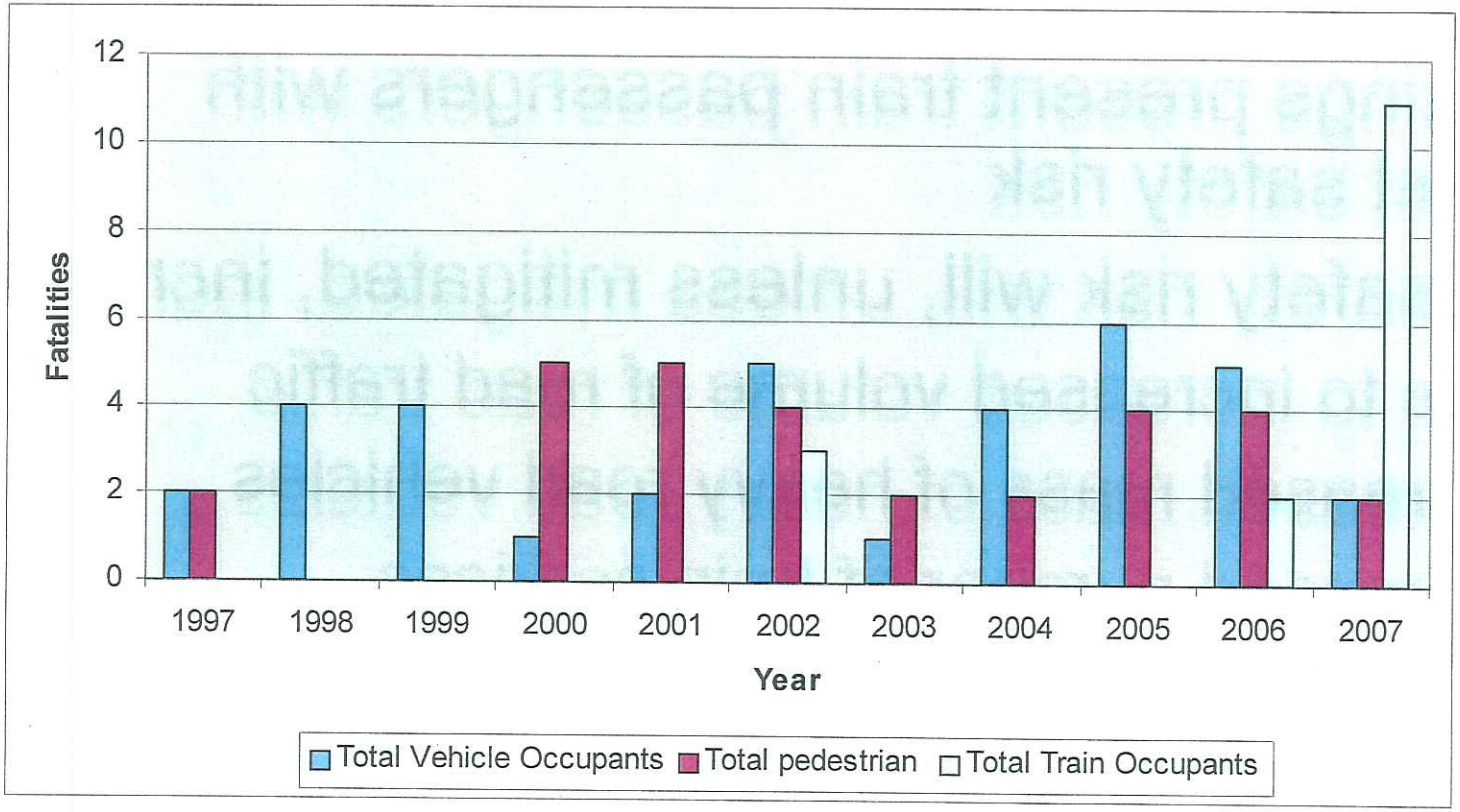
PTSV rail mandate

- To accredit railway operators based on their 'competency and capacity' to manage safety risk
- To monitor accredited railway operators ongoing compliance with the *Rail Safety Act 2006*
- The legal test in the *Rail Safety Act* is for our railways to be safe 'so far as is reasonable practicable'

Are our railways safe 'so far as is reasonably practicable'?

- Answer in overall terms is yes but level crossings present train passengers with largest safety risk
- This safety risk will, unless mitigated, increase:
  - due to increased volume of road traffic
  - increased mass of heavy road vehicles
  - increased number of train services
  - increased speed of rail services

Fatalities at level crossings over the last 10 years



Fatalities at level crossings so far this year

- Collisions between road vehicles and trains this year resulting in fatalities have occurred at:
  - Mornington -Tyabb Road, Tyabb
  - Hockings Road, Tandarra
  - Bendigo - Pyramid Road, Mitiamo

Safety risk mitigations underway

- Unprecedented funding (circa $250M) for level crossing upgrade program
- Program is based on risk
- New mitigations being trialled (active advance warning signs, rumble strips and enforcement cameras)
- For the future, behavioural research and new technology based mitigations being evaluated

Available safety risk treatments at level crossings

- Risk treatments (for when roads meet rail) range from give way signs to grade separation
- No risk treatment is risk free - even level crossings with full protection (booms, lights and bells) have accidents
- Even if all level crossings received full active protection - accidents would still occur and safety benefit must be commensurate with cost
- The question therefore is what can be done to achieve the optimum safety benefit for the investment?

Level crossing risk from a road safety perspective

- Car fatalities at level crossings are a small proportion (around 2%) of overall road fatalities
- Road driver behaviour is a significant factor in the majority of level crossing accidents (cars and trucks)
- Addressing level crossing driver behaviour issues may also have benefits in terms of road driver behaviour more generally
- Technology to aid driver behaviours at level crossings likely to offer most benefits

Low cost level crossing warning device

- Active regional level crossing installations cost circa $500k each. Cost to upgrade 1441 passive crossings in Victoria is therefore high
- Overseas, low cost level crossing warning devices (LCLCWD) are operational
- These devices use technology such as solar power, radio linking and remote monitoring via mobile phone network
- This type of technology is suitable for crossings with low road and rail traffic and is cost effective

Trials undertaken in Australia

- South Australian
  - System performed to its designed detection and activation specifications
  - 4372 events logged, only one not detected (0.02% failure rate)
- Victorian (Creswick)
  - "offers a very real and practical option for use at rural rail crossings"
  - 20% of cost of boom barriers and flashing lights
  - Adoption of LCLCWDs may require changes to current Australian Standards (AS 1742.7) and legal liability issues will require clarification

Other technology initiatives

- Intelligent Transport Systems (ITS) are another technology showing promise
- ITS offers possibility of significant risk reduction at current passive crossing sites
  - eg Dept of Main Roads WA trial involved 50 vehicles with communications between locomotive, level crossing and approaching motor cars
- A lower cost development is a GPS solution with GPS database including level crossing locations
- The effect on human behaviour though must be properly evaluated
- Use of technology is not effective if it does not modify human behaviour

Conclusions

- Full active level crossing protection still carries a level of risk
- Using a risk-based prioritisation of upgrades is essential
- Safety risk treatments which focus on improving driver behaviours at level crossings provide benefits for other road safety initiatives
- Recent trials of 'low cost' technologies offer cost effective opportunities to protect greater numbers of regional passive crossings for the same cost
- Full evaluation of new technologies must take place to ensure it changes road driver behaviours