Presentation to the Parliamentary Road Safety Committee Inquiry into Improving Safety at Level Crossings

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Parliamentary Road Safety Committee
OUTLINE

• Strategic framework
• Context/Nature of problem
• Safety management governance
• Current program and initiatives
• Existing technology
• New technology
• Conclusion
Strategic framework

- **Growing Victoria Together**
  - Growing & linking all of Victoria

- **Meeting our Transport Challenges**
  - Building a safer, more secure network

- **arrive alive 2008-2017**
  - Aims to reduce deaths and serious injuries by 30 per cent
  - Strategy & first action plan contains initiatives to improve rail level crossing safety
National approach

- Austroads
- SCOT/TACE
- Roads and Rail Modal Groups
- NTC
Context

- Level Crossings are a compromise to achieve joint use by road and rail of the same space
- Rail’s greatest benefit is also its greatest weakness - low rolling resistance!
Typical Braking Rates of Trains

- **Electric Passenger Train**
  - Service 0.73 m/s²
  - Emergency 0.83 m/s²

- **Freight Train**
  - Service 0.2 m/s²
  - Emergency at about 0.54 m/s²

- This has serious implications for level crossings
• As a consequence:
  - Trains of any variety take a long time and a far greater distance to come to a stop
  - Crossing design is predicated on the train not having to stop at a crossing.
  - Train drivers therefore are trained not to be prepared to stop at level crossings.
<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active - booms metro</td>
<td>181</td>
</tr>
<tr>
<td>Active - booms regional</td>
<td>180</td>
</tr>
<tr>
<td>Active - lights only regional</td>
<td>463</td>
</tr>
<tr>
<td>Active - light rail</td>
<td>8</td>
</tr>
<tr>
<td>Manual - hand gate</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Active</strong></td>
<td>833</td>
</tr>
<tr>
<td>Passive protection - country only</td>
<td>1,433</td>
</tr>
<tr>
<td><strong>Total public level crossings</strong></td>
<td>2,266</td>
</tr>
</tbody>
</table>
Motor Vehicle Occupant Deaths at Railroad Crossings in Australia 1970 - 1999

Source: MUARC/QUT Proposal To Undertake Research Into Reducing The Risk of Crashes At Railway Level Crossings in Australia 2002

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Graph showing the number of motor vehicle occupant deaths at railroad crossings in Australia from 1970 to 1999, with a downward trend overall.
# Vehicle Occupant and Pedestrian Fatalities Victoria

## Table 1

<table>
<thead>
<tr>
<th>Period</th>
<th>Vehicle occupants</th>
<th>Pedestrians</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969-1976</td>
<td>174</td>
<td>25</td>
<td>199</td>
</tr>
<tr>
<td>1994-2001</td>
<td>26*</td>
<td>59</td>
<td>91</td>
</tr>
</tbody>
</table>

* plus three bicycle fatalities plus three wheelchair fatalities

2000-2007 26 28 48


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Management of Level Crossing Safety

• The Victorian Railway Crossing Safety Steering Committee (VRCSSC)
  - Membership:
    • DoI (PTD) – Chair and secretariat
    • VicRoads
    • VicTrack
    • MAV
    • Victoria Police
    • V/Line
    • DoI (PTSV)
The Victorian RLX Safety Management Structure

Minister for Roads & Ports → Minister for Public Transport → Victorian Management

Victorian Railway Crossing Safety Steering Committee
Department of Infrastructure – Public Transport Division
Vicsafe, VicRoads, Municipal Association of Victoria, Victorian Rail Safety Association, Victorian Railways

Railway Crossing Safety Awareness Group

Railway Crossing Project Delivery Group

Railway Crossing Technical Group

Level Crossing Upgrade Program

Research & Development Engineering Sub-committee

Parties

ATC, VicRoads, GRRC, RailCorp, Rail Agency, Rail Safety Management Committee, Level Crossing Strategy Advisory Council

Public Rail Awareness Education Programs

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Metropolitan Rail/Road Grade Separation Program (MRR3):
A series program funded by DCO to address issues of roads and rail interactions in Victoria by investigating the grade separation of railway and crossings at the various road-rail intersections.
VRCSSC Sub Committees

- Program Delivery Group
- Technical Group
- Safety Awareness Group
The Total RLX Safety Management Structure

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Current Technology Implementation

- Railway Crossing Upgrade Programme
- Since 1999
  - Over 200 RLX Upgrades in control have been completed
  - Averaging almost 25 Per Annum
  - More than four times the annual average in previous periods.
Ongoing Programs

Summary of upgrade performance

<table>
<thead>
<tr>
<th>Year</th>
<th>2006/7</th>
<th>2007/8</th>
<th>2008/9</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Upgrades</td>
<td>37 (plus 20 RFR)</td>
<td>45 (target)</td>
<td>45 (target)</td>
</tr>
</tbody>
</table>

Further initiatives introduced in 2007:

- 53 sites for Active Advance Warning Signs
- 200 sites for rumble strips
- Continuation of the Don’t Risk it Campaign
- 2 trial sites for enforcement cameras
- Modifications to legislation with new offences and tougher penalties
arrive alive 2008-2017 First Action Plan

• Review all level crossings to ensure they accommodate the safety requirements of heavy vehicles.

• Implement hazard warning systems

• Public education campaigns

• Increase penalties for level crossing infringements and introduce new offences
Other Initiatives

• **Pedestrian Crossings**
  - Upgrade from passive to active control
    • 10 to 20 crossings per annum
  - DDA compliance
    • Making crossings safer for the disabled community
    • Upgrading and average of 10 crossings per annum

• **ALCAM**
  - Survey of all crossings complete
  - Another tool to better guide upgrade program into the future
Other Initiatives

- **Research**
  - FM Broadcasts to road vehicle mounted equipment such as GPS
  - Behavioural studies with ARA and other jurisdictions
  - Centre Road Bentleigh

- **Grade separations**
Existing Technology Used at Crossings

• Two types
  - Active (flashing lights and bells with or without booms)
  - Passive (stop signs or give way signs)
Existing Technology Used at Crossings

- **Other Aides**
  - Advance Road Signage
    - Provides advance warning to road users of impending crossing
  - Active Advance Warning signage
    - Provides advance notice to motorists of the activation of crossing protection equipment
    - Is limited to being used at actively protected crossings
Existing Technology Used at Crossings

- Other Aides (cont)
  - Rumble Strips
    - Provides audible, tactile and visual warning to motorist that they are approaching a crossing
  - Traffic Signal protection
    - Provides additional advice to road users
Opportunities for New Technology

- Obstacle Detection
- Low Cost Level Crossing Warning Device
- The Controlled Area System
- Proxy (Wayside) Horn
- Motorist Warning Technologies
  - Intelligent Speed Adaptation
  - Radio Transponder Based Warning Systems
  - Intelligent Road Studs
Conclusion

• Railway Level Crossing crashes are a relatively small proportion of all road crashes but they are of concern

• Active in improving safety at level crossings

• There is a role for new technology as part of overall treatment