Technologies to Improve Safety at Level Crossings

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Australasian Railway Association
Level Crossing
Rail Industry Perspectives

- Context and Dimensions of Issue
- Rail Industry Policy Framework
- Key Elements and Actions Needed
About the ARA

- Following on from Railway Commissioners first meeting in 1894

- Reformed in Canberra in July 03

- Member-based association representing the Australian and New Zealand rail Industry

- Rail Industry Safety and Standards Board (RISSB)

- Rail Skills and Careers Council (RSCC)

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No. 1 Priority for Rail

LISMORE, 06
KERANG, 07
### Annual Level Crossing Fatalities vs. 2006 Total Rail Fatalities

<table>
<thead>
<tr>
<th>Annual Level Crossing Fatalities</th>
<th>2006 Total Rail Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>40</td>
</tr>
</tbody>
</table>

*Ref: ATSB Australian Rail Occurrence Data*
## Causal Factors

<table>
<thead>
<tr>
<th>Causal Factors</th>
<th>Fatal level crossing crashes</th>
<th>Other fatal road crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverse weather or road conditions</td>
<td>13%</td>
<td>9%</td>
</tr>
<tr>
<td>Alcohol/drugs</td>
<td>9%</td>
<td>31%</td>
</tr>
<tr>
<td>Fatigue</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Driver error (unintended)</strong></td>
<td><strong>46%</strong></td>
<td><strong>22%</strong></td>
</tr>
<tr>
<td>Excessive speed</td>
<td>7%</td>
<td>23%</td>
</tr>
<tr>
<td>Other risk taking</td>
<td>3%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Ref: 'Level Crossing Accidents', Monograph 10, ATSB, 2002
## Situations for Vehicle Crashes at Railway Level Crossings

<table>
<thead>
<tr>
<th>Situation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive controlled crossing</td>
<td>32%</td>
</tr>
<tr>
<td>Active controlled crossing</td>
<td>50%</td>
</tr>
<tr>
<td>Daytime crashes</td>
<td>70%</td>
</tr>
<tr>
<td>Nighttime crashes</td>
<td>30%</td>
</tr>
<tr>
<td>Proportion of crashes at passive level crossings where front of train hit road vehicle</td>
<td>59%</td>
</tr>
<tr>
<td>Proportion of crashes at passive level crossings where road vehicle hit side of train</td>
<td>36%</td>
</tr>
</tbody>
</table>

The Key to Level Crossing Safety

- The four E’s:
  - Education
  - Enforcement
  - Engineering
  - Enough is Enough – no new crossings

- Complement these with technology to increase level crossing safety

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Industry Level Crossing Strategy

Visibility Standards
- Improved external lighting
- Reflective materials
- Colour Scheme

National RLX Behavioural Strategy
- National Road Users Survey – Completed
- Education and Enforcement Pilot – Completed
- National Workshop – Completed
- Communications Package – In Progress

National Rail Safety Week

National ITS Workshop & Work Group

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National Road Users Survey

- Self reported behaviours & attitudes towards level crossings

- Findings
  - 1 in 4 have engaged in risky behaviour
  - 24% reported participating in illegal usage at some time
  - 1 in 5 had driven over a level crossing and not known until after the event
  - 1 in 5 were unaware of penalties for breaking level crossings rules
  - Driver inattentiveness and impatience

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Roles and Options

- Road Traffic Management
- Road User Enforcement
Road Traffic Management

- Advanced warnings
- Traffic lights
- Rumble strips
Road User Enforcement

- Better use of cameras technology
- GPS – Intelligent Access Program
- Speed Reductions
Our Concerns

- Low priority for road agencies
- Lack of effective and efficient enforcement
- Lack of national approach
- Technology costs

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Technology Costs

- Current
  - High cost of active crossing infrastructure

- Proposition
  - Explore cheaper alternative solutions
  - Better use of ITS

- Benefits
  - Increased infrastructure installations
  - Significantly more active crossings
    » ‘fail-safe’ implications

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Technology

- crucial to continue improving level crossing safety
- complement other safety initiatives
- reduce costs of safety infrastructure
- National ITS solutions approach

Victoria to lead

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Zero deaths at level crossings is achievable.
LEADING RAIL INTO THE FUTURE