Rail Crossing Safety Program
• Key Issues for road safety relate to:
  
• Driving Environmental conditions

• Driver Awareness of potential danger

• Driver Behavioural change to conditions

• Active Implementation of Integrated 3 level solution for Driver Awareness & Behavioural change
• **Key Issues for road safety technology:**
  
  • Effective in low and high road visibility conditions
  
  • Solar powered to simplify infrastructure costs
  
  • Red Warning alert triggered from Train approach
  
  • Captures attention of Driver under all conditions
Methods of Warning Dissemination

Visual
- Road Signs
- TV

Audible
- Telephone

Internet

Radio

TV

Internet

www.ewsp.com.au

www.nsa-aust.com.au
Motorist provided with sufficient pre-notification and has time to stop within safe stopping distance

Approaching train triggers GFW activation

Trial only – ANPR or Driver Behavioural change feedback system

GFW Transmission Solution

Intelligent Road Studs

Motorist provided with sufficient pre-notification and has time to stop within safe stopping distance
Public Safety

Rail

School Zone Safety
Hardwired Systems
Intelligent Road Studs
Case Study 1: Warnings to Motorists at Train Level Crossings

The Lismore Train Crash Fatality – 25 May 2006

- Trucks collides with train
- Truck driver dies
- Passive crossing
- Poor visibility: 20-50 metres
- Visual warnings may not have been ‘effective’

Heavy fog at scene of crash
Lismore train crash site
Radio Re-Broadcasting


Radio re-broadcast solution:

• warns driver of approaching train
  • Intercepts AM/FM radio;
  • RDS – can intercept CDs/tape
  • CB radio transmission optional
• Verbal instructions clearly articulate actions to be taken, eg. “TRAIN APPROACHING AHEAD!! PREPARE TO STOP!”
• Audible warning more effective in heavy fog
• Already proven concept – tunnel operators
IMPROVED DRIVER AWARENESS IS REQUIRED

The Global Frequency Warning (GFW) System:
- Installed on level crossings to alert public drivers of approaching trains
- Intelligent re-broadcasting technology - overrides active FM and/or AM radio frequencies to deliver time critical messages to drivers
- RDS feature enables warning message to intercept CDs and tapes
- CB radio transmission additional capability
- Risk of common driver errors at level crossings is reduced
- Driver warned that TRAIN IS APPROACHING, not just of an APPROACHING LEVEL LEVEL CROSSING.

GFW PROVIDES AN EFFECTIVE MEANS OF WARNING DISSEMINATION
Using Radio as key Communication Channel

Statistics prove “in-vehicle” radio listening is strong

- 97% Of Vehicles have a radio

Exhibit 1 – Estimated number of radios in the home

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>45% of homes have 1-4 radios;</td>
<td></td>
</tr>
<tr>
<td>55% of homes have 5 or more radios;</td>
<td></td>
</tr>
<tr>
<td>97% of vehicles have a radio;</td>
<td></td>
</tr>
<tr>
<td>radio reaches 95% of Australians;</td>
<td></td>
</tr>
<tr>
<td>commercial radio reaches 72% of Australians weekly.</td>
<td></td>
</tr>
</tbody>
</table>

(Source: According to the figures from the Radio Marketing Bureau and AC Nielsen)
Using Radio as key Communication Channel

- AM/FM radio – highest percentage usage device in car
- RDS and CB radio transmission can increase driver warning penetration >90%

Source: The Arbitron National In-car Study - Arbitron Inc/Edison Media Research, 2003
**Integrated 3 level solution summary costs**

- Solar powered red flashing Road Studs with 8 on each approach to crossing = $25,000 - $30,000 (Astuccia)

- Solar powered red flashing standard approach signs to crossing = $20,000 - $30,000 (SigTec)

- Solar powered GFW radio alert system = $75,000 - $95,000 (Emergency Warning Systems)

- Integration Software development for Rail Crossing Trigger
- Once off cost only of an estimated $300,000 for train link