

Road Safety Committee

Level Crossing Safety

Barry Hedley

General Manager Network Safety



moving forward

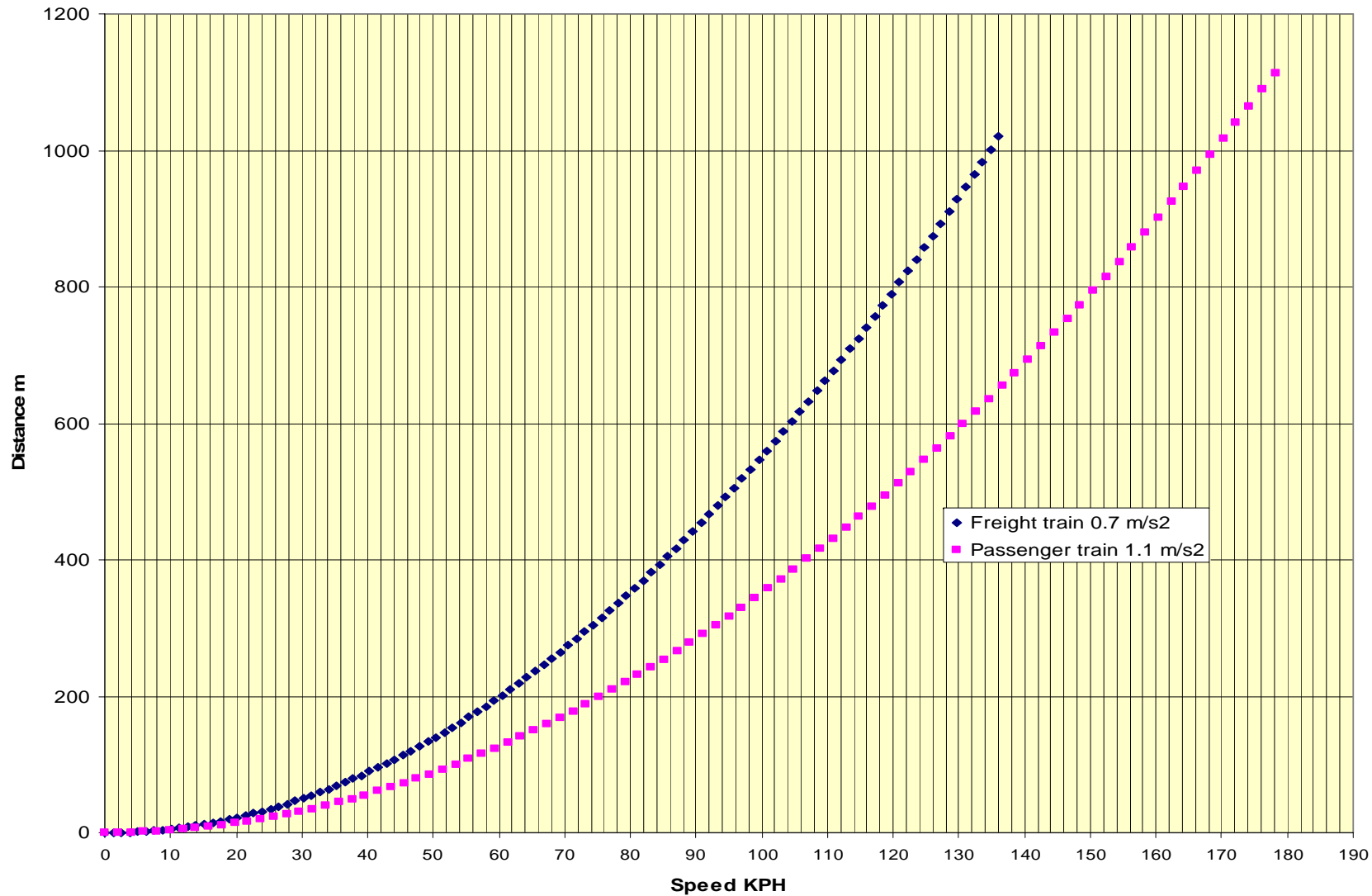
Brief Introduction – Barry Hedley

- **31 Years experience in railway engineering & operations.**
- **27 of those years in NSW including Country & Metropolitan.**
- **Currently a Director of the Australasian Rail Safety & Standards Board, accredited by Standards Australia for Railway Standards**
- **Nominated Rail Safety Officer under Connex Rail Safety Accreditation**

Level Crossing Safety – General Issues

- **Level Crossings are intrinsically unsafe.**
- **Trains do not stop quickly. Typically $0.7 - 1.1\text{m/s}^2$**

Emergency Deceleration Curve 0.7-1.1 m/s² (Dry level track)



Level Crossing Safety – General Issues

- **Safety levels have improved with increased automation.**
- **Accident rates have increased in recent years with increased traffic volumes and vehicle road size.**
- **2 very different safety environments: Rural & Metro**
- **Rural hazards focused on vehicle speed, size & stopping.**
- **Majority of rural crossings have passive protection.**
- **Virtually all metro crossings actively protected with booms.**
- **Metro hazards related to queuing and short stacking.**
- **Metro solutions unlikely to work in rural & vice versa.**
- **Progressive urban grade separation essential long term.**

Level Crossing Safety – Human Issues Non-Urban

- **Train speed can be deceptive.**
- **Risk of collision perceived to be low.**
- **Road users equate train braking with cars or trucks.**
- **Signif. proportion of rural L/xing accidents involve local people who become immune to risk or “know” train schedules. They cross at regular times, rarely seeing trains.**
- **Rural train services are infrequent – encounter prob. low**
- **Road speeds generally high – slowing seen to be a hazard.**
- **Possible herd mentality – following traffic.**
- **Little to discriminate operating active crossings. (daytime)**
- **Lack of active advance warning.**
- **Overwhelming forest of road signs on highways.**
- **Compliance monitoring and enforcement no deterrent.**

Level Crossing Safety – Human Issues Metropolitan

- Metropolitan road users are travel time sensitive.
- Trains known to be frequent and L/xing delays significant.
- Road speeds generally low, frequent unexpected stopping.
- Multiple lane changing required for route following.
- Road users equate train braking with cars or trucks and may expect trains to be capable of stopping short of vehicles caught on crossing.
- Lack of active advance warning.
- Possible herd mentality – following traffic onto crossing.
- Lack of vehicle clear space indication past crossing.
- Little to discriminate operating active crossings. (daytime)
- Overwhelming forest of signs on urban roads.
- Misplaced faith in the “system” not exposing to danger.

Level Crossing Safety Metropolitan Improvements

- Improved education – computer/web simulations.
- Better dynamic modelling tools for traffic disruptions and flow changes.
- Permanent uniform 60kph traffic speed restrictions.
- Improved approach warning signs including active signs.
- Smart Video driven traffic metering.
- Restriction of long vehicle routes.
- Mandatory fenced medians & prohibit lane change.
- Standard traffic signals with amber indication & cameras.
- Automatic remote testing and remote manual control.
- Improved lighting at crossings.
- Remove departure side traffic restrictions.
- Dedicated escape lanes.
- Level crossing consolidation.

Level Crossing Safety Non-Urban Improvements

- Improved education – computer/web simulations.
- Restriction of long vehicle routes, especially where short stacking risks are present.
- Permanent uniform 60kph traffic speed restrictions.
- Improved approach warning signs including active signs.
- Replace all “give way” signs with “stop” signs.
- Smart Video driven stop sign enforcement.
- Improved lighting or visibility at crossings incl. sight lines
- Standard traffic signals with amber indication & cameras at active crossings.
- Automatic remote testing and remote active control.
- Cover signs on disused or out of season lines.

End

Questions?