



Practical Vehicle Safety Considerations

National Public Sector Fleet Manager's Conference

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Practical Vehicle Safety Considerations

- Keith Simmons
- Independent consultant in vehicle and fleet safety
- I've been in your shoes
 - Fleet Manager NSW Police Force 2001 – 08
 - General Manager Safer Vehicles,
NSW Centre for Road Safety 2008 – 2012
 - Road and Fleet Safety Consultant 2012 onward



The next 20 minutes ...

- What I do
- What are your Problems?
- What are your Options?
- What Works and Why?
- Practical Fleet Safety?
- What is Coming Next?

What do I do?

- Consultant in Vehicle Safety and Fleet Safety Management
- Fleet & Road Safety reviews for large corporations
 - e.g. BHP-Billiton (Chile), Cargills Tropical Oils (Indonesia and Thailand), Hancock Natural Resources (Aust and NZ), Pan Aust Mining (Laos)
- Expert Witness to courts for matters of vehicle safety, crash reconstruction, crash and injury causation and fleet safety management.
- As an Expert Witness, I advise courts and lawyers on what could or should have been done by the responsible parties, to protect the victim(s) from injury, or to prevent the incident from occurring in the first place.

Road Safety in the Workplace?

- 42% of workplace fatalities in 2017 involved vehicle collisions¹
- 41% of serious injury WC claims in 2015/16 involved vehicles²
- Median time lost to vehicle related injuries - 6.8 weeks in 2014/15³
- Vehicle crashes are currently the single greatest cause of workplace related death and serious injury in Australia.

Notes: 1., 2.,3. Safework Australia website: <https://www.safeworkaustralia.gov.au/statistics-and-research/statistics/disease-and-injuries/disease-and-injury-statistics>

What are your problems?

- **Main objective of WHS Act 2010**
- (1) (a) protecting workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work [or from specified types of substances or plant];...
- (2) In furthering subsection (1)(a), regard must be had to the principle that workers and other persons **should be given the highest level of protection against harm** to their health, safety and welfare from hazards and risks arising from work [or from specified types of substances or plant] **as is reasonably practicable**.

Are these “Your” Problems?

- **Division 4; Duty of officers, workers and other persons**
- **27 Duty of officers**
 - (1) If a person conducting a business or undertaking has a duty or obligation under this Act, an officer of the person conducting the business or undertaking **must exercise due diligence** to ensure that the person conducting the business or undertaking complies with that duty or obligation...
- **252 Officer of public authority**
 - A person who makes, or participates in making, decisions that affect the whole, or a substantial part, of the business or undertaking of a public authority is taken to be an officer of the public authority for the purposes of this Act.



What are your options???

Choosing Safer Vehicles

- ANCAP 5 Star Safety Rating (James Goodwin has covered this very well)
- Selection of optional safety features, or selecting vehicles in which these features are available as standard

What works and Why?

Advanced Driver Assistance Systems

- Intelligent Seat Belt Reminders – All Seats

- 18% of all vehicle occupants killed (2016) were not restrained^{1,2}



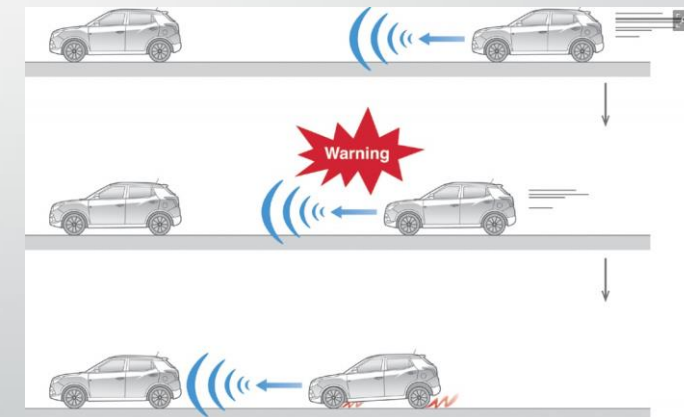
- Speed Assist Systems

- 41% of all fatal crashes (2016) included speed as a contributing factor^{1,2}



- Autonomous Emergency Braking

- 16 fatal, 682 Serious Injury and 3853 Injury crashes were **rear end crashes**^{1,2}
- 76 fatal, 974 SI and 1125 Injury crashes involved **pedestrians and bicycles**^{1,2}



1. NSW Centre for Road Safety, Annual Statistical Statement, Road Traffic Casualty Crashes in NSW 2016
<https://roadsafety.transport.nsw.gov.au/downloads/crashstats2016.pdf>
2. Multiply data by 3 to obtain estimate of national results

ISO:0051



What works and Why?

ADAS

- Lane Keep Assist
 - 136 fatal and 2009 serious injury crashes involved leaving the lane or vehicle off path

1. NSW Centre for Road Safety, Annual Statistical Statement, Road Traffic Casualty Crashes in NSW 2016

What works and Why?

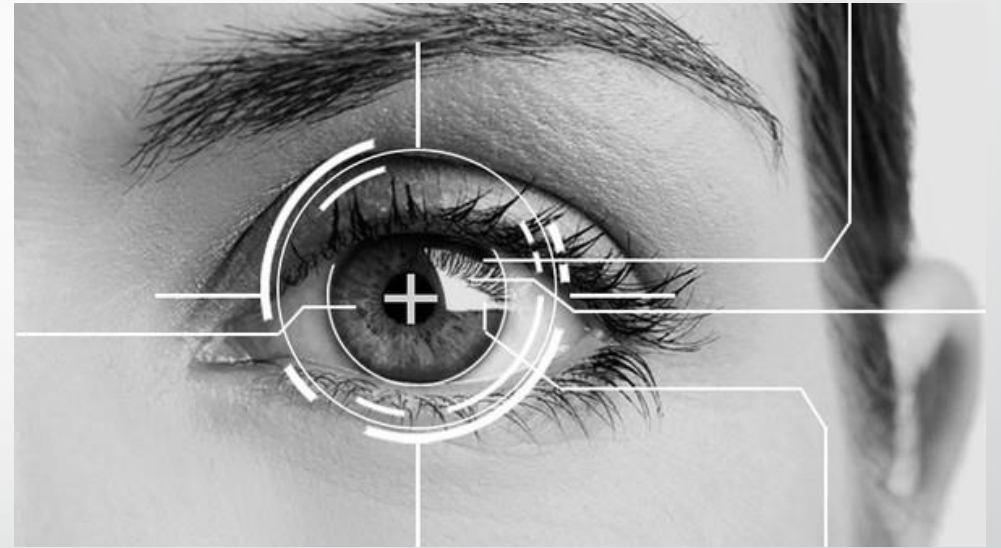
ADAS

- Lane Keep Assist
 - 136 fatal and 2009 serious injury crashes involved leaving the lane or vehicle off path
- Reversing Camera with ultrasonic detection system
- Distraction / Fatigue Monitoring
 - Distraction inside vehicle: 8 fatal, 163 SI, 204 other crashes
 - Distraction outside vehicle: 38 fatal, 599 SI, 650 other crashes
 - Fatigue related: 70 fatal, 611 SI, 548 other crashes

1. NSW Centre for Road Safety, Annual Statistical Statement, Road Traffic Casualty Crashes in NSW 2016
2. Multiply data by 3 to obtain estimate of National results

Distraction and Fatigue Monitoring

- Wide range of systems available
 - Driving performance monitoring
 - Eye tracking (blink rate and duration)
 - Eye tracking and gaze patterns
 - Integrated into vehicle sensor system, dash mounted, glasses based or combination



Practical Fleet Safety Policies

- Driver recruitment, induction and ongoing license checking
- Driver training and specific vehicle familiarisation
 - Defensive driving and hazard perception – NOT advanced driving skills
- Crash and near miss reporting
 - Without feedback, you have no way of knowing what is happening to your fleet
- Incident investigation and data analysis
 - Investigate all incidents to identify cause, contributing factors and potential solutions
 - Regularly analyse data to identify risks, trends and opportunities for improvement

Without a comprehensive view –
you may be missing something important



Practical Fleet Safety Vehicle Equipment

- Heavy vehicles should have under-run protection
 - Front and Rear crash under-run protection
 - Side pedestrian and cyclist under-run protection



Practical Fleet Safety Vehicle Equipment

- Heavy vehicles should have under-run protection
 - Front and Rear crash under-run protection
 - Side pedestrian and cyclist under-run protection
- Tray Trucks with drop sides.
 - Ensure the tray sides do not come off unexpectedly



\$0.26 cent solution to a \$1,250,000 problem

Practical Fleet Safety

- Heavy vehicles should have under-run protection
 - Front and Rear crash under-run protection
 - Side pedestrian and cyclist under-run protection
- Tray Trucks with drop sides. Ensure sides cannot come off unexpectedly
- Vehicles with Towbar
 - Check the towbar rating matches intended load
 - Consider trailer braking system
 - Driver training for trailers

Typical family caravan or boat

- Tare Mass ~ 2150 kgs
- Loaded ~ 2500 kgs
- Towball load ~ 200 kgs



Typical family car towbar

- Maximum load - 1600 kgs or less
- Maximum towball download - 160 kgs or less



Driver Training - Trailers

- Learner driver **cannot** tow a trailer
- Licensed driver **can** tow a trailer
- Where does training occur?
- How to:
 - Drive, steer / stop and reverse with trailer & load
 - Use trailer brakes (Over-ride and electric)
 - Correctly balance load – correct towball download





What is coming next in Vehicle Safety?

- Incremental improvements in crashworthiness & ADAS (ANCAP)
- Connected Vehicles (DSRC, V2V, V2X, C-V2X)
- Semi autonomous vehicles
- Connected and Autonomous Vehicles (CAVs)

The road to Autonomous Driving

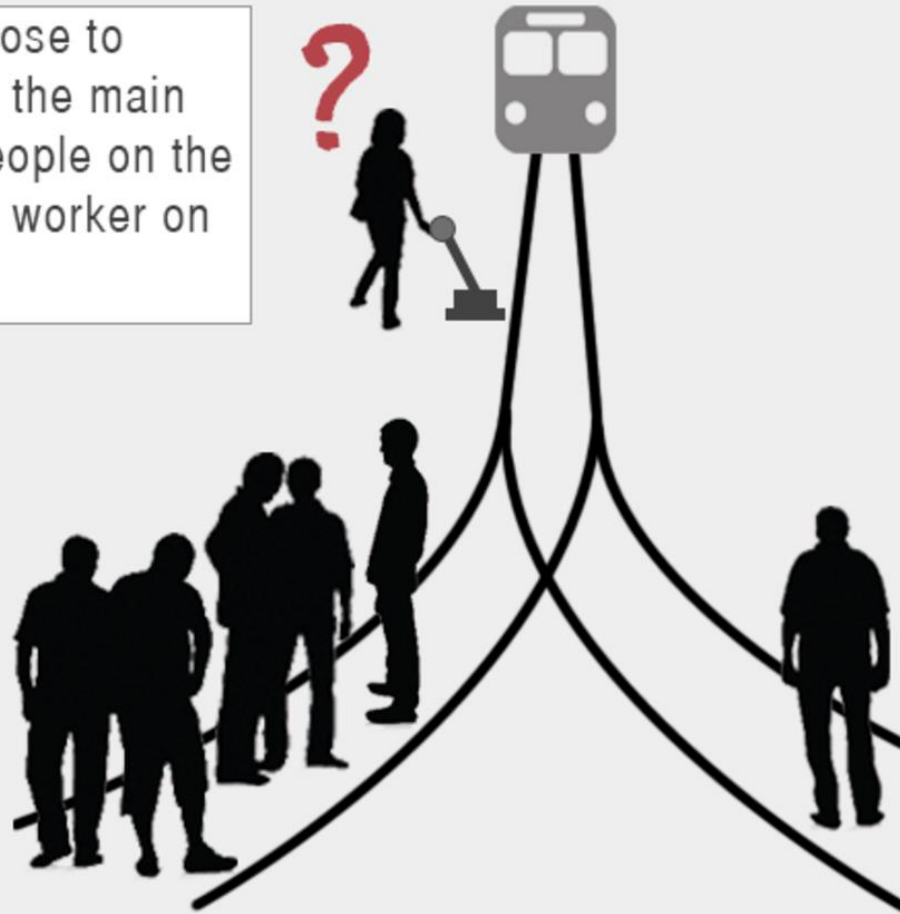
- Manufacturers and consortia have logged Ms miles test driving
- Connected Vehicles and Autonomy developing in parallel
- Some high profile crashes have set progress back (Uber, Tesla)
- Numerous demonstration projects and trials in Australia (and elsewhere)
- Issues to be resolved:
 - Hardware and Software Performance
 - Registration, Licensing and other regulatory barriers
 - Insurance
 - Infrastructure
 - Public Acceptance
 - Handover and Handback
 - Safety Performance and Ethics



Autonomous Vehicles Ethical Dilemma

The Trolley Problem

The person can choose to divert the tram from the main track, saving five people on the track, but killing the worker on the other track.





"Here, Fifi! C'mon! ... Faster, Fifi!"

Conclusions

- Evidence is readily available of the risks your fleet is exposed to
- You have legislated responsibility (to do all that is reasonably practicable)
- Safer vehicles are available (ANCAP 2018 onward)
- Look for most suitable ADAS
- There are practical things you can and should do for fleet safety
- Autonomous vehicles are coming (slowly)

Questions?

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