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PARTNERSHIP

PROGRAM

Safely Delivering The Growing Urban Freight Task

Learning from International Best Practice

CPD 5

Today's moderator

Jerome Carslake

Principle Leader

NRSPP

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Housekeeping

Webinar is = 40 mins

Question time = 20 mins

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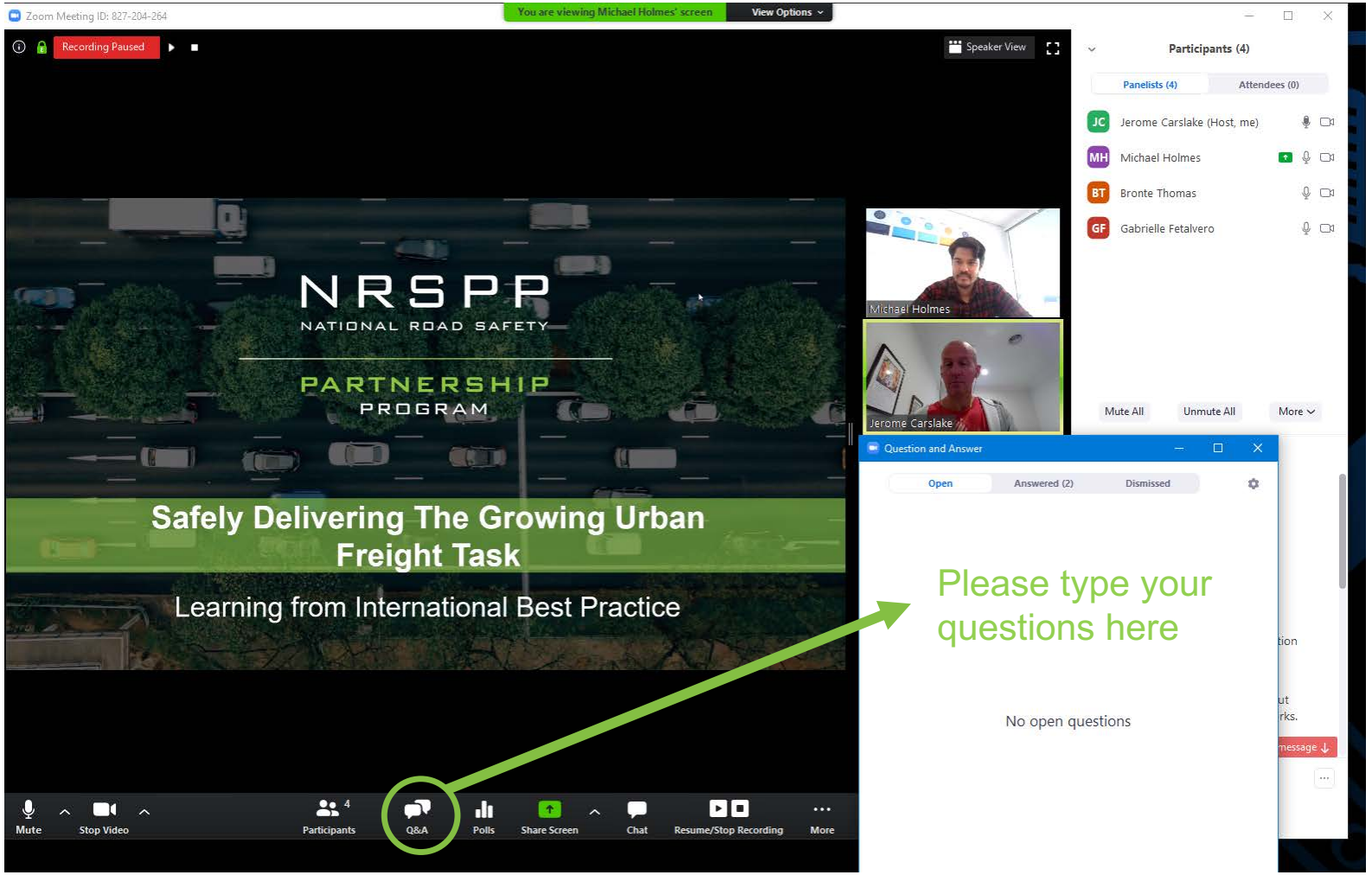
Zoom Webinar Functions



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Today's presenter

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NRSPP Webinar

SAFELY DELIVERING THE GROWING URBAN FREIGHT TASK: LEARNING FROM INTERNATIONAL BEST PRACTICE

MICHAEL HOLMES | 2018 CHURCHILL FELLOW

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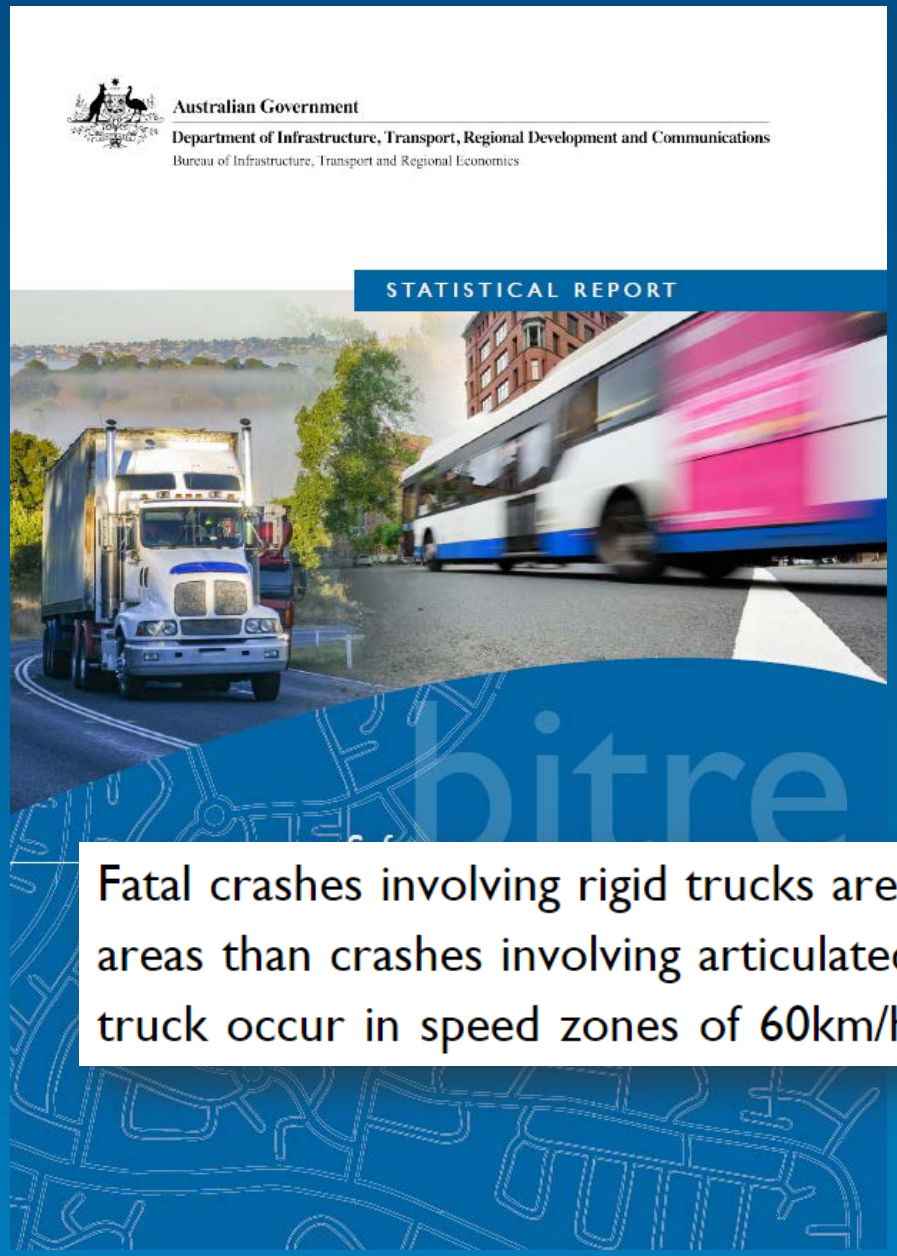
- The NRMA-ACT Road Safety Trust Churchill Fellowship supports projects that could lead to a reduction in deaths and suffering caused by road crashes, from any perspective, including education, health, engineering, regulation & administration.
- For more information visit: www.churchilltrust.com.au

Agenda

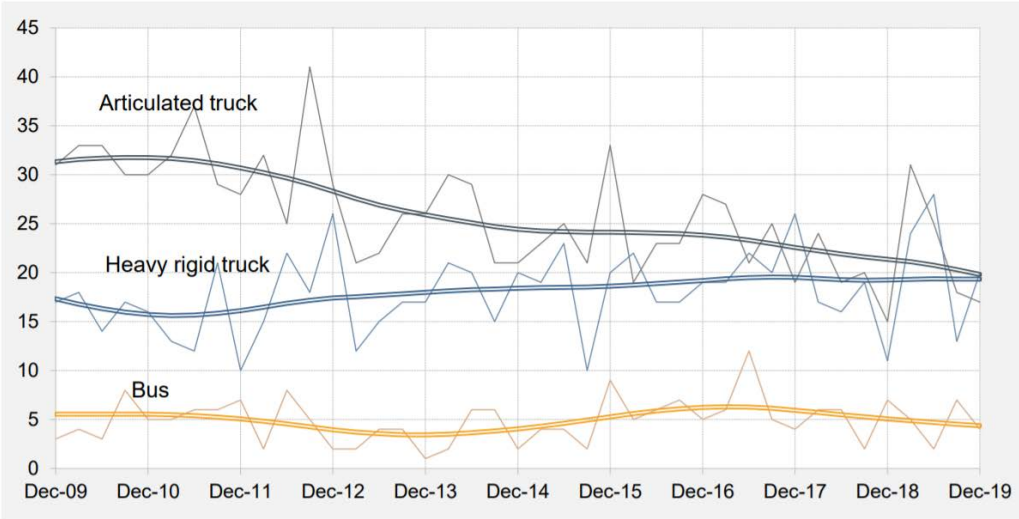
- Current Issues and Challenges
- Accreditation Schemes & Standards
- Vehicle Safety Standards
- Training and Awareness
- Sustainable Urban Logistics

Image: Volvo Museum, Gothenburg

Current Issues



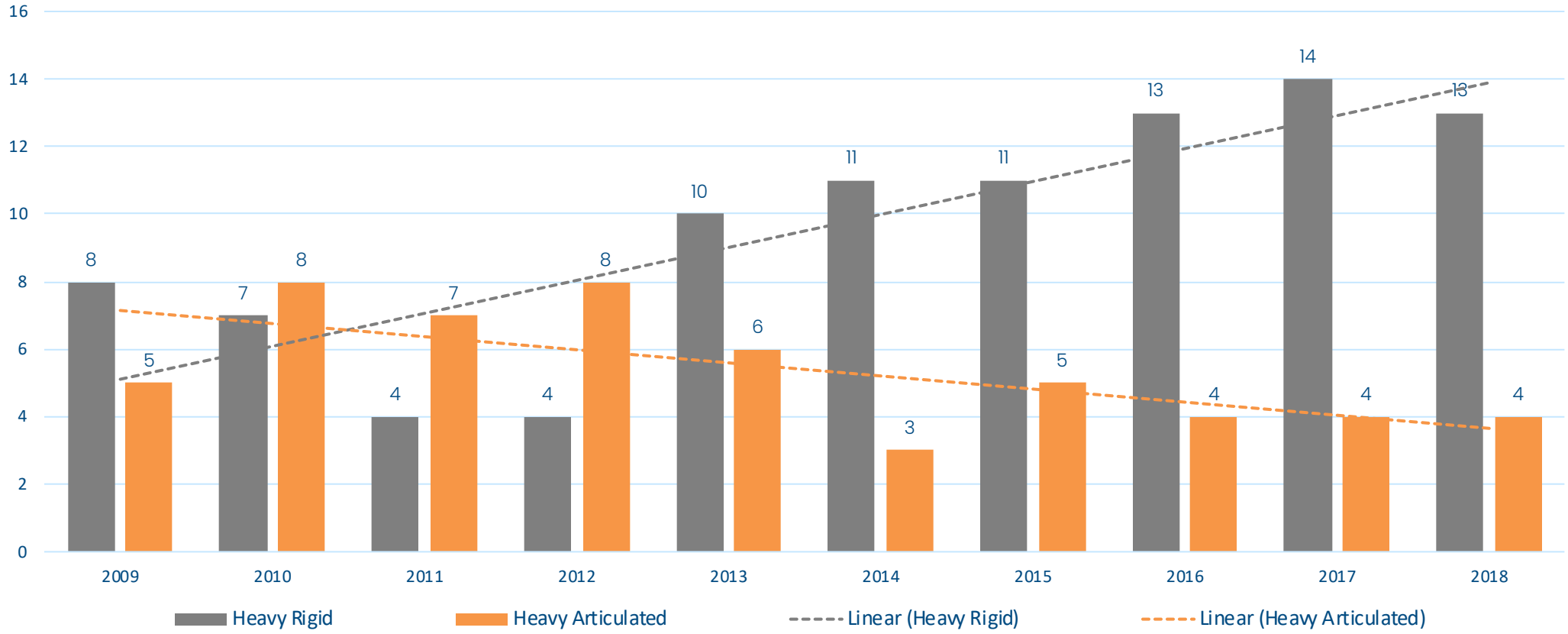
Quarterly counts of fatal crashes involving heavy vehicles, Australia, with trends



Fatal crashes involving rigid trucks are more likely to occur in speed zones consistent with urban areas than crashes involving articulated trucks: 28 per cent of fatal crashes involving a heavy rigid truck occur in speed zones of 60km/h or less (unchanged over the decade).

Source: BITRE (2020) [1]

Fatal Crashes Involving Heavy Trucks in Sydney Metropolitan Region 2009 - 2018



Source: Transport for NSW (2020) [2]

Safe System approach to Road Safety

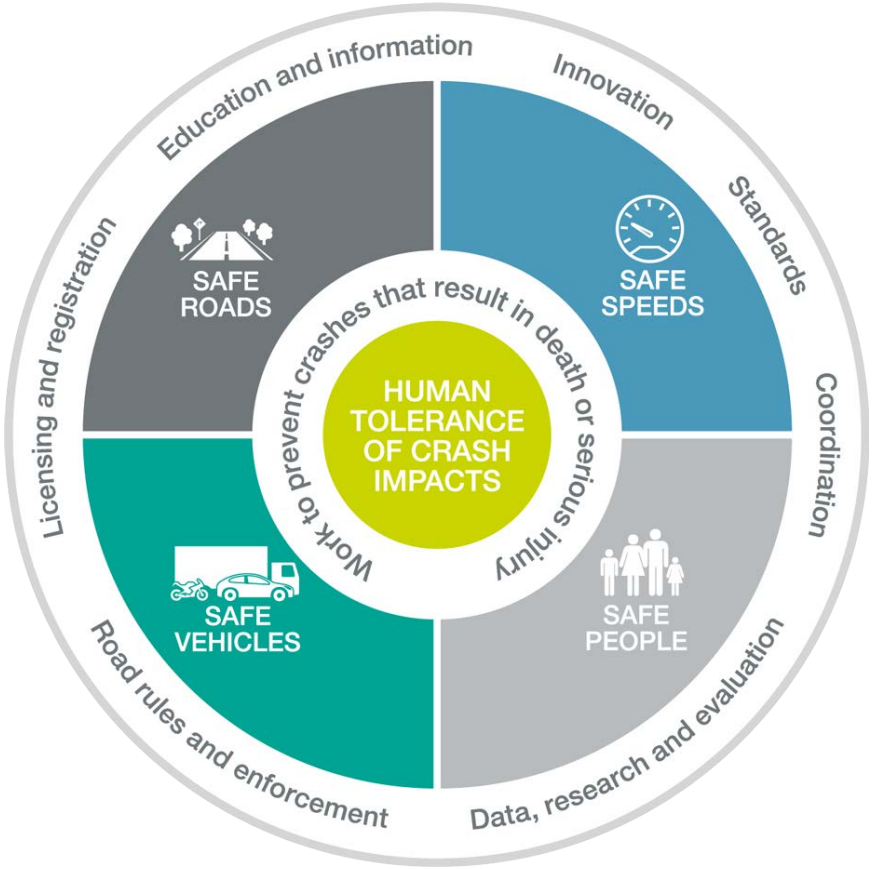


Figure: The Safe System elements include its Roads, Speeds, Vehicles and Road Users.
Source: Commonwealth

- Humans are fallible; however, no one should die or be seriously injured on the road as a result of these mistakes
- Shared responsibility amongst everyone, including those that design, build, operate and use the road system
- Like any complex system, must be strengthened in combination to multiply the protective effects so if one part fails, the others will still protect (i.e. redundancies)

Current challenges

- Urban freight task growing faster than any other road freight task in Australia [3]
- Heavy Vehicle National Law (HVNL) does not provide for differences between urban and line haul freight task [4]
- Australian Design Rules (ADRs) continue to lag behind international UNECE standards [5]
- Ageing heavy vehicle fleet (average age of 14.8 years) [6]
- Driver competency framework does not cover off on important safety critical knowledge and skills[7]

Questions?

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Methodology

- Research Question: What are other countries doing to improve the safety of the urban heavy vehicle freight task?
- Desktop Literature Review
- Interviews; Observations and Site Visits
- 21 organisations (research agencies; government departments; manufacturers; industry operators)
- Itinerary: United Kingdom; Belgium; Luxembourg; Sweden; United States

Image: Meeting and drive with Tarmac in London, United Kingdom.

Image: Meeting with Volvo Trucks Safety Group in Gothenburg, Sweden.

Accreditation Schemes & Standards


FORS
FLEET OPERATOR
RECOGNITION SCHEME


CLOCS
Construction
Logistics and
Community Safety


bsi.
ISO
39001
Road Traffic
Safety
Management


DVSA
EARNED
RECOGNITION

Fleet Operator Recognition Scheme (FORS)

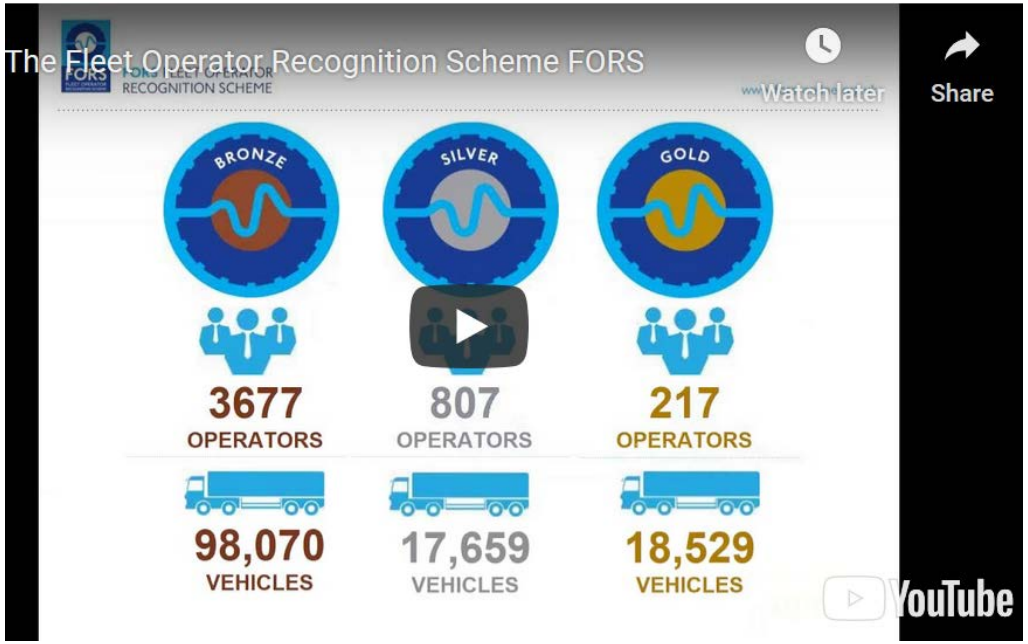
- Est. 2008 to improve the safety, environment and quality management of fleet operations
- 105,000+ vehicles and 5,000+ operators accredited
- Tiered approach to accreditation (Bronze-Silver-Gold)
- 48 requirements to gain accreditation grouped under 4 areas of fleet operators control:
  - Management
  - Vehicle
  - Driver
  - Operation
- Requirements:
  - Driver and transport manager professional development (e.g. Safe Urban Driving; Work-related road safety; Collision Investigation);
  - Operator route planning to avoid sensitive land-use areas and investigate alternative modes;
  - Vehicle safety technology; fleet review and invest in sustainable and best in class safe vehicles.
- FORS accredited operators have demonstrated:
  - 25% reduction in total collisions;
  - 41% reduction in injury collisions;
  - 64% less likely to be involved in Most Serious Infringements (MSI) Offences;
  - 50% less likely to be involved in Driver's hours offences. [8]

Construction Logistics and Community Safety (CLOCS)

- Established in 2013 following TRL report into why construction vehicles were overrepresented in cycling fatalities in London[9]
- CLOCS Standard safer transport prioritising the safety of vulnerable road users from construction transport
    - Planners; Clients; Principal Contractors; Fleet Operators
- Construction Logistics Plan – reduce truck movements; reroute; retime deliveries
- CLOCS requires minimum FORS Silver Accreditation
- Initial effectiveness shows City of Camden achieve 47% reduction in FSIs [10]

Image: TRL CLOCS Report and CLOCS Standard

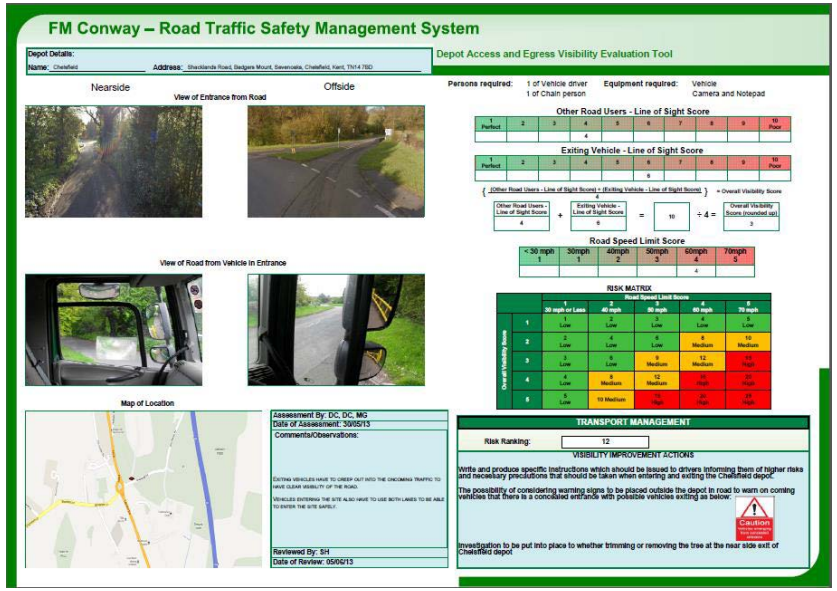
For more information FORS & CLOCS NRSPP Webinars



ISO 39001

- ISO 39001 - Road traffic safety management systems
- Internationally agreed industry standard
- Holistic approach to road-traffic safety to complement existing road traffic programmes and regulations

- Case study: FM Conway
  - “Right Person; Right Vehicle; Right Place”
  - 60% reduction in insurance claims within first three months of implementation
  - 10% reduction in overall insurance premium
  - 15% overall reduction in maintenance costs [11]



Images courtesy of FM Conway.

Conclusions

- The focus of Accreditation Schemes should take into account how transport activities can influence safe system outcomes, not just compliance.

- Schemes such as FORS and ISO 39001 serve as a good model for what road transport safety management accreditation schemes should include.

- Models such as CLOCS encourage greater supply chain leadership and engagement in improving road safety outcomes for the urban construction freight task.

Questions?

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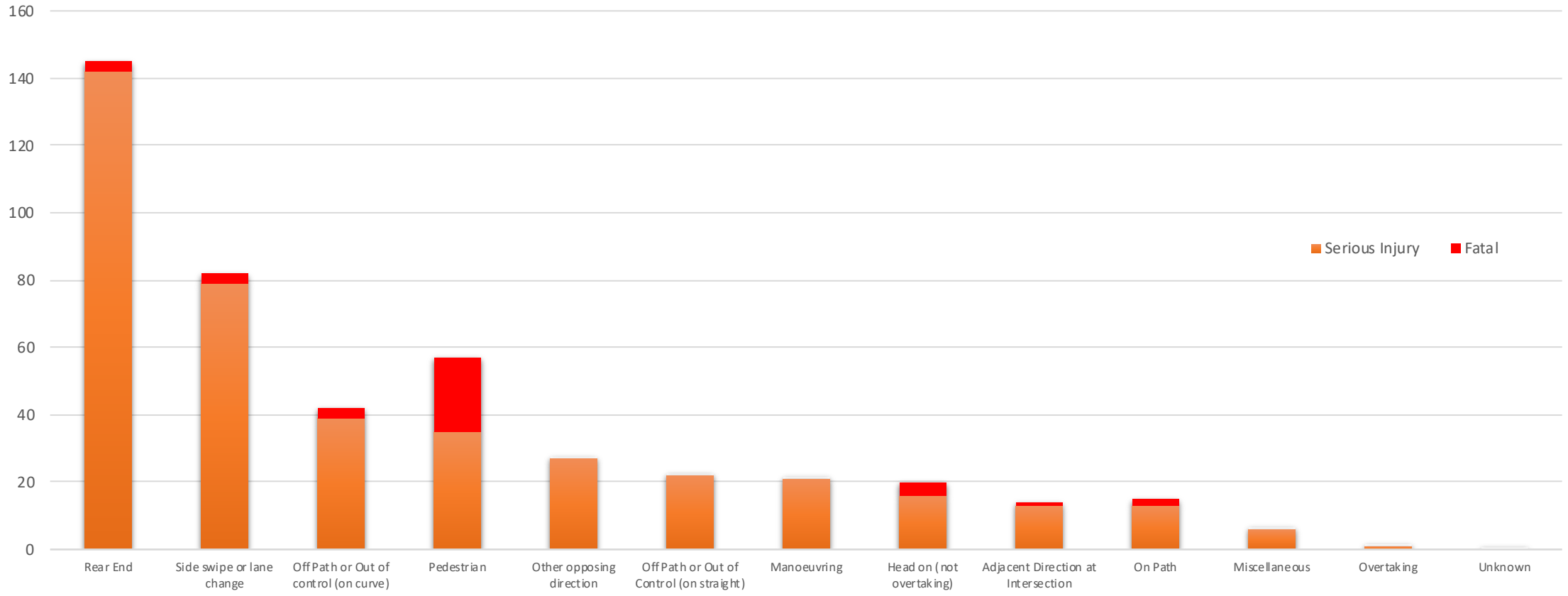
Vehicle Safety Standards

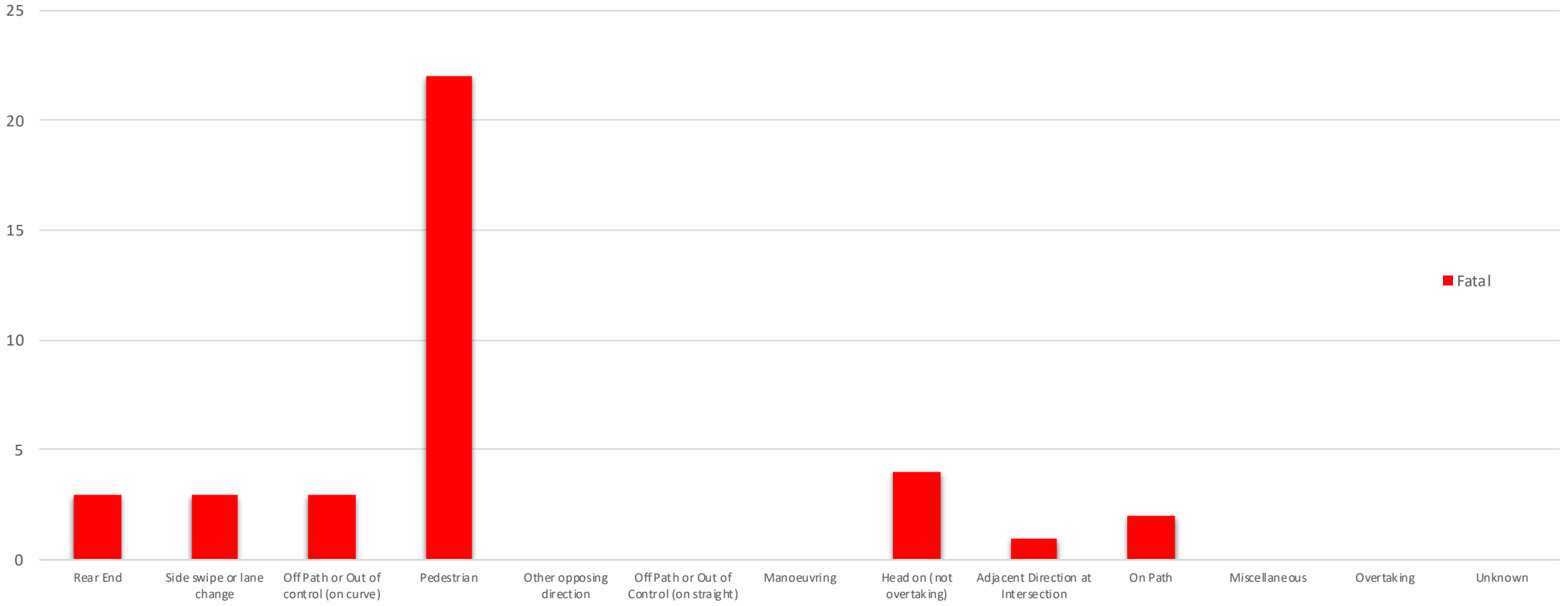
Image: Volvo Collision Warning with Emergency Brake System introduced in 2012. Mandatory AEB for new heavy vehicles in EU introduced by UNECE R131 in 2013. Image used with permission from Volvo Trucks.

Fatal and Serious Injury Crashes Involving Heavy Trucks as Key TU in Sydney Metropolitan Region 2009 - 2018



Source: Transport for NSW (2020)

Fatal Crashes Involving Heavy Trucks as Key TU in Sydney Metropolitan Region 2009 - 2018



Source: Transport for NSW (2020)

Driver Field of View

- Allows a driver to successfully anticipate traffic hazards and take action to prevent the risk of collision with other road users

- Field of view is offered by both indirect (i.e. through mirrors) and direct (i.e. windows) visibility measures

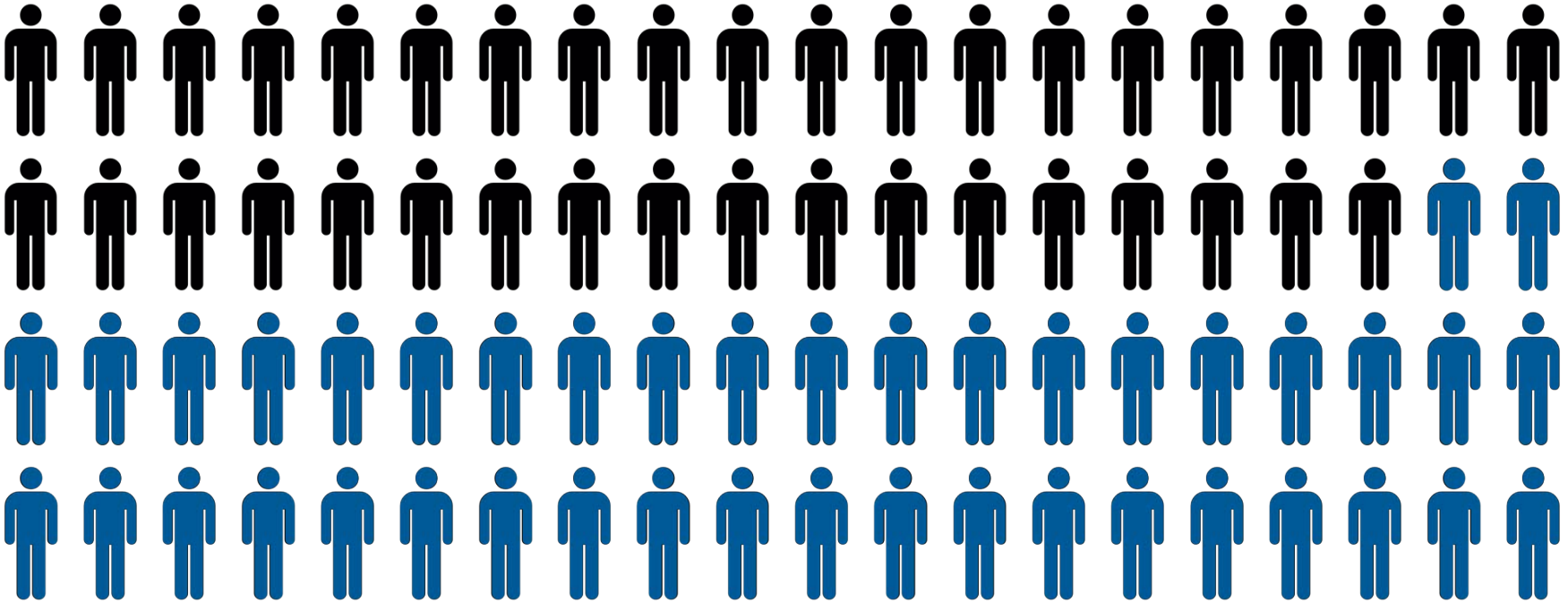
- Inadequate field of view is identified in several coronial findings in Australia with repeat recommendations [12][13][14][15]

Image: Brisbane Times (2015)

"a person 1.5m tall standing in front of the truck would be invisible to the driver if they were within 7 metres of the front of the truck" [12]

Fatal Heavy Vehicle - Pedestrian Crashes

Victorian coronial data (2000 - 2016) (n = 80)

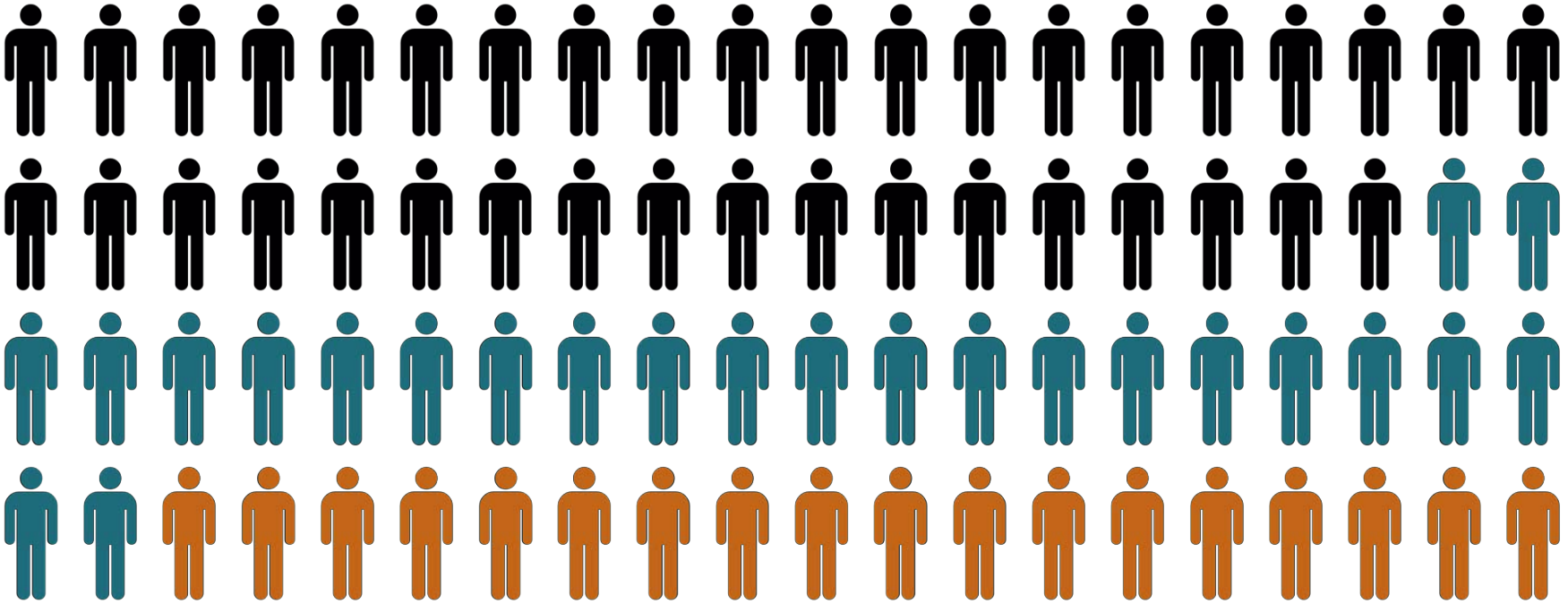


Driver unable to see pedestrian before crash (52.5% of all fatal crashes)

Source: Coroners Court of Victoria (2016) [16]

Fatal Heavy Vehicle - Pedestrian Crashes

Victorian coronial data (2000 - 2016) (n = 80)



Driver unable to see pedestrian while **vehicle mobile** before crash (30.0%)

Driver unable to see pedestrian while **vehicle stationary** before crash (22.5%)

Source: Coroners Court of Victoria (2016) [16]

The Sydney Morning Herald

'Heart-wrenching': Elderly woman killed in North Shore concrete truck crash

By **Sally Rawsthorne** and **Rachel Clun**
Updated May 2, 2019 — 5.57pm, first published at 12.00pm

An elderly woman fatally struck by a concrete truck as she crossed the road on Sydney's lower north shore on Thursday was about to celebrate her 61st wedding anniversary this week.

Gangotri Maharaj, 83, was walking hand-in-hand with her husband, Vijay, across Willoughby Road at Crows Nest about 11am, when she was hit by the truck travelling north at Albany Street.

[redacted] did not initially realise the truck he was driving had hit Mrs Maharaj, and inadvertently dragged her for metres down the road.

A woman was crossing the road in Crows Nest on Sydney's lower shore when she was hit.

Source: SMH (2019) [17]

Questions?

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Local Government Schemes

Figure: Cross-over Mirrors for Trucks Legislation information flyer. Courtesy of New York City Department of Transport. [18]

Figure: Safer Lorry Scheme information poster. Courtesy of Transport for London. [19]

Side Underrun Protection

- UN ECE R73 – Uniform Provisions for Lateral Protection Devices (Europe)
- The Road Vehicles (Construction and Use) Regulations 1986 (United Kingdom)
    - Estimated 61% reduction in cyclist fatalities and 20% reduction in pedestrian fatalities from side impact crashes since introduction [20]
- US DOT Volpe Standard (United States)
    - Required by municipal vehicles and other local schemes in Boston and NYC
- ATA Technical Advisory Procedure (Australia)
- Design standards can influence effectiveness:
    - Impact strength (UK, US Volpe)
    - Ground clearance (US Volpe)
    - Flat surface vs bars / rails (UK SLS; US Volpe)
- Improved SUP design is estimated to further reduce pedestrian & cyclist fatalities by 45% [21]

Direct Vision Standard

- Mandatory permit-based scheme in London rating heavy vehicle direct field of view from 2020 [22]

Image courtesy of Daimler AG.

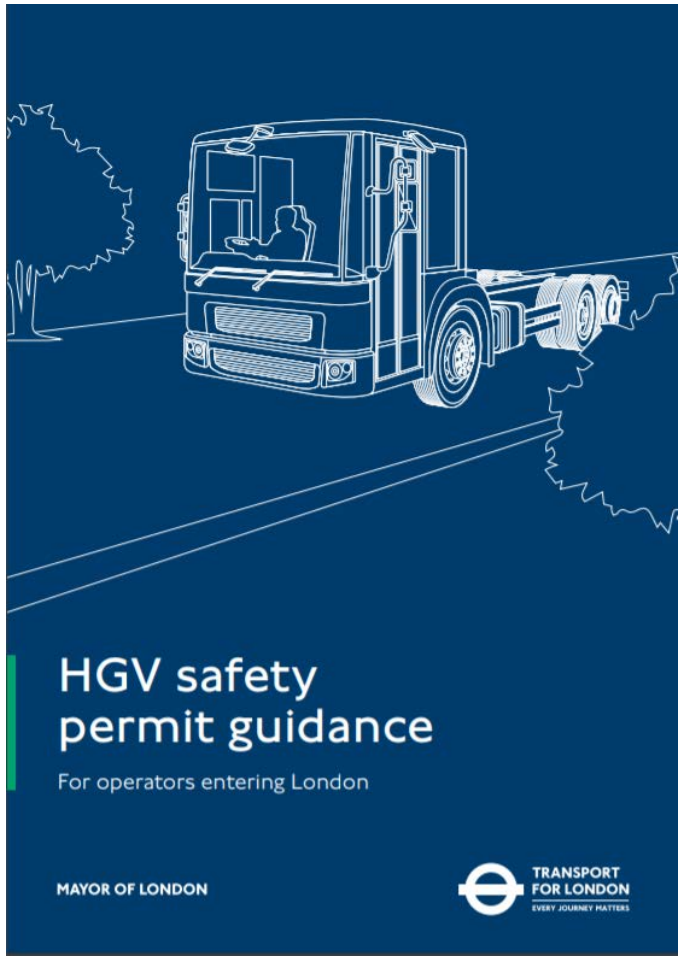
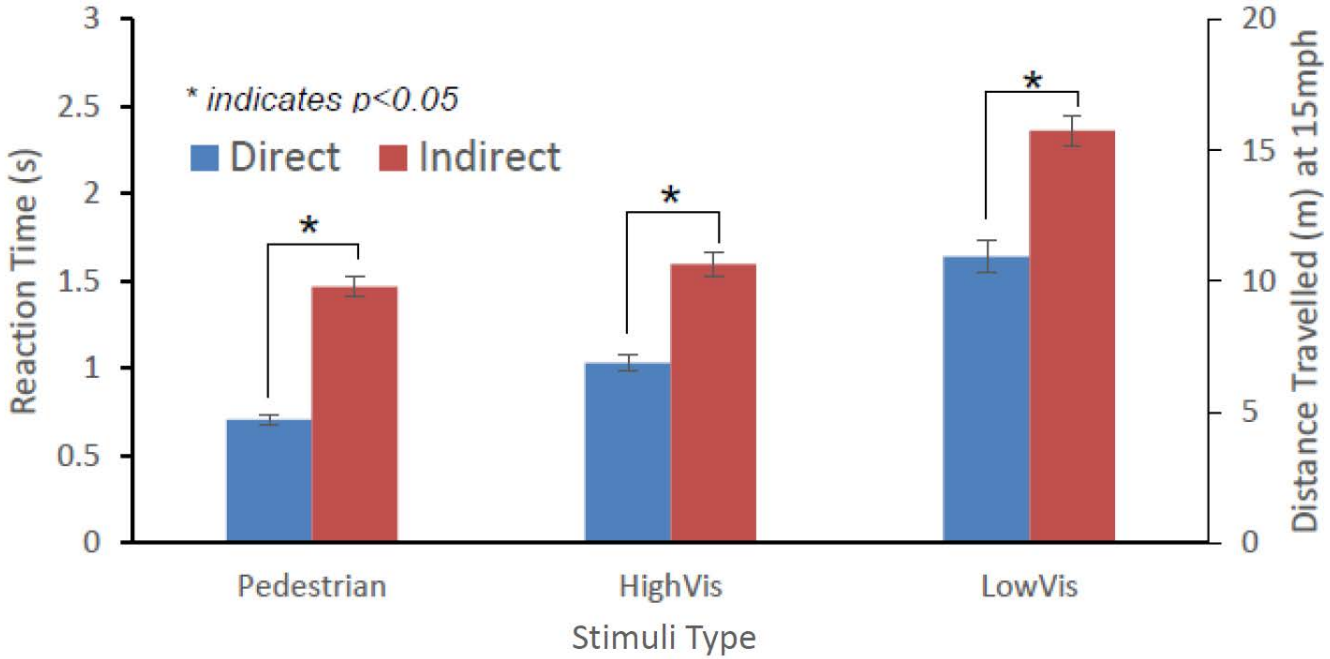
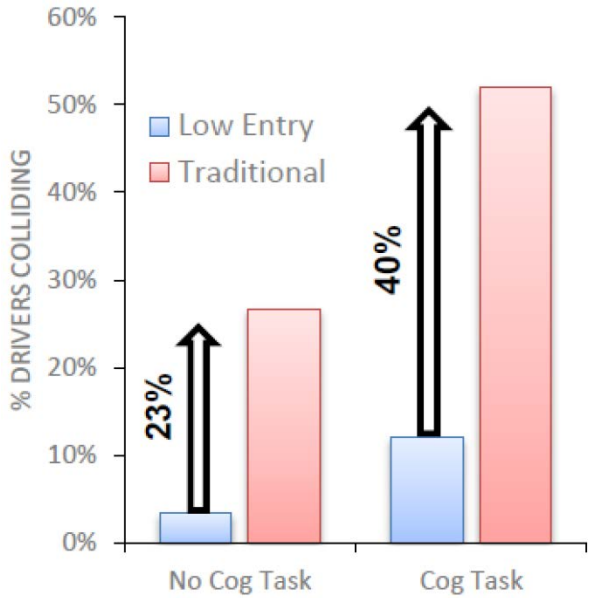


Image Source: Transport for London (2019)

Direct vs Indirect Vision Reaction Times





Source: Transport for London. [23]

EU General Safety Regulation (EC) 661/2009

The revision of the EU General Safety Regulation (EC) No 661/2009 will introduce new mandatory vehicle safety technology as of 2022 to protect passengers, pedestrians and cyclists, including:

- Improved Direct Vision
  - Estimated to save 553 lives / year in EU[23]
- VRU Detection Systems (i.e. radars)
  - Estimated to prevent up to 60% of all severe incidents due to nearside-turning HGVs [25]

German 'Turn Assist Scheme' currently increasing uptake before introducing legislation [25]

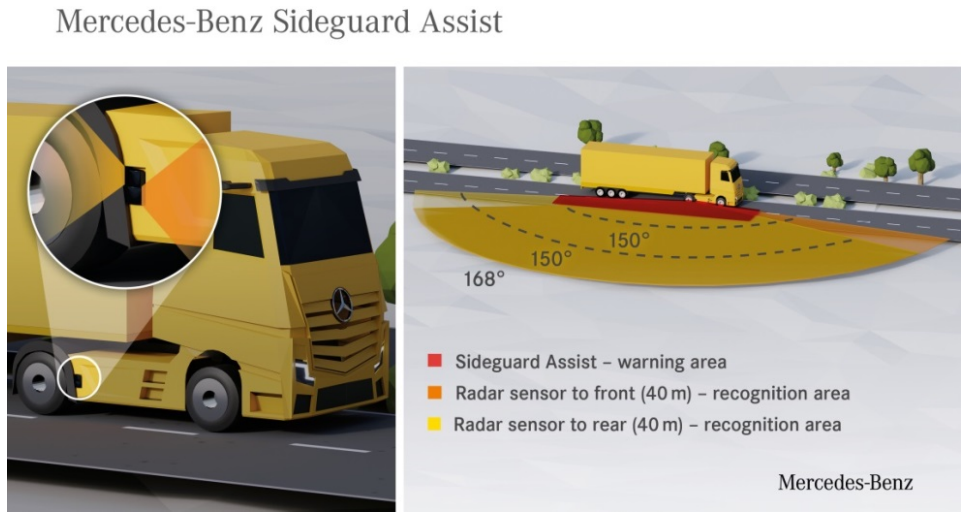
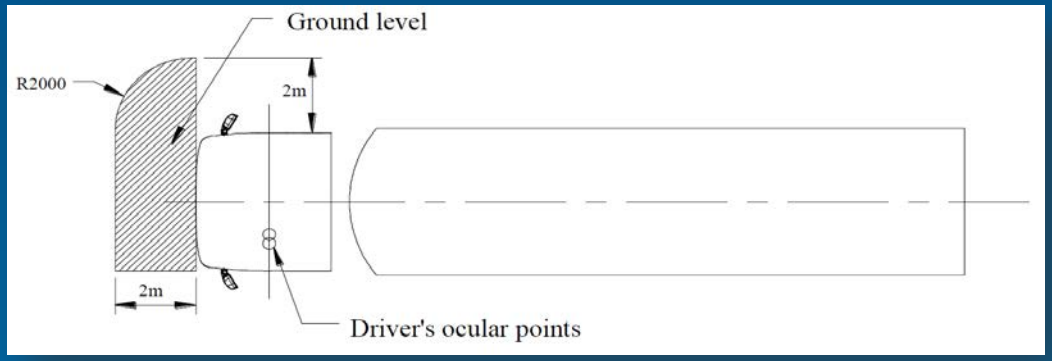


Image courtesy of Daimler AG.

Vehicle Standard (Australian Design Rule 14/02 – Rear Vision Mirrors) 2006

Compilation:	1 (up to and including Vehicle Standard (Australian Design Rule 14/02 – Rear Vision Mirrors) 2006 Amendment 1)
Compilation Date:	18 December 2014
Compiled by:	Vehicle Safety Standards, Department of Infrastructure and Regional Development.



6.2 Class VI mirrors are optional for all vehicles (see table in clause 15.2.1.1.1).

Queensland

Heavy Vehicle National Law (Queensland)

Heavy Vehicle (Vehicle Standards) National Regulation

Current as at 1 July 2018

Repeal/Expiry Information
The *Statutory Instruments Act 1992*, part 7 does not appl
legislation—see the *Heavy Vehicle National Law Act 2012*, secti
This means the legislation does not expire.

Reprint note
The Heavy Vehicle (Vehicle Standards) National Regulation is
Queensland under the Heavy Vehicle National Law (Queensl
intended a new reprint of the National Regulation will be prepar
Office of the Queensland Parliamentary Counsel when any change in the
National Regulation takes effect.

National scheme legislation may not be entirely consistent with Queensland's current drafting style.

8 Measurement of width of vehicles

(1) For this Regulation, the width of a heavy vehicle is measured disregarding the following devices—

(a) an anti-skid device mounted on the wheels of the heavy vehicle;

(b) a central tyre inflation system fitted to the heavy vehicle;

(c) a side marker light fitted to the heavy vehicle;

(d) a mirror fitted to the heavy vehicle;

(e) a reflector fitted to the heavy vehicle;

(f) a signalling device fitted to the heavy vehicle;

(g) a tyre pressure gauge fitted to the heavy vehicle;

(h) a permanently fixed webbing assembly-type device, if the maximum distance across the body of the heavy vehicle, including any part of the device, is not more than 2.55m;

Example of permanently fixed webbing assembly-type device—

a curtain-side device

(i) removable load restraint equipment, if the maximum distance across the body of the heavy vehicle, including any part of the equipment, is not more than 2.55m.

(2) However, if both devices mentioned in subsection (1)(h) and (i) are fitted to a heavy vehicle at the same time the width of the vehicle is measured disregarding the devices only if the maximum distance across the body of the vehicle, including any part of either device, is not more than 2.55m.

Note—

The *Heavy Vehicle (Mass, Dimension and Loading) National Regulation*, Schedule 6, section 7 prescribes the maximum width of a heavy vehicle.

COMMISSION REGULATION (EU) No 1230/2012

of 12 December 2012

implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council with regard to type-approval requirements for masses and dimensions of motor vehicles and their trailers and amending Directive 2007/46/EC of the European Parliament and of the Council

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EC) No 661/2009 of the European Parliament and of the Council of 13 July 2009 concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefor (1), and in particular Article 14(1)(a) thereof,

Having regard to Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (Framework Directive) (2), and in particular Article 39(2), (3) and (5) thereof,

Whereas:

(1) Regulation (EC) No 661/2009 is a separate Regulation for the purposes of type-approval provided for in Directive 2007/46/EC.

(2) Regulation (EC) No 661/2009 repeals Council Directive 92/21/EEC of 31 March 1992 on the masses and dimensions of motor vehicles of category M_1 (3) as well as Directive 97/27/EC of the European Parliament and of the Council of 22 July 1997 relating to the masses and dimensions of certain categories of motor vehicles and their trailers and amending Directive 70/156/EEC (4). The requirements relating to the masses and dimensions of motor vehicles and their trailers set out in those Directives should be carried over to this Regulation and where necessary, amended in order to adapt them to the development of technical and scientific knowledge.

(3) Regulation (EC) No 661/2009 lays down fundamental provisions on requirements for the type-approval of motor vehicles and their trailers with regard to their masses and dimensions. Therefore, it is necessary to also set out the specific procedures, tests and requirements for such type-approval.

(4) Council Directive 96/53/EC of 25 July 1996 laying down for certain road vehicles circulating within the Community the maximum authorised dimensions in national and international traffic and the maximum authorised weights in international traffic (5) lays down certain maximum authorised dimensions for both national and international traffic in the Member States. It is therefore important to take into account, for the purposes of the construction of vehicles, the dimensions which have already been harmonised in the Union in order to foster and ensure the free circulation of goods.

(5) Directive 97/27/EC allowed Members States to grant EC type-approval for vehicles the outermost dimensions of which did not match the maximum authorised dimensions provided for in that Directive. It also allowed Member States to refuse registration of vehicles tha… ou… of … po… ap… wh… for … roa… the … typ… ens… be… Di… ori… the… 20… su…

(6) Di… masses that are applicable only to international traffic. However, that Directive allows the Member States to continue to apply their national legislation for national traffic. As a consequence, the harmonisation of the technically permissible maximum laden mass and the technically permissible maximum mass on the axles or on a group of axles for the purposes of circulation in the Member States does not appear to be feasible in the short term. Nevertheless, due to the existence of non-harmonised rules on the construction of the road infrastructure, it is appropriate to require Member States to

(1) OJ L 200, 31.7.2009, p. 1.
(2) OJ L 263, 9.10.2007, p. 1.
(3) OJ L 129, 14.5.1992, p. 1.
(4) OJ L 233, 25.8.1997, p. 1.
(5) OJ L 235, 17.9.1996, p. 59.

Table II

Vehicle width

Item		Vehicles categories									
		M_1	M_2	M_3	N_1	N_2	N_3	O_1	O_2	O_3	O_4
10.	Watching and detection aids including radars	—	x	x		x	x	x	x	x	x

Safety through Public Procurement

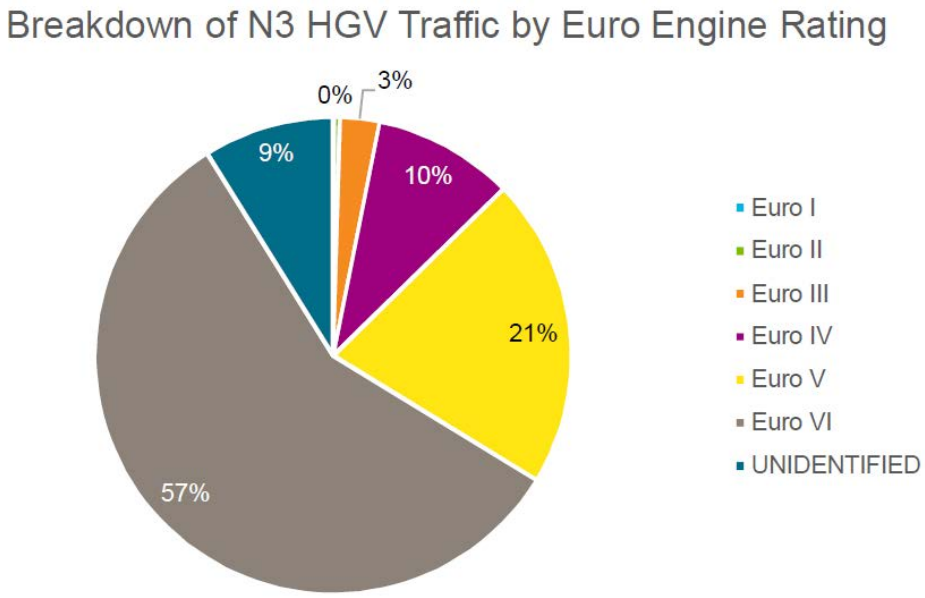
- Transport for London Work-Related Road Risk Requirements
- New York City Fleet Replacement Program
- Boston City Council Side Guard Ordinance

WRRR WORK RELATED ROAD RISK

Image: NYC Fleet Replacement Program. Courtesy of New York City Department of Transport.

Emissions Schemes and Safety

- Indirect influence on vehicle safety through introducing newer vehicles into the fleet
- Euro Emissions Standards are a good indicator for vehicle age, which is in turn a good indicator for vehicle safety
- Examples:
  - London Low Emission and Ultra Low Emission Zone
  - NYC Hunts Point Clean Trucks Program



Source: Transport for London (2018)

Recommendations

- Update ADR 14/02 to mandate Class VI mirrors for heavy vehicles >12t GVM
- Amend HVNL and HV(VS)NR as limiting Direct Vision Vehicle Designs and VRU Detection Systems
  - Revise width exemptions list
  - Increase steer axle mass limits
- Government procurement policy (e.g. waste collection; building projects) should require improved driver field of view through indirect vision devices and direct vision vehicles
- Include as condition of granting PBS road access in local urban environments (e.g. SPECTS Scheme business rules)
- Subsidise fitting and retrofitting of proven technologies
  - Underrun Protection
  - ABS/ESC/AEB
- Better understand blind spot issues in Australian fleet (differences in design compared to US and EU)

Questions?

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Training & Awareness

Training Programs

- Driver Certificate of Professional Competence EU
- Directive 2018/645 – Annex 1:

  To know the technical characteristics and operation of the safety controls …including:

  - The use of electronic and mechanical devices such as Electronic Stability Program; Advanced Emergency Braking Systems; Anti-lock Braking Systems; traction control systems; In-vehicle monitoring systems; and other driver assistance or automation devices

  The to anticipate, assess and adapt to risks in traffic; including

  - To recognise and adapt to dangerous situations and be able to cope with stress deriving therefrom …vulnerable road users such as cyclists, pedestrians, powered two-wheelers

- Safe Urban Driving (SUD); EPIC: Logistics
- FORS Professional Online (TruckSmart; BridgeSmart; Pedestrian Safe, etc.)

Image : Safe Urban Driving. (FLeetSource Ltd 2019)

Image : Pedestrian Safe Module (FORS, 2020)

Public Awareness

- Volvo Stop. Look. Wave.
- CEMEX Don’t Chance It
- NYC Trucks Eye View
- CLOCS Exchanging Places

Image : Volvo Group’s “Stop, Look, Wave”. (Volvo Group, 2015)

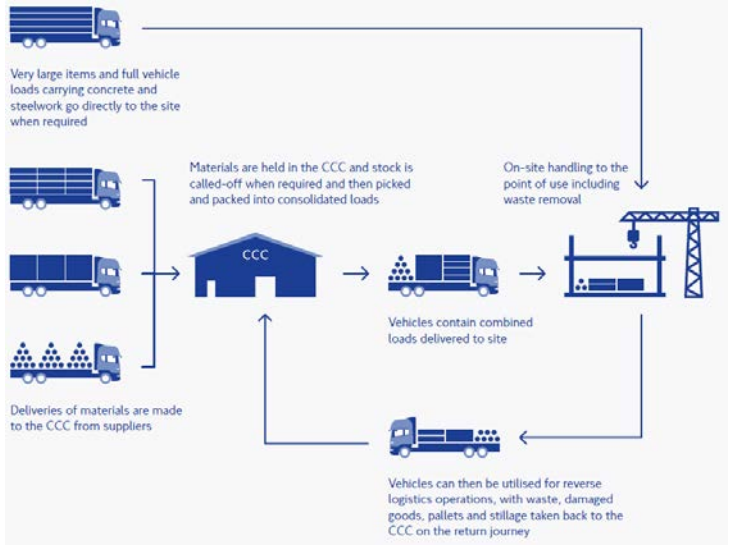
Image : Don’t Chance It Pedestrian Campaign . (CEMEX, 2019)

Sustainable Urban Logistics

Sustainable Urban Logistics

- Delivery Toolkits & Construction Logistics Programme
  - Route planning (selecting safer routes, avoiding sensitive land use areas);
  - Retiming (deliveries outside of peak periods and night deliveries);
  - Reducing (alternative transport modes; consolidation of deliveries & waste; DfMA) [26]

- Delivery consolidation methods for multiple urban construction projects
  - 65% reduction in heavy vehicle trips [27]
  - Optimisation of vehicle use (i.e. utilisation; reverse logistics)



Source: Transport for London (2016).

Recommendations

- Route planning should consider sensitive land-use areas
- Night deliveries for urban waste and distribution
- Consolidation for construction materials deliveries
- Utilisation of alternative transport modes for infrastructure projects
- Planning authorities can influence safer outcomes through conditions of approval for developments and infrastructure projects

Higher operating standards, better route planning … driver training appropriate for the urban environment, new direct vision vehicle cab designs, new types of safety technology, are all available now.

We can prevent the needless deaths of hundreds of people on our roads every year. Why isn't that our priority?

CYNTHIA BARLOW OBE, CHAIR ROADPEACE

Thank you & questions

Questions?

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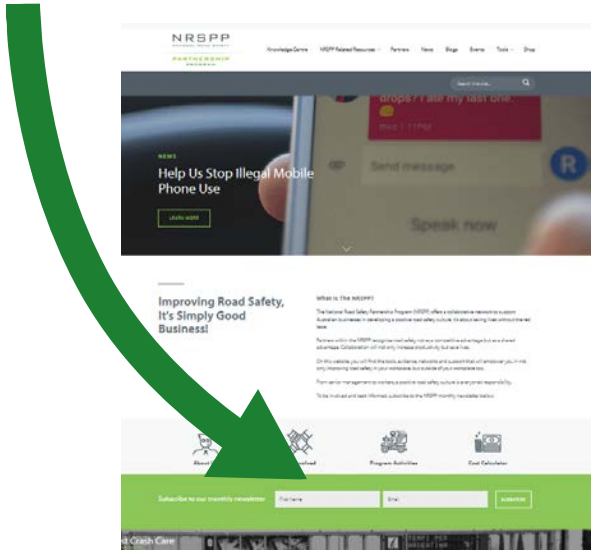

References

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