Saving lives on EU roads: General and Pedestrian Safety Regulation

Transport & Environment: Truck Safety Conference

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Truck Safety Conference

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The Future Of Transport

In the next 3-5 years, the focus will be on delivering transport & mobility solutions that are:

- Safe
- Reliable
- Efficient
- Accessible
- Environmentally sound

For all those who use or operate the transport and mobility network.

Our Mission

To challenge and influence our chosen markets, driving sustained reductions in:

- Fatalities & serious injuries
- Cost inefficiencies
- Harmful emissions
- Barriers to inclusive mobility
- Unforeseen delays

...enabling world-class transport and mobility solutions that underpin the needs of tomorrow’s economy and society.
Changing world ...

The digital ‘revolution’
- Internet, data and transport

Changing population characteristics
- Different travel (mobility) patterns
- Changing driver demographics
  - Ageing, obesity
  - Fewer young drivers
  - Reducing individual vehicle ownership

Changing vehicle fleet
- Advanced safety technologies (ADAS)
- Connected & Autonomous vehicles
  - Safety, Efficiency, Environment, Mobility
- Increasing diversity of vehicle types
  - More SUVs & light weight vehicles
  - More electric & hybrid vehicles

Smartphones are a Central Part of Our Daily Lives

59% have used their smartphones every day in the past 7 days
Changing world …

TRL 1959 and 1971

Google 2010 and 2015

Tesla 2016
Changing world ...

Background: Autonomous vehicle development

- Enhanced & shared mobility
- Demonstration
- Connected & Automated vehicles
- ULEV’s & charging infrastructure
- Traffic management software
- Visioning
- Hardware
- Data science
- Physical & cyber security
- Freight
- Business case
- Policy
- Simulated environment
- Regulation
- Air quality
- Mapping
- Congestion
- Human factors & ergonomics
- Perception
- Behaviour

Projects using the Living Lab:

- GATEway
- MOVE_UK
Ford’s Road to Full Autonomy

Today is a milestone moment in Ford’s history

We’re announcing our intent to have fully autonomous vehicles in commercial operation for a ride-hailing or ride-sharing service beginning in 2021. This is significant. Ford will be mass producing vehicles capable of driving fully autonomously within five years. No steering wheel. No gas pedals. No brake pedals. A driver will not be required.
Changing world ...

US cinema chain AMC set to allow customers to text during films

14 April 2016  Technology  401

Most cinema chains ask people to switch their phones off during a film

Cinema chain plans to allow texting during films

The future of transport.
European Commission set to allow drivers to text at the wheel

Most countries now permit the use of smart devices with ‘autopilot’ driving

EC plans to allow the use of smart devices in autonomous cars

“Richard Cuerden’s creative media”
Road Casualties

Road fatalities in EU28

2020 EU road casualty target approx. 15,000 deaths
The downward casualty trend is mainly associated with cars. Progress for VRUs (pedestrians, motorcyclists and cyclists) is not as good.
Reported number of KSI car users, Great Britain, 2014
Reported number of KSI car drivers, Great Britain, 2014
Road Casualties

Reported number of KSI car drivers

Car driver casualty reduction:
- Largest reduction for younger males
- Changes in exposure
  - Less driving by younger people?
- Improved vehicle safety
  - Cuerden et al. (2015) estimated that secondary safety alone, from 2002, has prevented 11% of driver fatalities.
- Improved driver behaviour
  - Education/ training/ Enforcement/ Licensing?
- Improved road design
- +++
General and Pedestrian Safety Regulation

Vehicle design and casualty prevention

- Requirements unique to individual VM (Vehicle Manufacturers)
- Requirements demanded by consumer assessments to achieve desired rating / score.
- Mandatory requirements demanded by legislation which all vehicles must comply with.
General and Pedestrian Safety Regulation

- **General Safety Regulation (GSR) EC 661/2009 published 2009**
  - Type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units
  - Includes
    - Implementation of UN Regulations
    - DRL, ESC, tyre pressure monitors (cars)
    - LDW and AEB Systems (trucks and buses)

- **Pedestrian Safety Regulation (PSR) EC 78/2009 published 2009**
  - Type-approval of motor vehicles with regard to the protection of pedestrians and other vulnerable road users
  - Includes the following VRU passive safety requirements
    - Legform to front of car
    - Adult and child headform to bonnet
    - Monitoring of upper legform and adult head to windscreen tests
Benefit and feasibility of a range of new technologies and unregulated measures in the field of vehicle occupant safety and protection of vulnerable road users

Corporate author(s): European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs
Private author(s): D Hynd, M McCarthy, J Carroll
Themes: Land transport (road, rail), Transport regulations and safety, Industrial policy
Target audience: Specialised/Technical
Key words: new technology, transport safety, vehicle parts, cost-benefit analysis, legislation, motor vehicle industry, industrial policy, report
Measures being taken forward include ...

- Autonomous Emergency Braking
- Emergency Braking Display
- Intelligent Speed Assistance
- Lane Keeping Assistance
- Driver Distraction/Drowsiness Monitoring
- Safety-Belt Reminder (all seats)
- Frontal Impact Crash Programme
- Side Impact Crash Programme
- Rear Impact Crash Programme
- Alcohol Interlock Device Installation

- Crash Event Data Recorder
- Tyre Pressure Monitoring
- Truck Front End Design Programme
- Truck Rear Underrun Protection
- Truck Lateral Protection
- Bus Fire Safety Programme
- Pedestrian/Cyclist Detection
- Head impact on A-pillar/windscreen
- Reversing Detection

\[ \square \& \square = \text{Truck/ bus safety measures} \]
General and Pedestrian Safety Regulation

Examples of measures for trucks ...

- **Driver Distraction/Drowsiness Monitoring**
  - Technology neutral, testing protocol to be determined, but with several phases linked to the improving sophistication of the detection systems
  - Make mandatory for M and N vehicles
    - 01/09/2020 for new types
    - 01/09/2022 for new vehicles

- **Safety-Belt Reminder (all seats)**
  - Technology widely available
  - Make mandatory for all front and rear seats of M1 and N1 vehicles
  - Make mandatory for all front seats of N2, N3, M2 and M3 vehicles
    - 01/09/2020 for new types
    - 01/09/2022 for new vehicles
General and Pedestrian Safety Regulation

Truck Front End Design Programme

  - More specifically article 9a of the revision specifies [3]: “by 27 May 2017, the Commission shall assess the need to develop the technical requirements (within the framework of Directive 2007/46/EC) for type-approval of vehicles equipped with extended cabs taking into account:

  a) the improved aerodynamic performance of vehicles or vehicle combinations

  b) vulnerable road users, and improvement of their visibility to drivers, in particular by reducing drivers' blind spots

  c) the reduction in damage or injury caused to other road users in the event of a collision

  d) the safety and comfort of drivers”.
General and Pedestrian Safety Regulation

Truck Front End Design Programme – *Blind Spots*

- Focus on **direct vision requirements** but **not limited** to direct vision
- In the **short term, camera or detection systems**, should be complimentary measures, mandatory for M2, M3, N2 and N3:
  - 01/09/2020 new types – Camera and Detection (no length advantage)
  - 01/09/2022 all new vehicles – Camera and Detection (no length advantage)
  - 01/09/2028 new types – **Direct Vision standard**: length advantage, encouraging vehicle manufacturers to bring to market earlier
General and Pedestrian Safety Regulation

Truck Rear Underrun Protection

- Improved crashworthiness performance:
  - Increase strength of rear underrun devices
  - Better geometric vertical alignment to match M1 vehicles
- Improved measures focusing on HGV, buses and their trailers
- Work under UNECE is well advanced
- 03 Series of amendments to UNECE Regulation 58 proposed
  - 01/09/2020 new types
  - 01/09/2022 new vehicles
Methodology: Assessment of the evidence

Reviewing data sources

- **Aim:** For each measure provide an objective evaluation of the evidence (research studies): Quantify the **benefits** and **costs** – **Provide values for Impact Assessment**

- **Why?** Because studies use:
  - Different methodologies
  - Data of differing quality
  - Account for, or make different assumptions
  - Values presented can be ‘opaque’ making it difficult to make judgements about relative robustness

- ‘**Cluster**’ measures based on type of vehicle and functional requirements – **avoid ‘double counting’ costs and/or benefits**
  - A potential example could be: ISA, AEB, pedestrian AEB, LKA and driver distraction/drowsiness monitoring
Methodology: Assessment of the evidence
Methodology: Assessment of the evidence

Steps in methodology

- Methodology assesses data quality, method and analysis in line with EC ‘Better Regulation’ guidance and Scrutiny Board oversight

- **Step 1 – Definition of measure/scope of impact**
  - Type of study? Existing performance criteria?

- **Step 2 – Quality of data**
  - Timeframe, age, geographic scope, applicability etc.

- **Step 3 – Process and use of data**
  - Method, analysis, assumptions

- **Step 4 – Comparison of other sources**
  - Compare with other sources, meta-analysis?
Methodology: Assessment of the evidence

Rating and comparison of sources

Ratings and boundaries are examples only
Next steps ..... 

In 2016, TRL will:

- Share ‘fact sheets’ for each measure with stakeholders (October)
- Develop clusters of measures (October)
- Host workshop (Mid-late November)
- Continue to hold bilateral meetings (October-December)
- Complete evidence review and deliver final report (December)
  - Provide values for Impact Assessment

In 2017, EC will:

- Prepare Impact Assessment and hold EU public consultation phase
- Adopt a 'concrete' proposal to update the GSR and PSR (Summer)
- Legislative procedure will follow, where the Council, EP and EC will discuss the proposal with a view to agree and adopt as legislation
Thank you
Any questions?

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