



# IAM Roadsmart

Evaluating the costs of incidents from the public sector perspective: a road safety policy research paper

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# 1 Introduction



# Introduction

## Road Safety in the UK context

The government has committed to spending £15 billion on improving the strategic road network over the next 5 years, but there are worries that, despite the increased investment, in infrastructure, cuts in local services could lead to increasing numbers of incidents on the UK's roads.

The Department of Transport ("DfT") has moved away from proposed targets as part of road safety policy in its most recent Road Safety Statement (2015).

The Government is seeking practical and innovative ideas to improve road safety issues whilst taking into account reduced funding.

Road casualties and fatalities have been steadily decreasing over the last few decades. Following the recession there was a particularly sharp dip in casualties and fatalities. The increase in fatalities and casualties in 2014 (6% increase in casualties compared to the previous year's figures<sup>1</sup>) has been countered by a modest (2%) decrease in 2015 results, which were published in June 2016. Notwithstanding the improvement in 2015, IAM Roadsmart believes that the number of fatalities has flat-lined in recent years. Our analysis is based upon 2014 data, as the 2015 data was not published in time to be used during the bulk of our analysis work.

A balance must be achieved between developing initiatives that aim to improve road safety, whilst avoiding the creation of undue barriers to motoring. Ensuring that people are able to access jobs and education, or if they are older, that they are able to be mobile and independent for as long as possible is also critical for the UK's society.

## Purpose of the report

Road safety, as an end in itself, is not regularly cited as a public policy priority area. This report seeks to explore the extent of the impacts that road safety has on issues that are known to be priorities.

IAM RoadSmart wants to take action to change the narrative and format in which issues are raised to match issues to current political imperatives. These include key policy drivers such as:

- 1. The economy** – at a time when the economy is faced with recovery post the recession and growth is an important facet of the Government's budget deficit reduction strategy, this is an important consideration. The wider economic productivity impact associated with the issues beyond the direct cost per casualty and accident is explored in this study. This report does not seek to assess the impact of the expected departure of the UK from the European Union ("EU") or related effects on road safety in the UK. We note that road and vehicle safety is an area that is heavily regulated in EU law and so there is a need for further monitoring of the effects of the change during the so-called 'Brexit' process and in the longer-term.
- 2. Health and social care costs** – As councils and the NHS struggle to balance their budgets against the increasing cost of the need for health and social care services, it is important to recognise the cost savings that can be produced by increased road safety.
- 3. Avoiding life changing injury and deaths** - This report revisits the valuation of the different severity outcomes arising from a road accident, as well as re-considering the value of other injuries and accidents. We look in this study at effects on costs including that of police time and insurance costs (premiums being a potential barrier to motoring and hence economic activity).

# Introduction (cont.)

## Human costs of incidents

In assessing the costs associated with these themes, our review focuses on the cash or resource savings to the public sector agencies involved. This ensures that the focus of the report remains on public sector policy. In maintaining this focus, we have excluded some of the ‘human’ costs that are normally included in evaluation of the cost of incidents on the roads, including the cost attributed to grief. Our methodology for highlighting the public sector costs is explained later in this report.

This approach is not intended to imply that there is no value attached to the excluded human cost elements, which are typically assessed at up to £1 million per fatal Road Traffic Collision (“RTC”) according to Stats 19. The purpose of this research is to facilitate a discussion around the costs to the public sector beyond DfT, with the aim of creating a more focused policy discussion that positions road safety as an issue that has effects on many departments and agencies. The departments affected that are highlighted by our research include the Department of Work and Pensions, Home Office, Ministry of Justice and Department for Health.

## Environmental issues

Whilst not listed above, consideration has been given to environmental issues. A number of factors affect vehicle emissions including: the age and technology of the vehicle; driving style; type of road used by the motorist; and the level of congestion encountered. Most of these factors cannot be observed from the data available in relation to incidents.

We note that the recommendations of this report may have some potential adverse environmental effects (e.g. encouraging some older drivers to continue motoring for longer), but that these may be countered by the benefit of avoiding alternative environmental damage (e.g. avoiding a family member of the older driver undertaking a longer journey to visit or help with shopping).

Rather than claim any potential positive effects from recommendations made in this report (for which there is a lack of robust empirical data), we note that environmental concerns should be proportionately taken into account in setting policy.

## Secondary and indirect costs

In the course of our research, and in discussion with industry experts (including DfT), we have uncovered a number of issues that have not historically been considered in evaluations of incident costs:

- **Mental health costs:** there may be costs of conditions including anxiety and depression as well as conditions resulting from trauma related to an RTC. These may affect the motorists involved in the incident but also witnesses and family members. We understand that no data has historically been captured on this issue and the breadth of the potential population affected makes reliably estimating the costs difficult to achieve. We note that this may have potentially significant implications for healthcare, and recommend that further work be undertaken to assess the extent of the issue.

# Introduction (cont.)

## Secondary and indirect costs (cont.)

- **Costs to the economy of congestion:** we refer in this report to the costs assessed in relation to congestion, which have an impact upon economic productivity and, therefore, may indirectly affect corporate performance and tax revenues to the UK Government. Costs may include lost productive time and a particularly significant impact on manufacturing processes. However, the research identified on congestion does not make the distinction in sufficient detail between congestion due to volume of traffic as opposed to that attributable to RTCs. It is also not clear to what extent the economic impact highlighted by other research has a direct impact on public sector budgets. Whilst we have excluded this issue from this report, we note that there may be an incremental impact on public sector costs due to congestion, which would add to the costs presented later.
- **Costs to the criminal justice system:** we note that there are statistics from the Home Office on the costs to the criminal justice system relating to motoring offences. These are quite broad and do not clearly distinguish costs of cases relating to RTCs. We also note that some of the more severe RTCs may have outcomes such that no conviction is possible (e.g. where the responsible party has been killed in the incident). It was not felt to be possible to adjust these statistics reliably to account for these costs, which would be incremental to those shown later in this report.

## Report structure

The aim of this report is to form a view on the cost implications of road safety in terms of the three policy drivers noted above. Findings are presented in three parts:

1. **Background (section 2):** in this section of the report, we:
  - Set out the methodology that underpins the workings behind the figures produced, including the process for extracting the specific costs associated with the key policy themes used from aggregated totals that have previously been presented in research such as Stats19.
  - Provide background information on the specific road safety issues that will be covered in this report, including findings from a detailed analysis of incident data relating to road traffic collisions in the UK.
  - Summarise the total costs per incident identified from our review. These form the basis of cost analyses for specific motoring issues that have been considered for particular focus.
2. **Sections on specific issues (sections 3 to 6):** the report goes on to consider the specific application of our findings on costs to four themes (younger drivers, motorcycling, driving for work and older drivers) that have been identified by a group of motoring experts as being of particular interest. For each issue, we present the cost implications and comment on the nature of the issue. Each section concludes with emerging recommendations on policy actions.
3. The **conclusion (section 7)** briefly draws together some of the key draft recommendations arising out of the report, drawing out common themes, where applicable.

It should be noted that this report represents the first time an attempt has been made to:

1. Demonstrate and separate out the cash costs of road incidents to specific public sector departments and budgets.
2. Analyse these costs in relation to specific driver groups.

## 2 Background







# Introduction

## Content of this section

In this section, we set out:

1. A summary of the approach taken to evaluate costs of an incident and the extraction of costs specifically related to the three policy areas under consideration (pages 9 to 12).
2. An overall summary of key findings on the costs of incidents and the costs linked with four focus areas specifically identified (page 13).
3. An overview of the research process used in preparing this study (page 14).
4. A brief summary of the rationale for the selection of four focus areas by a group of road safety sector experts (page 15).

Our findings in this report reflect the costs related to the four groups of motorists noted on page 15 only, and do not constitute an assessment of the costs of all RTCs.

# Valuation of incident and casualty costs

## Revaluation of accidents and casualties

Between 1993 and 1995 DfT and TRL revalued almost all of the casualty related and road accident costs, apart from the medical cost of fatalities which are based on 1984-5 Department of Health data. Since then, apart from an update to the cost of lost output in 1997, the values have been indexed each year by GDP per head in order to produce new estimates<sup>1</sup>.

In the twenty years since the revaluation, figures such as the £1.7 million casualty cost of a fatality have been widely quoted to capture the imaginations of the public and the media. In the table below each of the costs that fall within the casualty and accident cost has been broken down by policy area, examined and challenged during our work.

The costs that have been used in this report aim better to reflect the three key political drivers identified in this report. Costs to the economy are reflected through lost output and time spent on insurance administration. Health, social care and benefit costs reflect the cash costs to key public services, all of which are under pressure to work within restricted budgets and/or to achieve cuts.

Road accident valuations published by the DfT are typically split out into casualty costs and accident costs. The casualty costs relate to costs around the people involved in an accident, while accident costs are costs relating to the vehicles involved in the accident along with the indirect costs of the third parties who need to get involved when an accident happens. Both accident and casualty costs are split out into three groupings based on the severity of the casualty or accident, from slight injury to serious injury to death. Our analysis of these costs and the approach to restating them to focus on cash costs related to the three key policy areas is summarised below.

## Casualty costs

The table below shows a comparison of the evaluation methodologies applied in historical RTC casualty cost evaluations with the approach taken in this report to identify specific cash costs to the public sector:

DfT valuations	Restated valuation considering political priorities
<b>Lost output</b>	
The average lifetime earnings used in the DfT valuations are calculated on the basis of the spread of age and gender for each severity of casualty from the data in 1990 <sup>2</sup> . It seems likely that this spread may have changed over time and the distribution of average earnings may also have changed. It would be expected that these spreads would also be different when different cross sections of the motoring population are being considered.	The calculations for this report have considered the specific age distribution for each issue in 2014 and used that to calculate lifetime earnings. Average earnings by age group, life expectancy, long term growth rate and NI contributions have been updated to the 2014 figures.

# Valuation of incident and casualty costs (cont.)

DfT valuations	Restated valuation considering political priorities
<b><i>Medical and ambulance costs</i></b>	
<p>The costs reflect the research which was carried out in 1991/2 following road traffic accident casualties during the first 18 months following an accident. Because of the time limits of the research, no medical costs after 18 months, costs to carers and costs of adapting homes were included. Data on the use of GP services was also not available and so was not included.</p>	<p>It could be argued that the medical costs associated with each injury type in 1991 could be quite different two decades later, but this research remains the most up to date in this area. Prudent assumptions were added to this data to try to capture some of the longer term medical costs, domestic property adaptation costs and GP costs which had not previously been included.</p>
<b><i>Benefit costs</i></b>	
<p>Average benefit costs across all injury types for the first 18 months following the accident are the only benefit costs considered. Hopkin and Simpson (1995) point out that this approach will likely underestimate for serious casualties as the averaging process does not take account of the variation in all serious casualties.</p>	<p>The different benefits currently available to people struggling with different severities of injury were taken into account in the calculations. Assumptions were made for each injury subgroup and the resulting benefit payments were modelled over appropriate lengths of time.</p>
<b><i>Human costs</i></b>	
<p>The human costs of road casualties aim to put a value on the pain and distress that road casualties and their families may suffer. The method of valuing this distress is based on the 'willingness to pay' method. Research carried out in 1997 asked how much a sample population would be willing to pay for improvements in levels of safety. It was found that the prevention of a fatality was valued at £1m. Medical and lost output costs are deducted from this to arrive at the amount that can be assigned to distress. Research carried out in 1991 assigns a ratio of each type of injury for the serious and slight injury categories relative to death.</p>	<p>Since the human cost is not a cash or directly cashable sum it is unlikely to impact on any of the key policy areas being considered in this report – the economy, health and social care and life changing injuries and death, this cost has been excluded from calculations of the value of road safety issues in this report.</p>

# Valuation of incident and casualty costs (cont.)

## Accident costs

The table below shows a comparison of the evaluation methodologies applied in historical RTC accident cost evaluations with the approach taken in this report to identify specific cash costs to the public sector:

DfT valuations	Restated valuation considering political priorities
<b><i>Damage to property</i></b>	
<p>The vast majority of accident related costs are attributable to the damage caused to vehicles and third party property.</p>	<p>Since the cost of damage to property paid out by insurance companies goes back into the economy through repairs or the purchase of new vehicles, these costs have not been included as an assessment of the cost for any of the issues (i.e. the saving has a displacement effect on economic activity in other sectors)</p>
<b><i>Insurance costs and police costs</i></b>	
<p>In our analysis, these costs are derived from the DfT valuations from 2007, and have been updated for inflation.</p>	
<b><i>Firefighter costs and road closure costs</i></b>	
<p>These costs have not been included in the cost of accidents.</p>	<p><b><i>Firefighter costs</i></b>            Firefighters are often required to attend road accidents in order to put out fires or cut vehicles open to rescue casualties. The value of these costs to the government has not been robustly ascertainable, hence these costs have not been included in our calculations.</p> <p><b><i>Road closure costs</i></b>            These costs have not been evaluated for each of the different issue types because it is difficult to assign the road closure costs to the specific policy issues set out in this report. However, in 2011 the Roads Minister announced that road closures due to accidents on motorways cost the economy £1 billion<sup>3</sup>. It is important that these costs are recognised at a high level as part of the wider road safety picture.</p>

# Reconciliation back to common fatality valuations

## Department for Transport valuation of a casualty (2012 prices)

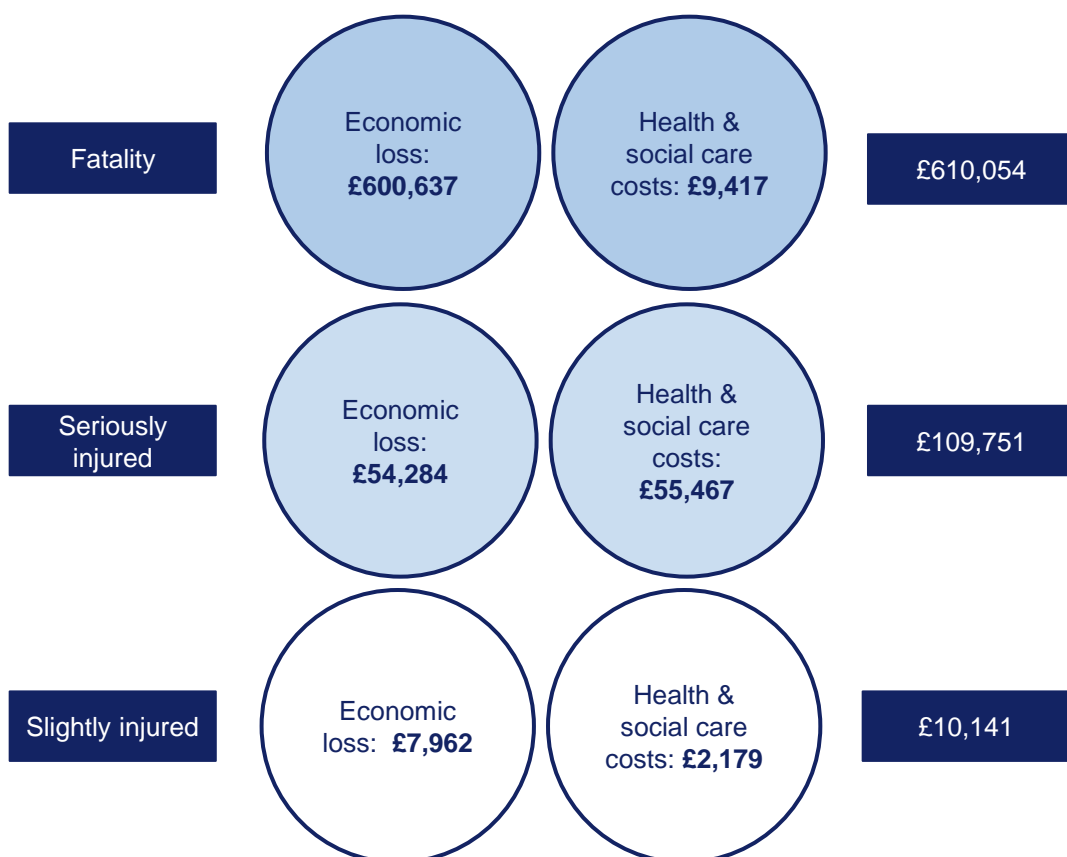
The value of preventing a road accident fatality is often quoted as being £1.7 million. This number is broken down by incident type as follows:

Incident outcome	Lost output (£)	Medical and ambulance (£)	Human costs (£)	Total cost (£)
Fatality	585,716	1,006	1,117,101	1,703,823
Severely injured	22,566	13,671	155,226	191,463
Slightly injured	2,385	1,012	11,363	14,760

## Valuations for casualties used in this report

In our analysis, the costs shown above have been re-calculated and restated through the lens of political priorities, using the approaches described earlier in this section. Rather than considering willingness to pay, we focus on cash or cashable savings and productivity impact.

From research carried out for this report, the average costs of the different casualties have been calculated as below, based on the average age for each casualty severity across all casualties recorded in 2014 (per Stats 19 data).



# Evaluated costs of the four key issue areas

## Headline results of the evaluations

The casualty costs for 2014 incidents, as derived from our revised incident costs are summarised below, by reference to the four key policy areas identified for focus in this study:

### Younger drivers

Casualty costs based on cash costs (to public services and additional benefits costs) and economic losses: **£1.3 billion**

Insurance administration costs (for this report): **£35 million**

*Note: casualty costs based on DfT valuation: £2.2 billion*

### Motorcycling

Casualty costs based on cash costs (to public services and additional benefits costs) and economic losses: **£1.1 billion**

Insurance administration costs (calculated for this report): **£5 million**

*Note: Casualty costs based on DfT valuation: £1.9 billion*

### Driving for work

Casualty costs based on cash costs (to public services and additional benefits costs) and economic losses: **£702 million**

Insurance administration costs (calculated for this report): **£22 million**

*Note: casualty costs based on DfT valuation: £1.3 billion*

### Older drivers

Casualty costs based on cash costs (to public services and additional benefits costs) and economic losses: **£63 million**

Insurance administration costs (calculated for this report): **£7 million**

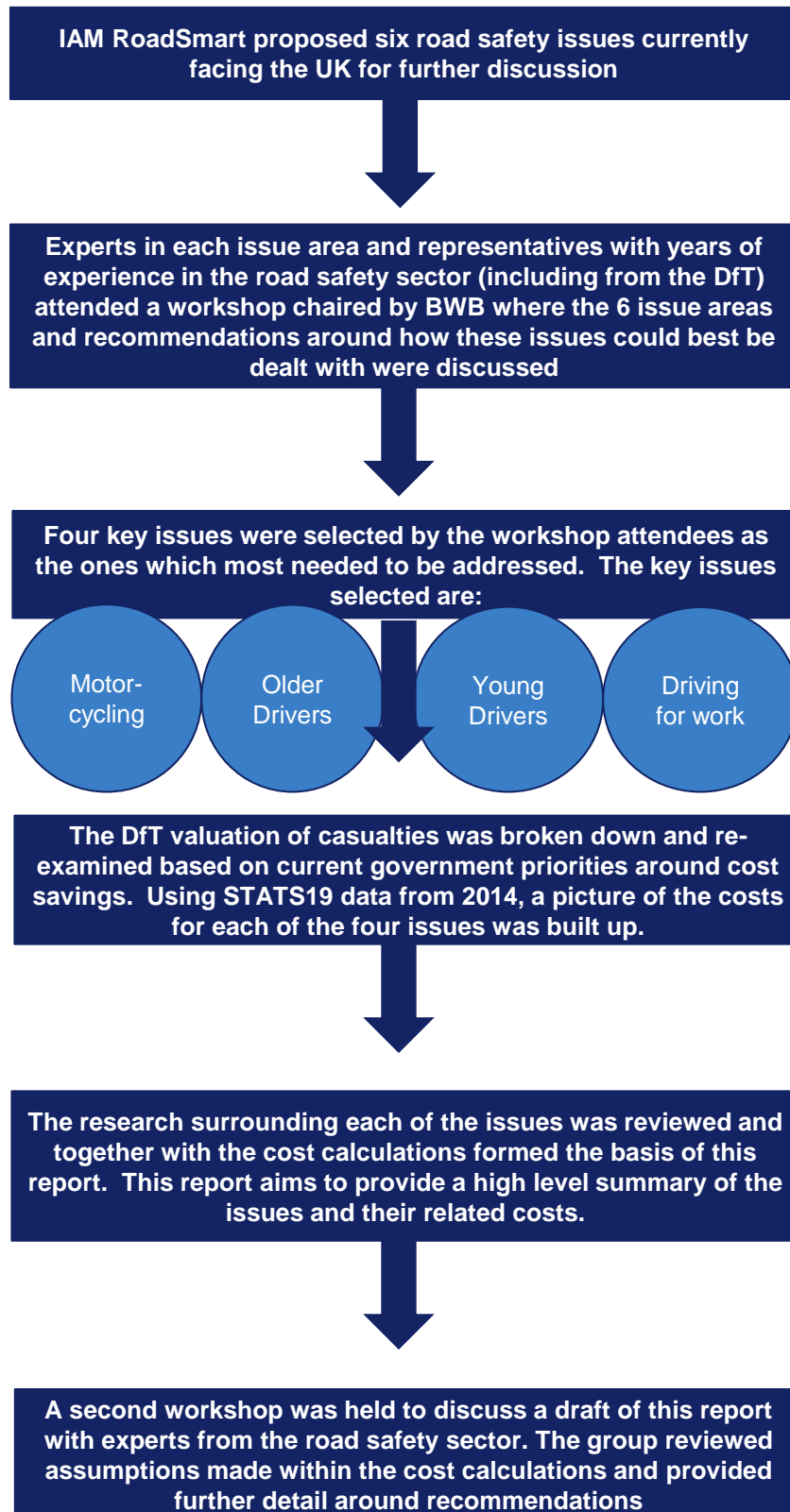
*Note: casualty costs based on DfT valuation: £794 million*

An in-depth analysis of police incident data has been undertaken in the course of this study in order to identify more precisely the numbers of incidents related to each category and, in particular, the number of motorists and passengers affected. This has allowed an accurate overall valuation to be prepared based on the number of casualties rather than the number of incidents.

The casualty costs noted above that are derived from the normal DfT approach reflect a higher value because they include 'human' (non-cash or cashable) costs that have been excluded from our analysis (see section 1 for further commentary on the focus of this report).

# Methodology

The research approach and process adopted to produce this report is summarised below:



# Selection of road safety themes for research

## Key issues examined in this report

Following discussions with a group of industry experts (including DfT), four focus areas have been identified for our work. These are:

- Younger drivers.
- Motorcycling.
- Driving for work.
- Older drivers.

The key aim of this research is to identify the costs to the public sector, by reference to the three policy themes described in section 1, associated with each of these.

The rationales for the selection of the four areas of focus used in this report, which were discussed by the industry expert group, are set out below:

**Younger drivers** – Younger drivers are classified here as those under 24 years old. Road accidents are a leading cause of death for young people, yet restricting driving (e.g. by introducing a graduated licence) is not a realistic option as young people rely on their own vehicles to access jobs and employment. There is a key challenge of increasing safety without creating a barrier to economic activity.

**Motorcycles** - Motorcycles have historically shown higher incident rates than cars. However, there are a number of benefits to the economy that could be realised if safe increased use of motorcycles could be encouraged. If safety could be improved for motorcycles it might encourage more people to switch from cars at times of peak congestion such as commuting to work.

**Driving for work** – Those driving for work can be difficult to identify, especially as company cars are replaced by the grey fleet (i.e. employees using their own cars rather than company cars). The available evidence shows that half of all accidents involve someone who is driving for work. This has remained broadly constant despite the introduction of health and safety regulations and changes in the law around corporate liability for employees driving in the course of their work.

**Older drivers** – Older drivers are classified here as those over 70 years old, although we note that there is ongoing debate about the definition of 'older drivers' focusing on the age at which a driver should be classified as such. Older drivers tend to be safer drivers (historically showing lower numbers of incidents), but older people can lose their independence if encouraged to give up driving too early. Social isolation and physical frailty are likely consequences of this reduced mobility, with resultant costs to public services including health and social care.

***Our findings are summarised in the following sections in relation to each of these groups in turn***



A photograph of a man and a woman sitting in the front seats of a car. The man is on the left, wearing a light pink polo shirt and a seatbelt, looking towards the camera. The woman is on the right, wearing a blue t-shirt and a seatbelt, looking out the window. A semi-transparent blue overlay covers the man's face, with the text '3 Younger Drivers' in white. A diagonal purple line separates the blue overlay from the rest of the image.

### 3 Younger Drivers

# Young drivers summary and recommendations

## Summary

The following key issues were identified during the course of our research, including through discussions with the industry expert group:

- Younger driver casualties and fatalities are valued at a higher cost than other issue groups (calculated at £1.3 billion for those in accidents during 2014) due to the fact that if they are involved in an accident under the age of 25, then social care costs, the loss of the young person's output, and disability benefit costs are likely to be measured over decades.
- The total cost per fatality for a young driver is approximately £1.1 million, being the highest evaluated loss per incident across the four categories. This is due to the inclusion of the present value of lost economic output for the vast majority of a working life in the analysis.
- Younger drivers are psychologically more prone to risky behaviour. They also lack the experience to judge and avoid hazards appropriately.
- In the 15 to 19 year old age group road accident fatalities make up 25% of all deaths. We note that the younger end of this age range are not legally old enough to be motorists themselves: rather they are at risk as passengers in vehicles driven by other younger drivers. The most frequently occurring age of a passenger killed by a young driver is 19.
- Peer pressure is also a key factor behind incidents involving younger drivers. Even a sensible and risk averse young person can be encouraged to undertake risky driving, if enough of their friends pressure them to do so.
- Being able to drive allows many young people to access jobs and education that would not otherwise be available to them. Any policy that raises additional barriers to driving is likely to be undesirable for economic reasons.
- If young people could be encouraged to drive more safely, their insurance premiums might be reduced (a key barrier to legal road use being costs of insurance). Over time, an improvement in safety may bring down insurance premiums such that costs of motoring reduce for this group, and others.

The diagram overleaf shows a breakdown of the £1.3 billion cost of RTCs involving young drivers. We note that a key factor in the number and severity of incidents is the behaviour of younger drivers and their passengers. The behaviour noted may be attributed to:

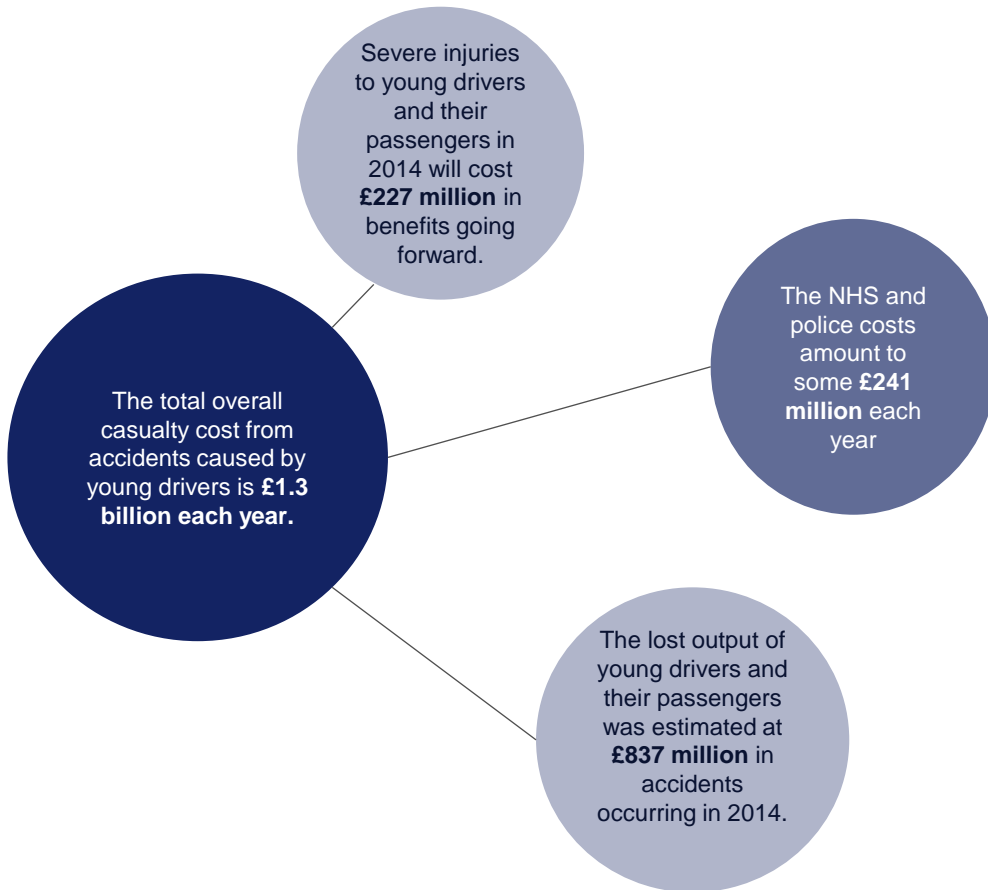
- Driver psychology: linking this to the tendency of younger people to have lower risk-aversion.
- Experience: younger drivers are likely to be less able to perceive risk and/or have the skills and experience to manage situations on the road.
- Influence of peers: notably the risk that passengers in a vehicle may prompt risk-taking behaviour on the part of a driver.

Hence, it appears likely that a substantial part of the cost identified might be mitigated through interventions that would encourage younger drivers to modify and manage their behaviour, including managing the situations in which they place themselves.

# Young driver overview

## Casualty and accident costs

The diagram below shows a summary of findings from the detailed financial evaluation undertaken during the course of this research study:



## Other issues to consider

In the course of our analysis, we have noted two particular issues, on which further work may be required:

Assessing the extent to which peer pressure is a factor in RTCs and any correlation with severity



Young people need to be able to drive to access jobs and education. Whilst graduated licenses may increase barriers to economic activity, which would not be a preferred option, other options might be considered to reduce risk.

# Young drivers summary and recommendations (cont.)

## Recommendations

The results of our research, summarised above, have been discussed with the industry expert group (including DfT). Arising from that discussion, we note the following recommendations/proposals for further work:

- **Regulation/Government:** Graduated licensing has been considered as a recommendation but is not deemed to be suitable because it could prevent young people acquiring licences and so restrict access to jobs and education. However, some restrictions might be considered including graduation of the ability to drive with younger passengers.
- **Vehicle manufacturers:** The use of telematics has shown some promise, but it needs to be enhanced and encouraged. As well as alerts for poor driving standards, driving training companies should have a means of delivering training as follow-up. This could tie in to the post test training recommendation: telematics results could be reviewed and key issues picked out as priorities for teaching.
- **The public:** Parents should recognise their responsibility for young drivers and the impact they can have on reducing crashing by encouraging more driving practice with an experienced adult, taking young people on motorways after they have passed their test and putting a voluntary safe driving agreement in place with their child.
- **Other:** Initiatives need to be taken in order to reduce the cost of driving for young people in order to avoid economic exclusion. Schemes such as Wheels 2 Work and the distribution of scooters, motorbikes and electric cars in order to allow young people access to jobs and education is a good example of such a scheme. Insurers are already introducing tools such as telematics which have the potential to reduce insurance costs for younger drivers: such schemes and use of technology should be encouraged.

Beyond these recommendations, the expert group noted that as cars are becoming safer, including with the introduction of technology, motorists are becoming more protected. However, younger drivers tend to drive older cars, which may be lower cost to purchase and insure, but are less likely to include safety technology. It is difficult to identify a specific recommendation in relation to this issue, over which the Government cannot realistically exercise influence or introduce regulatory change. It is possible that, over time, cascading down of technology will lead to an improvement in this issue, but that is unlikely to be a fully effective solution to the behavioural issues noted earlier in this section.

## 4 Motorcycling



# Motorcycling summary and recommendations

## Summary

The following key issues were identified during the course of our research, including through discussions with the industry expert group:

- Motorcycles have a casualty rate of 6,744 per billion passenger miles, while the casualty rate for cars is 24 times lower at 286 per billion passenger miles<sup>1</sup>. Motorcycling, therefore, has the reputation as a dangerous form of transport. However, in absolute terms, while car occupants accounted for 45% of road deaths in 2014, motorcycles only made up 19%. It is estimated that there were 42,756 RTCs involving motorcyclists in 2014.
- The high casualty and accident rates suffered by motorcycles are a significant cost to the public sector and in terms of economic productivity: the casualties from 2014 alone will cost the economy £1.1 billion.
- If incident rates could be reduced and perception of motorcycling (particularly in relation to perceived safety) improved, it is possible that more car users would make the change to commuting by motorcycle. Since motorcycles take up much less space on congested roads, an increase in motorcycle use could reduce the costs of congestion to the economy. The combined effect of this and the reduction in costs to public services could have substantial value.
- Due to motorcycles being cheaper to buy and to run, motorcycles could offer better access to jobs and education for price-sensitive groups such as younger motorists (see section 3).
- Data presented by leading insurer Equity Red Star suggests that motorcycle riders are safer car drivers (observed through reduced incident rates compared to other car users). It is thought that this is due to the fact that motorcyclists have a better understanding of the road surface and awareness of how to manage dangerous conditions such as adverse weather. A virtuous circle could be created such that improved motorcycle safety could encourage increased motorcycle use, thereby improving road safety overall.
- It was noted that the increase in safety technology such as ABS for motorcycles was making a positive impact, with the expert group indicating that a 20% to 30% reduction in injuries was observed and attributed to this technology. ABS is now mandated in EU law for new motorcycles, which is expected to cascade over time as motorcyclists replace their vehicles: clearly, the effect of this will be measurable only over a longer term.

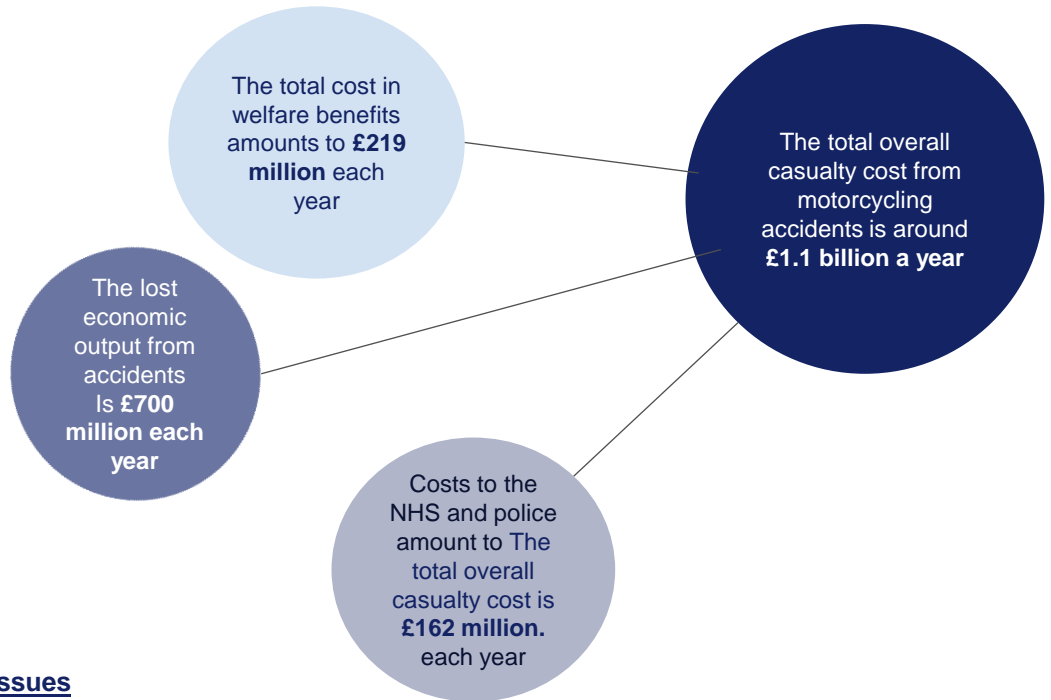
The diagram overleaf shows a breakdown of the £1 billion cost of RTCs involving motorcyclists. The economic effects noted include suggest that there could be substantial potential savings if:

- The behaviours of all motorists can be adjusted such that non-motorcyclists can be made more aware of how safely to drive alongside motorcyclists, but also to increase the skills of the motorcyclists themselves, particularly on road types that are known to be higher risk such as rural roads and urban junctions.
- Road design on new infrastructure and upgrade works can be completed with a view to ensuring a safer environment for motorcyclists.

# Motorcycling overview

## A summary of casualty and accident costs

The diagram below shows a summary of findings from the detailed financial evaluation undertaken during the course of this research study:



## Other issues

In the course of our analysis, we have noted two issues that demonstrate the potential value that could be added to the economy from an increase in safe use of motorcycles.

Motorcycles are more space efficient when roads are busy – if 10% of car users began to use motorbikes research suggests that the UK economy would save **£5.4 billion** annually<sup>3,4</sup> from reduced congestion.



Since 2010 2,000 bus routes have been cut<sup>5</sup>, making it more difficult for people to access employment and education. 20% of NEET young people quoted lack of transport as their key restraint for accessing education and employment. If motorbikes and scooters were made safer and were promoted to help young NEET people in accessing employment then the government could save **£800 million** annually on benefit costs and increased tax revenue

# Motorcycling summary and recommendations

## Recommendations

The results of our research, summarised above, have been discussed with the industry expert group (including DfT). Arising from that discussion, we note the following recommendations:

- **Regulation:** The government should ensure that the training for other road users prior to licence acquisition emphasises awareness of motorcycles (and other vulnerable road users) and how to drive safely around them.
- **Regulation and training:** The government should continue to put measures in place to ensure that CBT training provided to motorcyclists meets a reasonable standard of delivery. We understand that DfT has consulted on this issue already and there are plans to revise the qualification process and standards.
- **Road safety organisations:** The road safety sector should provide, and the government should encourage all motorbike riders to sign up to, post-licence acquisition training on high risk road types (e.g. urban junctions and rural roads).
- **Vehicle manufacturers:** Vehicle manufacturers should continue to adopt technology in HGVs and other vehicles to help them to have a better view or awareness of motorcyclists (and, indeed, cyclists) in their blind spots. Government should continue to encourage and, where appropriate, require the use of this technology.
- **Infrastructure:** As part of the new infrastructure spend, new roads should ensure good road design to ensure motorcyclists are visible to other road users, and that there are appropriate crash protection features for motorcyclists.
- **Motorcycle manufacturers:** As is noted earlier, the mandating of ABS for new motorcycles under EU law is expected to have a positive impact on safety. Manufacturers should continue to develop and adopt emerging safety technologies to achieve a long term improvement in safety.



## 5 Driving for Work



# Driving for work summary and recommendations

## Summary

The following key issues were identified during the course of our research, including through discussions with the industry expert group:

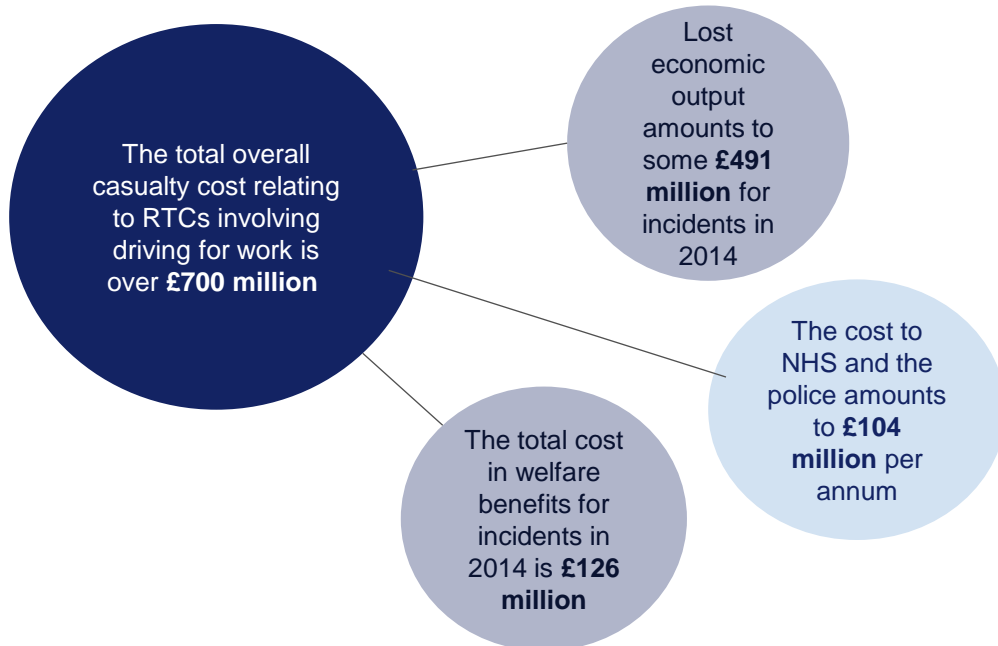
- RTCs recorded during 2014 involving at least one vehicle being driven in the course of a driver's employment will cost over £700 million.
- A fatality in this category has a cost of around £700,000 relating to the present value of lost economic output.
- A severely injured driver on average is expected to cost the state around £33,000, on average, in welfare benefits (in present value terms).
- It is not always clear to the police officers who report incident data at the scene of an RTC whether someone is driving for work or leisure (with the exceptions such as drivers of commercial and public service vehicles). The data used in this study is based upon the incidents for which the officers at the scene reported that at least one vehicle involved in the incident was driving in the course of their employment. The incident numbers may, therefore, be understated.
- The use of grey fleet (drivers using their own vehicles in the course of their employer's business is becoming far more) common than provision of company cars. It is estimated that there are 4 million grey fleet vehicles in the UK. Since these vehicles are being used to make journeys for work, they fall under work place health and safety regulations, giving employers additional responsibilities.
- Of the vehicles involved in accidents in 2014 where the purpose of the journey was known, over half were on a journey in the course of a driver's work.
- While the number of casualties per accident is much lower than for other groups of drivers such as younger drivers and motorcyclists, the number of incidents is very high. After taking account of damage-only accidents, it is estimated that 375,692 accidents occurred in 2014 involving at least one party driving for work.
- Those driving for work also have the capacity to influence the behaviour of other motorists. If everyone who was driving for work were to do so at a higher standard of care and skill, a positive example would be set for others.
- As well as reducing casualty and accident costs, improving road safety for company drivers can have positive impacts for businesses including reduced insurance and repair costs and avoiding sick leave (which results in sick pay costs and loss of productive time). Higher driving standards in branded-vehicles may also have a positive PR effect (or avoid a negative perception of the business being formed by other road users).
- There are potentially significant savings in long term social care and welfare benefit costs, if incidents can be avoided among the working age population.

The diagram overleaf presents an analysis of the costs attributed to RTCs involving at least one motorist driving in the course of their employment. The economic impact of RTCs involving driving for work is heavily influenced by driver behaviour, but also by the incentives and pressures applied through employer behaviour (e.g. scheduling for employees to be in a location by a particular time)

# Driving for work overview

## Casualty and accident costs

The diagram below shows a summary of findings from the detailed financial evaluation undertaken during the course of this research study:



## Other issues

During the course of our work we have noted the following issues which may require some further research:



Issues and questions over the completeness of STATS19 data on who is driving for work means that the problem may be larger than shown in the statistics. The means of gathering data should be reviewed, including clarifying the definition of 'driving for work'.

Safer and better driving among fleets may mean that companies could benefit from lower insurance premiums, lower vehicle maintenance costs, reduced sick pay and a positive advertising effect arising from better drivers in company branded vehicles. Further primary research may be required to validate and test these potential additional benefits. This might provide an economic argument in favour of improving employee driving standards and training.



# Driving for work summary and recommendations (cont.)

## Recommendations

The results of our research, summarised above, have been discussed with the industry expert group (including DfT). Arising from that discussion, we note the following recommendations:

- **Research and police data gathering:** Further clarification is needed both for employers and motorists around the definition of 'driving for work'.
- **Employers:** Companies should be encouraged to use risk-based driving assessment tools and related training tools such that employees receive appropriate training based on their personal risk profile (personality, type of road used and frequency of driving for work).
- **Employers:** Businesses should be encouraged to adopt risk management tools such as ISO39001, and so to take more responsibility for putting a cultural and management structure in place that will promote higher standards for people who drive for work. This links to the need to improve the definition of 'driving for work': aside from improving data accuracy, this would also clarify the circumstances under which an employer has a duty to ensure that their employees receive appropriate training in relation to road use.

The expert group noted that subcontractors, as well as employees, need to be included in any initiatives to deliver safety improvements.

## 6 Older Drivers



# Older driver summary and recommendations

## Summary

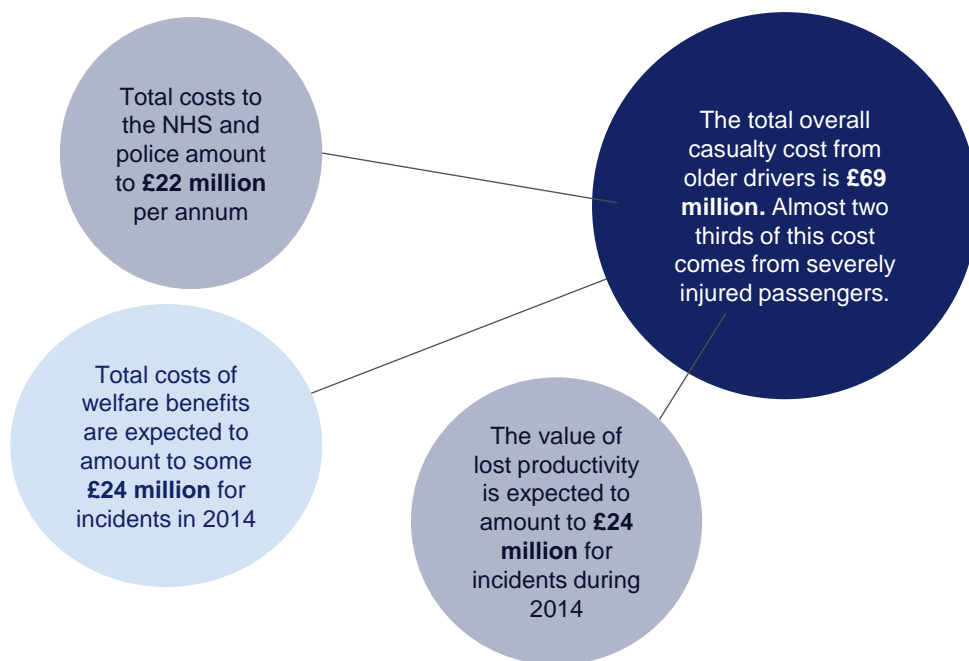
The following key issues were identified during the course of our research, including through discussions with the industry expert group:

- Numbers and rates of accidents for older motorists are substantially lower than for other demographics, particularly by comparison to younger drivers (those under the age of 25).
- Although older drivers may face more physical impairments, their years of additional driving experience and typically risk-averse behaviour may compensate to some extent. This age group has a lower number of incidents, although this may be due to a lower population of drivers. The recently published Older Drivers Task Force report 'Supporting Safe Driving Into Old Age' found, amongst other risk issues, that:
  - Drivers aged over 75 were twice as likely to be killed at a T-junction than other groups.
  - The risk of being killed while driving is ten times higher for every mile driven by an 80 year old than for the lowest risk 40 to 49 year olds.
  - The report highlights that older drivers may be less able to react to rapidly developing and/or complex driving situations.
- A potential distorting factor highlighted in the task force report is that of 'fragility', in that older drivers may be physically more frail than others, such that an incident that would be survivable for a younger driver (under 70) may not be for an older driver due to physical frailty rather than the severity of the incident.
- Older drivers may be under pressure, including from their families and friends, to stop driving earlier than may, strictly speaking, be necessary. It is thought that 15% of older motorists in the UK give up driving too early (based on recent IAM survey findings), and that approximately 59,000 of these are at risk of social isolation (source: Older Drivers Task Force).
- The risk of isolation is of particular importance in areas where public transport subsidies have been cut, reducing access to bus routes as an alternative to driving. Social isolation is known to cause a number of health consequences such as depression and dementia, which present high treatment costs to health and social care services.
- As an old person becomes more inactive and less able to leave the house, it could lead to them becoming more physically frail, increasing the risk of falls in, but also out of their home.
- If an injury has been sustained, as well as the physical health consequences, there may be psychological consequences including depression and post traumatic stress disorder, further compounding costs of social isolation. This issue risks the creation of an additional burden on the NHS and on family members for whom the care requirements of older relatives may lead to a reduction in their own productive capacity and mental/physical wellbeing.
- It is difficult to estimate reliably the number of older drivers who have ceased earlier than was, strictly speaking, necessary and demonstrate the number of these who have experienced physical or mental health effects as a result. We note that research by Age UK highlights that **reducing age-specific dependency by 1 per cent could save public services some £940 million per annum by 2031.**
- We also note that, at normal rates per the Public Social Services Research Unit's Unit Cost of Health and Social Care analysis, **the cost of a public sector care home equates to some £59k per annum**, which illustrates the potential impact of a loss of independence and mobility.

# Older drivers overview

## Casualty costs

The diagram below shows a summary of findings from the detailed financial evaluation undertaken during the course of this research study:



## Other issues

During the course of our research, we have identified two further issues on which further research may be required:



Socially isolated older people are more likely to be admitted earlier to a residential or nursing home, and are at greater risk of emergency admission and re-admission to hospital. Further research may be required to determine the extent to which there may be a causal link between ceasing to drive and these issues

Older drivers who give up too early may put extra pressure on economically active children and social services who will have to provide additional support at greater cost



Illustratively, if 25% of the 59,000 older drivers at risk of isolation require admission to residential care one year earlier than would otherwise have been required, this would lead to a **health and social care cost of some £870 million**

# Older driver summary and recommendations

## Recommendations

The results of our research, summarised above, have been discussed with the industry expert group (including DfT). Arising from that discussion, we note the following recommendations:

- **Government/regulation:** Government needs to promote the uptake of older driver assessment tools to increase confidence or to ensure decisions to cease driving are appropriate, particularly following a change in health.
- **Road safety organisations:** Driver appraisals and refresher training courses could be provided for older drivers which could include an update on new vehicle technologies, as well as advice on safely managing changes in their health and eyesight.
- We note the following recommendations from the Older Drivers' task force report:
  - **Regulation:** The Task Force proposes that the DVLA and insurers should raise the mandatory self-declaration age in relation to driving to 75 from 70, and should require evidence of a recent eyesight test at age 75 to coincide with this declaration.
  - **Road design:** New infrastructure and upgrade works should take account of the needs of older drivers during the design phase.
  - **Vehicle manufacturers:** Vehicle manufacturers should continue to develop technologies that will improve safety. In particular, the development of crash protection standards should take account of the particular needs of older, more frail, motorists.
  - **Drivers seeking alternatives:** older drivers themselves should explore alternatives to self-driving that would enable them to benefit from the mobility of vehicle usage at lower risk. This may include 'bundles' of taxi rides.

In addition to the above recommendations, we noted that the expert group felt that some older drivers were more likely to keep older cars for longer, rather than buying a new car. This implies that some older drivers may be missing the opportunity to benefit from new safety technologies. It is not clear what action may be taken to increase the uptake of new vehicle safety technology to this group.



## 7 Conclusions



# Conclusions and key recommendations

## Conclusions

Whilst the UK has come a long way with improving road safety, this continues to put a great deal of pressure on the provision of health and social care and have an impact on the productivity of the country. That impact has historically been hidden within the presentation of road safety by reference to the total impact. This study breaks down the value of the issue for specific policy areas such that decision-makers may better be able to appreciate the influence of road safety on their own work.

The answers necessarily require balance between increasing driving standards and improving road infrastructure, set against the need to avoid potential damage to the economy through making motoring more expensive.

Key emerging themes include:

**Younger drivers** need to be able to drive to access jobs and education, but this group has the highest risk of death and serious injury and therefore bears a high cost of motoring. There are potential economic gains and substantial public service cost savings from addressing this issue more effectively through both pre- and post-licence acquisition training.

**Motorcycles** are perceived to be a more dangerous mode of transport. There appear to be significant potential road safety and economic benefits from increasing safe motorcycle usage, including a reduction in congestion.

**Those driving for work** are involved in a large number of accidents, although these tend to be less severe in nature. The expert group convened for this study believes that driver training by employers is of an inconsistent standard, and more can be done to improve on the work that has already been done. The potential savings and economic impact of reduced incident rates for this group would be substantial. Further work is recommended to build the economic case for employers themselves to take action by reference to their own profitability.

**Older drivers** have lower numbers of incidents but are at greater risk in specific types of situation than other groups. They are also at risk of ceasing to drive too early due to pressures from other people, which may increase the risk of social isolation and lead to increased physical frailty. Encouraging safe continued motoring by older drivers may reduce health and social care costs arising from social isolation, whilst avoiding a negative impact on incident rates.

## Overarching recommendations

It is hoped that DfT may be able to use findings such as those presented in this study to open a dialogue across multiple policy areas, in which road safety may not previously have been recognised as a key area of focus. It is clear that there is a wider economic issue and that the burden of improving road safety should not fall solely on the DfT. Rather, it is a cross-departmental issue, and we note in particular that (in relation to the four groups covered in this study):

- The NHS bears a cost of some £448 million per annum.
- Police costs of attending an incident amount to over £80 million per annum.
- The welfare benefit cost relating to the incidents that occurred in 2014 for these four groups amounts to nearly £650m.
- Costs of lost productivity for the four groups covered in this report (which have implications for the wider economy but also on tax revenue to the state) amount to over £2 billion in relation to incidents that occurred in 2014.
- Further costs not assessed in this report including costs to the criminal justice system (affecting Ministry of Justice), and social care costs (affecting Department for Health) for older drivers would add further to these totals.

## Conclusions and key recommendations (cont'd)

Hence, there is a strong case for effective cross-departmental co-operation on road safety improvement. It should not be seen as an issue that is solely for the attention of DfT.

Many of the area-specific recommendations relate to driver training. Further consideration is needed to create business models for enhanced training that avoid unduly increasing the costs of licence acquisition, but achieve improvements in driving standards. The road safety industry can and should play a part in leading the development of new training and assessment products.

Given that £15 billion is being spent on infrastructure over the next 5 years, new infrastructure should take into account the need to ensure that roads meet safety standards, particularly for more vulnerable road users.

Key contacts for further information:

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### **BWB Impact**

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# 8 Appendix - References

# References

## Introduction

1. Department for Transport (2015) *Reported Road Casualties in Great Britain: Main Results 2014*
2. Department for Transport (2015) *Reported Road Casualties in Great Britain: Main Results 2015*

## Background

1. Department for Transport (2012) *A valuation of road accidents and casualties in Great Britain: Methodology note* Retrieved on 11.03.16 on [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/254720/rrcgb-valuation-methodology.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/254720/rrcgb-valuation-methodology.pdf)
2. Simpson, H. and O'Reilly, D. (1994) *Revaluation of the accident related costs of road accidents* TRL, UK
3. Hopkin, F. & Simpson, H. (1995) *Valuation of Road Accidents*, TRL, UK
4. Department for Transport and Penning, M. (2011) *Tackling £1 billion cost of motorway closures* Retrieved on 14 March 2016 on <https://www.gov.uk/government/news/tackling-1-billion-cost-of-motorway-closures>

## Motorbikes

1. Department for Transport (2015) *Reported Road Casualties in Great Britain: Main Results 2014*
2. Department for Transport & Driver & Vehicle Standards Agency (2015) *Modernising Compulsory Basic Training Courses for Motorcyclists: A Response to Consultation report*
3. Inrix.com: <http://inrix.com/press/traffic-congestion-to-cost-the-uk-economy-more-than-300-billion-over-the-next-16-years/>
4. Yperman, I. (2011) *Commuting by motorcycle: impact analysis* Transport and mobility Leuven, Leuven, Belgium
5. Campaign for Better Transport (2014) *Buses in crisis: a report on bus funding across England and Wales 2010 – 2015* London, UK

## Older drivers

1. Carthy, T, Packham D, Salter D and Silcock D (1995) *Risk and safety on the roads: the older pedestrian* Retrieved on 7 April 2016 on [http://roadsafetyfoundation.org/media/14097/risk\\_and\\_safety\\_on\\_the\\_roads\\_-\\_the\\_older\\_pedestrian.pdf](http://roadsafetyfoundation.org/media/14097/risk_and_safety_on_the_roads_-_the_older_pedestrian.pdf)
2. Older Drivers Task Force (2016) *Supporting Safe Driving Into Older Age: A national older driver strategy*, Ageas/Road Safety Foundation, London UK
3. Curtis, L. & Burns, A. (2015) *Unit Costs of Health and Social Care*, Personal Social Services Research Unit, University of Kent, Canterbury UK

# 9 Appendix - Assumptions



# Key assumptions

This appendix presents an overview of key assumptions used in the course of the detailed evaluations undertaken by BWB during our research. Further information can be obtained from BWB Impact and IAM Roadsmart (contact details supplied in section 7).

## Lost output assumptions

- Future retirement age – average retirement age assumed to stay at current level of 65 years old
- Wage growth – assumed to stay at current levels of 2.1% (rounded to 2% in calculations)
- NI Contributions – assumed to be 20% to take account of both employee and employer NI

## Medical cost assumptions

- Life expectancy for those with serious injuries – it is assumed that those with serious injuries who receive medical treatment/care for the rest of their lives can expect to live for 85% as long as the average for the rest of the population. This is based on research carried out on those with serious spinal injuries.
- It is assumed that medical costs grow at 2.5% over time
- Cost of death – funeral and burial costs are also included within medical costs for fatalities
- The assumptions for the number of GP visits in the first 18 months following a road accident casualty are set out in the table below (note: category headings are consistent with the source data, definitions of severity are shown overleaf):

Serious injuries (minor -> severe)							Slight	
F	W	X	V	S	R	N&L	Slight	Whiplash
2	3	7	8	8	10	-	2	7

- For the four most severe injuries the following medical costs are expected to be accrued on average each year following the first 18 months (category headings derived from source data):

Serious injuries (minor -> severe)			
V	S	R	N&L
2 GP appointments and one consultant appointment	3 GP appointments, 4 hours of physiotherapy and one consultant appointment	3 GP appointments, weekly physiotherapy, wheelchair provision and 2 consultant appointments	PSSRU cost for severe brain injury

# Key assumptions

## Benefit costs assumptions

- Inflation – assumes welfare benefits will be inflated at 1% per annum in line with recent inflation in benefit payments
- The benefit assumptions for severely and slightly injured people are (averaged across all casualties) as follows (using severity categories derived from the source data on incidents):

<b>Severe injuries</b>	
F - 3-4 months restriction at work	8 weeks sick pay for recovery
W - 3-4 months restriction to work activities	8 weeks sick pay for recovery
X - some restrictions to work for 1 -3 years, steadily improving	Maximum sick pay is received for recovery
V - possibly some permanent restrictions to work activities	Maximum sick pay is received for recovery, in 5% of cases ESA is received for one year while have to retrain, in 1% of cases disability benefit is received for the rest of life
S - possibly some permanent restrictions to work activities	Maximum sick pay is received for recovery, in 5% of cases ESA is received for one year while have to retrain, in 1% of cases disability benefit is received for the rest of life
R - substantial and permanent restrictions to work and leisure activities	5% receive severe disability benefits for life, 60% receive basic disability benefits for life and 35% go back to work after 5 years on basic disability benefits & 1 year on retraining benefits
N&L - permanently confined to a wheelchair or severe permanent brain damage, dependent on others for many physical needs	All receive benefits including allowances for carers for the rest of life
<b>Slight injuries</b>	
On average – 3 months recovery time	Sick pay for 3 months
Whiplash injuries	40% receive sick pay for 6 months and 30% receive one year of injury benefits



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