

Reported Road Casualties in Great Britain: 2011 Annual Report

A valuation of road accidents and casualties in Great Britain in 2011

Please note that the figures in this article are outside the scope of National Statistics.

This article provides the latest Department for Transport (DfT) estimates on the values for prevention of road accidents and casualties for use in the appraisal of transport schemes. In addition, the estimate of the total value of road accidents in Great Britain in 2011 is also included.

Since 1993, the valuation of both fatal and non-fatal casualties has been based on a consistent willingness to pay (WTP) approach. This approach encompasses all aspects of the valuation of casualties, including the human costs, which reflect pain, grief, suffering; the direct economic costs of lost output and the medical costs associated with road accident injuries.

- The total value of prevention of reported road accidents in 2011 was estimated to be £15.6 billion. Prevention can be interpreted in two ways here: on the one hand, it is the benefit which would be obtained by prevention of road accidents from a cost benefit view point. On the other hand, it can be considered as the loss to society due to the current level of road accidents. This includes an estimate of damage only accident costs but does not take account of under-reporting of accidents.
- A number of assumptions have been made to produce a broad illustrative figure which suggests that allowing for accidents not reported to the police could increase the total value of prevention of road accidents to around £34.8 billion.

The figures in this report were based on the road accident data for 2011, and 2011 average prices and values of prevention for accidents and casualties. Furthermore, the methodology used to value the cost of accidents/casualties has been updated and is published in Transport Analysis Guidance – WebTAG unit 3.4.1¹. The methodology is continually under review by the Department and the document will be updated if further changes are implemented.

¹ The Transport Analysis Guidance can be found using following link:
<http://www.dft.gov.uk/webtag/documents/expert/unit3.4.1.php>

Casualties

The methodology used to value the cost of casualties for this article was described in article 5 in Road Accidents Great Britain 1994 (Kate McMahon, Road Safety Division, Department for Transport). Briefly, the values for the prevention of fatal, serious and slight casualties include the following elements of cost:

- Loss of output due to injury. This is calculated as the present value of the expected loss of earnings, plus non-wage payments made by employers.
- Ambulance costs and the costs of hospital treatment.
- The human costs of casualties. These are based on willingness to pay to avoid pain, grief and suffering to the casualty, relatives and friends, as well as intrinsic loss of enjoyment of life in the case of fatalities.

Accidents

For all accident severities, the average value of preventing an accident of a particular severity is greater than the value of preventing a casualty of that severity. This is for two reasons, the first being that an injury accident is classified according to the most severe casualty but will on average involve more than one casualty. For example, in 2011 a fatal accident on average involved 1.06 fatalities, 0.30 serious casualties and 0.49 slight casualties. The second reason is that there are some costs which are part of the valuation of an injury accident that are not specific to casualties, including:

- Costs of damage to vehicles and property.
- Police costs and administrative costs of accident insurance.

Valuation of the benefits of prevention of accidents

Table 1 presents the average values of prevention of road accidents and casualties by severity based on 2011 prices and values. Table 2 presents the average value of prevention of injury accidents by road type (2011 prices).

RAS60001: Average value of prevention per reported road accident casualty and per reported road accident: GB 2011

| Accident/casualty type | £ June 2011 | |
|----------------------------|-------------------|-------------------|
| | Cost per casualty | Cost per accident |
| Fatal | 1,686,532 | 1,877,583 |
| Serious | 189,519 | 216,203 |
| Slight | 14,611 | 23,136 |
| Average for all severities | 50,024 | 71,885 |
| Damage only | - | 2,027 |

RAS60002: Average value of prevention of reported road accidents by road type: GB 2011

£ June 2009

| Accident Type | Road Type | | | All Roads |
|----------------------|-----------------------------|---------------------------------|------------------------|-----------|
| | Built-up roads ¹ | Non Built-up roads ² | Motorways ³ | |
| Fatal | 1,873,946 | 1,880,027 | 1,883,956 | 1,877,582 |
| Serious | 215,223 | 217,613 | 226,357 | 216,204 |
| Slight | 22,587 | 24,355 | 27,619 | 23,138 |
| All injury accidents | 60,163 | 112,013 | 77,802 | 71,886 |
| Damage only | 1915 | 2,802 | 2,692 | 2,027 |

¹ Roads with speed limits of 40pmh or less, excluding motorways and A(M) roads

² Roads with speed limits greater than 40mph, excluding motorways and A(M) roads

³ Includes motorways and A(M) roads

The total value of prevention of road accidents in GB in 2011

Estimates of the total value of prevention of road casualties and road accidents in Great Britain in 2011 are provided in this section. The estimates were derived using the values for prevention of casualties and accidents based on 2011 prices and values, listed in Tables 1 and 2 above.

Prevention can be interpreted in two ways here: on the one hand, it is the benefit which would be obtained by prevention of road accidents. On the other hand, it can be considered as the loss to society due to the current level of road accidents. The estimates do not represent actual costs incurred as the result of road accidents.

In 2011, the numbers of reported accidents by severity were: 1,797 fatal (a 4 per cent increase from 2010), 20,986 serious (an increase of 3 per cent) and 128,691 slight (a reduction of 3 per cent). In cost-benefit terms the value of prevention of these 151,474 reported injury accidents is estimated to have been £10.9 billion in 2011 prices and values (Table 3). In addition, there were an estimated 2.3 million damage-only accidents valued at a further £4.7 billion. The total value of prevention of all road accidents in 2011 was therefore estimated to have been £15.6 billion (based on 2011 prices and values).

Inevitably, the incidence of costs will vary between road user groups, and also between road users and other members of society. In other words some costs, such as lost output, will not be borne exclusively by casualties themselves, since the taxation and social security systems will ensure that the burden of lost output will be shared by the population at large. In contrast, some elements of cost represent direct costs that will be incurred as the result of road accidents, e.g. property damage. Other costs such as human costs represent the benefit of avoiding the risk of a road accident, rather than values of the consequences of an accident.

The tables below give the total value of prevention of road accidents by accident severity and elements of cost (Table 3), and by accident severity and road type (Table 4), without attempting to allocate costs by responsibility or final incidence.

RAS60003: Total value of prevention of reported accidents by severity and cost elements: GB 2011

£ million

| Accident ¹ severity | Cost ² Elements | | | | | | Total |
|--------------------------------|----------------------------|-----------------------|--------------|------------------------|---------------------|--------------------|---------------|
| | Casualty related costs | | | Accident related costs | | | |
| | Lost output | Medical and Ambulance | Human costs | Police costs | Insurance and admin | Damage to property | |
| Fatal | 1,116 | 10 | 2,195 | 32 | 1 | 21 | 3,374 |
| Serious | 521 | 313 | 3,548 | 43 | 4 | 108 | 4,537 |
| Slight | 404 | 171 | 1,924 | 69 | 15 | 394 | 2,977 |
| All injury accidents | 2,041 | 494 | 7,667 | 144 | 20 | 523 | 10,889 |
| Damage only accidents | 0 | 0 | 0 | 79 | 128 | 4,461 | 4,668 |
| All accidents | 2,041 | 494 | 7,667 | 223 | 147 | 4,984 | 15,557 |

1 The number of reported road accidents were based on 2011 data

2 The costs were based on 2011 prices and values

RAS60004: Total value of prevention¹ of reported accidents² by severity and road type: GB 2011

£ million

| Accident severity | Road Type | | | All roads |
|----------------------------------|-----------------------------|---------------------------------|------------------------|---------------|
| | Built-up roads ³ | Non built-up roads ⁴ | Motorways ⁵ | |
| Fatal | 1,468 | 1,733 | 173 | 3,374 |
| Serious | 3,157 | 1,248 | 132 | 4,537 |
| Slight | 2,267 | 592 | 118 | 2,977 |
| All reported injury accidents | 8,151 | 2,320 | 418 | 10,889 |
| Damage only accidents | 4,068 | 510 | 90 | 4,668 |
| All accidents⁶ | 12,219 | 2,830 | 508 | 15,557 |

1 The costs were based on 2011 prices and values

2 The number of reported road accidents were based on 2011 data

3 Includes roads with speed limits of 40pmh or less, excluding motorways and A(M) roads

4 Includes roads with speed limits greater than 40mph, excluding motorways and A(M) roads

5 Includes motorways and A(M) roads

Under Reporting

The cost estimates presented here are based on data provided by the police covering personal injury accidents that are reported to them under the STATS19 system. This means that any injury accidents not reported to the police are not included in the costing. While very few, if any, fatal accidents do not become known to police, it has long been known that a considerable proportion of non-injury accidents are not reported.

Our best estimate produced in 2011, derived primarily from National Travel Survey (NTS) data, is that the total number of road casualties in Great Britain each year, including those not reported to police, is within the range 660 thousand to 800 thousand with a central estimate of 730 thousand. A discussion of how this estimate has been derived, and its limitations, together with information on complementary sources of data on road accidents and casualties, are contained in Article 5 (pages 83-92) of Reported Road Casualties Great Britain (RRCGB): 2010 Annual report, which can be found at: <http://assets.dft.gov.uk/statistics/releases/road-accidents-and-safety-annual-report-2010/rrcgb2010-05.pdf>

A revised estimate will be produced next year when 2011 data are available.

Based on 2010 central estimates of total road casualties; numbers of unreported serious and slightly injured casualties in 2011 were around 57 thousand and 471 thousand respectively. Using these numbers to reach an estimate of accidents suggests around 52 thousand serious and 317 thousand slight accidents do not appear in the police data.

Taking the unreported accidents into consideration, assuming a similar average cost per accident for reported and unreported accidents, would increase the total value of prevention of road accidents to around £34.8 billion. However, it is also known that within each severity category, the more serious accidents are more likely to be reported. Therefore the average cost of unreported accidents is likely to be a little lower, and the figure of £34.8 billion should be treated as an upper bound.

The above figures should be considered as a broad illustrative figure, which relies on a number of assumptions. Although subject to a large degree of uncertainty, this provides an indication of the extent to which the current valuation understates the annual cost of road accidents due to under-reporting.

Background notes

Detailed statistics on “Valuation of road accidents and casualties in Great Britain” can be found on Reported Road Casualties in Great Britain - 2011 Annual Report web page at: http://www.dft.gov.uk/statistics?post_type=table&series=road-accidents-and-safety-series

Table numbers RAS60001 – RAS60004

1. Further information about the Reported Road Casualties Great Britain Annual Report can be found at:
<http://www.dft.gov.uk/statistics/releases/road-accidents-and-safety-annual-report-2011>
2. Notes & Definitions used in STATS19 can be found at:
<http://www.dft.gov.uk/statistics/series/road-accidents-and-safety/>
3. The methodology used to value the cost of casualties was described in an article in Road Accidents Great Britain 1994 (Kate McMahon, Road Safety Division, Department for Transport). For a copy the article, please contact roadacc.stats@dft.gsi.gov.uk
4. More detailed information on the method used to derive the values of preventing road accidents and casualties, together with guidance on how to apply them can be found in Transport Analysis Guidance Unit 3.4.1, The Accident Sub-Objective, which is available at:
<http://www.dft.gov.uk/webtag/documents/expert/unit3.4.1.php>
5. In the event that additional information is required, please contact a member of the Transport Appraisal and Strategic Modelling division by e-mail at:
TASM@dft.gsi.gov.uk