ROAD SAFETY FOUNDATION

How Safe Are You On Britain's Roads?

Sponsored by Ageas

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EuroRAP

EUROPEAN ROAD ASSESSMENT PROGRAMME

EuroRAP 2014 Results

Contents

Forewords

Lord Whitty of Camberwell
Chairman, Road Safety Foundation

The majority of road deaths are concentrated on just 10% of the British network, the motorways and busy 'A' roads outside major urban areas which are mapped in this report. The busier the road, the more frequently any flaw in layout leads to death and serious injury. The Foundation welcomes government's increasing recognition of the need to focus action on this network where the risk of death and serious injury is frequently unacceptably high.

This year's annual report finds 15 stretches of road where authorities have taken relatively low cost action that has reduced fatal and serious crashes by 80%: 237 people were killed and seriously injured on these 15 roads in the 3 years before the action was taken but 52 after. The economic value of just these few low cost improvements is estimated at a staggering £0.4bn. This highlights how effective simple infrastructure safety improvement can be.

This year's results also show the major differences in regional performance. The risk of death and serious injury is two thirds higher on the major roads of the East Midlands than it is in the West Midlands. This difference is larger than between many countries. The results show that the West Midlands and Scotland are the two regions improving most quickly.

The differing risk in each regions is explained very largely by how much travel there is on safe roads and how much on risky roads. Even an average single carriageway 'A' road is 7 times riskier than a motorway. Some roads are 20 times or more riskier than others.

In the last few years, our understanding has grown that the in-built risks in each stretch of road can be measured. The in-built safety of road infrastructure, like cars, can be measured and star rated. We should not be driving 5-star cars on 1- and 2-star roads. It is time to set a national goal that our 'A' roads should achieve a minimum 3-star safety rating with 4- and 5-star ratings for our busiest trunk roads and motorways.

Andy Watson
Chief Executive, Ageas (UK) Limited

For the past three years, Ageas has been pleased to sponsor this invaluable annual report produced by the Road Safety Foundation. The Risk Maps show the rate of death and serious injury that is sadly seen across thousands of stretches of Britain's main road. The results track where safety performance on the network is or is not improving.

It is pleasing to know that this annual report is widely referred to by local authorities and informs public debate. It is referenced in Department for Transport publications such as the recent new guidance on setting local speed limits. Because other countries also use the same system, British safety performance can not only be compared between British authorities, but also with other countries who measure the safety of their roads using the same international system.

As Britain's third largest motor insurer, we support our customers daily when they are involved in road crashes. Our employees understand the distress and suffering experienced firsthand. We are committed to supporting the development of new approaches, which will particularly help reduce the suffering associated with road death and trauma. This report alongside the Making Road Safety Pay report also published in November should go a long way to influencing debate and action on improving the safety of our roads.

We believe that approaches based on evidence and data are essential. I am therefore pleased to announce that Ageas has committed to support this annual report, and the focus it provides on the network where the majority of British road deaths take place, for a further three years.

Key findings

The number of people killed on all of Britain's roads in 2013 decreased by **2%** to **1,713** from **1,754** in 2012

64 people are killed or seriously injured on Britain's roads every day

£15 billion is lost annually in road crashes on Britain's roads based on crashes reported to the police alone

6 in 10 fatal crashes occur on rural roads

50% of the cost of all fatal crashes on the British road network occur on the **10%** of roads surveyed and mapped in this report (the EuroRAP network)

Britain suffers annual serious injury costs of **£0.3** billion on motorways, **£0.6** billion on national trunk roads and **£2** billion on local authority 'A' roads on the EuroRAP network

Risk on Britain's 'A' roads and motorways has reduced by **12%** in the last six years

Motorways have seen the greatest improvement with a **20%** reduction in fatal and serious crashes compared to single and dual carriageway 'A' roads at **14%**

5% of travel is on higher risk roads, **17%** on medium, **46%** on low-medium and **32%** on low risk roads.

2% of the network surveyed rated as high risk, **12%** medium-high, **30%** medium, **46%** low-medium and **10%** low

Single carriageway 'A' roads have **7** times the risk of motorways and **3** times the risk of dual carriageways

14% of the network surveyed has unacceptably high risk

Virtually all fatal motorcycle crashes are concentrated on less than a **third** of the network

79% of motorway travel but only **3%** of single carriageway roads travel were on roads rated in the 'low risk' category.

The largest single cause of deaths on the network surveyed is crashes running off the road **25%**

The largest single cause of deaths on both motorways and dual carriageway 'A' roads are crashes running off the road; on single carriageway 'A' roads it is junctions

The largest single cause of serious injury on the network surveyed is crashes at junctions **34%**

Motorcyclists make up **1%** of traffic but **21%** of fatal crashes on the network surveyed

Key Regional findings

On the network surveyed

The risk of death and serious injury is highest in the East Midlands **(31)** fatal and serious crashes per billion vehicle kilometres travelled); it is lowest in the West Midlands **(17)**

Single carriageway risk is highest in the North-West **(62)** and lowest in the West Midlands **(35)**

The West Midlands local authority 'A' road network is the lowest risk of all local authority 'A' roads

The North-West local authority 'A' road network is the highest risk of all local authority 'A' roads

The Welsh trunk road network is the highest risk of all trunk 'A' roads.

Risk on motorways is highest in the South-East **(9)** and lowest in Wales **(5)**

The North-East trunk road network is the lowest risk of all trunk 'A' roads

30% of non-primary 'A' roads are rated higher risk in the North-West

Only **3%** of non-primary 'A' roads are rated higher risk in the West Midlands and 7% in the South-West

The slowest improvement has been in the South-East where risk has dropped by **5%** in the last **3** years

The East Midlands economic losses are two-thirds higher than the West Midlands

Of the British nations and regions, the West Midlands loses the lowest GDP per km travelled

The greatest improvement has been in the West Midlands where risk has dropped by **23%** in the last **3** years

Of the British nations and regions, the East Midlands loses the greatest GDP per km travelled from serious crashes on motorways and 'A' roads

Most Improved Roads

Improved roads are those where there has been a statistically significant reduction in the number of fatal or serious collisions over time. Only 3% of road sections analysed this year showed a significant reduction in serious crashes. The top 15 are shown in Table 1. A third of the roads in Table 1 are of strategic importance on the British road network.

In the earlier data period these 15 routes were together on average 5 times more risky than they are in the latest data period. The most improved risk rate was previously 11 times more risky than it is in the later data period.

Between 2007-09 and 2010-12 fatal and serious crashes on the roads listed fell by 80% from 237 to 52. This is an economic saving of £25m or £110,000 per kilometre annually with a net present value worth approximately £0.4bn over twenty years.

When consulted, road authorities responsible for these sections reported that measures implemented for road safety reasons were mostly to reduce speeds and improve junction safety.

Other measures implemented aimed to reduce shunt crashes, loss of vehicle control and accidents that involved HGVs and multiple vehicles.

The majority of measures recorded on the routes were implemented as part of maintenance schedules and not because of road safety reasons. The majority of these measures were road marking and signing improvements and resurfacing, all of which occurred in 90% of routes listed.

The reductions in the crash types are shown in Figure 1.

The most improved road is the A404 between High Wycombe and Great Missenden in Buckinghamshire. A major speed limit review in the county resulted in the route being targeted with a speed limit reduction from 40 to 30mph through two short sections of 1 mile and half a mile through Amersham.

Temporary vehicle activated signs supported the change in limits to warn drivers of the change in limits. In addition, a package of maintenance measures were carried out: the route was resurfaced with cats eyes replaced during the same works. All traffic island bollards were replaced with reflective bollards and night street lighting patrols were introduced with all street lighting columns, illuminated signs & bollards inspected during the evening & repaired.

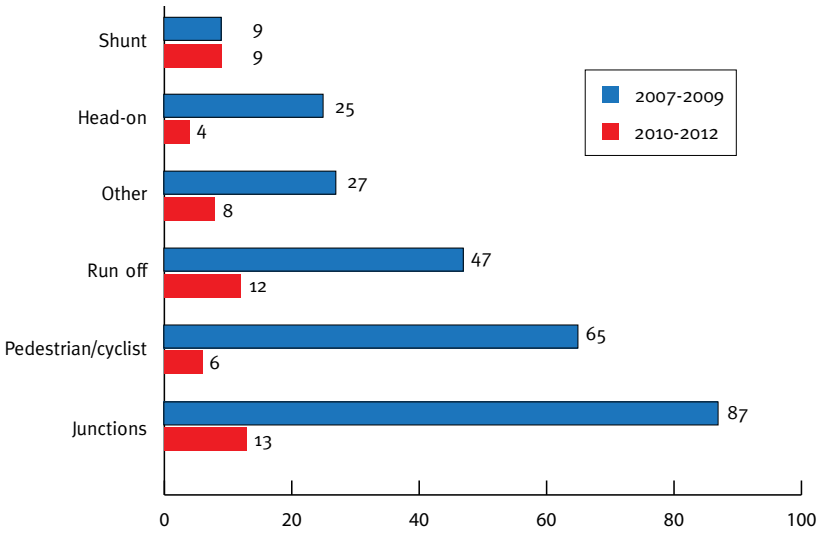


Figure 1. Number of fatal and serious crashes per data period by crash type on the most improved roads

Table 1. Britain's most improved roads (2007-09 & 2010-12)

Road no.	From - to description	Region/country	Length (km)	Road type[1]	F&S crashes (2007-09)	EuroRAP Risk Rating (2007-09)[2]	F&S crashes (2010-12)	EuroRAP Risk Rating (2010-12)[2]	% decrease in F&S crashes over time	Measures implemented include:
A404*	A413 (Amersham) - M25 J18	E/SE	9	Single	12	77.9	1	6.6	-92%	Improved road markings, renewed cats eyes, resurfacing, junction improvements including high friction surfacing, reflective bollards, night time street lighting patrols, speed limit review with associated warning signage, parking restrictions, street lighting replacement
A6068	M65 J14 - A629	NW/Y&H	13	Single	18	139.9	2	17.2	-89%	Improved road markings and signing, removal of trees, resurfacing, 20mph zone installed with matrix signs installed, mobile camera enforcement
A4174*	A4 (Keynsham) - M32 J1	SW	12	Dual	11	23.7	2	4.3	-82%	Junction improvements including signals installed
A602*	Hitchin - A1(M) J8	E	6	Single	10	47.5	2	10.3	-80%	Junction improvements including high friction surfacing, improved signing, easing exit angle and full time signals, resurfacing
A6187*	Castleton - A625 (Fox House)	EM	16	Single	15	123.3	3	25.1	-80%	Resurfacing, vehicle activated signs, improved road markings
A227*	A25 (Borough Green) - A2 (Gravesend)	SE	16	Single	10	54.3	2	11.5	-80%	Speed limit review, traffic calming improvements including repositioning signing, high friction surfacing and roundels, new repeaters, removal of vegetation, improved signing, bend improvements including resurfacing and signing improvements
M20	M20 J10 to J13	SE	19	Motorway	13	12.2	3	3.0	-77%	Improved signage, variable speed limit, mobile safety barrier, central reserve gates
M6	M6 J8 to J12	WM	20	Motorway	26	12.4	6	2.8	-77%	Improved road markings and signing, SMART operation
A507*	M1 J13 - A6 (Clophill)	E	14	Single	13	60.9	3	13.5	-77%	Speed limit review, junction improvements including a new junction, road marking improvements, implementation of a short bypass
A70	Cumnock - Ayr	Scot	21	Single	17	80.7	4	19.6	-76%	Mobile speed camera, VMS warning signs, road re-alignment, junction improvements, removal of sub-standard bends, traffic calming, resurfacing, footway improvements, speed limit review
A46	Alcester - M40 J15	WM	21	Mixed	16	32.5	4	8.0	-75%	Improved road markings and signing, junction improvements
M4	M4 J3 - J4	London	6	Motorway	16	25.3	4	6.4	-75%	The entrance from the Junction 4 Eastbound on slip onto the M4 was re-lined in an effort to address traffic joining the motorway causing mainflow breakdown and a number of accidents at the head of the on slip.
A1079	York - Mkt Weighton	Y&H	24	Single	30	83.7	8	23.1	-73%	Improved road markings and signing, drainage improvements, resurfacing, speed limit review, junction improvements including reconfiguration at the change from single to dual carriageway reconfiguration where right turn movements were problematic, traffic calming improvements including revised gateway, pedestrian refuges for public transport accessibility, targeted enforcement, educational campaigns
A1	A697 (Morpeth) - A69 (Newcastle)	NE	22	Dual	15	16	4	4.5	-73%	Grade separated junction, improved signing and lining
A675*	M65 J3 - Bolton	NW	13	Single	15	142.5	4	39.2	-73%	Improved signing and road markings, speed limit reviews

Ranked by percentage reduction in the number of fatal or serious (F&S) crashes between the two data periods; significant reduction in the number of F&S crashes between data periods at the 95% confidence level; minimum of 10 F&S crashes 07-09; minimum F&S crash density of 0.2 F&S/km per year 07-09; [1] indicates roads classified as non-primary; [1]road type accounting for at least 80% of section length; [2]EuroRAP Risk Rating based on the number of fatal or serious crashes per billion vehicle km travelled: black (high risk), red (medium-high risk), orange (medium risk), yellow (low-medium risk), green (low risk); measures implemented based on road authority responses to pre-publication consultation.

Persistently Higher Risk Roads

'Persistently higher risk roads' are those rated high (black) and medium-high (red) risk in both survey periods and which have shown little or no change over time or significant increases in the number of crashes. The top ten are listed in Table 2.

In previous reports, the majority of the routes listed were situated in the North-West and the East Midlands. The routes that often featured in the list in the past are not listed in this year's report because of the small density of crashes that occurred on the routes in the latest data period: consultation with the road authorities revealed that the types of measures reported on the 'most improved' list have been implemented on the routes and, after many years these routes no longer met the criteria for 'persistently higher risk roads'. In particular, the speed reduction measures on the A537 'Cat and Fiddle' route that were implemented in 2010 have resulted in this infamous route now being 28th in the list of 'most improved' routes.

The most common crash type on the routes in the first half of the list are run-offs. These routes are predominantly rural and based near or in national parks.

The most common crash type on the routes in the bottom half of the list are those involving a pedestrian or cyclist. These routes are predominantly urban, linking major villages or towns in built up areas.

The section at the top of this year's 'persistently higher risk roads' is the A285 between Chichester and Petworth. The route runs north to south linking the A27 with the A272 and runs through the South Downs. Once again, the top route is a route that goes through a national park but instead of improving over time, the route has seen a 16% increase in the number of fatal and serious crashes over time. The route has seen a number of low cost safety measures implemented over time but, because of the significant number of bends on the route, it requires more far reaching intervention in keeping with an area of outstanding natural beauty.

Table 2. Britain's persistently higher risk roads (2007-09 & 2010-12)

Road no.	From - to description	Region/country	Length (km)	Road type[1]	F&S crashes (2007-09)	EuroRAP Risk Rating (2007-09)[2]	F&S crashes (2010-12)	EuroRAP Risk Rating (2010-12)[2]	% of crashes with motorcyclist involvement (2010-12)	% contribution of crash types (2010-12)[3]					
										Pedestrians/cyclists	Junctions	Run-offs	Head-ons	Rear end shunts	Other
A285*	A27 (Chichester) - Petworth	SE	19	Single	18	161.6	21	183.7	38%	10%	33%	24%	19%	0%	14%
A809*	Glasgow - A811	Scot	16	Single	15	203.4	13	180.2	46%	0%	23%	54%	23%	0%	0%
A937*	Montrose - A90 (Laurencekirk)	Scot	13	Single	10	234.6	8	175.3	13%	0%	38%	63%	0%	0%	0%
A18*	Laceby - Ludborough	EM/ Y&H	16	Single	17	232.3	13	165.9	8%	8%	15%	62%	8%	0%	8%
A6*	M6 J33 - Lancaster	NW	9	Single	27	155.1	25	151.8	12%	64%	20%	8%	0%	0%	8%
A61*	Wakefield - M1 J44	Y&H	10	Single	24	155.7	23	151.1	30%	57%	30%	4%	0%	0%	9%
A36*	A3090 - Totton	SE	7	Single	11	123.7	13	150.2	23%	46%	38%	0%	8%	8%	0%
A589*	Full route around Lancaster	NW	8	Single	15	130.7	17	142.6	12%	59%	35%	0%	0%	0%	6%
A643*	Brighouse - Morley	Y&H	12	Mixed	11	124.0	13	140.4	23%	38%	23%	23%	0%	0%	15%
A4300*	Full route through Kettering	EM	6	Single	13	148.8	12	135.2	0%	83%	8%	0%	8%	0%	0%

Ranked by EuroRAP Risk Rating 10-12; no significant reduction in the number of F&S crashes between data periods or significant increase in the number of F&S crashes between data periods at the 98% confidence level; minimum number of 10 F&S crashes 07-09, 8 in 10-12; minimum F&S crash density of 0.2 F&S/km per year in both data periods; EuroRAP Risk Rating is either high risk (black) or above average of medium-high risk (red) routes in both data periods; [1]indicates roads classified as non-primary; [1]road type accounting for at least 80% of section length; [2]EuroRAP Risk Rating based on the number of fatal or serious crashes per billion vehicle km travelled: black (high risk), red (medium-high risk), orange (medium risk), yellow (low-medium risk), green (low risk); [3]percentages may not sum due to rounding. Some of the roads listed may have had measures implemented since 2012.

Regional analysis

The East Midlands for the first time sits as the highest risk region in the British regions and nations. The risk of a crash involving death or serious injury on the network surveyed in the East Midlands is two-thirds higher than the risk in the West Midlands.

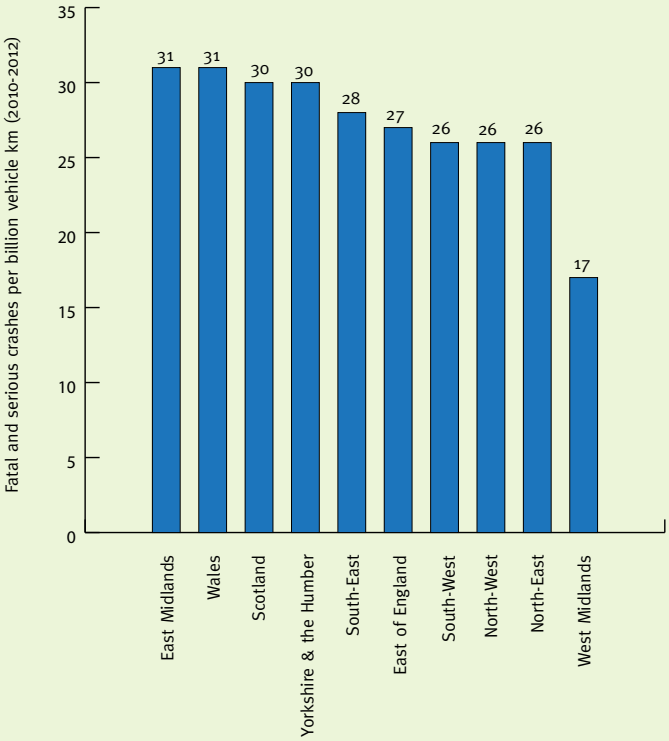


Figure 2. Average risk of death or serious injury on the motorway and 'A' road network by region

The risk of death or serious injury on the network surveyed in the West Midlands is the most improved with a reduction of nearly a quarter. The rate of improvement in Scotland is the second fastest: Scotland no longer has the highest rate of death and injury.

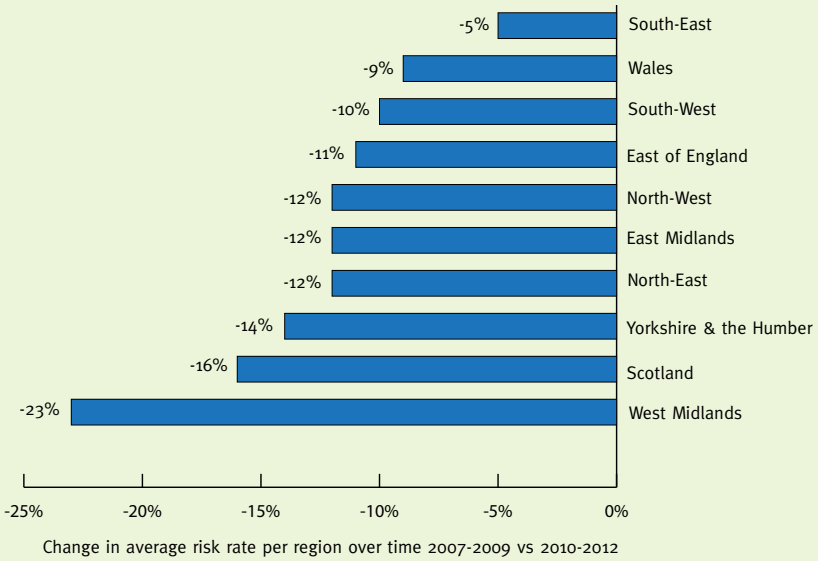
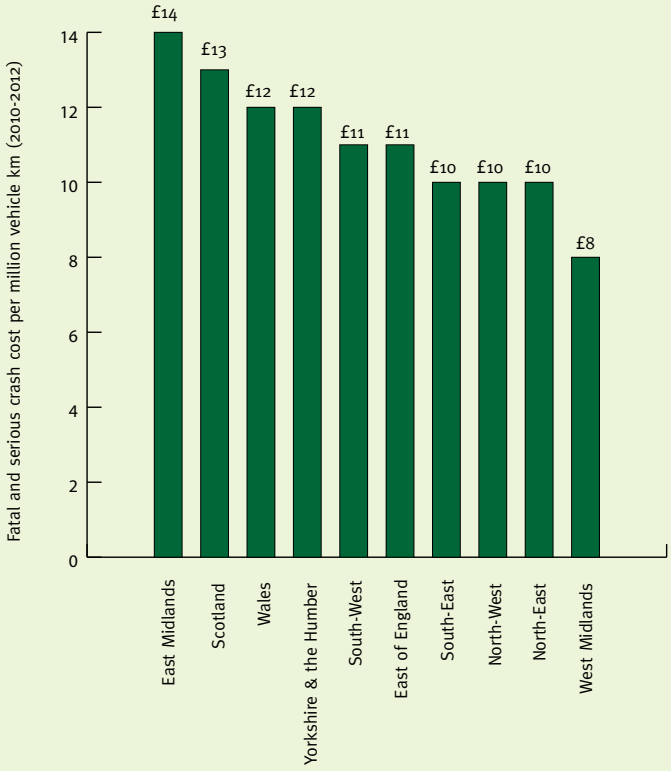


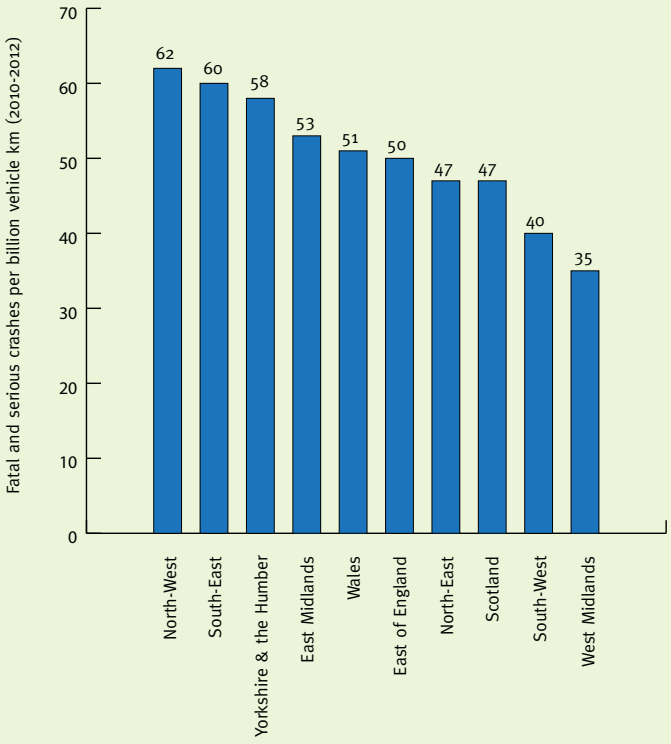
Figure 3. Change in average risk of death or serious injury on the motorway and 'A' road network by region over time

Regional analysis



The economic loss per vehicle km travelled is highest on the network surveyed in the East Midlands and lowest in the West Midlands. The order of regions between Figures 2 and 4 changes because the ratio of fatalities to serious injuries are different between the regions. (For example, fatal crashes on single carriageways tend to involve fewer people and motorways more). In addition, regions have differing proportions of their total travel on their motorway and 'A' road network.

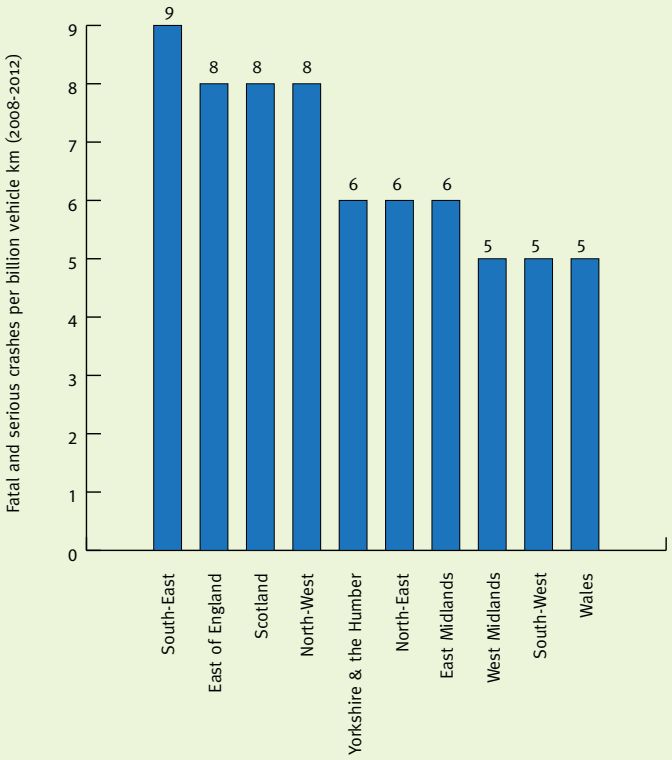
Figure 4. Economic cost of death or serious injury crashes per travel on the motorway and 'A' road network by region



The single carriageway roads on the network surveyed have the highest risk in the North-West and lowest in the West Midlands. The risk on the average single carriageway in the North-West is nearly 80% higher than the average single carriageway in West Midlands.

The region with the highest proportion of travel on single carriageways is Scotland. This region now has the third safest single carriageways of the British regions and nations, a marked improvement.

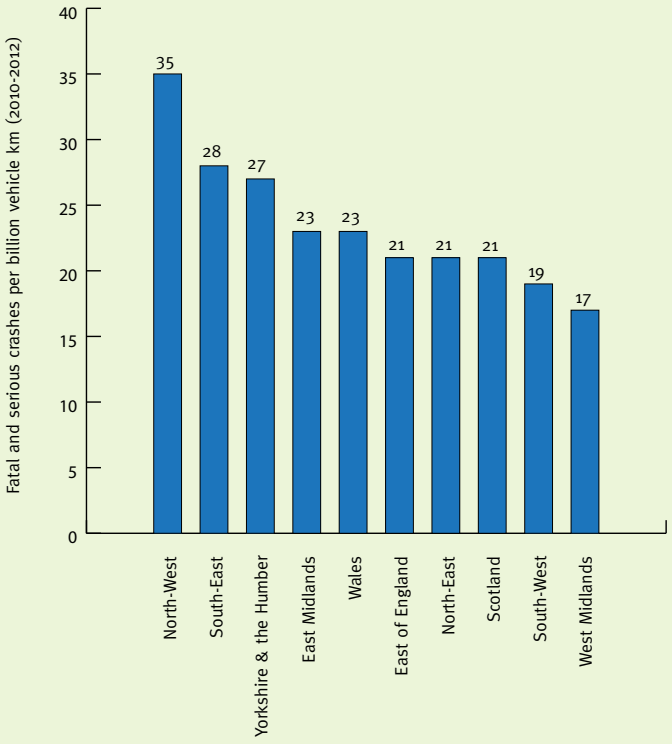
Figure 5. Average risk of death or serious injury on the single carriageway 'A' road network by region



The motorways in the South-East are the highest risk of all the motorways of the British regions and nations. The safety performance of the single carriageways and dual carriageways on the network surveyed is also poor but, because of the high proportion of the South-East's travel on motorways which are the safest road type, the region performs no worse than the average of all the British regions and nations overall.

The small motorway network in Wales performs the best. However, because of the large proportion of Welsh travel on its single carriageway network, the overall performance of the Welsh network surveyed is second worst.

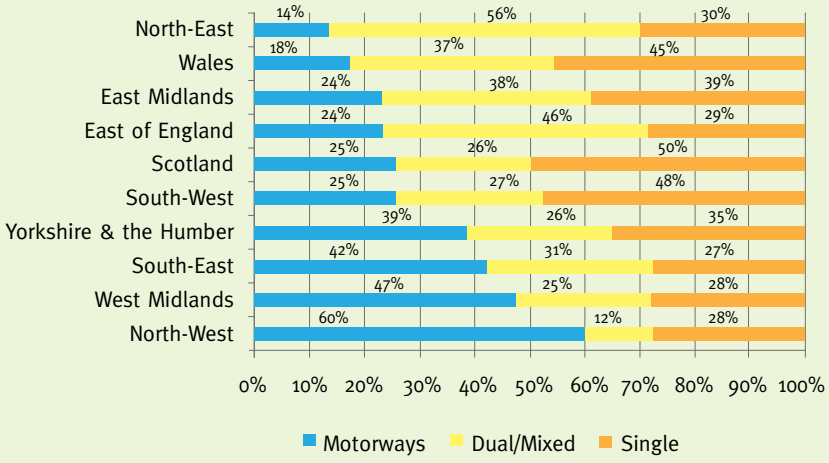
Figure 6. Average risk of death or serious injury on the motorway network by region



The analysis of the dual and mixed carriageways reveals similar patterns. The North-West has the worst dual and mixed carriageway sections and the West Midlands has the best. The risk on duals and mixed carriageways in the North-West is twice that of the West Midlands.

Figure 7. Average risk of death or serious injury on the dual and mixed carriageway 'A' road network by region

Regional analysis



The distribution of travel on each road type largely defines where each region will be placed on the overall ranking of risk shown in Figure 2. However the performance of each road type in each region defines exactly where each region is ranked. The North-West has the highest proportion of travel on motorways by far and yet is not the safest region overall because its motorways perform poorly and its single carriageways are the worst of any region. The North-East scores better than average on all road types but, because of the small proportion of travel on motorways, it does not rank the best overall and instead takes second place. A combination of low motorway travel and high single carriageway travel scoring lower than average, places the East Midlands worst overall.

Figure 8: Distribution of travel on each road type by region

Highest Risk Road by Region

Table 3 shows the highest risk road section in each of the regions. Roads listed are ranked by EuroRAP risk rating from highest to lowest.

Roads in the North-West, South-East and Scotland top the list each with roads that are high risk on the network surveyed and twice the risk of the safest route on the list, the A67 route in the North-East.

From the top of the list the most common crashes are run-off crashes and then through to the bottom of the list the issue is crashes with vulnerable road users.

All roads in the list are single carriageway 'A' roads and with the exception of the A44, a national route in Wales the routes are non-primary.

Regional risk maps and Risk Mapping by Parliamentary Constituency boundary can be found at www.roadsafetyfoundation.org.

Table 3. Britain's highest risk roads by region (2010-12)

Region/country	Road no.	From - to description	Length (km)	Road type[1]	F&S crashes (2010-12)	EuroRAP Risk Rating (2010-12)[2]	% contribution of crash types (2010-12)[3]					
							Pedestrians/cyclists	Junctions	Run-offs	Head-ons	Rear end shunts	Other
North-West	A537	Macclesfield - Buxton	12	Single	11	186.7	9%	18%	55%	0%	0%	0%
South-East	A285*	A27 (Chichester) - Petworth	19	Single	21	183.7	10%	33%	24%	19%	0%	0%
Scotland	A809*	Glasgow - A811	16	Single	13	180.2	0%	23%	54%	23%	0%	0%
Wales	A44	Llangurin - Aberystwyth	39	Single	27	173.7	5%	9%	40%	19%	7%	21%
East of England	A1302*	A14 - A134 (Bury St Edmunds)	5	Single	12	166.1	25%	67%	0%	0%	0%	0%
Yorkshire & the Humber	A61*	Wakefield - M1 J44	10	Single	23	151.1	57%	30%	4%	0%	0%	0%
East Midlands	A4300*	Full route through Kettering	6	Single	12	135.2	83%	8%	0%	8%	0%	0%
South-West	A4151*	A4136 (Nailford) - A48	8	Single	8	115.1	0%	38%	13%	38%	0%	0%
West Midlands	A422*	A429 - A46 (Stratford-Upon-Avon)	11	Single	8	97.2	13%	50%	25%	0%	0%	0%
North-East	A67*	Darlington - A19	16	Single	13	89.4	46%	15%	15%	8%	0%	0%

*Ranked by EuroRAP Risk Rating 10-12; minimum number of 8 F&S crashes 10-12; minimum F&S crash density of 0.2 F&S/km per year 10-12; * indicates roads classified as non-primary; [1]road type accounting for at least 80% of section length; [2]EuroRAP Risk Rating based on the number of fatal or serious crashes per billion vehicle km travelled: black (high risk), red (medium-high risk), orange (medium risk), yellow (low-medium risk), green (low risk); [3]percentages may not sum due to rounding. Some of the roads listed may have had measures implemented since 2012*


Orkney Islands
Outer Hebrides
Inner Hebrides
Thurso
Wick
Latheron
Ullapool
Elgin
Inverness
Huntly
Aberdeen
Stonehaven
Portree
Skye
Kyle of Lochalsh
Invermoriston
Aviemore
Invergarry
Kingussie
Mallaig
Dalwhinnie
Fort William
Ballachulish
Pitlochry
Montrose
Forfar
Arbroath
Mull
Oban
Tyndrum
Perth
Dundee
Crianlarich
Lochearnhead
St Andrews
Tarbet
Glenrothes
Stirling
Jura
Lochgilphead
Alexandria
EDINBURGH
Gourock
Cumbernauld
Haddington
Largs
GLASGOW
Whitburn
Penicuik
Berwick-upon-Tweed
Islay
Carluke
Peebles
Arran
Irvine
Kilmarnock
Galashiels
Coldstream
Ayr
Cumnock
Hawick
Jedburgh
Alnwick
Campbeltown
Girvan
Langholm
Morpeth
Dumfries
Newton Stewart
Cairnryan
Hexham

Risk Rating of Britain's Motorways and A Roads (Risk Bands 2020)

EuroRAP

This map shows the statistical risk of death or serious injury occurring on Britain's motorway and A road network for 2010-2012. Covering 44,500km in total, the EuroRAP network represents just 11% of Britain's road length but carries 56% of the traffic and 50% of Britain's road fatalities.

The risk is calculated by comparing the frequency of road crashes resulting in death and serious injury on every stretch of road with how much traffic each road is carrying. For example, if there are 20 crashes on a road carrying 10,000 vehicles a day, the risk is 10 times higher than if the road has the same number of crashes but carries 100,000 vehicles.

Some of the roads shown have had improvements made to them recently, but during the survey period the risk of a fatal or serious injury crash on the black road sections was 24 times higher than on the safest (green) roads.

For more information on the Road Safety Foundation go to www.roadsafetyfoundation.org.

For more information on the statistical background to this research, visit the EuroRAP website at www.eurorap.org.

Road Assessment Programme Risk Rating

- Low risk (safest) roads
- Low-medium risk roads
- Medium risk roads
- Medium-high risk roads
- High risk roads

- Motorway
- Single and dual carriageway
- Unrated roads

Scale

0 10 20 30 40 50 miles

0 10 20 304 05 06 0 70 80 kms

Foundation 2014. The Foundation is indebted to the Department for Transport (DfT) for allowing use of data in . This work has been financially supported by Ageas. Crash information is for 2010-2012. Traffic data is the average eighted by section length with local corrections where appropriate. The roads shown are based on the 2010 network udes the centres of major cities. No results are presented for roads shown in grey - these are either motorway spurs, ons off the major route network, short links less than 5km, carry small (below 2,000 vehicles per day) traffic volumes ened part way through the data period. Risk rates on road sections vary but it is expected that, on average, those etwork will have higher rates than sections on it. Generally motorways and high quality dual carriageway roads ilar way and are safer than single carriageway or mixed carriageway roads.

ROAD SAFETY FOUNDATION

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How Safe Are England's Strategic Roads?

Network

Only 39% of the length of Britain's Strategic Road Network (SRN) is motorway. A further 26% is dual carriageways. Figure 9 shows 35% of the SRN length is either single carriageways or mixed carriageways (length of single carriageway interspersed with sections of dual).

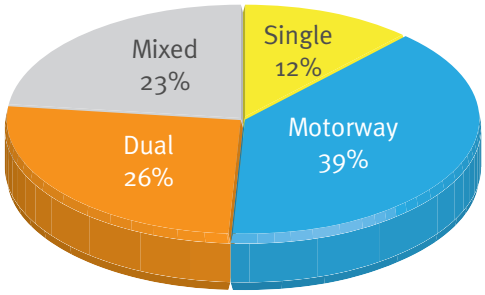


Figure 9: Network length by road type (2010-12)

Travel

Motorways are much more heavily trafficked than other road types. Typically, SRN motorways carry 5 times more traffic than single carriageway 'A' roads. That results in nearly two thirds of all travel (64%) being on motorway.

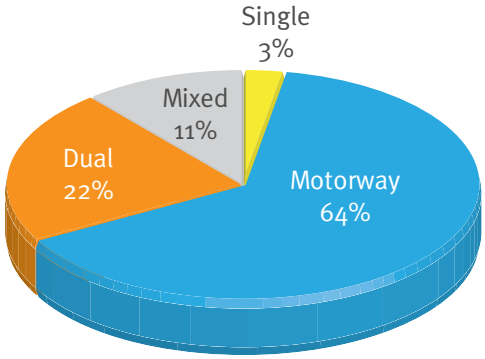


Figure 10: Network travel by road type (2010-12)

How many deaths are there on each road type?

The greater the traffic that a road carries, the safer it must be as any flaws result in serious consequences sooner rather than later. It is little comfort that motorways are the safest road type - more people on the SRN are killed travelling on motorways than any other road type.

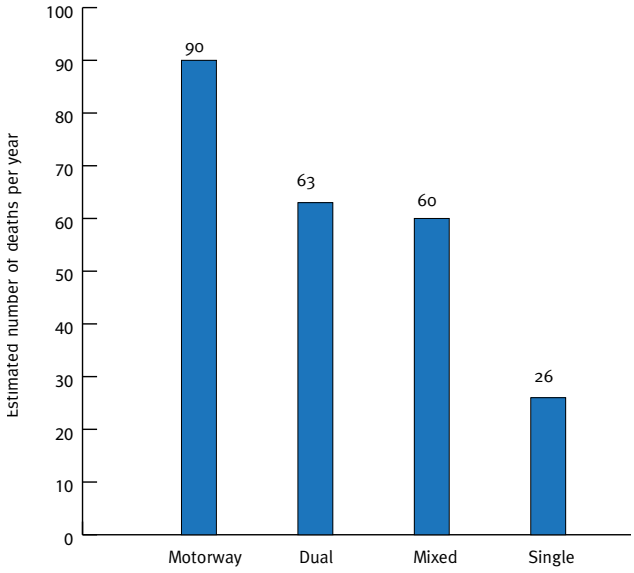


Figure 11: Average annual deaths across each road type (2010-12)

How much do road crashes on the SRN cost?

RSF estimates that around £0.7bn annually is lost in serious road crashes alone on the SRN as recorded by the Police (hospital records are higher) and excluding traffic delays. When a serious crash occurs on a motorway, more people are killed and serious trauma is more severe than on other road types: the cost of the consequential traffic delays is broadly as much again.

Dual carriageways are more than twice as risky as motorways but carry roughly half the traffic (40,000 vehicles per day); single carriageways are 5 times riskier but carry around 20% of the traffic (15,000). The economic case for action on all road types is equally compelling: the average cost of serious crashes on SRN roads of all types, excluding delays, differs little at around £100k p.a. per km.

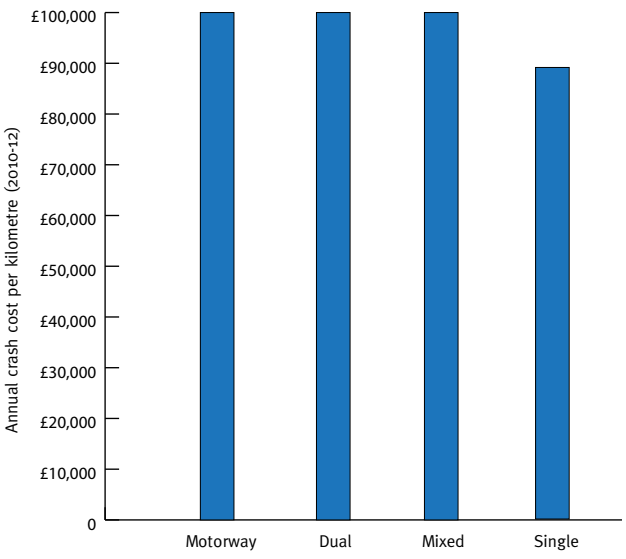
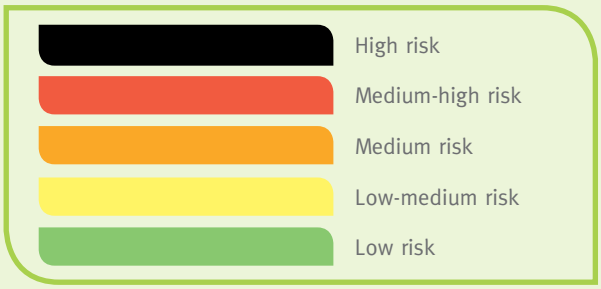


Figure 12: Annual serious crash cost per km by road type (2010-12)

The risk on the SRN network has improved by 15% over the latest data period, better than the average 12% improvement for the total EuroRAP network.

The highest risk route is the A21 single carriageway in East Sussex and the safest is the M49 in the South-West which had no serious crashes over the six year period analysed.

The distributions in Figures 13 to 15 show the proportion of travel on each category of risk across the SRN by road type.



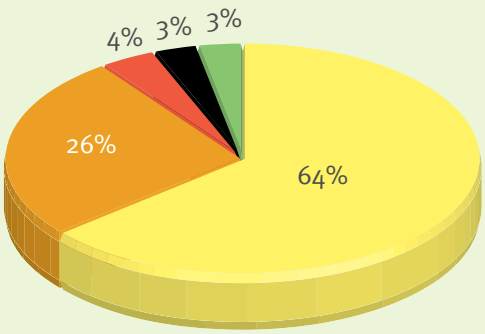


Figure 13: Risk distribution by travel on single carriageways (2010-12)

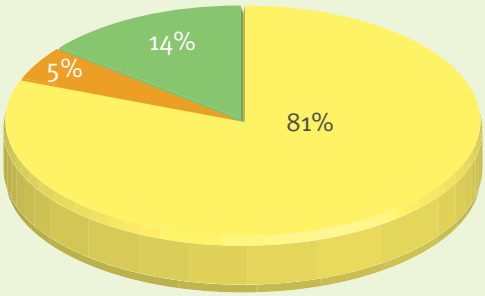


Figure 14: Risk distribution by travel on the dual and mixed carriageway network (2010-12)

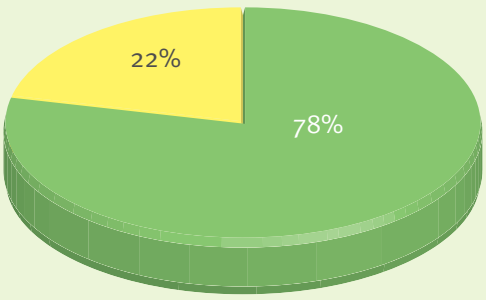


Figure 15: Risk distribution by travel on motorways (2010-12)

About the Network

The 44,375km (27,735 mile) network analysed in this report includes all motorways and 'A' roads connecting towns and cities in Britain.

Motorways: major roads of regional and urban strategic importance, often used for long distance travel. Usually 3 or 4 lanes in each direction with a maximum speed of 70mph.

Primary 'A' roads: include trunk roads (managed by national road authorities), major roads forming the recommended routes for long-distance and freight traffic, and primary 'A' roads (managed by local authorities).

Non-primary 'A' roads: the responsibility of local authorities, these roads exist where the route is important but where a nearby primary 'A' road or motorway carries the majority of the traffic.

Routes outside urban cores, typically inside the inner ring road of major cities, are excluded since allocating crashes to specific roads is not straightforward.

About Risk Mapping

In countries where detailed crash and traffic data are available, EuroRAP risk maps give an objective view of where people are being killed or seriously injured on a road network and where their crash risk is greatest. By showing the number of fatal and serious crashes per kilometre travelled the results demonstrate the risk arising from the interaction of road users, vehicles and the road environment.

The emphasis of Risk Mapping is on identifying high risk routes rather than 'blackspots' or the 'cluster site' approach. The costs of proactively treating known areas of high risks by upgrading the safety detailing along a length of road are often far lower than piecemeal change once a crash has occurred.

Risk maps help to create awareness and understanding of road safety risk as users move around a network. They are being increasingly adopted by road authorities and Governments across Europe as a way of prioritising network improvements and leveraging the funds required to take action.

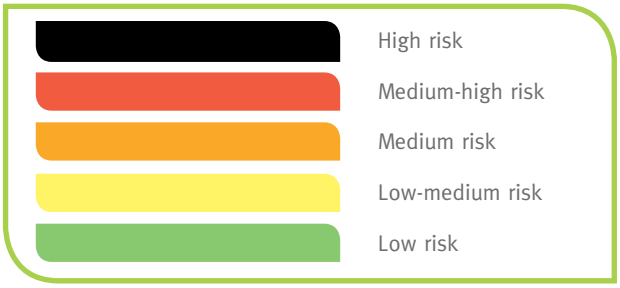
The mapping in this report has been produced to a standardised methodology, making it possible to identify the lowest and highest risk sections nationwide. By comparing risk by region, they also provide consistent safety ratings of roads across borders. Risk Mapping is now available in more than 20 countries across Europe.

The methodology used here compares the number of crashes resulting in death or serious injury on a road with how much traffic it carries. This takes account of an individual road user's exposure to risk. For example, a length of road with 20 fatal and serious crashes and carrying 10,000 vehicles per day will have a risk 10 times higher than a road with the same number of crashes but carrying 100,000 vehicles per day.

Motorways can have high crash numbers but they also carry the majority of the network's traffic, giving an overall small exposure to risk for any one road user. On the measure of the number of crashes by vehicle kilometres travelled a road with relatively few fatal and serious crashes can be rated as higher risk if it carries low volumes of traffic.

Road networks are aggregated into sections where they fall along the same numbered road and where design and operation is uniform. Crash and traffic data are assigned to each section, compiled into three-year periods to minimise year-to-year fluctuations.

Sections are allocated into colour-coded categories from high risk to low risk.



The Risk Mapping shown in this year's report uses the most up-to-date crash and traffic data available. Crash data are from the national road injury and accidents (STATS19) database provided by the Department for Transport (DfT), and include all crashes resulting in fatal and serious injuries during the data periods 2007-2009 and 2010-2012 inclusive, the most recent available when the results were prepared. Traffic flows are from the DfT database based on automatic and manual vehicle counts, the latter carried out at three-yearly intervals. Values used for individual road sections are the average for the data periods 2007-2009 and 2010-2012 (inclusive) weighted by section length.

Risk maps showing the national and regional pictures, and by Parliamentary Constituency, are available from:

www.roadsafetyfoundation.org.

Technical changes

Last year the Road Safety Foundation announced that it would apply new international risk bands in 2014 and use these to track Britain's safety performance throughout the UN Decade of Action for Road Safety until 2020. These new risk bands are referred to as Risk Bands 2020. The old thresholds are referred to as Risk Bands 2010.

Risk Bands 2020 restore greater resolution so that the differences between roads of different risk can clearly be seen. It addresses the problem that deaths and serious injuries fall over time as successful road safety actions combine: in the last decade, the single most important factor has been improved vehicle safety.

RSF has taken the opportunity in introducing Risk Bands 2020 to take account of the wishes expressed by a number of authorities that improvements should be picked up more quickly. For example, the recent action on the 'Cat and Fiddle' route has led to a drop in the number of reported casualties. In order to achieve greater responsiveness with statistical reliability the results now have greater emphasis on roads with more crashes per km. These tend to be roads that carry more significant traffic volumes. Roads that carry less than 2,000 vehicles a day are now excluded from the analysis in addition to those with a length less than 5km (3 miles).

Risk Bands 2010 were derived from a study of the first British EuroRAP network which comprised the motorway and primary 'A' road network outside of urban cores. The introduction of non-primary 'A' roads in 2009 as desired by local authorities introduced new characteristics into the network. It resulted in more roads through villages and built up areas in a network whose function is to link major towns and cities. The type of crashes and the proportion of death and serious injury however vary between primary and non-primary 'A' roads. Serious crashes on primary roads lead to more deaths than on non-primary roads.

The new analysis using Risk Bands 2020 gives more weight to the seriousness (and economic cost) of crashes on the different types of road. The thresholds for the risk bands have been derived separately for primary 'A' roads and non-primary roads.

For example, although a road on the primary network may have the same overall risk rate for death and serious injury combined as a road on the non-primary network, the colour with which it is mapped will take into account the greater likelihood of death.

About Performance Tracking

Performance Tracking uses the data compiled for each risk map to assess how risk on the network as a whole, and on individual road sections, has changed over time, and is a way of measuring success and the effectiveness of investment in safer roads.

This is done in several stages:

1. Risk Mapping for consecutive three-year data periods are compared to identify road sections that have shown a statistically significant reduction in the number of fatal and serious crashes over time and those where there has been little or no change;

2. Data for individual years is checked to assess consistency of trends over time;

3. Highway authorities are consulted in order to build up information on specific issues affecting road safety, and on the types of engineering, enforcement or education measures that may have been implemented and any actions planned in the immediate future

This year's results carry the following listings, comparing risk in 2007-2009 with 2010-2012:

- Britain's most improved roads
- Britain's persistently higher risk roads

Using the latest three-year data period only:

- Britain's highest risk roads by region

British EuroRAP Results from 2002 onwards can be viewed at
www.roadsafetyfoundation.org/library

About The Road Safety Foundation

The Road Safety Foundation is a UK charity advocating road casualty reduction through simultaneous action on all three components of the safe road system: roads, vehicles and behaviour.

The Foundation has enabled work across each of these areas. Several of its published reports have provided the basis of new legislation and government policy.

For the last 11 years the charity has focused on leading the establishment of the European Road Assessment Programme (EuroRAP) in the UK and internationally. Since the inception of EuroRAP in 1999, the Foundation has been the UK member responsible for managing the programme in the UK (and, more recently, Ireland), ensuring the UK provides a global model of what can be achieved.

The Foundation plays a pivotal role in raising awareness of the importance of road infrastructure at all levels including:

- regular publication of EuroRAP safety rating measures which can be understood by the general public, policy makers and professionals;
- issuing guidance on the use of EuroRAP protocols at operational level by road authorities in order for engineers to improve the safety of the road infrastructure for which they are responsible;
- proposing national strategies and benchmarks.

Road Safety Foundation is registered in England & Wales under company number 02069723.

Registered UK Charity number 295573. Registered Office: 60 Trafalgar Square, London, WC2N 5DS, UK.

For more information visit
www.roadsafetyfoundation.org

About EuroRAP

The European Road Assessment Programme (EuroRAP) is an international not for profit association dedicated to saving lives through safer roads.

The programme aims to reduce death and serious injury through a programme of systematic testing of risk, identifying the major shortcomings that can be addressed by practical road improvement measures. It forges partnerships between those responsible for a safe road system – civil society, motoring organisations, vehicle manufacturers and road authorities, and aims to ensure that assessment of risk lies at the heart of strategic decisions on route improvements, crash protection and standards of route management.

Its Members are automobile and touring clubs, national and regional road authorities and researchers. The programme is supported by the FIA Foundation for the Automobile and Society, the European Commission, the International Road Assessment Programme, motor industry, and governments.

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Company number 0479824257.

For more information visit
www.eurorap.org

About Ageas

Ageas is a leading provider of award-winning Personal, Commercial and Protection insurance solutions in the UK, distributing its products through a range of channels including brokers, IFAs, intermediaries, affinity partners and the Internet, as well as through its retail strategy and its wholly or partially-owned companies trading as Ageas Insurance, Ageas Protect, Ageas Insurance Solutions, Castle Cover, Kwik Fit Financial Services, RIAS and Tesco Underwriting.

Insuring around eight million customers overall, Ageas works with a range of partners and is recognised for delivering consistent and high-quality customer experiences. The company is the second largest motor insurer in the UK based on number of vehicles insured.

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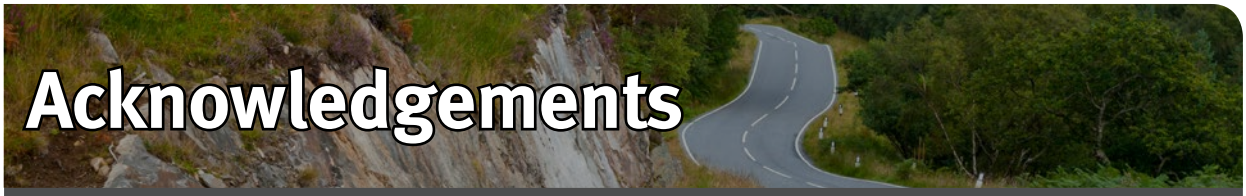

Acknowledgements

The Road Safety Foundation

The Road Safety Foundation is grateful for the financial support of Ageas in their sponsorship of the British EuroRAP Results 2014. The Foundation would like to thank those road authorities who responded to pre-publication consultation of the results and who have provided detailed information on specific road sections listed.

The detailed data used to produce these results was commissioned from TRL Limited and included the creation of the British EuroRAP network of road sections, assignment of crashes and traffic data to individual routes and classification of crash types.

Analysis and validation was carried out Caroline Moore. Pre-publication consultation with road authorities on roads listed in the report was carried out by Caroline Moore.

Cartography was carried out by Nick Moss, using Digital Map Data (c) Collins Bartholomew Ltd (2013). Regional mapping contains Ordnance Survey data (c) Crown Copyright and database right 2014. Regional mapping contains Ordnance Survey data (c) Crown Copyright and database right 2014. Images and design by Neil Moss Photography and Design. Additional images provided by Shutterstock.

Sole responsibility for this report lies with the authors and does not necessarily reflect the opinion of supporters of the Road Safety Foundation or EuroRAP.

How Safe Are You On Britain's Roads?

The majority of British road deaths are concentrated on just 10% of the British road network, motorways and 'A' roads outside major urban areas. This report measures and maps the differing risk of death and serious injury road users face across this network, sometimes 20 times or more different.

The report tracks which roads have improved, and those with persistent and unacceptable high risks.

It highlights roads where authorities have taken effective action. On 15 stretches of roads, low cost action has reduced serious crashes by 80% worth a staggering £0.4bn to the economy.

The report shows major differences not only between individual roads but between whole regions. The risks road users face overall on the major roads of the East Midlands are a startling two thirds higher than neighbouring West Midlands - greater than between many European countries.

Risk on the roads depends on the way we drive, the vehicles we drive and the roads we drive on. But, with similar vehicles and drivers, it is the in-built safety of the roads in the West Midlands that explains its better performance - more travel is done on safer roads. The motorways and single carriageways of the West Midlands have the greatest in-built safety of any region.

It is often neither difficult nor expensive to raise infrastructure safety. It brings high returns to the economy. It requires systematic measurement of risk. The in-built safety of the infrastructure of roads, like cars, is now measured worldwide. We should not be driving 5-star cars on major roads which have only a 1- and 2-star safety rating.

Like other leading nations, Britain must set an explicit minimum 3-star rating for infrastructure safety for major roads. Nowhere is this more urgent than on the nation's Strategic Roads where the government is legislating to pass safety responsibilities to a new Corporation.

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