

STAR RATING EUROPE'S ROADS FOR SAFETY



## **EuroRAP 2005: Ireland Results**

Risk rating Ireland's major roads



[www.aaireland.ie](http://www.aaireland.ie)



[www.AAtrust.com](http://www.AAtrust.com)

European  
Road  
Assessment  
Programme

## Foreword

AA Ireland and The AA Motoring Trust are founder members of the European Road Assessment Programme, which is now well developed in Great Britain, Germany, Italy, the Netherlands, Spain and Sweden. Now, in partnership with the road administrations north and south of the border, we have played an active part in EuroRAP's expansion across Ireland.

At the outset, we would like to acknowledge the pioneering work and enthusiasm of the individuals in the four teams that brought this work in Ireland to fruition – the National Roads Authority and AA Ireland in the Republic, and Roads Service (Department for Regional Development) and The AA Motoring Trust in Northern Ireland.

This unique partnership has resulted in the first highway risk-rate map for the island of Ireland, together with details of those road sections that pose greater risks for their users and have a substantial number of collisions along their length. These roads are therefore potentially priorities for safety improvements. They are also sections where drivers have a responsibility to take extra care.

Last year 528 people died on the roads of the Republic of Ireland and Northern Ireland; several thousand more were seriously injured. The death toll on Ireland's roads over the last 30 years is about 20,000, although advances in vehicle and road engineering and changes in the behaviour of road-users mean that the number of people killed each year is now half what it was 30 years ago. Each of those deaths is a family tragedy and many need not have happened. Bad driving is often a cause of road deaths, but in many instances neither the vehicle nor the road have provided road-users with adequate protection against severe injury.

Increasing awareness and focused effort have provided opportunities for new approaches. Crash testing by the European New Car Assessment Programme (EuroNCAP) challenged car manufacturers to build safer vehicles. Ten years on, cars with 4- and 5-star assessments that give very high levels of protection in a collision are the norm. Now consumer attention is turning to roads.

Europe's motoring organisations established EuroRAP to drive up the safety standard of roads. AA Ireland and The AA Motoring Trust have pledged to build on the fruitful EuroRAP partnerships forged with the road authorities of both administrations in Ireland. Working together, we will have a real impact on reducing deaths and serious injuries on Ireland's roads.



Anthony E Collins  
Chairman  
Motoring Policy Committee  
AA Ireland



Sir Brian Shaw  
Chairman  
The AA Motoring Trust

# The European Road Assessment Programme

## What is EuroRAP?

The European Road Assessment Programme was established in 2000 as an international, non-profit association. It involves more than 20 motoring organisations, road authorities and expert bodies across Europe, working together to make Europe's roads safer. The road authorities of the Republic of Ireland and Northern Ireland joined the programme in 2003.

EuroRAP is a sister programme to EuroNCAP (the European New Car Assessment Programme), which crash tests new cars and provides an objective measure of their safety. Similarly, by assessing roads against established criteria, EuroRAP provides safety ratings that enable high-risk sections of road to be identified and mapped, and highlight improvements that could be made to roads to reduce the likelihood of collisions that cause death and life-threatening injury, and to make those that do happen survivable.

EuroRAP works in the Republic of Ireland through AA Ireland and the National Roads Authority, and in Northern Ireland through The AA Motoring Trust and Roads Service of the Department for Regional Development.



Crash protection is an essential element of road design



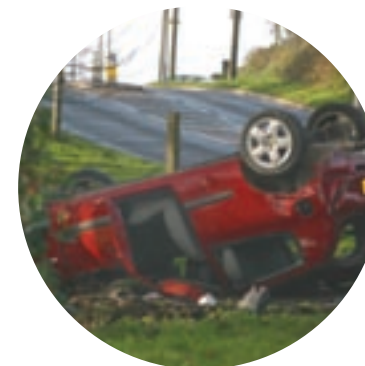
A safe road transport system needs drivers to stay within speed limits

## Why has EuroRAP been formed?

By giving Europe's highways a safety rating, EuroRAP makes the risk of death and serious injury on different roads more meaningful and stimulates public discussion and action. The ratings provide road engineers and planners with vital benchmarks to show them how well – or how badly – their roads compare with others both in their own country and elsewhere. In this way it encourages the implementation of existing good practice and promotes the use of innovative highway design measures that can reduce the force of impact on the human body in a collision.

Publicising the safety performance of major road networks also helps to raise the awareness of motorists to the risks of death and serious injury on different roads.

EuroRAP lays down a challenge to road authorities, road-users and vehicle designers to act together to reduce radically the risk to road-users of fatal and serious injuries. It engages and communicates with motorists, opinion-formers, decision-makers, engineering practitioners and other professionals, mobilising the skills and energy of its member organisations.



The human body cannot tolerate uncushioned forces above 40 kilometres per hour



Clear zones next to the carriageway mean that a moment's inattention does not lead to needlessly severe injury

# EuroRAP in Ireland

## EuroRAP's objectives

- To reduce deaths and life-threatening injuries on Europe's roads by systematically assessing risk and identifying safety shortcomings that can be addressed with practical road improvement measures.
- To put assessment of risk at the heart of strategic decisions on route improvements, crash protection and standards of route management.
- To provide the individual driver with meaningful information on where the greatest levels of risk are faced, and in turn to influence driver behaviour.



Well-designed roundabouts make the brutal elements of right-angled collisions at junctions less likely



Separating opposing flows and using split-level junctions reduce opportunities for conflict

## The EuroRAP network in Ireland 1998-2002

The Republic of Ireland's National Roads Authority and Roads Service Northern Ireland have jointly applied EuroRAP methodology to an accident analysis of the major road networks. Taking a five-year statistical base, using data for 1998-2002 inclusive, the results set Irish roads in a framework that allows comparison with networks in other EuroRAP countries. This helps to identify and encourage best practice in road design and provides key insights for both road engineers and road-users.

## Risk-rate maps

Based on actual collisions and traffic flows, risk-rate maps show an individual road's safety performance by calculating and mapping the rate at which people are being killed and injured\*. The centre-fold map shows the statistical risk of death or serious injury occurring on Ireland's motorways and major highways for the period 1998-2002 inclusive. It shows clearly how risk changes as road-users move from one section of road to another.

For comparison purposes, risk-rate maps for part of the United Kingdom and Ireland are shown at the back of this document, together with maps for the Netherlands, Spain and Sweden. The programme of risk-rate mapping also extends to Austria, Switzerland and Australia, and is being piloted in the United States.



Measurement of risk can help establish sensible speed limits



Traffic calming is increasingly used in villages on inter-urban routes

\* In Northern Ireland collisions resulting in fatal and serious injuries have been used for assessment. In the Republic of Ireland minor injuries have also been included. A mathematical adjustment ensures that a like-for-like comparison can be made between the two sets of results.

## Priorities for action in Ireland

EuroRAP has identified the following road sections as potential priorities for route action on the basis of risk rate and a substantial number of collisions per kilometre. Some work has already been carried out or is planned on these routes under the road authorities' programme of routine improvement and upgrading.

### Republic of Ireland

Road	From - to	County	Length (km)	Carriageway type	Fatal and injury collisions 1998-2002	Comments
<b>N1</b>	Dundalk town to Co. Down border	Louth	13	Single	88	Safety work has been carried out since 1998, including traffic calming and junction improvement. Will be bypassed by end of 2007.
<b>N2</b>	M50 to Ashbourne	Dublin / Meath	12	Single	72	Safety work has been carried out since 1998 including traffic calming and junction improvements. Will be bypassed by end of 2006.
<b>N21</b>	Tralee to Castleisland	Kerry	16	Single	69	Replaced by new road in early 2005.
<b>N25</b>	Waterford to Kilmeadan	Waterford	7	Single	37	Safety work programmed for 2005/2006 including traffic calming and treatment of bends. Will be bypassed by approximately 2008/9.
<b>N52</b>	Junction with R400 south of Mullingar to Tyrrellspass	Westmeath	15	Single	25	Route safety scheme programmed for 2005. Majority of section will be bypassed by end of 2007.
<b>N53</b>	Dundalk town to Co. Armagh border	Louth	13	Single	61	Programme of safety work to be developed.
<b>N54</b>	Monaghan town to Co. Fermanagh border	Monaghan	21	Single	46	Safety work has been carried out since 1998 including traffic calming and treatment of bends. Further route safety scheme programmed for 2005/2006.
<b>N55</b>	R394 Castlepollard Road to Edgeworthstown	Longford / Cavan	19	Single	33	Route safety scheme currently underway.
<b>N75</b>	Thurles to N8	Tipperary	9	Single	25	Traffic calming programmed for 2005/2006.
<b>N78</b>	Athy to R430 Newtown Cross	Kildare / Laois	18	Single	35	Safety work has been carried out since 1998 including traffic calming and junction improvements. Further safety work programmed for 2005.

### Northern Ireland

Road	From - to	County	Length (km)	Carriageway type	Fatal and serious injury collisions 1998-2002	Comments
<b>A3</b>	Moira to Lisburn from Meadow Road to Governors Road Roundabout	Antrim	11	Single	24	Three junction improvement schemes completed between 2003 and 2005.
<b>A20</b>	Upper Newtownards Road from Knock Road to Dundonald	Down	4	4-lane single no barrier	20	A series of road improvement measures have been introduced since 2002, including a new signalised junction.
<b>A23</b>	A55 outer ring road at Castlereagh Junction to Ballygowan	Down	11	Single	27	Major route safety scheme constructed during 2000/2001.
<b>A24</b>	Forestside to Carryduff Roundabout	Down	6	4-lane single no barrier	38	Route Strategy developed since 2002. Safety measures installed include safety cameras, vehicle-activated signs, two junction improvements and a controlled crossing.
<b>A29</b>	Moneymore Road to Kings Bridge through Cookstown	Tyrone	4	Single	14	Safety measures have been introduced since 2002, including several controlled and uncontrolled pedestrian crossing facilities.
<b>A57</b>	Junction with A8 at Larne Road to Templepatrick Roundabout	Antrim	11	Single	27	Two route improvement schemes constructed in 2000 and 2003; installation of roundabout underway.

The National Roads Authority (Republic of Ireland) and Roads Service Northern Ireland will continue to monitor and evaluate the measures already undertaken on the above roads.

# Risk rating of Ireland's major roads

This map shows the statistical risk of death or injury occurring on Ireland's motorways and major roads for 1998-2002. The risk is calculated by comparing the frequency of death and injury on every stretch of road with how much traffic each road is carrying. For example, if there are 20 collisions involving death or injury on a stretch of road 5 miles long that carries 10,000 vehicles a day, then the risk is 10 times higher than if the road section has the same number of collisions 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 injury collision on the black road sections was more than 10 times higher than on the safest (dark green) roads.






For more information on the statistical background to this research, visit the EuroRAP website at [www.eurorap.org](http://www.eurorap.org). For further road safety information, see [www.aaireland.ie](http://www.aaireland.ie), [www.aatrust.com](http://www.aatrust.com), [www.nra.ie](http://www.nra.ie) or [www.roadsni.gov.uk](http://www.roadsni.gov.uk)




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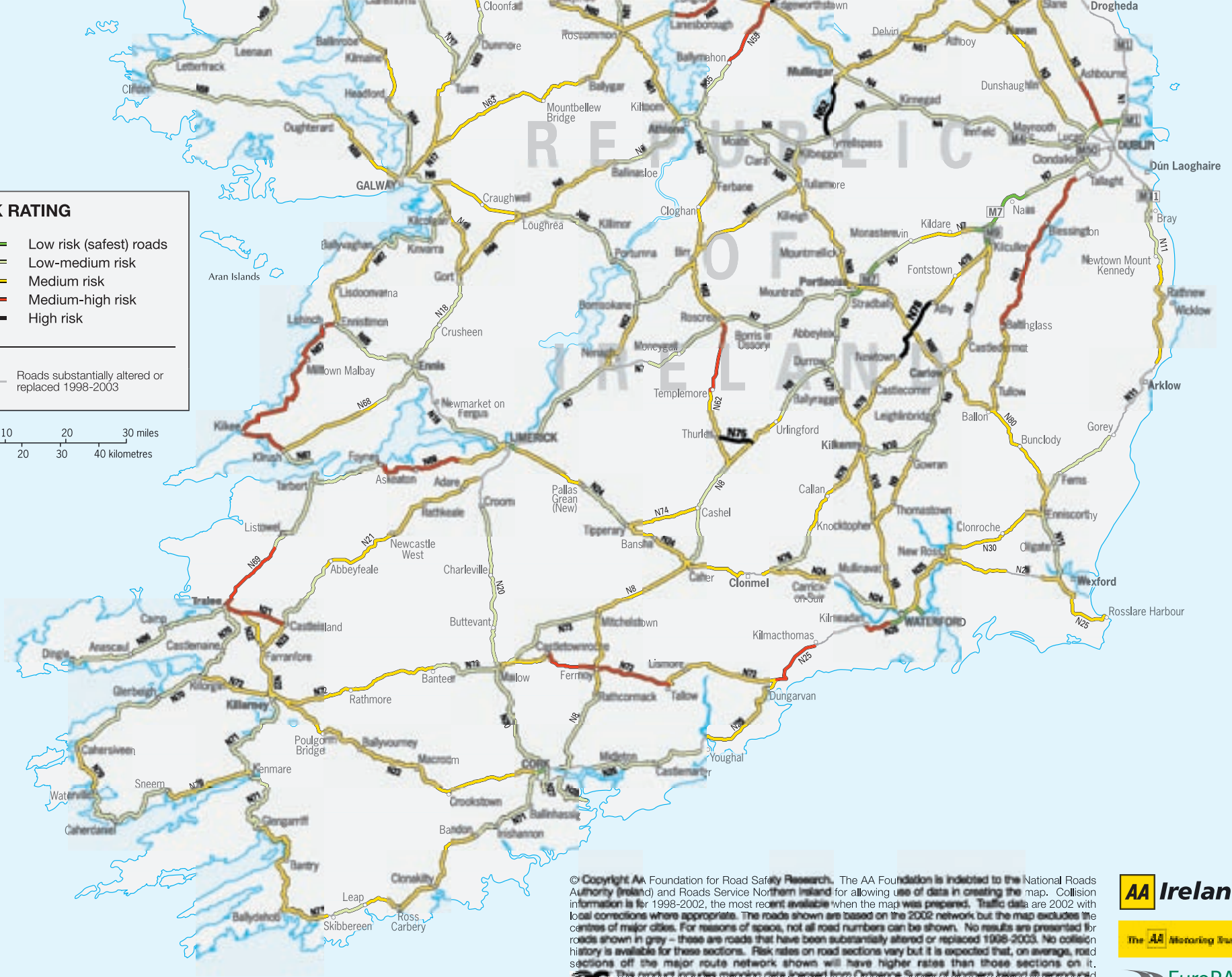
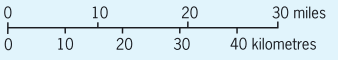
IRELAND

**RISK RATING**

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

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 Roads substantially altered or replaced 1998-2003



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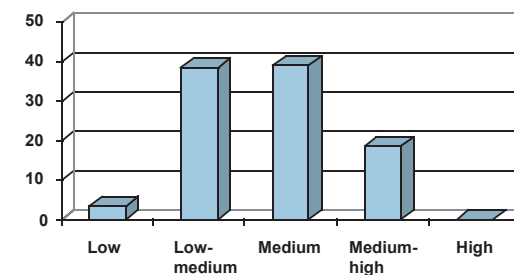
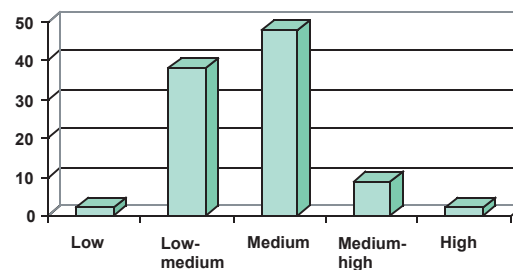
Republic of Ireland mapping based on Ordnance Survey Ireland. Permit No. MP000505.  
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## Key results

	Republic of Ireland	Northern Ireland
<b>Roads assessed by EuroRAP</b>	The National Road network*, approximately 5,400 km in length – 93 per cent single carriageway, 4 per cent dual carriageway and 3 per cent motorway. This represents about 6 per cent of the entire road network and accounts for approximately 47 per cent of vehicular travel.	The main regional inter-urban routes, approximately 2200 km in length – 89 per cent single carriageway, 6 per cent dual carriageway and 5 per cent motorway. This represents about 9 per cent of the entire road network and accounts for approximately 60 per cent of vehicular travel.
<b>Road fatalities</b>	Just under half of all road-traffic deaths each year occur on the National Road network.	The network assessed accounts for about half of all road-traffic deaths each year in Northern Ireland.
<b>Injury collisions</b>	About a quarter of all injury collisions** occur on the road network assessed by EuroRAP.	About a third of serious injury collisions** occur on the network routes assessed by EuroRAP.
<b>Collision patterns</b>	On the National Road network, approximately 2 per cent of fatal collisions occur on motorways, 7 per cent on at-grade dual carriageways and 91 per cent on single carriageways.	About 4 per cent of fatal collisions on inter-urban routes occur on motorways, 13 per cent on at-grade dual carriageways and 83 per cent on single carriageways.
<b>Road comparison (taking traffic volumes into account)</b>	The fatal collision rate of an average rural single carriageway national road is about twice that of a dual carriageway road with at-grade junctions and about six times that of a motorway.	The fatal collision rate of single carriageways is about twice that of the dual carriageway sections and about six times that of a motorway.
<b>Risk rates</b>	Sections of road with higher-than-average collision rates are distributed throughout the network, with about 10 per cent classified as medium-high-risk and 2 per cent classified as high-risk. This equates to approximately 465 km of medium-high risk and 96 km of high-risk road.	Sections of road with higher-than-average collision rates are distributed throughout the network, with about 19 per cent classified as medium-high-risk. This equates to approximately 410 km. There are no high-risk sections in Northern Ireland.

**Percentage of road lengths in each risk group**



\*A number of sections of National Road from the Republic of Ireland have been omitted from this analysis because they were either substantially altered or replaced between 1998-2003. No collision history was available for these sections.

\*\* In Northern Ireland collisions resulting in fatal and serious injuries have been used for assessment. In the Republic of Ireland minor injuries have also been included. A mathematical adjustment ensures that a like-for-like comparison can be made between the two sets of results.



## How Ireland compares

EuroRAP has previously published risk-rate maps for road networks in Britain, the Netherlands, Spain and Sweden. The overall pattern of collision rates (per billion vehicle kilometres travelled) on different road categories in each country is generally similar, although there is great variation within these averages and some notable differences between countries. The comments below refer only to collisions on the road networks of the countries listed that were assessed by EuroRAP and not necessarily to all roads of each type in each country.

- Average collision rates for the EuroRAP network of the major roads in the Republic of Ireland and Northern Ireland are similar to most of the collision rates in the countries where EuroRAP has already done work. The distribution of low-risk to high-risk roads is also similar.
- The safety performance of the Republic of Ireland and Northern Ireland major road networks is about the same. The distribution of road sections in each of the risk-rate bands on the centre-fold map is not significantly different.
- The distribution of map colours (overleaf) across the network in Ireland is similar to many of the more rural parts of Britain, such as Wales and East Anglia.
- The safest roads in Britain are typically motorways but, because there are currently fewer miles of motorway in Ireland, there are fewer sections of the safest category ('low risk') road in Ireland than in Britain.
- The average fatal collision rate on Ireland's motorways shows that they are about as safe as those in Britain. The British rate is only slightly higher than in Sweden and the Netherlands, but all are lower than the rate in Spain, where all road types have higher rates.



Quieter roads do exist, but Ireland's major roads show similar risk patterns to other parts of Europe



Remove opportunities for collisions, or design and enforce so that forces are tolerable if crashes do happen

- On single carriageways, fatal collision rates in Ireland and Britain are similar, but Sweden has a substantially lower risk rate. This is partly because there is a lower concentration of junctions on single carriageways in Sweden and because roads on its national network generally avoid or bypass settlements. In addition, several innovative road design measures have been implemented recently on single carriageways, and these provide a benchmark for design elsewhere. For example, it has been estimated that the introduction of a wire rope fence in Sweden, separating opposing traffic on single carriageways, will lead to a substantial reduction in fatal and serious injuries over time.
- A feature of the risk-rate maps for different countries is that they show the distribution of risk across a country. They therefore provide much more information than the average rates shown in the table below.

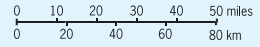


Wire rope safety fence used here on a dual carriageway can also be used as a median barrier on some single carriageways

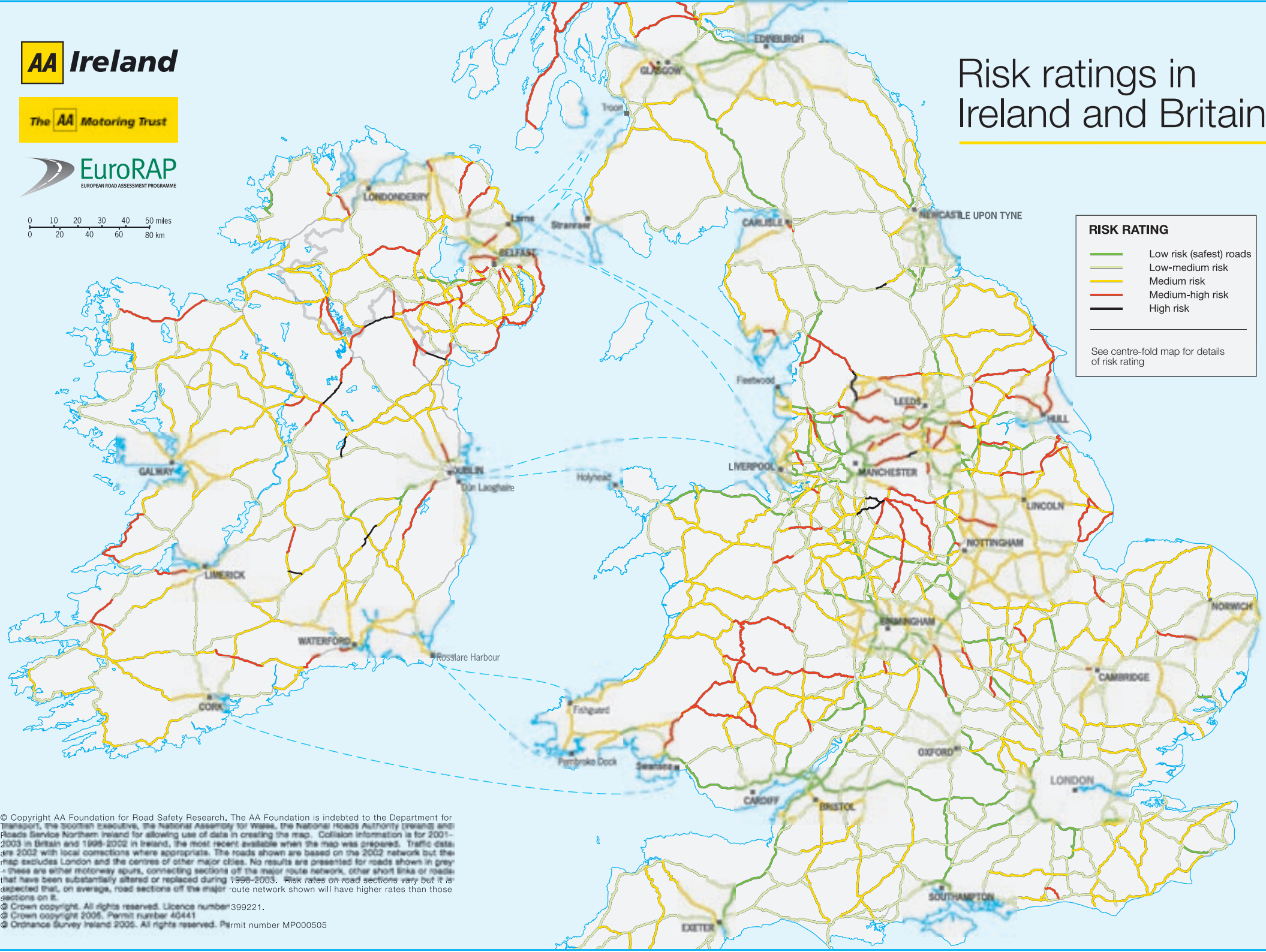
### Comparison of fatal collision rates per billion vehicle km among EuroRAP partners

	Republic of Ireland	Northern Ireland	Great Britain	Netherlands	Sweden	Spain
<b>Motorway</b>	(2.3)	(1.9)	1.9	1.7	1.7	11.3
<b>Dual carriageway</b>	(4.7)	(7.3)	5.0	7.7	-	11.3
<b>Single carriageway</b>	11.5	12.4	12.4	-	7.7	23.2

Values in brackets indicate small samples, so these collision rates should be viewed only as indicative of the average for these types of roads. Data for the Republic of Ireland and Northern Ireland are 1998-2002; time periods for other countries differ.



# Risk ratings in Ireland and Britain



**RISK RATING**

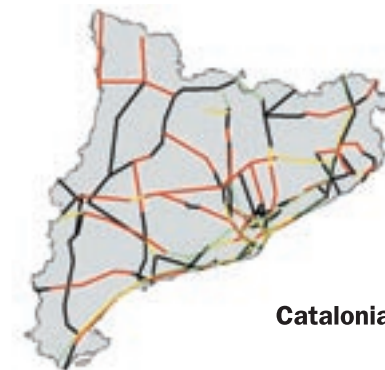
- Low risk (safest roads)
- Low-medium risk
- Medium risk
- Medium-high risk
- High risk

See centre-fold map for details of risk rating

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# EuroRAP risk-rate maps



Fatal and serious collision rates per billion vehicle km in Spain (1999-2001), Sweden (1990-1998), the Netherlands (1995-1998) and Catalonia (1998-2000). (Provisional data, different scales.)

## EuroRAP Partners

Motoring organisations supporting EuroRAP are:

- The AA Motoring Trust (UK): [www.aatrust.com](http://www.aatrust.com)
- AA Ireland: [www.aaireland.ie](http://www.aaireland.ie)
- ACI (Italy): [www.aci.it](http://www.aci.it)
- ADAC (Germany): [www.adac.de](http://www.adac.de)
- AMZS (Slovenia): [www.amzs.si](http://www.amzs.si)
- ANWB (Netherlands): [www.anwb.nl](http://www.anwb.nl)
- Autoliitto (Finland): [www.autoliitto.fi](http://www.autoliitto.fi)
- FDM (Denmark): [www.fdm.dk](http://www.fdm.dk)
- FFAC (France): [www.automobileclub.org](http://www.automobileclub.org)
- FIB (Iceland): [www.fib.is](http://www.fib.is)
- HAK (Croatia): [www.hak.hr](http://www.hak.hr)
- M (Sweden): [www.motormannen.se](http://www.motormannen.se)
- NAF (Norway): [www.naf.no](http://www.naf.no)
- ÖAMTC (Austria): [www.oeamtc.at](http://www.oeamtc.at)
- RACC (Spain): [www.racclub.net](http://www.racclub.net)
- RACE (Spain): [www.race.es](http://www.race.es)
- TCB (Belgium): [www.touring.be](http://www.touring.be)
- TCS (Switzerland): [www.tcs.ch](http://www.tcs.ch)

Public authorities and other bodies providing technical assistance or data to the programme include:

- England - The Department for Transport - [www.dft.gov.uk](http://www.dft.gov.uk) and The Highways Agency - [www.highways.gov.uk](http://www.highways.gov.uk)
- CSS (County Surveyors' Society) - [www.cssnet.org.uk](http://www.cssnet.org.uk)
- TRL - Transport Research Laboratory - [www.trl.co.uk](http://www.trl.co.uk)
- Ireland - National Roads Authority - [www.nra.ie](http://www.nra.ie)
- Italy - the Italian transport ministry - [www.infrastrutturertrasporti.it](http://www.infrastrutturertrasporti.it) with the Istituto Nazionale di Statistica - [www.istat.it](http://www.istat.it)
- The Netherlands - Adviesdienst Verkeer en Vervoer - [www.rws-avv.nl](http://www.rws-avv.nl)
- Northern Ireland - Department for Regional Development (Roads Service) - [www.roadsni.gov.uk](http://www.roadsni.gov.uk)
- Scotland - The Scottish Executive - [www.scotland.gov.uk](http://www.scotland.gov.uk)
- Spain - Dirección General de Tráfico - [www.dgt.es](http://www.dgt.es) with Ministerio de Fomento - [www.mfom.es](http://www.mfom.es)
- Sweden - Swedish National Road Administration - [www.vv.se](http://www.vv.se)
- Wales - The National Assembly for Wales - [www.wales.gov.uk](http://www.wales.gov.uk)
- Catalonia - Servei Català de Trànsit - [www.gencat.es](http://www.gencat.es)



TOYOTA



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