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IRELAND - NATIONAL REPORT

STRATEGIC DIRECTION SESSION STC

SAFETY OF THE ROAD SYSTEM SESSION

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ROAD SAFETY IN IRELAND 2001-2010

1. ABSTRACT

Over the last ten years (2001 to 2010) Ireland has seen a reduction of 45% in fatalities on Irish roads, at a time when traffic growth has more than doubled (Figure 2).

In this paper we look at the many contributing factors that have lead to this reduction, in the hope that it will aid other countries to make similar reductions in collisions in their own countries.

Since 1998 the Government in Ireland have published three 'Road Safety Strategy' documents, which set targets for reduction in fatalities on our roads, as well as outlining many actions to be undertaken by the various stakeholders in road safety.

The 3rd such Road Safety Strategy¹⁰, published in 2007 by the newly formed Road Safety Authority (RSA), contained 126 actions for the stakeholders. These actions were monitored on a quarterly basis by the Road Safety Authority and the Dept. of Transport.

The RSA pulled together a number of disparate groups working in the area of road safety and gave a new focus to the whole area.

They developed and implemented information and education campaigns to increase awareness of road safety and promoted safer driving. They worked with stakeholders to ensure a co-ordinated response and ensure our collective resources are used wisely and efficiently

The National Roads Authority (NRA) was a major stakeholder in this plan, contributing 600 km of motorway from 2007 to 2010, and a total of close to 1000km from 2001 to 2010.

Along with the major works, the NRA funded an annual program of road safety remedial measures and traffic calming schemes. Working closely with the local authorities these schemes were identified based on collision cluster analysis and local knowledge from the local authorities.

The NRA also carried out research into collision clusters, establishment of road safety audit and network safety management, and liaison with other stakeholders like An Gardaí (Irish Police) to identify speed related collision clusters for their safety camera programme.

2. INTRODUCTION

Over the last ten years (2001 to 2010) Ireland has seen a reduction of 45% in fatalities on Irish roads, at a time when traffic growth has more than doubled (Figure 2).

In this paper we look at the many contributing factors that have lead to this reduction, in the hope that it will aid other countries to make similar reductions in collisions in their own countries.

3. INSTITUTIONAL ISSUES

3.1. National Efforts

In 1998, the Irish government published a Road Safety Strategy. In this publication they set a target for the year 2002 to reduce fatalities by 20% of the 1992 level.

They also set a target of reducing serious injuries by 20% compared to 1992.

During 2002, the number of fatalities was reduced to 377 (a reduction of 10% compared to 1992). Whilst much of this success can be attributed to the introduction of penalty points for driving offences, it is clear that the Irish government has been taking steps since the mid 1990s to actively encourage accident reduction through a range of road safety activity.

The Department of Transport then drew up a second Road Safety Strategy⁹. (2003-2006).

Targets were published, with Road Safety Engineering assigned a key role within the new strategy.

3.2. Road Safety Authority

In 2005-2006 the Road Safety Authority was established to co-ordinate the efforts for road safety in Ireland.

The Road Safety Authority works to improve road safety in Ireland by:

- Developing and implementing information and education campaigns to increase awareness of road safety and promote safer driving
- Improving vehicle standards
- Establishing and monitoring a standard for driver instruction
- Overseeing the system of driver licensing and undertaking certain enforcement activities
- Working with stakeholders to ensure a co-ordinated response and ensure our collective resources are used wisely and efficiently
- Undertaking accident and road safety research in order to develop measures and recommendations to improve road safety
- Advising the Minister for Transport on road safety policy
- Producing road safety strategy documents and monitoring their implementation

They worked with the Department of Transport to publish the next Road Safety Strategy (2007-2012), with 126 actions required to be undertaken by the stakeholders involved.

3.3. The “Road To Safety” Strategy¹⁰ 2007-2012

In October 2007 the Government published “The Road to Strategy¹⁰”, its strategy for road safety for the years 2007 to 2012. The primary target of the strategy is to reduce road collision fatalities to no greater than 60 fatalities per million by the end of 2012 and 50 or fewer in the following years with demonstrable downward reductions in the each year of this strategy.

The Government's 'Road to Safety Strategy' 2007- 2012 forms the blueprint under which the various agencies (including the NRA) involved in promoting road safety operate. The framework for achieving road safety engineering targets outlined in the Government's strategy involves the NRA working in partnership with local authorities, An Garda Síochána, the Road Safety Authority (RSA) and other stakeholders.

The cost of a fatal road traffic collision in Ireland today is € 2,758,111⁸ but the human cost is incalculable. The number of road deaths has continued to fall in recent years and while encouraging there remains a terrible human cost to those affected and to society.

The reduction in road deaths can be attributed to a number of factors including enforcement, improved vehicle standards, medical facilities, education and road safety engineering which falls under the remit of the National Roads Authority (NRA).

Considerable capital has been invested in building new safer roads like motorways and dual carriageways.

Significant investment has also been made available for road safety engineering measures aimed at making the existing road network safer by reducing the opportunities for errors by road users.

As a result of this expenditure Ireland's national road network has become safer in recent years but the message remains clear 'road safety is everybody's responsibility'.

The following is a list of Agencies/ Departments that are involved in the Road Safety Strategy 2007-2012¹⁰:

Agencies / Departments

- Advertising Standards Authority of Ireland
- Bus Éireann
- Chamber of Commerce
- City and County Managers' Association
- Coras Iompar Éireann
- Coroners Society of Ireland
- Courts Service
- Department of Education and Science
- Department of the Environment, Heritage and Local Government
- Department of the Environment, Northern Ireland
- Department of Health and Children
- Department of Justice, Equality and Law Reform
- Department of An Taoiseach
- Department of Transport
- Dublin Transportation office
- Garda National Traffic Bureau
- Garda Síochána
- Health and Safety Authority
- Health Service Executive
- Higher Education Authority
- International Stakeholders
- Irish Business and Employers Confederation
- Irish College of General Practitioners
- Irish Farmers Association
- Irish Insurance Federation
- Irish Medical Organisation
- Irish Road Haulage Association
- Local Authorities
- Medical Bureau of Road Safety
- National Car Test
- National Parents Councils
- National Roads Authority
- National Youth Council of Ireland
- North / South Ministerial Council
- Office of Public Works
- Representatives of Driver Instructors
- Revenue Commissioners
- Road Safety Working Together Groups
- School Boards
- Society of the Irish Motor Industry
- Third Level Institutions
- Youth Reach
- Union of Students in Ireland

4. NATIONAL ROADS AUTHORITY CONTRIBUTION TO ROAD SAFETY

4.1. NRA Safety Engineering Targets-Road Safety Strategy 2007 -2012¹⁰

- Complete the major inter-urban routes from Dublin to Galway, Limerick, Cork and Waterford by 2010
- Continue maintenance and improvement schemes on the national network
- Implement 80 road safety remedial schemes each year on national routes
- Put in place traffic calming measures at designated locations on national roads
- Analyse and develop new design standards for National Secondary roads
- Increase the number of minor realignment schemes
- Continue the signing and lining programmes on national roads
- Introduce consistent & appropriate speed limits on the network
- Achieve consistent road quality on the network
- Ensure best road safety practice in the planning permission process
- Control development along the network
- Implement an annual Safety Barrier maintenance contract for the major inter-urban routes
- Maintain & develop Ice Cast Road Weather Information System
- Complete 180 remedial schemes yearly at known collision locations on non-national roads
- Fund safety audits on non-national roads
- Resource low & medium cost safety measures on non-national roads

4.2. Construction of Irish Motorway Programme

Motorways and dual carriageways, in particular, are safer because the possibility of head-on collisions is almost eliminated; the number of junctions is also very low when compared with the existing single carriageway network

By 2010, when the programme of over 1200 km of motorways and dual carriageways on the inter-urban network is completed, we estimate that approximately **50** lives per year will be saved as a result of these new safer national roads.



Fig 1. Major Inter-Urban (MIU) motorway Network (NRA)

The National Roads Authority started its work in 1994 when there was little funding available, but no shortage of vision and ambition.

At the time there were only 1.1 million vehicles licensed in the Republic, but even then the Authority recognised the need to establish a strategic framework for the improvement of the national road network. Indeed, our current plans are really an evolution of this early strategic planning.

We now have more than double the 1994 traffic levels and, notwithstanding the recent recession, traffic will continue to grow in line with economic and population growth in the coming decades.

In 2000 Ireland had 100km motorway and 193 km dual carriageway. Now, by the end of 2010, Ireland will have 1200km motorway.

The Irish Government Transport 21 programme, along with its previous programmes, meant that the NRA had the funding available over the last ten years to construct over

This year (2010) has seen the National Roads Authority (NRA) completing the five Major Inter-Urban (MIU) motorways with schemes routinely coming in on budget, on time or ahead of schedule.

We are a step closer to the completion of a successful journey into the future of Ireland's road infrastructure.

By connecting our capital city with five major urban centres, Galway, Limerick, Cork, Waterford and Belfast (as far as the border), the Irish Government their commitments as outlined in Transport 21, offering future generations a world class national road network that is safer and more efficient.

1200km mainline route, to motorway or equivalent standard and to link Dublin, our capital city, with the five major urban centres of Galway, Limerick, Cork, Waterford and Belfast (as far as the border).

Research¹¹ has shown that motorways are up to 7 times safer than 2 lane roads, and the construction of this major motorway programme will make a considerable difference to road safety in Ireland for generations to come.

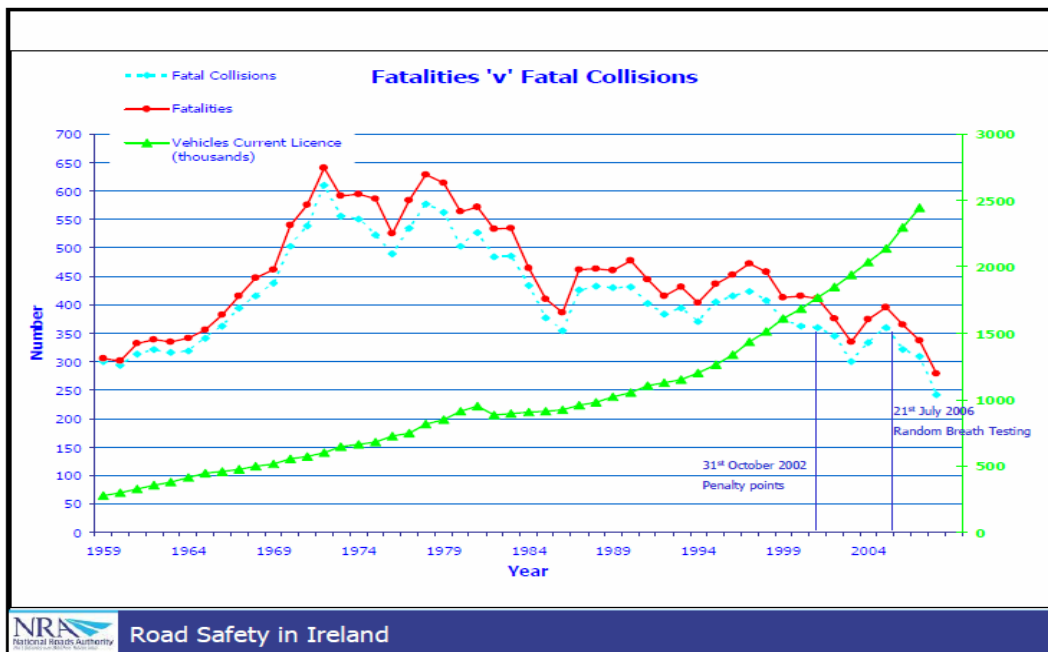


Fig 2. Road Safety in Ireland Fatalities .v. Vehicle Numbers (NRA)

4.3. Safety Initiatives

In addition to providing new and safer roads the NRA has an extensive road safety remedial measures programme that aims to reduce the number and severity of collisions occurring on the existing network of national roads. For a limited financial outlay, deficiencies at high risk collision locations can be identified and remedied. The works concerned are intended to enhance the safety of the roads system through changes in road layout, junction control and improvements in signage and road markings.

Since its establishment in 1994, the NRA, in conjunction with local authorities, has operated a road safety remedial measures programme where collision locations on the National road network are investigated and if the road condition is believed to have been a contributory factor, appropriate engineering measures are put in place to improve the situation.

Under the Government’s “Road to Safety Strategy⁹ 2000 -2006” the target setting out the treatment 240 collision risk locations was exceeded with 350 schemes completed.

The Government “The Road to Safety” strategy also requires an evaluation of the effectiveness of previous collision reduction schemes. An evaluation of the road safety remedial measures schemes³ completed between 1998 and 2003 was published in 2008 –

521 schemes were completed over this period, and there has been a reduction of 97 fatal, 69 serious and 229 minor injury collisions at these locations over those 5 years.

4.4. Road Safety Audits²

The NRA incorporated road safety audit procedures into the Design Manual for Roads and Bridges which became the design standard for National Roads in early 2001.

Road safety audit involves the evaluation of new road schemes during design and construction to identify potential hazards to road users and the determination of appropriate measures to eliminate or mitigate any such hazards.

All works that involve a permanent change to the existing layout of a national road require a road safety audit. A review process of the quality of road safety audits has been put in place to ensure the effectiveness of the whole process.

The Irish Standard and Guideline were subject to an intensive consultation process throughout the Irish Road Design and Road Safety Community. As a result, Irish Safety Audit procedures were changed significantly from those used in Britain and indeed elsewhere in the world. The main differences in Ireland include the requirement to carry out Road Safety Audit at Feasibility Stage (and the option to carry out the audit as a comparative safety assessment of scheme options at this stage).

In addition the process in Ireland is more open, encouraging dialogue between auditors and designers both before and after the audit has been carried out.

Furthermore, the Irish Road Safety Audit Team Members must satisfy strict criteria in terms of their qualifications, training and experience.

The number of Road Safety Audits carried out on national roads in Ireland is proportional to the road building programme. Over the recent past the NRA has embarked on an ambitious programme to upgrade the existing national road network, with a series of mainly motorway or dual carriageway improvement schemes.

4.5. EU Road Infrastructure Safety Management Directive⁷

The whole Road safety audit process has recently been recognized by the European Union with the adoption of the EU Road Infrastructure Safety Management Directive in 2008 (2008/96/EC).

Main Contents of the Directive are:

- Road Safety Impact Assessment
- Road Safety Audit
- Safety Ranking and the management of the road network in operation
- Road Safety Inspection

This Directive will apply to roads which are part of the trans-European road network (TERN) whether they are at the design stage, under construction or in operation. This is

over 2000km of our national road network. The Directive comes into force 19th December 2010.

Road safety audit has been mandatory in Ireland since 2001 on All National Road projects in Ireland. We have already included for RSIA in the new version of the Project Management Guidelines released in January 2010.

The management of accident remedial measures and high-risk road sections has been an integral part of the work of the Authority for many years now.

Our work in the identification of collision clusters throughout the network using different GIS procedures is recognised as best practice, and we are currently writing procedures for the implementation of Road Safety Inspections Guidelines.

4.6. Development of Traffic Calming Guidelines

In 1999, following the work of an NRA working group, the NRA published Guidelines on Traffic Calming¹. The Guide provides information on data collection and analysis, sets out the road safety criteria for intervention, and includes a series of standard layouts for traffic calming on the approaches to small towns and villages. The extent of calming required is determined by geometric, traffic and safety criteria.

Figure 3 shows gateway and plan layouts for a type 3 design – this design will prove generally suitable for roads with hard shoulders and with a right of way width of between 15.7m and 19.2m and where public lighting exists or is proposed.

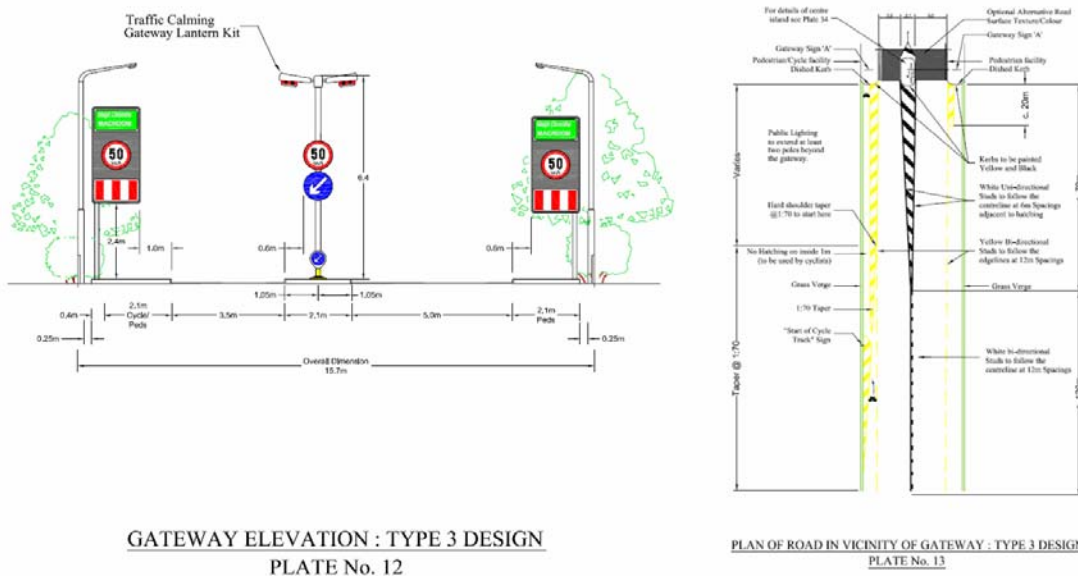


Fig. 3 Traffic Calming Guidelines¹

The traffic calming schemes, funded by the NRA, aim to improve the safety of national roads where they pass through towns and villages. It has been found that the posting of speed limits alone, without any physical speed reducing measures, does not always encourage drivers to slow down sufficiently.

Traffic calming aims to reduce vehicle speeds by self-enforcing traffic engineering methods. Slower speeds result in fewer and less severe collisions. Speed reductions are achieved by altering the appearance of the road on the approach to the town/village through the use of “gateways” and are maintained by further traffic management arrangements within the town itself. Towns and villages are selected for traffic calming based on the number and severity of the collisions that have occurred over the past number of years.

Up to the end of 2009, traffic calming measures were installed in nearly 200 towns and villages. A 5 year Before and After Evaluation for the traffic calming schemes installed on national roads before the end of 2002 has been published on the NRA website under Road Safety Publications (RS.472 Evaluation of Traffic Calming Schemes Implemented from 1997 to 2002)⁴.

4.7. Signs and Road Markings

There is an ongoing programme to improve the signing and lining of all the national roads to increase road safety.

4.8. Research and Analysis

Research and analysis is a core function carried out by the NRA’s Safety Unit. The Authority has an ongoing road safety research programme that includes the studies listed below.

- Identification of Collision Clusters on the road network, using the latest Garda data made available through the RSA.
- Contributing to the monitoring of the Government’s “Road to Safety” strategy
- Before & After analysis of Traffic Calming Programmes and
- Before & After analysis of Road Safety Remedial Measures Programmes
- Collision Reporting programme, with local authorities and the Gardai

Completed research projects include:

Road Safety Remedial Measures Programme

- Five year ‘Before’ and ‘After’ analysis of the effectiveness of road safety remedial measures schemes installed in 1998 to 2003^{6,3}

Traffic Calming

- Five year ‘Before and After’ analysis of traffic calming schemes

The findings of these studies are made available on the NRA website.

The Road Safety Authority (RSA) is responsible, under the aegis of the Department of Transport, for maintaining the national records of road collisions. Each year the RSA publishes an analysis of all reported road collisions on Irish Roads. This report, “Road Collision Facts⁸”, is based on road collision information supplied by An Garda Síochána to the RSA for processing and analysis. The data collected from the Gardai by the RSA is used by the NRA in our collision cluster analysis.

The NRA works closely with the Garda Síochána, the Road Safety Authority and local authorities in support of their road safety strategies and objectives.

The Authority is also involved with other European Road Safety Groups and has contributed to the following publications in recent years:

European Road Assessment Programme - EuroRAP 2008: Ireland Results	2008
European Road Assessment Programme - EuroRAP 2005: Ireland Results	2005
SUPREME - Summary of Best Practices in Road Safety in the EU.	2007
Summary: Best Practice for Cost-Effective Road Safety Infrastructure (CEDR)	2008
Report: Best Practice for Cost-Effective Road Safety Infrastructure Investments (CEDR)	2008
EU Road Infrastructure Safety Management Directive	2008

Table 1 : NRA Road Safety Research

The NRA is fully committed to meeting its targets as set out in the Government's Road Safety Strategy 2007- 2012. It has been proven that safer roads save lives but the statistics prove that individual behaviour is the biggest factor contributing to road collisions. Practicing road safety is every individual's responsibility.

If you require more detailed information on any aspect of the NRA's road safety strategy or would like information on our publications, you can access this under the safety section at www.nra.ie

5. LOCAL AUTHORITIES

The NRA is also actively assisting local authorities and the Department of Transport in the development and implementation of a road safety remedial measures programme targeted at regional and local roads. The NRA encourages safety initiatives at a local level through its specialist network of Road Safety Engineers. In addition, the Department of the Transport, which is responsible for the Regional and Local Roads, now allocates €6 to €7 million euros for low cost improvements on this network every year. NRA Road Safety Engineers assist in all technical aspects of this programme, including design, implementation, and evaluation.

Road Safety Engineering in Ireland is managed by a Senior Project Manager and Project Manager at NRA HQ. They are assisted by six regional Road Safety Engineers who are based at Regional Design Offices, and who liaise with local authority roads engineering staff within their region.

Some local authorities, notably Dublin City Council, have established accident data analysis and remedial measures programmes. Dublin City Council carries out both a "blackspot" improvement programme, and area-wide traffic calming to reduce accidents. In addition, the City is currently re-writing its Road Safety Audit procedures, first written in 1999. Safety Audits are carried out on many highway and traffic schemes in the City, including the Quality Bus Corridor programme and the LUAS.

Remedial measures may include:

- Traffic Calming in towns and villages
- Signing and Road markings
- Road Safety Audits
- Pedestrian Facilities
- Right Turn Lanes
- Safety Barriers
- High friction Surfacing
- Mini Roundabouts
- Improving Sight Distance at Junctions.

6. ENFORCEMENT

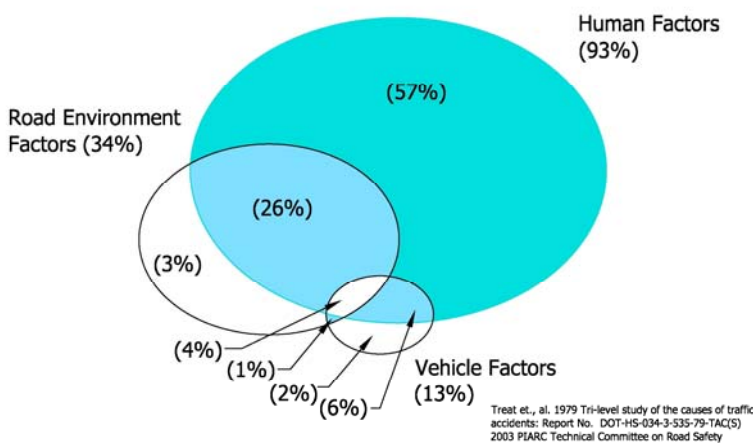


Fig 4. Causes of Crashes

Road Safety is everyone's responsibility.

If we are to successfully reduce the number of deaths on our roads public participation is vital and the facts relating to road collisions bear this out: road conditions are a single contributing factor in 3% of collisions while driver actions contribute to over 90%.

Road safety comes down to individual behaviour.

The NRA cooperates with An Garda Síochána in their speed Detection Camera Programme, the aim of which is to curb excess speeds on the network.

The NRA identified where and what time of day speed related collisions are happening on the network, and An Gardaí use this information to inform their speed enforcement programme.



Monthly Comparisons 2001 - 2010		(to 24th Nov 2010)											
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Totals
2001	30	38	31	22	40	24	41	34	42	32	40	37	411
2002	35	33	34	32	20	34	42	35	36	31	23	21	376
2003	20	21	33	23	38	37	32	26	20	34	30	21	335
2004	32	36	25	27	26	36	38	35	34	22	29	34	374
2005	33	37	26	23	41	22	41	24	31	44	34	40	397
2006	40	31	27	37	30	32	38	17	23	32	27	31	365
2007	22	25	34	30	24	29	31	28	28	26	23	38	338
2008	25	32	20	19	19	28	26	28	19	22	22	19	279
2009	18	15	24	20	28	15	20	21	14	22	25	18	240
2010	15	14	12	19	28	11	22	19	13	36	09		198

<http://www.garda.ie/Controller.aspx?Page=138>

Table 2 Fatalities per annum since 2001 in Ireland

7. REFERENCES

NRA website www.nra.ie

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2. NRA DMRB Road Safety Audit Standards (<http://www.nra.ie/RepositoryforPublicationsInfo/file,16168,en.pdf>)
3. Evaluation of Road Safety Remedial Schemes Implemented from 1998 to 2003 (<http://www.nra.ie/Publications/DownloadableDocumentation/RoadSafety/file,15927,en.pdf>)
4. Evaluation of Traffic Calming Schemes Implemented from 1997 to 2002 (<http://www.nra.ie/Publications/DownloadableDocumentation/RoadSafety/file,15926,en.pdf>)
5. Evaluation of Traffic Calming Schemes Constructed on National Roads 1993-1996 (<http://www.nra.ie/Publications/DownloadableDocumentation/RoadSafety/file,3637,en.PDF>)
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11. Interurban Accident rate by road Type and Geometric Elements, O'Cinneide D., Murphy J., Ryan T., UCC, 2004

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 13. Road Safety (<http://www.garda.ie/Controller.aspx?Page=104&Lang=1>)
 14. Safety cameras (<http://www.garda.ie/Controller.aspx?Page=5590&Lang=1>)
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