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STRATEGIC DIRECTION SESSION STC

**A STRATEGIC APPROACH FOR SAFETY:
PUTTING KNOWLEDGE INTO PRACTICE**

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Abstract

The World Road Association (UK) Executive Committee has arranged for the preparation of this National Report for Strategic Direction Session C of the Mexico World Congress in 2011.

For transport, responsibility for certain high level and legislative issues (for example, vehicle safety) is retained by the UK Government and administered by the Department for Transport (DfT). However, most transport policy and operations are the responsibility of devolved administrations in Scotland, Wales and Northern Ireland. In England this responsibility remains with the UK Government in the form of DfT. Consequently, the road networks are managed by the following organisations:

- England: the Highways Agency (HA), an executive agency of DfT is responsible for the trunk road network, with the remaining network managed by local authorities;
- Scotland: Transport Scotland, the Scottish Government's transport agency, is responsible for the trunk road network with the remaining network managed by local authorities;
- Northern Ireland: the Roads Service, an executive agency of the Northern Ireland Department for Regional Development (DRD), is the sole authority for the public road network; and
- Wales: the Welsh Assembly Government is responsible for the trunk road network, with local authorities taking responsibility for local roads.

This National Report compiles information from all four organisations in order to achieve a broad and inclusive perspective on the challenges that they face in the coming years and their approaches to meeting those challenges.

This paper specifically covers the importance of road safety across all four organisations.

1. Introduction

In 2000, the UK Government, published 'Transport 2010: The 10 Year Plan'. This plan was developed from the 1998 White Paper, "A new Deal for Transport - Better for Everyone", which set out policies for a transport system that is safe, efficient, clean and fair.

The Government also published its Road Safety Strategy, 'Tomorrow's Roads – Safer for Everyone', in 2000, setting out the Government's road safety strategy and casualty reduction targets for 2010 and the main ways that road safety would be improved during this decade. The targets for reducing road casualties on Britain's roads by 2010, compared with the average for 1994-98 are:

- A 40% reduction in the number of people being killed or seriously injured in road accidents;
- A 50% reduction in the number of children killed or seriously injured;
- A 10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle kilometres;
- Tackle the significantly higher incidence in disadvantaged communities.

The Government's strategy has identified a framework for improving road safety under ten main themes:

- Safer for children
- Safer drivers – training and testing
- Safer drivers – drugs and drowsiness
- Safer infrastructure
- Safer speeds
- Safer vehicles
- Safer motorcycling
- Safer pedestrians, cyclists and horse riders
- Better enforcement
- Promoting safer road use

The Department for Transport (DfT) is developing a strategy for improving road safety in Great Britain over the period from 2010 to 2030. Part of this strategy includes setting targets for reductions in deaths and serious injuries by 2020.

The UK's general election in May 2010 has delivered a new government whose transport policies have yet to be confirmed and detailed. The following, therefore, outlines achievements in each of the four regions up to May 2010.

2. England

2.1. Strategic Plans and Approaches

'Transport 2010: The 10 Year Plan' provided the Highways Agency with a new direction and a role as a transport operator. The Highways Agency contributed to the 2010 targets and instigated measures to deliver, on the Trunk Road Network, reductions in fatal, serious and slight casualties:

- A contribution to the national target of a 50% reduction in child casualties;
- A contribution to tackling the significantly higher incidence of road casualties in disadvantaged communities
- A 33% reduction in the number of people being killed or seriously injured (KSI) casualties (Figure 1);

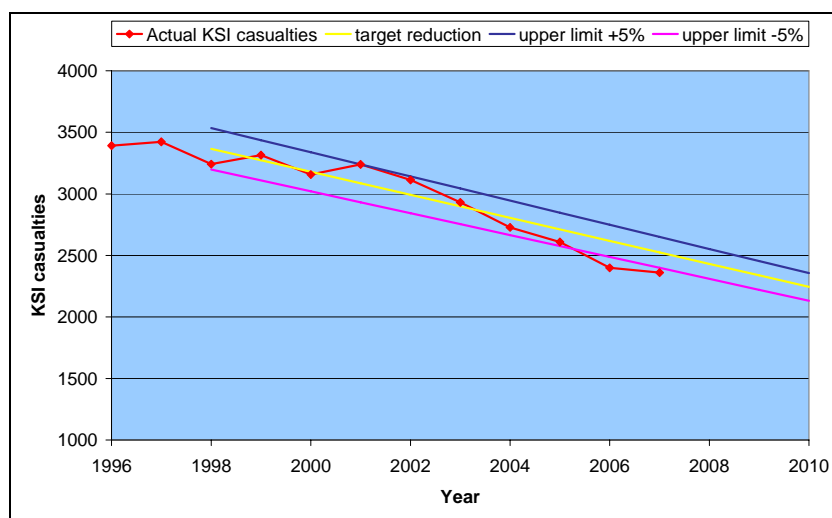


Figure 1 – Yearly Figures Showing No. of People Killed or Seriously Injured (England)

- A 10% reduction in the rate of slight casualties (Figure 2);

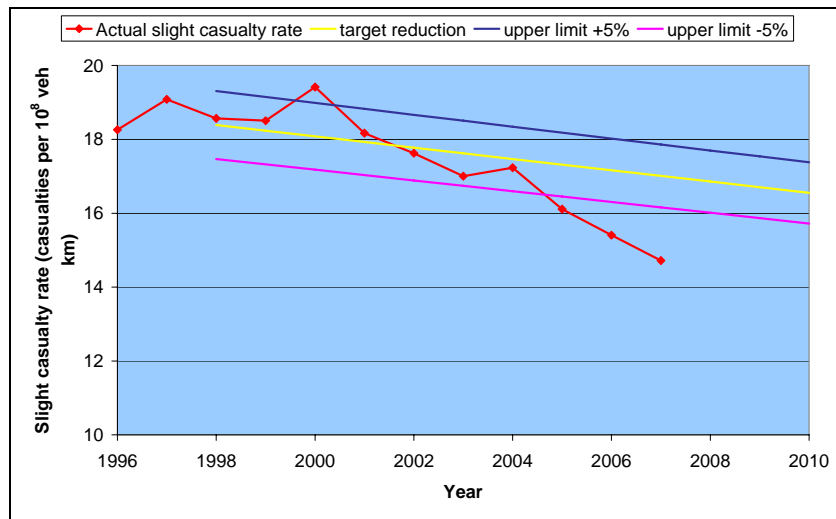


Figure 2 – Yearly Rate of Slight Casualties (England)

The target for the Highways Agency for reducing deaths and serious injuries was less than the national UK roads target (40%) because new roads are safer than average, so there is less scope for reducing casualties. Along with a similar target of a 10% reduction in the rate for slight casualties and contributing to the child casualty reduction target, these represent challenging targets for the Highways Agency to deliver.

The Strategic Road Network in England continues to be one of the safest road systems in the World. However, with increasing traffic volumes an increase in the number of older and younger drivers and an increase in the levels of freight and commercial vehicles using trunk roads, the Highways Agency continue to work hard to ensure that safe and reliable journeys across the network are delivered into the future.

About a third of the Highway Agency's targets were achieved through engineering, e.g. new roads, road improvement schemes, signing, road marking and effective traffic calming measures where necessary. The remainder were achieved through new technology supporting the driver, coupled with initiatives to change driver behaviour to adopt safer driving practices. To achieve the targets, use has been made of a number of new approaches, including an increased emphasis on driver education and information, delivered by working in partnership with the Central Department and its Agencies, National and Local Roads Authorities, emergency services, industry and the various road user groups.

The Government's 10 Year Plans also set targets for managing traffic and congestion. As the network operator, the Highways Agency have introduced measures in support of these aims and objectives. There are 4 key areas that contribute to delivering the road safety target which are:

- Physical measures, such as improving road alignment of junctions to reduce the likelihood of collisions
- Influencing driver behaviour to encourage safer decision making
- Support for Enforcement on the network through our delivery partners
- Improvements in car design/technology that lead to enhanced safety.

A significant proportion of the safety benefits that the HA have delivered are as part of schemes whose primary reason is not the improvement of safety. The HA has assessed the impact on the delivery of KSI casualty savings on its agreed programme of major schemes, technology, targeted local schemes and the new interventions in the delivery plan.

2.2. The Transfer of Knowledge into Practice

As the Highways Agency seeks to develop its new Safety Strategy to support the National Strategy and the 2020 Casualty reduction targets it is important to reiterate that we cannot build our way out of the requirement to increase capacity on our roads. As such we will need to seek to maximise road space and to do this we will need to better use infrastructure improvements and advances in technology and seek innovative solutions to manage the road network more safely, both for our employees and our customers. In order to achieve this the Highways Agency accepts that they will need to provide better trusted on-road communications to inform road users whilst on the move and to support responsible road use and target irresponsible behaviour.

Examples of the innovative way the Highways Agency have implemented technology solutions to enhance safety can be seen in the development of an automatic queue protection system known as Motorway Incident Detection and Automatic Signalling (MIDAS). This system has now been installed across 1200km of the busiest motorways and is intended to warn drivers of the existence of incidents and resultant queues and prevent secondary incidents. In addition, an extensive CCTV monitoring system has been implemented across the trunk road network that provides control centres with real-time information and enables Traffic Officers and Incident Support Units and other emergency services to respond more quickly and safely to incidents on the network.

Ensuring that journeys on our network are as safe as possible is a key element of our Customer Promise and the Strategic Plan. Within the Safety Action Plan we outline the key activities that we use to deliver safety benefits to our customers and staff. These consist of:

- Local Network Management Schemes for both safety and economy that comprise local interventions that deliver casualty savings.
- Road star scores to identify sites where incidents are likely to occur and identify potential safety benefits such as near-side protection.
- Major Project's schemes are designed to improve safety benefits as standard.
- The introduction of our Compliance Action Plan that supports the Safety Action Plan. By the use of average speed camera enforcement at major roadworks we will ensure driver compliance and enhance safety for our customers and road workers'.

- Greater use of concrete barriers at major improvements schemes and in the central reserve to reduce the likelihood of incidents and serious injuries and the safety risk to maintenance personnel.
- Better road safety information on variable message signs including safety advice to support agreed national safety messages.
- Driver Information Programmes to influence driver behaviour.

In 2006 the Highway Agency introduced Area Safety Action Plans (ASAP's) that have given a clear remit to area teams to look beyond our traditional engineering solutions. The ASAP's are more focused and increasingly identify evidence led actions which are delivered through the strategic partnerships that continue to develop as a result of the Highways Agency taking a more active role in the road safety community. Area Performance Teams (APT's) now have access to many more forms of data to inform their decisions and through the application of the National Intelligence Model (NIM) information is fed both up and down the management chain to ensure that resources are targeted where they can have the biggest impact.

The Highways Agency considered that in addition to working closely with local highway authorities, they identify who the other partners and stakeholders are and the contribution that together can be made to achieve targets and objectives. For example:

- Connecting with hundreds of women drivers in college campuses across Lancashire thanks to the Lancashire Partnership for Road Safety.
- Continue to establish road safety fora, reviewing and identifying those where that can be most effective or which offer the greatest benefit (e.g. working in partnership with EuroRAP to explore the practice and performance of other administrations in Europe both to benchmark performance and learn from different approaches. The Highways Agency have worked with EuroRAP since 2002, providing accident information, funding research projects that provide network reports, survey information and guidance for improving networks).
- Give time, knowledge, expertise and encouragement to our European colleagues in pursuit of the European target of a 50 per cent reduction in annual road deaths by the end of 2010.

As well as the ASAP's themselves evolving so too has the role of the National Operations Group (NOG) safety team. Safety is now reported to Senior Managers on a monthly basis through the Safety Dashboard at the NOG monthly meetings and a regular slot has been secured at both board and regional manager level to ensure that safety remains at the forefront of our business. The Highway Agency have also introduced new initiatives such as the monthly Safety Bulletin, the Safety Calendar and a formal procedure to assess the ASAP's. All of these follow consultation with the wider safety community and have been introduced and formalised to ensure transparency.

As we come to the end of the current ten year casualty reduction strategy we are able to report that the network has and continues to perform well and that we are on track to achieve our 2010 target. Work has now begun to prepare to develop our action plans for the next ten year road safety strategy and how we can prioritise safety investments. We will now need to revisit our processes and procedures in a fresh light and take stock of what we have achieved and what we can do to continue to enhance road safety across our network.

3. Scotland

3.1. Strategic Plans and Approaches

In Scotland, the Scottish Government's transport agency, Transport Scotland has distinct delivery priorities. Specifically on road safety it seeks to,

- Enhance safety, (encourage and promote) more innovation

Allied to this it has a tiered approach to investment in its trunk road network as described below:

- Maintaining and safely operating existing assets
- Promoting measures which make better use of the existing capacity
- Promoting targeted infrastructure improvements

The above provides the context within which Transport Scotland has developed and delivered its trunk road safety strategy. Its Strategic Road Safety Plan was published in November 2007. This plan informs stakeholders in road safety of the way in which Transport Scotland delivers safety. It provides an Action Plan setting out how Transport Scotland delivers targeted safety objectives.

The seven key themes within the Action Plan are:

- Analysis and Knowledge
- Risk Reduction
- Vulnerable Road Users
- Research and Development
- Speed Management
- Working with Partners
- Continuing Improvement

The strategy includes a reactive review of the accident history and includes investigations at those parts of the network experiencing accident clusters or links with high accident rates. Importantly, the strategy also includes the proactive identification of risk; with specific interventions aimed at eliminating or minimising the risk of injury.

Serious attention is given to all fatal and serious accidents on the trunk road network. There is close working between Transport Scotland, the Police and other agencies to examine the circumstances of fatal incidents. Where appropriate a road safety investigation study will be carried out and remedial and safety measures implemented:

- The Scottish Government is committed to UK Government targets for casualty reduction in the period to 2010.

Performance monitoring demonstrates that the trunk road network is on track to meet these 2010 casualty reduction targets (Figure 3).

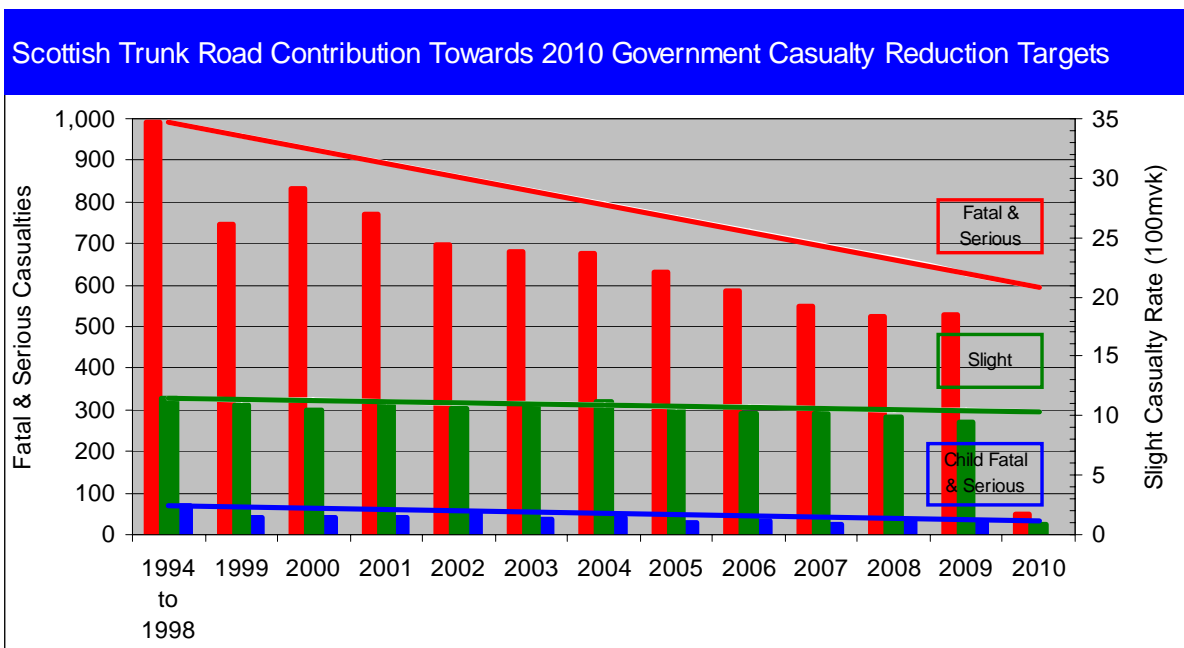


Figure 3 – Scottish Trunk Road Contribution Towards 2010 Government Casualty Reduction Rates

The Scottish Government published Scotland's Road Safety Framework to 2020 in June 2009. It sets out a high-level vision for road safety in Scotland, the main national Scottish priorities in road safety, the first ever Scottish Road Safety Targets and a number of commitments all intended to further reduce deaths and serious injuries on Scotland's roads.

The Framework includes a commitment to publish an annual report at the end of each calendar year with achievement against road safety casualty reduction targets and key actions taken to meet commitments from the Framework.

For the ten years following the end of the current UK Government targets, the Scottish Government have set ambitious casualty reduction targets for Scotland which will cover the period from 1 January 2011 to 31 December 2020. These are:

- 40% reduction in people killed by year end 2020
- 55% reduction in people seriously injured by year end 2020
- 50% reduction in children aged under 16 killed by year end 2020
- 65% reduction in children aged under 16 seriously injured by year end 2020

These targets were developed by the Scottish Governments 'Expert Panel' on road safety. Transport Scotland participated on the steering group for this panel. Its Strategic Road Safety Plan will inform the engineering element of this framework document.

The safety performance of the trunk road network is assessed annually by screening all locations where three or more injury accidents have occurred in a three year period using a moving cursor programme. This helps to identify accident patterns at specific locations on the network which might benefit from localised engineering improvements.

3.2. The Transfer of Knowledge into Practice

Transport Scotland's Strategic Road Safety Plan encourages innovation through the stated key actions of Analysis and Knowledge, Research and Development together with Continuing Improvement.

Transport Scotland's trunk road network is maintained on their behalf by Operating Companies. In terms of information about safety products and techniques there is a two way exchange between the client and contractor. This is formally done in meetings once a month but informal daily dialogue is encouraged.

A proactive approach is taken by Transport Scotland to engagement with a wide range of stakeholders to disseminate information and to encourage best practice.

Scottish examples of effective implementation of best practices and technologies include:

- Route Safety Files
- Average Speed Cameras
- Other initiatives

Transport Scotland has developed Route Safety Files for each trunk road in the country to provide a knowledge base to inform prioritisation of accident investigation and prevention works. Knowledge from these files is also shared with and drawn from key stakeholders such as the emergency services, the local education and roads authorities. This ensures a targeted, joined up approach to road safety interventions for each route. For example measures to assist vulnerable road users such as motorcyclists over an extended, cross boundary route.

Scotland's first SPECS average speed camera system was installed as a 3 year pilot project in July 2005 as a joint initiative between Transport Scotland and Strathclyde Safety Camera Partnership. It covers a 46 kilometre section of the A77 Trunk Road. The system measures a vehicles speed from point to point on various sections of the route. Since its introduction it has resulted in a high rate of compliance to the speed limit and significant drop in the number of injury accidents. This particular scheme has received a number of plaudits notably a Prince Michael Award for road safety

Other initiatives include studies into the effective deployment of Vehicle Activated Signs, a programme of road side passive safety interventions and exploratory work into a national Intelligent Speed Adaptation pilot study.

4. Wales

4.1. Strategic Plans and Approaches

The Welsh Assembly Government is committed to reducing road traffic collisions and injuries, aiming to develop safer environments for all road users, within a road system that strengthens rural communities and aids wider economic, social and environmental objectives in a sustainable way. The Wales Transport Strategy has established a framework for the creation of an integrated transport system in Wales and one of its five strategic priorities for the next five years is to increase safety and security. The Wales National Transport Plan will take forward the process of delivering this objective.

The 1,710 km of Motorway and trunk roads in Wales form a system of strategic routes of national importance, the part of the transport system for which the Welsh Ministers as the trunk road authority have direct responsibility. Highway responsibilities for the remaining roads in Wales rest with respective local authorities.

The Welsh Assembly Government, local authorities and the Police each have responsibility for various aspects of road safety policy and there are groups and committees that meet regularly to discuss new initiatives. In addition, various road safety organisations, most notably the Royal Society for the Prevention of Accidents (RoSPA) and the Vehicle & Operator Service Agency (VOSA) provide advice and practical support.

The Road Safety Strategy for Wales contains a series of commitments to help address problems in different policy areas including sustainable community development, health, environment, social inclusion, community safety, education and the economy. The Strategy has the following key themes:

- Investigating Collisions and Casualties
- Safety for Children
- Speed Management
- Safety for Pedestrians and Cyclists
- Safety for Horse Riders
- Safety for Motor Vehicle Users
- Safety for Motorcyclists

The Welsh Assembly Government's Trunk Road Maintenance Manual (TRMM) which was developed in the late 1990's sets out the activities deemed necessary to meet the statutory responsibility for managing the safety of the motorway and trunk road network in Wales. It covers the routine maintenance and inspection of all trunk road assets, including the road pavement, drainage, structures, lighting, earthworks, soft estate, technology / communications infrastructure and depots.

A major review of this document has just been completed, bringing it into line with the Welsh Assembly Government's corporate approach to the management of risk. Existing TRMM activities and their current frequencies were categorised as addressing safety, legislative or reputational / objective delivery risks. These were scored in turn on their ability to mitigate these risks and plotted on a risk matrix. The activities and their frequencies were then adjusted to provide the optimum balance between cost and residual risk. The new approach will be implemented over the course of 2010/11.

Progress in Wales to meet UK Government's casualty reduction targets, up to 2008, is shown in the following table (Table 1).

Table 1 – Progress Towards Casualty Reduction (Wales) 2010
Progress towards casualty reduction targets for 2010

Number and percentage

	Killed or seriously injured casualties	Killed or seriously injured children	Slight casualty rate per 100 million vehicle km
1994-98 average	2,008	289	54
1999	1,871	244	50
2000	1,823	225	50
2001	1,725	205	48
2002	1,632	191	48
2003	1,655	192	47
2004	1,537	170	44
2005	1,326	135	42
2006	1,372	144	41
2007	1,399	148	39
2008	1,395	115	34 (a)
Percentage change 2008 on 1994-98 average	-30.5	-60.2	-36.7 (a)

(a) Estimated rate based on 2007 traffic volume.

The Motorway and trunk road network is assessed routinely to identify collision clusters and links with high collision rates. Further analysis then determines whether there are common collision factors that would benefit from localised engineering improvements. The performance of such measures is then monitored in terms of the collision history before and after implementation.

It is understood that the local authorities in Wales generally progress similar procedures for their respective road networks.

4.2. The Transfer of Knowledge into Practice

The learning and development culture of the Welsh Assembly Government encourages the consideration of new ideas and initiatives. It is represented at diverse road safety related groups including technical project boards, Road Safety Wales, EuroRAP and the Road Safety Panel of the Chartered Institution of Highways & Transportation, amongst others.

The Welsh Assembly Government is an active member of the CRASH Alliance, a grouping of the national road authorities of the four Celtic nations (Wales, Scotland, Ireland and Northern Ireland). Although this was initially established to consider issues around speed limit setting, it has developed into a useful forum for the exchange of information and the sharing of good practice. In addition it is starting to develop joint initiatives such as an innovative approach to data collection for the purposes of 'Road Protection Scoring'.

There are three trunk road agents that manage and maintain the motorway and trunk road network for the Welsh Assembly Government, either through its own in-house resources, or with service suppliers appointed to work on their behalf. Good communication is maintained with the trunk road agents through formal meetings and informal dialogue.

The Welsh Assembly Government takes a proactive approach to engaging with key organisations such as the local authorities and police through its attendance at meetings of Road Safety Wales, CSS Wales and the Welsh Senior (Police) Traffic Officers' Committee.

Traffic Wales is the Welsh Assembly Government's traffic information service and has made a significant impact on the efficiency and effectiveness of the management of the

road network, together with the provision of information to the travelling public. Two traffic centres form the hub of its communications and information dissemination network, which enables the service to operate effectively around the clock, every day of the year.

Welsh examples of effective implementation of best practices and technologies include:

- Local Road Safety Grant
- 20 mph Speed Limits
- Variable Speed Limit on M4

This Welsh Assembly Government grant has been provided to local authorities each year since 2000 by the Welsh Assembly Government to contribute towards solutions to road safety problems in their respective areas. The grant is in addition to local authorities' own highway and traffic engineering budgets. The most recent analysis showed that, aggregated together, 615 engineering schemes demonstrated an average annual reduction in personal injury collisions of around 46%. The consequent average annual reduction in the number of people killed or seriously injured was 52%.

Local authorities in Wales have also used the grant to fund a wide range of ETP activities, such as:

- Pass Plus Cymru (for new drivers)
- Theatre in education (schools and possibly youth groups)
- The Children's Traffic Club (for pre-school pupils)
- General publicity / resources
- Road safety vehicles / mobile units
- The Junior Road Safety Officer Programme (primary schools)
- Pre and young driver initiatives eg. MegaDrive
- In car safety (car seats and seat belt checks).

The Welsh Assembly Government has been actively promoting and supporting the increase in the number of 20 mph limits in Wales and local authorities have been encouraged to implement these where appropriate. There are currently in excess of 480 schemes in Wales around 66% of which were funded by the Welsh Assembly Government, either from the annual Local Road Safety Grant or via the safer routes in communities (previously safe routes to school) programme.

A recent evaluation of 414 of these schemes showed average annual reductions of around 38% and 42% in personal injury collisions and killed / seriously injured casualties respectively. The collision and casualty reductions are similar to the findings of other research studies. Before and after speed data for a smaller sample of locations showed an average speed reduction of 4.8 mph.

Variable speed limits have been proposed between junctions 24 and 28 of the M4 in south east Wales, to increase capacity and smooth traffic flows which currently exceed capacity over this length. The accident rate is greater than the national motorway average because of non-standard gradients, bends with existing advisory speed limits and reduced visibility on a number of tight bends. There is also very little scope for widening this section of the M4 due to tunnels at Brynglas and the proximity of existing housing.

This project aims to save money through fewer accidents and better journey-time reliability on this particular stretch of the M4. In addition, there should be an improvement to the existing air quality management areas near to the M4, due to decreased congestion and a reduction in heavy braking.

5. Northern Ireland

5.1. Strategic Plans and Approaches

Roads Service, an Executive Agency within the Department for Regional Development, is the sole road authority for the entire public road network in Northern Ireland. It is fairly unique among other European road authorities in that it develops, manages and maintains all roads in Northern Ireland, from Motorways to minor unclassified rural and urban roads totalling approximately 25,000 km.

Overall responsibility for road safety in the country lies with the Department of the Environment (DOE). Both Roads Service and the Police Service of Northern Ireland (PSNI) are the other strategic road safety partners with responsibility for safety on the road infrastructure and enforcement of road regulations respectively. Road safety is a devolved power in Northern Ireland, giving it the freedom to develop its own strategies and actions that are more relevant to the region.

All partners have been implementing the 161 action measures contained within the first Northern Ireland Road Safety Strategy 2002-2012. The key themes within the strategy are

- Safer Children
- Safety for Pedestrians and other Vulnerable Road Users
- Better Training, Testing and Licensing
- Better Driver behaviour
 - Safer Speeds
 - Drink, Drugs and Drowsiness
 - Dangerous and Careless Driving
- Safer Roads Infrastructure, and
- Safer Vehicles

Roads Service then developed its own Road Safety Plan that contained a total of 70 measures that it would implement or manage. Working Groups, staffed with experts from the road safety partners, were established around the key themes to regularly monitor and report progress against the relevant action measures.

By identifying road safety as a key priority for action, the Northern Ireland Government is committed to investment to ensure that the two strategic targets contained in the strategy are met;-

- A one third reduction (from the average for the period 1996-2000) in the number of people killed or seriously injured each year from the current average of 1750 to fewer than 1200 by 2012.
- A 50% reduction (from the average for the period 1996-2000) in the number of children killed or seriously injured each year from the current average of 250 to fewer than 125 by 2012.

Performance monitoring demonstrates that the road network in Northern Ireland is well ahead of predictions to meet these 2012 casualty reduction targets. Progress against both targets is shown in the graphs below (Figures 4 & 5).

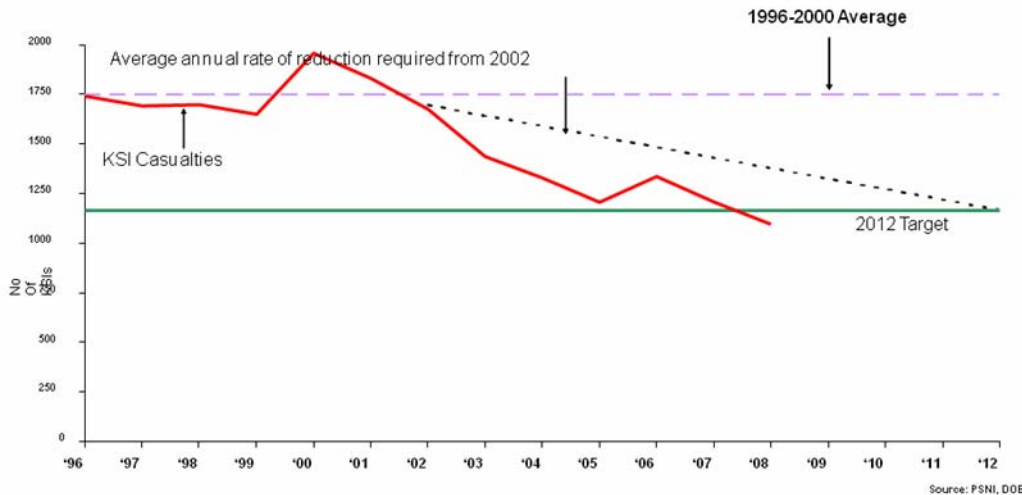


Figure 4 - People Killed or Seriously Injured 1996-2008

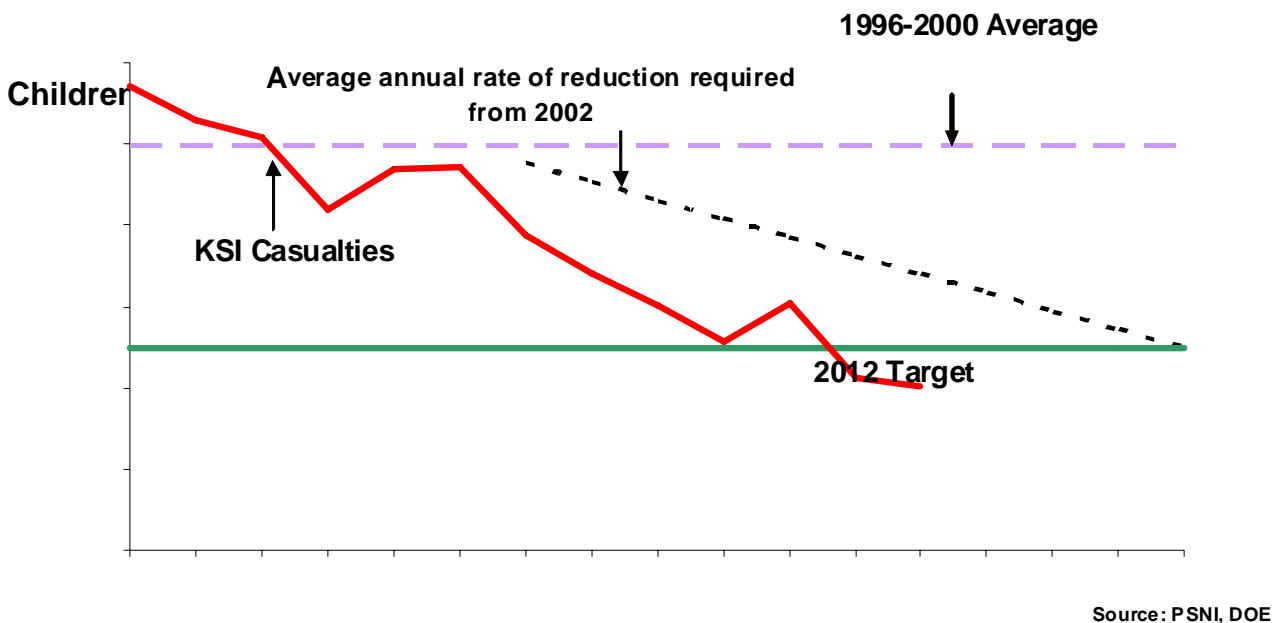


Figure 5 - Children Killed and Seriously Injured 1996 - 2008

With such good progress being made in casualty reduction, the Ministers for DOE and DRD, as well as the PSNI, agreed that the opportunity should be taken to produce a new road safety strategy, before the current one expired. Ideally, this should run for a ten year period from 2010, so that it could align with the other strategies in the rest of the UK as well as the United Nations Decade for Action

To initiate the project, a Problem Profile Paper was developed to represent the most up-to-date understanding of the key road safety issues as supported by the latest available collision data (2003-2007). It looked in detail at who is most at risk, high risk behaviours

and where collisions occur on Northern Ireland's road network. Key issues identified included young male drivers, motorcyclists and single vehicle collisions. Research projects were undertaken in areas of specific concern such as the link between child pedestrian casualties and deprivation, motorcyclist casualties, benchmarking and casualty forecasting.

For the ten year life of the new strategy, Northern Ireland has set ambitious casualty reduction targets for the country that will cover the period up to 31 December 2020. These are:

- 40% reduction in people killed in road collisions by 2020
- 45% reduction in people seriously injured in road collisions by 2020
- 55% reduction in children aged 0 to 15 killed or seriously injured by end 2020
- 55% reduction in young people aged 16 to 24 seriously injured in road collisions by 2020

The strategy continues with a reactive review of collision histories on the roads and includes investigations at those parts of the network experiencing collision clusters or links with high crash rates. Importantly, the strategy also includes the proactive identification of risk; with specific interventions aimed at eliminating or minimising the risk of injury.

The safety performance of the whole road network is assessed annually by screening all locations where the intervention level throughout Northern Ireland for collision remedial purposes is 4 collisions over a 3-year. This helps to identify collision patterns at specific locations which would benefit from localised engineering improvements. Performance is compared with the 3-year collision history prior to scheme construction using the total number of target injury collisions and published in the annual Road Safety Engineering Report.

5.2. The Transfer of Knowledge into Practice

Roads Service encourages innovation through the stated key actions in the strategy of analysis and knowledge and research. Through corporate and individual membership of external professional organisations and attendance at specialist seminars, conferences and training events, staff are strongly encouraged to adopt new innovative products and practices.

Roads Service is an active member of the CRASH Alliance, a grouping of the national road authorities of the four Celtic nations (Scotland, Wales, Ireland and Northern Ireland). This was established to share best practice and to develop joint initiatives such as a Road Protection Scoring System.

Roads Service is always eager to pilot new engineering measures to assess their effectiveness in improving road safety. One example of this has been the establishment of a road markings trial site to enable manufacturers to develop and road test improved road marking systems.

Roads Service manages and maintains the road network either directly, through its own in house resources, or with contractors and consulting engineers appointed to work on its behalf. In terms of information about safety products and techniques there is a two way exchange between the authority and contractors. This is formally done in regular meetings, but informal daily dialogue is encouraged.

A proactive approach is taken by Roads Service to engagement with a wide range of stakeholders to disseminate information and to encourage best practice. This is carried out through publications, the internet site and information seminars arranged with the industry.

Northern Ireland examples of effective implementation of best practices and technologies include:

- Part time Speed Limits
- Average Speed Cameras

There is a universal concern about the safety of children on their journeys to and from school. Roads Service has invested considerable resources in additional engineering measures outside schools and in local areas to reduce the risk to exposure from vehicular traffic. Despite this, there were continuing concerns about excess speed outside rural schools. After undertaking worldwide research on this issue, it was decided to pilot the installation of part time enforceable 20 mph speed limits outside schools that are only operative when there is activity around schools. The three pilot schemes were assessed over a year and were found to be very effective at reducing speeds and it has now been decided to roll out a programme at rural schools across Northern Ireland, subject to funding.

Speed enforcement in Northern Ireland has traditionally been carried out with a mixture of fixed, mobile and red light running safety cameras. It has been decided that fixed safety cameras are of limited use in dealing with excess speed on roads with speed related collision histories. The first SPECS average speed camera system was installed as a joint initiative between Roads Service and PSNI on the A1 road at Newry on the land frontier with the Irish Republic. A further scheme has also been introduced on the A2 between Belfast and Bangor. The system measures a vehicles speed from point to point on various sections of the routes. Since their introduction, this has resulted in a high rate of compliance with the speed limit and significant drop in the number of injury accidents.

6. Conclusion

Maintaining and improving road safety is a significant responsibility. Procedures are needed to ensure that this responsibility is properly executed, and resources are targeted effectively. Across the UK the four regional bodies in England, Scotland, Wales and Northern Ireland have developed and implemented an integrated method of examining, assessing and managing the safety of routes using a combination of accident analysis, visual inspection, hazard identification and risk management. Managing Agents, in-house teams, local authority partners and Police services have all worked together to regularly assess problems occurring on their parts of the national road network.

The UK's Department of Transport is developing a strategy for improving road safety in the UK over the period from 2010 to 2030. Part of this strategy includes setting targets for reductions in deaths and serious injuries by 2020. Once these new targets and the new UK Government's Transport Policy is clear, the regional bodies will decide how these can be implemented to suit local needs.