International Transport Forum

Road Safety Annual Report 2011

irtad

International Traffic Safety Data and Analysis Group

OECD

Decade of Action for Road Safety 2011-2020

Road Safety Annual Report 2011

International Traffic Safety Data and Analysis Group

Abstract

The 2011 Annual Report of the IRTAD Group comprises:

- A synthesis of the main trends in the year 2010, in terms of developments in the number of traffic deaths and crashes and preliminary data for the year 2011. It presents longer-term trends in order to better understand the developments taking place in the different countries. It also presents a summary of road safety strategies that have been developed in IRTAD countries in the context of the UN Decade of Action for Road Safety;
- An activitiy report of the IRTAD Group for 2011, summarizing the Group's activities.
- Detailed reports from 32 countries, focusing on:
  - The latest data for 2010 and provisional data for 2011;
  - The national strategies in place in IRTAD countries, including targets and performance toward meeting the targets, and the plans to contribute to the UN Decade of Action for Road Safety;
  - Measures implemented in 2010-2011 to improve safety;
  - Analysis of safety trends by road user category, by age group and by road type;
  - Analysis of specific safety issues, such as: speeding, drink-driving and the wearing of seat belts and helmets.

FOREWORD

It is with great pleasure that I present the 2011 edition of the IRTAD Annual Report.

The year 2011 was marked by the launch of the UN Decade of Action for Road Safety. This is a very important step towards making road safety a priority in all countries and to reducing the number of persons killed and seriously injured every day on our roads. The UN Road Safety Collaboration also developed an Action Plan based on five pillars, which were introduced in the 2004 World Report of the World Health Organisation on Road Traffic Injury Prevention: Road Safety Management; Safer Roads and Mobility; Safer Vehicles; Safer Road Users; and Post-Crash Response. The road safety management pillar calls for the establishment and management of data collection systems, which are necessary to provide baseline data and monitor progress. This illustrates the important role of IRTAD in collecting and analysing high-quality data. Progress on monitoring and benchmarking will be an essential tool of this process, and the IRTAD Group can play an important role in assisting countries in setting up appropriate mechanisms to collect safety data and monitor performance.

IRTAD has the mission to be the worldwide reference regarding data collection and analyses and, already in 2008, it started to expand its coverage in low- and middle-income countries, in particular through the establishment of twinning projects. An important step forward was initiated at the end of 2011 with the launch of the "IRTAD LAC" database, to support the newly-created Ibero-American Road Safety Observatory.

While looking back at the last decade, we observed a sharp reduction in the number of fatalities in almost all OECD countries. These positive developments seem to be related to the implementation of effective road safety strategies. We noted a growing awareness of the need to improve road safety and to save thousands of lives lost on the roads in many countries. We also saw a growing awareness of the fact that improving road safety should not only focus on saving lives but also on tackling serious injuries and reducing the burden on public health services of road injuries. This requires a better understanding of injury crashes and the specificity of these crashes. The IRTAD Group released a report on this very topic in 2011 and reviews methods to link hospital and police data to better estimate the real number of serious injuries. For the first time, this report makes a recommendation for defining serious injury, based on a maximum abbreviated injury scale. The IRTAD Group will pursue its work in this challenging area and aims to include data on serious injuries in its database.

For the IRTAD Group, 2011 was another busy and intense year, and I would like to extend my deep gratitude to all those IRTAD members, and the IRTAD Secretariat, who contributed all year round to the richness of exchange which makes the IRTAD Group such an invaluable and unique forum on road safety issues.

We are now in the process of releasing the 2012-2014 Programme of Work of our Group, which will include a number of new and challenging topics. I trust that our results will continue to provide very useful input to the road safety research and policy world.

Prof. Fred Wegman

Chairman of IRTAD

TABLE OF CONTENTS

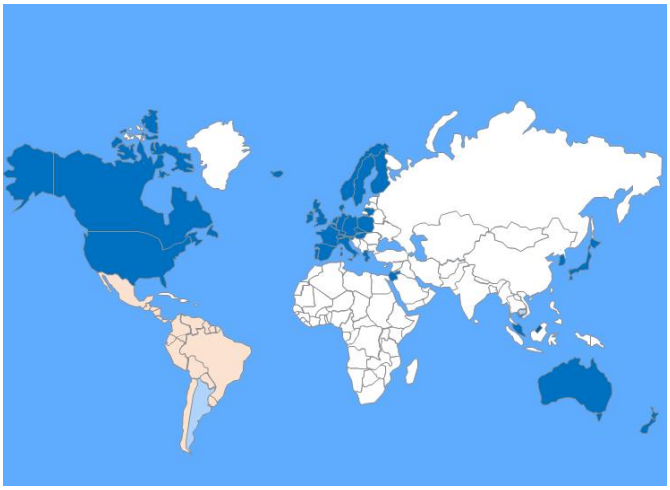
1. IRTAD: An International Group and Database on Road Safety Data

The IRTAD Group

The International Traffic Safety Data and Analysis Group (IRTAD) is a permanent working group of the Joint Transport Research Centre of the OECD and the International Transport Forum. It is composed of road safety experts and statisticians from renowned safety research institutes, national road and transport administrations, international organisations, universities, automobile associations, the automobile industry, and others from OECD and non-OECD countries. Its main objectives are to contribute to international co-operation on safety data and its analysis. The objectives of the IRTAD Group are to:

- Be a forum of exchange on road safety data collection and reporting systems, and on trends in road safety policies;
- Collect accident data and conduct data analysis to contribute to the work of the ITF/OECD, as well as to provide advice on specific road safety issues;
- Contribute to international co-operation on road accident data and its analysis.

Currently, more than 60 organisations from 32 countries are members of IRTAD - representing a wide range of public and private bodies with a direct interest in road safety (see list of members at the end of the report).



The ambition of IRTAD is to include new countries and to build and maintain a high-quality database on road safety information. IRTAD offers a mechanism for the integration of prospective member countries while assisting with improvement of road safety data collection systems, where needed. The IRTAD Group and World Bank's Global Road Safety Facility co-operate to involve low- and middle-income countries in the work of the Group.

The IRTAD Database

The most visible product of the IRTAD Group is the International Road Traffic and Accident Database. The database includes aggregated data on injury accidents, road fatalities, injured and hospitalised road users, as well as relevant exposure data, such as population, motor vehicle fleet, road network length, vehicle-kilometres and seat-belt wearing rates from 30 countries, covering every year since 1970. Moreover, key road safety indicators are compiled on a monthly basis. The IRTAD Group is currently developing a set of new variables to be progressively included in the database.

2. Summary of Road Safety Performance in 2010

Data for the year 2010 show that road deaths continued to decrease in most IRTAD countries, carrying forward the significant reductions in the number of road deaths accomplished in 2008 and 2009 (See Table 1 and Figure 1). Several countries again reached their lowest fatality records for the past 50 years in 2010.

Provisional data for 2011 shows a continuing downward trend for most countries, although some countries observed an increase — which could be considered as a "normal" adjustment after a spectacular decrease in 2009, and not as the start of a negative development or trend.

In several countries — for example, the United States, Hungary, Ireland or Denmark — we observed a more pronounced reduction in the number of fatalities during the last 3-4 years than during the preceding 15 years. We have no real explanation for such acceleration in the trend. Several countries suggested that the economic crisis which began in 2008 may have had an impact on these positive road safety developments through a variety of effects (a decrease in mobility, less traffic by heavy vehicles, less inexperienced drivers with relatively higher risks, a reduction in leisure driving, safer driving behaviour, etc.). Up to now, we were not able to come up with a scientifically satisfactory explanation and no-one was able to quantify its impact on road safety. Many European countries also identified the severe winter conditions at the end of 2010 and beginning of 2011 as a contributing factor. Finally, most countries now have road safety strategies in place, with well-defined and targeted measures, which have borne fruit over the last few years. We see this very complex need to explain trends in road fatalities and mortalities over time, as a key area for co-operation in the IRTAD Group.

Trends over a longer period of time are needed to make relevant policy analysis. Table 1 shows that, for most IRTAD countries, the average annual reduction in the number of deaths between 2001 and 2010 was higher than in the three preceding decades. It can also be assumed that effective road safety policies contributed to this favourable development.

Nearly all IRTAD countries have succeeded in reducing the number of road deaths since 2000, but wide disparities in performance exist between these countries (see Figure 2). Comparisons of the developments during the last decade (2001-2010) show that Lithuania, Spain, Luxembourg, Sweden, France and Slovenia more than halved the number of fatalities, with an average annual reduction of more than 7.5%.

While the high-income countries are looking back on a decade of record reductions in road fatalities, the same cannot be said for the many countries undergoing rapid motorisation and where the number of traffic casualties is increasing year after year. In 2010, road crashes killed at least 1.3 million people worldwide and injured 50 million. Of

these road casualties, 90% were in low- and middle-income countries. In May 2011, the United Nations launched a Decade of Action for Road Safety with the aim of stabilizing, and then reducing, global road deaths by 2020. This is supported by a Global Plan for Road Safety.

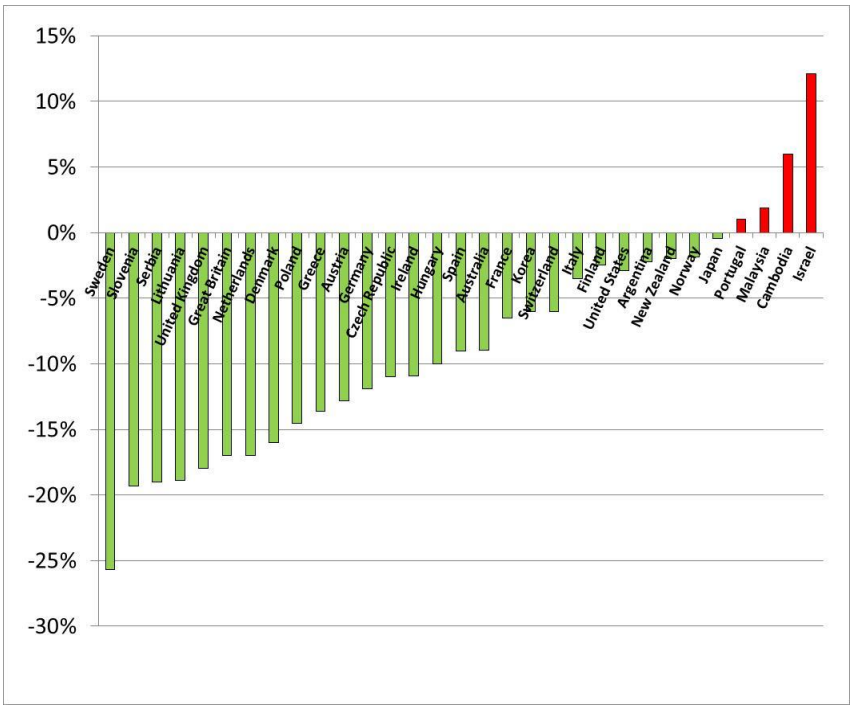
Table 1. **Road safety trends**

Road Fatalities[1]								
Recent data					Long-term trends – Average annual change			
Country	2010	2009	Change 2010-2009	Change 2010-2001[2]	2001-2010[2]	1991-2000	1981-1990	1971-1980
Argentina[3)]	5 094	5 219	-2.4%	16.0%	3.0%		-	-
Australia	1 352	1 488	-9.1%	-22.2%	-2.7%	-1.7%	-3.9%	-1.0%
Austria	552	633	-12.8%	-42.4%	-5.9%	-5.0%	-2.5%	-3.9%
Belgium	-	944	-	-36.5%	-5.5%	-2.7%	-1.3%	-2.8%
Cambodia[3)]	1 816	1 717	5.8%	295.6%	16.5%	-	-	-
Canada	-	2 207	-	-19.9%	-2.7%	-2.6%	-3.3%	-0.2%
Czech Republic	802	901	-11.0%	-39.9%	-5.5%	1.2%	0.8%	-4.9%
Denmark	255	303	-15.8%	-40.8%	-5.7%	-2.2%	-0.5%	-6.1%
Finland	272	279	-2.5%	-37.2%	-5.0%	-5.1%	1.8%	-7.8%
France	3 992	4 273	-6.58%	-51.1%	-7.6%	-2.9%	-2.1%	-2.8%
Germany	3 648	4 152	-12.1%	-47.7%	-7.0%	-4.4%	-2.3%	-3.7%
Greece	1 258	1 456	-13.6%	-33.1%	-4.4%	-0.4%	2.8%	3.0%
Hungary	740	822	-10.0%	-40.3%	-5.6%	-6.1%	4.7%	-1.3%
Iceland	8	17	-52.9%	-66.7%	-11.5%	1.9%	0.0%	2.0%
Ireland	212	238	-10.9%	-48.4%	-7.1%	-0.8%	-2.0%	-0.2%
Israel	352	314	12.1%	-33.7%	-4.5%	0.4%	-0.2%	-4.0%
Italy	4 090	4 237	-3.5%	-42.4%	-5.9%	-1.5%	-2.2%	-1.9%
Japan	5 745	5 772	-0.5%	-42.9%	-6.0%	-3.6%	2.8%	-6.7%
Korea	5 505	5 838	-5.7%	-32.0%	-4.2%	-4.5%	8.7%	5.6%
Lithuania[3)]	299	370	-19.2%	-57.7%	-9.1%	-6.5%	-	-
Luxembourg	32	48	-33.3%	-54.3%	-8.3%	-0.6%	-3.7%	1.5%
Malaysia[3)]	6 872	6 745	1.9%	13.9%	1.3%	-	-	-
Netherlands [4)]	537	644	-16.6%	-45.9%	-6.6%	-1.9%	-3.0%	-5.0%
New Zealand	375	384	-2.3%	-17.6%	-2.1%	-3.7%	1.0%	-1.4%
Norway	208	212	-1.9%	-24.4%	-3.1%	0.6%	-0.2%	-4.2%
Poland	3 907	4 572	-14.5%	-29.4%	-3.8%	-2.5%	2.1%	-
Portugal	937	929	0.9%	-49.3%	-7.3%	-4.5%	0.3%	3.5%
Serbia[3)]	660	810	-18.5%	-	-	-	-	-
Slovenia	138	171	-19.3%	-50.4%	-7.5%	-4.2%	-1.0%	-1.6%
Spain	2 478	2 714	-8.7%	-55.1%	-8.5%	-4.6%	3.9%	1.9%
Sweden	266	358	-25.7%	-52.0%	-7.8%	-2.5%	-0.2%	-3.9%
Switzerland	327	349	-6.3%	-39.9%	-5.5%	-3.7%	-2.2%	-3.8%
United Kingdom	1 905	2 337	-18.5%	-47.1%	-6.8%	-3.1%	-1.3%	-2.8%
United States	32 885	33 883	-2.9%	-22.1%	-2.7%	0.1%	-1.1%	-0.3%

Source: IRTAD, see www.irtad.net

1. Police-recorded fatalities. Death within 30 days. Lithuania: death within 7 days before 1995. Portugal: In 2010 there was a change of methodology in the calculation of the fatality data.
2. 2005-2010 for Argentina. 2001-2009 for Belgium and Canada.
3. Accession countries. Data are under review.
4. For The Netherlands, and for comparison purposes, these figures correspond to the police-reported number of fatalities. The real number of fatalities is higher. See more information in the country report of the Netherlands.

Figure 1. **Short-term change**
Road fatalities: 2010 in comparison to 2009*



* The graph does not include data for Luxembourg and Iceland (as the numbers are very low, the fluctuations are large).

Table 2. **Preliminary trends for the year 2011; based on provisional fatality data**
(compared to the same period in 2010)

Country	Trend	Period	Country	Trend	Period
Argentina	↗↗↗	Jan-June	Japan	↘	Jan - Nov
Australia	↘	Jan-Dec	Korea	↘↘	Jan - June
Austria	↔	Jan-Dec	Lithuania	↘↘	Jan -Dec
Cambodia	↔	Jan-Dec	Malaysia	↔	Jan - Dec
Canada	↗	Jan-June	Netherlands	↔	Jan - Dec
Czech Republic	↘	Jan–Dec	New Zealand	↘↘↘	Jan - Dec
Denmark	↘↘↘	Jan–Dec	Norway	↘↘↘	Jan – Dec
Finland			Poland	↗↗	Jan-Dec
France	↔	Jan – Dec	Portugal	↘↘	Jan -July
Germany	↗↗	Jan-Nov	Slovenia	↗	Jan-Dec
Greece	↘↘↘	Jan-Nov	Spain	↘↘	Jan –June
Hungary	↘↘↘	Jan-Sep	Sweden	↗↗↗	Jan – Dec
Ireland	↘↘↘	Jan – Dec	Switzerland	↘	Jan –June
Israel	↘	Jan – Dec	United Kingdom	↗	Jan – June
Italy	↘↘	Jan – Dec	United States	↘	Jan – Sep

-1% < change < 1% ↔

Increase 1-5% ↗

Decrease 1-5% ↘

Increase 5-10% ↗↗

Decrease 5-10% ↘↘

Increase > 10% ↗↗↗

Decrease > 10% ↘↘↘

Trends in death rates

This section presents the performance of IRTAD countries in relation to various road safety indicators.

Box 1. **How to measure mortality rate and fatality risks?**

Relative progress in road safety depends somewhat on what one uses as a measure of exposure to risk (i.e. population, registered vehicles, distance travelled). There has been considerable debate in the past about which indicator is most appropriate as an indicator of exposure. Those in the health sector prefer the use of population as the denominator, since it permits comparisons with other causes of injury or with diseases. As the health and transport sectors increase their level of co-operation, fatalities per 100 000 population is becoming more widely used. In the transport sector it has been common, where data are available, to use fatalities per distance travelled (e.g. fatalities per million vehicle-kilometres) as a principal measure, or fatalities per 10 000 vehicles. Fatalities over distance travelled have traditionally been favoured by road transport authorities as this implicitly discounts fatality rates if travel is increased.

Fatalities per 100 000 population. The number of inhabitants is the denominator most often used, as the figure is readily available in most countries. This rate expresses the mortality rate, or an overall risk of being killed in traffic, for the average citizen. It can be compared with other causes of death, like heart disease, HIV/Aids, etc. *This is a particularly useful indicator to compare risk in countries with the same level of motorisation.* It is, however, not at all adapted to comparing safety levels between industrialised countries and countries where the level of motorisation is very low.

Fatalities per billion vehicle–kilometres (or fatalities per billon person-kilometres, taking vehicle occupancy into account). This is the most objective indicator to describe risk on the road network. However, only a limited number of countries collect data on distance travelled.

Fatalities per 10 000 registered (motorised) vehicles. This rate can be seen as an alternative to the previous indicator, although it differs in that the annual distance travelled is unknown. This indicator can therefore only be used to compare the safety performance between countries with similar traffic and car-use characteristics. It requires reliable statistics on the number of registered vehicles. In some countries, scrapped vehicles are not systematically removed from the registration database, thereby undermining accuracy. This rate, however, does not take into account non-motorised vehicles (such as bicycles), which can in some countries represent a large part of the vehicle fleet and of the fatalities figures.

Ideally, it would be desirable to use all three indicators to make comparisons of performance between countries.

Fatalities per head of population

Table 3 and Figure 2 show the evolution of mortality expressed in terms of deaths per 100 000 population since 1970. Table 3 also includes the evolution in risk expressed in terms of deaths per billion vehicle-kilometres.

Figure 2. **Traffic deaths per 100 000 population 1970-2010**

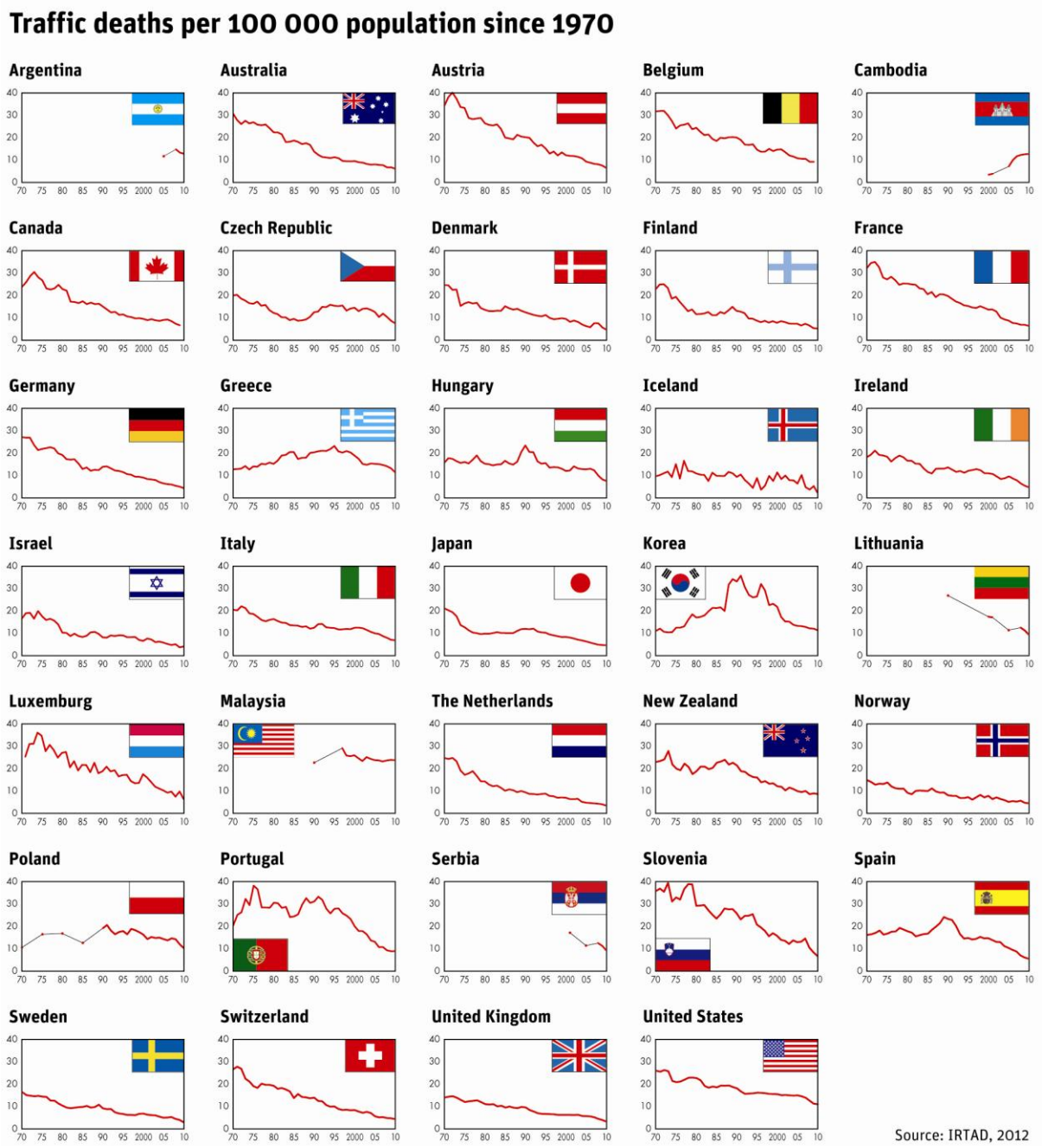


Table 3. **Traffic deaths per 100 000 inhabitants / per billion veh-km 1970, 1980, 1990, 2000 and 2010**

Country	Killed per 100 000 inhabitants					Killed per billion veh-km				
	1970	1980	1990	2000	2010	1970	1980	1990	2000	2010
Argentina[a]	-	-	-	-	12.6	-	-	-	-	-
Australia	30.4	22.3	13.7	9.5	6.1	49.3	28.2	14.4	9.3	6.1
Austria	34.5	26.5	20.3	12.2	6.6	109	56.3	27.9	15.0	-
Belgium	31.8	24.3	19.9	14.4	8.8[b]	104.6	50	28.1	16.4	9.6[b]
Cambodia[a]	-	-	-	3.4	12.7	-	-	-	-	-
Canada	23.8	22.7	14.9	9.4	6.6[b]	-	-	-	9.3	6.5[b]
Czech Republic	20.2	12.2	12.5	14.5	7.6	-	53.9	48.3	36.7	16.2
Denmark	24.6	13.5	12.4	9.3	4.6	50.5	25	17.3	10.7	5.6
Finland	22.9	11.6	13.1	7.7	5.1	-	20.6	16.3	8.5	5.1
France	32.6	25.4	19.8	13.7	6.4	90.4	44	25.7	15.1	7.1
Germany	27.3	19.3	14.0	9.1	4.5	-	37.3	20	11.3	5.2
Greece	12.5	15	20.2	18.7	11.1	-	-	-	-	-
Hungary	15.8	15.2	23.4	12.0	7.4	-	-	-	-	-
Iceland	9.8	11	9.5	11.5	2.5	-	26.5	14.9	13.8	2.6
Ireland	18.3	16.6	13.6	11.0	4.7	44.3	28.4	19.2	12.6	4.5
Israel	17.1	10.8	8.7	7.1	4.6	87.9	38.8	22.4	12.4	7.1
Italy	20.5	16.3	12.6	12.4	6.8	-	-	-	-	-
Japan	21	9.7	11.8	8.2	4.5	96.4	29.3	23.2	13.4	7.7[b]
Korea	11.0	17.0	33.1	21.8	11.3	-	-	-	49.5	18.7
Lithuania[a]	-	-	26.9	17.3	9.2	-	-	-	-	-
Luxemburg	-	27.0	18.8	17.5	6.4	-	-	-	-	-
Malaysia[a]	-	-	22.7	25.9	23.8	-	-	-	26.3	16.2
Netherlands	24.6	14.2	9.2	6.8	3.6	-	26.7	14.2	8.5	5.0 [b]
New Zealand	23	18.8	21.4	12.1	8.6	-	-	-	13.6	9.4
Norway	14.6	8.9	7.8	7.6	4.2	41.7	19.3	12	10.5	4.9
Poland	10.6	16.8	19.2	16.3	10.2	-	-	-	-	-
Portugal	20.6	30.6	31.2	20.0	8.8	-	-	-	-	-
Serbia[a]	-	-	-	-	9.0	-	-	-	-	-
Slovenia	35.8	29.2	25.9	15.8	6.7	166.7	96.1	65.1	26.7	7.7
Spain	16.0	17.7	23.2	14.5	5.4	-	-	-	-	-
Sweden	16.3	10.2	9.1	6.7	2.8	35.3	16.4	12.0	8.5	3.2
Switzerland	26.6	19.2	13.9	8.3	4.2	56.5	30.9	18.6	10.6	5.3
United Kingdom	14.0	11.0	9.4	6.1	3.1	37.4 [c]	21.9[c]	12.7[c]	7.3[c]	3.7[c]
United States	25.7	22.5	17.9	15.3	10.6	29.5	20.9	12.9	9.5	6.8

Death within 30 days. Police recorded data. Portugal: In 2010 there was a change of methodology in the calculation of the fatality data. p=provisional; a=accession country. Data are under review. b=2009. c=Great Britain.

Fatalities per 100 000 population

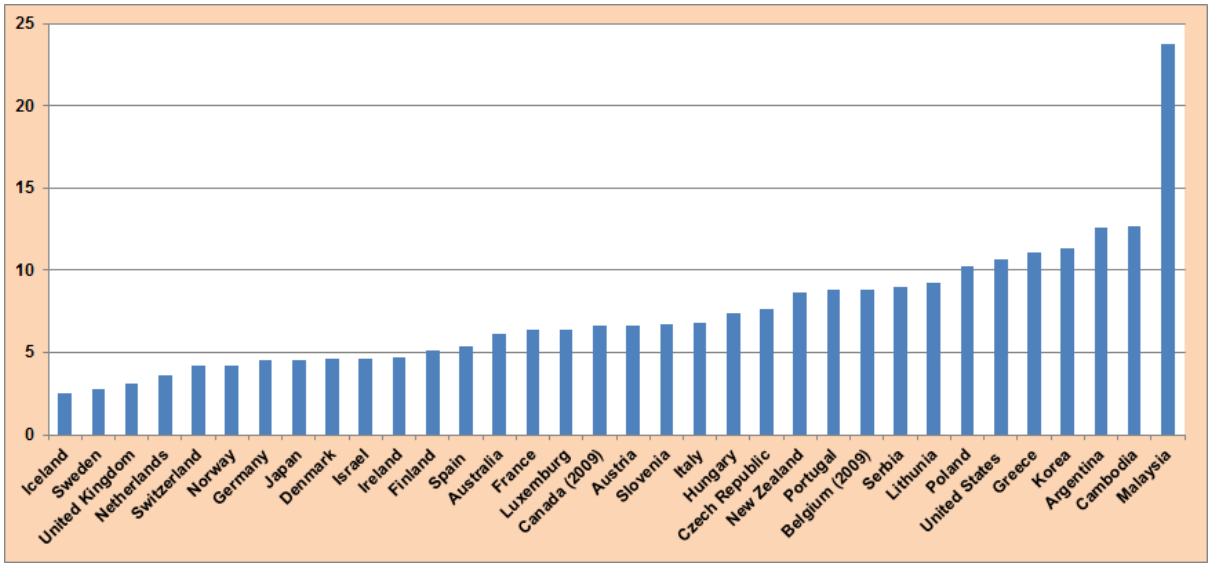
Since 1970, substantial progress has been made in all countries. In Germany, Switzerland and the Netherlands, the risk in terms of fatalities per 100 000 population, has been divided by more than six.

In the last decade, the risk has been reduced by two in about half of the countries. Greatest improvements were recorded in Luxembourg (-63%), Spain (-63%), Sweden (-58%), Slovenia (-58%), Ireland (-57%) and Portugal (-56%).

In 2010, the lowest risks (below 4.0) were found in Iceland, Sweden, the United Kingdom and the Netherlands (see Figure 3).

These risks were again lower than in 2009. While this rate is useful for comparing the performance of countries with similar levels of development and motorisation, it should not be used as a universal tool to rank all countries.

Figure 3. **Road fatalities per 100 000 population in 2010**



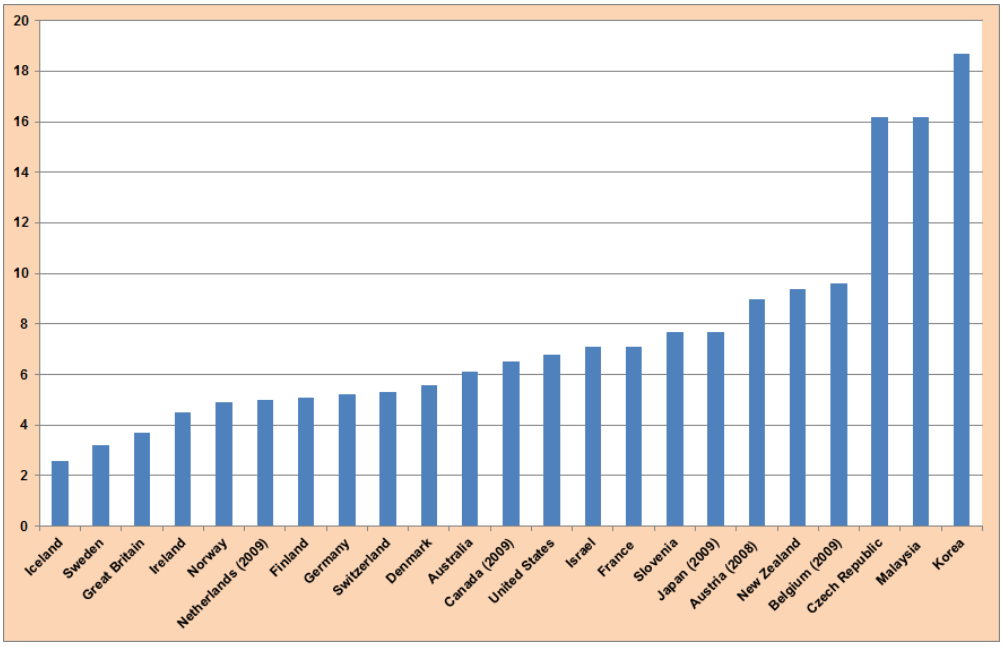
Fatalities per billion vehicle-kilometres

Data on risks, expressed in terms of deaths per billion vehicle-kilometres, are included in Figure 4. Analysis in terms of fatalities over distance travelled is a very useful indicator to assess the risk of travelling on the road network. However, only a subset of IRTAD countries collects regular data on vehicle-kilometres.

Based on this risk indicator, the situation improved substantially between 1990 and 2010. In 2010, the indicator ranged from 2.5 to 18.7, while it ranged from 12 to 65 in 1990. In almost all countries for which data are available, the risk has diminished by more than 50%. Slovenia shows the biggest change, with the risk divided by eight (from 65 to 7.6). In 2010, the best performing countries recorded risk below five deaths per

billion vehicle-kilometres (Iceland, Sweden, Great Britain, Ireland and Norway) (see Figure 4).

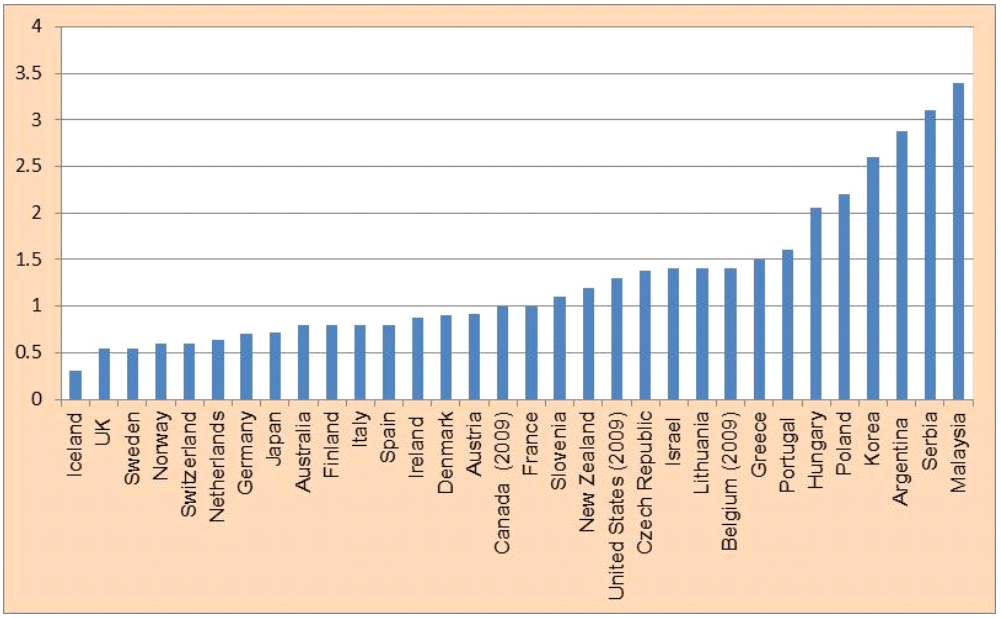
Figure 4. **Road fatalities per billion vehicles-kilometres in 2010**



Fatalities per registered vehicle

Figure 5 illustrates risk exposure expressed as the number of deaths per 10 000 registered vehicles.

Figure 5. **Road fatalities per 10 000 registered vehicles, 2010**



3. Legislation on Some Key Issues

Drink-driving, speeding and non-wearing of seat belts remain recurrent key issues in all countries. Experience has shown that efforts on these three fronts bring large benefits. In addition, distracted driving, including the use of mobile phones, is become a growing concern in many countries.

The following tables summarize information on legislation on drink-driving, seat-belt wearing and the use of mobile phones while driving.

3.1. Drink-driving

Table 4 summarizes the maximum blood alcohol content allowed in IRTAD countries.

Most IRTAD countries have a maximum permissible blood alcohol content of 0.5 g/l and, in some cases, lower limits for young and professional drivers. Lower limits are found in several countries, with a 0 limit in the Czech Republic, Hungary and Malaysia. A higher limit is found in the United Kingdom, New Zealand and most of the United States, where the legal limit is 0.8 g/l.

3.2. Seat-belt wearing

Table 5 summarizes the situation regarding the seat-belt laws in IRTAD countries and provides estimations for the seat-belt wearing rate in 2010 or 2011.

Seat-belt wearing is compulsory, in front and rear seats, in almost all IRTAD countries. In most of the countries, mandatory seat-belt laws for rear seats were introduced 10 to 15 years after the front-seat law. In some countries, mandatory seat-belt laws in rear seats have been introduced only very recently — for example, in 2008 in Japan, and 2003 in Greece. The wearing rate in these countries is much lower than in countries where the law has existed for longer. In almost all countries, however, there is a significant difference in wearing rates between front and rear seats.

Further efforts could still be made in all countries to increase wearing rates, especially in rear seats, and a significant number of lives could be saved every year. As an example, in France in 2010, 22% of vehicle occupants killed did not wear a seat belt when the crash occurred and it is estimated that 341 lives could have been saved.

Table 4. **Maximum blood alcohol content in 2012**

Country	General BAC level	Differentiated BAC for young drivers, professional drivers
Argentina	0.5g/l	0.0 g/l professional drivers
Australia	0.5 g/l	0.0 g/l for novice drivers 0.2 g/l for professional drivers
Austria	0.5 g/l	0.1 g/l moped riders < 20 years old and novice and professional drivers
Belgium	0.5 g/l	
Cambodia	0.5 g/l	No
Canada	0.8 g/l Most provinces have administrative sanctions in place at 0.4 g/l or 0.5 g/l.	Novice or young drivers in most provinces are subject to 0 g/l BAC (administrative) sanctions
Czech Republic	0.0 g/l	-
Denmark	0.5 g/l	-
Finland	0.5 g/l	-
France	0.5 g/l	0.2 g/l (bus drivers)
Germany	0.5 g/l	0.0 g/l (novice drivers)
Greece	0.5 g/l	0.2 g/l, professional drivers, motorcycles and moped riders
Hungary	0.0 g/l (sanctions when BAC > 0.2g/l)	
Iceland		
Ireland	0.5 g/l (implementation in 2011)	0.2g/l young drivers, professional drivers
Israel	0.5 g/l	-
Italy	0.5 g/l	0 g/l for novice and professional drivers since July 2010.
Japan	0.3 g/l	
Korea	0.5 g/l	-
Lithuania	0.4 g/l	0.2 g/ novice and professional drivers
Malaysia	0.0 g/l	
Netherlands	0.5 g/l	0.2 g/l novice drivers (first 5 years) since 2006
New Zealand	0.8 g/l	0.0 g/l for drivers under 20 years old and for repeating offenders (since 2011) (the limit was 0.3 g/l before 2011)
Norway	0.2 g/l	
Poland	0.2 g/l	-
Portugal	0.5g/l	-
Slovenia	0.5 g/l	-
Spain	0.5 g/l	0.3 g/l novice and professional drivers
Sweden	0.2 g/l	-
Switzerland	0.5 g/l	-
United Kingdom	0.8 g/l	-
United States	0.8 g/l	0.2 g/l for drivers < 21 0.4 g/l for professional drivers

Table 5. **Mandatory seat-belt wearing law and wearing rates in passenger cars 2010-2011**

	Front seats		Rear seats	
Country	**Y/N date of application**	**Wearing rate**	**Y/N date of application**	**Wearing rate (adults)**
Argentina	Yes, 1995	33% (average)	Yes, 1995	
Australia	Yes, 1970s	Around 95%	Yes	Around 90%
Austria	Yes, 1984	84% (driver) 81% (passengers)	Yes, 1990	66%
Belgium	Yes, 1975	86%	Yes, 1991	Unknown
Cambodia	Yes, 2007	48% (driver) 25% (passengers)	No	Unknown
Canada	Yes, 1976-1988	96%	Yes, 1976-1988	89%
Czech Republic	Yes, 1966	88% (2009)	Yes, 1965	51% (2009)
Denmark	Yes, 1970s	92% (driver)	Yes, 1980s	76%
Finland (2009)	Yes, 1975	Around 90%	Yes, 1987	
France	Yes, 1973	98%	Yes, 1990	85%
Germany	Yes, 1976	98% (driver)	Yes, 1984	97%
Greece	Yes, 1987	76% (driver), 2009	Yes, 2003	23% , 2009
Hungary	Yes, 1976	79% in 2009	Yes, 1993 (outside built up areas), 2001 (inside built up areas)	49% in 2009
Iceland	Yes		Yes	
Ireland	Yes, 1979	94%	Yes, 1979	90%
Israel	Yes, 1975	96% (driver) 91% (passengers)	Yes, 1995	68%
Italy	Yes, 1988	64%	Yes, 1994	10%
Japan	Yes, 1985	97% (driver) 92% (passengers)	Yes, 2008	33%
Korea	Yes, 1990	84% (driver) 72% (passengers)	Yes on motorways, since 2008	5%
Lithuania	Yes		Yes	
Malaysia	Yes, 1978	80% (driver) 70% (passengers)	Yes, 2009	10% (it was 40% in 2009)
Netherlands	Yes, 1975	97%	Yes, 1992	82%
New Zealand	Yes, 1972	95%	Yes, 1979	87%
Norway	Yes, 1975	91%	Yes, 1985	*No monitoring*
Poland	Yes, 1991	86%	Yes, 1991	65%
Portugal	Yes, 1978	*87% (2004)*	Yes, 1994	16% (2004)
Slovenia	Yes, 1977	92%	Yes, 1998	76%
Spain	Yes, 1974	83-95% (driver)	Yes, 1992	
Sweden	Yes, 1975	96.5% (driver) 95.7% (passengers)	Yes, 1986	81%
Switzerland	Yes, 1981	88% (driver) 89% (passengers)	Yes, 1994	79%
United Kingdom	Yes, 1983	96%	Yes, 1989 (children); 1991 (adults)	90%
United States	Primary law in 32 out of 50 states.	84%	Varies by State	74%

Figure 6. **Seat-belt wearing rate in front seats (2010 or 2011)**

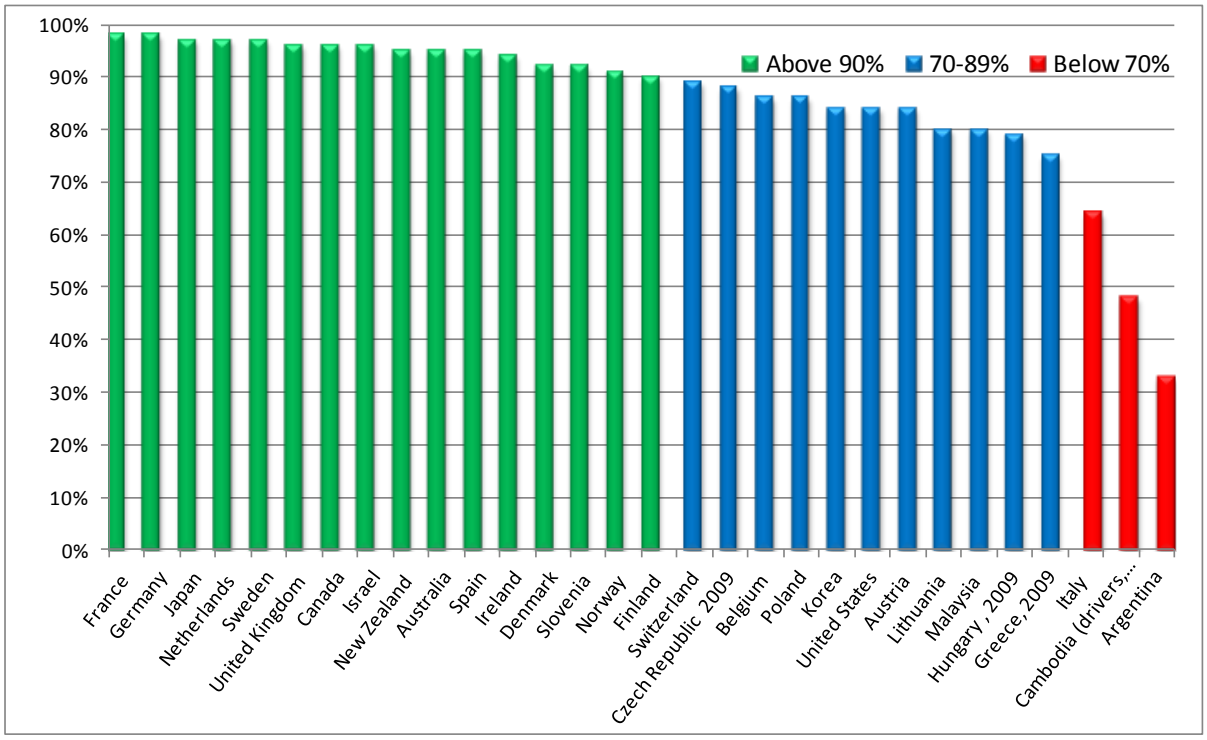
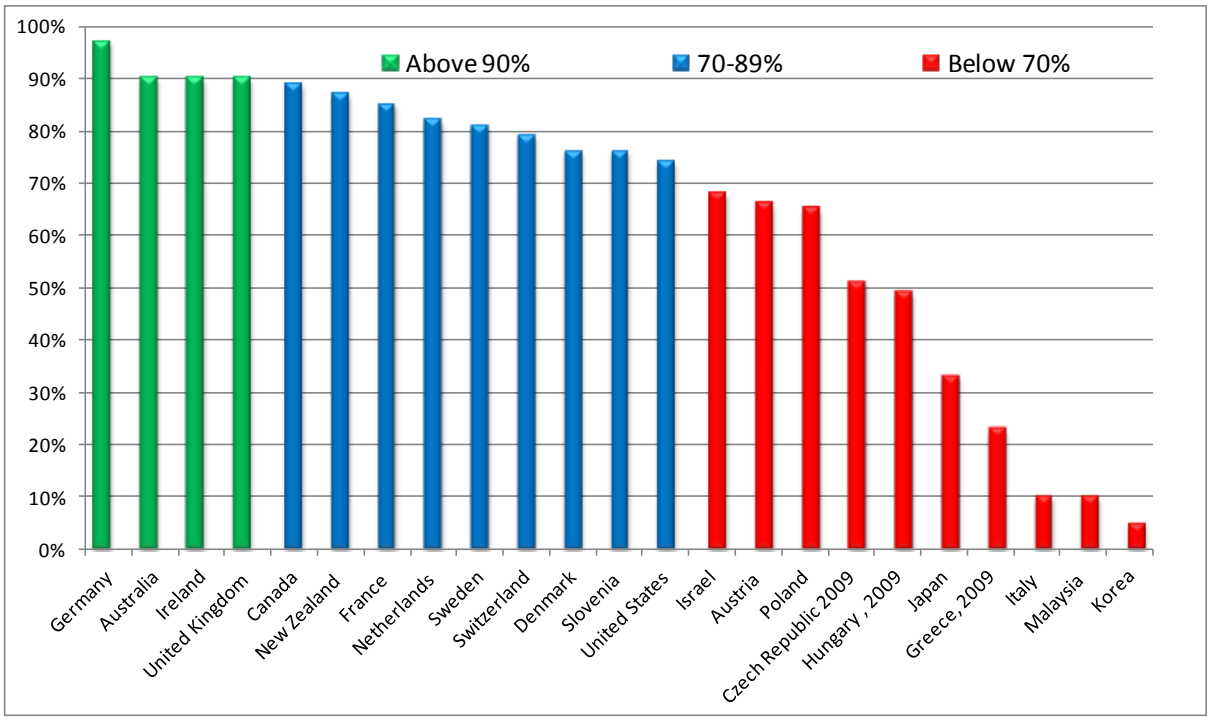


Figure 7. **Seat-belt wearing rate in rear seats (2010 or 2011)**



3.3. Current legislation on the use of mobile phones while driving

Table 6 summarizes the information from the country reports on the use of mobile phones while driving and the relevant legislation. Argentina, Sweden and Canada (some provinces) are the only countries which have not yet adopted legislation to prohibit the use of hand-held phones while driving.

Table 6. **Legislation regarding the use of mobile phones while driving**

Country	Law prohibiting the use of hand-held phones	Law prohibiting the use of hands-free phone	Estimated % of drivers using a mobile phone while driving
Argentina	Yes	No	-
Australia	Yes	In some jurisdictions, total ban of using a mobile phone for learners and novice drivers	Survey findings suggested that 60% of drivers have used a mobile phone while driving. In a 2009 Melbourne study, 5% of drivers stopped at traffic lights were observed to be using a mobile phone (3.4% hand-held).
Austria	Yes	No	78% of drivers admit using a phone while driving (2009)
Belgium	Yes	No	-
Cambodia	Yes	No	-
Canada	In most jurisdictions	No	In 2010, 3.3% of drivers were observed using cell phones while driving
Czech Republic	Yes	No	1.5 to 2% (in 2005-09)
Denmark	Yes (it also applies to cyclists)	No	
Finland	Yes	No. Drivers are advised not to drive while speaking.	
France	Yes	No	In 2010 it was estimated that at any time, 2.0% of car drivers and 3.9% of truck drivers were using a hand-held phone while driving.
Germany	Yes	No	
Greece	Yes	No. Hands-free phone not allowed when wired (e.g. with headphones)	According to a national survey of 2009, 9% of car drivers and 2% of PTW riders were observed using a mobile phone while driving
Hungary	Yes	No	
Ireland	Yes	No	In 2011, 3% of all drivers observed were using mobile phones when driving.
Israel	Yes	No	
Italy	Yes	No	2-3%

Country	Law prohibiting the use of hand-held phones	Law prohibiting the use of hands-free phone	Estimated % of drivers using a mobile phone while driving
Japan	Yes	No	In 2010, there were 817 injury crashes due to the use of mobile phones (including accidents involving cyclists), representing 0.1% of all injury accidents.
Korea	Yes		According to the Traffic Culture Index Survey 2011, 8.7% of drivers were observed using mobile phones while driving.
Lithuania	Yes	No	
Malaysia	Yes	No	
Netherlands	Yes	No	In 2008, about 50% of Dutch car drivers used a mobile phone while driving at least once a week. Around 30% of these drivers were reported to use a hand-held phone occasionally.
New Zealand	Yes	No	
Norway	Yes	No	
Poland	Yes	No	
Portugal	Yes	No	
Slovenia	Yes	Ban of using any mobile phone by learners	
Spain	Yes	No	In 2010, 3.1% of the driving population were observed using their hand-held mobile phone while driving.
Sweden	No	No	
Switzerland	Yes	In some cases, using a hands-free phone can be considered as impaired driving.	
United Kingdom	Yes	A driver can be prosecuted for using a hands-free phone or similar device if he/she is distracted and not in proper control of the vehicle.	
United States	Yes in 8 states	No	9% of drivers using some type of phone in a typical daylight moment in 2009.

4. UN Decade of Action: Road Safety Strategies in IRTAD Countries

DECADE OF ACTION FOR ROAD SAFETY 2011-2020

The Year 2011 was marked by the Launch on 11 May 2011 of the UN Decade of Action for Road Safety. For this occasion, the UN Secretary General, Mr. Ban Ki-moon, called on UN Member states, international agencies, civil society organisations, businesses and community leaders to ensure that the Decade leads to real improvement, and recommended governments to develop national action plans for 2011-2020. As a response, several countries released in 2011 their national road safety strategies for the Decade.

This section[1] summarizes the strategies and targets adopted by IRTAD countries for the Decade or refers to on-going policies. More detailed information can be found in the country reports.

Country/Strategy/Timeframe	Vision	Targets
Argentina National road safety strategy	Based on the UN Plan	-50% fatalities by 2014 Basis: Year 2009
Australia National road safety strategy 2011-2020	Safe System No-one should be killed or seriously injured on Australia's roads	-30% (at least) fatalities by 2020 -30% (at least) severely injured by 2020 Basis: Year 2010
Austria Austrian road safety programme 2011-2020	Safe system "become one of the five safest countries in Europe"	-50% fatalities by 2020 (basis average of 2008-10) -40% severely injured by 2020 (basis average of 2008-10) -20% injury crashes by 2020 (basis: average of 2008-10)
Belgium Recommendations for 20 priority measures 2011-2015	-	-50% fatalities in 2020 in comparison to 2020
Cambodia Second road safety action plan 2011-2020		Reduce by 50% the forecasted number of fatalities by 2020 Several sub-targets on helmet wearing rates, speed, drink-driving
Canada Road Safety Strategy 2015 (RSS)	"Rethink Road Safety" to make Canada's roads the safest in the world	No target

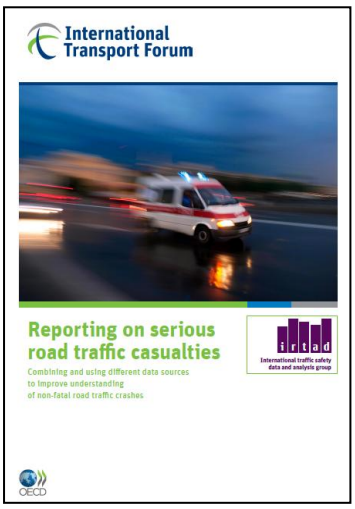
1. This information was compiled by Jacqueline Lacroix (DVR, Germany).

Country/Strategy/Timeframe	Vision	Targets
Czech Republic Strategic Road Safety Plan 2011-2020	Vision Zero	Reduce fatality rate to EU 27 average. No more than 360 fatalities in 2020 No more than 2 100 seriously injured in 2020. (This respectively corresponds to an annual decrease by 5.5% and 3.6%)
Denmark Road safety strategy 2001-2012	Every accident is too many; road safety starts with you. Based on Vision Zero	Less than 200 fatalities by 2012 (there were 250 fatalities in 2010)
European Union Road safety policy orientations 2011-2020	Towards Zero	-50% fatalities by 2020
Finland	Vision Zero	
France	No specific road safety programme	Less than 3 000 fatalities by the end of 2012.
Germany Road safety programme 2011-2020	-	-40% fatalities by 2020 (base year: 2010).
Great Britain Strategic framework for road safety 2011 – 2020 (2030)	To ensure that Britain remains a world leader on road safety.	No concrete targets, but estimates for 2030 based on 05-09 average ; 2020: -37% fatalities; -40% KSI[2] 2025: -39% fatalities; -47% KSI 2030: -41% fatalities; -55% KSI Low estimate: 2020: -46% fatalities; -50% KSI 2005: -51% fatalities; -60% KSI 2030: -57% fatalities; -70%KSI
Greece National strategic road safety plan 2011 – 2020	Developing a road safety culture	Adoption of the EU target: -50% fatalities by 2020 compared to 2010 level.
Hungary Road safety programme 2011-13		-50% fatalities by 2015 -50% injury accidents by 2015 Base year: 2001.
Iceland 2006 – 2016 Traffic Safety Plan		- Rate per 100 000 population should not be higher than in the best countries. - Average annual reduction in killed and seriously injured of 5%.
Ireland Road safety strategy 2007-12 *new strategy under development*	-	- No more than 6 fatalities/100 000 population by 2012 - -25% injured people - several sub-targets.
Israel		Less than 270 fatalities per year by 2015 New target (under consideration): less than 240 fatalities by 2020.
Italy Road safety plan 2001-10 *New plan under development*		
Japan 9th Traffic Safety Programme	Make Japan the safest country for road traffic	Less than 3 000 fatalities by 2015

2. KSI : killed and seriously injured.

Country/Strategy/Timeframe	Vision	Targets
Korea 7th National transport safety plan 2012-2016	Reach the average safety level of OECD countries	Less than 1.3 fatalities/10 000 vehicles by 2016 (rate in 2010: 2.64). (This represents a 40% reduction in fatalities compared to 2010 level (2010: 5 505 -> 2016: 3 000 fatalities)
Lithuania Road safety strategy 2011-17	To enter the top ten of safest European countries	Adoption of the EU target to reduce by 50% the number of fatalities between 2010 and 2020
Malaysia Road safety plan 2006 – 2010 *New plan is under preparation*		Updated target: Less than 2.39 fatalities / 10 000 vehicles in 2012 (rate in 2011: 3.4) New target under preparation.
Netherlands Road safety strategic plan from, for and by everyone 2008–2020	Sustainable safety	No more than 500 fatalities by 2020 No more than 10 600 serious road injuries (MAIS2+) by 2020
New Zealand Safer Journeys: Road safety strategy 2010-2020	Safe System A safe road system increasingly free of death and serious injury	No overall targets Several sub targets
Norway 2010-2019	Vision Zero	-33% people killed and seriously injured by 2019
Poland National road safety programme GAMBIT 2005-2007-2013	Zero fatalities on Polish roads	- 50% fatalities by 2013 Basis: year 2003
Portugal 2008-15	-	Less than 6.2 fatalities per 100 000 population by 2015 (the rate was 8.8 in 2010) Several sub targets
Slovenia National road safety programme 2012 – 2021 *In preparation*	Vision Zero no fatalities and no one seriously injured on Slovenian roads	-50% fatalities and seriously injured less than 3.5 killed / 100 000 population by 2020 (the rate was 6.7 in 2010)
Spain Road safety plan 2011 – 2020	Safe system/Vision Zero. Citizens have the right to a Safe Mobility System in which everyone, citizens and agents involved, have a responsibility	Less than 3.7 killed per 100 000 population (the rate was 5.4 in 2010). -25% seriously injured. Several targets for various performance indicators (seatbelt, speed, drink-driving, etc.)
Sweden *No safety plan in a traditional sense*	Vision Zero	-50% fatalities between 2007 and 2020 -25% severely injured between 2007 and 2020.
Switzerland Via Secura (under preparation)		
United States		Less than 1.05 fatalities per 100 million v-miles in 2012.

5. Reporting on Serious Road Traffic Casualties



In 2011, the IRTAD Group released a report on combining and using different data sources to improve understanding of non-fatal road traffic crashes.

To improve further road safety, it is necessary to have a better understanding of the real number of road traffic casualties, including serious injuries. This is made possible by linking different sources of accident data, including police and hospital data. This report, prepared by the IRTAD Group, reviews how serious injuries are defined in IRTAD countries and identifies and assesses methodologies for linking different sources of crash data.

This section presents the main conclusions and recommendations of this study.

One of the most important recommendations concerns the definition of a serious injury. The IRTAD Group proposes to define a "seriously injured road casualty'" as a person with injuries assessed at level 3 or more on the Maximum Abbreviated Injury Scale, i.e. "MAIS3+".

The IRTAD Group expects that this proposal will be examined by member countries and relevant international organisations. Data on MAIS will be progressively entered in the IRTAD database.

The full report is available for download on the IRTAD website:
http://internationaltransportforum.org/irtadpublic/pdf/Road-Casualties-Web.pdf

Conclusions and recommendations

1. For some purposes it is essential to know the true road casualty total; for example:

   - Understanding trends in collision rates and collision risk, especially when making international comparisons, since reporting practices vary from country to country.

   - Enabling road safety to be highlighted as a priority for action, and developing robust arguments for the adoption of interventions (OECD, 2008).

- Comparing road crashes with other major causes of death (such as other accidental deaths, HIV, malaria).

- When evaluating the cost of road casualties, in order to estimate medical costs, the burden of road accidents in terms of future disability, and the cost-benefit ratio for schemes to reduce casualties.

- Efficiently deploying these interventions across areas of higher risk and/or where the greatest potential improvement can be achieved, such as in different road-user groups, area types (urban/rural) or road types, etc.

Recommendation 1:

A complete picture of casualty totals from road crashes is needed to fully assess the consequences of road crashes and monitor progress.

2. Road traffic crash fatality data are now well established in IRTAD, and efforts are being made to extend coverage to other casualties, particularly the most serious. Two significant areas need to be addressed, to make progress in the collection of comparable data on non-fatal accidents from as many countries as possible:

- How to define "serious" accidents?

- How to allow for under-reporting to make the best possible estimate of the number of serious casualties, possibly by linking data from police and hospital sources?

Recommendation 2:

Injury information should complement information on fatal crashes to give a fuller picture of road crashes. Information on injuries should become more important for international comparisons.

3. The police do not collect information on all non-fatal accidents, partly because the legal requirement to report accidents to the police varies from country to country. Making better use of hospital road casualty data should therefore be encouraged. It is clear from research in a number of countries that many road traffic casualties are admitted to hospitals unbeknown to the police. On their own, hospital data are not a substitute for police data, as they are likely to include only minimal information on the circumstances of a crash. However, using hospital data in addition to police data can provide valuable information, including:

- Some basic information on casualties not normally reported to the police, such as age, gender and vehicle type.

- Better understanding of the total number of casualties.

- Better understanding of injury severity.

- In-depth understanding of the medical consequences of particular types of crash, if police and hospital records are linked.

Recommendation 3:

Police data should remain the main source for road crash statistics. However, because of under-reporting problems and possible bias (for example, with differing rates of reporting by vehicle type), police data should be complemented by hospital data, which are the next most useful source.

4. There are clear benefits, when studying road casualties, to using data on those admitted to hospital following a road traffic crash in order to supplement police data. However, it is difficult to control the quality and completeness of data that are collected for medical purposes and hospital administration, for the following reasons:

- Hospital practices change over time, according to the administrative needs of each hospital (for example, for billing patients or insurance companies, or claiming costs from elsewhere).
- Practices also vary between countries, according to data requirements set by central or state governments.
- Hospital practices may vary from place-to-place in the same country. In particular, practice may differ on whether casualties should be admitted to hospital for observation, especially if head injuries are suspected.
- Data may be collected mainly for financial purposes — with little requirement for fields indicating the origin of the crash — making it difficult to identify road casualties.
- Data systems may differ from hospital to hospital (and even within the different hospital departments), and data are rarely gathered into a national system.
- Inevitably, medical staff do not always treat data entry as a high priority.
- There may be ethical concerns about releasing confidential medical information. Again, different hospitals may have different policies in this area.

As with police data, some of these issues will be less significant with more serious casualties, especially variations in admission practices.

In addition to data on those admitted to hospital, some countries may have records on people who attend the "emergency room" only. These systems are less developed, but may have potential in future to provide more information.

Recommendation 4:

The data from hospital emergency departments, available in some countries, should be monitored regularly and researched to determine if they might shed more light on road casualties.

5. In many countries, the police are legally obliged to go to the scene of a crash where there is at least one injured person and one moving vehicle (motorised or not) involved. The police are then responsible for collecting information on the number of

casualties, assessing the severity of injuries, and the overall severity of the crash. In most countries, the police define the following levels of injury severity:

- Fatalities: when someone dies within 30 days after a traffic crash.
- Injured persons, usually split into two categories:
  - Seriously injured;
  - Slightly injured.

The information on crash severity, as reported by the police, is rarely checked later with medical records, except when the injured person dies in hospital. In that case, the information is sent from the hospital to the police, who can modify their report so that an injury crash becomes a fatal crash. This process is a source of potential underreporting of fatalities in the police data.

In many countries, hospitals maintain their own database of injuries. But systematic cross-reference to police databases is very rare. Hospital data are mainly used for medical purposes and are seldom used for official statistics on road safety.

Therefore, in most countries, official statistics on injury severity (with the exception of fatalities) are based only on the assessment of the police officer at the scene of the crash, or on the information transmitted to the police shortly after the crash.

Recommendation 5:

The assessment of the severity of injuries should be performed preferably by medical professionals, and not by the police officer at the scene of the crash.

6. There are no commonly agreed definitions on injury severity. Criteria used in the police records and official statistics to classify the severity of a crash vary from country to country and include:

- The length of hospitalisation: in many countries, a person seriously injured is a person hospitalised, other than for observation, for more than 24 hours.
- The type of injuries. In some countries, "seriously injured" is based on specific types of injury.
- The inability to work.
- The length of recovery.
- Long-term disability.

In most countries, hospitals do not define levels of injuries as such, but use the International Classification of Diseases (ICD9 or ICD10) — which is derived from the medical diagnosis — to describe the injuries.

In some countries, injury severity is defined based on indices such the Abbreviated Injury Scale (AIS), the Maximum Abbreviated Injury Scale (MAIS) and the Injury Severity Score (ISS), which can be derived from the International Classification of Diseases.

Recommendation 6:

Medical staff should be trained in order to systematically classify (road traffic) injuries using ICD International Classification of Diseases, and to assess severities with indices such as the Abbreviated Injury Scale (AIS) or the Maximum Abbreviated Injury (MAIS). This information — without personal information — should be made easily available for statistical purposes, policymaking and research.

7. Although, for all countries, police records are the primary source of data on road accidents, and many countries also make use of hospital data, there are a number of other sources used for road safety throughout the world. There are also considerable differences in the types of data collected, their quality and the extent to which they are used to evaluate effective counter-measures to improve road safety in the respective countries. The other sources discussed include:

- Mortality registers;
- Forensic agencies;
- Emergency ambulance services;
- Fire services;
- Surveys;
- Insurance-related records; and
- In-depth studies, such as crash investigations.

Police data provide detailed information about crash circumstances, location and vehicles involved, which contribute to the development of road safety policies, but they are not complete or perfect sources. It is therefore desirable to use complementary sources to build a balanced and comprehensive picture of the nature and extent of road accidents. Other datasets can be useful, both as a check on the quality and completeness of police data, and in providing information which is not collected by the police — for example, relating to more detailed medical consequences of road accidents.

The other sources mentioned above can provide additional information about the numbers of road crash casualties, but generally do not provide the detailed information about the circumstances or causes of the crash available from the police data. Their value is therefore limited in developing preventative measures to improve road safety. In addition, there may be issues about quality and availability of data – often there is no national database, with information being available only at local level.

Recommendation 7:

Besides police data and hospital data, other data sources are available. These have a limited value on their own, and cannot replace police or hospital data, but can be used to build a more balanced and comprehensive picture, to enrich the main data sources, and as a quality check.

8. Due to the limitations of individual databases, it has become increasingly common to link databases from different sources in order to improve road safety research to support road safety policies.

9. There are three main methods to link two databases, such as police and hospital databases: *manual, deterministic and probabilistic. Manual* linkage visually determines the possible matching of each record in one database with all records in another database. Several methods of computer-assisted linking have been developed. In a *deterministic* approach, the easiest way is to link records using one or more unique personal identifiers. This approach is also referred to as "rules-based". It is based on the existence of a unique identifier — or combination of variables — common to both databases being linked. In essence, the *probabilistic* linkage process consists of matching two or more records that come from different data sources and are believed to belong to the same individual. It is based on two probabilities: the probability of matching, given that both records belong to the same individual, and the probability of matching by chance.

Recommendation 8:

For linking data, the deterministic method is preferred if a unique personal identifier is available; otherwise the probabilistic method is a good alternative.

10. Where two or more databases of road casualties exist, such as police and hospital records, it is possible to estimate the number of subjects missed by both registrations, and hence estimate the total number of subjects of interest, by using the capture-recapture approach — providing a number of assumptions are satisfied.

The capture-recapture approach is based on six assumptions:

- Closed population;
- Perfect identification of subjects common to both registrations;
- Independence between the registrations;
- Homogeneity of capture by a given registration;
- Same geographical area and same time period;
- Perfect identification of the subjects of interest.

In practice, it is difficult to meet these assumptions fully, but two procedures will help. Firstly, the capture-recapture method relies on a perfect record-linkage between the two or more sources of registration. This is, of course, difficult to achieve. The capture-recapture estimate is very sensitive to the output of the record-linkage, so there should be formal checking of its quality.

Secondly, it is helpful to stratify on the characteristics that are associated with police under-reporting. If there is no country-specific information on the characteristics associated with police under-reporting, one can consider that injury severity, road user type, and whether the crash was a single-vehicle or multi-vehicle crash, are important stratification characteristics.

Recommendation 9:

The six assumptions needed to use the capture-recapture method must be considered carefully. Using this method combined with linking police and hospital data, may be appropriate to give a fuller picture of road casualties.

11. This report reviews the choice of a medically-based definition of a "serious" injury. The objective is to identify a definition of a serious non-fatal injury suitable for monitoring trends within individual countries, and comparing rates and trends between countries.

12. Length of stay in hospital is currently the indicator most often used in IRTAD countries. However, it presents a number of drawbacks, including the fact that it does not necessarily reflect the severity of injuries. Given the diversity of hospital admission practices, therefore, it is not appropriate for international comparisons.

Recommendation 10:

Having an internationally agreed definition of "serious" injuries will assist the safety research community to better understand the consequences of road crashes and to monitor progress.

Given the existing knowledge and practices, IRTAD proposes to define a "seriously injured road casualty" as a person with injuries assessed at level 3 or more on the Maximum Abbreviated Injury Scale i.e. "MAIS3+"

6. Expanding the IRTAD Network

Twinning projects

As part of its programme of work and mission, the IRTAD Group has engaged in a strategy to assist low- and middle-income countries to set up or improve safety data collection and analysis systems. This programme is based on twinning arrangements between an existing IRTAD member and an organization from a "new" country. The content of the programme is tailor-made to the specific needs of each country, and includes:

- Visits of experts from the IRTAD country to review and audit of existing crash data systems.
- Visits of experts from the new countries to the country of their IRTAD partner for training sessions.
- Formulation of recommendation for data collection and analysis improvement and further training.
- Participation in IRTAD meetings.

The ultimate objective of these programmes is to include low and middle income countries as full, long term members of the IRTAD Group, thus contributing to international discussion on developments in road safety as well as to the development of the IRTAD database.

These co-operation programmes are financed through:

- The World Bank Global Road Safety Facility, with which a Memorandum of Understanding was signed in 2008;
- Other voluntary contributions, including the FIA Foundation.

Two twinning projects were pursued in 2011 Argentina and Cambodia, and a scoping study for a possible new twinning between Cameroon and IFSTTAR (France) was undertaken.

Twinning project between Cambodia and the Netherlands

A Memorandum of Understanding was signed in May 2010 with the National Road Safety Committee of Cambodia, Handicap International Belgium, SWOV and Road Safety for All[1] for a twinning programme between Cambodia and the Netherlands, to improve and develop further the current crash data system (RCVIS) as a tool to assist road safety policy making.

The project includes the following elements:

- Review and audit of the Cambodian crash data reporting system and advice for future development
- Establishing a pilot linking project between police and hospital databases to better assess the real number of casualties and possibly create a combined database between police and hospital data.
- Advice on the development of safety targets and performance indicators to monitor progress of the road safety strategy 2011-2020.
- Training sessions on data analysis to support decision making, including the development and monitoring of performance indicators.

As part of the twinning, three workshops were organized in 2011 by the Dutch partner in Cambodia. These were tailor-made to the specific needs and questions of the National Road Safety Committee.

Workshop on Safety Performance Indicators, February 2011

The Workshop focused on indicators that would be appropriate in Cambodia to monitor progress with helmet wearing, drink-driving and speeding.

Workshop on Sustainable Road Safety Infrastructure in Cambodia, October 2011

The aim was to present and discuss the principles of Sustainable Road Safety and how, in practical terms, they can be implemented in Cambodia. The workshop led to the establishment of a "Safe Road Technical Working Group" in charge of developing a work plan for sustainable road safety infrastructure.

1. Road Safety for All, is an NGO based in the Netherlands, with the goal to improve road safety in low and median income countries (LMIC´s) through development and transfer of knowledge. See: www.roadsafetyforall.org

Working on Financial Mechanisms, October 2011

The Workshop presented examples from developed and developing countries on road safety funding. The main conclusions from the workshop in the Cambodian context were:

- Embed road safety investment into the overall road construction budget;
- Use cost benefit analysis to build the case for road safety investment and justify the allocation of more fund to the national road safety committee.

Visit to SWOV of a Cambodian Delegation and participation in the IRTAD meetings

A Cambodian delegation participated in the two IRTAD bi annual meetings to share their experience with the twinning project, report on recent developments in Cambodia, learn about developments in IRTAD countries and about research work of the Group on linking poice and hospital data.

The Cambodian Delegation also reviewed with SWOV the data linkage software, and data to be integrated into the IRTAD database.

Next steps in 2011-12 include:

- Assistance with developing the national safety plan.
- Finalisation of the software to link police and hospital databases and implementation of the linking process.
- Following-up the establishment of the safe road technical working group and implementation of the strategic plan for Sustainable Safe Roads (training, developing guidelines, demonstration projects);
- Discussion on first result of the monitoring on speed, drink-driving, and helmet wearing rates.

Twinning project between Argentina and Spain

In April 2010, the first twinning programme between Spain (Dirección General del Trafico of Spain) and The Argentinean Road Safety Agency (ANSV) was launched.

Ms. Corina Puppo (Director of the National Road Safety Observatory of ANSV) has attended all the IRTAD annual meetings since 2010, to share the experience of the new organization and to report on the rapid progress that has been made.

The Spanish Traffic General Direction (DGT), through their Observatory Direction, has given continued support in achieving the goals determined at the beginning of the twinning programme, as well as providing technical support on the following topics:

- The development and implementation of the unique data collection form ("Orange Form").

The assistance of the DGT Team has been invaluable in developing a standardised police form, as well as implementing the software to manage the information collected. By the end of 2011, the National Road Safety Observatory had already trained more than 4 500 policemen on the use of the unique data collection form (Orange Form). This document has already been adopted in more than half of the provinces in Argentina, and our goal for 2012 is to introduce it in the rest of the provinces.

- Design, development and implementation of the software to manage the information collected.
- Development of the Statistical Indicators Manual, which introduces the main indicators as: injury crashes; injury crashes for 100 000 inhabitants; injury crashes for 100 registered vehicles; injury victims; fatalities; fatalities per 100 000 inhabitants; and fatalities per 100 000 registered vehicles.
- During 2011, a Road Safety Behaviour Field Study was launched (the First Observational National Survey), to obtain information about Argentineans' behaviour and the variables associated in relation to: seatbelt use; child restraint systems; helmet use; cell phone use while driving; daytime running lights use; and other distractive factors. This study is planned to be repeated on an annual basis.
- Development of new methodology to adjust mortality rates.

Further steps in 2012 will include:

- Linking the Observatory database with other databases in the Health Ministry and national insurance agency, for example.
- Improving the registration system, and replacing the paper form currently used by the police with a digital form for use on a personal digital assistant (PDA).
- Developing local and regional performance indicators and statistics.
- Launching of a new Road Safety Studies, focusing on speeding and child restraint systems.
- Development and implementation of a Control Panel similar to the one being used at the DGT.

Possible future projects:

A delegation of French experts from IFSTTAR visited Cameroon in October 2011 to undertake a scoping study, financed by the World Bank, to analyse the current crash data system and define the content of a possible twinning project.

The Ibero American Road Safety Observatory

The successful twinning programme between Spain and Argentina, financed by the World Bank, contributed to the desire for a broader cooperation regarding road safety in countries from Latin America and the Caribbean region.

Following the 9th and 10th Ibero-American Encounters of Heads of Road Safety and Traffic Agencies (held in May 2010 in Montevideo (Uruguay), and in May 2011 in Mexico city), 18 countries agreed to create the Ibero-American Road Safety Observatory (IRSO — OISEVI in Spanish). This Observatory will be a place of knowledge, supporting the cooperation in road safety actions between Ibero-American countries. The IRSO's main objective is to share relevant information about road safety indicators and best practices concerning policy-making, planning and other topics related to road safety.

In its first phase, the IRSO Website will include the following sections:

- Annual Meetings of Responsibles for Traffic and Road Safety.
- Ibero-American Drivers' License Letter.
- Authority/Lead Agency Policies.
- Information System: data and statistic on road safety.
- Planning and Strategies.
- Legislation.

The cornerstone of IRSO is the Information System, which will include a road safety database in countries from Latin America and the Caribbean region (the "IRTAD-LAC Database").

The Argentinean Road Safety Agency, the National Council for Injury Prevention of Mexico, and the General Trafic Directorate of Spain were appointed to foster the project and expressed their willingness to cooperate with IRTAD in the creation of a regional IRTAD database.

A letter of intent was signed at the end of 2011 to formalise the agreement to set up a regional safety database, based on the IRTAD model. This activity benefits from a grant from the World Bank Global Road Safety Fund. The collection of data will start in 2012. This new database will be a valuable tool in promoting and improving road safety in Latin America.

Front (from left to right):

Arturo Cervantes (Mexico), Pere Navarro (Spain), Felipe Rodriguez Laguens (Argentina)

Back (from left to right): Pablo Rojas (Argentina), Anna Ferrer (Spain), Véronique Feypell (ITF/OECD), Veronica Raffo (World Bank), Luisa Solchaga (Mexican Delegation to the OECD), Pilar Zori (Spain), Stephen Perkins (ITF/OECD)

OECD, Headquarters, Paris, 18 November 2011

7. Country Reports

ARGENTINA[1]

- Capital : Buenos Aires
- 40.7 million inhabitants
- 439 vehicles / 1 000 inhabitants
- 5 094 road fatalities in 2010
- 12.6 deaths /100 000 inhabitants

Argentina joined the IRTAD Group in 2010. It benefits from a twinning programme with the General Traffic Directorate of Spain to review and audit its crash data collection and analysis system. Most of the data are available from 1995 onwards. These data have not yet been validated by IRTAD.

1. Short term trends

General comments and trends for 2010

In 2010, there was a 2.9% decrease in the number of road crashes, a 2.4% decrease in the number of road fatalities and a 17.9% decrease in the number of persons seriously injured.

There are several hypotheses for these reductions:

- Better data collection on injuries;
- A general reduction in speeds, due to increased controls and congestion on the main city access routes;
- Increased seat-belt and helmet use, especially on non-urban roads.

Provisional data for 2011

During the 1st semester of 2011, there was a 12% rise in the number of road crashes, in comparison to the same period in 2010, but a 5.3% drop in the number of fatalities.

1. Source: Agencia Nacional de Seguridad Vial (ANSV).

2. Long term trends

Change in the number of fatalities and injury crashes

National data for the whole country before 2008 were reconstructed with the collaboration of the Ministry of Health. Whereas data on fatalities are available from 2005 onward, data on injuries is only available as from 2008.

The data presented in Table 1 are different from those included in the 2010 edition of the IRTAD Annual Report, as a new statistical methodology, established in 2011, takes into account international standards (IRTAD - OMS).

In 2009, the measures implemented by the National Road Safety Agency started to reverse the upward trend in the number of deaths from road accidents, even though the car and motorcycle fleets had grown continuously since 2007.

Motorisation is growing very fast in Argentina. The car fleet rose by 821 559 units in 2011, i.e. a 24% increase in new vehicles compared to 2010. The motorcycle fleet grew by 541 017 units, i.e. by 14% compared to 2010.

Risk and rates

In 2010, the fatality rate, expressed in the number of fatalities per 100 000 of the population, was 12.6.

Table 1. **Reported road fatalities, injury crashes and rates 2005-2010**

	2005	2006	2007	2008	2009	2010	2010% change over	
							2009	*2005*
Fatalities	4 391	4 995	5 428	5 759	5 219	5 094	-2.4%	+16%
Deaths/100 000 pop.	11.4	12.8	13.8	14.5	13.0	12.6	-3.3%	+10%
Deaths / 10 000 vehicles	3.43	3.75	3.76	3.72	3.18	2.88	-9.4%	-16%
Motorisation (motorised vehicles/ 1 000 pop.)	332	342	367	390	411	439	6.8%	+32%

3. National road safety strategies and targets

Road safety is gaining importance on the political agenda. In April 2008, the National Congress unanimously approved the creation of the National Road Safety Agency (ANSV), with the mission to reduce road accident rates throughout the national territory. It was created within the scope of the Ministry of the Interior, as a decentralised entity

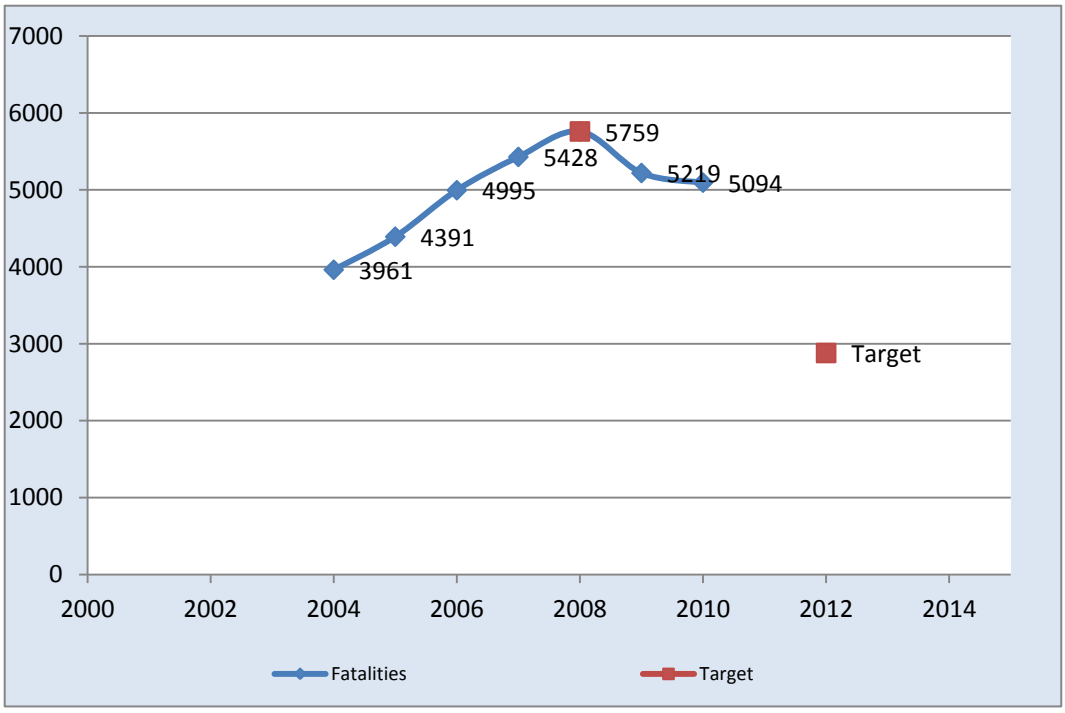
with economic independence and the legal capacity to act in the public and private spheres. It is funded through a 1% allocation from all vehicle insurance fees collected.

The same law created the National Road Safety Observatory. It investigates, evaluates and provides recommendations on road safety measures to be implemented by decision-makers.

In April 2010, the World Bank approved a two-phased loan of USD 50 million for the institutional strengthening of the ANSV, including a significant component to support the Observatory.

In 2008, President Cristina Fernandez de Kirchner set the objective to reduce the number of road traffic fatalities by 50% in five years, taking 2009 as the base year.

Figure 1. **Trends towards national target**



* 2006 and 2007 data are from the records of the Health Ministry.

Road safety strategy for 2011-2020

The National Government set the main objective of a reduction in the number of road traffic fatalities by 50% in five years, taking 2009 as the base year.

Specific targets for 2014 and 2020 are being developed following the pillars of the Decade of Action Plan.

Argentina's Road Safety Plan is based on the pillars recommended by the UN Road Safety Plan for the Decade of Action for Road Safety.

4. Recent safety measures (2010-11)

Measures implemented in 2010–11 reflect the main pillars recommended by the UN Road Safety Plan.

Pillar 1: Road safety management

Activity 1:

- Creation of the National Road Safety Agency and the National Road Safety Observatory in 2008.
- 23 of 24 provinces adhered to the law.
- Establishment of co-ordination groups, such as an Advisory Committee and the Federal Road Safety Council. A Scientific Committee was created by an executive resolution.

Activity 2: Develop a national strategy (at cabinet or ministerial level) co-ordinated by the lead agency:

- A National Road Safety Strategy has been developed for the 2010-2014 period and validated by the Education Ministry, the Security Ministry, the Transportation Secretary and the Road Safety Federal Council.
- This Strategic Plan is designed to ensure accountability to Congress by Cabinet Ministers and by periodic audits.
- In May 2011, Argentina, through the National Road Safety Agency, adhered to the objectives and purposes of the "Decade of Action for Road Safety", established by the UN through Resolution A/63/255.
- The National Road Safety Agency designed and developed annual operational plans with specific goals.
- The National Road Safety Observatory established and maintains a new data collection system for road accidents (Orange Form), and specific surveys to provide baseline data and monitor progress in reducing road traffic injuries and fatalities and other important indicators.
- The National Road Safety Agency was given legal financial autonomy as from its creation (1% of all collected vehicle insurance fees).
- The ANSV also counts on the IBRD Financing Project, which intends to reduce road traffic crashes along the targeted corridors in Argentina's road network,

through improving the institutional framework and capacity for road safety performance management.

- In 2010, the Argentine Road Safety statistical form (Orange Form) was implemented, and specific software developed. A tract system to determine speeding, a National Traffic Ticketing Administration system and national records for road behaviour are being implemented, all for on-going monitoring and evaluation, including a number of process and outcome measures.

- The 1st National Observational Survey was implemented and focussed on seat-belt usage, lights, helmet usage, factors of distraction (cell phone, DVD players, smoking, eating, drinking, etc.).

Pillar 2: Safer roads and mobility

Many of the activities of this pillar are being developed by the National Road Directorate (Dirección Nacional de Vialidad). Special software was developed to undertake a risk-level survey of Argentina's roads. In 2011, 26 852 km of roads were surveyed. This on-site survey is conducted by technical teams, each composed of three experts.

Pillar 3: Safer vehicles. Main activities implemented:

- The ANSV, through the Observatory, participated in the World Forum for Harmonization of Vehicle Regulations (WP 29) in October 2010.Three agreements were reached up to 2011 with car manufacturers and importers to implement European standards in new vehicles sold in Argentina. They concern the following equipment:

- Anti-lock braking system, airbag, head restraints on seats next to doors;

- Visual and audible seat-belt wearing warning, automatic lighting, central seat head restraint;

- Frontal impact test, rear impact test. Child restraint system. Regarding the latter equipment, as from 1 January 2013, all car models should be equipped with a rigid anchoring system or with a 3-point seat belt in all rear seats next to doors. As of 1 January 2018, all car models should incorporate a rigid anchoring system.

Equipment of motorcycles

An agreement was reached in 2011 with motorcycle manufacturers and importers to implement European standards for new vehicles sold in Argentina. It concerns the following configuration:

- Automatic lights on motorcycles.

The Argentinean Road Safety Agency has developed research studies designed to reduce the risks to vulnerable road users.

Through the 1716/08 National Disposition, the National Government encouraged managers of government and private-sector fleets to purchase, operate and maintain vehicles that offer advanced safety technologies and high levels of occupant protection.

Pillar 4: Safer road users

Develop comprehensive programmes to improve road user behaviour. Sustained or increased enforcement of laws and standards, combined with public awareness/education to increase seat-belt and helmet-wearing rates, and to reduce drink-driving, speed and other risk factors.

- In 2011, 19 out of the 24 Argentinean provinces adopted a new national driving licence system. The national licensing system is a centralised process for enabling the provision of documentation to drive. This mechanism allows criminal background checks, traffic violation checks, judicial disqualifications and the scoring of the person seeking the licence.

- The licence, as a document, includes technology that prevents counterfeiting and facilitates control with electronic devices.

- The Argentinean road safety agency developed educational kits which were diffused to 6 million children and students and 350 000 teachers.

The Argentinean Road Safety Agency developed a number of Road Safety Campaigns which aim to promote safe road use. The campaigns were launched at a high-profile media event, complemented by extensive advertising, concerning the use of safety features.

They concerned the following concepts:

- *No Me Mates* – (don't kill me)
- *Taller Itinerante* - (travelling workshop)
- *Conductor Responsible* – (responsible driver)
- *Si Se Puede Evitar No Es Un Accidente* – (if you can avoid it, it is not an accident).

The following plans were launched:

- National Speeding Plan
- Alcohol - Drinking and Driving
- Helmet use
- Seat-belt use.

Pillar 5: Post-crash response

Increase responsiveness to post-crash emergencies and improve the ability of health and other systems to provide appropriate emergency treatment and longer-term rehabilitation for crash victims.

The following measures have been implemented:

- A regional emergency network has been developed by the Health Ministry, with a unique emergency medical number;
- In conjunction with the Health Emergencies National Directorate, training in emergency care during the initial assessment of trauma patients;
- Training and technical strengthening of vehicles' incident response on public roads, with integrated drills to co-ordinate rescue efforts, removal and medical care;
- Development of a data collection structure to provide information useful to decision-makers;

- Compliance with Law No. 22.431 on disability;
- Simulation with rescue services, the police, fire departments, local governments, etc. to test local, provincial and national contingency plans.

5. Crash trends

Road users

The safety of motorcyclists is a major concern in Argentina. Between 2008 and 2010, the number of crashes involving motorcyclists increased by 44.5%, while during the same period the total number of crashes decreased by 11.4%.

Table 2 illustrates the share of road crashes by type of vehicle.

Table 2. **Breakdown of road crashes by type of vehicle 2007, 2008, 2009, 2010**

Vehicle type	2007	2008	2009	2010
Car	44.23%	55.71%	52.49%	51.47%
Motorcycle / Moped	15.65%	11.79%	15.00%	17.04%
Utility pick-up	14.14%	15.24%	14.44%	15.73%
Taxis	2.74%	2.26%	3.48%	3.26%
Human powered	2.88%	1.66%	1.64%	2.90%
Road Public Transport	3.34%	2.89%	3.21%	2.86%
Truck	3.82%	3.88%	3.21%	2.71%
Other	1.19%	2.99%	4.11%	1.59%
Official Vehicles	0.37%	0.38%	0.35%	0.52%
Truck Trailer	0.45%	0.88%	0.54%	0.52%
ATV	0.61%	1.45%	0.53%	0.51%
Unknown	0.03%	0.45%	0.56%	0.40%
Ambulance	0.09%	0.05%	0.12%	0.13%
Animal traction	0.13%	0.11%	0.14%	0.12%
Tractor	0.09%	0.07%	0.08%	0.11%
Tractor trailer	0.11%	0.04%	0.06%	0.06%
Agricultural vehicles	0.11%	0.13%	0.04%	0.05%
Funeral Service	0.01%	0.01%	0.00%	0.02%

Age

In Argentina, the age groups between 15 and 34 years old have the highest risk of accidents. Table 3 below shows the number of fatalities by age group.

Table 3. **Reported fatalities by age group**
2008, 2009, 2010

Fatalities by age	2008	2009	2010	Diff. % 2010-2009
0-14	**634**	**400**	**385**	**-3.8%**
15-24	1 457	1 125	1 204	7.0%
25-34	1 092	1 093	1 321	20.9%
35-44	761	802	772	-3.8%
45-54	650	648	510	-21.3%
55-64	541	529	409	-22.7%
65 years +	624	622	491	-21.1%
Unknown	n/a	n/a	2	
Total	5 759	5 219	5 094	*-2.4%*

Road type

90% of road crashes occur in urban and suburban areas, accounting for 85% of injured persons and 53% of fatalities. Non-urban areas account for 9.3% of road crashes but 47% of fatalities.

The safety of pedestrians, cyclists and motorcyclists in urban areas remains a major challenge.

6. Recent trends in road user behaviour

Impaired driving

A maximum BAC level was introduced in February 1995: 0.5 g/l for all road user categories, except professional drivers (buses, taxis, trucks), for which the limit is 0.

The police conduct random roadside breath-tests. Action against drink-driving during 2010 resulted in a 30% decrease in the number of drivers with a BAC above the limit.

Speed management

The table below summarizes the main speed limits in Argentina.

Table 4. **General speed limits in Argentina**

	Cars	Trucks	Buses
Urban areas	40-60 km/h	40-60 km/h	40-60 km/h
Rural roads	110 km/h	80 km/h	90 km/h
National roads	110 km/h	80 km/h	90 km/h
Motorways	130 km/h	80 km/h	90 km/h

Speed surveys were first implemented in 2011. The main conclusions are:

- The proportion of heavy vehicles travelling above the speed limit was 26%.
- The proportion of light vehicles above the speed limit was 2%. However, the tendency to respect the braking distance is inversely proportional during the hours of heavy traffic.

Seat belts and helmets

Seat-belt wearing is compulsory in front and rear seats since February 1995. Dedicated child restraint systems are mandatory for children under 4 years old.

All riders of two-wheeled motor vehicles are required to wear helmets. There is no mandatory law on helmet use for cyclists.

Direct observation surveys to assess wearing rates were conducted for the first time in 2011. Their results are reported in Table 5.

Table 5. **Seat-belt and helmet use, 2011**

	2011
Seat-belt wearing rate (national average)	33.3%
Child restraint system (national average)	26.2%
Helmet use for PTW	39.4%

Distracted driving

National legislation is in force to restrict the use of mobile phones, RF devices, DVD players and other similar devices while driving.

7. Useful websites and references

National Road Safety Agency (ANSV)	http://www.seguridadvial.gov.ar
Road Safety Observatory	http://observatoriovial.seguridadvial.gov.ar

AUSTRALIA[1]

- Capital : Canberra
- 22.3 million inhabitants
- 719 vehicles/1 000 inhabitants
- 1 352 road fatalities in 2010
- 6.1 deaths/100 000 inhabitants

1. Short term trends

General comments and trends for 2010

Road deaths in Australia decreased by 9.1% in 2010 compared with 2009. This decrease followed a small increase in 2009 (3.6%) and another large decrease in 2008 (-10.4%). This was preceded by several years when there was little change in the number of deaths (between 2003 and 2007). The number of deaths in 2010 was the lowest annual total since 1948.

The overall fatality reduction in 2010 could be largely accounted for by reductions in two of Australia's biggest states: Queensland (-24.8%) and New South Wales (-10.6%). It was also notable that the number of motorcyclist deaths in 2010 was the same as for 2009, suggesting stabilization in rider fatalities after several years of increase.

Total vehicle-kilometres travelled in 2010 showed a small increase (less than 1%) compared with the previous two years.

Provisional data for 2011

Provisional data for 2011 show a continuing downward trend in fatal road crashes, with total deaths down by 4.4% compared with 2010.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 64%, while the number of vehicles and the distance travelled was multiplied by three.

Over the last decade, national annual fatalities decreased by 26%, fatalities per population decreased by 36%, and counts of fatal crashes decreased by 24%. The decline was weaker during the middle of the decade but has accelerated significantly over the last three years.

1. *Source:* IRTAD, Department of Infrastructure and Transport.

The 17–25 age-group has the largest rate of fatalities per population. It accounts for 13% of the population but 25% of deaths. Over the decade, however, the rate for this group has declined faster than the total.

Across jurisdictions, the rate of deaths per population and the trends over the last decade were quite varied. In 2010, the three largest jurisdictions achieved rates of 5.2 to 5.6 deaths per 100 000 people and, as with raw death counts, all jurisdictions (apart from the Australian Capital Territory) saw rates fall significantly after 2007.

All types of fatal crashes are decreasing. Single-vehicle crashes (no pedestrians involved) currently account for 43% of total deaths. Ten years ago the proportion was 40%.

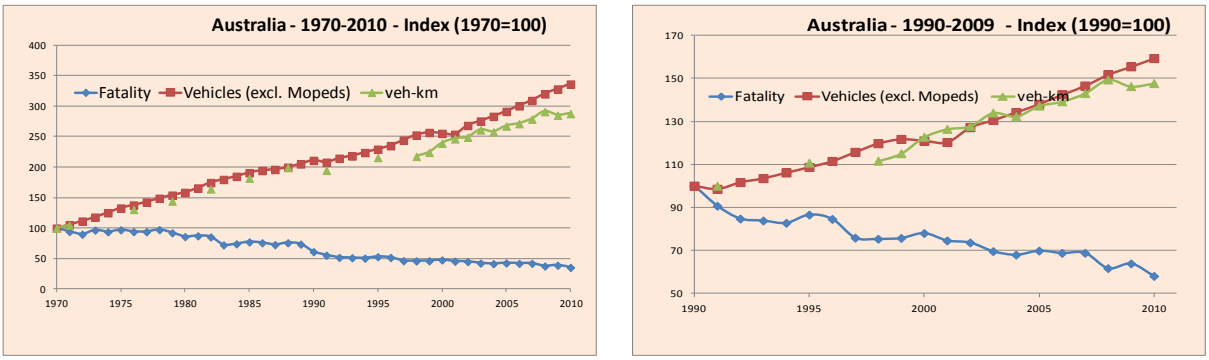
Risk and rates

In the last 40 years, the mortality rate (in terms of deaths per 100 000 population) decreased by 80% and fatality risk (in terms of deaths per billion vehicle-kilometres) declined by 88%.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	3 798	3 272	2 331	1 817	1 488	1 352	-9.1%	-26%	-64%
Rates									
Deaths/ 100 000 population	30.4	22.3	13.70	9.5	6.8	6.1	-10.7%	-36%	-80%
Deaths/10 000 registered vehicles	8.0		2.31	1.47	0.95	0.84	-11.4%	-43%	-90%
Deaths/billion veh-km	49.3	28.2	14.37	9.27	6.77	6.09	-10.1%	-34%	-88%
Motorised vehicles/1 000 population	382		591	646	714	719	0.7%	11%	88%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at about AUD 27 billion per year (in 2006), or 2.6% of GDP.

Costs ($AUS billion)	2006
Fatalities	9.9
Injury and disability	10.3
Property damage and other costs	6.9
Total	**27.1**
% of GDP	**2.6%**

3. National road safety strategies and targets

National road safety strategy 2001-2010

In November 2000, Australia's Transport Ministers endorsed the National Road Safety Strategy 2001–2010. The strategy provided a framework for prioritising the road safety activities of federal, state, territorial and local governments, as well as other organisations that could influence road safety outcomes. Its target was to reduce the annual road fatality rate by at least 40% over the 10-year period to the end of 2010: from 9.3 deaths to no more than 5.6 deaths per 100 000 of the population.

Despite significant gains over the decade, the 40% reduction target was not reached. By the end of 2010 an actual reduction of 34% had been achieved and the fatality rate stood at 6.1 deaths per 100 000 population — some way short of the 5.6 target.

Road safety strategy for 2011-2020

The ***National Road Safety Strategy 2011–2020*** was approved and released by the Australian Transport Council on 20 May 2011. The strategy represents the commitment of Australia's nine federal, state and territorial governments to an agreed set of national road safety goals, objectives and actions. The strategy is firmly based on Safe System principles and is framed by the guiding vision that no person should be killed or seriously injured on Australia's roads.

As a step towards this long-term vision, the strategy presents a 10-year plan to reduce the annual numbers of both deaths and serious injuries on Australian roads by at least 30% by 2020.

Some of the major strategic challenges for Australian road safety are to:

- Reduce the number of serious casualty crashes involving the three major crash types: single vehicle run-off-road, intersection and head-on crashes;
- Reduce the number of crashes involving heavy vehicles;
- Reduce the number of serious casualties among pedestrians and cyclists;

- Reduce the number of serious casualty motorcycle crashes;
- Protect young road users, particularly novice drivers;
- Reduce poor road-user behaviour and the consequences of such behaviour, in particular:
  - drink/driving (28% of fatally injured drivers are over the legal limit);
  - failing to wear seat-belts (28% of vehicle occupant fatalities are unbelted);
  - illegal and inappropriate speed (a major causal factor in 34% of deaths);
- Develop interventions that respond to the different needs and circumstances of urban, regional and remote Australia;
- Reduce serious casualties on roads controlled by local government. Local roads account for more than 50% of serious casualties in some states;
- Reduce the incidence of serious casualties within indigenous communities and among other disadvantaged people.

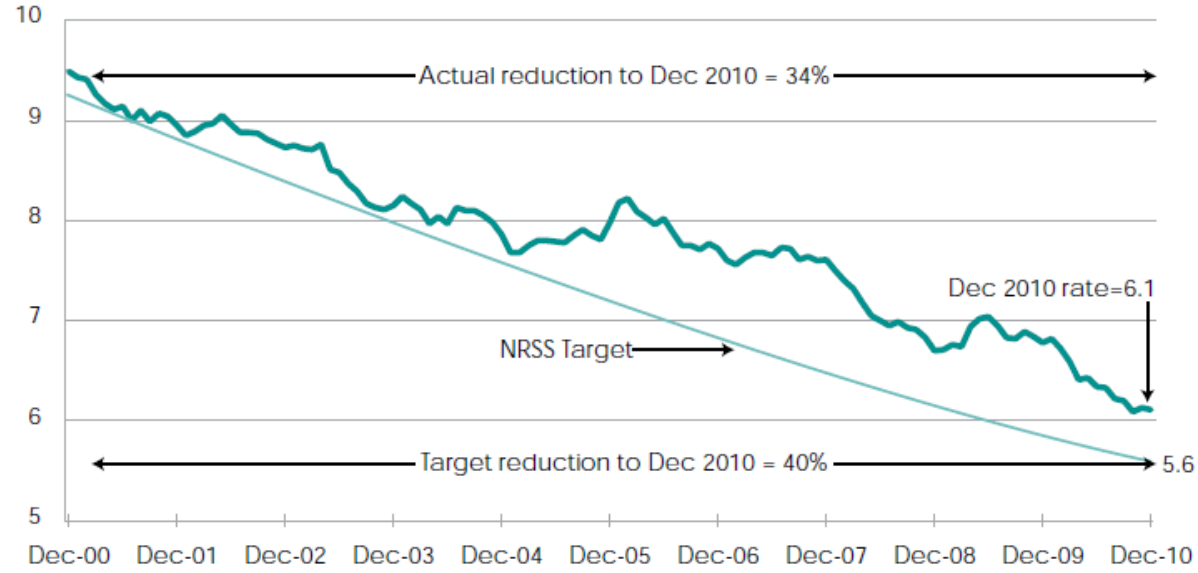
Further information is available from: www.atcouncil.gov.au

Transport ministers recently approved a new **National Cycling Strategy for 2011-16**. The strategy aims to improve safety for all cyclists, and to promote cycling as an active measure to improve the health and well-being of all Australians.

Several events were organised to celebrate the launch of the UN Decade for Road Safety, including:

- The official Australian Government launch was hosted at Parliament House, Canberra, by the Hon. Catherine King, MP, Parliamentary Secretary for Infrastructure and Transport. The event was attended by Members of Parliament and representatives from a range of industry and community organisations. At the launch, the Government announced a funding contribution of AUD 6.2 million to the World Bank's Global Road Safety Facility.
- A number of state governments and non-government organisations also held public events to mark the commencement of the Decade. These included special light displays on the pylons of the Sydney Harbour Bridge and the Brisbane City Hall.

Figure 2. **Trends towards national 2010 target**



Note: based on a moving 12-month calculation

4. Recent safety measures (2010-11)

Impaired driving

Most states have introduced random roadside testing programmes for cannabis, meth-amphetamines and ecstasy.

Speed management

A national speed-management vision was prepared as a central component of the new National Road Safety Strategy. This part of the strategy covers all aspects of speed management, including speed-limit setting, "best practice" enforcement, infrastructure design and upgrade and public communication.

Some states have carried out demonstration trials of intelligent speed assist (ISA) technology, and work has started on the development of a national policy framework to support the future adoption of ISA technology.

Vehicle safety

Australia mandated the installation of electronic stability control in all new model cars, passenger vans and off-road vehicles, from November 2011.

In 2011, the Federal Government adopted a fleet-purchasing policy requiring all new government vehicles to have a five-star safety rating.

Australia initiated the development of an international vehicle standard to improve the safety of vehicle occupants in side-impacts with poles and other narrow objects.

Roads

The Federal Government significantly increased funding for transport infrastructure, including safety-targeted programmes for:

- Black-spot road treatments;
- New and upgraded highway rest areas for heavy vehicle operators;
- Treatment of high-risk railway level crossings.

Traffic laws

States and territories implemented nationally agreed changes to seat-belt laws, requiring:

- all children aged under 6 months to be in an approved rearward-facing child restraint;
- all children aged at least 6 months and under 4 years to be in an approved child restraint;
- all children aged at least 4 years and under 7 to be in an approved forward-facing child restraint or booster seat.

Driver education

The Federal Government funded a national education programme for learner drivers. The programme, known as *keys2drive*, is designed to help parents supervise the driving practice of young learner drivers before they graduate to a solo licence. It includes a free professional driving lesson for learners accompanied by their non-professional supervisor, supported by on-line educational resources.

The Australian, Victorian and NSW Governments commenced a large-scale controlled trial of a new education programme designed for newly-licensed (provisional) drivers.

5. Crash trends

Road users

Since 1970, substantial reductions have been recorded in all road user categories, except for motorcyclists (+29%).

Since 1990, the percentage reduction in pedestrian fatalities (-60%) has been considerably larger than that for vehicle occupant fatalities (-41%). There is evidence that reductions in urban travel speeds have been particularly important in cutting pedestrian fatalities. There is also some evidence that speed enforcement measures have been more effective on urban arterial roads than on rural roads. Although there is no national exposure data for pedestrians, it is likely that pedestrian traffic has not increased to anything like the same extent as vehicular traffic. Increasing urban

congestion and development of urban motorways may have benefited pedestrian safety even more than vehicle occupant safety, though there is no direct evidence to that effect.

Cyclist fatalities have dropped by 53% since 1990. Reduced urban travel speeds and the introduction of compulsory helmet laws for cyclists have contributed to this improvement. However, in 2010 there was a 23% increase in the number of cyclist fatalities.

Changes in motorcycle fatalities have been influenced by changes in exposure (number of active riders and age profile, as well as total distance travelled). There is concern that automated speed enforcement may have had less influence on motorcycle speeds than on speeds of other vehicles, partly because of the absence of motorcycle front number plates.

Between 2000 and 2010, the annual number of motorcycle deaths in Australia increased by 17%, and as a proportion of total road deaths they increased from 10.5% to 16.6%. In 2010, motorcyclists did not benefit from the overall decrease in fatalities. Motorcyclists are the only road user group to have shown an increase in fatality numbers since the start of the decade. The increase in rider casualties can be largely attributed to a growth in motorcycling activity: between 2000 and 2010, the number of motorcycle vehicle-kilometres travelled in Australia increased by 82%.

Table 2. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	80	3%	31	2%	31	2%	38	3%	23%	23%	-53%
Motorised 2-wheelers	262	11%	191	11%	224	15%	224	17%	0%	17%	-15%
Car occupants	1 569	67%	1 302	72%	1 038	70%	919	68%	-11%	-29%	-41%
Pedestrians	420	18%	287	16%	194	13%	170	13%	-12%	-41%	-60%
Others	0	0%	6	0%	1	0%	1	0%	0%	-83%	N.A.
Total	2 331	100%	1 817	100%	1 488	100%	1 352	***100%***	***-9%***	***-26%***	***-42%***

Age

The 17–25 age group has the largest rate of fatalities per population. It accounts for 13% of the population but 25% of deaths. Over the decade however, the rate for this group has declined faster than the total.

The biggest fatality reductions since 1990 have been among infants and young children (aged 0-9), at -69%. Pedestrian and cyclist fatalities in this age group have dropped dramatically (by 84% and 100%, respectively), though vehicle passenger fatalities are also down (by 50%). Exposure changes may have contributed to the drop in child pedestrian and cyclist fatalities; other factors contributing to reduced pedestrian and cyclist deaths are discussed above.

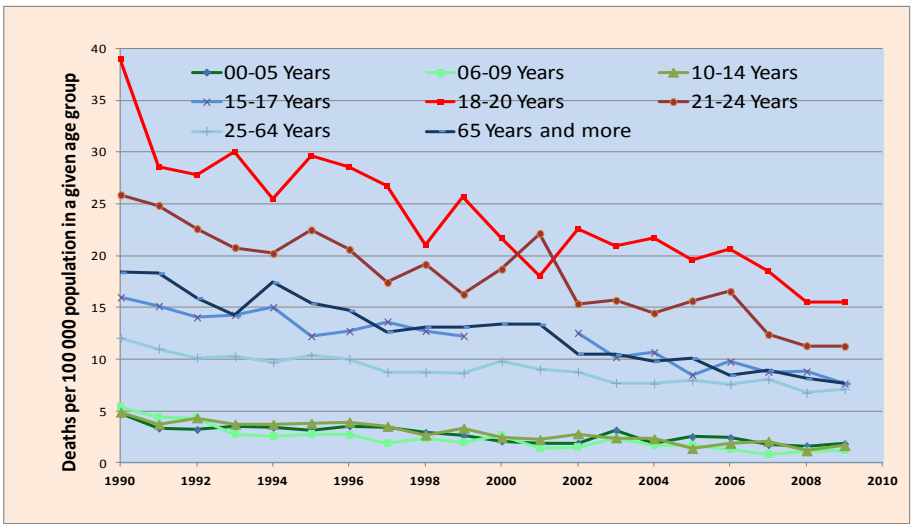
Among older children and adolescents (aged 10-17) there have been substantial reductions in deaths across all road user groups, with cyclist and motorcyclist fatalities down by around 90%.

Among young adults (18-24), drivers or passengers represented the majority of fatalities; these fatalities have dropped by 54% since 1990, while young adult deaths in other road user groups are down by 58%.

Table 3. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	70	51	35	26	-25.7%	-49%	-63%
6-9	55	17	13	13	0%	-24%	-76%
10-14	59	46	23	17	-26.1%	-63%	-71%
15-17	129	104	67	53	-20.9%	-49%	-59%
18-20	340	204	146	138	-5.5%	-32%	-59%
21-24	278	178	146	141	-3.4%	-21%	-49%
25-64	1 046	923	835	746	-10.7%	-19%	-29%
>65	351	294	223	217	-2.7%	-26%	-38%

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road type

Road fatality rates are higher for people who live in rural areas (particularly remote areas) than for people living in major cities. People living outside cities tend to drive more often at highway speeds, drive more on lower-standard rural roads and do more driving overall. Effective enforcement of speed limits, alcohol restrictions and belt use is more difficult in rural areas.

Only a small proportion of the rural road network linking major cities in Australia is divided road, and an even smaller proportion is of motorway standard.

National and state road-safety strategies emphasize the importance of road infrastructure improvements, including relatively low-cost measures applicable to single-carriageway roads.

6. Recent trends in road user behaviour

Impaired driving

In Australia, the maximum authorised BAC is 0.5 g/l (for all drivers) and 0.0 or 0.2 g/l for novice drivers and for truck, bus and taxi drivers.

All jurisdictions have had considerable success in reducing the contribution of alcohol to road trauma, but about 28% of driver and rider fatalities still show a blood alcohol concentration above the legal limit.

This figure varies significantly among jurisdictions, which suggests that there is considerable scope for further gains through identification and application of best-practice approaches to deterrence.

While a smaller problem than alcohol, drugs are still a significant factor in Australian road trauma, with an estimated 7% of road deaths involving drug-driving (excluding cases involving both alcohol and other drugs). In recent years, most jurisdictions have introduced random roadside drug-testing programmes. The tests currently focus on selected illicit drugs, such as cannabis, methamphetamines and ecstasy.

Speed

Statistical series and other evaluation studies in individual jurisdictions indicate that speed management measures have made an important contribution to reducing road fatalities and injuries. National data on speed distributions are not available. Improvement of speed monitoring systems has been identified as a priority to support effective progress monitoring of the National Road Safety Strategy.

Seat belts and helmets

Seat-belt use has been compulsory in all states since the 1970s. In most states there are licence demerit point penalties as well as fines for unbelted drivers, and in some states demerit points apply to drivers with unbelted passengers (in addition to fines for unbelted adult passengers).

Objective nationwide data on usage rates is not available, but non-national observational surveys and self-report data from national surveys indicate front-seat rates being generally in excess of 95% and rear-seat rates above 90%.

Despite high general usage rates, the rates of non-use among fatally injured vehicle occupants are still estimated at 28%. Analysis indicates that this elevated figure is the result of a high crash involvement rate among those who do not wear belts, as well as the fact that they are more likely to be killed if involved in a crash.

Helmets are compulsory for motorcycle and moped riders and bicyclists. Approximately one in ten motorcyclists and one in three bicyclists killed in road crashes were not wearing a helmet. There is no national data on general helmet usage rates.

Distracted driving

Distracted driving is recognised as a major and potentially growing problem in Australia. Mobile phone use is a particular concern, with survey findings suggesting that 60% of drivers have used a mobile phone while driving.

It is illegal to use a hand-held phone while driving in all jurisdictions. Learner and provisional licence-holders in some jurisdictions are subject to further restrictions, including a total ban on phone use while driving. Breaches attract fines and licence demerit points.

7. Useful websites and references

National Road Safety Action Plan 2009 and 2010	http://www.atcouncil.gov.au/documents/actionplan_0910.aspx
Road Deaths Australia, 2010 Statistical Summary	http://www.bitre.gov.au/publications/05/Files/2010_Annual_road_deathsR.pdf
National road safety strategy 2011-2020	http://www.atcouncil.gov.au/documents/files/NRSS_2011_2020_15Aug11.pdf

Research

Several multidisciplinary research organisations collectively carry out most of Australia's major road safety research projects (often funded by government road transport agencies). The following web links provide direct access to the latest reports published by these organisations:

http://www.bitre.gov.au/info.aspx?NodeId=111

http://www.monash.edu.au/muarc/reports/index.html

http://www.carrsq.qut.edu.au/publications/research.jsp

http://casr.adelaide.edu.au/publications/researchreports/

http://www.thegeorgeinstitute.org/research/injury-&-musculoskeletal/studies/road-traffic-injury/road-traffic-injury_home.cfm

http://www.onlinepublications.austroads.com.au/script/home.asp

AUSTRIA[1]

- Capital : Vienna
- 8.4 million inhabitants
- 700 vehicles / 1 000 inhabitants
- 552 road fatalities in 2010
- 6.6 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, Austria observed a 12.8% reduction in fatalities and a 6.8% reduction in injury crashes. It reached its lowest number of fatalities (552) since systematic recording began.

Provisional data for 2011

Provisional data for 2011 indicate that the number of fatalities (521) continued to decline (-5.6%).

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 78% and the number of injury crashes by 31.5%. Yet, in the same time period, the number of vehicles and distances driven tripled.

In recent years (2000-2010), the number of fatalities declined by 43.4%. In the past eight years, injury crashes dropped continuously until 2006, followed by a slight rise in 2007. From 2008 onwards, a decreasing trend in injury accidents was apparent once again.

This progress is directly related to the various safety measures implemented since 1970, and illustrated in Figure 2: these include the adoption of general speed limits on federal roads and on motorways (1973-74); the mandatory use of seat belts (1984); the introduction of driving-licence probation (1992); speed surveillance with lasers (1992); compulsory child-restraint systems (1994); and multi-phase driving licences (2003).

Risk and rates

Between 1970 and 2010, the death rate, expressed in terms of deaths per 100 000 population, diminished by 81%.

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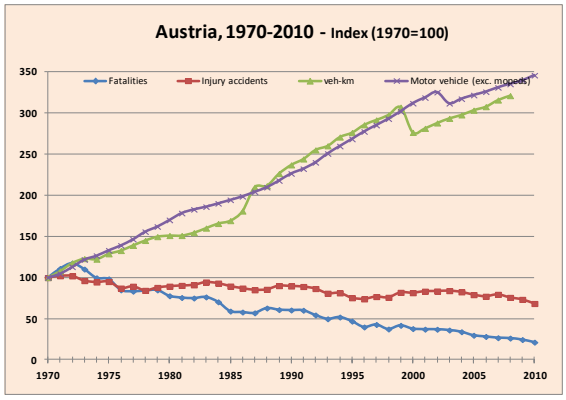
1. *Source*: IRTAD, Kuratorium für Verkehrssicherheit.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	2 574	2 003	1 558	976	633	552	-13.0%	-43.0%	-79.0%
Injury crashes	51 631	46 214	46 338	42 126	37 925	35 348	-7.0%	-16.0%	-32.0%
Rates									
Deaths/ 100 000 population	34.53	26.54	20.26	12.18	7.58	6.59	-13.1%	-67%	-81%
Deaths/ 10 000 registered vehicles	-		3.28	1.75	1.06	0.91	-14.2%	-72%	-
Deaths/ billion veh-km	109.26		27.90	14.98	-	-	-		

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres, 1970-2010**



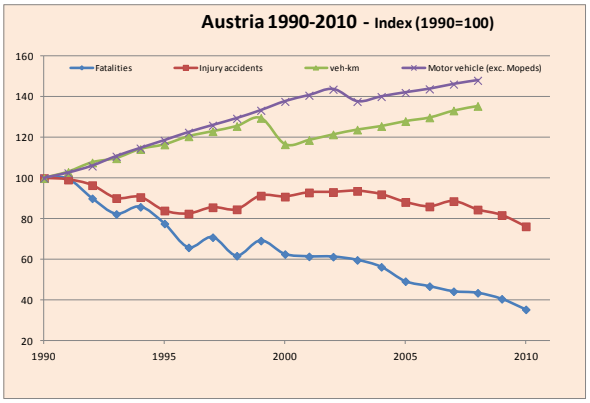
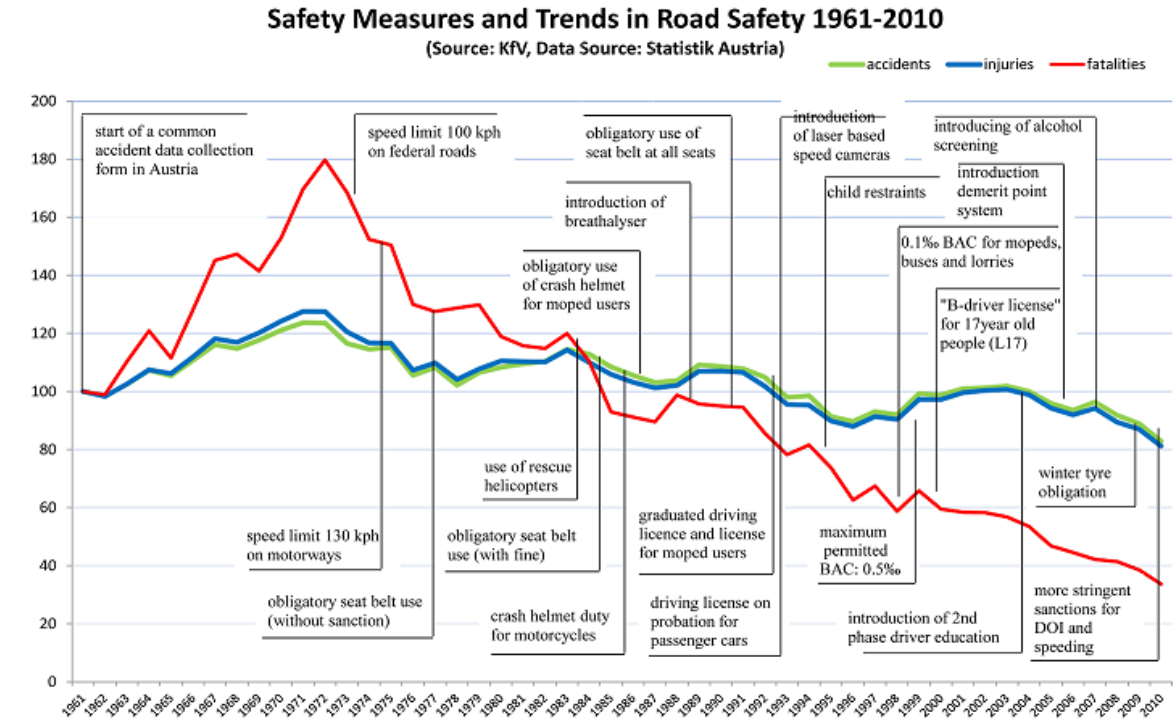


Figure 2. **Main safety measures and trends in road safety 1961-2010**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 7 billion, i.e. around 2.5% of GDP.

Estimates are based on "willingness to pay". According to a recent study, the costs of human suffering make up almost half of the accident costs (49%), while the most important other costs are material damage (22%), loss in achievement potential (18%), insurance administration (7%) and legal costs (2%).

Table 2. **Traffic crash costs in 2008**

	Number (in 2008)	Average unit costs	Total costs (EUR)
Fatalities	679	2 944 994 EUR	1 999 650 598 EUR
Serious injuries	11 510	348 510 EUR	4 011 285 275 EUR
Slight injuries	39 011	25 003 EUR	975 379 011 EUR
Property/damage costs	39 173	4 875 EUR	190 996 814 EUR
Total			**7 177 311 699 EUR**
% of GDP			**2.5% of GDP**

3. National road safety strategies and targets

Austrian Road Safety Programme 2002-2010

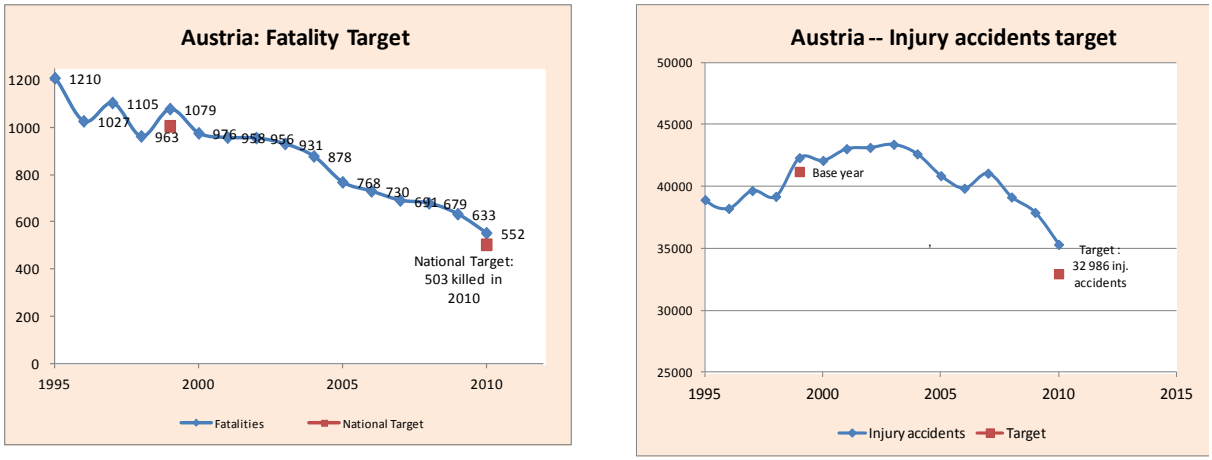
The first Austrian Road Safety Programme was published in 2002. The most important measures in this programme included:

- The introduction of second-phase driver education;
- The demerit point system;
- Road safety coaching for drink-driver offenders;
- Alcohol screening;
- Major road safety campaigns on the use of seat belts, child restraints and the dangers of drink-driving.

The programme also set several quantitative targets, including a reduction by 50% in the number of fatalities between 1999 and 2010 and a reduction by 20% in the number of injury crashes.

Austria has nearly reached its 50% fatality reduction target (552 *vs.* 500 killed), as set in the Austrian Road Safety Programme 2002-2010. Likewise, the 20% injury accident reduction target (35 348 *vs.* 33 000) was almost met.

Figure 3. **Trends towards the national target**



Road safety strategy for 2011-2020: Integrated Road Safety Management

Despite significant progress in the last decade, Austrian road safety figures are still only average compared to the EU as whole and even below average for the EU 15 countries. The new Road Safety Programme 2011-2020 aims at "making Austria one of the five

safest countries in Europe". It is based on the Safe System approach and it has an increased focus on reducing the number of serious injuries on Austrian roads.

The programme set ambitious targets:

- -50% fatalities by 2020, based on the average for the years 2008-10
  - Interim target : -25% by 2015;
- -40% serious injuries by 2020, based on the average for the years 2008-10
  - Interim target : -20% by 2015;
- -20% injury accidents by 2020, based on the average for the years 2008-2010
  - Interim targets: -10% by 2015.

The Road Safety Programme 2011-2020 will focus on the following 17 fields of action, which will be implemented through 250 measures:

1. Road safety education and campaigns
2. Driver training
3. Enforcement
4. Children
5. Young road users
6. Elderly road users
7. Pedestrians
8. Bicycles
9. Motorcycles
10. Mopeds
11. Lorries
12. Level crossings
13. Post-accident care
14. Rehabilitation and diagnostics
15. Infrastructure and roadside telematics
16. Vehicle safety and equipment
17. Databases and accident data collection.

4. Recent safety measures (2010-2011)

Licensing – Mopeds

- Theoretical and practical training, as well as theoretical tests, are obligatory for moped licence candidates of all ages. The possibility of riding a moped with no licence at age 25 or over was suspended. A moped licence can be obtained as from 15 years of age.

Enforcement

- Automatic red light enforcement on level crossings was introduced in 2010.
- Cross-border enforcement: the confiscation of foreign vehicles is possible since 2010; preparation underway to join EUCARIS (European Car and Driving Licence Information System).
- New Section Control units (to measure average speed) on Austrian motorways were projected, resulting in a total of 7 units.
- Principle of "Mutual Consideration" introduced in the Highway Code.

Safety equipment

- Since June 2011, cycle helmets are compulsory for children up to 12 years of age.

Infrastructure

- Introduction of the "*Rettungsgasse*" (virtual emergency lane), prepared and accompanied by a massive communications initiative (mandatory as of January 2012): drivers in congested traffic are obliged to open up a virtual lane for emergency vehicles.

Campaigns

- Several campaigns were launched at regional level on drink-driving, seat belts, pedestrian crossings, motorcycles ...

5. Crash trends

Road users

Since 1990, all road users have benefited from the improvements in road safety. Fatality reductions were highest among car occupants, but with only minor reductions for vulnerable road users, including motorcyclists.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	106	7%	62	6%	39	6%	32	6%	-17.9%	-48.4%	-69.8%
Mopeds	88	6%	44	5%	30	5%	18	3%	-40.0%	-59.1%	-79.5%
Motorcycles	112	7%	112	11%	87	14%	68	12%	-21.8%	-39.3%	-39.3%
Car occupants	913	59%	549	56%	328	52%	292	53%	-11.0%	-46.8%	-68.0%
Pedestrians	260	17%	140	14%	101	16%	98	18%	-3.0%	-30.0%	-62.3%
Others	79	5%	69	7%	48	8%	44	8%	-8.3%	-36.2%	-44.3%
Total	*1 558*	*100%*	*976*	*100%*	*633*	*100%*	*552*	*100%*	-12.8%	-43.4%	-64.6%

Age

The number of fatalities varies with age. Inexperienced riders and drivers are killed more often in traffic.

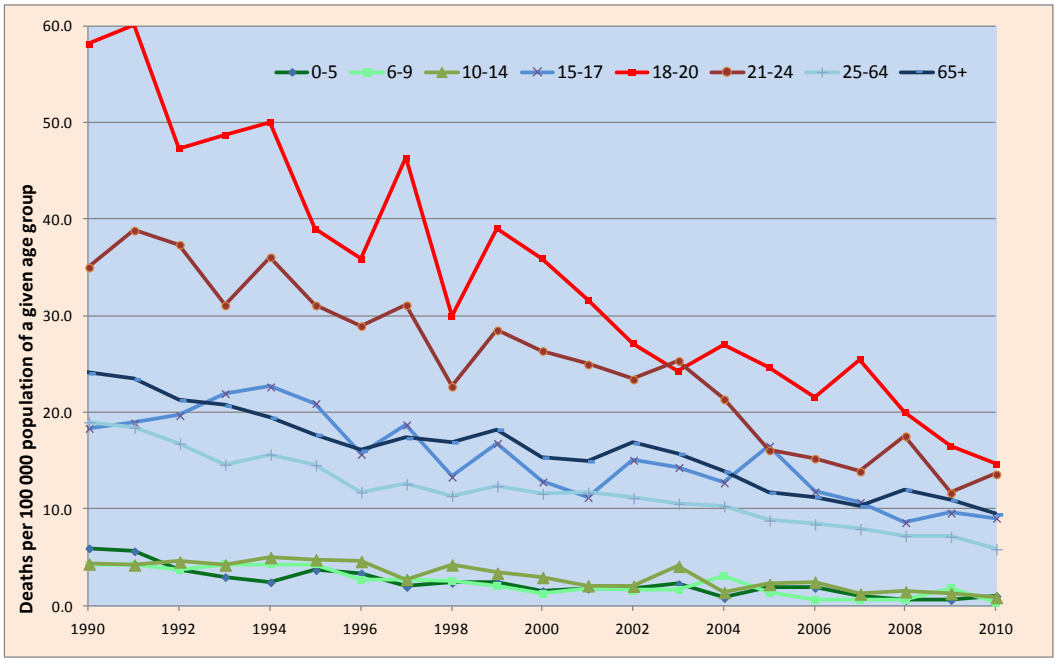
Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerns the youngest age group (0-14), for which fatalities decreased by 85%.

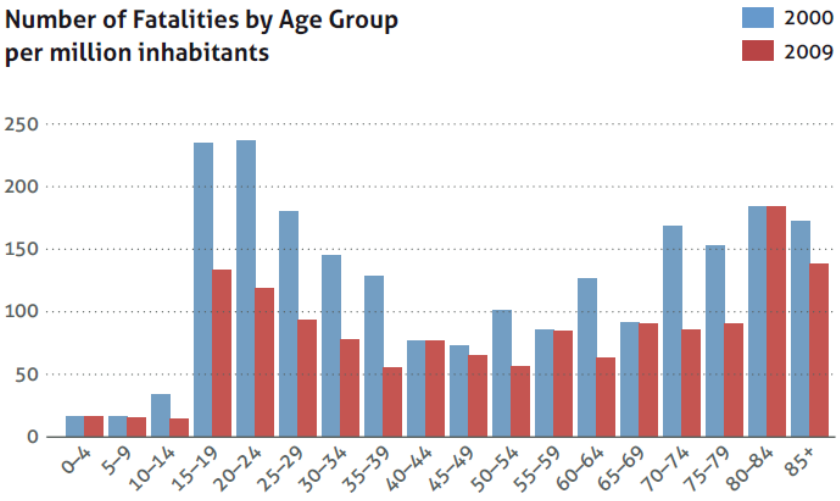
Young people (15-24) still represent a high-risk group in road safety, with a fatality risk nearly twice that of the general population. However, the mortality rate shows significant improvement among road users in the 15-39 age group. It is important to note that the fatality rate for the older age groups (particularly the over-80s) now exceeds that of young road users, albeit with a significantly lower number of accidents per person.

Table 4. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	32	8	3	5	-66.7%	-38%	-90%
6-9	16	5	6	1	-83.3%	-80%	-98%
10-14	19	14	6	4	-33.3%	-71%	-90%
15-17	55	37	29	27	-6.9%	-27%	-82%
18-20	205	105	50	45	-10.0%	-57%	-82%
21-24	186	99	49	57	+16.3%	-42%	-71%
25-64	764	518	331	273	-17.5%	-47%	-69%
>65	278	190	159	140	-11.9%	-26%	-64%
Total	**1 558**	**976**	**633**	**552**	**-12.8%**	**-43%**	**-72%**

Figure 4. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

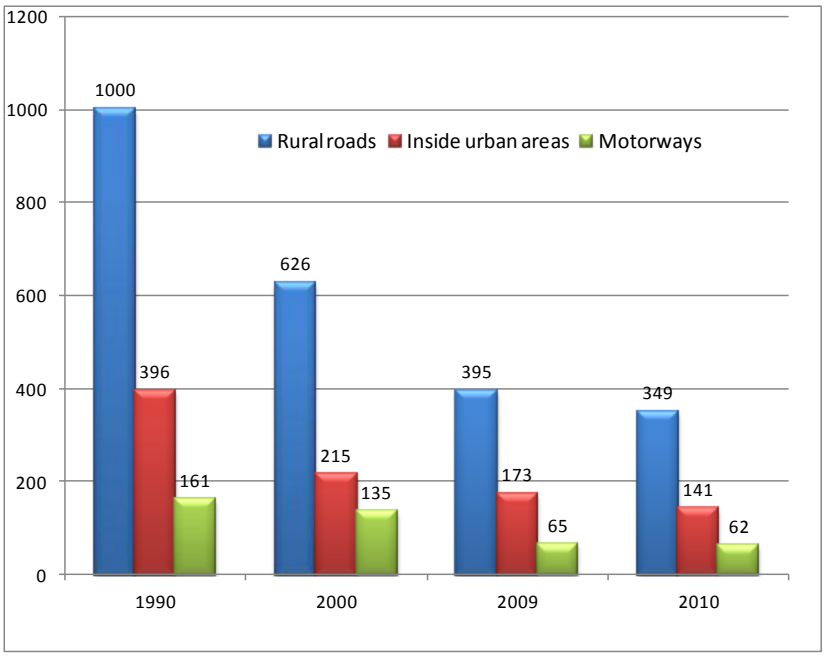




Road type

63% of fatalities occur on rural roads, 26% in urban areas and 11% on motorways (Figure 5). In 2010, the greatest reduction was achieved on urban roads.

Figure 5. **Reported fatalities by road type 1990, 2000, 2009 and 2010**



6. Recent trends in road user behaviour

Impaired driving

The maximum permissible blood alcohol content (BAC) level is 0.5 g/l or 0.1 g/l for moped drivers younger than 20 years, novice drivers (holding a licence for less than two years), drivers of lorries of more than 7.5 tonnes and drivers of buses with more than nine seats.

Since 2002, every driver involved in an injury accident is tested for alcohol (unless dead or unconscious). However, it is not permitted in Austria to test a corpse, so the estimated number of unreported cases is still high.

Although drink-driving remains a predominantly male problem, the percentage of female drunk drivers has increased, and at present is at about 14%.

Speed management

The problem of speeding has remained at a comparatively high level over the past years. Speed, and especially inadequate speed, is the main cause of accidents in Austria.

Due to a shortage in manpower, there will be less speed surveillance by traffic police in future, but there will be an increase in automatic speed enforcement (including section controls), as well as private surveillance at the municipal level.

Seat belts and helmets

Seat-belt wearing has been compulsory in Austria since 1984 in front seats and 1990 in rear seats. The seat-belt wearing rate is, however, around 10% lower than that of other European countries. In 2010, a general decrease in the use of seat belts was observed.

Table 5. **Seat-belt use by car occupants**

	1990	2000	2009	2010
General		74%	88%	82%
Front seats				
Driver		74%	89%	84%
Passenger		79%	89%	81%
Rear Seats		45%	65%	66%
Drivers				
Urban areas		70%	88%	82%
Rural areas		75%	88%	83%
Motorways		78%	93%	86%
Child restraint			95%	92%

Helmet wearing is compulsory on all motorised two-wheelers and since June 2011 on bicycles for children up to 12 years of age.

Distracted driving / use of mobile phones

In Austria, it is not allowed to drive while using a hand-held mobile phone or PDA device. It is, however, tolerated to use hands-free devices.

7. Useful websites and references

Austrian Ministry for Transport, Innovation and Technology	www.bmvit.gv.at
Austrian Home Office	www.bmi.gv.at
Austrian Road Safety Board (KfV)	www.kfv.at
Statistics Austria	www.statistik.at
Information site on child safety in cars	www.autokindersitz.at
Automobile, Motorcycle and Bicyclists Club Austria	www.arboe.at
Austrian Automobile, Motorcycle and Touring Club	www.oeamtc.at
Austrian Road Safety Programme 2011-2020	http://www.bmvit.gv.at/en/service/publications/downloads/rsp2020.pdf

BELGIUM[1]

- Capital: Brussels
- 10.8 million inhabitants
- 611 vehicles/1 000 inhabitants in 2009
- 944 road fatalities in 2009
- 8.8 deaths/100 000 inhabitants in 2009

Note: Data for the year 2010 were not released when this report was being prepared. Most data concern the year 2009.

1. Short term trends

General comments and trends for 2009

The number of fatalities for the year 2009 (943) almost equals the number of fatalities for the year 2008 (944 fatalities).

Provisional data for 2010

Estimations on the basis of provisional data predict a total of approximately 840 road fatalities for the year 2010.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1973 and 2009, the number of fatalities decreased by nearly 70%, and the number of injury crashes by 37%. In the same period, the number of vehicles more than doubled while the distances travelled tripled. In recent years (2000-2009), the decrease in the number of fatalities was sustained (-36%).

Risk and rates

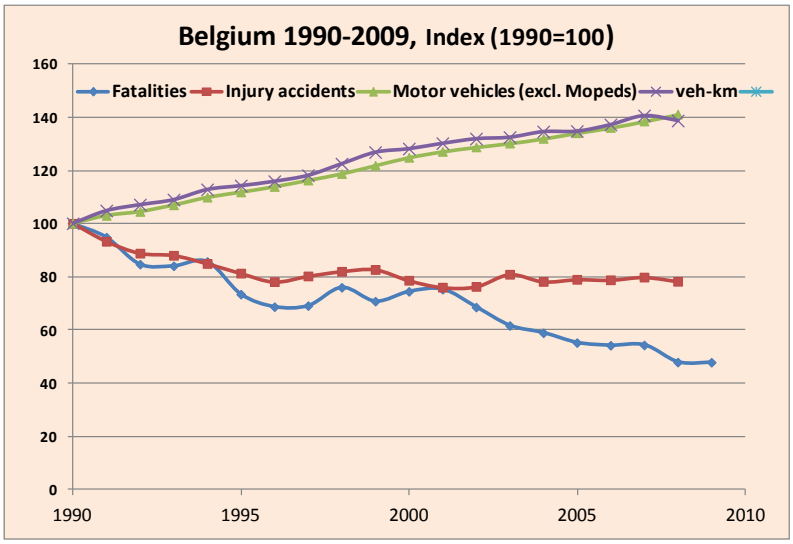
Between 1973 and 2009, the road traffic mortality rate, expressed in terms of deaths per 100 000 population, decreased by 71%, and risks (expressed in deaths per distance travelled) decreased by 88%.

1. *Source*: IRTAD and the Belgian Road Safety Institute.

Table 1. **Reported road fatalities, injury crashes and rates 1973[1]-2009**

	1973	1980	1990	2000	2008	2009	2009% change over		
							2008	*2000*	*1973*
Fatalities	2 915	2 396	1 976	1 470	944	944	0%	-36%	-68%
Injury crashes	66 427	60 758	62 446	49 065	42 155	41 944	-1%	-15%	-37%
Rates									
Deaths/100 000 population	30.0	24.3	19.9	14.4	8.8	8.8	-1%	-39%	-71%
Deaths/10 000 registered vehicles	10.1	6.4	4.3	2.6	1.5	1.4	-2%	-44%	-86%
Deaths/billion veh-km	83.3	50.0	28.1	16.3	9.7	9.6	-1%	-41%	-88%
Motorisation (no. of motorised vehicles/1 000 inhabitants)	296.8	380.9	461.8	560.1	607.7	611.4	1%	9%	106%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2009**



1. Before 1973 another registration system was in place, only recording fatalities on the scene of the crash.

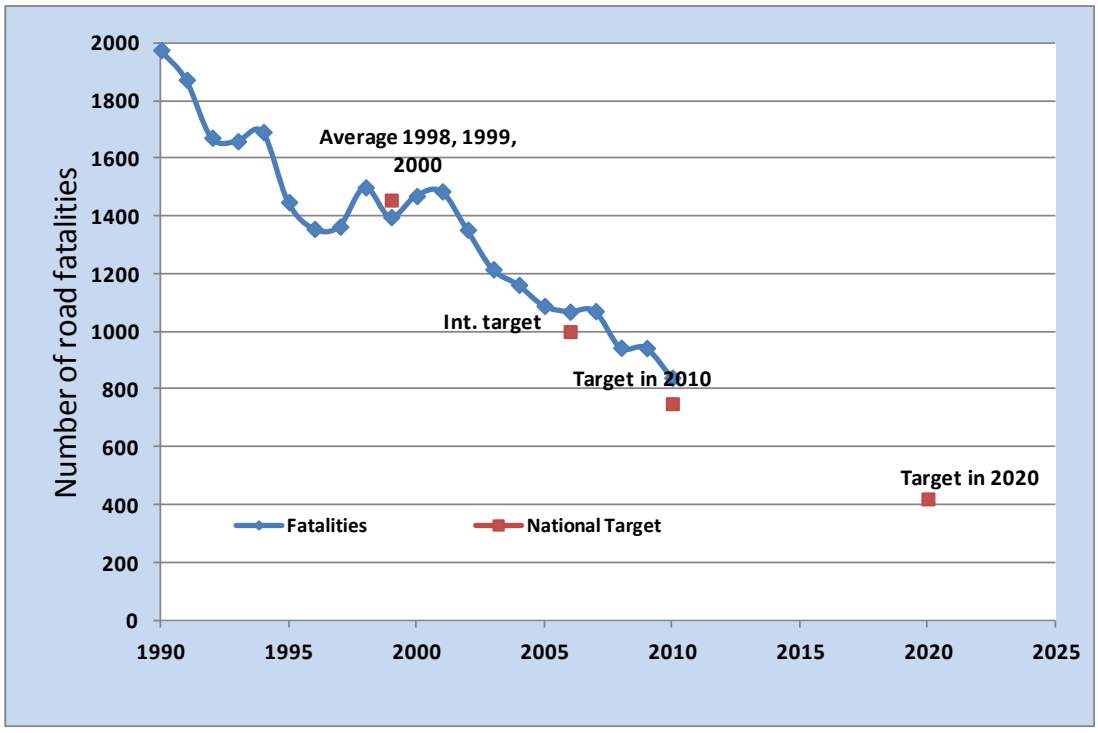
3. National road safety strategies and targets

The Belgian Government is committed to continuing the implementation of a solid safety policy, whose objective is to reduce the number of traffic casualties.

In three consecutive assemblies on road safety (Les Etats Généraux de la Sécurité Routière) in 2001, 2007 and 2011, the Belgian Government agreed the following objectives regarding the reduction in the number of fatalities:

- Less than 1 000 fatalities by 2006 (target achieved in 2008);
- Less than 750 fatalities by 2010 (on the basis of provisional data, the target was not achieved);
- A decrease by 50% in the number of road fatalities by 2020 compared to 2010.

Figure 2. **Trends towards national target**



Road safety strategy for 2011-2020

A new road safety strategy was released in 2011.

The mission, defined in 2001, to achieve a 50% decrease in fatalities over a ten-year period, was renewed for the period 2011-2020. The Etats Généraux de la Sécurité Routière announced 20 recommendations in order to reach this target (see: www.cfsr.be). The Belgian Government approved these recommendations in 2011.

4. Recent safety measures (2010-2011)

Impaired driving

Drug tests: The law on the implementation of saliva tests to trace drug use came into force on 1 October 2010. A saliva test followed by a saliva analysis is sufficient to trace drugs. A urine analysis or blood analysis is not required anymore. The possibility to perform a blood analysis is kept for only those cases where a saliva sample cannot be taken.

Speed management

Speed check services, a speed camera system that measures the average speed of road users, have been tested. As soon as the test procedure is finalised, the system will be used to prosecute speed offenders.

Enforcement

In 2011, the Belgian Government approved 7 recommendations regarding road safety enforcement (at the *Etats Généraux de la Sécurité Routière*). Two recommendations are related to road controls by the police, three concern the administrative and juridical completion concerning traffic offences, one recommendation focuses on recidivists and the last one recommends the introduction of compulsory licence plates for mopeds.

Motorcycles

Filtering

Filtering is now allowed on two-lane roads and over. This means that motorcyclists can drive between lanes to overtake other vehicles (which are at a standstill or moving slowly in a traffic jam), under the following conditions:

- At a speed not exceeding 50 km/h;
- With a speed differential no higher than 20 km/h compared with the speed of other vehicles.

Safety equipment

Regulations about compulsory safety clothes for motorcyclists (riding motorcycles of more than 50 cc) have been extended since 1 September 2011. Gloves, full body cover-up, and shoes protecting the ankles are now compulsory.

Children

Children below 3 may not be transported on mopeds or motorcycles. Children between three and eight years old may be transported on mopeds or motorcycles on the condition that:

- the mopeds or motorcycles are equipped with a child safety system;
- the motorcycle's displacement is below 125 cc.

Campaigns

Go for Zero (Feb '11): launch of a new "global" concept that will underlie all road safety campaigns. Different actors (citizens, organisations, firms and the media) are invited to sign the charter "Go for Zero" and commit to undertake actions to reduce the number of road accident victims (no phone use, alcohol or drugs while driving, observance of speed limits, seat-belt use, …).

Regular campaigns on drink-driving ("Bob" the designated driver), and on speed, seat belts and mobile phones.

5. Crash trends

Road users

All user groups, but especially pedestrians and moped riders, benefited from safety improvements between 1980 and 2009. The number of moped riders killed during the period decreased by 85% and the number of pedestrians killed, by 80%.

In recent years (2000-2009), improvements benefited nearly all road users. There were, however, no improvements for motorised two-wheelers, mainly due to their increased exposure in terms of veh-km driven; however, the risk for a motorcyclist of being killed per kilometre driven has been reduced.

More detailed data reveal that the motorcyclists the most at risk are those whose vehicles have engines of above 400 cc. In 2009, motorcyclists represented 0.9% of vehicle-kilometres but 14.5% of road fatalities. Most riders killed are between the ages of 20 and 50, and more than 95% are male.

Table 2. **Reported fatalities by road user group**
1980, 2000, 2009 and 2010

									2009 % change over		
	1980		2000		2008		2009		*2008*	*2000*	*1980*
Cyclists	241	10%	134	9%	86	9%	88	9%	2%	-34%	-63%
Mopeds	179	7%	64	4%	32	3%	26	3%	-19%	-59%	-85%
Motorcycles and scooters	170	7%	118	8%	108	11%	138	15%	28%	17%	-19%
Car occupants	1 227	51%	922	63%	479	51%	466	49%	-3%	-49%	-62%
Pedestrians	507	21%	142	10%	99	10%	105	11%	6%	-26%	-79%
Other	72	3%	90	6%	140	15%	112	12%	-14%	33%	67%
Total	*2 396*	*100%*	*1 470*	*100%*	*944*	*100%*	*943*	*100%*	*0%*	*-36%*	*-61%*

Table 3. **Relative fatality risk by road user group**
2009

	Reported fatalities	Deaths per billion vehicle-km	Deaths per billion passenger-km
Passenger car occupants	466	6 033	4 395
Motorcycles	138	103 919	103 919

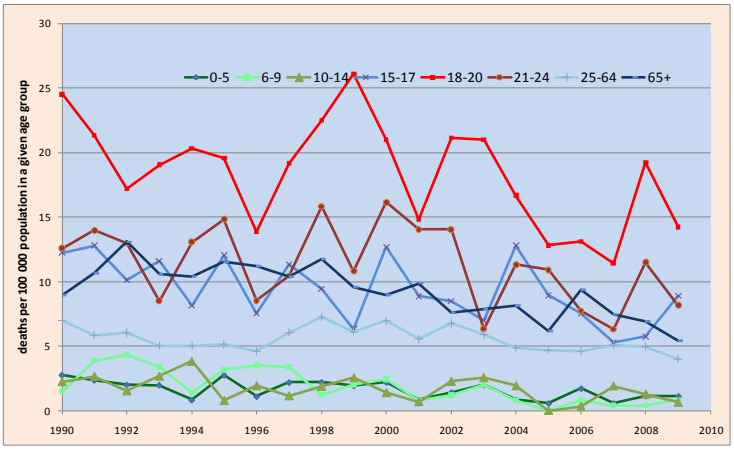
Age

Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned children (0-5 years: -73%; 6-9 years: -81%; 10-14 years: -83%). Despite substantial reductions, young people (18-24) are still a high-risk group for road safety, with a fatality risk twice as high as that of the general population (Figure 3).

Table 4. **Reported fatalities by age group**
1990, 2000, 2007, 2008, 2009

	1990	2000	2007	2008	2009	2010% change over		
						2008	*2000*	*1990*
0-5	33	17	12	13	9	-31%	-47%	-73%
6-9	27	12	4	5	5	0%	-58%	-81%
10-14	48	23	14	17	8	-53%	-65%	-83%
15-17	72	55	27	28	27	-4%	-51%	-63%
18-20	202	130	90	68	71	4%	-45%	-65%
21-24	245	198	125	109	91	-17%	-54%	-63%
25-64	992	784	623	550	550	0%	-30%	-45%
>65	334	238	170	149	176	18%	-26%	-47%

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2009)

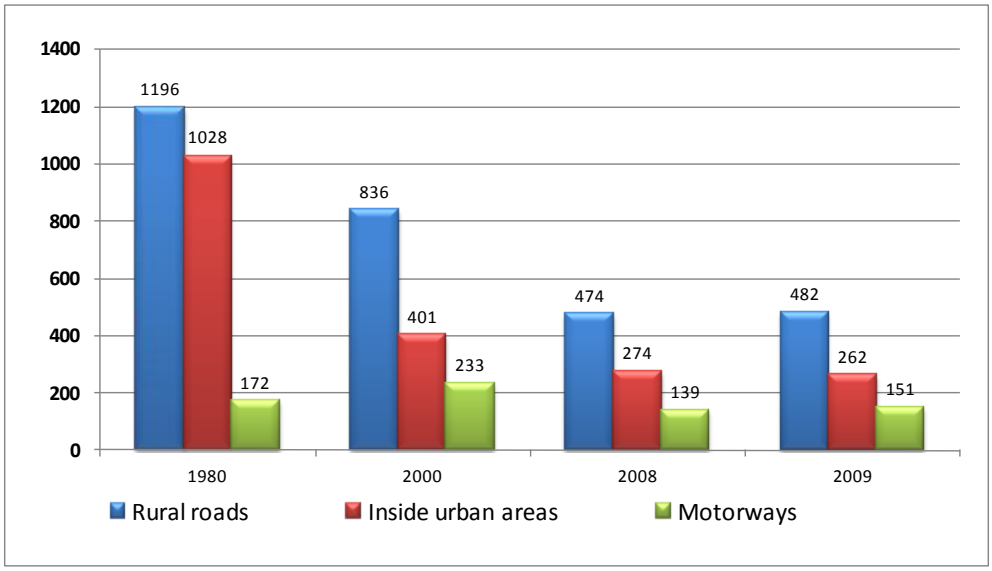


Road type

In 2009, around 51% of fatal crashes occurred on rural roads, 28% in urban areas and 16% on motorways (5% are unknown) (Figure 4). Since 1980, the greatest reduction in fatalities has occurred on urban roads (-76%). The development on the motorways has to be seen in conjunction with the expansion of the network.

Figure 4. **Reported fatalities by road type**

1980, 2000 and 2008, 2009



6. Recent trends in road user behaviour

Impaired driving

The latest roadside survey (2009) showed that 2.6% of car drivers are driving under the influence of alcohol. This percentage reaches 13% during weekend nights.

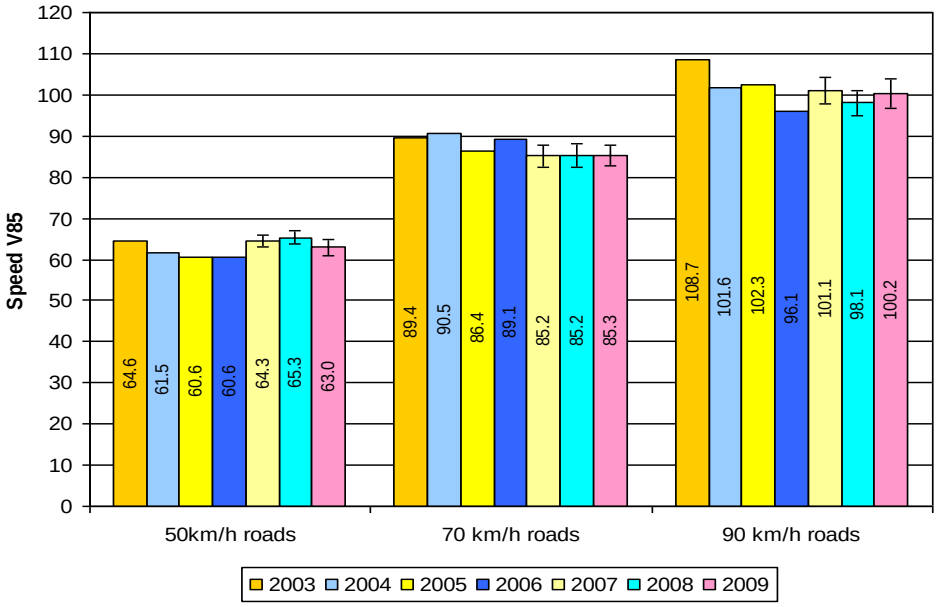
Twelve per cent of car drivers involved in an injury crash were controlled positive but only 63% were tested. Severely injured drivers are rarely tested and blood-test results for drivers killed are almost never included in the official accident statistics.

Since 1 October 2010, police officers may submit drivers to saliva testing for drug use.

Speed

Figure 5 presents the evolution in the V85 speed (maximum speed of 85% of the drivers). It shows a decrease in speeds on 90 km/h roads. It also shows that speeding remains an issue for all road categories.

Figure 5. **Evolution in the V85 speed 2003-2009**



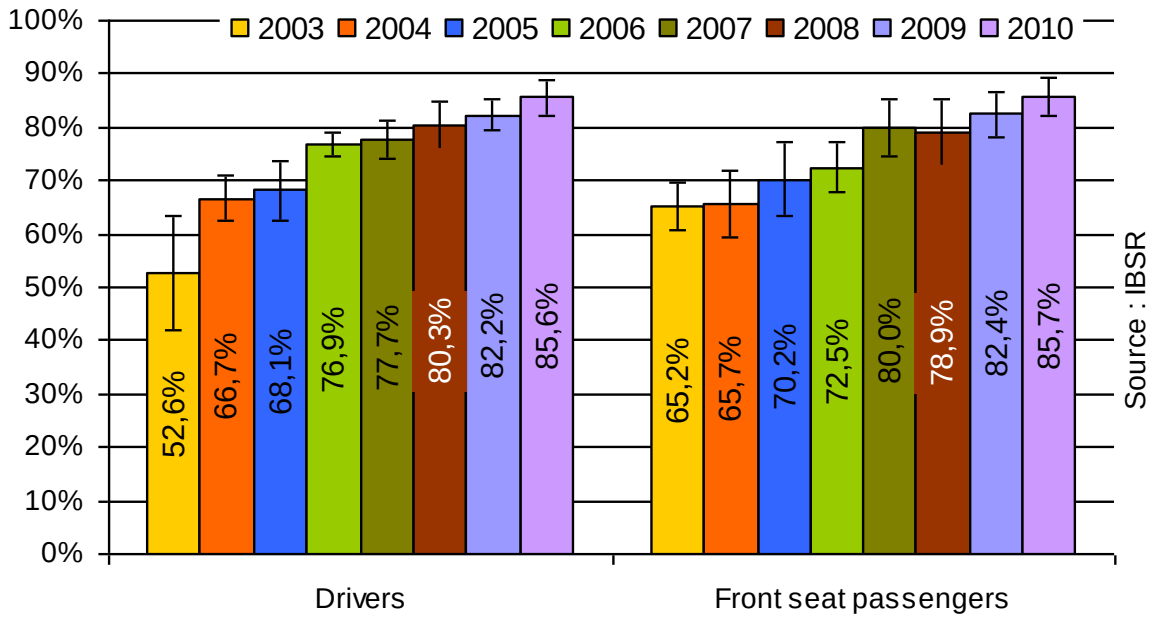
Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1975 and in rear seats since 1991. The rate of seat-belt use is around 79% in front seats in passenger cars. Table 5 and Figure 6 show the progress made in the seat-belt usage rate between 2003 and 2010.

Table 5. **Seat-belt use for car occupants**

	2003	2010
Driver	52.6	85.6
Passenger (front seat)	65.2	85.7
Motorway – driver	66%	90%
Rural roads – driver	62%	88%
Urban areas – driver	49%	86%

Figure 6. **Seat-belt use by drivers and front-seat passengers 2003 to 2010**



Source: IBSR.

The wearing of helmets is compulsory for all motorcycle and moped riders. The compliance rate is unknown.

Distracted driving

The use of hand-held phones while driving is forbidden. The use of hands-free devices while driving is authorised.

No data are collected on distracted driving, including the use of mobile phones while driving. However, in recent years, annual awareness campaigns have been dedicated to driving with hand-held mobile phones.

7. Useful websites and references

IBSR (Belgian Road Safety Institute)	www.bivv.be
IBSR research reports	http://bivvweb.ipower.be/observ/observatorium_fr.htm#
Statistical report, 2009	http://bivvweb.ipower.be/Observ/FR/statrapport_FR_2009.pdf
Commission Fédérale pour la Sécurité Routière	www.cfsr.be

CAMBODIA[1]

- Capital : Phnom Penh
- 14.3 million inhabitants (in 2010)
- 116 vehicles/1 000 inhabitants
- 1 816 road fatalities in 2010
- 12.7 deaths/100 000 inhabitants

Cambodia joined the IRTAD Group in 2010. It benefits from a twinning programme with Road Safety for All and SWOV (The Netherlands) to review and audit its road crash and victim information system (RCVIS). RCVIS has been progressively developed since 2004 by the Ministry of Public Works and Transport, the Ministry of the Interior and the Ministry of Health, with the technical support of Handicap International Belgium. Most of the data are available from 2004 onward.

2010 was a crucial year for RCVIS, which was transferred from Handicap International Belgium to the government bodies: The Ministry of the Interior (for the traffic police database), the Ministry of Health (for the health facility database) and the National Road Safety Committee (for the combined database). This handover process included the successful setting up of data collection systems within the Ministries of Health and the Interior, followed by relevant training for appointed staff. The official management of the RCVIS system was transferred to the National Road Safety Committee in mid-2011.

The data presented in this report have not been validated by IRTAD. Under-reporting of road crashes is an issue and there has been an effort to estimate the under-reporting rate. The data must be interpreted with care.

1. Short term trends

General comments and trends for 2010

In 2010, the RCVIS reported 1 816 road fatalities, a 6% increase compared to 2009. This is partly due to the economic boom, the increase in registered vehicles and the young population, as well as the reconstruction of paved roads over the last five years. Road crashes disproportionately affect the most vulnerable road users (motorcyclists, pedestrians and cyclists), who represented almost 90% of all road traffic casualties in 2010.

Even though the number of fatalities among 10 000 vehicles decreased when compared to 2009, the total number of fatalities continues to increase. Traffic crashes have major impacts on both the social economy and welfare of Cambodia and are one of the major causes of mortality in Cambodia.

Cambodia ranks among the ASEAN countries the most affected by road crashes.

1. Source: *National Road Safety Committee.*

Provisional data for 2011

Provisional data for the first semester of 2011 show an increase in total fatalities, when compared to 2010.

2. Long term trends

Change in the number of fatalities and injury crashes

Within the last six years, the number of fatalities has doubled and the number of traffic crashes multiplied by nearly three. During the same period, the population increased by 8% and the number of registered motorised vehicles almost tripled.

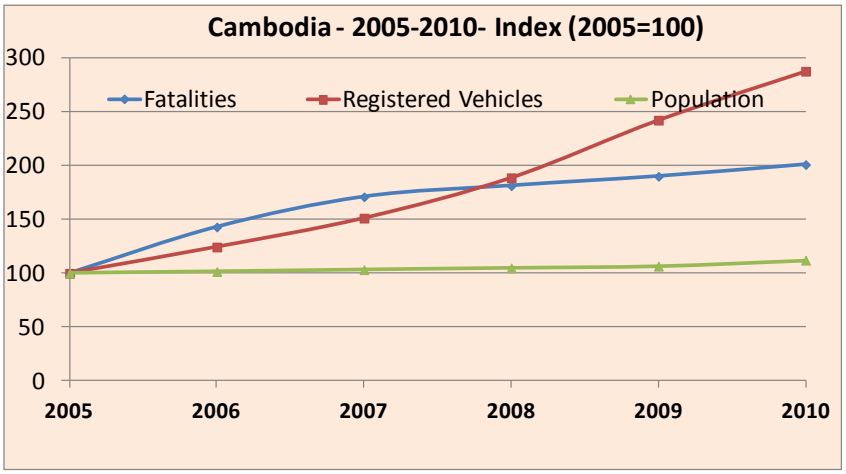
Risks and rates

Since 2006, the fatality rate for 100 000 inhabitants increased by 32% (9.6 to 12.7). The fatality rate per 10 000 registered vehicles decreased, mainly because of the huge increase in motorisation.

Table 1. **Reported road fatalities, injury crashes and rates 2005-2010**

	2005	2006	2007	2008	2009	2010	2010% change over	
							2009	*2005*
Fatalities	904	1 292	1 545	1 638	1 717	1 816	+5.8%	+101%
Injury crashes	15 039	24 854	25 858	24 158	19 802	18 287	-7.7%	+22%
Deaths/100 000 pop.	7.1	9.6	11.7	12.3	12.6	12.7	+1%	+79%
Deaths/10 000 vehicles	15.7	18.1	17.8	15.1	12.3	11	-11%	-30%
Motorisation (motorised vehicles/ 1 000 inhab.)	45	55	66	81	102	115.5	+13%	+157%

Figure 1. **Reported road fatalities, motorised vehicles and population 2005-2010**



Economic costs of traffic crashes

It is estimated that in 2010 the annual economic cost of road crashes equalled approximately USD 279 million, a 13% increase compared to 2009. This represents 2.4% of the GDP of Cambodia.

Costs (USD million)	2010	2009	% change
Fatalities	71	61	15%
Hospitalised people	184	164	12%
Slight injuries	17	15	12%
Property / damage costs	8	7	14%
Total	279	248	13%

3. National road safety strategies and targets

Road safety strategy for 2011-2020

In order to respond to the current situation with road traffic accidents, the National Road Safety Committee (NRSC) has developed the second National Plan for Road Safety 2011-2020, based on the Action Plan developed through UN road safety collaboration to support the UN Decade of Action for Road Safety.

The collaboration between the NRSC, the Dutch Road Safety Institute (SWOV) and Road Safety for All, in the framework of the IRTAD programme, was instrumental in developing this strategy and defining safety targets and relevant performance indicators to monitor progress.

The Action Plan consists of seven "Pillars":

1) Road Safety Management.
2) Infrastructure.
3) Safe Vehicles.
4) Safe Road User Behaviour.
5) Post-Crash Care.
6) Traffic Law Legislation and Enforcement.
7) Driver Licensing.

Measures are chiefly focused on the main risk factors, which are the absence of helmets, speeding and drink-driving.

This new Plan includes, for the first time, quantified national targets and safety performance indicators:

National targets 2011-2020

- To reduce the forecasted number of fatalities by 50% by 2020;
- To reduce the forecasted fatality rate (per 10 000 registered vehicles) by 50% by 2020.

Safety Performance Indicators

- Helmet-wearing rate:
  - reduce the forecasted number of fatalities caused by head injuries by 50% in 2020;
  - increase the helmet-wearing rate to 100%.

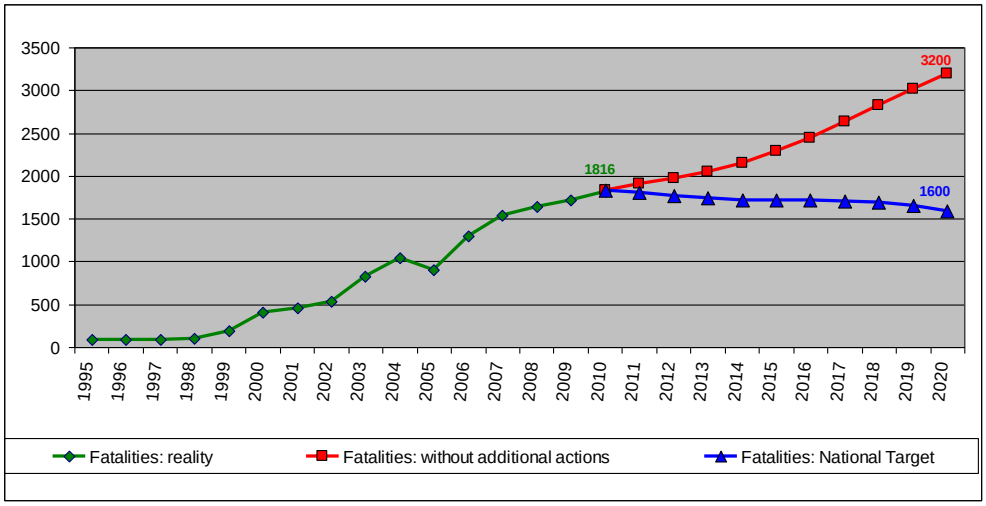
- Speeding:
  - reduce the forecasted number of speed-related fatalities by 50% in 2020;
  - reduce the prevalence of the over-speeding rate.

- Drink-driving:
  - reduce the forecasted number of alcohol-related fatalities by 50% in 2020;
  - reduce the prevalence of drunk drivers with a BrAC/BAC above the legal limit in 2020.

Implementation

The plan was submitted to the Prime Minister and is expected to be approved by the Council of Ministers by the end of 2012.

Figure 2. **Estimated number of fatalities 2010-2020**



4. Recent safety measures (2010-2011)

Monitoring tool

With the support of the IRTAD twinning programme, the huge input from Road Safety for all and technical support from Handicap International and Johns Hopkins University, monitoring tools for the safety performance indicators in the 10-year Road Safety Action Plan were developed in early 2011.

The monitoring tools include:

1) Road Crash and Victim Information System (RCVIS):
   - Number of fatalities and trends (by age groups, road users, provinces,);
   - Fatalities through head injuries, speeding and drink-driving.

2) Roadside observations:
   - Helmet-wearing rate monitoring;
   - Speed measurement: average speed, % of drivers exceeding the limit, etc.
   - Drink driving measurement: rate of drink driving.

3) Roadside surveys/interviews: Knowledge, opinions, attitudes relating to law, police enforcement, publicity on:
   - Helmets;
   - Speeding;
   - Drink driving.

Impaired driving

Measures against drink-driving started on 1 October 2010. Proper equipment and training have been provided to the traffic police in Phnom Penh, Kandal and Kampong Speu. Since September of this year, all road-safety stakeholders have also been organising campaigns against drink-driving and encouraging helmet-wearing, in order to inform the public about the importance of wearing a helmet, the consequences of drink-driving, and the coming enforcement measures.

Speed management

Speeding is the main cause of road crashes in Cambodia and is responsible for more than 50% of fatalities. Speed is a key risk factor that influences both the risk of road traffic crashes and the severity of injuries. To tackle these issues, the 2011-2020 National Road Safety Action Plan has identified speeding as one of its priorities. Since the beginning of 2010, various activities for the prevention of overspeeding have been initiated. These interventions have been only on a small scale (mainly in the capital city), with limited resources, and have focused on:

- Strengthening traffic law enforcement: reinforcing the capacity of the traffic police and equipment;
- Infrastructure improvements: setting up safe school zones;
- Public awareness: various mass-media campaigns and community-based education programmes.

Education and campaign

The majority of road traffic injuries are primarily caused by the specific risk factors of speeding, drinking and driving and lack of a helmet. To reduce these injuries, significant education and public awareness campaigns have been organised by many road safety stakeholders in the country.

Key prevention activities for safer road behaviour have been carried out through public awareness campaigns, community-based education and education in schools. Action has been taken to link public knowledge and acceptance of road safety with the enforcement of traffic law, particularly regarding the key risk factors of not wearing a helmet, drink-driving and speeding.

During the last five years, civil society has steadily increased its involvement in the road safety field. Stronger participation from road safety-related NGOs, companies, the media, etc., have also been observed.

Infrastructure

In the 2011-2020 National Road Safety Action Plan (draft version), actions for infraction improvements have been included as "Pillar 2". This pillar has focused on engineering solutions which reduce speed through "traffic calming" measures and speed management, particularly in zones with a high volume of vulnerable road users, such as school and residential zones, and in built-up areas.

Black-spot improvement programmes along the national road network, as well as road safety audits, have also been included in the pillar. Engineers will be trained in road safety audits and priority will be placed on incorporating audits into road design and infrastructure projects.

5. Crash trends

Road users

Vulnerable road users (motorcyclists, pedestrians and cyclists) represent almost 90% of traffic casualties in Cambodia. Riders of motorised two-wheelers are the most vulnerable road users; in 2010 they accounted for 71% of all fatalities. They also represent 83% of the fleet.

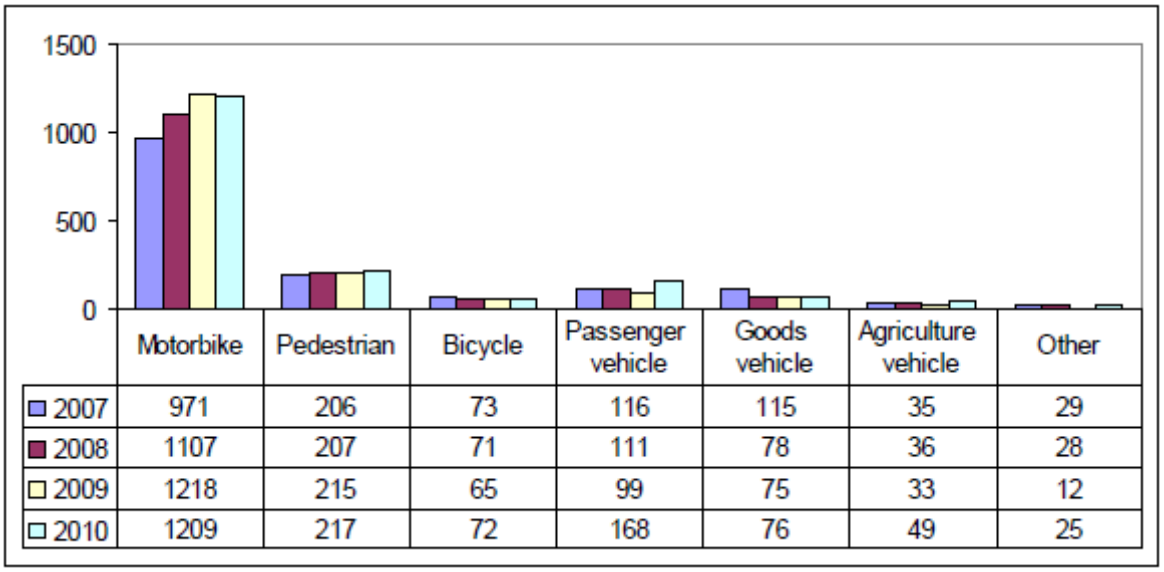
Pedestrians are the second most vulnerable road users (13% of fatalities). The most at risk are children between the ages of 0 and 14, accounting for 30% of total pedestrian fatalities, and elderly people (55+) who account for 22% of pedestrian fatalities.

Compared to 2009, the number of motorised two-wheeler riders killed slightly decreased, while the number of car occupants killed in a crash rose dramatically (see Table 2).

Table 2. **Reported fatalities by road user group 2007-2010**

									2010 % change over
	2007		2008		2009		2010		*2009*
Bicyclists	73	5%	71	4%	65	4%	72	4%	11%
Motorised two-wheelers	971	63%	1 107	68%	1 218	71%	1 209	67%	-1%
Passenger vehicles	116	8%	111	7%	99	6%	168	9%	70%
Goods vehicles	115	7%	78	5%	75	4%	76	4%	1%
Agricultural vehicles	35	2%	36	2%	33	2%	49	3%	48%
Pedestrians	206	13%	207	13%	215	13%	217	12%	1%
Others	29	2%	142	9%	120	7%	25	1%	-79%
Total	1 545	100%	1 638	100%	1 717	100%	1 816	100%	6%

Figure 3. **Fatalities by road user category**



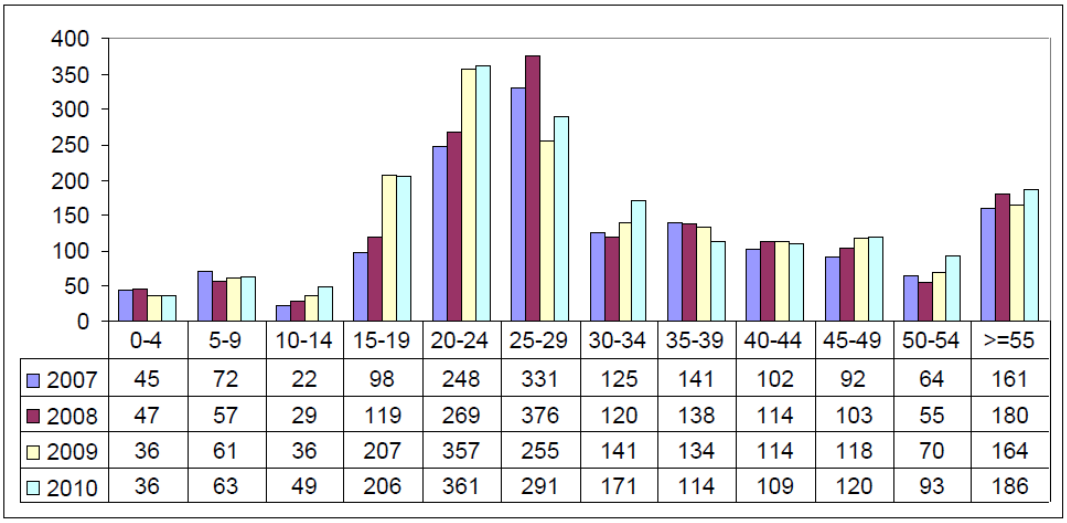
Age

The average age of fatalities was 32 years old. The active population (20-54 years old) was the most affected, representing 70% of fatalities. The peak in fatalities shifted from 25-29 years old in 2007 and 2008, to 20-24 years old in 2009 and 2010. Figure 4 and Table 3 illustrate the number of fatalities by age group.

Table 3. **Reported fatalities by age group 2005, 2009, 2010**

						2010 % change over	
	2005	**2006**	**2008**	**2009**	**2010**	***2009***	***2005***
0-5	13	35	47	48	49	2%	277%
6-9	16	42	40	49	50	2%	213%
10-14	33	47	35	36	49	36%	48%
15-17	18	52	53	51	68	33%	278%
18-20	68	123	207	232	228	-2%	235%
21-24	108	177	263	281	271	-4%	151%
25-64	390	719	896	921	1000	9%	156%
>65	32	60	93	75	84	12%	163%
Unknown	275	37	4	24	17	-29%	-94%
Total	904	1 292	1 638	1 717	1 816	6%	101%

Figure 4. **Reported fatalities for different age groups 2007-2010**



	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	>=55
2007	45	72	22	98	248	331	125	141	102	92	64	161
2008	47	57	29	119	269	376	120	138	114	103	55	180
2009	36	61	36	207	357	255	141	134	114	118	70	164
2010	36	63	49	206	361	291	171	114	109	120	93	186

Road type

In Cambodia, the roads are classified as follow:

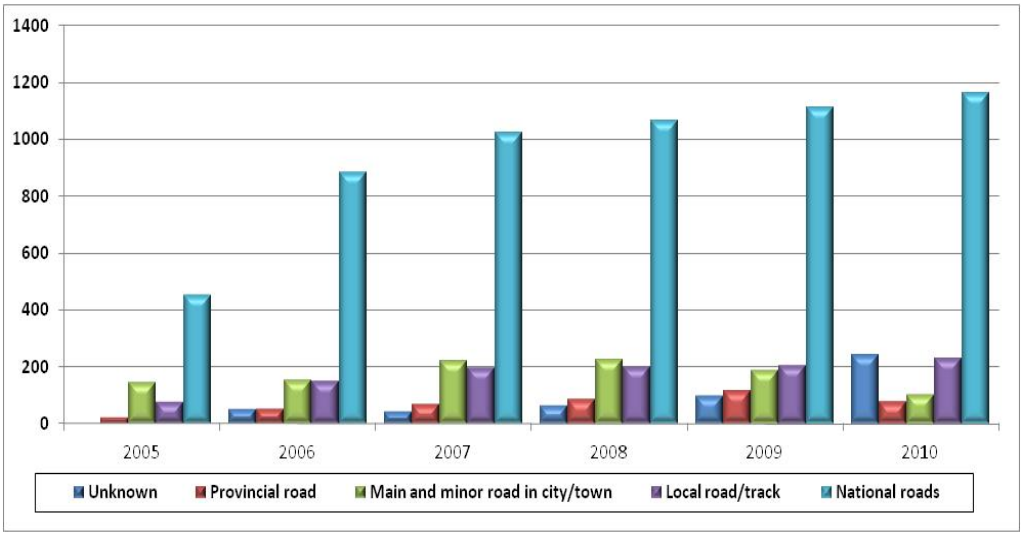
- National roads: roads connecting provinces – the longest roads compared to other road categories;
- Provincial roads: connecting districts in one province;
- Main and minor roads in cities/towns: small/short roads in a city or town;
- Local road/track: small roads in villages.

There is as yet no motorway network in Cambodia. The large majority of fatalities (64%) occur on national roads.

Table 4. **Fatalities by road type**
2005-2010

							% change over	
	2005	**2006**	**2007**	**2008**	**2009**	**2010**	***2010-2009***	***2010-2005***
Provincial roads	24	52	67	85	116	79	-32%	229%
Main and minor roads in cities/ towns	145	155	219	224	185	101	-45%	-30%
Local roads/tracks	76	149	194	200	204	231	13%	204%
National roads	452	884	1 023	1 066	1 112	1 164	5%	158%
Unknown	10	52	42	63	100	241	141%	2310%
Total	**707**	**1 292**	**1 545**	**1 638**	**1 717**	**1 816**	**6%**	**157%**

Figure 5. **Reported fatalities by road type**
2005-2010



6. Recent trends in road user behaviour

Impaired driving

The maximum BAC level is 0.5 g/l. There is no differentiated limit for professional drivers and young drivers. Based on the data collection form guidelines, a drink-driving related crash is defined as a crash caused by a road user with a BAC over the limit.

Drunk driving is the second major cause of road crashes and casualties in Cambodia. In 2010, 16% of fatalities were due to drunk driving. Compared to 2009, the number of

fatalities increased by 2%. 84% of alcohol-related fatalities were motorbike riders (who represent 83% of the fleet).

The highest percentages of fatalities due to drunk driving were observed on Saturday nights. Around 60% of fatal and injured people were between 15 and 29 years old.

Speed

Excessive speed is the leading cause of traffic crashes in Cambodia: it was responsible for more than 50% of fatalities in 2010.

The table below summarizes the general speed limits in Cambodia.

Table 5. **General speed limits in Cambodia**

	General		National roads
	Motorcycles, tricycles	**Cars**	**All vehicles**
Inside built-up areas	30 km/h	40 km/h	40 km/h
Outside built-up areas	90 km/h	90 km/h	90 km/h

Seat belts and helmets

Seat-belt wearing has been compulsory on front seats since 2007. Seat-belt wearing is not compulsory for rear-seat passengers. The rate of use is rather low (see Table 6).

Children less than 10 years old are not allowed to sit in the front seats of vehicles without accompanying adults nor without wearing a seat belt. Babies less than 10 months old must be inside a baby seat and wear the safety belt firmly attached. Children between 10 months and 4 years old must sit in a child seat with the safety-belt attached. But here again, the compliance rate is low.

Table 6. **Rates of seat-belt use, 2009**

Front seat*	Percentage of seat-belt use
Front-seat drivers	48%
Front-seat passengers	25%

**Source*: Based on a survey conducted at the end of 2009 in Phnom Penh only.

Helmet wearing

According to the recent land traffic law, helmet wearing is compulsory since 2007 for riders of (over 49 cc) motorcycles, for motorcycles with trailers and for motorised tricycles. It is not compulsory for mopeds below 49 cc and is not yet compulsory for the passengers; but it is expected that a legal amendment will be passed by the end of 2012.

73% of PTW fatalities suffered head injuries in 2010: 85% did not wear a helmet when the crash occurred.

The table below shows the results of helmet observations, undertaken between July 2010 and May 2011 in Phnom Penh and three provinces. It showed a wide variation in the rate of use between riders and passengers and during daytime and night-time.

Table 7. **Results of 2010-2011 observations on the wearing of helmets**

Region	Time	Drivers		Passengers	
		Total no. of observations	% wearing helmets	Total no. of observations	% wearing helmets
Phnom Penh	Day	17 994	82%	8 678	8%
	Night	5 996	65%	3 532	6%
Kandal	Day	8 944	66%	5 099	11%
	Night	2 897	49%	1 786	10%
Kampong Speu	Day	7 159	41%	3 896	5%
	Night	1 966	22%	1 294	3%
Siem Reap	Day	8 999	80%	4 194	8%
	Night	2 975	55%	1 578	4%
Kampong Cham	Day	8 996	36%	4 277	3%
	Night	2 968	6%	1 823	1%

Source: *Helmet use among motorcyclists in Cambodia: a survey of use, knowledge, attitudes and perceptions,* JHU, HIB, CDC, 2011.

Distracted driving

According to the new land traffic law, mobile phones are banned while driving. Hands-free phones can be operated; otherwise drivers must stop their vehicles to use their mobile phones.

7. Useful websites and references

Cambodia Road Crash and Victim Information System (RCVIS)	www.roadsafetycambodia.info

CANADA[1]

- Capital/ Ottawa
- 34.1 million inhabitants
- 638 vehicles/1 000 inhabitants in 2009
- 2 207 road fatalities in 2009
- 6.6 deaths/100 000 inhabitants in 2009

1. Short term trends

General comments and trends for 2010

Although 2010 casualty data were not available for the entire country when this report was prepared, Canada's 2010 provisional traffic death toll was approximately 1% lower than that of 2009.

Enhanced efforts by most provincial and territorial governmental and non-governmental road-safety stakeholders during the past three years – aimed at curbing the incidence of drink-driving, speeding and aggressive driving and to increase occupant restraint use – contributed largely to the improved level of road safety in Canada that has resulted in the lowest absolute death toll in more than 60 years.

While it must be mentioned that the challenging economic climate also contributed to the improved level of road safety in Canada, the efforts of road-safety stakeholders should not be minimized, as indicators of road safety improvements far exceeded changes in economic conditions. Canada's Gross Domestic Product – one of the key indicators of economic activity in a nation – actually grew by 4.6% between 2007 and 2008, before declining by 4.5% in 2009 to the 2007 level. During this same two-year period, vehicle travel remained fairly constant: first declining by almost 2% in 2008 over 2007, and then increasing by 2.4% in 2009. Traffic-related deaths decreased by 23.4% between 2006 and 2009. 2009 is the most recent year for which comprehensive information is available on victims fatally injured in traffic collisions.

Provisional data for 2011

Preliminary fatality data for the first six months of 2011 from selected provinces and territories suggest that annual traffic fatalities may have increased slightly during 2011.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 57.1%, while the number of motor vehicles registered and the number of licensed drivers more than doubled.

1. *Source*: IRTAD, Transport Canada.

The fatality figures improved, though overall progress in road safety had levelled off during the early 1990s.

During the last decade (2000-2010), the number of fatalities decreased by 24.9%, although most of this reduction occurred in the last three years (from 2008 to 2010). As previously stated, the improvement was mainly attributed to a combination of focused intervention efforts by many jurisdictions that addressed Canada's principal road safety concerns as well as a challenging economic climate.

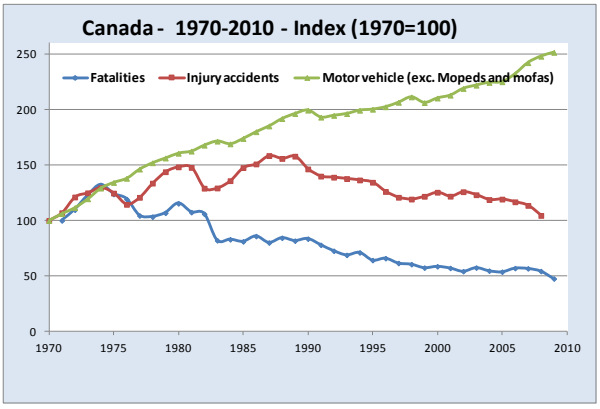
Risk and rates

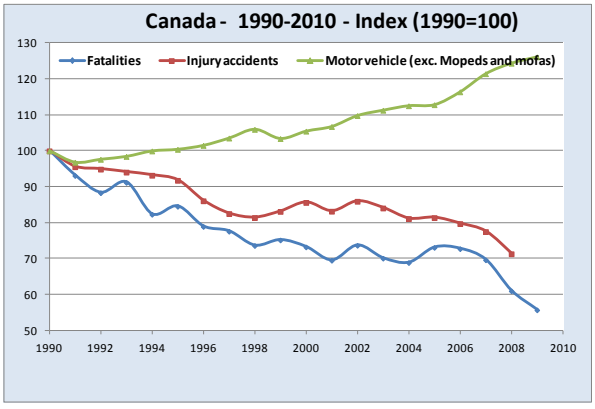
Between 1990 and 2009, the mortality (deaths / 100 000 population) decreased by 36%.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010% change over		
						2008	*2000*	*1970*
Fatalities	5 080	5 461	3 963	2 903	2 207	-8.8%	-24%	-57%
Injury crashes	124 200	184 302	181 960	155 847	123 192	-5.1%	-21%	-0.8%
Deaths / 100 000 population	23.79	22.71	9.79	9.44	6.55	-9.8%	-31%	-72%
Deaths / 10 000 registered vehicles	5.98	3.98	2.33	1.62	1.00		-38%	-57%
Deaths / billion veh-km				9.3	6.53		-30%	
Motorisation (number of motorised vehicles/ 1 000 population)	398	560	613	583	634		+9%	+59%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**





Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 19.6 billion, i.e. 1.9% of GDP.

Costs (EUR billion)	2009	2008	% change
Fatalities	10.1	11.1	-9%
Hospitalised people	2.7	2.9	-7%
Slight injuries	2.3	2.3	-3%
Property/damage costs	3.1	3.2	-4%
Total % of GDP	**18.2** **1.9%**	**19.6** **1.9%**	**-7%**

Note: Figures represent the average exchange rate from CAD to EUR for 2009.

3. National road safety strategies and targets

Canada's second-generation national road safety plan, called Road Safety Vision 2010, expired in December 2010. The national target intrinsic to this nine-year plan was to achieve average reductions of 30% in fatalities and serious injuries during the final three years of this initiative when compared with comparable figures during 1996-2001, the six-year timeframe of the inaugural national road safety plan.

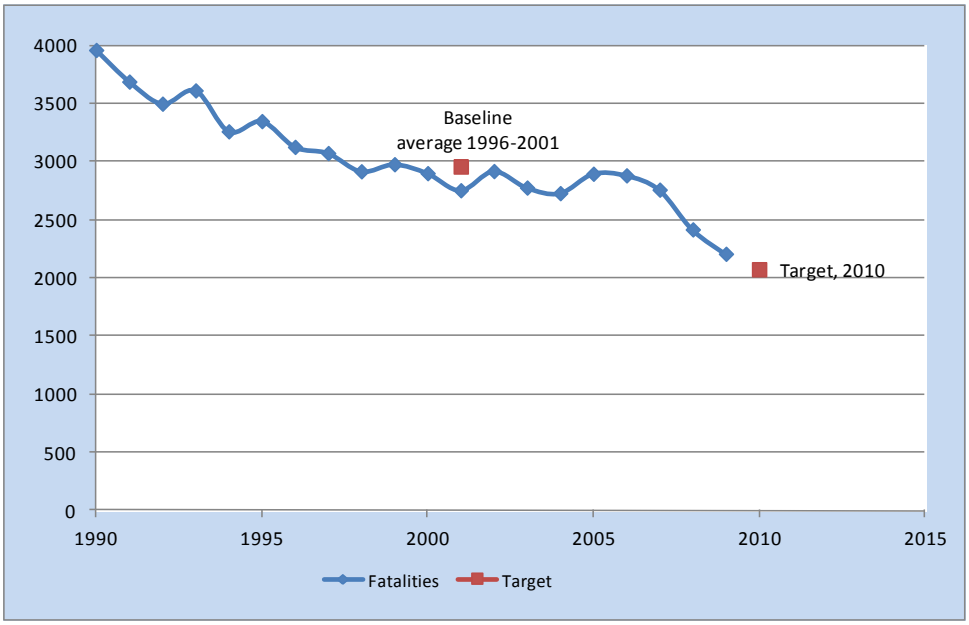
The principal road safety challenges in Canada – non-use of seat belts, drinking and driving, speeding, intersection safety, rural road safety, vulnerable road user safety, young drivers and crashes involving large commercial vehicles – were included as sub-targets in Canada's recently expired Road Safety Vision 2010 road safety plan. Consequently, these targeted areas are being closely monitored to demonstrate trends during the final three years (2008-2010) of the plan.

Casualty data necessary to monitor Canada's road safety progress during this period are currently available to 2009. A comparison of victim data for the 2007-2009 period with comparable figures during the 1996-2001 period indicated that the largest reductions in fatalities occurred among victims (a) involved in crashes on rural roads (-25.3%), followed by (b) those who were unrestrained (-22.2%) and (c) those who died in intersection crashes (-18.4%). The number of victims fatally injured in crashes involving (a) vulnerable road users (-5.8%) and (b) drinking drivers (-0.9%) experienced the least improvement.

The most notable progress among victims seriously injured in areas targeted under Road Safety Vision 2010 involved (a) those that sustained their injuries in crashes on rural roads (-39.6%), followed by (b) motor vehicle occupants who were unrestrained (-36.7%), and (c) young drivers (-33.6%). As was the case for fatalities, the number of victims seriously injured in (a) crashes involving drinking drivers (-4.4%) and (b) vulnerable road users (0.9%) experienced the least progress.

During the 2007-2009 period, traffic fatalities were 16.8% lower than during the comparison period.

Figure 2. **Trends towards national target**



Road safety strategy for 2011-2020

Canada's new road safety initiative, called Road Safety Strategy 2015, was launched in January 2011 (http://www.ccmta.ca/crss-2015/_files/road_safety_strategy_2015.pdf).

The new strategy, which includes a downward trend, rather than hard numerical targets, combines Canada's long-held aspirational vision of having the safest roads in the world with a flexible framework of proven successful best-practice strategies that provincial and territorial jurisdictions may adopt to target key road safety risks and risk groups identified in their respective road safety plans.

Most provinces and territories are currently using the key elements of Road Safety Strategy 2015 as a guideline to develop their own unique road safety plans that also support the overall objectives of the new national Strategy.

Canada designated 2011 as the Year of Road Safety to help raise awareness of key road safety challenges among Canadians as well as to coincide with the launch of its new national road safety strategy and the United Nations' Decade of Action for Road Safety. The Decade was officially launched in Canada during the annual Canadian Multidisciplinary Road Safety Conference.

4. Recent safety measures (2010-2011)

Impaired driving

"Smashed". Transport Canada updated this popular publication on drinking and driving. The publication helps people learn how alcohol and drugs can affect their behaviour,

perceptions and driving skills. It also looks at the consequences of, and penalties for, driving while impaired:
http://www.tc.gc.ca/RoadSafety/SafeDrivers/drinkingdriving/smashed/index.htm

A report published in 2010 describes the magnitude and characteristics of the 'Alcohol Crash Problem in Canada: 2009', as well as annual trends:
(http://www.ccmta.ca/english/committees/rsrp/strid/pdf/alcohol_crash09_e.PDF)

Speed management

As part of its speed management program, Transport Canada conducted a field operational test of an *Intelligent Speed Adaptation* (ISA) technology to test the effect of positive rewarding for appropriate driving behaviour. The two characteristics of driving behaviour that were rewarded were: not exceeding the speed limit, and maintaining an appropriate following distance to the vehicle in front. Early study results indicated an increased level of compliance for speed and following distance from the baseline compared to the feedback/reward phase.

Campaigns and communications

Canada designated 2011 as the Year of Road Safety to coincide with the launch of its new national road safety strategy and the UN Decade of Action for Road Safety

A key component of the National Year of Road Safety 2011 was the development and implementation of various communication activities and awareness initiatives. The variety of initiatives ensured that all road safety issues were covered and reached out to a wider audience through different means of promotional products, conferences and social marketing. Some of the road safety issues included: distracted driving, winter driving, impaired driving and child restraints. For more information about the Year, visit: www.tc.gc.ca/roadsafety2011.

New publications were launched and updated, which included:

- the Road Safety in Canada report (http://www.tc.gc.ca/eng/roadsafety/tp-tp15145-1201.htm)
  and brochure (http://www.tc.gc.ca/eng/roadsafety/tp-tp15144-1235.htm),
- child seat-restraint fact sheets (http://www.tc.gc.ca/roadsafety/kids),
- collision statistics 2009 (http://www.tc.gc.ca/eng/roadsafety/tp-tp3322-2009-1173.htm) and
- a multi-lane roundabout brochure (http://www.tc.gc.ca/eng/roadsafety/tp-tp15085-1203.htm).

Two major outreach campaigns were launched, which included updating the iDRIVE: Road Stories video, aimed at drivers and passengers under the age of 25: (www.tc.g.ca/roadsafety/IDRIVE); and a Winter Driving Campaign, to further educate and inform Canadians about being prepared for winter driving:
(http://www.tc.gc.ca/winterdriving).

Safer vehicles

- Transport Canada has updated the testing requirements for removable child occupant restraints to include a new requirement for three-point seat belts.

- Transport Canada is currently developing proposals to update its regulations for built-in booster seats for children, frontal impact protection and tyre-testing requirements.
  - The built in booster seat regulation is intended to accommodate larger and older children.
  - The frontal impact protection regulation will introduce a family of new anthropomorphic test devices (dummies) for improved protection for in- and out-of-position occupants in the event of a frontal impact collision.
  - The tyre-testing regulation will improve tyre-testing requirements, including higher-speed testing and winter tyre requirements.
- Transport Canada has finalised the requirements of the Global Technical Regulation for motorcycle brakes. This regulation will introduce technical testing requirements that are used internationally.
- In 2009, the operations of all federally regulated transit services, which had been exempt from National Safety Code regulations for the previous twenty years, became subjected to the federal hours-of-service regulation.
- The technical requirements for Canada's roof crush-resistance safety regulation were harmonized with those of the United States.
- Transport Canada continues to work with the United Nations and international governments towards the development of requirements for minimum noise levels for electric and hybrid vehicles. This issue is a concern to visibly impaired pedestrians who may not be able to detect these vehicles when they travel at low speeds.

Safer infrastructure

Transport Canada:

- Undertook a project to test the technological and institutional feasibility of instituting a Canadian Road Assessment Program (CanRap) under the iRap umbrella (www.tc.gc.ca/eng/roadsafety/saferoads-ruralroads-canrap-1254.htm;
- Designed and disseminated brochures for the Canadian public about the rules of the road for single- and multi-lane roundabouts. This information was also posted on Transport Canada's road safety web site at: www.tc.gc.ca/eng/roadsafety/tp-tp14787-menu-179.htm;
- Partnered with selected jurisdictional governments in a project to develop national road signs and pavement markings for roundabouts;
- Entered into a contribution agreement to develop a formalized warrant process to assess the cost-effectiveness of installing a roundabout:

  www.tc.gc.ca/eng/roadsafety/tp-tp15085-1203.htm;
- Partnered with provinces and territories, as well as key stakeholders, on a project to develop national guidelines for collision-prone location screening;
- Partnered with academia to conduct research on Collision Reduction Factors for Canada, based on the United States Federal Highway Administration's Highway Safety manual methodologies.

5. Crash trends

Road users

Motor vehicle occupants account for almost 75% of road user fatalities in Canada each year, due to Canadians' heavy reliance on privately-owned motor vehicles for basic transportation.

Motor vehicle occupant and motorcyclist fatalities decreased by 9.5% and 9.7%, respectively, during 2009, when compared with comparable 2008 death figures, while pedestrian and cyclist fatalities increased slightly, by 2.7% and 2.4%, respectively, during the same period.

Table 2. **Reported fatalities by road user group**
1990, 2000, 2009 and 2010

									2009 % change over		
	1990		2000*		2008		2009		*2008*	*2000*	*1990*
Bicyclists	106	3%	40	1%	42	2%	41	2%	-2%	+3%	-61%
Motorised 2-wheelers	260	7%	170	6%	216	9%	195	9%	-10%	+15%	-25%
Car occupants	2 244	57%	1 561	54%	1 145	47%	1 048	47%	-8%	-33%	-53%
Pedestrians	584	15%	372	13%	299	12%	307	14%	+3%	-17%	-47%
Others	769	19%	760	26%	717	30%	616	28%			
Total	3 963	100%	2 903	100%	2 419	100%	***2 207***	**100%**	***-9%***	***-24%***	***-44%***

Age

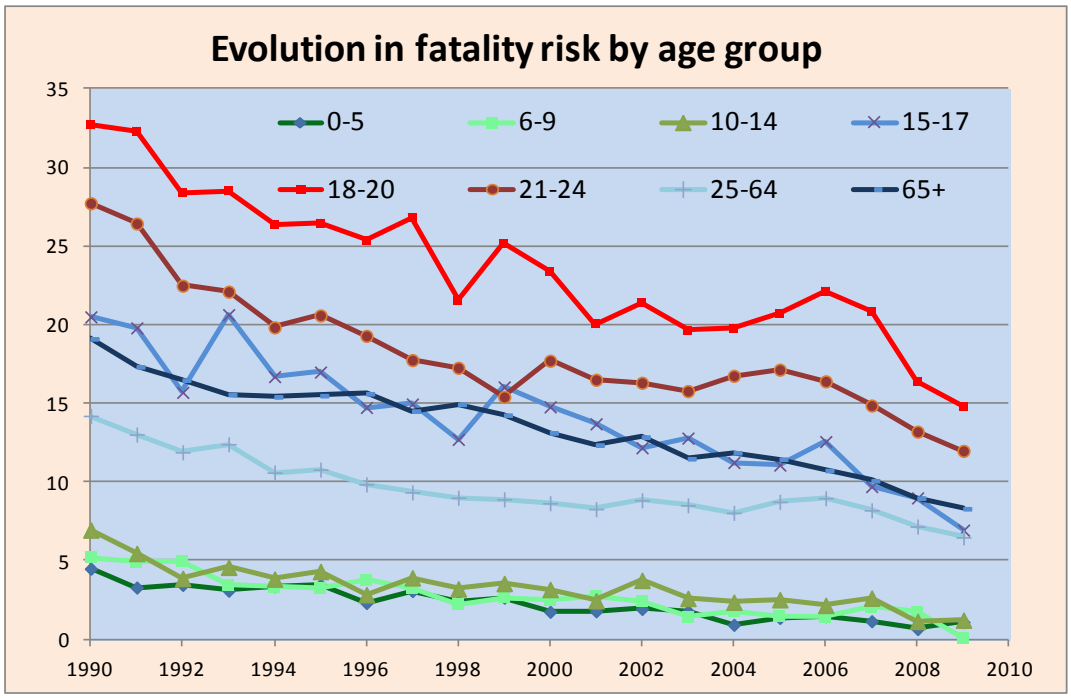
When examining traffic-related deaths on the basis of population, the age group most at risk in Canada is 18-20, followed by 21-24. The 18 to 20-year-old age group has a mortality rate almost twice that of the general population.

When examining motor vehicle driver fatalities, the 16 to 24-year-olds are at greatest risk. Despite graduated licensing programmes being in place in most parts of the country for novice drivers, driver inexperience and high-risk behaviour, such as driving after drinking and non-use of seat belts, remain a concern and are reflected in this group's considerably higher driver fatality rate per billion vehicle-kilometres travelled. Only very old drivers (75+) have higher fatality rates.

Table 3. **Reported fatalities by age group**
1990, 2000, 2008, 2009

	1990	2000	2009	2010	2009% change over		
					2008	*2000*	*1990*
0-5	101	38	14	24	+71%	-37%	-7%
6-9	77	41	23	7	-70%	-83%	-91%
10-14	127	65	25	24	-4%	-63%	-81%
15-17	223	183	119	91	-24%	-50%	-59%
18-20	382	293	228	208	-9%	-29%	-46%
21-24	444	294	240	222	-8%	-24%	-50%
25-64	2 004	1 460	1 335	1 221	-9%	-16%	-39%
>65	583	505	409	389	-5%	-23%	-33%
Total	*3 963*	*2 903*	*2 419*	*2 207*	*-9%*	*-24%*	*-44%*

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2009)



Road type

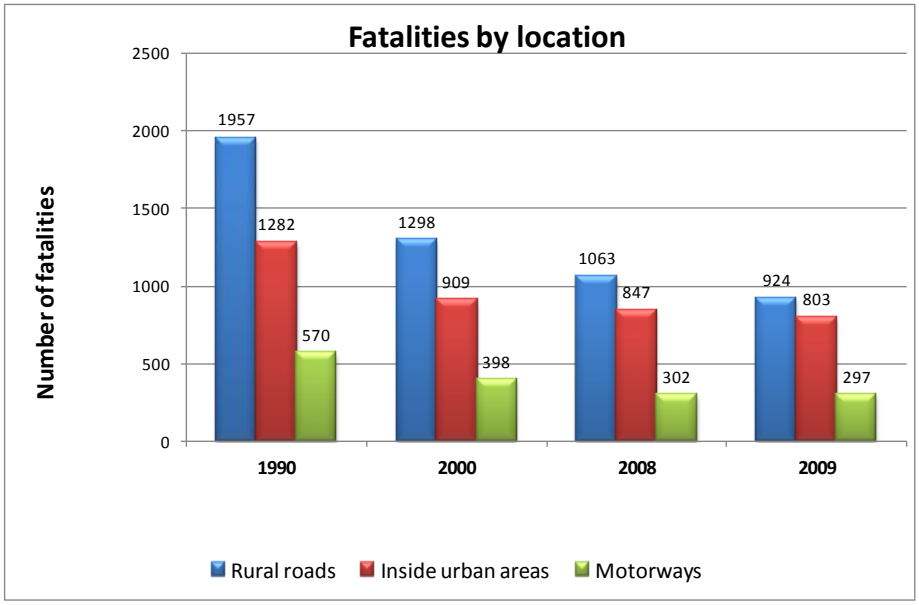
Undivided rural roads with posted speed limits of 80-90 km/h are the most dangerous for road users. In 2009, approximately 50% of all traffic fatalities occurred on undivided roads outside of urban areas.

Notwithstanding the risks of travelling on rural undivided roads, the number of victims killed and seriously injured on these roads decreased substantially during the 2007-2009 period, when compared with the casualty figures during the 1996-2001 comparison period (-25.3% and -39.6%, respectively). Increased police enforcement in some

jurisdictions that targeted high-risk driver behaviour resulted in substantial increases in the number of citations issued, and corresponding decreases in serious crashes and resulting fatalities. Survey results of seat-belt use in rural Canadian communities likely reflected the increased police enforcement. Two traditionally higher-risk groups – males and light truck occupants – had usage rates that were 3.4% and 7.8% higher, respectively, than the corresponding figures observed during the previous rural Canadian seat-belt use survey, which was conducted in 2006.

The large majority of fatalities and serious injuries involving vulnerable road users (pedestrians, motorcyclists and bicyclists) occurred in urban areas with posted speed limits of 70 km/h or less. Urban intersections are particularly dangerous, for vulnerable road users and motorists alike.

Figure 4. **Reported fatalities by road type 1990, 2000, 2008 and 2009**



6. Recent trends in road user behaviour

Impaired driving: alcohol and drugs

The Canadian Criminal Code specifies that driving with a Blood Alcohol Concentration (BAC) over 80 mg% (0.8g/l) is a criminal offence, punishable by fine, licence suspension of up to 12 months on first offence, and possibly jail. In addition, most Canadian provinces and territories have administrative sanctions whereby drivers with a BAC between 50 to 80 mg% can have their licence suspended for a short period, ranging from 12 to 24 hours. Most Canadian provinces and territories have graduated licensing programmes that forbid driving with a BAC over 20 mg% during the novice and probationary periods, which usually last two to three years.

In 2009, 32% of motor vehicle deaths involved a drinking driver (drivers involved in a fatal crash with any amount of alcohol in their blood, including those below the 80 mg%

threshold). Among all fatally injured drivers, more than 37% had been drinking. In cases involving fatally injured drivers in the 16-45 age group, 46% had been drinking. More than 57% of all drivers killed in single-vehicle crashes had been drinking or were legally impaired and almost 56% of fatally injured drivers operating light trucks had been drinking at the time of crash occurrence.

Transport Canada partnered in the funding of a project to examine the effects of cannabis (in the form of THC capsules) on driving behaviour. Driver behaviour will be observed using a driving simulator.

Transport Canada funded a study that examined protocols used by coroners' for assessing drugs of interest for testing, the minimum level of drugs in a victim to qualify for testing and the testing procedures used. The objective of the study was to develop standardized testing procedures that will enable results to be compared across jurisdictions.

A Comparison of Drug- and Alcohol-involved Motor Vehicle Driver Fatalities:

Transport Canada participated in a project that merged motor vehicle crash records with coroners' reports, to compare the circumstances and characteristics of motor vehicle crashes and drivers fatally injured in these crashes who had used either alcohol, drugs or both stimulants. The results of the study, which examined drivers fatally injured in crashes on Canadian roads during the 2000-2008 period, revealed that drug use among drivers killed in traffic collisions was almost as prevalent as alcohol use (almost 41% for alcohol and almost 37% for psychoactive drugs). Furthermore, the prevalence of drug-positive drivers increased steadily during the period of study, from approximately 30% in 2000 to almost 37% in 2008. Both alcohol and drugs were found in 15% of dead drivers tested:

www.ccsa.ca/2011%20CCSA%20Documents/2011_CCSA_Drug_Use_by_Fatally_Injured_Drivers_in_Canada_en.pdf.

Speed

Excess or inappropriate speed was a factor in approximately 25% of fatalities and about 19% of serious injuries in 2009. Speed is often cited as a factor in combination with other high-risk behaviour, such as drink-driving, non-use of seat belts and the running of red lights. Driving at excess speeds is frequently cited as a contributing factor for serious crashes on both rural and urban roads. The sub-target pertaining to reductions in deaths and serious injuries has seen limited improvement during the 2007-2009 period, as fatalities decreased by 11% and serious injuries by 7% when compared with similar figures during the 1996-2001 comparison period.

General speed limits in Canada (most jurisdictions):

Urban areas	40 km/h-70 km/h
Rural roads	80 km/h-90 km/h
Motorways	100 km/h-110 km/h

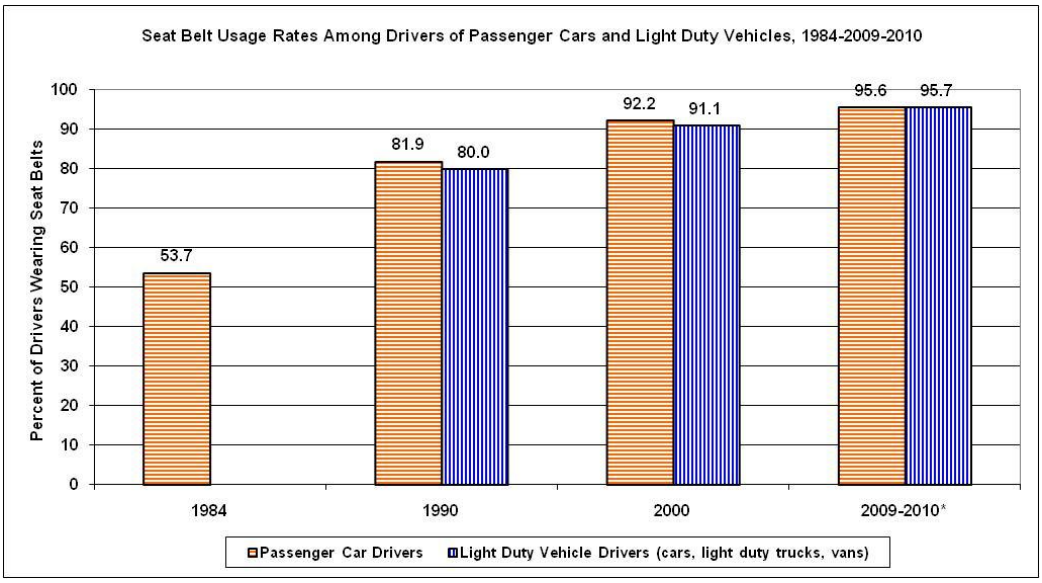
Seat belts and helmets

Following its introduction as a compulsory requirement for front- and rear-seat occupants in one Canadian province in 1976, all provinces and territories now have mandatory seat-belt laws. Strategies such as public education initiatives, enhanced enforcement, tougher sanctions and fewer vehicle exemptions, which were introduced under the auspices of the National Occupant Restraint Programme, have contributed to progressively higher seat-belt usage rates.

In September 2010, Transport Canada conducted an observational survey of seat-belt use among light-duty vehicle occupants in urban communities across Canada. Data on cell-phone use by drivers was also collected. Survey results revealed that restraint use among light-duty vehicle occupants in urban areas of Canada increased to 96% from 93% in 2007, when the survey was last conducted in Canada's urban communities. When the 2010 survey results were combined with the results of the 2009 seat-belt use survey conducted in Canada's rural communities, the overall national seat-belt usage rate among light-duty vehicle occupants was 95% during 2009-2010.

Despite the high restraint usage rates in Canada overall, more than 35% of motor vehicle occupants killed in traffic collisions in 2009 – and 16% of those seriously injured – were unbelted at the time of the crash. Victims in the 20-44 age group had the highest incidence of non-compliance (43%), followed by 35% of occupants aged 19 years or younger and 25% of motorists 45 years of age or older. By location, the share of fatally injured occupants not using seat belts was highest in urban areas (posted speed limits of 70 km/h or less), at approximately 34%, followed closely by victims killed on rural roads, at approximately 33%, and on motorways (23%).

Figure 5. **Seat belt use**
1984-2009-2010



Note: Seat belt usage rates cited for 1984, 1990 and 2000 were derived from urban areas; figures for 2009-2010 were from both rural (2009) and urban (2010) sites.

Table 4. **Seat-belt wearing rates**

	1980	1990	2000	2010
Urban areas – driver	36%	82%	92%	96%

Table 5. **Seat-belt use by car occupants**

	2010
Front seats	
General	95.5%
Urban areas	96.0%
Rural areas	91.9%
Rear seats	
General	89.2%
Urban areas	89.3%
Rural areas	89.1%

Provincial and territorial laws require all riders of motorized two-wheelers to wear helmets. Some jurisdictions also have helmet-use laws for cyclists, but these vary in application. In some cases, the law applies only to children and young adults up to 18 years of age. In general, police services do not rigorously enforce helmet-use laws among cyclists.

Distracted driving, use of mobile phone

Hand-held cell-phone use, which is illegal while operating a motorized vehicle in almost all Canadian jurisdictions, decreased by 2.6 percentage points to 3.3% of observed drivers in 2010 from 5.9% when observations were last taken in urban communities during the 2007 survey. The combined 2009 rural and 2010 urban cell-phone use surveys indicated that an estimated 3.3% of light-duty vehicle drivers used cell-phones while operating their vehicles during the 2009-2010 period. Legislation does not currently exist in any Canadian jurisdiction prohibiting drivers from using hands-free cellular devices.

7. Useful websites and references

Transport Canada	http://www.tc.gc.ca/
Road Safety Vision 2010	http://www.ccmta.ca/english/committees/rsrp/rsv/rsv.cfm
Road Safety Strategy 2015	http://www.ccmta.ca/english/committees/rsrp/rsv/rsv.cfm

CZECH REPUBLIC[1]

- Capital : Prague
- 10.5 million inhabitants
- 528 vehicles / 1 000 inhabitants
- 802 road fatalities in 2010
- 7.6 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, road fatalities decreased by 11%, thus pursuing the marked downward trend since 2008. These positive developments have to be analysed in conjunction with the economic recession, which affected the growth in traffic volume.

Provisional data for 2011

Based on provisional data for the year 2011, the positive trend in traffic safety continued, with an estimated 5% reduction in the number of fatalities in comparison with 2010.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 60% and the number of injury crashes by around 20%. In the same period, the number of vehicles more than doubled. In recent years (2000-2010), the number of fatalities decreased by 46%.

Four periods can be observed:

From 1970 to 1986, the number of fatalities decreased and reached its lowest level in 1986. At that time, the number of fatalities per million population in the former Czechoslovakia was comparable with the most advanced European countries. An official assessment by UNECE rated Czechoslovakia as one of the best countries regarding reductions in road fatalities. This positive performance was explained by the following factors:

- Introduction of the first speed limits for rural roads on 1 July 1979 (passenger cars 90 km/h, heavy vehicles 70 km/h, motorcycles 80 km/h;
- Implementation of Regulation No. 101/1981 Coll., of the Federal Ministry of the Interior, on suspending driving licences of drivers not able to pay a fine for their road traffic offence. The regulation, which became effective on 1 January 1982,

1. *Source:* IRTAD, Transport Research Centre (CDV).

contributed significantly to an improvement in road safety at the time, although it is no longer in effect;

- Intensive development of the motorway network started at the end of the 1960s (in 1980, a motorway opened between Prague and Brno);
- Faster development and modernisation of the vehicle fleet;
- Strong enforcement.

1986-1996: the number of road fatalities started to increase slightly after 1986 and more rapidly after 1989, with a peak in 1994. This can be explained by the fast increase in motorisation and a false understanding of "new freedom", following political developments.

1997-2003: The number of fatalities oscillated within a certain range. The first significantly positive change was the speed limit reduction in urban areas to 50 km/h on 15 October 1997. On 1 January 2001, mandatory daytime running lights in the winter season and priority for pedestrians at zebra crossings were introduced in the framework of a new traffic code.

2004-2010: The positive trend accelerated after 2003. In connection with the implementation of the National Road Safety Strategy, the work of the police was intensified and greater initiatives were carried out to improve the road infrastructure at local level. The most positive results were achieved in 2006, the best since 1990, after the implementation of the penalty point system in July 2006. Although 2007 was not a very good year, results in 2008, 2009 and 2010 are again encouraging.

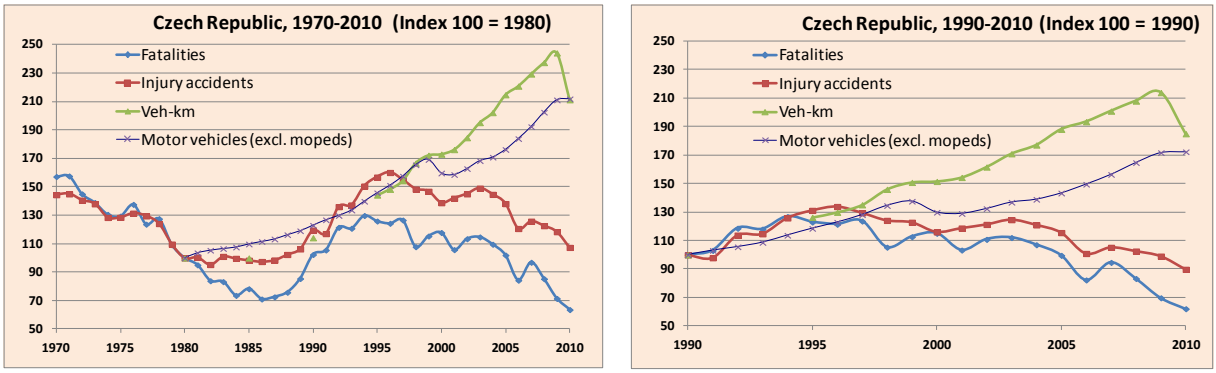
Risk and rates

Between 2000 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 40%.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	1 983	1 261	1 291	1 486	901	802	-11.0%	-46%	-60%
Injury crashes	26 478	18 326	21 910	25 445	21 706	19 676	-9.4%	-23%	-26%
Rates									
Deaths / 100 000 population	20.0	12.2	12.4	14.5	8.6	7.6	-11.6%	-48%	-62%
Deaths / 10 000 registered vehicles	13.3	4.8	4.0	3.4	1.6	1.4	-12.5%	-59%	-90%
Deaths / billion veh-km	-	53.9	48.3	36.7	15.8	16.2	+2.5%	-56%	-
Motorisation (motorised vehicles / 1000 pop.)	152	254	322	407	528	528	0%	+30%	+247%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



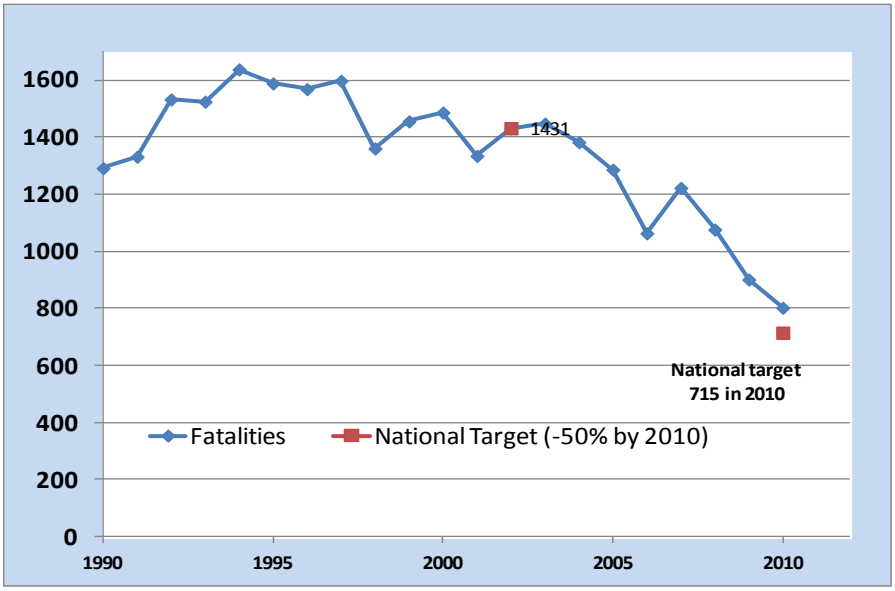
Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 2.3 billion, i.e. 1.5% of GDP.

3. National road safety strategies and targets

The national Strategic Safety Plan 2002-2010 set a target to reduce fatalities by 50%. This fatality target was not reached, although good progress was achieved, especially in the last part of the decade. Actually, after the very negative results of 2007, the Ministry of Transport initiated an evaluation and update of the National Road Safety Strategy. An expert working group was established to review the Highway Code and propose safety-oriented changes.

Figure 2. **Trends towards the national target**



Road safety strategy for 2011-2020

The new National Strategic Safety Plan for the years 2011-2020 was approved by the Government of the Czech Republic on 10 August 2011.

It set the following targets:

- Decrease the mortality rate (deaths/100 000 population) to the EU-27 average (i.e. by about 60%);
- Decrease by 40% the number of persons seriously injured in comparison to the 2010 level.

The Strategic Safety Plan will in particular focus on the following areas:

1. Children;
2. Pedestrians;
3. Bicyclists;
4. Motorcyclists;
5. Young and new drivers;
6. Elderly population;
7. Alcohol and other drugs in the course of driving;
8. Speeding;
9. Aggressive driving.

4. Recent safety measures (2010-2011)

Infrastructure

- Several new traffic warning and information signs have been installed on roadsides since 21 April 2009, including "Opening bridge ahead", "Roadside chapel", "Speed cameras" and "Oncoming cyclists ahead". Signage has been added for one-way streets, and blue posts warn of the risk of ice and slippery roads.
- Introduction of GPS-based localisation of accident spots.

Enforcement

- The road traffic police significantly increased enforcement activities for drink-driving, speeding and lack of seat-belt use. The police vehicle fleet has been equipped with high-performance cars and motorcycles.
- Introduction of variable message signs on urban roads to inform drivers of their speed.

Campaigns, education and communication

- Several campaigns were initiated in 2011, including "If you don't think, you will pay", targeting the most dangerous behavioural problems: aggressive driving, drinking and driving, speeding and the non-wearing of seatbelts.
- A multimedia project, "The Action", aimed at secondary school students, was continued and extended in 2011.
- The Designated Driver Campaign, "Let´s agree", targeting young drivers, was successfully continued.
- Permanent attention is devoted to children's safety education: the "Safe road to school" programme is widely accepted.
- A contest for elementary school pupils, "Safe on the roads", was organised in October 2009.

5. Crash trends

Road users

All user groups have benefited from important safety improvements since the end of the 1990s. The situation of motorcyclists finally improved in 2009, after several years of a continuous increase in the number of motorcyclists killed on the roads, but in 2010 the number of motorcyclists killed increased again.

Table 2. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	135	10%	151	10%	84	9%	80	10%	-5%	-47%	-41%
Motorised 2-wheelers	113	9%	116	8%	94	10%	99	12%	+5%	-15%	-12%
Car occupants	597	46%	784	53%	497	55%	403	50%	-19%	-49%	-32%
Pedestrians	359	28%	362	24%	176	20%	168	21%	-5%	-54%	-53%
Others	87	7%	73	5%	50	6%	52	6%	+4%	-29%	-40%
Total	***1 291***	***100%***	***1 486***	***100%***	***901***	***100%***	***802***	***100%***	***-11%***	***-46%***	***-38%***

Table 3. **Relative fatality risk by road user group 2010**

	Reported fatalities	Deaths per billion veh-km
Passenger car occupants	403	10.8
Motorcycles	99	253

Age

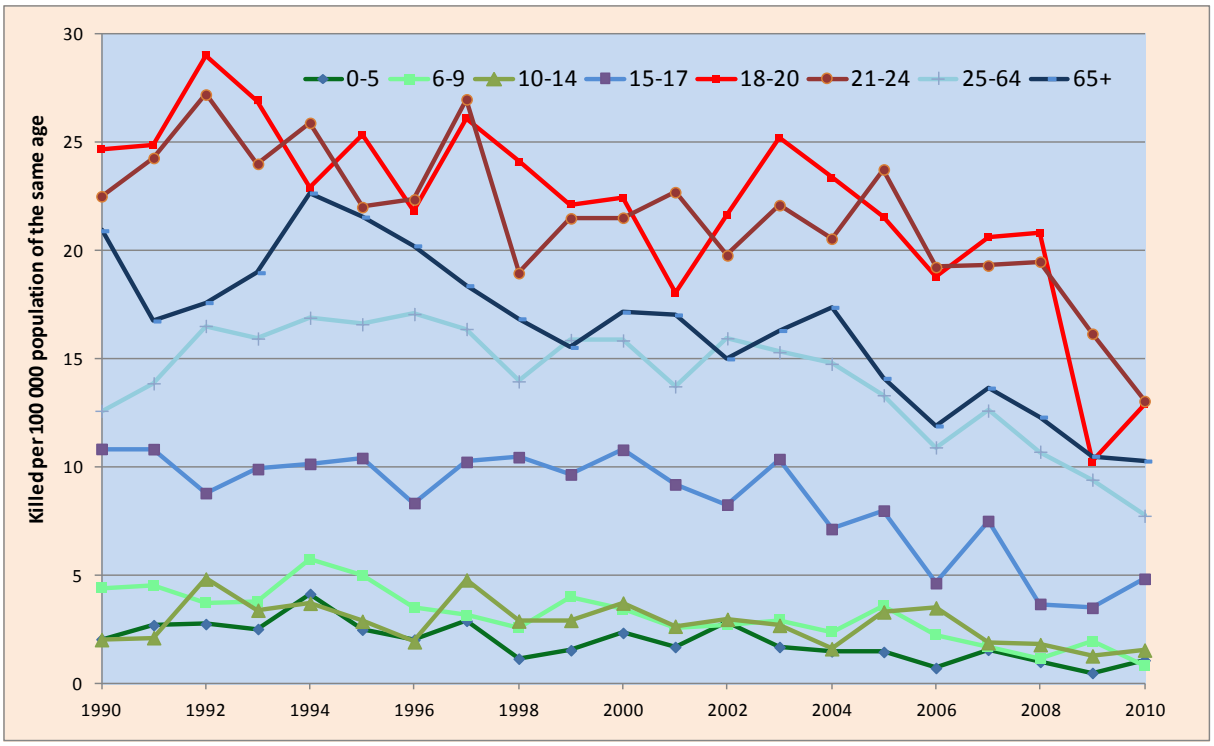
Since 1990, the reduction in fatalities has benefited the youngest age groups. The decrease was more modest for the older age groups (25-64 and above 65).

Young people (21-24) are still a high-risk group for road safety, with a fatality risk twice as high as for the general population (Figure 3).

Table 4. **Reported fatalities by age group 1990, 2000, 2009, 2010**

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	16	13	3	7	+133%	-46%	-56%
6-9	25	17	7	3	-57%	-82%	-88%
10-14	18	24	6	7	+17%	-71%	-61%
15-17	57	44	13	17	+31%	-61%	-70%
18-20	107	103	41	51	+24%	-50%	-52%
21-24	123	155	92	74	-20%	-52%	-40%
25-64	668	881	572	471	-18%	-47%	-29%
>65	270	243	163	164	+1%	-33%	-39%
Total	1 291	1 486	909	802	-11%	-46%	-38%

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

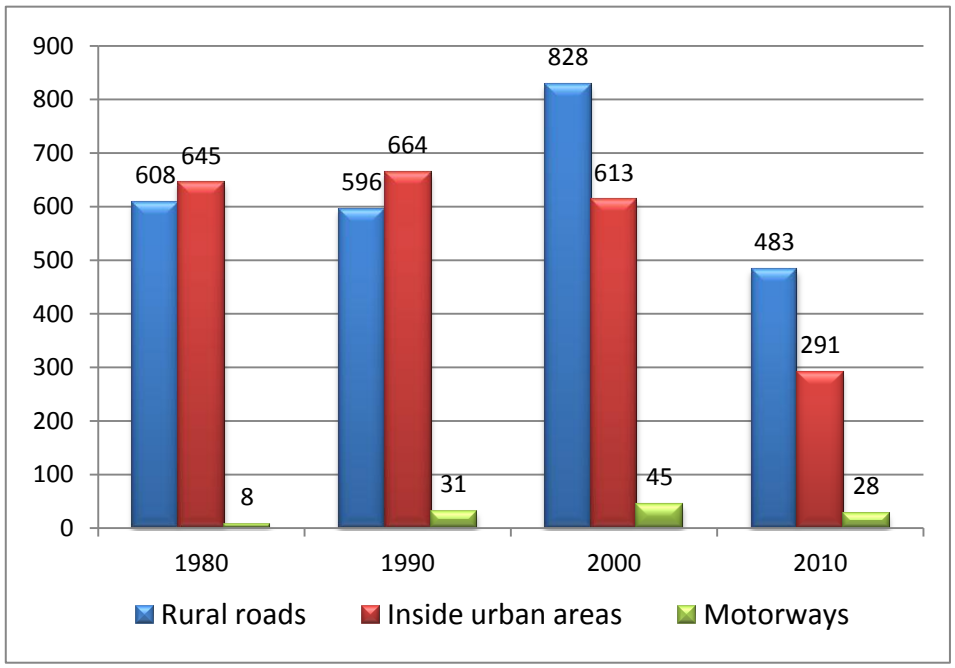


Road type

In 2010, around 60% of fatalities occurred on rural roads, 36% in urban areas and 3% on motorways (Figure 4).

Since 1990, the greatest reduction in fatalities occurred on urban roads (-50%), while there has been very little improvement on rural roads. The number of fatalities on motorways significantly increased until 2000, due to the enlargement of the motorway network. Improvements on urban roads are related to the introduction of the 50 km/h speed limit, the extension of 30 km/h zones, and the wide introduction of traffic-calming measures.

Figure 4. **Reported fatalities by road type 1980, 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

There is a zero BAC limit in the Czech Republic. When the police arrive at the scene of a crash, all persons involved are checked for BAC. If the BAC level of any of the persons involved is positive, the crash is classified as alcohol-related.

In 2010, 13.3% of fatal crashes involved a driver with a positive blood-alcohol content. This share was only 3.4% in 2007.

Speed

Speeding is the main contributing factor in fatal crashes, although the number of drivers above the legal speed limit has been reduced, especially in urban areas.

The share of injury crashes due to excessive speed was 25% in 1980, 24% in 2000 and 29% in 2010. The share of fatal crashes due to excessive speed was 33% in 1980, 40% in 2000 and 38% in 2010.

Seat belts and helmets

Seat-belt use is compulsory in front seats since 1966 and in rear seats since 1975. However, until recently the level of enforcement was very low. The situation has significantly improved since 2004. In 2009, the general usage rate was 86% (Table 6). Figure 5 shows the evolution in seat-belt wearing rates for car drivers.

Table 5. **Seat-belt use by car occupants**

	2000	2003	2006	2009
General	46%	56%	88%	86%
Front seats	63%	61%	90%	88%
Rear seats	7%	13%	58%	51%
Motorway driver	81%	88%	98%	98%
Rural roads – driver	62%	65%	90%	91%
Urban areas – driver	46%	47%	88%	87%

Helmet wearing is compulsory for all motorcycle and moped riders, and the wearing rate is nearly 100%.

Safety helmets were made mandatory for cyclists up to the age of 15 in 2001 and up to 18 in 2006.

Distracted driving/Use of mobile phone

In the Czech Republic, drivers are not allowed to drive while using a hand-held phone or PDA. Hands-free devices are tolerated.

In 2005-09, it was estimated that 1.5-2% of drivers were using a mobile phone while driving.

7. Useful websites and references

CDV, Transport Research Centre	www.cdv.cz
Ministry of Transport	www.mdcr.cz
Police of the Czech Republic	www.policie.cz

DENMARK

- Capital : Copenhagen
- 5.5 million inhabitants
- 522 vehicles / 1 000 inhabitants
- 255 road fatalities in 2010
- 4.6 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, the number of fatalities and injury crashes decreased by 16%, following on the very positive results already achieved in 2009 (-25% fatalities). These positive results are partly explained by the severe 2010-11 winter conditions, with many heavy snowfalls.

The number of those killed and injured was at its lowest level since 1932.

Provisional data for 2011

Provisional data for the year 2011 show a continuous downward trend in the number of traffic casualties. The provisional number of persons killed for 2011 is 221 (a 13% decrease in comparison to 2010) and the number of injured is estimated at 4 000. Again, the heavy snowfalls in early 2011 partly explained this decline. Relatively good results were also achieved during the summer of 2011. There is some indication of fewer young people killed, less fatal accidents during the night and less fatal accidents outside urban area over the summer.

2. Long term trends

Change in the number of fatalities and injury crashes

Fatalities peaked in Denmark in 1971. Since then, the number has decreased, with some fluctuations over the years. The substantial drop from 1970 to 1990 was mainly due to the impact of the oil crises in 1974 and 1979. The oil shocks led to the introduction of general speed limits, which significantly influenced road safety. Later legislation on seat-belt use pushed the numbers down further. The increase from 2006 to 2008 in the number of fatalities appears high only because the figures were extremely low from 2004 to 2006.

In the last three years, the reduction in fatalities accelerated. Effective safety measures, tough winter conditions in 2010 and 2011, and possibly the economic downturn explain this sharp decrease in fatalities.

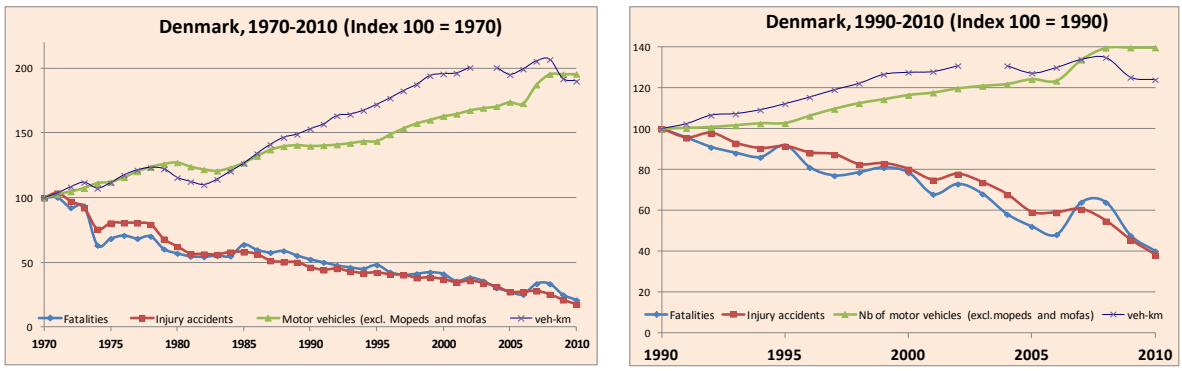
Risk and rates

Since 2000, the mortality rate (expressed in deaths per 100 000 population) and the fatality risk (expressed in deaths per billion veh-km) respectively decreased by 51% and 47%.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	1 208	690	634	498	303	255	-15.8%	-49%	-79%
Injury crashes	19 782	12 334	9 155	7 346	4 174	3 498	-16.2%	-52%	-82%
Rates									
Deaths / 100 000 population	24.6	13.5	12.4	9.3	5.5	4.6	-16.2%	-51%	-81%
Deaths / 10 000 registered vehicles			3.1	2.1	1	0.9	-10%	-57%	
Deaths / billion veh-km	50.5	25.0	17.3	10.7	6.6	5.6	-15.1%	-47%	-89%
Motorisation Motorised vehicles / 1 000 pop.	301		403	452	525	522	-0.4%	+16%	+73%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



3. National road safety strategies and targets

Denmark's 2000 Traffic Safety Action Plan set as its main target a 40% reduction in fatalities and serious injury accidents by 2012. Measures supporting the target included a particular focus on speeding, bicycle safety, young drivers and drink-driving.

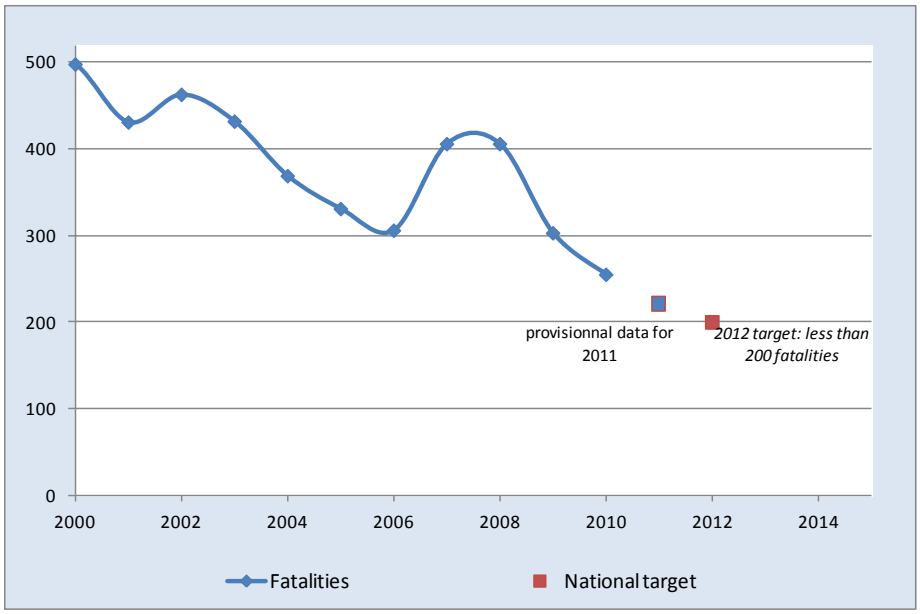
One hundred special actions were identified, with a clear sharing of responsibilities for each. Implementing all of the actions was expected to make it possible to reach the target. Examples include stationary speed cameras (now used on a pilot basis in six locations), improvements in driving education and the use of bicycle helmets.

As fatalities in 2006 were very close to the target for 2012 (300), the Traffic Safety Committee revised the target in 2007 to 200 fatalities by 2012. Based on preliminary figures for 2011, the target was nearly reached by the end of 2011 with 221 killed.

Road safety strategy for 2011-2020

The Road Safety Commission (responsible for the strategy and targets) was dissolved as a consequence of the elections in Denmark in September 2011. New members have not yet been appointed. Whenever they are appointed, one of their priorities will be to set new targets.

Figure 2. **Trends towards national target**



4. Recent safety measures (2010-2011)

Campaigns

During the last half of 2011 activities were developed with a special focus on motorcycles. In collaboration with biker fairs, information was handed out on how to drive motorcycles safely. In connection with the campaign a special website was set up showing the locations of motorcycle accidents.

5. Crash trends

Road users

All user groups have benefited from the important safety improvements introduced since the 1970s. However, the improvement for motorcyclists was less significant than for the other road-user groups.

Since 2000, the user group benefiting most from safety progress are moped riders, mainly due to the declining popularity of this transport mode. On the other hand, motorcycle riders had the smallest decrease in fatalities.

Table 2. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	110	17%	58	12%	25	8%	26	10%	4%	-55%	-76%
Mopeds	44	7%	47	9%	15	5%	11	4%	-27%	-77%	-75%
Motorcycles	39	6%	24	5%	27	9%	22	9%	-19%	-8%	-44%
Car occupants	284	45%	239	48%	169	56%	137	54%	-19%	-43%	-52%
Pedestrians	118	19%	99	20%	52	17%	44	17%	-15%	-56%	-63%
Others	39	6%	31	6%	15	5%	15	6%	0%	-52%	-62%
Total	634	100%	498	100%	303	100%	255	100%	-16%	-49%	-60%

Table 3. **Relative risk by transport mode**

	Reported fatalities and serious injuries	Casualties per billion** person-km
Passenger car occupants*	2 230	14
Bicyclists	459	148
Mopeds	381	2 085
Motorcycles	192	617
Pedestrians	330	143

*: Driver only.

**: Billion km = 1 000 million km = 10^9 km.

Age

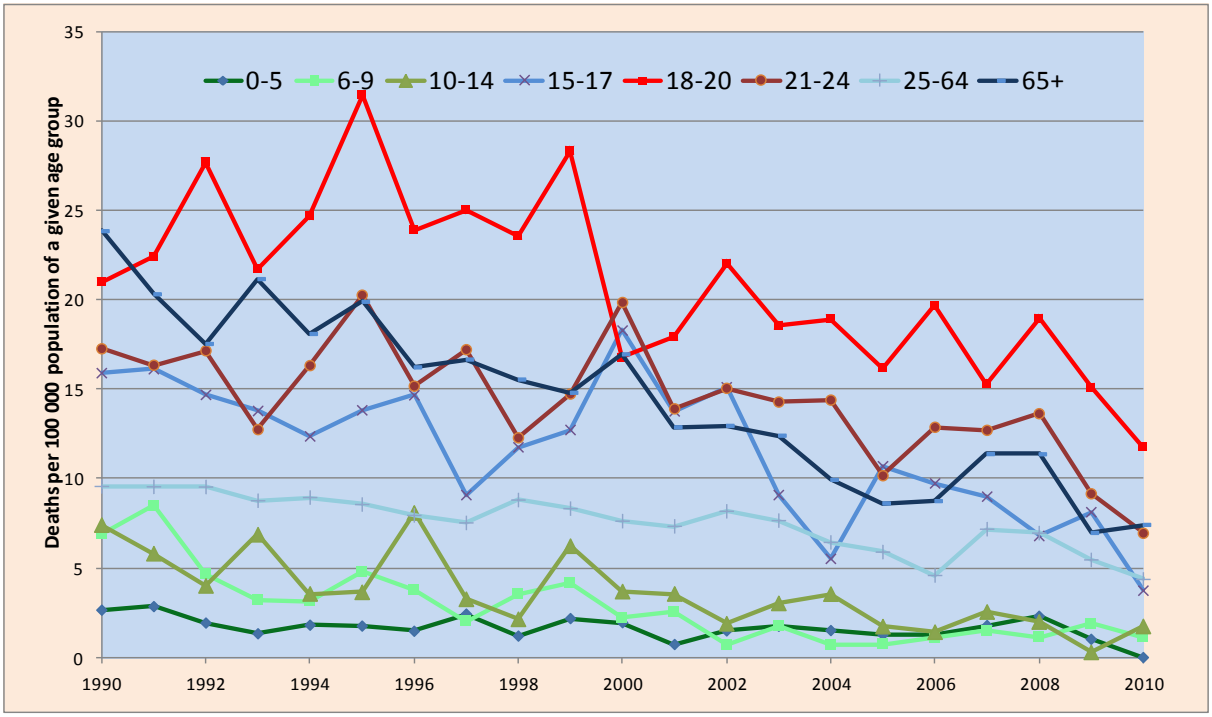
Since 1990, all age groups have shared in the reduction in fatalities, but the most impressive decrease concerned the youngest group (0-14), for which fatalities fell by 81%, from 48 in 1990 to 9 in 2009. And even more encouraging, there were no young children (below 6) killed in Denmark in 2010. A possible explanation for this decline may be that children are now less active traffic participants than in the 1970s. They are often driven to school by their parents and spend most of the day in school or activities instead of playing in the streets. Other factors are related to the significant progress in the passive and active safety features of vehicles in Sweden.

Young people, especially those aged 18-20, are still a high-risk group in terms of road safety, with a fatality risk of more than twice the general population (Figure 3). However, the fatality risk for this age group has also declined significantly in the past three years.

Table 4. **Reported fatalities by age group 1990, 2000, 2009, 2010**

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	9	8	4	0	-100%	-100%	-100%
6-9	15	6	5	3	-40%	-50%	-80%
10-14	24	11	1	6	500%	-45%	-75%
15-17	35	30	17	8	-53%	-73%	-77%
18-20	46	30	30	24	-20%	-20%	-48%
21-24	57	55	23	18	-22%	-67%	-68%
25-64	257	224	162	129	-20%	-42%	-50%
>65	191	134	61	67	10%	-50%	-65%
Total	*498*	*369*	*303*	*255*	*-16%*	*-49%*	*-60%*

Figure 3. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2010)**



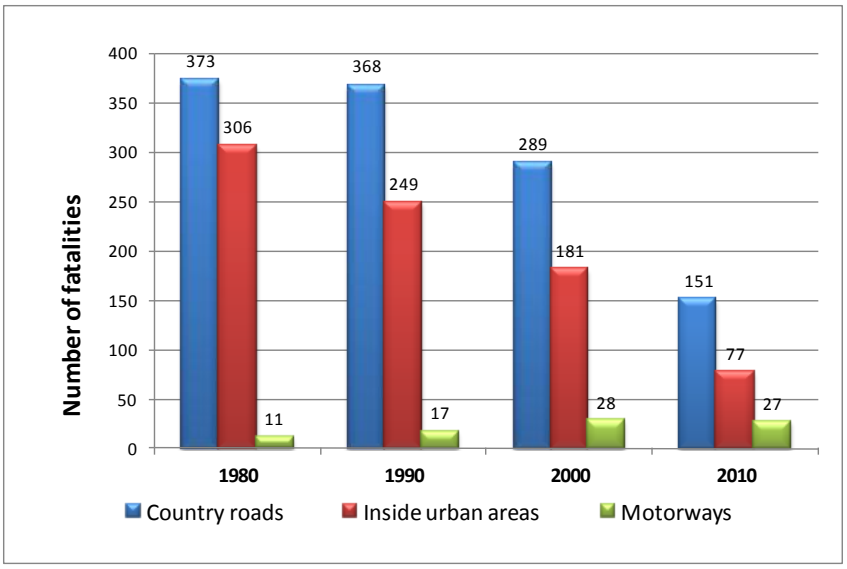
Road type

In 2010, 59% of fatal crashes occurred on rural roads, 30% in urban areas and 11% on motorways (Figure 4).

In the last decade, the greatest reduction in fatalities occurred on urban roads (-57%), which can be partly explained by a change in traffic patterns. Another explanation is the use of automatic speed controls, which were introduced first in urban areas.

Since 1980, several new motorways have been constructed, which explains the increase in the number of fatalities on motorways; this does not mean that motorways have become less safe.

Figure 4. **Reported fatalities by road type 1980, 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

The maximum authorised BAC is 0.50 o/oo or 0.25 g/l using breath-tests for drivers of any motorised vehicle requiring a driving licence (including professional drivers). There is no maximum authorised BAC for cyclists or pedestrians.

The penalty is higher for novice drivers (those who have had their licence for less than three years).

Since 1 July 2007, the Traffic Act includes a zero tolerance level for driving under the influence of *drugs*. Since then, there have been higher recordings of drug-related crashes. This is due to the fact that before 1 July 2007, it was the police's responsibility to prove that the use of drugs had influenced a crash. This meant that often the police did not delve further into a case, nor did they register it in the statistics.

Speeding

In 2004, speed limits were reviewed on the motorway network of Denmark, and the speed limit was increased from 110 km/h to 130 km/h on some motorways; speed enforcement was also augmented.

The Danish Road Directorate monitors the mean speeds for different road types. The speed for each road type is measured on five to eight sites. At each site, speeds are measured hourly. In cases of heavy traffic or unusually low speeds, the measurements are omitted from the calculation in order to show the free-flow speed. The mean speeds for cars are published monthly. In addition to mean speeds, other results calculated include the number and percentage of cars driving above the speed limit.

Table 5. **Percentage of drivers exceeding speed limits 2005-2010**

	2005	2006	2007	2008	2009	2010
% of drivers over the posted speed limit:						
- in urban areas	61%	61%	62%	63%	62%	58%
- on rural roads	60%	61%	65%	66%	65%	60%
- on 110 km/h motorways	60%	60%	62%	63%	63%	59%
- on 130 km/h motorways	24%	26%	31%	31%	32%	29%

Seat belts and helmets

Seat-belt use has been compulsory in front seats since the early 1970s and in rear seats since the late 1980s. Rear seat belts are not compulsory in cars made before 1990, and very old cars need not have front seat belts either. Both groups account for a very low share of the Danish car fleet.

Table 6. **Seat-belt use by car occupants**

	2005	2006	2007	2008	2009	2010
Rear seat – adults	63%	71%	70%	79%	71%	76%
Front seat – driver	87%	91%	90%	92%	92%	92%
Motorways – driver	92%	93%	94%	96%	96%	95%
Rural roads – driver	91%	94%	92%	93%	93%	95%
Urban areas – driver	83%	88%	87%	88%	89%	90%

Helmets are required to be worn by all motorcycle and moped riders. The compliance rate by motorcyclists was around 97% as of 2006.

Distracted driving / Use of mobile phone

Driving while using a hand-held mobile phone is not allowed. The use of hands-free devices is legal.

7. Useful websites and references

National statistics	Annual accident information is available in English on the Danish Road Directorate website: http://webapp.vd.dk/uheldnykomm/UhAarStat.asp?page=document&objnr=105608

FINLAND

- Capital : Helsinki
- 5.3 million inhabitants
- 272 road fatalities in 2010
- 5.1 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, there were 7 fewer fatalities than in 2009 (-3%). This continues the important decreasing trend since 2008.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 74%, while the number of vehicles more than tripled. In recent years (2000-2010), fatalities decreased by 31%.

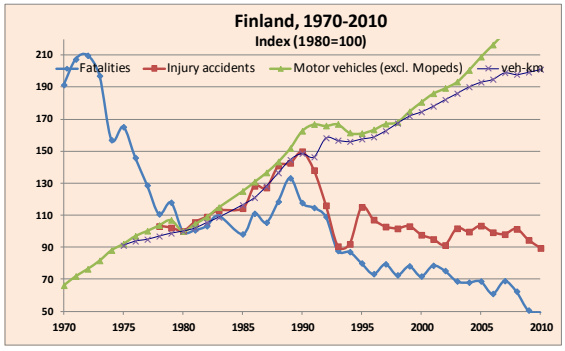
Risk and rates

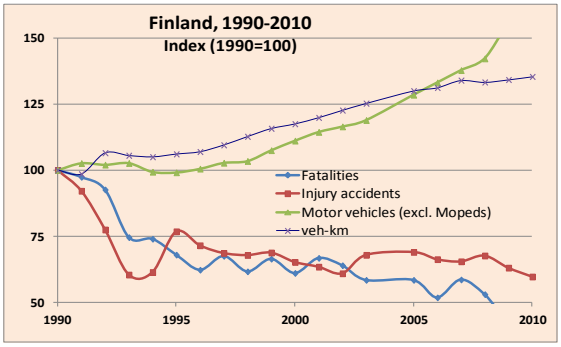
Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by more than 90%.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	1 055	551	649	396	279	272	-3%	-31%	-74%
Injury crashes	11 439	6 790	10 175	6 633	6 414	6 072	-5%	-8%	-47%
Rates									
Deaths/100 000 population	22.9		13.1	7.6	5.2	5.1	-3%	-33%	-78%
Deaths/10 000 registered vehicles	12.7	2.9	1.6	12.7	0.9	0.8	-7%	-50%	-94%
Deaths/billion veh-km			16.3	8.5	5.2	5.1	-2%	-40%	

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**





3. National road safety strategies and targets

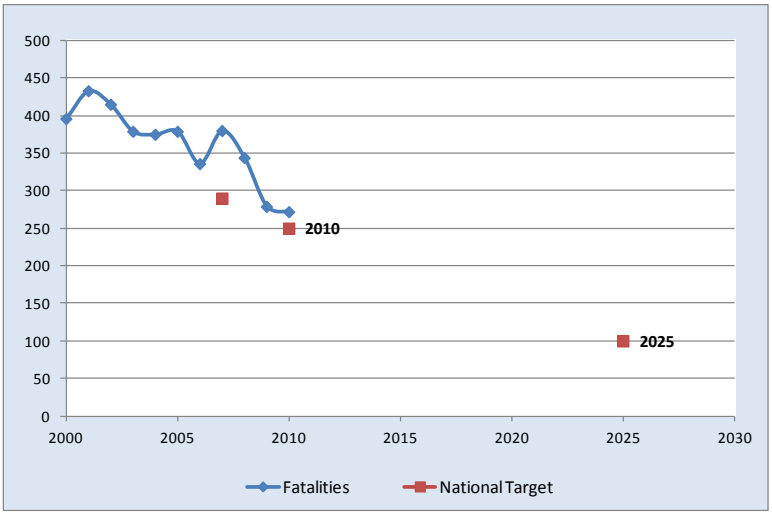
The Government of Finland has undertaken systematic target-oriented traffic safety work, through resolutions approved in 1993, 1997, 2001 and 2006.

In the resolution of 2001, the Government adopted a long-term road safety vision, aiming for a road transport system designed in such a way that nobody need die or be seriously injured on Finnish roads.

The road safety plan that formed the basis for the resolution was aimed at creating opportunities for continuous development of the transport system, so that by 2025 the annual number of road fatalities would not exceed 100.

At the same time, the Government revised the previous objective, set in 1997, declaring that by 2010 the annual number of road fatalities should be less than 250. The target was nearly reached, with 279 fatalities in 2010.

Figure 2. **Trends towards national target**



Road safety strategy for 2011-2020

The next national road traffic safety plan, with future goals, is under preparation.

4. Recent safety measures (2010-2011)

Impaired driving

- In 2011, alcolocks became obligatory in vehicles used for day care and school buses.

Speed management

- In 2011, the first test site of automated speed enforcement based on average speed (section control), was set up.

On going measures:

- Finland applies lower speed limiters in wintertime.

Infrastructure

- On A-level roads outside urban areas, a couple of test sites were implemented with wide medial areas between opposite driving directions.

Communication and campaigns

- A campaign to prevent crashes involving teenagers with mopeds began in March 2011.

5. Crash trends

Road users

All user groups have benefited from important safety improvements since the 1990s. Bicyclist and pedestrian user groups benefited the most from the progress in safety. There has also been a sharp drop in fatalities among moped riders, but which must be analysed in relation to the declining popularity of this transport mode.

However, the decrease has been smaller for motorcyclists, with a sharp rise in motorcyclist fatalities from 2000 onwards, from 10 in 2000 to 27 in 2009, with a peak of 33 in 2008. In 2010 though, important progress was made.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	101	16%	53	13%	20	7%	26	10%	30%	-51%	-74%
Mopeds	27	4%	9	2%	11	4%	9	3%	-18%	0%	-67%
Motorcycles	28	4%	10	3%	27	10%	16	6%	-41%	60%	-43%
Car occupants	343	53%	224	57%	165	59%	159	58%	-4%	-29%	-54%
Pedestrians	105	16%	62	16%	30	11%	35	13%	17%	-44%	-67%
Others	45	7%	38	10%	26	9%	27	10%	4%	-29%	-40%
Total	649	100%	396	100%	279	100%	272	100%	-3%	-31%	-58%

Age

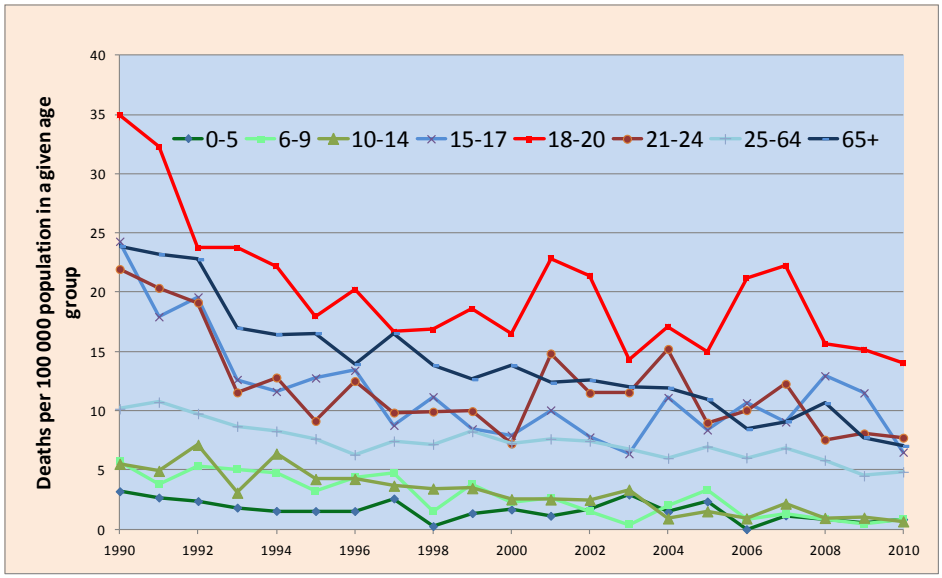
Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned the youngest groups (0-14), for which fatalities decreased by 84%, from 45 in 1990 to 7 in 2010.

Young people, and especially 18 to 20-year-olds, are still a high-risk group for road safety, with a fatality risk twice as high as that of the general population (Figure 3). Most accident and risk problems involve young male drivers.

Table 4. **Reported fatalities by age group 1990, 2000, 2009, 2010**

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	12	6	2	3	50%	-50%	-90%
6-9	15	6	1	2	100%	-67%	-97%
10-14	18	8	3	2	-33%	-75%	-94%
15-17	43	16	23	13	-43%	-19%	-76%
	66	32	30	28	-7%	-13%	-66%
21-24	63	19	21	20	-5%	5%	-80%
25-64	274	203	130	140	8%	-31%	-73%
>65	158	106	69	64	-7%	-40%	-62%
Total	649	396	279	272	-3%	-31%	-74%

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

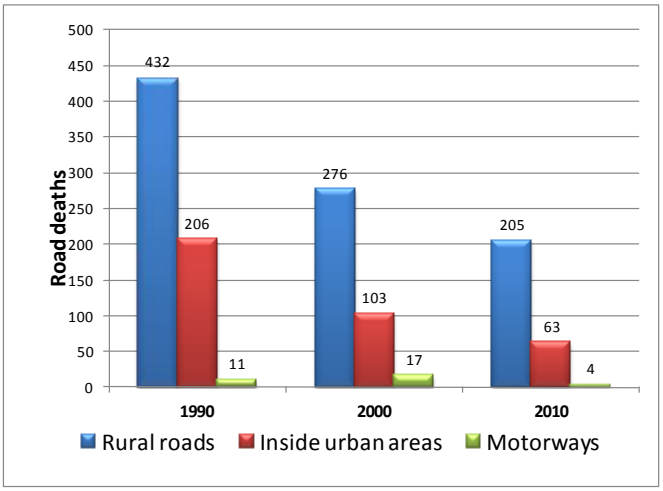


Road type

In 2010, 75% of fatal crashes occurred on rural roads, 23% in urban areas and 1% on motorways (Figure 4). Since 1990, the reduction in fatalities has been greater on urban roads.

Most fatalities are due to frontal crashes occurring on main roads outside built-up areas. Finland has only about 650 km of motorways, and they account for a minor share of accidents. High-risk roads are usually those with a one-way carriage, no central fencing and 80 or 100 km/h speed limits.

Figure 4. **Reported fatalities by road type**
1990, 2000 and 2010



6. Recent trends in road user behaviour

Impaired driving

The maximum authorised BAC is 0.5 g/l for all drivers. In 2009, it was estimated that 24% of fatal crashes involved a driver with a BAC above the 0.5 g/l limit.

The percentage of drivers under the influence of alcohol in traffic has decreased, since peaking at 1.02% in 1999. The percentage of drivers over the legal limit has remained fairly constant for the past five years (2004-2009), at between 0.14% and 0.16%. In 2009, 0.64% of drivers were driving under the influence of alcohol and 0.14% were over the legal limit.

Speed

While a high proportion of drivers exceed the speed limit, the percentage of drivers speeding 10 km/h above the limit is relatively small: in 2003, it was 17% on 80 km/h rural roads and 6% on 100 km/h rural roads. In 2008, around 12% of drivers exceeded the speed limit by more than 10 km/h.

Speed cameras, implemented during the past decade, covered around 3 000 km of the main roads in 2010.

In 2011, the first sites were equipped with a section control (to measure average speed).

Seat belts and helmets

Seat-belt use is compulsory for front seats since 1975 and for rear seats since 1987. Table 6 shows the significant increase in seat-belt use by car drivers since 1980. For many years, the seat-belt wearing rate on rural roads has been 90% or higher, whereas the rate on urban roads approaches 90%.

Table 6. **Seat-belt use by drivers in urban areas**

	1980	2000	2009
Urban areas	22%	89%	Around 90%

Helmet wearing is compulsory for all motorcycle and moped riders.

Although it has been mandatory to wear a helmet while cycling since 2003, this is not enforced. The bicycle-helmet usage rate was 25% in 2004, 29% in 2005, 33% in 2007 and 31% in 2008. Most small children wear helmets, but teenagers and elderly people tend not to do so. The usage rate in the Helsinki area is about 50%, but rates in northern Finland are much lower.

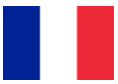
Distracted driving / mobile phone

In Finland, it is forbidden to drive with a hand-held mobile phone, while hands-free devices are tolerated.

7. Useful websites and references

Road Safety Plan 2006-2010	http://www.lvm.fi/web/en/21
Ministry of Transport and Communications	http://www.lvm.fi/web/en/home

FRANCE[1]



- Capital: Paris
- 64.8 million inhabitants
- 600 vehicles / 1 000 inhabitants
- 3 992 road fatalities in 2010
- 6.4 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

Despite a 1.9% increase in traffic, there was an important safety improvement in the year 2010 in comparison with 2009, with a reduction by 6.6% in the number of fatalities, by 7.0% in the number of injury crashes and by 7.1% in the number of people injured.

While 2009 results were mitigated, mainly due to the bad results for motorised two wheelers, there was in 2010 a significant decrease (-19.8 %) in the mortality of PTWs, while the mortality of other road users decreased only by 1.5%. With the recovery of heavy goods vehicles traffic (+3.7%), fatal crashes involving HGVs increased by 20%.

Provisional data for 2011

Provisional data for 2011 show a slight decrease in the number in the number of fatalities (-0.55%) compared to 2010. While the beginning of the year 2011 was not very good, a marked decrease in mortality has been observed since May.

On a year-over-year basis, fatalities reached their lowest level since 1945 in December 2011.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	16 445	13 499	11 215	8 170	4 273	3 992	-6.6%	-51.1	-75.7%
Injury crashes	235 109	248 469	162 573	121 223	72 315	67 288	-7.0%	-44.5%	-71.4%
Rates									
Deaths / 100 000 population	32.55	25.4	19.82	12.9	6.84	6.36	-7.0%	-51%	-80%
Deaths/ billion veh-km	90.36	44	25.72	15.13	7.75	7.11	-8.3%	-53%	-92%

1. *Source*: IRTAD, ONISR, SETRA. Data presented here only concern the Metropolitan regions of France.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 76% and the number of injury crashes by 71%. In the same period, the number of vehicles tripled. In recent years (2000-2010), the decrease in the number of fatalities has been sustained (-51%).

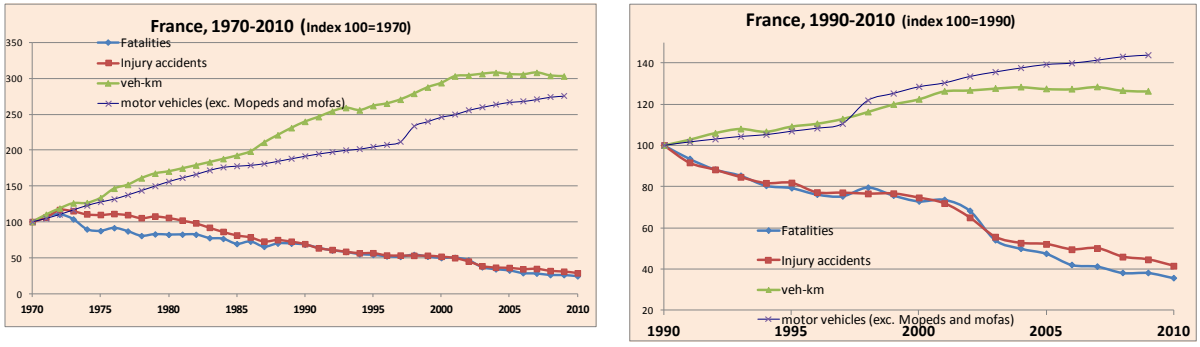
A significant change was introduced in July 2002, when President Chirac announced that road safety was among the priorities of his mandate. Since then, a determined road safety policy has been developed, with effective measures regarding speed management, drink-driving and seat-belt use, the strengthening of the demerit point system, etc.

After near stagnation during 2009, the downward trend continued in 2010.

Risk and rates

Between 1970 and 2010 the mortality rate, expressed in terms of deaths per 100 000 population, was divided by nearly a factor of 5, and the fatality risk (expressed in deaths per distance travelled) by a factor of 12.

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated around EUR 23 billion, i.e. 1.3% of GDP.

Costs (EUR billion)	2010	2009	% change
Fatalities	5.04	5.36	-6.7
Hospitalised people	4.15	4.52	-8
Slight injuries	0.30	0.31	-3.2
Property/damage costs	13.88	13.51	-2.7
Total	**23.37**	**23.70**	**-1.4**

3. National road safety strategies and targets

On February 18, 2010, the Inter-departmental Committee for Road Safety (chaired by the Prime Minister) determined 14 new measures under six main objectives:

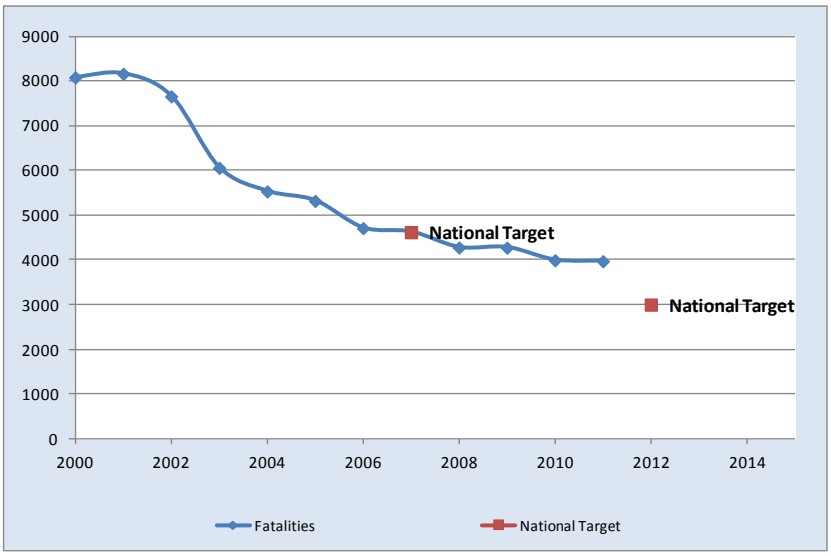
1. Fighting driving on alcohol and drugs;
2. Dissuading the exceeding of speed limits;
3. More severe punishments for major road offences;
4. Increasing the safety of motorised 2-wheelers;
5. Increasing awareness of future drivers;
6. Preventing occupational road risks.

Details of the measures are reported in the section "Measures" below.

Targets

In 2007, President Sarkozy set a national target for reducing the number of road fatalities to 3 000 by 2012. This corresponds to a reduction of 35% over the 2007 level; that is, an average annual reduction of 8.3%. There are no quantitative subtargets.

Figure 2. **Trends towards national target***



* Provisional data for 2011.

4. Recent safety measures (2010-2011)

Impaired driving

- Equipping police and gendarmerie units with 5 000 electronic breathalysers to augment roadside alcohol tests;
- Raising roadside drug tests to 10 000 a year;
- Charging the cost of drug tests to the offenders instead of tax-payers;
- Making breathalysers available in bars.

Speed management

- Signposting large, automated speed-control sections, instead of individual radar locations;
- Installing 100 control devices on mean speed throughout large sections (control section).

Enforcement of major traffic offences

- Immediate clamping of vehicles involved in a major road offence;
- Sentencing to three years in jail and a 5 000 EUR fine in cases of failure to report an accident.

Safety of powered two-wheelers

- Ensuring moped power-restraining devices are fully respected;
- Imposing compulsory moped anti-derestriction checks every two years;
- Compulsory prior training before driving all light motorcycles;
- Promoting new roadside fittings and signposts, less aggressive to motorised two-wheelers.

Future drivers

- Organising road safety events in high schools.

Preventing occupational road risks

- Developing occupational road safety plans.

5. Crash trends

Road users

Since 1990, all road users have benefited significantly from the progress in road safety, although the reduction in motorcyclist fatalities was two times less than for other users.

In 2010, unlike previous years, results were much better for moped and motorcyclist riders, who respectively saw their mortality rates reduced by 17% and 21%.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	437	4%	273	3%	162	4%	147	4%	-9.3%	-46.2%	-66.4%
Mopeds	716	6%	461	6%	299	7%	248	6%	-17.1%	-46.2%	-65.4%
Motorcycles	1 031	9%	947	12%	888	21%	704	18%	-20.7%	-25.7%	-31.7%
Car occupants	6 862	61%	5 351	65%	2 160	51%	2 117	53%	-2.0%	-60.4%	-69.1%
Pedestrians	1 534	14%	848	10%	496	12%	485	12%	-2.2%	-42.8%	-68.4%
Others	635	6%	365	4%	268	6%	291	7%	+8.6%	-20.3%	-54.2%
Total	*11 215*	*100%*	*8 170*	*100%*	*4 273*	*100%*	*3 992*	*100%*	*-6.6%*	*-51.1%*	*-64.4%*

The relative risk of being killed in a traffic crash varies greatly among road users. Motorised two-wheelers continue to be the group most at risk. In 2010, they represented around 2% of motorised traffic but 28% of fatalities. The risk of being killed is 20 times higher for motorised two-wheelers than for a car occupant (see Table 4).

Table 4. **Relative fatality risk by road user group 2010**

	Reported fatalities	Deaths per billion veh-km (or passenger–km)
Passenger car occupants	2 117	5.3
Mopeds	248	109.5
Motorcycles	704	103.9
Heavy truck occupants	65	2.7

Age

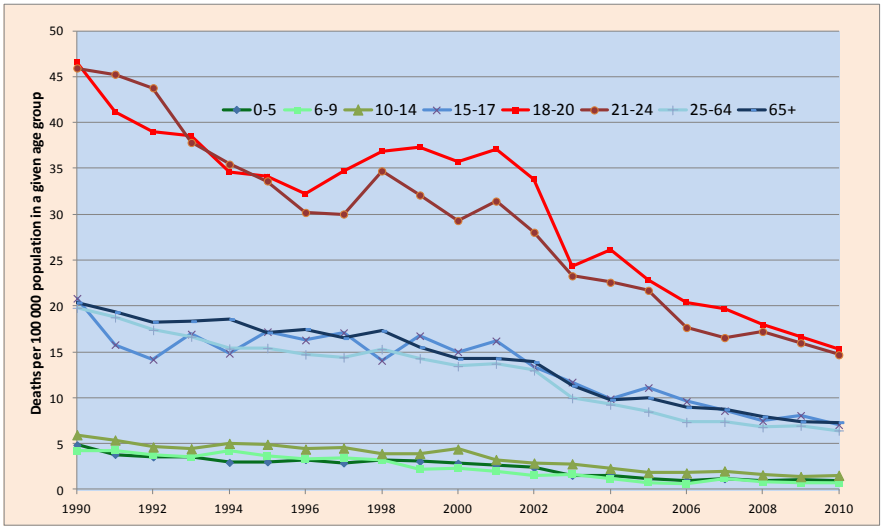
Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned the youngest groups – 0-5, 6-9 and 10-14 years – for which fatalities respectively decreased by 80%, 72% and 74%. The oldest age group (75+) has had the smallest improvement, but this needs to seen in the context of an important demographic evolution and a growing share of seniors in the population.

Young people are overrepresented in road fatalities. In 2010, the 18-24 age group represented 8.8% of the population but 20.8% of road fatalities. The 18-20 group continues to be the one most at risk, with a rate of 17 deaths per 100 000 population of the same age, while the rate for the general population is 6.4 (see Figure 3).

Table 5. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	220	124	49	45	-8.1%	-63.7%	-79.5%
6-9	132	68	21	27	+14.3%	-61.3%	-71.9%
10-14	222	171	52	58	+11.5%	-66.1%	-73.9%
15-17	534	350	189	161	-14.8%	-46.0%	-70.0%
18-20	1 224	857	403	370	-8.1%	-56.8%	-69.7%
21-24	1 566	869	498	461	-7.4%	-47.0%	-70.6%
25-64	5 684	4 157	2 265	2 105	-7.1%	-46.0%	-63.0%
>65	1 603	1 342	796	764	-4.0%	-41.0%	-52.0%
Total	***11 215***	***8 079***	***4 273***	***3 992***	***-6.6%***	***-47.0%***	***-54.0%***

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

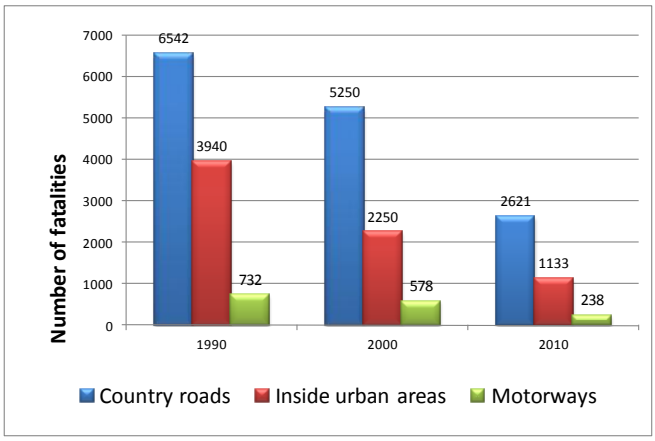


Road type

France has a very large road network (1 million kilometres), of which 80% is rural (not including interurban motorways). When fatalities per billion vehicle-km travelled are broken down by type of road, the risk on country roads is shown to be very high. Motorways are the safest network, since they absorb 25% of the traffic and account for 6% of fatalities.

In 2010, 72% of fatalities occurred on rural roads, 22% on urban roads and 6% on motorways.

Figure 4. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

The maximum permissible blood alcohol content is 0.5 g/l and 0.2 g/l for bus drivers.

Drink-driving is now the primary cause of death in France (mainly due to the fact that speed-related crashes have diminished). In 2010, 30.8% of fatal crashes involved a driver with a blood alcohol content above the maximum permissible level, and 963 persons were killed in these crashes.

Speed

In 2003, speed enforcement was significantly strengthened with the introduction of automatic speed cameras.

Between 2002 and 2010, the average speed decreased by 10% and the rate of speed violation decreased from 60% in 2002 to 33% in 2010. It is estimated that this contributed toward saving 11 000 lives between 2003 and 2010.

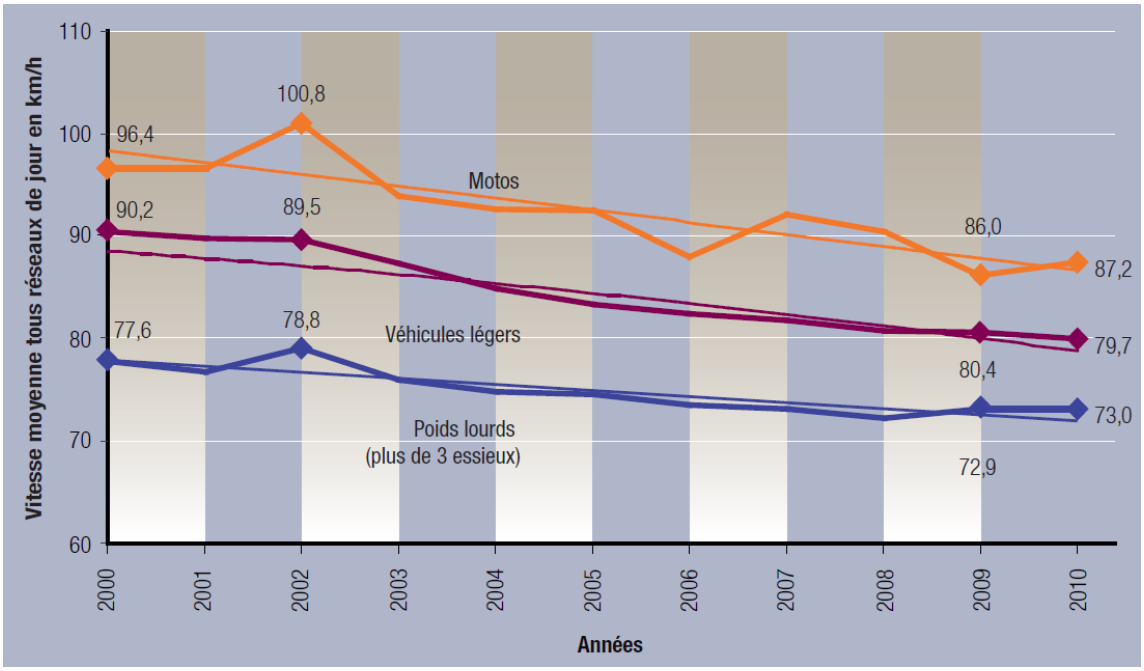
In 2009, the decrease in average speed by passenger cars continued. It is estimated that the average speed decreased by 0.6 km/h, contributing to the saving of 130 lives.

Nevertheless, 760 lives could have been saved in 2009 if speed limits had been strictly respected.

In 2010, around 10% of car drivers and 25% of motorcyclists were driving 10 km/h or more above the speed limit (this share was, respectively, 40% and 50% in 2000).

Less than 0.1% of drivers are 50 km/h above the legal limit.

Change in the average speed of passenger cars, motorcycles and trucks, 2000-2010



Source: ONISR.

Seat belts and helmets

Seat-belt wearing is compulsory in front seats since 1973 and in rear seats since 1990. The seat-belt wearing rate is among the highest in OECD countries; however, there is still room for improvement, especially for the rear seats.

In 2010, the wearing rate was 97.8% in front seats (a slight improvement compared to 2009) and 84.7% for rear seats (a slight deterioration compared to the previous year.).

22% of vehicle occupants killed did not wear a seatbelt when the crash occurred and it is estimated that 341 lives could have been saved in 2010.

Table 6. **Seat-belt use by car occupants**

	2005	2010
Front seats		
General	97.1%	97.8%
Urban areas	94.2%	95.5%
Rural areas	98.3%	98.9%
Rear seats		
General	76.9%	85.2%
Urban areas	75.7%	78.3%
Rural areas	77.8%	88.7%

Helmet use is mandatory for motorcyclists (including mopeds). It is not compulsory for cyclists. The data available (site soundings) show an almost 100% usage rate, however, the quality of the helmet and its correct buckling are very variable from one user to another, from one situation to another, etc.

Distracted driving – the use of mobile phones

It is forbidden to drive with a hand-held mobile phone. The use of hands-free mobile phones is tolerated. In 2010 it was estimated that at any time, 2% of car drivers and 3.9% of truck drivers were using a hand-held phone while driving.

A study was undertaken in 2010-2011 to better understand the impact of the use of mobile phones on driving attention in France. The main results are:

- Phoning monopolises the attention of the driver, which increases crash risks. The level of distraction is nearly the same with a hand-held or hands-free device;
- Phoning disturbs the driving task;
- Phoning multiplies by three the crash risk. In 2010, it was estimated that one out of 10 injury crashes was linked to the use of mobile phones while driving.
- Those who drive while using their phones are not aware of the danger.
- The applications of smart phones (SMS, surfing the internet, etc.) are an increasing source of danger.

7. Useful websites and references

National Road Safety Observatory Road safety 2010	www.securite-routiere.gouv.fr www.securite-routiere.gouv.fr/IMG/pdf/Bilan_annee_2010_DSCR-O_cle081c12.pdf
SETRA, Technical Department for Transport, Roads and Bridges	www.setra.equipement.gouv.fr/English-presentation.html
IFSTTAR – Transport and Safety Research Institute	www.ifsttar.fr
CERTU	www.certu.fr

GERMANY[1]

- Capital : Berlin
- 81.8 million inhabitants
- 614 vehicles / 1 000 inhabitants
- 3 648 road fatalities in 2010
- 4.5 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

Like most other countries, in 2010 Germany had a substantially lower fatality total than that of the previous year: about 12% fewer road users died than in 2009. The 2010 toll represents the lowest number of road users killed in crashes since 1950. It is interesting to note, however, given the large drop in fatalities, that the number of vehicle-kilometres travelled in 2010 was slightly higher than the corresponding 2009 figure.

Provisional data for 2011

For the first time in 20 years there will be an increase in the number of road deaths. Based on provisional data for 2011, the number of fatalities will increase by about 10%. The number of injury accidents will also increase.

The figures available so far suggest that 2011 will be a remarkable year with regard to road accident fatalities. There were unusual increases in January (+30%) and in May (+21%). While other factors play an important role for the long-term development of fatality and accident figures, this short-term increase results mainly from extreme weather conditions in 2010 and 2011. While January 2010 was characterised by very wintry conditions with heavy snowfalls, springtime in 2011 was unusually warm and sunny, resulting in an increase in mostly leisure traffic. As a result, fatality figures are extraordinarily high for most of the months of Spring 2011.

More detailed data is available for the months of January to September 2011. Fatalities have increased strongly for motorcycle users (+13%) and pedestrians (+25%). On the other hand, the number of fatally injured occupants of passenger cars and cyclist fatalities remained nearly unchanged (+0.3%, +1%). The development of fatality figures by age group shows a very mixed picture, ranging from an increase of +23% for teenagers (15-17 years) to a decrease of about a quarter for children below 15 years of age. It should be noted that both age groups have low absolute figures. The number of fatally injured novice drivers decreased strongly (-11%), while fatalities through drink-driving accidents increased by 1%.

1. Source: IRTAD, BASt; data relate to Germany as constituted since 3 October 1990.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1990 and 2010, the number of fatalities decreased by almost 70%, the number of injury crashes fell by only 26% and the number of vehicles increased by 20%. The fatality figures improved despite structural changes caused by German reunification in the early 1990s. In recent years (2000-2010), the number of fatalities decreased by more than 50%.

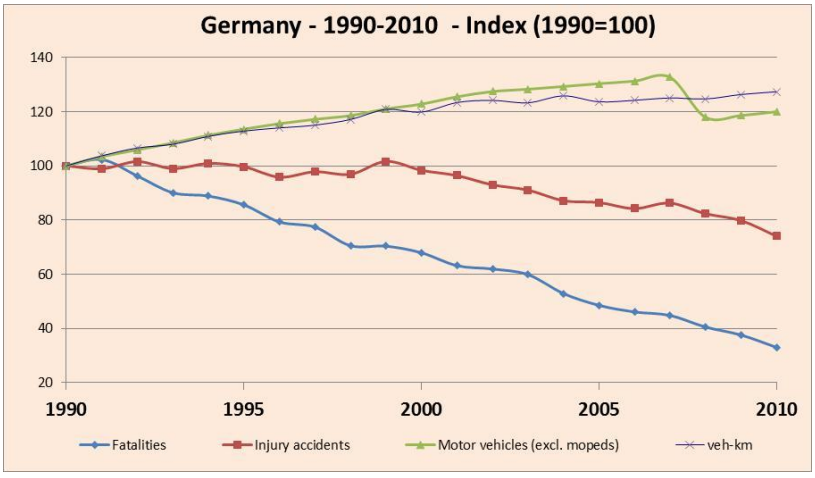
Risk and rates

In the last 20 years, the mortality rate (in terms of deaths per 100 000 population) has decreased by 67%, while motorisation has increased by 16%.

Table 1. **Reported road fatalities, injury crashes and rates 1990-2010**

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
Fatalities	11 046	7 503	4 152	3 648	-12.1%	-51%	-67%
Injury crashes	389 350	382 949	310 806	288 297	-7.2%	-25%	-26%
Deaths/100 000 population	14.0	9.1	5.1	4.5	-11.9%	-51%	-68%
Deaths/10 000 registered vehicles	2.6	1.5	0.8	0.7	-12.5%	-53%	-73%
Deaths/billion vehicle-kms	20.0	11.3	5.9	5.2	-12.2%	-54%	-74%
Motorisation (number of motorised vehicles/1 000 inhabitants)	528.8	625.2	604.9	613.5	+1.4%	-2%	16%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles[1] and vehicle-kilometres 1990-2010**



1. From 2008, registered vehicles exclude temporarily decommissioned vehicles.

3. National road safety strategies and targets

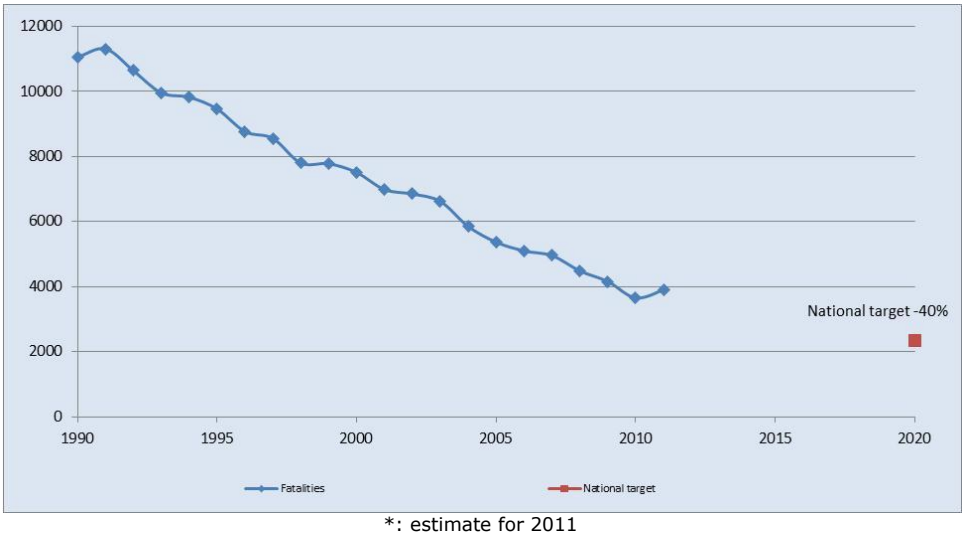
Germany's federal Road Safety Action Plan, launched in 2001, expired in 2010. The programme did not set any quantitative targets.

Road safety strategy for 2011-2020

The new road safety programme was launched in Autumn 2011. As in the previous programme, the new programme comprises numerous road safety measures addressing road users, vehicles and the road infrastructure. For the first time, a quantitative target of -40% for fatalities by the year 2020 has been set.

The principal aim of the planned programme is to enable safe, ecologically sensitive and sustainable mobility for all road users in Germany.

Figure 2. **Trends towards national target***



*: estimate for 2011

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated around EUR 31 billion, i.e. 1.2% of GDP.

Costs (EUR billion)	2009	2008	% change
Fatalities	4.14	4.64	-10.8
Hospitalised people	7.61	7.83	-2.8
Slight injuries	1.54	1.57	-1.9
Property / damage costs	17.23	16.96	+1.6
Total	**30.52**	**31.00**	**-1.5**

4. Recent safety measures (2010-2011)

Traffic and speed management

The German anti-congestion scheme helps to further accelerate the deployment of transport telematics. The traffic is managed intelligently, runs more smoothly and the capacity of the motorways increases significantly.

The results are fewer accidents beside less congestion and a reduction of CO2 emissions. In this way, this measure will make a major contribution to road safety and environmental protection.

The German anti-congestion scheme comprises a total of 138 projects for the installation of traffic management systems, especially on very busy or accident-prone motorway sections. 30 of these measures are already being implemented. 32 projects are at the pre-design stage and 76 further projects are currently undergoing preliminary assessment. These include projects for active and strategic traffic management, junction control, congestion warning systems, traffic lights on motorway entrance ramps as well as for displays that assign lanes or permit hard shoulder running. The federal states are to implement the measures by 2015. For this purpose, a total of 300 million euro will be provided by the federal government.

Enforcement

Since December 2010 winter tyres have become mandatory. All mud and snow tyres (M+S tyres) are considered as winter tyres. This also includes "all-season tyres". It is planned to double the standard rates for fines in the case of offences. In addition, the offender will also be punished with one penalty point in the Central Register of Traffic Offenders.

Campaigns

The campaign "*Runter vom Gas!*" (Down with speed!) was relaunched in 2010. Using billboard posters along the motorways, it aimed to raise motorists' awareness of the consequences of inappropriate speed. The highly emotional pictures focused on the fate of seriously and critically injured road users and their families. The pictures have shocked the general public by showing mock death notices, car wrecks and grieving friends and family.

5. Crash trends

Road users

Germany is one of the world's most highly motorised countries. Motor-vehicle occupants account for the large majority of traffic fatalities that occur each year on German roads. Fatalities among motor-vehicle occupants and pedestrians have gradually decreased in recent years, with the reduction being strongest for passenger-car occupants.

2010 showed a drop in fatalities for all road user groups. Motorcycle fatalities decreased only slightly (-2%) while the number of fatally injured moped drivers showed the largest decrease (-25%).

Compared to 1990, the share of motorcyclist fatalities has increased, reflecting the increase in the number of motorised two-wheelers registered. On the contrary, the share of pedestrian and car fatalities has decreased slightly since 1990.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000		2009		2010		*2009*	*2000*	*1990*
Bicyclists	908	8%	659	9%	462	11%	381	10%	-18%	-42%	-58%
Mopeds	384	3%	157	2%	99	2%	74	2%	-25%	-53%	-81%
Motorcycles	1 059	10%	945	13%	650	16%	635	17%	-2%	-33%	-40%
Passenger car occupants	6 256	57%	4 396	59%	2 110	51%	1 840	50%	-13%	-58%	-71%
Pedestrians	2 113	19%	993	13%	591	14%	476	13%	-19%	-52%	-77%
Others	326	3%	353	5%	240	6%	242	7%	1%	-31%	-26%
Total	***11 046***	***100%***	***7 503***	***100%***	***4 152***	***100%***	***3 648***	***100%***	***-12%***	***-51%***	***-67%***

Table 4. **Relative fatality risk by road user group 2010**

	Reported fatalities	Deaths per billion veh-km
Passenger car occupants	1 840	3.1
Mopeds	74	15.7
Motorcycles	635	54.7

Age

In 2010 most age groups benefited from the improvement in road safety.

The 18-20 age group is the most at risk in Germany, followed by the 21-24 group. The 18-20 group has a mortality rate almost triple that of the general population. The number of fatalities among road users aged 65 years and older decreased substantially, by almost 18%.

In terms of road deaths among the 18 to 24-year-olds, motor-vehicle occupant fatalities are the principal problem. Despite graduated licensing and accompanied driving programmes, driver inexperience, particularly among those aged 18 to 20 years judged by their high mortality rate, remains a concern.

Accompanied Driving From Age 17 – Process Evaluation of the Nationwide Model Scheme:

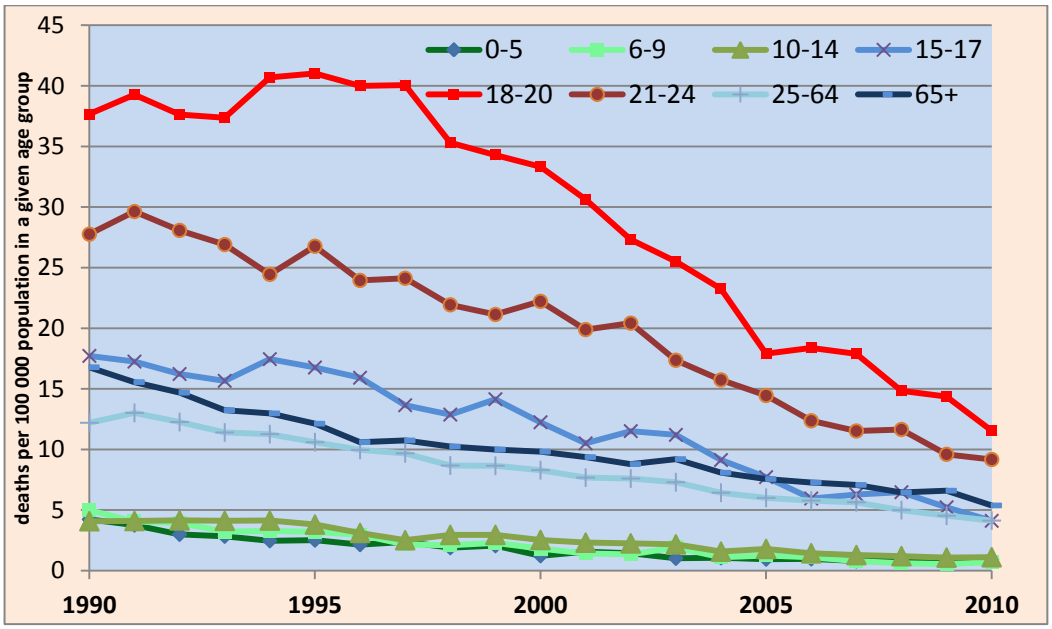
The evaluation focussed on the structure and quality of the Model. Participants were asked to answer questionnaires regarding their experiences and facts that emerged during their accompanied driving period. The average duration of this period was about 7.5 months, resulting in about 2,400 surplus kilometres driven by the participants. This means a three- to four-fold driving experience when the participants start to drive unaccompanied, compared to novice drivers who did not take part in the model. In the course of the accompanied driving period, there was a clear decrease in the number of insecure novice drivers. This is the result of the subjectively perceived increase in driving experience during the accompanied time period. Accidents, traffic violations and tickets during accompanied driving were only reported to a limited extent by the police.

In recent years, the elderly were the age group with the smallest reduction in road deaths, largely due to demographic changes and increases, and structural changes in their mobility.

Table 5. **Reported fatalities by age group 1990, 2000, 2009, 2010**

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	220	58	31	39	26%	-33%	-82%
6-9	171	63	16	21	31%	-67%	-88%
10-14	163	119	43	44	2%	-63%	-73%
15-17	444	336	133	101	-24%	-70%	-77%
18-20	1 244	933	422	327	-23%	-65%	-74%
21-24	1 480	803	374	363	-3%	-55%	-75%
25-64	5 314	3 876	2 029	1 842	-9%	-52%	-65%
>65	1 979	1 311	1 104	910	-18%	-31%	-54%
Total	*11 046*	*7 503*	*4 152*	*3 648*	*-12%*	*-51%*	*-67%*

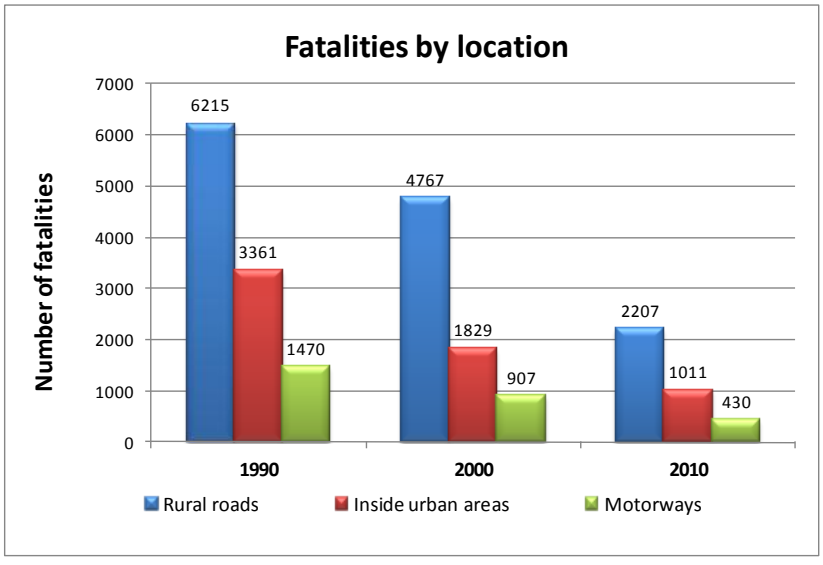
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road type

Rural roads are the most dangerous for road users, despite the fact that rural roads account for the greatest reduction in road deaths in recent years. In 2010, the large majority of all traffic fatalities still occurred on rural roads.

Figure 4. **Reported fatalities by road type**
1990, 2000 and 2010



6. Recent trends in road user behaviour

Impaired driving

In Germany, driving with a BAC over 50 mg% (0.5g/l) is punishable by a fine, licence suspension and possibly jail. In addition, drivers with a BAC between 30 mg% and 50 mg% can have their licence suspended if their driving ability is impaired. Since 2007, as part of Germany's graduated licensing programme, a zero tolerance law has applied for drivers under 21 and during probationary periods.

In 2010, alcohol use was cited as a contributing factor in 8% of all car driver fatalities (car driver fatalities with any amount of alcohol in their blood, including those below the 50 mg% threshold), rising to almost 14% in cases involving car drivers under the influence of alcohol in the 35-44 age group.

The zero tolerance law on alcohol for novice drivers (drivers on probation or <21 years) was introduced in August 2007. A detailed analysis, comparing the trends of such drivers and others, whether under the influence of alcohol or not, showed an overall drop of -9% in the first 12 months after the introduction of the law, compared to the 12 months before. While the number of novice drivers with a BAC level of 0.03% or over was reduced by 15% in that period, the reductions have been less for all other groups of car drivers. It still remains to be shown if this positive effect will stand the test of time.

Speed

Inappropriate speed was a factor in more than 39% of fatal accidents and about 26% of serious injury accidents in 2010. Speed is often cited as a factor in combination with other high-risk behaviour, such as drink-driving.

Seat-belts and helmets

Seat-belt use has been compulsory for front seats since 1976 and rear seats since 1984. Fines for not wearing seat-belts were introduced in the mid-1980s and led to a sharp increase in seat-belt use.

All riders of motorised two-wheelers are required to wear helmets. There is no mandatory helmet use law for cyclists.

Table 6. **Seat-belt use by car occupants**

	1980 (West Germany)	1990 (West Germany)	2000	2010
Front seats	-	-	-	-
(drivers)	-	-	-	-
General*	56	96	94	98
Urban areas	42	95	90	97
Rural areas*	63	96	95	98
Rear seats	-	-	-	-
(only adults)	-	-	-	-
General*	-	45	82	97
Urban areas	-	43	74	94
Rural areas*	-	43	83	97

*General: includes motorways; Rural areas: without motorways

7. Useful websites and references

Federal Ministry of Transport, Building and Urban Affairs	http://www.bmvbs.de/
Federal Highway Research Institute	http://www.bast.de/
German Federal Statistical Office	http://www.destatis.de/
German Road Safety Council e.V.	http://www.dvr.de/

GREECE[1]

- Capital : Athens
- 11.3 million inhabitants
- 730 vehicles / 1 000 inhabitants
- 1 258 road fatalities in 2010
- 11.1 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

The significant decrease in fatalities (-14%) in 2010 is mainly attributed to the unprecedented economic crisis in Greece, which has brought an almost 100% increase in gas prices, and a subsequent significant reduction in traffic volumes. This has exceeded the 20% decrease of the last two years, with a more important decrease in the number of accident-prone road-users: the younger and older drivers.

Provisional data for 2011

In 2011, a further decrease (-15%) in the number of fatalities is expected (trend in provisional data up to November 2011), as the impact of the economic crisis persists.

2. Long term trends

Change in the number of fatalities and injury crashes

Since 1970, the number of vehicles has increased very rapidly, nearly multiplied by 20 between 1970 and 2010. Since the early 90s, the increase in motorisation has continued, with the number of motorised vehicles tripling.

In this context, the level of road safety deteriorated significantly from 1970 to 1995 (+119%), when it reached a peak with 2,411 road deaths.

Between 1995 and 2004, Greece observed a sharp decrease in fatalities (-37%). This is mainly attributed to intensified enforcement within the period of the first road safety strategic plan (2001-2005), but also to significant changes in traffic and driver behaviour due to a sizeable increase in vehicle ownership.

However, the decline in fatalities clearly slowed down after 2004, indicating that further measures of a more integrated nature are required. Since mid-2008, some road safety related developments (new Highway Code, new motorways, etc.) came into force, but it is most importantly the economic crisis which has brought a further significant decrease in road fatalities in Greece.

1. Source: IRTAD, National Technical University of Athens (NTUA).

During the last decade, Greece has been ranked among the worst performing countries in the European Union, reflecting insufficient effort from both the authorities and the population.

Risk and rates

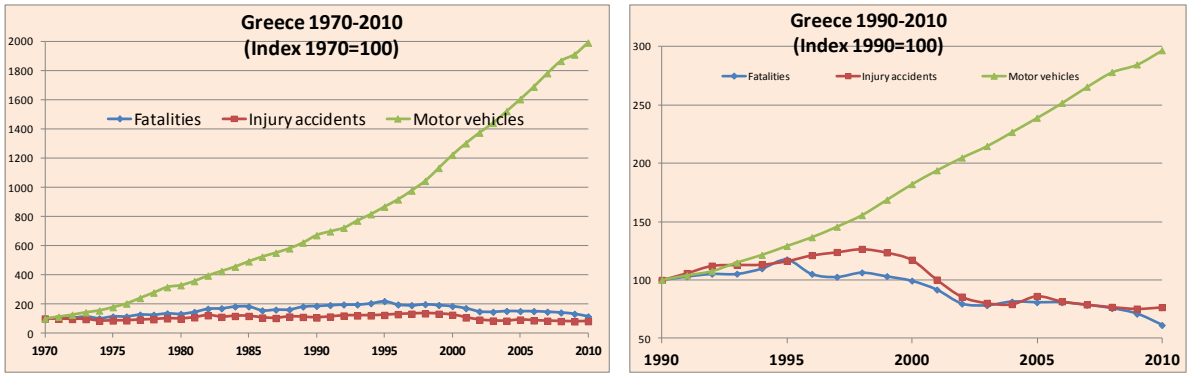
The fatality rate (deaths per 10 000 vehicles) in Greece over the last ten years has progressively decreased, from 5.7 in 1996 (average 2.6 in the EU 27) to 2.3 in 2006 (for an average of 1.5 in the EU 27) and to 1.5 in 2010, highlighting the large potential for further improvement if a more systematic effort is made.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	1 099	1 446	2 050	2 037	1 456	1 258	-14%	-38%	14%
Injury crashes	18 289	18 233	19 609	23 001	14 789	15 032	2%	-35%	-18%
Rates									
Deaths / 100 000 population	12.5	15.0	20.2	18.7	12.9	11.1	-14%	-40%	-12%
Deaths / 10 000 registered vehicles	26.5	10.6	7.4	4.0	1.8	1.5	-17%	-63%	-94%
Motorisation *	47	141	274	464	703	730	4%	57%	1453%

* Number of motorised vehicles / 1 000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



3. National road safety strategies and targets

Road safety strategic plan 2006-2010

The first national road safety plan covered the period 2001-2005. Its implementation contributed to a significant decrease in the number of road accidents and related casualties in Greece and the target of -20% fatality reduction was almost achieved (-19%). The second national road safety strategic plan (2006-2010) consolidated the knowledge gained from implementation of the first strategic plan and proposed to achieve the European target of a 50% reduction in road fatalities by 2010 (in relation to 2000 figures), which was only partially achieved (-37%) as its implementation was insufficient.

Road safety strategy for 2011-2020

The third national road safety strategic plan, developed by the National Technical University of Athens, was approved by the Ministry of Infrastructure, Transport and Networks in September 2011.

The plan adopts the European target of reducing the number of road fatalities by 50% between 2010 and 2020, together with specific intermediate targets, i.e. reduction by 90 road fatalities per year between 2010-2014 and 50 road fatalities per year between 2014-2020.

With that purpose, a series of specific actions within targeted programmes of the central and regional governments have been set. A prerequisite for their success is a strong political will and support at the highest political level in order to activate the necessary mechanisms for efficient implementation of the strategic planning. The Inter-Ministry Committee established in 2010 is expected to play a critical role for the efficient implementation of the actions and programmes set in this strategic plan. The newly founded National Road Safety Council has an advisory role. The current challenge for road safety is to benefit from the major structural changes taking place in the public administration due to the economic crisis.

The vision is to further develop road safety culture by introducing road safety values, influencing attitudes and motivating cultural behaviour in Greek society and among the national authorities in charge of planning, implementing and enforcing road safety policy. A proactive, long-term focus is needed to cultivate and sustain a transformation in road safety culture, including traffic education and the serious engagement of the mass media.

The significant reduction in road casualties during the last decade indicates that there is great potential for further improvement. The consistent and continuous implementation of priority measures by all the parties involved at national, regional and local levels, is not only a tool for the achievement of European and national targets but also a challenge for citizens and the authorities to work together towards a significant improvement in the current low level of road safety in Greece.

Figure 2. **Trends towards national targets**

Economic costs of traffic crashes

On the basis of *reported* traffic casualties, traffic crashes represent a very significant cost for society, estimated at around EUR 3.4 billion (2010), i.e. 1.5% of GDP. It is likely that the real cost is three times as much when also taking into account unreported traffic crashes and damage-only crashes.

Costs (EUR billion)	2010
Fatalities	EUR 2.324 billion
Hospitalised persons	EUR 0.363 billion
Slight injuries	EUR 0.725 billion
Property / damage costs	*Not reported*
Total (*reported* casualties)	EUR 3.413 billion

4. Recent safety measures (2010-2011)

The unprecedented economic crisis during the last two years has already resulted in very limited budgets for road safety actions in Greece.

Some road safety measures of national, regional and local dimensions are being implemented with focus on road safety enforcement (mainly speeding, drinking and driving and use of seatbelts and helmets) by the police or through road safety education and information campaigns conducted mainly by private companies (e.g. motorway concessionaires etc.) and NGOs. Greek Universities and Research Institutes carry out many road safety projects (accident analysis, monitoring, etc.) supporting road safety actions in Greece.

No systematic inventory is kept and evaluations of these measures are rarely carried out.

5. Crash trends

Road users

Since the peak in fatalities in the 1995, all road users, with the exception of motorcyclists, have benefited from the overall improvement in road safety.

Between 1990 and 2010, the number of moped riders killed decreased by 81% and pedestrian fatalities by 66%. The number of motorcyclists killed increased by 34%.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	26	1%	22	1%	15	1%	23	2%	53%	5%	-12%
Mopeds	192	9%	90	4%	28	2%	36	3%	29%	-60%	-81%
Motorcycles	274	13%	412	20%	405	28%	367	29%	-12%	-11%	34%
Passenger car occupants	712	35%	891	44%	805	55%	545	43%	-19%	-39%	-23%
Pedestrians	524	26%	375	18%	202	14%	179	14%	-11%	-52%	-66%
Others	322	16%	247	12%	1	0%	108	9%	-13%	-56%	-66%
Total	*2 050*	*100%*	*2 037*	*100%*	*1 456*	*100%*	*1 258*	*100%*	*-14%*	*-38%*	*-39%*

Table 4 illustrates the relative fatality risk for the different road user groups. For a motorcyclist, the risk of dying in a traffic crash is ten times higher than for a car occupant.

Table 4. **Relative fatality risk by road user group, 2009**

	Reported fatalities	Deaths per billion veh-km
Passenger car occupants	545	7
Mopeds	36	34
Motorcycles	367	67

Age

Since the peak in 1995, all age groups have benefited from a drop in fatalities, with best achievements for the 6-9 and 15-20 age groups (respectively, a -85% and a -60% decrease between 1990 and 2010).

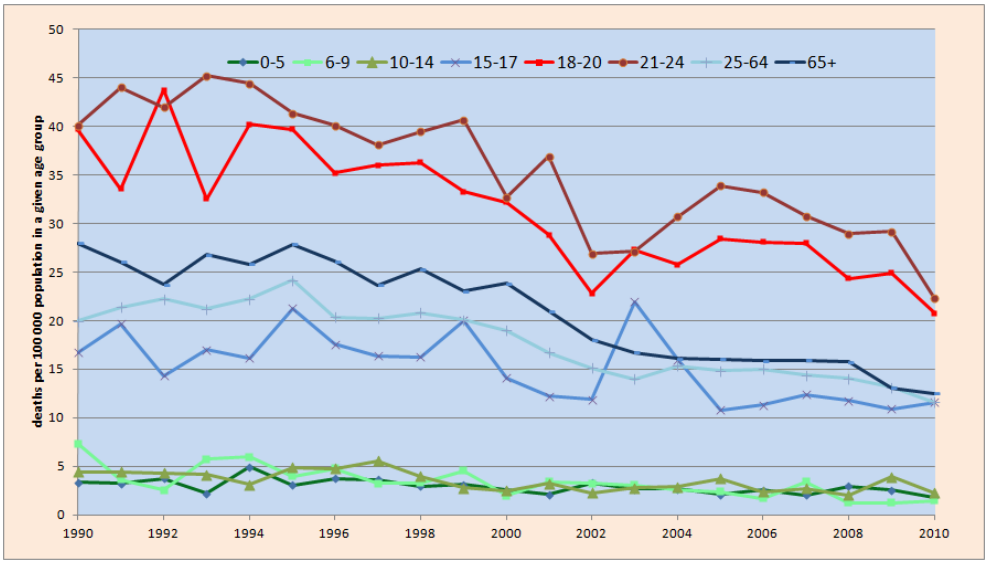
Between 2000 and 2010, the 0-5 and 10-14 age groups showed the lowest decrease in the number of fatalities (respectively +25% and +20%).

Table 5. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	22	16	17	12	-29.4%	-25%	-45%
6-9	40	9	5	6	20.0%	-33%	-85%
10-14	33	15	21	12	-42.9%	-20%	-64%
15-17	76	60	37	39	5.4%	-35%	-49%
18-20	183	156	89	73	-18.0%	-53%	-60%
21-24	249	219	153	113	-26.1%	-48%	-55%
25-64	1 051	1 107	828	711	-14.1%	-36%	-32%
>65	392	428	275	268	-2.5%	-37%	-32%
Total	2 050	2 037	1 456	1 258	***-14%***	***-38%***	***-39%***

The age group the most at risk are young adults (21-24), who have a fatality risk twice as high as the general population (see Figure 3).

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

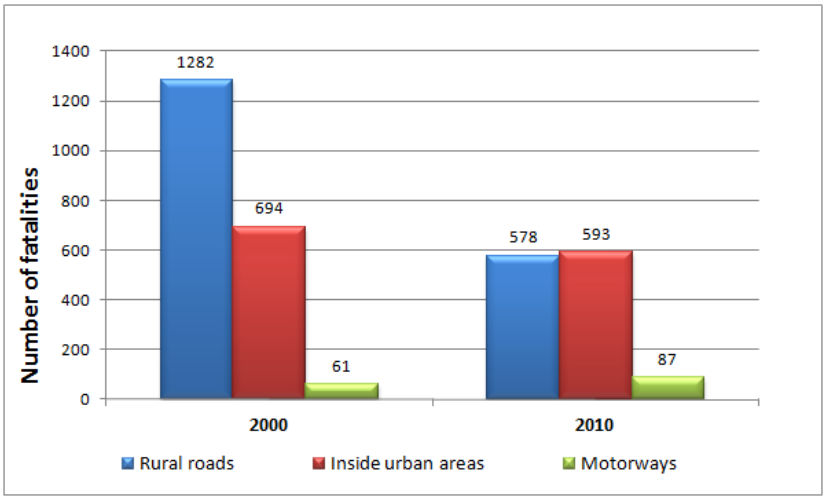


Road type

In 2010, 47% of fatal crashes occurred in urban areas (mainly due to the increased motorcycle and pedestrian traffic), 46% on rural roads and 7% on motorways (Figure 4). For injury crashes, 79% occurred in built-up areas and 21% outside urban areas. This is mainly explained by the higher speeds observed on the interurban road network.

Since 2000, most improvements occurred on the rural network, with almost 1 200 km of the national interurban network upgraded to motorways. The significant increase in fatalities on the motorway network since 2000 can be explained mainly by the significant expansion of the motorway network.

Figure 4. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

According to the Greek Road Code, the maximum permissible BAC is 0.5 g/l, when it is measured by blood sample, and 0.25 mg/l when measured by breath testing.

Since 2007, a lower limit (0.2 g/ l) applies to professional drivers (heavy goods vehicles, school buses and coaches), motorcycles and moped riders.

The percentage of fatal crashes involving a driver with a BAC above the limit is not accurately recorded. However, studies using the induced exposure technique demonstrate that drivers in Greece over the legal limit (BAC > 0.5 g/l) present a seven times higher probability of being involved in a road crash.

Speed

Speeding is perhaps the most critical factor for road accidents in Greece. Speeding enforcement varied during the last decade, with a direct impact on the progress of road safety trends in Greece, as borne out by related research.

Seat belts and helmets

The use of seat belts is compulsory since 1987 in front seats and since 1983 in rear seats.

According to 2009 data, the rate of seat-belt use is 77% for the driver, 74% for the other front passenger and only 23% for rear-seat passengers. The percentage of seat-belt use by the driver is 72% in urban areas, 78% on rural roads and 95% on motorways.

The helmet-wearing rate is 75% for drivers and 46% for passengers. The respective percentage of helmet use by the driver is 73% in urban areas, 85% on rural roads and 98% on motorways.

Table 6. **Seat-belt use by car occupants**

	1996	2009
Front seats		
General	24%	76% (driver) 74% (passenger)
Urban areas		71%
Rural areas		87%
Rear seats		
General	2%	23%
Urban areas		19%
Rural areas		28%

Distracted driving

In Greece, it is forbidden to drive with a hand-held phone or using headphones. Only wireless hands-free devices are allowed during driving.

According to an observational study carried out by NTUA in 2009, 9% of passenger car drivers use mobile phones during driving, whereas 2% of powered two-wheeler riders use mobile phones while driving.

The mobile phone use rate increases inside built-up areas and for young drivers (16-24), especially for young female passenger car drivers (16%) and young female PTW riders (12%).

7. Useful websites and references

Hellenic Statistical Authority	www.statistics.gr
Ministry of Infrastructure, Transport and Networks	www.yme.gr
NTUA Road Safety Observatory	http://www.nrso.ntua.gr/
Road Safety Institute Panos Mylonas	www.ioas.gr

HUNGARY[1]

- Capital : Budapest
- 10.0 million inhabitants
- 364 vehicles / 1 000 inhabitants
- 740 road fatalities in 2010
- 7.4 deaths / 100 000 inhabitants

1. Short term changes

General comments and trends for 2010

The year 2010 saw a remarkable decrease in the number of fatalities (-10%) and seriously injured (-12%). This continues the good progress made in 2008-2009. These positive results are the fruit of the implementation of stringent safety measures, including the increased number of speed cameras, a "zero tolerance" approach to drink driving and further development of the demerit point system.

Provisional data for 2011

Data for the first nine months of 2011 show a continuation in the improvement in road safety, with a 21.8% reduction in the number of fatalities compared to the same period in 2010.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities fell by 55% and the number of injury crashes by 30%. In the same period, the number of motor vehicles was multiplied by four.

According to Prof. Dr. Péter Holló, the history of Hungarian road safety can be divided into five periods:

- **1976-1986**: Relatively stable period. The 30-day definition of road accident victims was introduced in 1976.
- **1987-1990**: Rapid deterioration, similar in all countries where the political, social and economic systems changed following the collapse of the soviet bloc. This political change was accompanied by negative side effects for road safety, due to weak police control, less political attention to road safety, a false interpretation of freedom, explosion in the size and changes in the structure of the vehicle fleet, etc.): 1990 was the worst year for Hungarian road safety, with nearly 2 500 people killed.
- **1991-2000**: Important improvements and major initiatives:

1. *Source:* Prof. Dr. Péter Holló (KTI) and IRTAD.

- 1993: Adoption of the first Hungarian National Road Safety Programme with a quantitative target. Consistent road safety measures were implemented: speed limit reduction inside built-up areas, use of daytime running lights outside built-up areas, intensified police control and road safety campaigns, more severe sanctions, etc.

- 2000 was the most positive year until 2008, with a more than 50% reduction in the number of people killed – 1 200 – compared to 1990. Some demographic and economic factors contributed to the positive trend – a decrease in the number of young novice drivers and an increase in vehicle operating costs.

- **2001-2006**: Deterioration, mainly outside built-up areas. In 2001, the speed limits outside built-up areas were raised. The level of police enforcement was insufficient, as was the organisation and funding of road safety activities.
- **2007-2010**: After several years of increasing road fatalities, the 2007 performance was back to that of 2000. In 2008, there was a remarkable decrease in fatalities - less than 1 000; and in 2010, the number of road accident fatalities was as low as that of 50 years ago. The improvement in the passive safety of vehicles is considered to be an important factor contributing to these positive results.

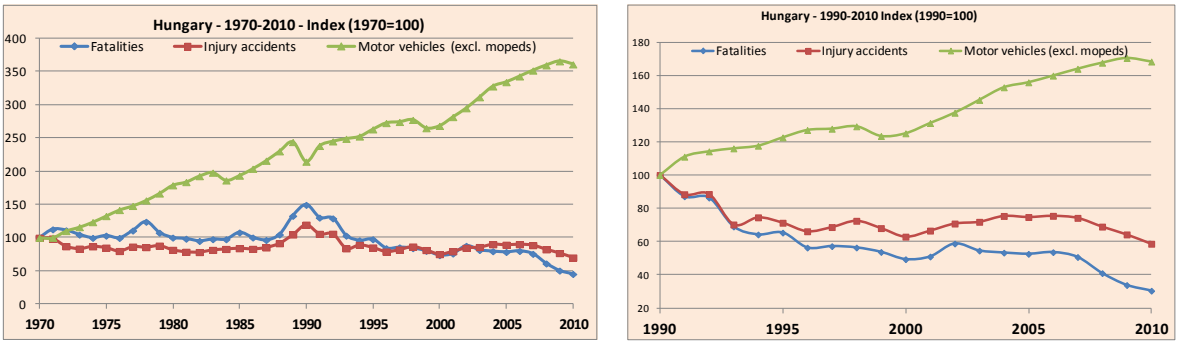
Risk and rates

In 2010, Hungary reached its lowest level in fatalities per 100 000 population, with a rate of 7.4: three times lower than its maximum in the 1990s.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	1 627	1 630	2 432	1 200	822	740	-10.1%	-38.4%	-54.6%
Injury crashes	23 225	18 994	27 801	17 493	17 864	16 308	-8.7%	-6.8%	-30%
Rates									
Deaths/ 100 000 pop.	15.78		23.44	11.95	8.19	7.38	-9.9%	-38%	-53%
Deaths / 10 000 vehicles			10.13	4.23	2.26	2.05	-9.3%	-52%	
Motorisation (motorised vehicles/ 1000 inh.)			209	269	368	364	-1%	+35%	

Figure 1. **Reported road fatalities, injury crashes, and motorised vehicles 1970-2010**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated around HUF 469 billion[1], i.e. 1.5% of GDP, using the "human capital" approach[2].

Cost of road crashes in 2008, based on a human capital approach

Costs	Unit Costs	Total
Fatalities	HUF 116 million	
Seriously injured	HUF 4.9 million	
Slightly injured	HUF 872 000	
Property damage only	HUF 814 000	
Total **% of GDP**		**HUF 469 billion** **Around 1.5%**

3. National road safety strategies and targets

The Road Safety Action Programme for 2008-2010 was a three-year project for road safety improvement. On the basis of the Action Programme, a yearly action plan was elaborated to define the content and schedule of road safety work in the specific year. The programme was prepared in accordance with relevant EU directives and strategic documents, as well as with national concepts and sector strategies, approved or under implementation.

In 2002, Hungary adopted the following targets in the framework of the Hungarian Transport Policy (base year 2001):

1. Source: KTI.

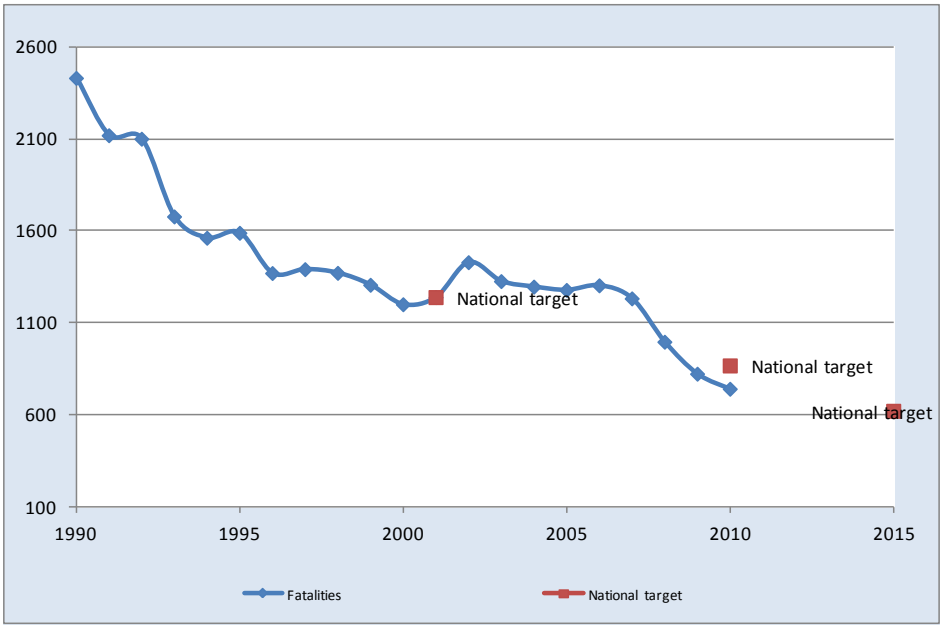
2. A willingness-to-pay approach probably gives a better assessment of the real costs of crashes; but this method requires more resources. The last WTP survey was carried out in 2004-05 on the basis of 2003 data.

- -30% fatalities by 2010 and -50% fatalities by 2015;
- -30% injury accidents by 2010 and -50% injury accidents by 2015.

Road safety strategy for 2011-2020

A new road safety programme for the years 2011-2013 was adopted. The previous targets are still valid. Figure 2 illustrates the trend in progress towards the fatality target.

Figure 2. **Trends towards national target**



4. Recent safety measures (2010-2011)

Enforcement

The law on road traffic changed on 1 January 2011 and the legal framework changed significantly from 1 July.

The most important change is the possibility to enforce offences by motor vehicles holding foreign number plates.

The demerit point system also evolved and became more stringent. Some offences (non-usage of child-restraint system, non-usage of crash helmet, etc.) are now also concerned by the system, and the points collected for an offence are higher.

Impaired driving

On 20 January 2008, the so-called "zero tolerance" rule against drinking and driving entered into force.

Following the revised law on road traffic, implemented on 1 July 2011, the legal background for impaired driving is more stringent. Drivers under the influence of alcohol now have to pay a much higher financial penalty.

Speed management

The number of automatic speed cameras is increasing progressively. Fifty new speed measurement devices were provided in 2009.

The most important legal prerequisite for their use was the introduction of the owner's liability (i.e. the owner of a vehicle is responsible for the offences "committed" by the vehicle). This rule was introduced on 1 January 2008 and entered into force on 1 May 2008.

Education and campaigns

Since 1 July 2011, there is a new curriculum for driver education. Changes concern the theoretical education which now includes e-learning, the accreditation of curriculum, the possible increase of hours in practical education.

In 2011, the Road Safety Secretariat launched the "Lifelong on the Road Programme" aiming at providing a collective and unified education system from childhood so as to prepare responsible road users.

2011 was the year for the safety of cyclists. This was marked by a 4-week enforcement and information campaign focused on cyclists' behaviour and the technical conditions of bicycles.

Infrastructure

In order to improve the safety at railway crossings, the police, in close co-operation with the MÁV (Hungarian Railway Company), organised enforcement actions to prevent road users from performing dangerous manoeuvres.

5. Crash trends

Road users

All user groups have benefited from important safety improvements since 1990 (when fatalities peaked), with the largest benefits for moped riders (-80%), pedestrians (-76%) and bicyclists (-71%). Improvement was slower for motorcyclists. The benefit to mopeds has to be analysed in conjunction with the relative evolution of mopeds and motorcycles in traffic.

In 2010, the user group that benefitted most (in percentage) from safety improvements was motorcyclists (-33%) and moped riders (-17%). In absolute numbers, there were 56 fewer people killed as car occupants in 2010. A small negative development (+6 fatalities) was observed for pedestrians.

Possible explanations for the relative good results regarding motorcyclists are: a decrease in PTW mobility (in veh-kms), maybe due to the higher operational costs of

bikes, and to a decrease in the number of registrations of new motorbikes; the average age of bike riders increased significantly and older riders have a higher perception of risk than the younger ones. The aim of the journey is mostly connected with leisure time which means that the travel occurs during weekends, when there is less traffic.

Table 2. **Reported fatalities by road user group**
1990, 2000, 2009 and 2010

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	313	13%	182	15%	103	13%	92	12%	-11%	-49%	-71%
Mopeds	95	4%	33	3%	23	3%	19	3%	-17%	-42%	-80%
Motorcycles	143	6%	52	4%	73	9%	49	7%	-33%	-6%	-66%
Car occupants	974	40%	500	42%	386	47%	330	44%	-15%	-34%	-66%
Pedestrians	803	33%	346	29%	186	23%	192	26%	+3%	-45%	-76%
Others	104	4%	87	7%	51	6%	58	8%	+14%	-33%	-44%
Total	**2 432**	**100%**	**1 200**	**100%**	**822**	**100%**	***740***	***100%***	**-10%**	**-38%**	**-70%**

Age

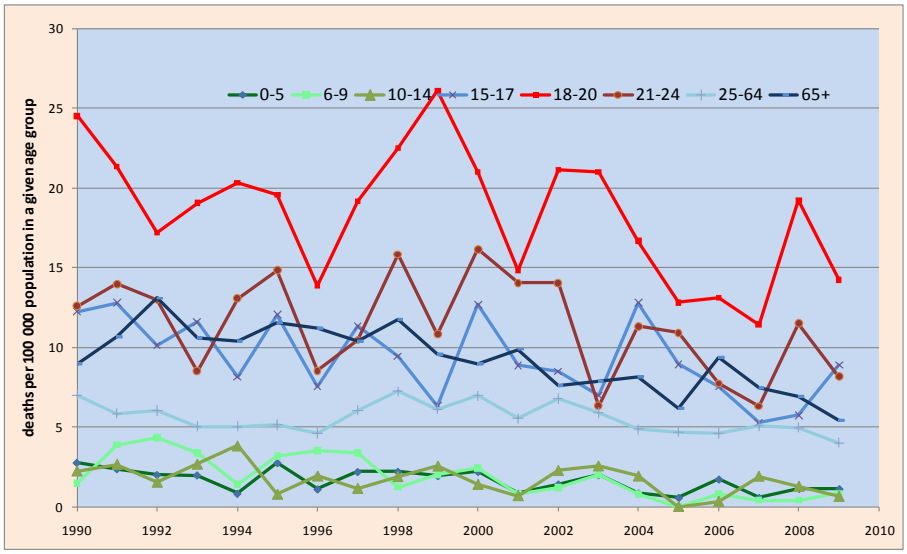
Since 1990, the reduction in fatalities has benefitted all age groups, but the most impressive reduction concerned the youngest children (0-5), for whom fatalities decreased by 75%, as well as the 18-20 group, in which fatalities decreased by 84%.

In 2010 the so-called active road users (25-64) saw the largest safety improvements (-9 fatalities.)

Table 3. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	28	17	7	6	-14%	-65%	-79%
6-9	39	9	3	3	0%	-67%	-92%
10-14	40	18	11	11	0%	-39%	-73%
15-17	99	18	16	10	-38%	-44%	-90%
18-20	162	64	26	33	27%	-48%	-80%
21-24	191	114	55	40	-27%	-65%	-79%
25-64	1365	736	537	488	-9%	-34%	-64%
>65	498	203	166	137	-17%	-33%	-72%
Unknown	*10*	*21*	*1*	*12*			
Total	2432	1200	822	740	-10%	-38%	-70%

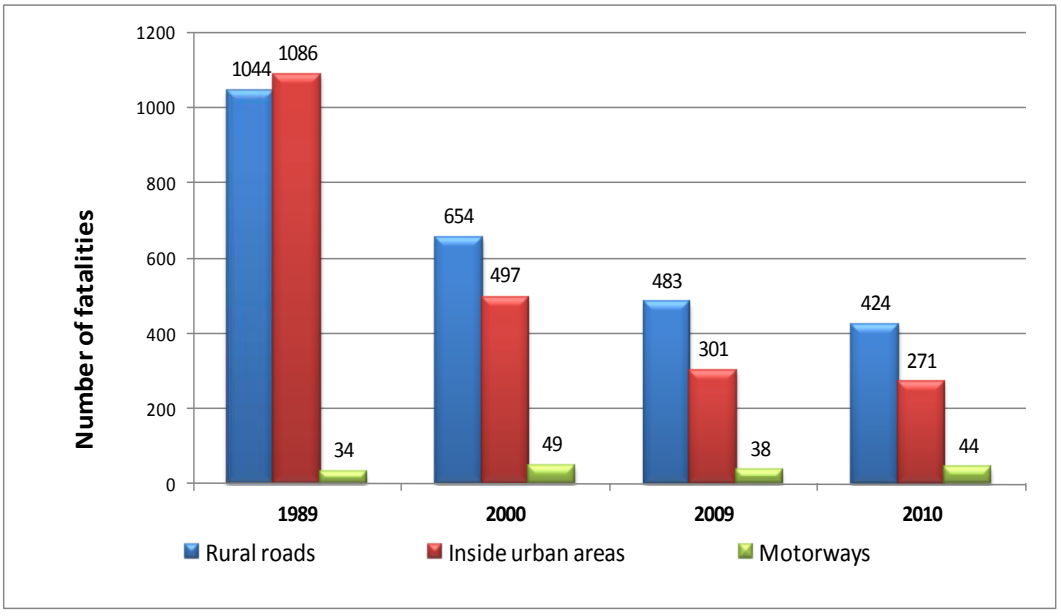
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given age group, 1990-2010)



Road type

In 2010, 57% of fatalities occurred on rural roads, 37% in urban areas and 6% on motorways (Figure 4). Since 1989, the greatest reduction in fatalities has occurred in urban areas. The number of fatalities on rural roads significantly increased in 2001, following the increase in speed limits from 80 km/h to 90 km/h.

Figure 4. **Reported fatalities by road type**
1990, 2000, 2009 and 2010



6. Recent trends in road user behaviour

Impaired driving

In Hungary, drivers must not drive under the influence of alcohol. The theoretical maximum BAC is 0.0 g/l. In practice, drivers are convicted if their BAC is above 0.2 g/l. However, the law was softened in July 2011, and the driving licence can be withdrawn on the spot only when the drivers is "seriously" under the influence of alcohol.

In 2010, the number of personal injury accidents caused by driving under the influence of alcohol decreased by 17% in comparison with 2009: 11.5% of all personal injury accidents was caused by driving under the influence of alcohol.

Speed management

Speeding is a causal factor in around 40% of fatal crashes. Automatic speed cameras are being introduced (see section 4).

The main speed limits (for passenger cars) are summarized here:

Inside built up areas	50 km/h
Outside built up areas (rural roads)	90 km/h
Motor roads	110 km/h
Motorways	130 km/h

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1976, in rear seats since 1993 outside built-up areas, and since 2001 inside built-up areas.

Figure 5 shows the evolution in seat-belt usage rates between 1992 and 2009. In 2009, the rate was 79% for front-seat occupants and 50% for rear-seat occupants, which is low in comparison to other countries.

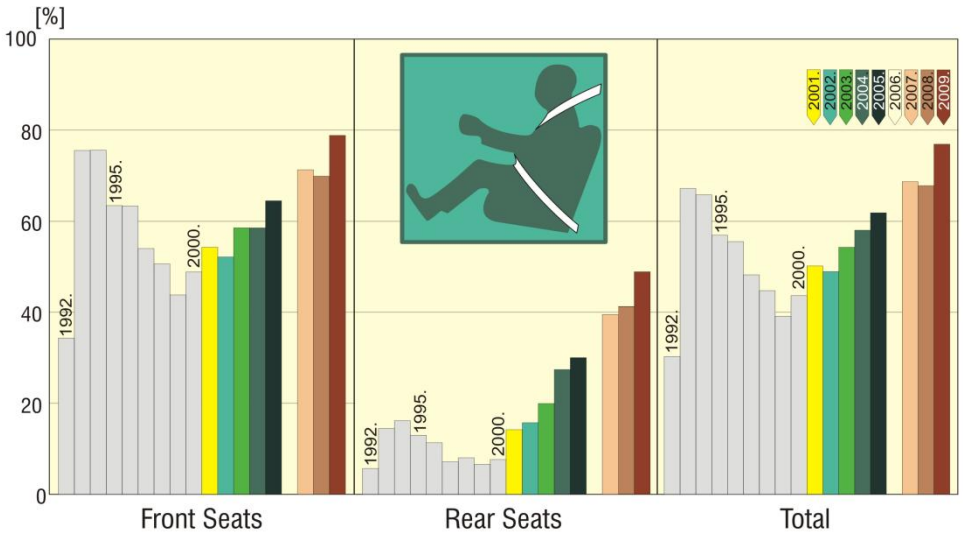
The usage of **child restraints** also shows a great improvement, the rate of unprotected children decreased from 65% (1994) to 28% (2010), although on the other hand, it means that almost one-third of children still travel unprotected.

Helmet wearing has been compulsory since 1965 for motorcyclists, since 1997 for moped riders outside built-up areas, and since 1998 for moped riders inside built-up areas. The compliance rate by motorcyclists is nearly 100%.

Table 4. **Seat-belt use by car occupants**

	2000	2009
Front seats		
General	48.9%	79.2%
Urban areas	34.6%	72.4%
Rural areas	47.5%	75.5%
Motorways	62.0%	89.0%
Rear seats		
General:	7.6%	49.3%
Urban areas	3.6%	48.2%
Rural areas	4.7%	46.1%
Motorways	10.0%	52.7%

Figure 5. **Evolution in seat-belt use for car occupants outside built-up areas**



Distracted driving

Hungary identifies distracted driving in fatal and injury crashes. Mobile/cell-phone use or texting/SMS, are not identified specifically in the categorization of distracted behaviour.

The use of hand-held mobile phones while driving is not authorised. The penalty for using a hand-held mobile phone while driving is HUF 10 000 inside built-up areas, HUF 15 000 outside built-up areas and HUF 20 000 on motorways.

7. Useful websites and references

KTI – Institute for Transport Sciences	www.kti.hu

ICELAND[1]

- Capital: Reykjavik
- 318 000 inhabitants
- 808 vehicles / 1 000 inhabitants
- 8 road fatalities in 2010
- 2.5 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, only 8 people were killed in road traffic, i.e. less than half the 2009 figure, when 17 people were killed.

Provisional data for 2011

In 2011, there were 12 road traffic fatalities in Iceland.

2. Long term trends

Change in the number of fatalities and injury crashes

Iceland reached its highest number of persons killed in 1977, with 37 fatalities. Since then the trend has been towards an important decline, while at the same time motorisation has significantly increased.

In 2010, Iceland figured among the highest rates of motorisation in OECD countries, with 800 vehicles for 1 000 inhabitants.

It is estimated that traffic volume (in veh-km) decreased by 2-3% between 2007 and 2010 as a consequence of the severe economic situation. According to a recent survey on modal split within the capital, 3.8% of participants use their bicycle compared to 0.3% in 2002.

Risk and rates

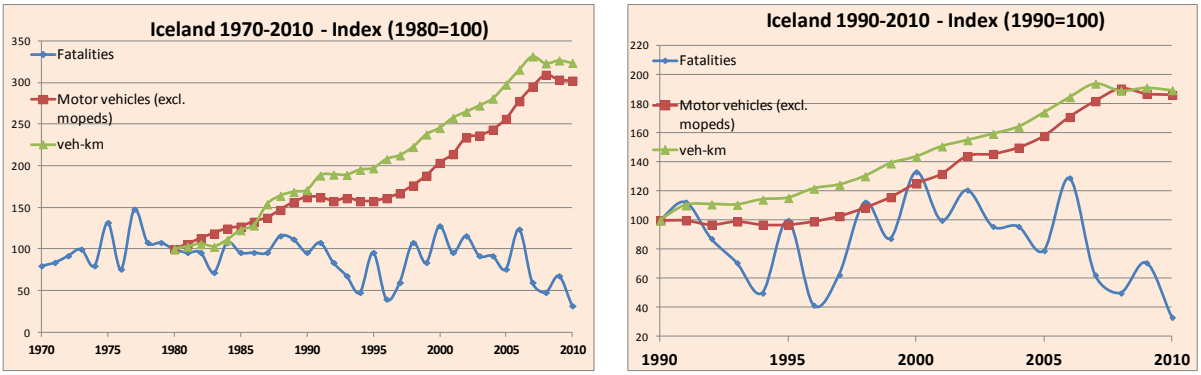
In 2010, the mortality rate (expressed in terms of deaths per 100 000 population) was 2.5, the lowest of all OECD countries.

1. Source: IRTAD, Public Road Administration.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	20	25	24	32	17	8		*Figures too small*	
Injury crashes[1]				979	878	876	-0.2%	-11%	n.a.
Rates									
Deaths/100 000 population	9.8		9.40	11.50	5.33	2.52			
Deaths/billion veh-km			14.89	13.82	5.52	2.62			
Deaths 10 000 vehicles			1.70	1.80	0.70	0.30			
Motorisation			539	611	793	808	*+2%*	*+32%*	

Figure 1. **Reported road fatalities, motorised vehicles and vehicle-kilometres 1970-2010**



3. National road safety strategies and targets

In 2005, the Icelandic Parliament agreed upon a new Traffic Safety Plan. The goals and objectives are as follows:

- In 2016, the number of traffic fatalities in Iceland per 100 000 inhabitants must not exceed the rate of countries with outstanding traffic safety (e.g. Great Britain, Sweden and the Netherlands now have the lowest numbers, i.e. over the five-year average 1999-2003).
- The number of killed and seriously injured in traffic in Iceland must decrease by 5% per year on average until 2016.

1. Because of changes in registration method numbers for injury accidents cannot be compared until after 1998.

Table 2. **General road safety targets**

Type	Targets (in % or absolute figures)	Base years*	Target year	Base year figure	Current results (2010 figure)
Fatalities per 100 000 population	Not higher than the best performing countries	1999-2003	2016	9.0	2.5
Killed and seriously injured	-5% per year	1999-2003	2016	197	212

* I.e. the average of the sum of killed and seriously injured, 1999-2003.

When the Traffic Safety Plan was prepared, the figures for 2003 were the most recent.

4. Crash trends

Road users

In Iceland, most of the victims are occupants of passenger cars.

Table 3. **Fatalities by road user group 2000, 2007, 2008, 2009 and 2010**

	2000	2007	2008	2009	2010
Bicyclists	0	0	0	0	0
Mopeds	0	0	0	0	0
Motorcycles and scooters	1	3	1	3	1
Passenger cars	25	11	10	9	4
Pedestrians	1	1	0	2	2
Others	5	0	1	3	1
Total	***32***	***15***	***12***	**17**	**8**

Age

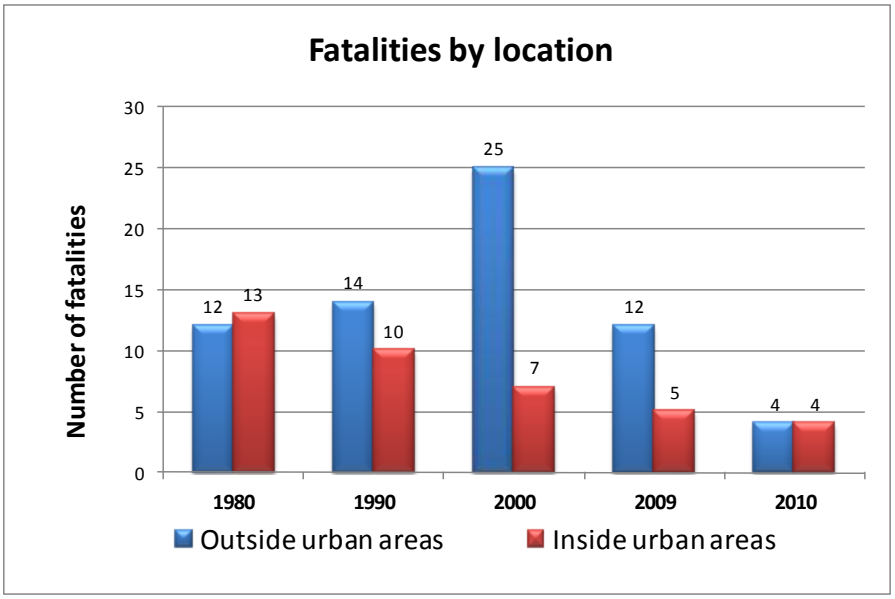
Table 4 shows a breakdown of fatalities by age group.

Table 4. **Reported fatalities by age group 1990, 2000, 2009, 2010**

	2000	2008	2009	2010
0-5	0	0	0	0
6-9	0	0	0	0
10-14	0	0	0	0
15-17	5	0	1	0
18-20	4	2	1	2
21-24	1	1	0	1
25-64	16	5	12	3
>65	6	4	3	2
Total	**32**	**12**	17	8

Road type

Figure 2. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

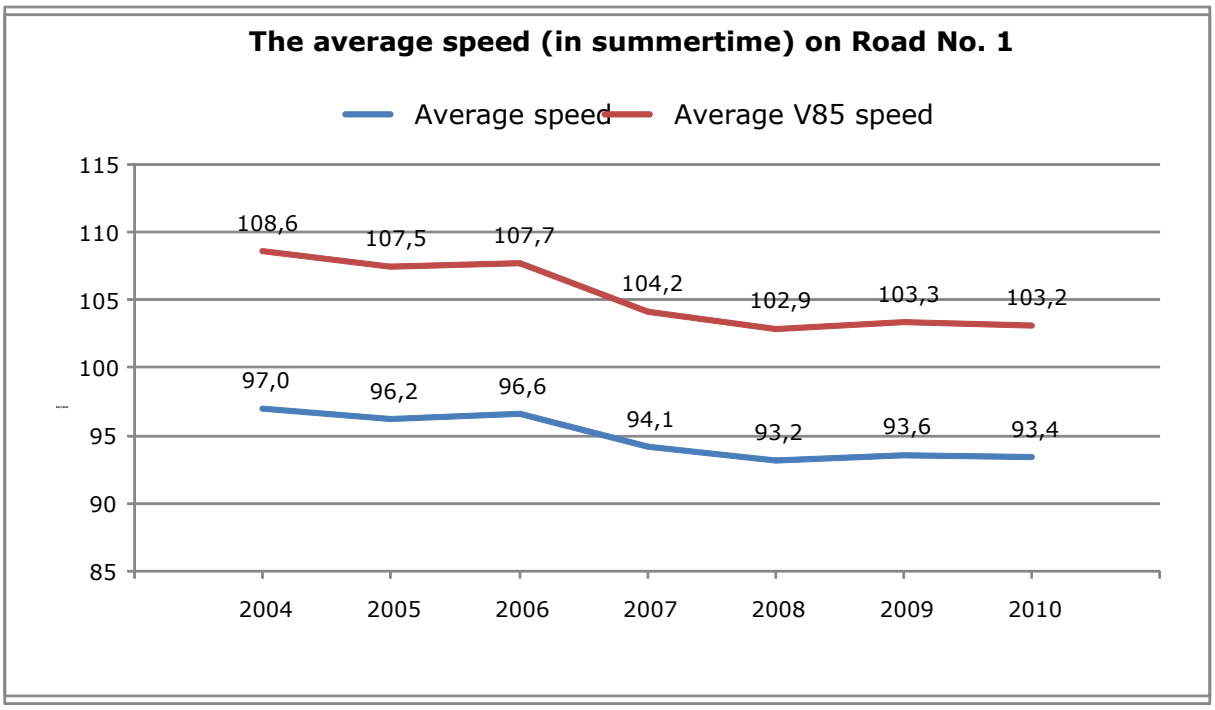
The maximum authorised blood alcohol content is 0.5 g/l.

In Iceland during 2006-2010, on average, 25% of those killed and 9% of those seriously injured were involved in road accidents where one of the drivers had been drinking alcohol or using drugs.

Speed

Speed has been a major problem on Icelandic roads. However, since 2004 Iceland has recorded a positive trend, as the figure below on the evolution in average speed shows. This is mainly due to increased enforcement (both traditional enforcement and automatic speed controls).

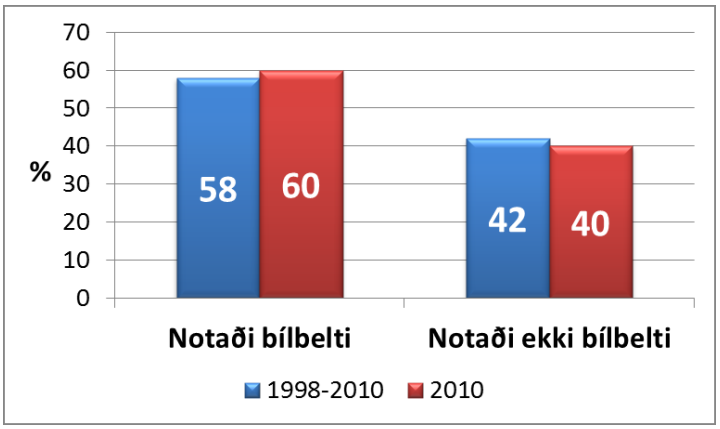
Figure 3. **Evolution in average speed and average v85 speed (km/hour) 2004-2010**



Seat belts and helmets

In Iceland, it is compulsory to wear seat belts in both front and rear seats, if they are available. From 1998-2010, on average, 42% of victims in fatal accidents (i.e. car occupants) were not wearing seat belts. The 2009 figure was 50%; in 2010, it was 40%.

Figure 4. **Percentage of accident victims wearing seat belts**



Helmet use

Helmet wearing is mandatory for all motorised two-wheelers, and is compulsory for cyclists up to 14 years of age.

Distracted driving – the use of mobile phones

Drivers of vehicles are not allowed to use mobile phones when they are driving with the exception of hands-free devices. This law was enacted on 1 November 2001.

7. Useful websites and references

Safe Travel	http://www.safetravel.is/
Road Traffic Directorate	www.us.is
Road Accident Analysis Group	www.rnu.is
Iceland Road Administration	www.vegagerdin.is

IRELAND

- Capital : Dublin
- 4.7 million inhabitants
- 553 vehicles / 1 000 inhabitants
- 212 road fatalities in 2010
- 4.7 deaths / 100 000 inhabitants in 2010

1. Short term trends

General comments and trends for 2010

There was a 10.9% decrease in road fatalities in 2010 compared to 2009, when already significant achievement was made with a 15% decrease.

2010 was the safest year on Ireland's roads since 1959, when safety record-keeping began. In 2010, the total number of taxed vehicles (2 416 387) represents a decrease of 81 181 units (-3.25%) on the 2008 return – the second decrease recorded since 1977.

The number of car users who were killed in 2010 showed a reduction of 11% compared to 2009. Fatalities among motorcyclists fell by 32% compared to 2009 figures.

Provisional data for 2011

Based on provisional data for the year 2011, the downward trend is continuing with a projected 12% decrease in the number of fatalities as compared to 2010.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities dropped by 61%. In the same period, the number of vehicles on the roads quadrupled.

After a peak in 1972, with 640 fatalities, traffic casualties fell steadily. The rate of improvement rose significantly in the last decade (-49% between 2000 and 2010) and even more quickly in the last three years (-37% between 2007 and 2010).

Fatalities for all user groups have been improved over the period 2001 and 2010. Total fatalities reduced by 48% in 2010 compared with 2001. Substantial reductions have been recorded in all road user categories, with the highest reduction in motorcycle, goods vehicle and pedal-cycle casualties (66%, 62% and 58% reduction, respectively) between 2001 and 2010.

While this reduction can be attributed to the continuing road safety interventions in the areas of school education, media campaigns, increased traffic law enforcement and improvements to the road network, the effect of the downward turn of the economy in recent years probably played a role, although it is difficult to quantify its effect.

Risk and rates

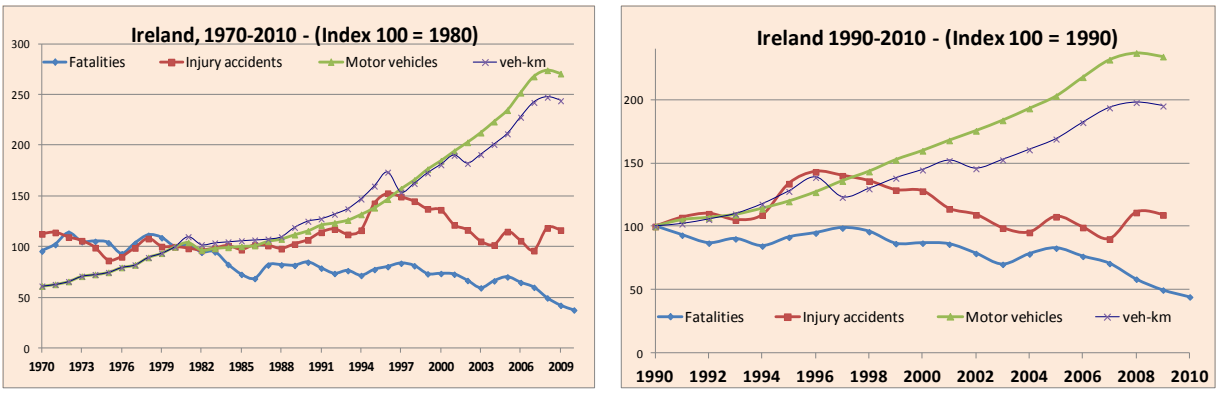
Since 2000, the risk has been more than halved for three risk indicators.

Table1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	540	564	478	415	238	212	-10.9%	-49%	-61%
Injury crashes	6 405	5 683	6 067	7 757	6 615	5780	-13%	-25%	-10%
Rates									
Deaths/ 100 000 population	18.31	16.58	13.63	10.96	5.34	4.7	-12.0%	-57%	-74%
Deaths/ 10 000 registered vehicles	9.68	6.19	4.53	2.47	0.97	0.88	-9.3%	-64%	-91%
Deaths/ billion veh-km	44.32	28.35	19.2	12.6	4.9	4.5	-8.2%	-64%	-90%
Motorisation*	189	268	301	444	553	541	-2.2%	22%	186%

* motorised vehicles / 1 000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 853 million, i.e. 0.55% of GDP.

Costs (EUR)	2010	2009	% change
Fatalities	477 912 535	562 370 801	-15%
Hospitalised people	141 154 489	158 116 112	-11%
Slight injuries	176 277 326	199 520 550	-12%
Property / damage costs	57 928 295	53 492 495	8%
Total	**853 272 645**	**973 499 958**	-12%
% of GDP	**0.55%**	**0.61%**	-10%

3. National road safety strategies and targets

Road safety strategies were introduced in Ireland in 1998, the third such strategy being published in 2007 (the Road Safety Strategy 2007-2012). The strategy sets out comprehensive targets and identifies 126 actions to be completed within its lifetime.

The main targets are to:

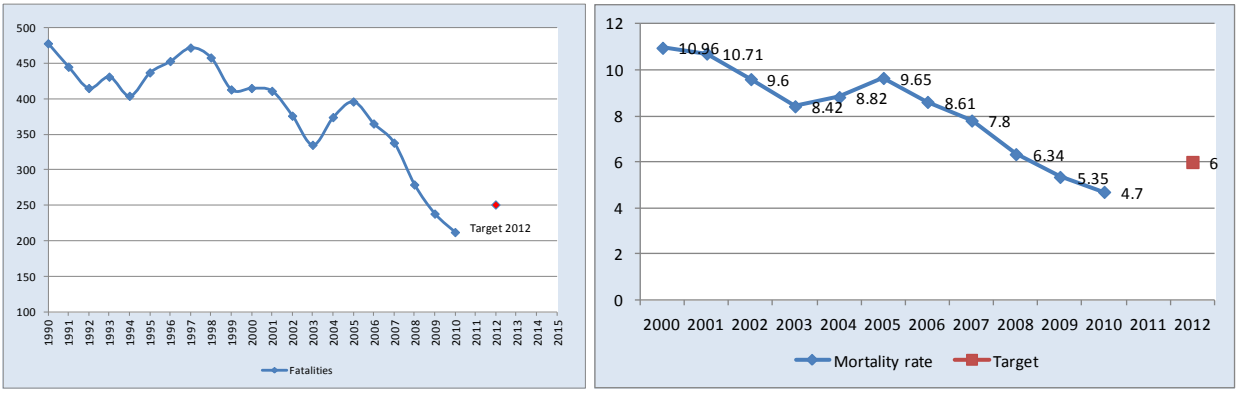
- Reduce collisions, deaths and injuries on Irish roads by 30%.
- Reduce the rate of road fatalities to 60 per million population by 2012, and 50 or fewer in the subsequent years, with a demonstrable reduction in each year of the strategy.
- Reduce injuries by 25%.
- Set specific targets for reducing speed.
- Set a specific target to increase restraint use.

The strategy was built on four pillars:

- Education
  - Targeted safety campaigns in schools
  - Safety campaigns within wider society
  - Training scheme for vocational drivers
- Enforcement
  - Driver testing and licensing
  - Road haulage industry
  - Testing regimes for motor vehicles
- Engineering
  - Contribute to EU rules on vehicle standards
  - Assist National Roads Authority with road design
- Evaluation
  - Road safety research
  - Measuring effectiveness of road safety initiatives

Between 2007 and 2010, the number of fatalities decreased by 37% and the fatality rate in 2010 was 4.7. The target was reached.

Figure 2. **Trends towards national target**



Road safety strategy for 2013-2020

The Road Safety Authority is developing a new Road Safety Strategy to cover the period 2013 to 2020.

4. Recent safety measures (2010-2011)

Impaired driving

Legislation was passed by the Irish Parliament in 2010 to reduce the maximum authorised BAC to 0.5 g/l, consistent with the legislation in most EU countries. The legislation allows for a lower maximum authorised BAC of 0.2 g/l for young drivers and professional drivers.

In 2006, Ireland introduced mandatory alcohol testing, which allows the police (once authorised by a senior officer) to carry out road-side screening tests without having any previous suspicion of intoxication. This has led to an increased rate of drivers being checked.

Speed management

- Increase in the number of speed cameras.

Enforcement

- Implementation of automatic number-plate recognition by traffic police.
- Effective enforcement effort for heavy goods vehicles, drivers and operators.

Campaigns

- Campaigns to increase general awareness of speeding, drink-driving, daytime running lamps, seat-belt use and driver fatigue.
- Distribution of over 500 000 high-visibility jackets and armbands to the public.
- Education measures on:
  - the use of high-visibility material for pedestrians, cyclists and motorcyclists;
  - awareness of intoxicated pedestrians;
  - awareness of blind spots on heavy vehicles.
- Pre-primary school road safety education.
- Primary school road safety education: "Be Safe", aimed at children aged 5-12; "Seatbelt Sheriff" aimed at those aged 7-9; "Streetwise", aimed at the 12-15 age group.
- Community education programme aimed at the elderly.

5. Crash trends

Road users

Fatalities for all user groups have been improved over the period 2001 and 2010. Total fatalities reduced by 48% in 2010 compared with 2001. Substantial reductions have been recorded in all road user categories, with the highest reduction in motorcycle, goods vehicle and pedal cycle casualties (66%, 62% and 58% reduction, respectively) between 2001 and 2010.

The number of car users killed in 2010 showed a reduction of 11% compared to 2009. Fatalities among motorcyclists fell by 32% compared to 2009 figures.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000		2009		2010		*2009*	*2000*	*1990*
Bicyclists	46	10%	10	2%	7	3%	5	2%	-29%	-70%	-93%
Motorised 2-wheelers	41	9%	39	9%	25	11%	17	8%	-32%	-56%	-59%
Car occupants	206	43%	260	63%	146	61%	130	61%	-11%	-49%	-35%
Pedestrians	150	31%	85	20%	40	17%	44	21%	10%	-52%	-73%
Others	35	7%	21	5%	20	8%	16	8%	-20%	-14%	-49%
Total	478	100%	415	100%	238	100%	212	100%	-11%	-49%	-56%

Table 4. **Relative fatality risk by road user group, 2010**

	Reported fatalities	Deaths per billion veh-km
Passenger car occupants	130	3.5
Bicyclists	7	-
Motorcycles	17	55
Pedestrians	44	-
Rail transport	0	0
Air transport	0	0

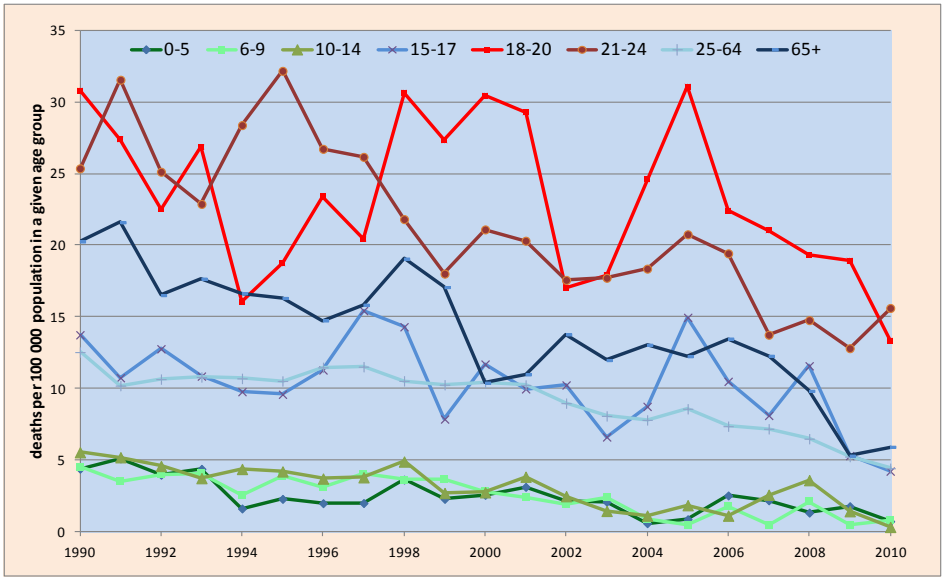
Age

There is a reduction in fatalities for all age groups over the period 2000-2010. The most impressive reduction concerned the youngest age groups, for which fatalities decreased by 64% for the 0-9 year olds and 74% for 10-17 year olds. Improvements have been less marked for the 65+ group.

Table 5. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	15	8	7	3	-57%	-63%	-80%
6-9	12	6	1	2	100%	-67%	-83%
10-14	19	8	4	1	-75%	-88%	-95%
15-17	28	23	9	7	-22%	-70%	-75%
18-20	56	63	31	21	-32%	-67%	-63%
21-24	53	54	33	35	6%	-35%	-34%
25-64	195	195	127	109	-14%	-44%	-44%
>65	81	44	26	30	15%	-32%	-63%
Total	478	415	238	212	-11%	-9%	-56%

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

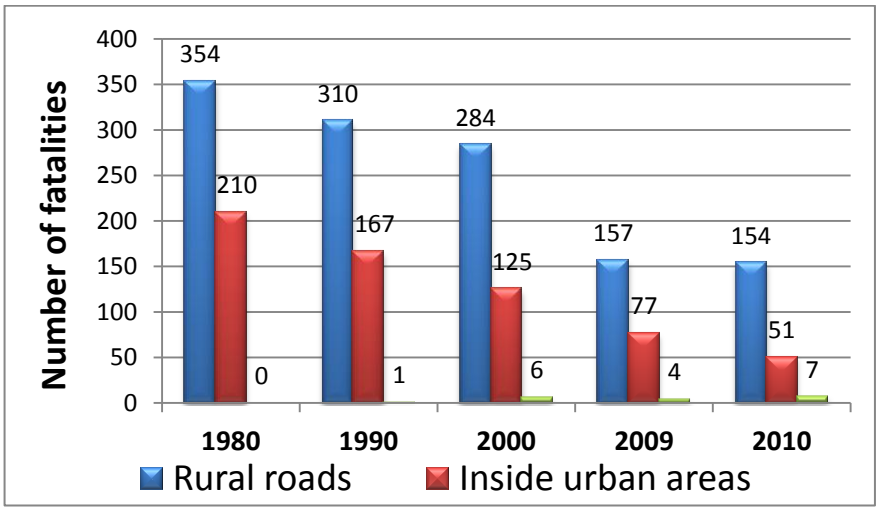


Road type

A large majority of fatal crashes occur on rural roads. In 2010, 70% of fatal crashes occurred on rural roads, 25% in urban areas and 5% on motorways (Figure 4). Since 1980, the greatest reduction in fatalities has occurred on urban roads (-76%).

The small number of fatalities on motorways is due both to the relatively low collision rates on this type of carriageway in general and to the underdeveloped motorway network in Ireland.

Figure 4. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

Since 2010, the maximum authorised BAC level is 0.5 g/l (0.2 g/l for young drivers and professional drivers).

It is estimated that in 2010, drink-driving (driver with a BAC > 0.2 g/l) was a factor in 15.53% of fatal crashes.

Speed

In 2011, a total of 12 434 cars were surveyed on the road network in Ireland: 42% (5 246) of cars surveyed were travelling on urban roads; 58% of cars observed were travelling on rural roads;

18% of all cars observed on rural roads were speeding (i.e. driving at a speed greater than the posted speed limit);

59% of all cars observed on urban roads were speeding.

The tables below summarize the main speed limits in Ireland for passenger cars and the cars free speed in 2011 by road type.

Table 6. **General speed limits in Ireland for passenger cars**

Urban areas	50 km/h (60 km/h in some areas)
National roads	100 km/h
Local and regional roads	80 km/h
Motorway	120 km/h

Table 7. **Cars free speed in 2011 by road type**

Road type	Avg. speed (km/h)	50th percentile speed (km/h)	85th *percentile free speed (km/h)	Number in sample	Number speeding	% speeding
Urban national – 50 km/h sign	60.9	60	72	1 365	1 118	82
Urban arterial – 60 km/h speed limit zone	67.4	66	79	1 120	807	72
Urban arterial – 50 km/h speed limit zone	58.1	58	68	980	753	77
Urban residential – 50 km/h zone	39.1	39	47	1 501	136	9
Dual carriageway	94.1	94	108	1 400	439	31
Motorway	109.0	110	121	1 400	230	16
National primary 2-lane	90.2	90	100	1 295	191	15
National secondary 2-lane	82.0	82	94	1 372	78	6
Regional road 2-lane	76.8	75	89	631	209	33
Local road 2-lane	64.4	65	80	1 090	160	15

Seat belts and helmets

Seat-belt use has been compulsory in front and rear seats since 1979. Front-seat safety-belt usage rates have increased substantially since the early 1990s, when just over 50% of people used them.

The 2011 survey on Irish roads showed that the seat-belt wearing rate for front occupants of cars and light goods vehicles was 94%.

Table 8. **Seat-belt use by car occupants**

	2005	2008	2011
Front seats			
All	72%	90%	94%
Male	65%	87%	92%
Female	81%	93%	95%
Rear seats			
All	46%	78%	90%
Male	40%	71%	90%
Female	50%	83%	91%

Helmet use is compulsory for all motorcycle and moped riders. The usage rate among motorcyclists in 2011 was around 99.9%. The usage rate among pedal cyclists in 2011 was around 48.7%.

The rate of usage of a high-visibility vest or jacket by motorcyclists in 2009 was around 64.7%, and by pedal-cyclists in the same year around 47%.

Distracted driving / use of mobile phone

It is illegal to drive while using a hand-held mobile phone. In 2011, 10% of drivers observed not wearing seat belts were also using mobile phones when driving; 3% of all drivers observed were using mobile phones when driving. Unbelted drivers were four times more likely than belted drivers to use mobile phones when driving.

Table 9. **Driver using mobile phone when driving, by seat-belt usage, 2011**

Using mobile phone when driving	Drivers not wearing seatbelt			% using mobile phone when driving
	Male	**Female**	**All**	
Yes	65	28	93	10%
No	580	245	825	90%
Total	645	273	918	100%

Table 10. **Driver using mobile phone when driving, by gender, 2011**

Mobile phone in use	Gender		All
	Male	**Female**	
Yes	274	157	431
No	8 086	5 619	13 705
Total	8 360	5 776	14 136
% using mobile phone when driving	3.3%	2.7%	3.0%

7. Useful websites and references

Irish Road Safety Authority	www.rsa.ie
2007-2012 Road Safety Strategy	http://www.rsa.ie/Documents/Road%20Safety/RSA_Strategy_ENG_s.pdf
Penalty points	www.penaltypoints.ie
Rules of the Road online	www.rulesoftheroad.ie

ISRAEL[1]

- 7.7 million inhabitants
- 340 vehicles / 1 000 inhabitants
- 352 road fatalities in 2010
- 4.6 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

There were 352 road fatalities in 2010 in Israel, a 12% increase in comparison with 2009. This increase is to be seen in relation with the low figure of 2009.

Injury crashes decreased by 10%.

Provisional data for 2011

Based on provisional data for the year 2011, a 4% decrease in comparison with 2010 is expected.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 32% and the number of injury crashes increased by 10%. Over the same period, the number of vehicles and distances travelled (vehicle-kilometres) grew by a factor of eight.

The highest number of fatalities, 702, occurred in 1974. Despite the sharp increase in the number of motor vehicles and vehicle-kilometres, the absolute number of fatalities has fallen over these years. Since 2003, the number of fatalities has fallen below 500, with the lowest number occurring in 2009.

Risk and rates

With the growth of the population, constant efforts at improving safety have yielded significant annual reductions in fatality and injury rates, so that by the end of 2010 Israel had 4.6 fatalities per 100 000 inhabitants and 7.1 fatalities per billion vehicle-kilometres. Between 1970 and 2010, the mortality rate (expressed in terms of deaths per 100 000 population) decreased by 73% and the fatality risk (expressed in terms of deaths per distance travelled) decreased by more than 90%.

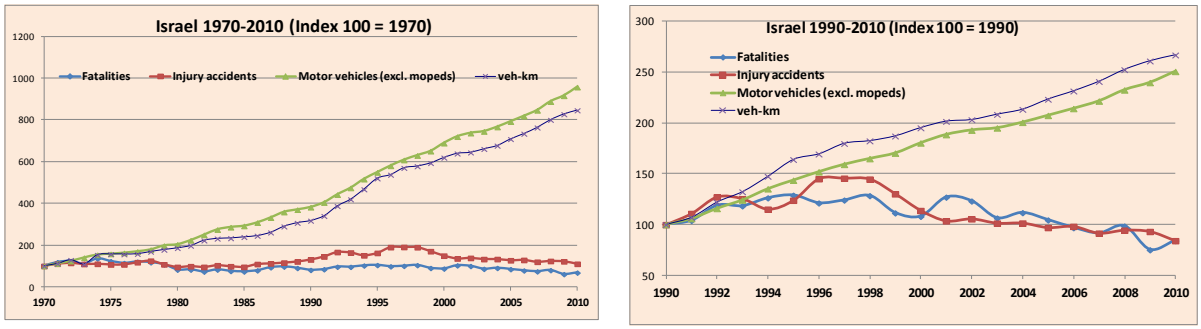
1. *Source:* IRTAD, Israel Road Safety Authority.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	518	425	418	452	314	352	12.1%	-22.1%	-32.0%
Injury crashes	13 355	12 716	17 496	19 925	16 308	14 724	-9.7%	-26.1%	10.3%
Rates									
Deaths / 100 000 population	17.1	10.84	8.67	7.1	4.16	4.6	10.6%	-35%	-73%
Deaths / 10 000 registered vehicles	19.5	7.9	4.2	2.5	1.3	1.4	7.7%	-44%	-93%
Deaths / billion veh-km	87.9	38.84	22.4	12.4	6.5	7.1	9.2%	-43%	-92%
Motorisation*	88	138	211	288	327	340	4.0%	18%	286%

*number of motorised vehicles / 1000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



Economic costs of traffic crashes

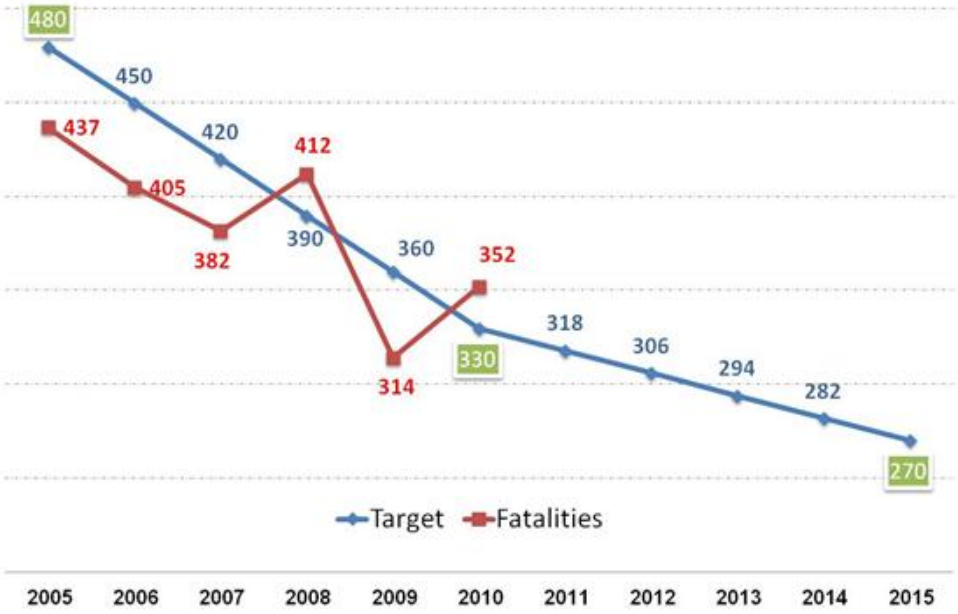
Traffic crashes represent a very significant cost for society, estimated at around EUR 2.15 billion, i.e. 1.3% of GDP.

3. National road safety strategies and targets

In 2005, the Government of Israel adopted the goal of reaching, within 10 years, similar road safety levels to those of the leading countries in road safety.

Achieving this goal meant reducing the number of traffic fatalities to less than 330 per year by 2010, and less than 270 fatalities per year by 2015 (not including Judea and Samaria). Figure 2 illustrates the progress made toward that target.

Figure 2. **Trends towards national target**



Road safety strategy for 2011-2020

The National Road Safety Authority recommends setting a target of no more than 240 fatalities per year by 2020.

Goals for 2020:

- *Increasing the use of seat belts*: Seat belts to be worn by 98% of drivers, 95% of passengers in the front seat and 85% of passengers in the rear of the vehicle.
- *Increasing the use of restraints for children (ages 0-15) in vehicles*: 70% to be properly seat-belted, with only 5% not restrained at all.
- *Adoption of a "zero tolerance" policy towards drivers in general and at-risk populations in particular* (new and/or young drivers, drivers of public and/or heavy vehicles, drivers of vehicles carrying hazardous goods).
- *Increasing the number of alcohol tests performed by the police* relative to the total number of drivers, from 26% in 2010 to 40% in 2020.
- *Reducing the 85th percentile speed* as well as the percentage of vehicles exceeding the speed limit on all types of road, as set out in the table below:

Road type:	Speed limit (kmh)	Goal: maximum 85th percentile speed	Goal: maximum percentage of vehicles exceeding the speed limit
Freeways		115 km/h	30%
Two-lane roads with interchanges		110 km/h	30%
Other two-lane roads		100 km/h	40%
Single-lane roads	80	90 km/h	40%
Urban collector roads		60 km/h	30%

4. Recent safety measures (2010-2011)

Safer vehicles

All new passenger cars imported after 1 January 2010, and all buses imported after 1 January 2012 must be equipped with Electronic Stability Control.

Enforcement

The National Road Safety Authority and the Ministry of Public Security has decided to implement 200 speed-enforcement cameras and 100 red-light cameras in the main roads of Israel, starting November 2010. The speed enforcement cameras incorporate automatic number-plate recognition and can be used for the detection of local and average speeds. The project is accompanied by a three-year evaluation study.

The red-light camera programme will be accompanied by a three-year evaluation study.

Enforcement of drink-drive laws is being repeatedly challenged in the courts – with defence lawyers claiming that the breathalyser test used by the police is inaccurate.

Campaigns, Communication and Education

A special child-safety education programme for the Arab and Bedouin populations.

In 2011, the National Road Safety Authority conducted two massive campaigns concerning:

- Distracted driving
  http://www.rsa.gov.il/NewExplanation/ExCampaign/Distraction/mobilephone/Pages/DisCampaignOnAir.aspx).

- Speed
  http://www.rsa.gov.il/NewExplanation/ExCampaign/CSpeed/Pages/CSpeedOnAir.aspx

Others

A Law has been passed prohibiting digital and video commercial signs adjacent to urban motorways.

The Road Safety Authority has embarked on a PIN-based programme focusing on seat-belt use, speed and drink-driving, with annual surveys on each. To date, there exists a

six-year data base of seat-belt use rates, a one-year data base on speeds, and a survey of drinking and driving.

5. Crash trends

Road users

The majority of traffic crash victims in Israel are vehicle occupants. Over the past 25 years there has been a consistent decrease in the number of pedestrian fatalities. In contrast to the general decline in fatalities, the number of motorised two-wheeler riders killed increased over the same period.

In 2010, 49% of fatalities concerned vehicle occupants, 34% pedestrians, 12% riders of motorised two-wheelers and 5% bicyclists. In 2010, there was an increase among all types of road user fatalities, except for vehicle drivers. The largest increase in the number of road user fatalities accrued among passengers and motorcycle riders (44% and 30%).

Heavy trucks are over-represented in fatal crashes, relative to their kilometres driven, by a factor of 15. Bicycle-related injuries are under-reported by the police by a factor of 36%, compared with the data from trauma centres.

Table 2. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

							2010 % change over	
	2000		2009		2010		*2009*	*2000*
Bicyclists	20	4%	15	5%	18	5%	20%	-10%
Mopeds	7	2%	0	0%	3	1%	n.a.	-57%
Motorcycles	38	8%	33	11%	40	11%	21%	5%
Car and coach occupants	218	48%	161	51%	171	49%	6%	-22%
Pedestrians	169	37%	105	33%	119	34%	13%	-30%
Total	452	100%	314	100%	352	100%	12%	-22%

Age

Recently, safety improvements have benefited mainly the youngest groups (aged 0-14). Young people, especially the 18-24 age group, still represent a high-risk group concerning road safety, with a fatality risk twice that of the general population (Figure 3). The oldest age group is also at high risk.

Children: In 2010, the number of young children (under 5 years old) killed in road accidents doubled, mostly due to Arab children killed in "yard" accidents (most Arab child fatalities occurred while they were playing in the unfenced yard of their home). The

number of road accident fatalities among older children (5-14) also increased but to a smaller extent (25%).

The elderly: The percentage of the elderly killed in road accidents in Israel (18%) is almost twice their percentage of the population (10%). In 2010, the number of the elderly killed in road accidents increased by 5%.

Young drivers: In 2010**,** the number of young drivers involving in fatal accidents increased by 12%.

Table 3. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	2000	2009	2010	2010% change over	
				2009	*2000*
0-5	20	10	21	110%	7%
6-9	16	9	9	0%	-43%
10-14	10	6	10	67%	66%
15-17	23	11	13	18%	-43%
18-20	51	25	20	-20%	-61%
21-24	43	34	40	18%	-7%
25-64	201	154	154	0%	-23%
>65	89	61	73	20%	-18%
Total	*452*	*314*	*352*	*12%*	*-22%*

Figure 4. **Fatality risk by age group in 2010**
(Fatalities per 100 000 population in a given group)

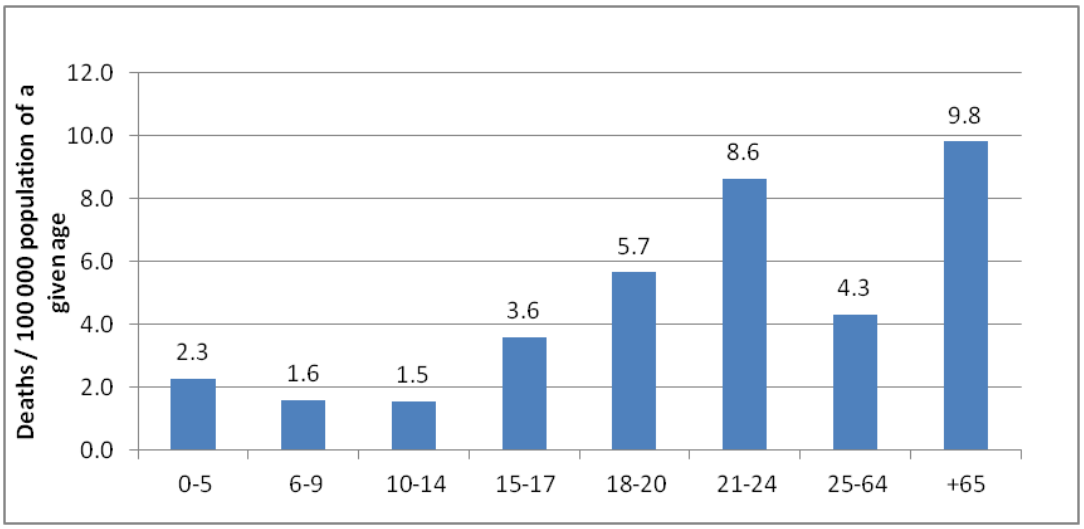
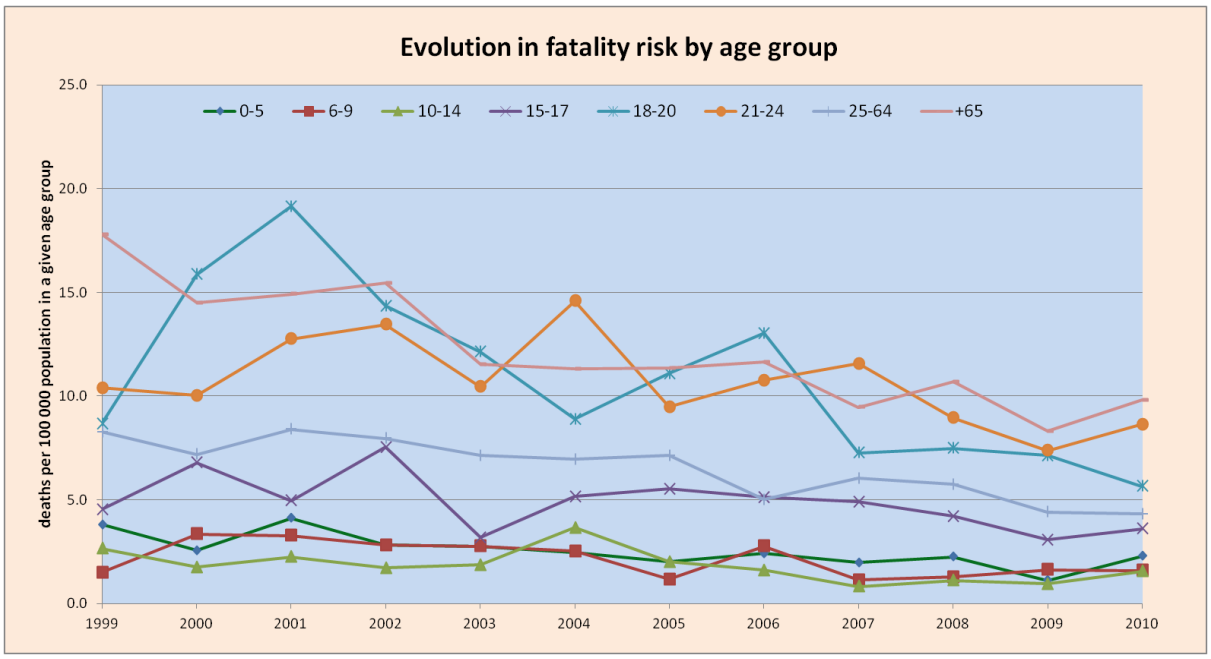


Figure 5. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

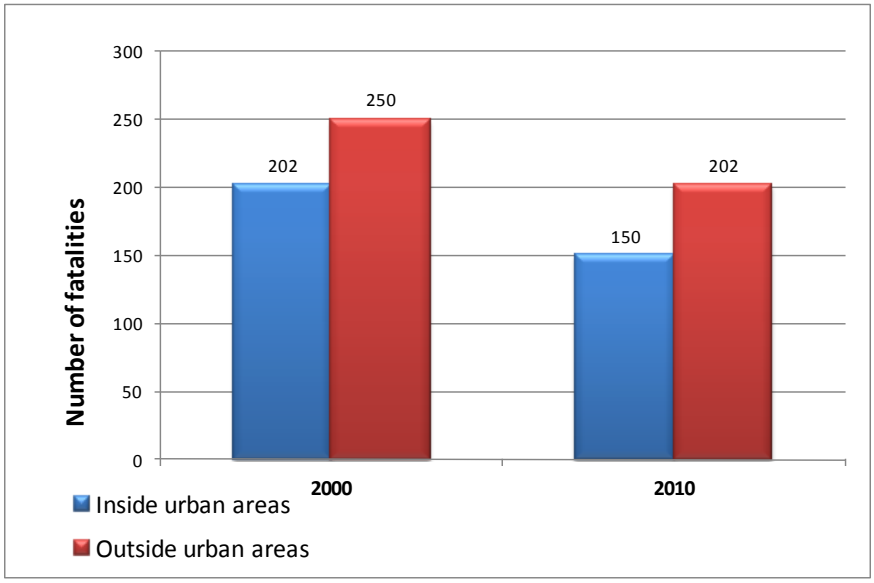


Road type

The majority (74%) of road crashes occur on urban roads. However, the most severe crashes occur outside urban areas.

Most of the gains in traffic safety over the past 25 years are due to a drop in urban fatalities. This is partly due to the construction of ring roads around many towns, the replacement of signalised intersections with roundabouts and the construction of urban high-speed, limited-access, divided roads.

Figure 6. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

The maximum authorised blood alcohol content is 0.5 g/l.

The extent of drink-driving had been long underestimated and unidentified as a major problem. However, the problem is now recognised. The police have increased roadside alcohol testing and testing for drivers involved in crashes.

Conservative estimates indicate that alcohol is a contributing factor in 7-15% of fatal crashes. There are no national data on the proportion of drivers with a BAC above the limit, but a research effort to obtain that data is now underway. Enforcement and public information concerning drink-driving is on the increase, especially at high-risk times (nights, weekends, holidays), in high-risk places (in the vicinity of pubs) and for high-risk populations (young drivers, with zero tolerance for those in their first three months of driving with a licence).

The first national roadside survey of driving under the influence of alcohol was conducted in November 2011 by the Israel National Road Safety Authority and the traffic police. The survey was conducted on three weekends in November-December 2011 in 15 centres, on 38 sites. The data were analysed by the Transportation Research Institute at the Technion. The analysis concluded that about 3% of drivers were impaired by alcohol (i.e. a BAC above 0.5 g/l).

Speeding

A national speed survey was carried out on the Israeli road network in June 2010 (Gitelman, V., 2010).

The survey covered eight road types. The measurements were performed by means of traffic counters – on all types of rural road and on arterial urban roads, and by means of speed guns – on urban streets. The speed indicators estimated were: the average speed, the 85th percentile of speed, standard deviation, percentage of vehicles over the speed limit, percentage of vehicles travelling at high speeds during day and night hours.

The main results are summarised below. All road types are associated with a significant share of non-compliance with speed limits.

Among the vehicle types, and on most types of rural road, motorcycles represent high shares of those travelling over the speed limit. High shares were also found among buses and trucks on dual-carriageway roads without at-grade junctions, on single-carriageway roads and freeways (at night), as well as among buses on other dual-carriageway roads.

On urban roads, motorcycles are associated with both the highest shares of those travelling over the speed limit and the highest percentages of those travelling at high speeds. In addition, significant shares of buses travel over the speed limits on all urban road types, with the highest value observed on central collector streets. The share of trucks over the speed limits was low on arterial roads, high on central collector streets and essential on residential collector streets. This means that according to travelling speeds of specific vehicle types – bus, truck, motorcycle – the major speeding problem in urban areas is associated with central collector streets situated in city centres.

The examination of changes in speed indicators revealed that no significant changes were observed in travelling speeds on the Israeli road network in the year 2010 versus 2009.

	Rural roads	Urban roads
85th percentile	12 to 27 km/h higher than speed limit	3 to 18 km/h higher than speed limit
% of vehicles over the speed limit	33% (local roads) to 70% (dual carriageway roads without at-grade junctions)	25% (arterial roads) to 70% (collector roads at night time)

Seat belts and helmets

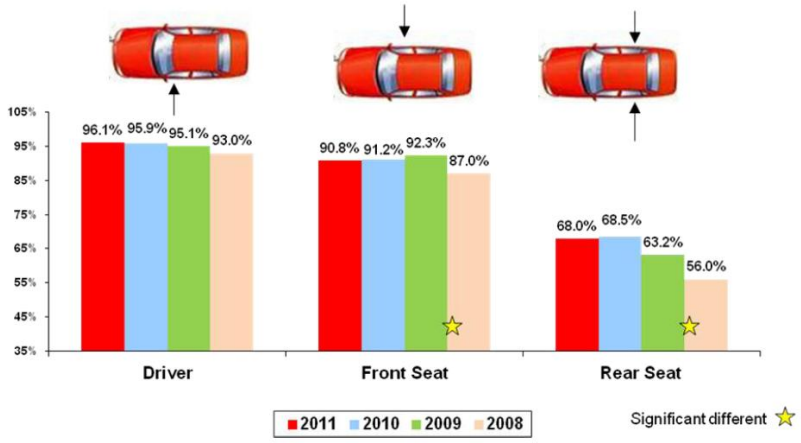
Seat-belt use has been compulsory in front seats since 1975 and in rear seats since 1995.

The use of seat belts, child safety seats and booster seats are required of all relevant occupants at all times. Daytime use of seat belts in the front seats is very high in Israel. This is probably due to very intense and frequent (primary law) enforcement and information campaigns.

In 2011, the seat-belt wearing rate among all car users remained the same as in 2010. The wearing rate among drivers stands at 96%; and among front-seat passengers is a little lower at 91%. The rate in rear seats is still quite low in comparison to front seats, at 68%.

Table 4. **Seat-belt use by car occupants**

	2003	2005	2008	2009	2010	2011
Driver	89%	90%	93%	95%	96%	96%
Front seat passenger	85%	84%	87%	92%	91%	91%
Rear seat passengers	23%	25%	56%	63%	69%	68%



Helmet use is compulsory for all motorcycle and moped riders. The rate of use by motorcyclists is close to 100%.

Helmets are not compulsory for cyclists. The use of bicycle helmets in 2009 is summarised in the table below.

Table 5. **Use of helmets by cyclists (2009)**

Residential areas	21%
City centres	17%
Near the entrances of bicycle parking areas	28%
Public parks, riding areas	24%

Among adults, the level of use of cycle helmets is affected by riding conditions (alone/in group), the age group of the rider, type of site, geographic area, place of riding, size of town, population group of the rider (non-religious, religious, foreign worker) and whether the rider carries a passenger.

Among children up to the age of 17, the level of use is affected by geographical area, age group, place of riding, riding conditions (alone or accompanied by an adult), population group (non-religious, religious) and size of town.

Distracted driving / Use of mobile phone

In Israel, it is authorised to drive while operating a hands-free mobile phone, but not with a hand-held phone.

In 2010, the National Road Safety Authority conducted the first massive campaign on driving distractions caused by the use of mobile phones: having a discussion with a hand-held phone or sending/reading SMSes. The purpose of the campaign was to change behaviour by raising awareness of the dangers of mobile phone use while driving.

See: http://www.rsa.gov.il/Distraction/DisCampaignsi/Pages/DisCampaignOnAiraspx

7. Useful websites and references

National Road Safety Authority - Israel	http://www.rsa.gov.il/Pages/default.aspx
Transportation Research Institute - Technion	http://techunix.technion.ac.il/~ttri/library.html
Central Bureau of Statistics - Israel	http://www.cbs.gov.il/reader

ITALY[1]

- Capital :Rome
- 61.0 million inhabitants
- 806 vehicles / 1 000 inhabitants
- 4 090 road fatalities in 2010
- 6.8 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, 211 404 injury crashes occurred and 4 090 persons were killed on the Italian roads. Compared with 2009, this represents a 1.9% decrease in crashes and a 3.5% decrease in fatalities.

Provisional data for 2011

Provisional data for 2011, provided by the National Police, showed a continuous downward trend, with a 8.6% decrease in comparison with the same period in 2010.

The good results achieved in 2010-2011 can be partly explained by the introduction of new rules during 2010-2011, especially for young, novice and professional drivers.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 63%: but the number of injury crashes rose by 22%. The number of vehicles increased fourfold.

In recent years (2000-2010), the number of fatalities declined by 42%, while the number of injury crashes started declining in 2003 when the penalty points system was introduced (-18% since 2000). The difference between the reductions in fatalities and injury crashes is mainly due to measures being oriented toward fatality risk (e.g. reduction in average motorway speed and driving-under-influence enforcement) and to the development of vehicles' resistance to crash damage.

Passenger and freight transport demand in Italy is mainly served by road transport, with a preponderance of cars. During the last decade, 2001-2010, against a limited population increase (+6%) and limited economic growth (GDP increased annually by some 2.6%), the number of vehicles has risen by 13%. About the same rise (+14%) has been observed in the total vehicle-kilometres travelled on motorways.

1. *Source*: IRTAD, National Institute of Statistics, ACI, University la Sapienza, ISS National Health Institute.

Risk and rates

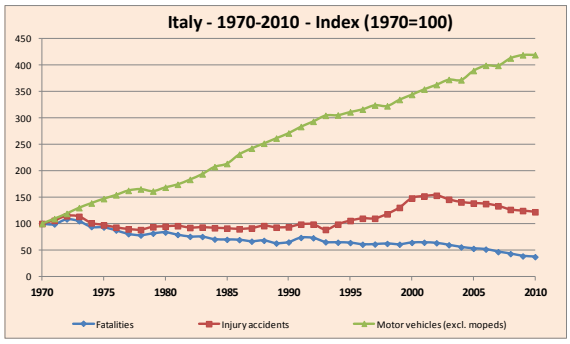
In the last ten years, the mortality rate (in terms of deaths per 100 000 population) has declined by 44% and the death rate (expressed in deaths per 10 000 vehicles) by 54%, while motorisation has risen by 15%.

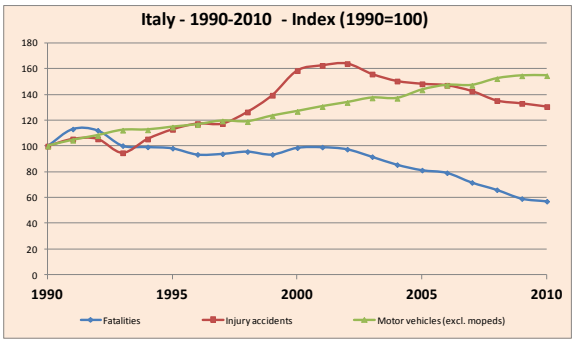
Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	11 025*	9 220*	7 151*	7 061	4 237	4 090	-3.5%	-42%	-63%
Injury crashes	173 132	163 770	161 782	256 546	215 405	21 1404	-1.9%	-18%	22%
Rates									
Deaths/100 000 population	20.5	16.3	12.6	12.4	7.1	6.8	-3.6%	-44%	-67%
Deaths/10 000 registered vehicles	7.9	4.7	2.1	1.7	0.9	0.8	-8.2%	-54%	-90%
Deaths/billion veh-km									N.A
Motorisation (number of vehicles/1 000 inhabitants°	216	347	546	701	810	806	-0.5%	+15%	+273

* A correcting coefficient of 1.08 has been applied to take into account fatalities within 30 days.

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**





Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 27.7 billion in 2010, i.e. 1.8% of GDP.

Costs (EUR billion)	2010	2009	% change
Fatalities	4 992	5 172	-3.48%
Injuries (slight and serious)	7 518	7 630	-1.47%
Property/damage costs*	15 157	15 445	-1.86%
Total % of GDP	**27 668** **1.78%**	**28 247** **1.85%**	**-2.05%**

* Data refer to all road accidents, including non-injury accidents.

3. National road safety strategies and targets

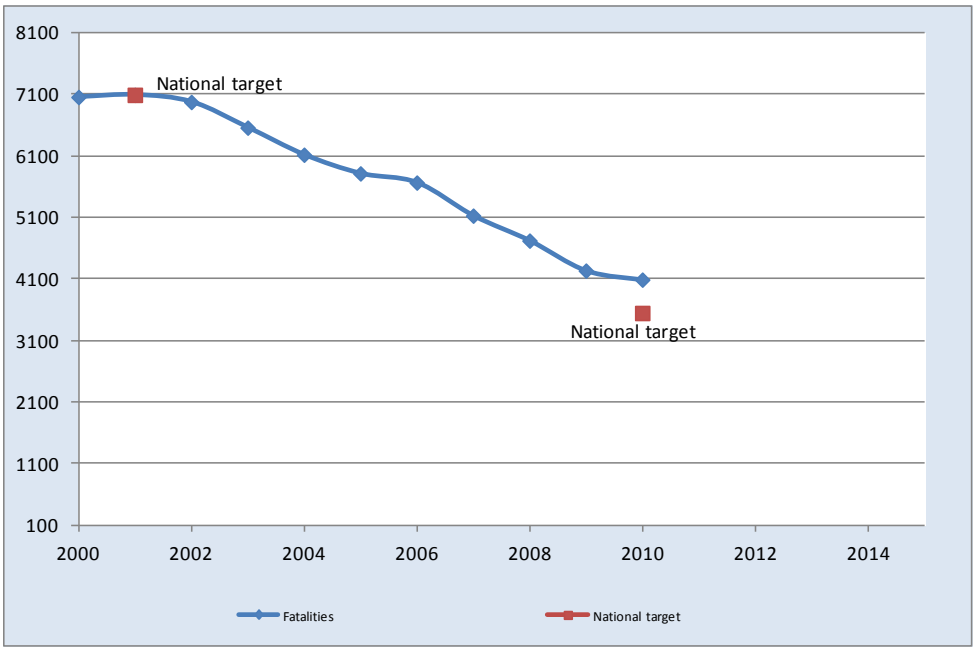
In Italy, the National Road Safety Plan covered the period 2001-2010. The Plan set a target to reduce the number of road fatalities by 50% between 2001 and 2010 (in line with the EU target) and to reduce the number of injuries by 20%. The Plan was structured according to a two-level action strategy:

The first level supported, including economically, the implementation of immediately feasible measures in high-risk situations;

The second level aimed at the implementation of a new and efficient system made up of techniques and tools for the analysis of risk factors, road safety monitoring and of methods and criteria for road safety management.

At the end of 2010, the fatality target was not reached but, nevertheless, significant progress had been made during the previous decade.

Figure 2. **Trends toward national target**



Road safety strategy for 2011-2020

The new road safety strategy is currently under development through the definition of a new National Road Safety Plan. The Plan will follow the European road safety orientations and it will address the period from 2011 to 2020.

4. Recent safety measures (2010-2011)

In the last ten years the central government has put much effort into road safety. Many of the measures implemented are related to new and stricter regulations and to better enforcement.

Impaired driving

Since 2010, a zero blood alcohol content limit has been set for young drivers, novice drivers and professional drivers (the current BAC limit in Italy is 0.5 g/l).

Since 2009-2010, alcohol cannot be sold between 02:00 and 07:00, and between 22:00 and 06:00 on motorways;

Speed management

Since 2010, lower speed limits have been fixed for young drivers.

In 2006, a section control system (the TUTOR system) was introduced, to measure average speeds on sections of motorway with high crash rates. Drivers are informed by a road-sign of the presence of a speed monitoring system. The Tutor system is currently operational on about 2 900 km of motorways.

Licences

Since April 2011, people aged 80 years and over must pass a medical test for the renewal of their driving licence, which is issued for a maximum of two years.

A regulation for accompanied driving for young people aged 17 has been adopted and should come into force in 2012.

Since 2011, a practical exam is required to obtain a moped licence.

Safety equipment of drivers and riders

Since 2010, position lights and seat-belt wearing are compulsory on micro cars.

Also since 2010, cyclists must wear a reflecting jacket at night outside built-up areas.

Campaigns, education and communication

In 2010, a road safety law was introduced defining programmes and funding for compulsory road safety education in schools. The main topics to be included in the programmes are: general traffic rules, road signs, use of bicycles, and the risks related to alcohol and drugs use.

During the last decade several important national road safety campaigns have been realised, in newspapers, on TV and radio and in schools.

5. Crash trends

Road users

During the past decade, the number of fatalities declined for all user groups except for motorcyclists. For this group the number of fatalities rose by 22% compared to 2000.

The most important decrease concerned moped riders. This has to be seen in the context of the introduction of the compulsory use of helmets for moped riders of all ages (from 2000) and the declining popularity of this means of transport.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	477	7%	401	6%	295	7%	263	6%	-11%	-34%	-45%
Mopeds	620	9%	637	9%	212	5%	203	5%	-4%	-68%	-67%
Motorcycles	713	10%	770	11%	1 037	24%	943	23%	-9%	22%	32%
Car occupants	3 797	53%	3 850	55%	1 785	42%	1 817	44%	2%	-53%	-52%
Pedestrians	1 069	15%	982	14%	667	16%	614	15%	-8%	-37%	-43%
Others	475	7%	421	6%	241	6%	250	6%	4%	-41%	-47%
Total	7 151	100%	7 061	100%	4 237	100%	4 090	100%	-3%	-42%	-43%

Age

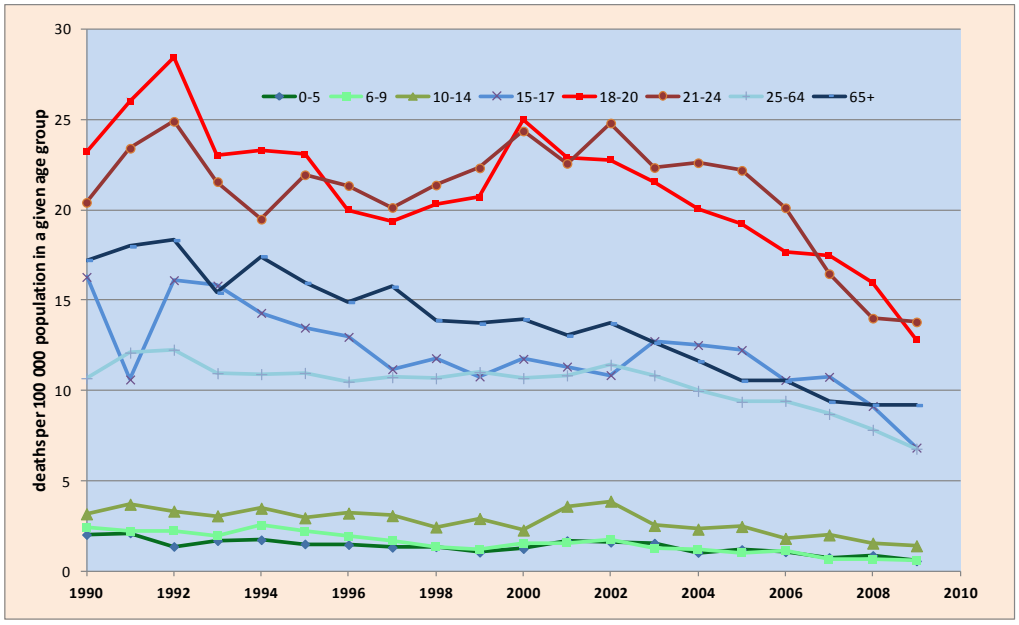
Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned the 6 to 9 year- and 10 to 14-year age groups, for which fatalities respectively decreased by 77% and 76%.

Young people (18-24) run higher risks compared to the other age groups (Figure 3). But in the last decade important progress has been made to reduce the risks for this age group.

Table 4. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	69	39	19	27	42.1%	-31%	-61%
6-9	60	34	13	14	7.7%	-59%	-77%
10-14	118	63	39	28	-28.2%	-56%	-76%
15-17	429	211	121	118	-2.5%	-44%	-72%
18-20	640	485	234	253	8.1%	-48%	-60%
21-24	786	740	345	293	-15.1%	-60%	-63%
25-64	3 245	3 637	2 265	2 205	-2.6%	-39%	-32%
>65	1 436	1 437	1 111	1 059	-4.7%	-26%	-26%
Total	7 151	7 061	4 237	4 090	*-3.5%*	*-42%*	*-43%*

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

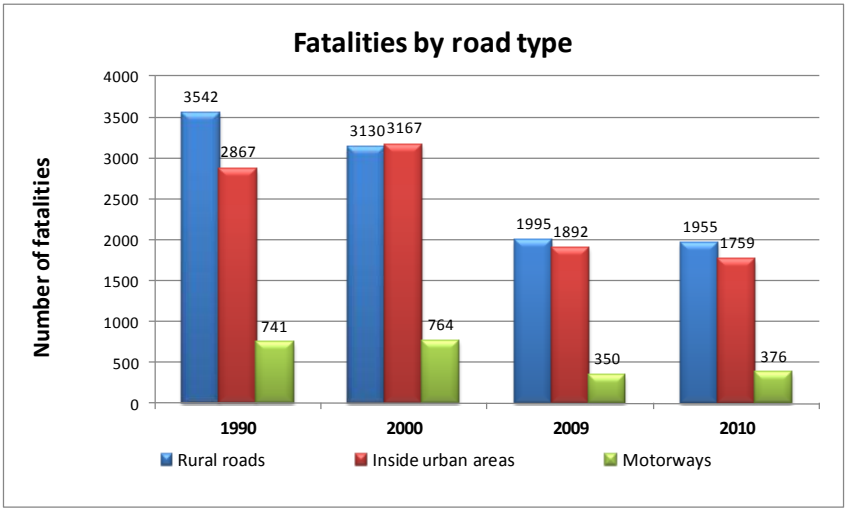


Road type

In 2010, 48% of fatalities occurred on rural roads, 43% inside urban areas and 9% on motorways (Figure 4). Since 1990, the biggest improvement was observed on rural roads (-45% for fatalities).

In 2010, fatalities increased by 7% on motorways (this increase needs to be analysed, taking account of a considerable drop in traffic volumes on motorways in 2009, especially for HGV traffic).

Figure 4. **Reported fatalities by road type 1990, 2000, 2009 and 2010**



6. Recent trends in road user behaviour

Impaired driving

The current BAC limit in Italy, which came into force in 2001, is 0.5 g/l.

Since July 2010, there is zero tolerance for young drivers, novice drivers and professional drivers, for whom the BAC limit is equal to 0.0 g/l.

For BAC levels between 0.5 g/l and 0.8 g/l, the sanctions are a fine of EUR 500-2 000 and withdrawal of the driving licence for a period varying from between 6 to 12 months; the sanctions are doubled when an accident has been caused.

For BAC levels between 0.8 g/l and 1.5 g/l the sanctions are: imprisonment for a period of up to a maximum of six months, with the alternative of a probation period with social services, a fine of EUR 800-3 200 and withdrawal of the driving licence for a period of up to two years. Sanctions become more severe in the case of an accident.

For BAC levels higher than 1.5g/l the sanctions are: imprisonment for a period varying from six months to one year, a fine of EUR 1 500 to 6 000 and withdrawal of the driving licence for a period varying from one to two years.

A driver found to be under the influence of drugs can be imprisoned for a period varying from six months to one year, fined EUR 1 500 to 6 000 and can have his driving licence withdrawn for between one and two years (two to four years if the vehicle does not belong to the driver).

Speeding

The general speed limits in Italy are:

Urban areas	50 km/h
Rural roads	90-110 km/h
Motorways	130 km/h

In 2010, inappropriate speeds were reported in about 14% of injury crashes and 26% of fatal accidents.

Seat belts and helmets

Seat-belt usage is compulsory in front seats since 1988 and rear seats since 1994. It has also been compulsory on micro cars since 2011. Table 6 shows seat-belt use in 2000-2002, 2009 and 2010.

Table 6. **Seat-belt use by car occupants**

	2000-2002	2009	2010
Front seats	29.4%	63.8%	64.3%
Rear seats	-	-	10.0%*

* Data refer to an average percentage for period 2009-2011.

Since 1986, helmet use is compulsory for all motorcyclists and for moped riders under 19 years old. Helmet use for all powered two-wheelers and for all ages is compulsory since 2000. During 2009-2011, the average percentage of helmet use in urban areas has been near to 90%. The percentage is higher on rural roads.

Distracted driving/use of mobile phones

Since 2002, the use of hands-held mobile phones while driving is not permitted.

During 2009-2011, observed cases of car drivers using mobile phones while driving represented around 9%.

7. Useful websites and references

Ministry of Infrastructure and Transport	www.infrastrutturetrasporti.it/
National Institute of Statistics	www.istat.it
Automobile Club of Italy	www.aci.it
Centre for Transport Logistics of the University La Sapienza	www.ctl.uniroma1.it
Austostrade per l'Italia	http://www.autostrade.it
AISCAT	www.aiscat.it
ISS National Health Institute	ww.iss.it
AA.VV. 2011. Il Sistema Ulisse per il monitoraggio dell'uso dei dispositivi di sicurezza in Italia	

JAPAN [1]

- Capital : Tokyo
- 128 million inhabitants
- 646 vehicles/1 000 inhabitants
- 5 745 road fatalities in 2010
- 4.5 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, the number of road fatalities decreased by 0.5%, reaching its lowest level since record-keeping began. The number of injury crashes fell by 2%.

Provisional data for 2011

Based on provisional data for January to November 2011, fatalities dropped by about 4.2%, and injury crashes by 4.7%.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 74% but the number of injury crashes rose by 1%. In the same period, the number of vehicles and the distance travelled (vehicle-kilometres) were multiplied by more than three. In recent years (2000-2010), the decline in the number of fatalities was sustained (-45%).

Japan reached its maximum number of traffic deaths in the late 1960s. Since then, fatalities have seen a steady decrease, with some fluctuations over the years.

Risk and rates

Between 1970 and 2010, the road traffic mortality rate, expressed in terms of deaths per 100 000 population, fell by 79% and the fatality risk (expressed in deaths per distance travelled) fell by 91%.

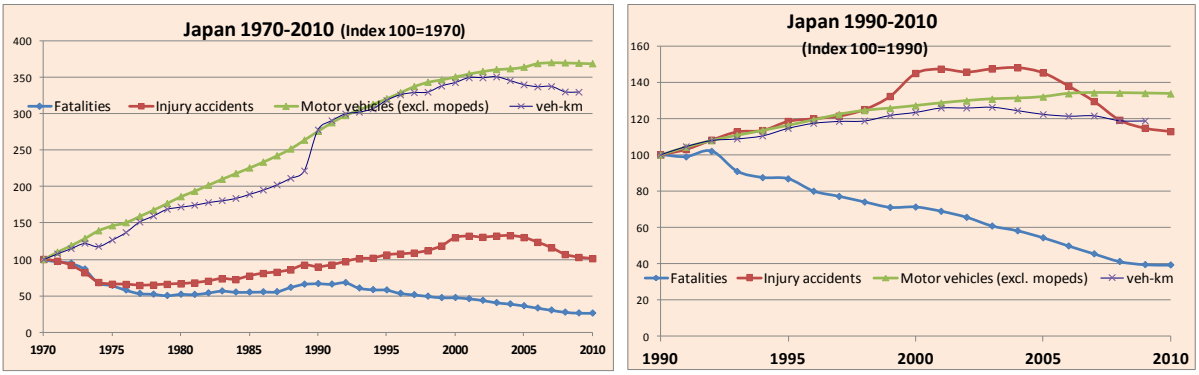
1. Source: IRTAD, Institute for Traffic Accident Research and Data Analysis; National Police Agency.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	21 795	11 388	14 595	10 403	5 772	5 745	-0.5%	-45%	-74%
Injury crashes	718 080	476 677	643 097	931 934	737 474	725 773	-2%	-22%	1%
Rates									
Deaths / 100 000 population	21.1	9.7	11.8	8.2	4.5	4.5	-1%	-45%	-79%
Deaths / 10 000 registered vehicles	7.7	2.7	2.4	1.2	0.6	0.7	11%	-39%	-91%
Deaths / billion veh-km	96.4	29.3	23.2	13.4	7.7				
Motorisation *	216	357	501	620	650	646	-1%	4%	199%

* motorised vehicles / 1 000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



3. National road safety strategies and targets

Since 1971, the Government sets up a National Traffic Safety Programme every five years.

Road safety strategy for 2011-2020

The 9th Programme was launched in April 2011 and covers the period 2011-2015. It includes the target to have less than 3 000 deaths[1] (within 24 hours) and less than

1. Equivalent to 3 450 deaths within 30 days: K(30d)=K(24h)*1.15.

700 000 casualties, by 2015. The vision is to make Japan the safest country for road traffic.

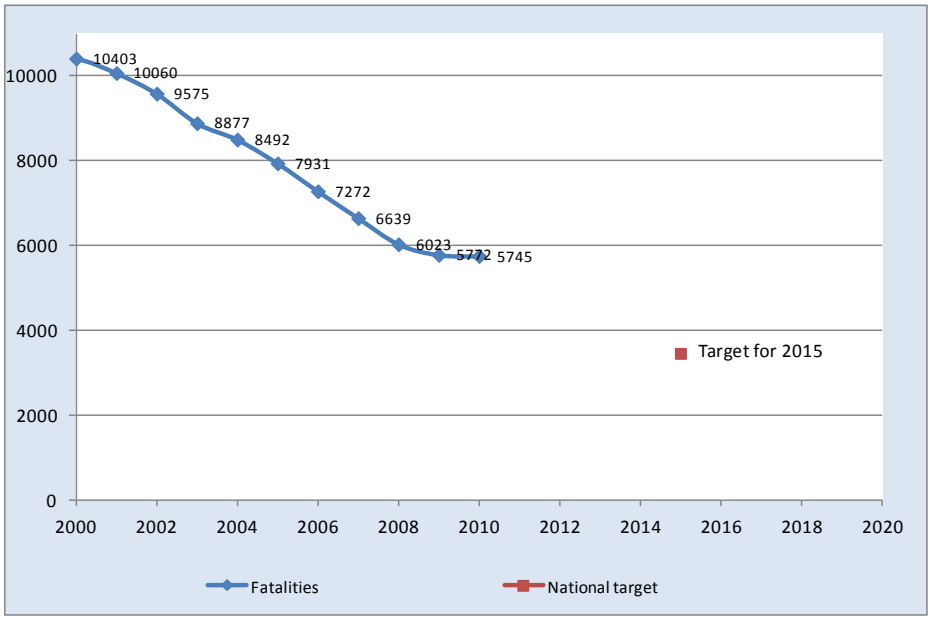
The 9th Fundamental Traffic Safety Programme has three strategic objectives and eight pillars. The three strategic objectives are:

1. Safety for the elderly and children.
2. Pedestrian and bicycle safety.
3. Ensuring safety on roads serving the community and on main roads.

The eight pillars are:

1. Improvement of the road traffic environment.
2. Dissemination and reinforcement of traffic safety messages.
3. Safe driving.
4. Vehicle safety.
5. Enforcement.
6. An improved rescue and emergency medical system.
7. Better victim support, including an appropriate damage compensation system.
8. More Research & Development.

Figure 2. **Trends toward national target**



4. Recent safety measures (2010-2011)

Bicycle safety

The bicycle is a popular means of transport for many people in Japan. This is even more the case since the terrible earthquake which hit the eastern part of Japan in 2011, as bicycles have become a real alternative to cars for commuting.

In 2010, 20% of all traffic crashes involved a bicycle. This share could rise, given the increasing popularity of riding. Improving the safety of cyclists has become a priority and is essential in order to reach the goal set within the 9th Fundamental Traffic Safety Programme adopted in 2011. The main measures focus on:

- Developing a safe traffic environment for cyclists.
- Increasing knowledge of traffic rules.
- Developing safety education for cyclists.
- Strengthening enforcement aimed at cyclists.

5. Crash trends

Road users

All user groups have benefited from the important safety improvements made since the 1990s. The user groups that most benefitted from safety progress were car occupants and motorcycle and moped riders.

In comparison to other OECD countries, pedestrians represent a very high proportion (one-third) of fatalities. This high proportion is partly explained by the fact that only about 40% of people older than 65 have a driving licence and as pedestrians they are therefore more exposed to crashes. Pedestrian fatalities account for about half of the road users killed in this age group.

Table 2. **Reported fatalities by road user group**
1990, 2000, 2009 and 2010

									2010 % change over		
	1990		2000		2009		2010		*2009*	*2000*	*1990*
Bicyclists	1 509	10%	1 273	12%	933	16%	929	16%	-0.4%	-27%	-38%
Mopeds	1 320	9%	944	9%	456	8%	454	8%	-0.4%	-52%	-66%
Motorcycles	1 920	13%	903	9%	577	10%	564	10%	-2.3%	-38%	-71%
Passenger car occupants	3 887	27%	2 901	28%	1 190	21%	1 176	20%	-1.2%	-59%	-70%
Pedestrians	3 955	27%	2 955	28%	2 012	35%	1 987	35%	-1.2%	-33%	-50%
Others	2 005	14%	1 427	14%	604	10%	635	11%	5.1%	-56%	-68%
Total	***14 595***	***100%***	***10 403***	***100%***	***5 772***	***100%***	***5 745***	***100%***	-0.5%	-45%	-61%

Age

Since 1990, impressive reductions in fatalities have benefitted all age groups except the elderly (65+). This is due to the ageing of Japanese society. In 2010, victims over age 65 accounted for more than half of all fatalities, with the share increasing for three years in a row.

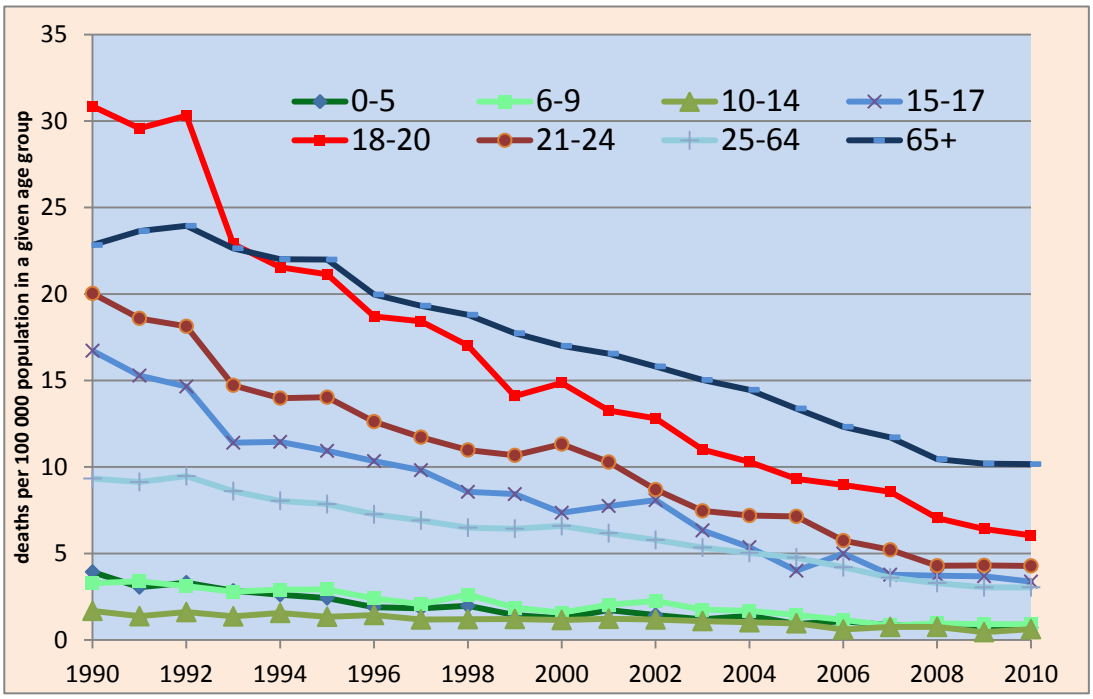
Unlike in other countries, the oldest age group is also the one the most at risk in traffic (Figure 3). Young people (18-20) have a slightly higher risk than the general population but the difference is much less marked than in other countries.

The national goal of making Japan's roads the "safest in the world" can be realised only if greater effort is made to improve the safety of its senior citizens. The Government is now implementing a diverse array of strategies to improve the safety of those at the upper end of an ageing society.

Table 3. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	1990	2010% change over		
					2009	*2000*	*1990*
0-5	312	88	47	45	-4%	-49%	-86%
6-9	198	76	42	41	-2%	-46%	-79%
10-14	143	75	27	37	37%	-51%	-74%
15-17	1 006	327	133	123	-8%	-62%	-88%
18-20	1 820	690	242	220	-9%	-68%	-88%
21-24	1 381	772	242	223	-8%	-71%	-84%
25-64	6 261	4 635	2 082	2 084	0%	-55%	-67%
>65	3 475	3 740	2 957	2 972	1%	-21%	-14%
Total	***14 595***	***10 403***	***5 772***	***5 745***	*0%*	*-45%*	*-61%*

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

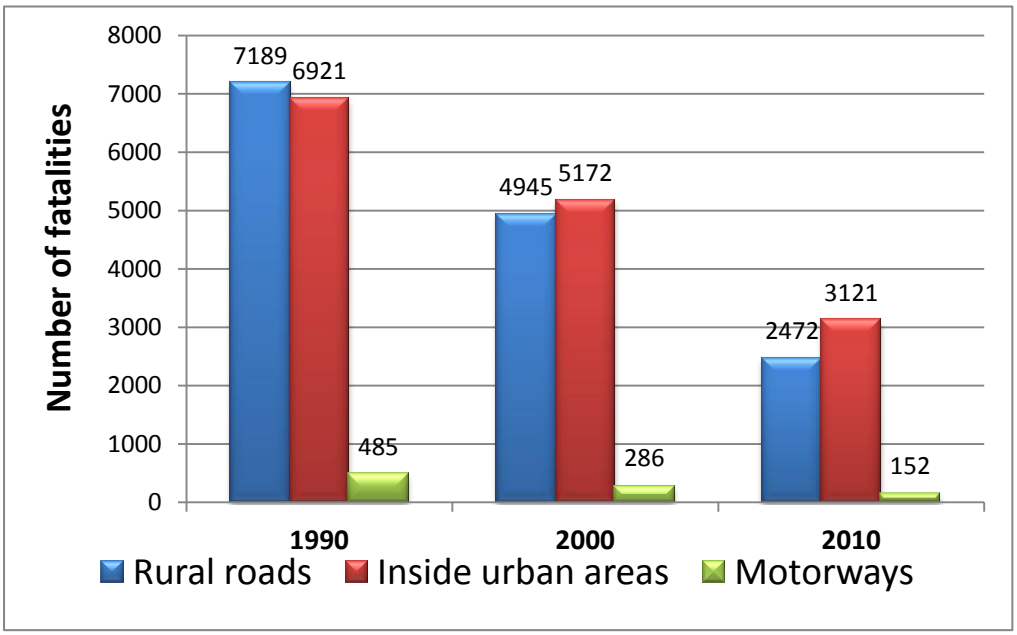


Road type

In 2010, 43% of fatal crashes occurred on rural roads, 54% in urban areas and 2% on motorways (Figure 4). Since 1990, the greatest reduction in fatalities occurred on motorways (-69%).

The high share of fatal crashes in urban areas is partly explained by the high volume of traffic in urban areas and the high number of collisions at intersections. Most of the collisions with pedestrians occur while they are crossing roads.

Figure 4. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

In 2002, the maximum BAC was lowered from 0.5 g/l to 0.3 g/l. Since then, the number of fatal crashes caused by alcohol has been divided by 4.

In 2010, road crashes caused by drink-driving were reduced by 4.0% compared to the previous year.

Speed

In the first half of 2011, the number of fatal crashes occurring at a speed over 80 km/h was 0.29 times higher than in 2001, while crashes at speeds of 50-80 km/h were 0.46 times higher compared with 2001. Thus, the decrease in crashes involving higher speeds has contributed to the decrease in the number of fatal crashes.

Seat belts and helmets

Seat-belt wearing has been compulsory in front seats since 1985 and in rear seats since 2008 only. Seat-belt wearing in front seats has risen from 88% in 2002 to 97% in 2010; while the use of seat belts in rear seats is still very low (33% on general roads and 64% on expressways). The use of child restraints remains at 57%.

Helmet wearing is compulsory for all motorcycle and moped riders. The usage rate is around 99%.

Table 4. **Seat-belt use by car occupants**

	2010
Driver's seat	
Motorway	99%
Others	97%
Front seat	
Motorway	97%
Others	92%
Rear seats	
Motorway	64%
Others	33%

Distracted driving

Since 1999, using hand-held phones or gazing at any electronic display unit while driving is prohibited. Causing a crash due to the use of these devices is subject to punishment; and since 2004, even if no crash is caused, the offence is still punishable.

In 2010, there were 817 injury crashes due to the use of mobile phones (including crashes involving cyclists), representing 0.1% of all injury crashes.

7. Useful websites and references

National Police Agency	www.npa.go.jp
ITARDA - Institute for Traffic Accident Research and Data Analysis	www.itarda.or.jp

KOREA[1]

- Capital : Seoul
- 48.8 million inhabitants
- 426 vehicles / 1 000 inhabitants
- 5 505 road fatalities in 2010
- 11.3 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

The number of road fatalities, which has shown a decreasing trend since the early 1990s, continued to fall in 2010, down to 5 505, and the number of injury crashes also decreased by 2% compared to 2009.

In 2010, total vehicle-kilometres increased by 0.48% compared with 2009.

Provisional data for 2011

Based on provisional data for the first semester 2011, the downward trends have continued, with a 10% reduction compared to the same period in 2010.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities increased by more than 56% and the number of injury crashes by more than 500%, while the number of vehicles rose by a factor of more than 160.

Fatalities peaked in 1991 at 13 429. Since then, road deaths have decreased, with some fluctuations, and were halved in 2004. Injury crashes peaked in 2000 at 290 481, but decreased by 22% in 2010.

Factors involved in the drop in traffic crashes include the implementation of strict enforcement, legislation of compulsory front-seat-belt use (1990), strong penalties on drink-driving (from 1988) and installation of speed-monitoring cameras (since 1997). These measures led, for example, to reductions in the number of alcohol-related fatalities (-40%) and fatalities due to speeding (-50%).

In 2008, the Government adopted a national implementation plan for road safety, "*Cutting road fatalities by half by 2012*" (compared with 2007). The project had a strong focus on pedestrian safety to reduce the very high death rates for that group.

1. Source : IRTAD, Korean Road Traffic Authority (KoROAD), Korean Transportation Safety Authority (TS).

The 2008 decline in road fatalities coincided with a decline in mobility, partly due to the economic recession and the increase in oil prices. In 2008, vehicle-kilometres decreased by 12% in comparison to 2007.

Risk and rates

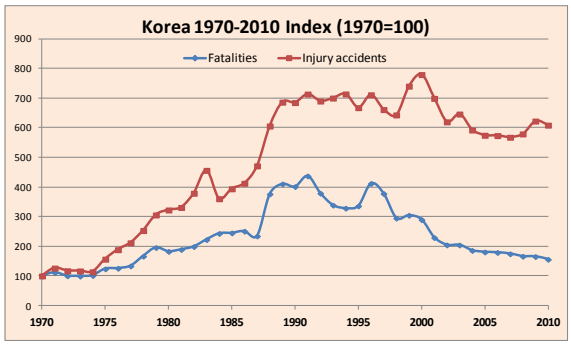
Between 2000 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, fell by 48%, from 21.8 to 11.3. The number of deaths per 10 000 vehicles showed a more favourable reduction, from 6.9 to 2.6, i.e. 63%. On the other hand, the number of vehicles per 1 000 inhabitants, which is representative of the national level of motorisation, increased dramatically between 1990-2010, by 273%.

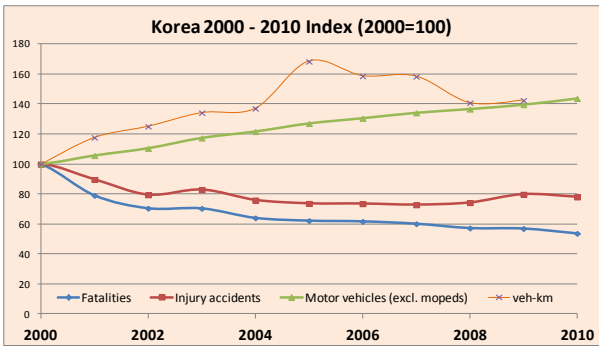
Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	3 529	6 449	14 174	10 236	5 838	5 505	-6%	-46%	56%
Injury crashes	37 243	120 182	255 303	290 481	231 990	226 878	-2%	-22%	509%
Rates									
Deaths / 100 000 population	11.0	16.9	33.1	21.8	12.0	11.3	-5.6%	-48%	+3%
Deaths / 10 000 registered vehicles	277.9	67.9	28.9	6.9	2.8	2.6	-7%	-62%	-99%
Deaths / billion veh-km				49.5	19.8	18.6	-7%	-62%	
Motorisation*		24.9	114.2	317.6	427.5	426.2	-0.3%	+34%	+273%

* Motorised vehicles / 1 000 pop

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**





Cost of road crashes

In 2010, traffic crashes cost around 1.1% of GDP (about USD 12.9 billion)[1].

3. National road safety strategies and targets

The current road safety plan, as part of the 6th National Transport Safety Plan (2007-2011), was modified by the new government in 2007. The main objective is to halve the number of fatalities by 2012, in comparison to 2007, to less than 3 000 road deaths.

The national road safety plan comprises five strategic fields and 20 main measures, as described below.

Strategic fields	**Main measures**
Improved pedestrian safety	➢ Installation of facilities to reduce jaywalking; ➢ Assurance of sight distance for pedestrians at night; ➢ Improvement of pedestrian safety facilities; ➢ Adoption of Silver Zone for the aged.
Improved commercial vehicle safety	➢ Use of digital tachographs; ➢ Traffic safety audits for commercial vehicles; ➢ Experience-oriented safe-driving training centres.
Advanced speed management and road facilities	➢ Introduction of Zone 30 for residential areas; ➢ Classification for speeding enforcement standard; ➢ Road safety audit and inspection; ➢ Relocation of traffic signals; ➢ Black-spot Programme and Hazardous Location Improvement Programme; ➢ Removal of roadside obstacles (trees, poles, etc.); ➢ Development of Pedestrian Protection Performance Standards; ➢ Development of Transportation Safety Information Management System.
Improved Road Safety Awareness	➢ Nationwide campaigns and enforcement (seat-belt use, child restraint use, no drinking, no speeding, cyclist helmet use); ➢ School education (Road Safety Programme); ➢ Increase in the number of speed-monitoring cameras.
Improved Emergency Medical Service	➢ Minimization of time taken to access accident sites; ➢ Enhancement of emergency medical capabilities.

1. *Source*: e-TAC NEWS, Korea Road Transport Authority, 2011.12 (PGS cost is excluded).

According to the 6th National Transport Safety Plan, the interim target for the year 2010 was less than 4 600 fatalities. The target was not reached, as there were 17% more fatalities. However, for commercial vehicles, the target of less than 920 fatalities was almost reached.

Figure 2. **Progress towards road safety target**

Road safety strategy for 2012-2016

In September 2011, the Ministry of Land, Transport and Maritime Affairs (MLTM) announced publicly 'The 7th National Transport Safety Plan' for the next five years (2012~2016). The plan includes major safety issues for road, railway, aviation and marine transport.

In the field of road safety, the plan aims at reducing fatalities to less than 3 000 by 2016 (almost a 40% reduction in comparison to 2010, i.e. 5 505 fatalities) in order to be ranked in the middle among OECD member countries. The plan comprises five strategies: the improvement of user behaviour; building safer infrastructure; operation of smarter modes; reinforcement of the safety management system; and an advanced emergency response system for transport.

Table 2. **Main strategies and measures in the 7th National Transport Safety Plan**

Strategies	Measures
Improvement of road user behaviour	• Reinforcement of safety on roads for schools; • Road safety education through the eyes of children; Safety education for elderly drivers; Strict enforcement of drunk driving and speed violations; • Restructuring the automobile insurance system; • Legal restriction on the driving hours of commercial vehicles.
Safer transport infrastructure	• Safer pedestrian space; • Expansion of road safety facilities; • Implementation of local specific road safety measures; • Tackling bicycle safety; • Sharing transport safety information for the public.
Operation of Smart Transport	• Promotion of high-tech vehicle safety devices; • Promoting installation of commercial vehicle safety devices;
Reinforcement of safety management system	• Human-oriented speed management; • Scientific investigation of road crashes.
Better response in emergencies	• Introduction of an e-call system; • Provision of weather information to road users.

Source: 7th National Transport Safety Plan, Ministry of Transport, Land and Maritime Affairs (MLTM).

4. Recent safety measures (2010-2011)

Speed management

- Higher fines for speeding 60 km/h above the limit (2011);
- Lower maximum speed on rural roads (60 km/h → 50 km/h) and higher maximum speed on motorway by 10 km/h (January 2010).

Impaired driving

- Employers (and potential employers) may be informed of drink-driving offences (2011).

Enforcement/Legislation

- Watching Digital Media Broadcasting prohibited while driving (May 2011).

Infrastructure

- Construction of additional roundabouts (2011).
- Expansion of Zone 30 in residential areas (2011).
- Designation of "silver zone" near facilities for the elderly (2011).
- Additional designation of Pedestrian Priority Zone (2011).

- More installation of crash impact absorption facilities (498 sites as of 2010).
- National highway safety improvement project: more median rumble strips, sign updates and maintenance of road safety facilities (2010).
- Nationwide installation of automatic accident recording systems at main intersections (December 2010).

Education and communication

- Launch of experience-oriented safe-driving training centre (March 2009).
- Campaign on wearing seat belts in rear seats (November 2009).
- Regular school education on first aid (2009).
- Beginning eco-driving education to promote green transport system (2010).

Safer vehicles

- Standardization of motorcycle production (2009).
- Reinforcement of vehicle safety standards to improve pedestrian protection (2009).

5. Crash trends

Road users

In general, all user groups have benefited from the overall improvement in safety since the 1990s. Between 1990 and 2010, the number of pedestrians killed decreased by 71% and the number of cyclists by 54%.

Between 1990 and 2010, the number of pedestrians killed fell by 71% and the number of cyclists by 54%.

In 2000-2010, all user groups, with the exception of motorcyclists, benefited from a sharp drop in the number of fatalities. The greatest decrease was observed for passenger car occupants (-56%). The number of motorcyclists killed rose by 31%.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000*		2009		2010		*2009*	*2000*	*1990*
Bicyclists	2 100	15%	2 792	27%	1 330	23%	1 228	22%	-7.7%	-56%	-42%
Mopeds	644	5%	317	3%	333	6%	294	5%	-11.7%	-7%	-54%
Motorcycles	-	-	343	3%	503	9%	450	8%	-10.5%	31%	-
Car occupants	1 674	12%	1 221	12%	737	13%	633	11%	-14.1%	-48%	-62%
Pedestrians	7 063	50%	3 764	37%	2 137	37%	2 082	38%	-2.6%	-45%	-71%
Others	2 692	19%	1 799	18%	798	14%	818	15%	-2.5%	-55%	-70%
Total	14 174	100%	10 236	100%	5 838	100%	5 505	100%	-5.7%	-46%	-61%

Age

Since 2000, the reduction in fatalities has benefited all age groups, but particularly the youngest group (0-14), for which fatalities fell by 73%, from 588 in 2000 to 160 in 2010. The number of fatalities among road users aged 15 to 24 also decreased by 100%.

The oldest user group (>65), by contrast, has shown only a moderate reduction, by 5% between 2000 and 2010. It is essential to adopt measures to improve the safety of seniors, who have a death rate double that of the average citizen.

Table 4. **Reported fatalities by age group 2000, 2009, 2010**

	2000	2009	2010	2010% change over	
				2009	*2000*
0-5	275	51	49	-4%	-82%
6-9	202	53	49	-8%	-76%
10-14	111	50	62	24%	-44%
15-17	263	137	139	1%	-47%
18-20	459	132	149	13%	-68%
21-24	573	248	236	-5%	-59%
25-64	6 474	3 340	3 068	-8%	-53%
>65	1 853	1 826	1 752	-4%	-5%
Total	*10 236*	*5 837*	*5 504*	*-5.7%*	*-46%*

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)

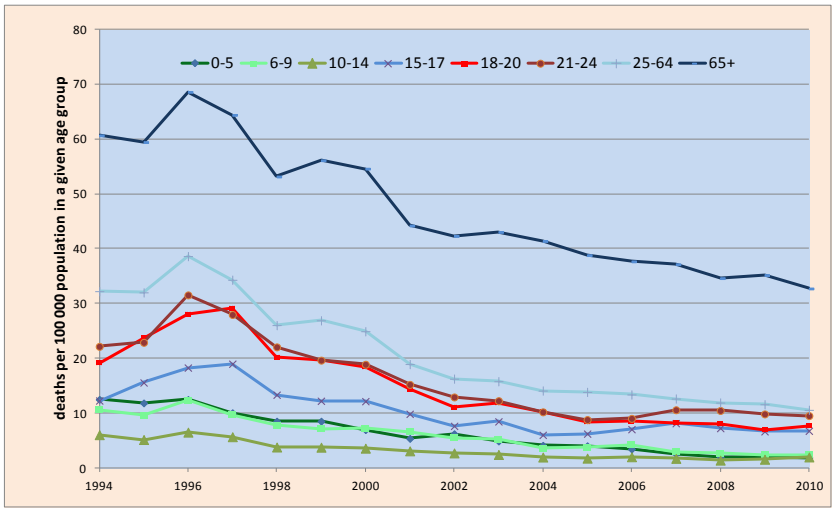


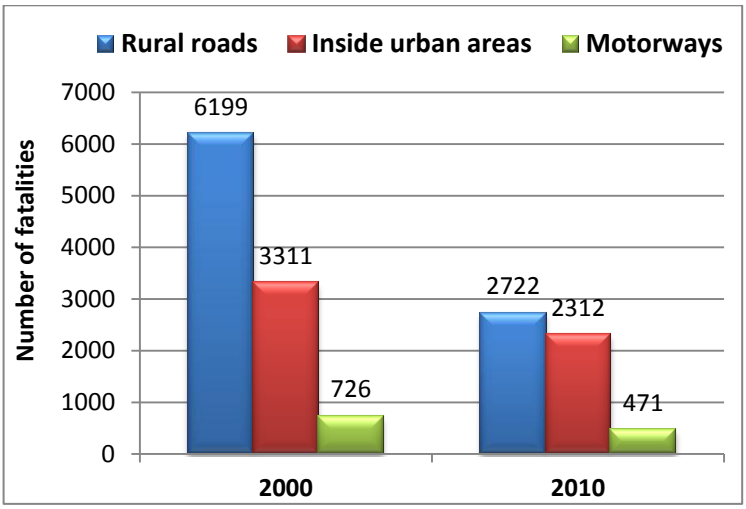
Table 5. **Fatalities ≥65 years old by road user type, 2010**

	Drivers	**Pedestrian**	**Others**
2010	655	947	150
%	37	54	9

Road type

In 2010, almost 49% of fatal crashes occurred on rural roads, more than 42% in urban areas and about 9% on motorways. Since 2000, the greatest reduction, of 56%, has been achieved on rural roads whereas roads in urban areas as well as motorways have shown decreases of 30% and 35%, respectively.

Figure 4. **Reported fatalities by road type 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

The maximum authorised BAC is 0.5 g/l. The number of alcohol-related crashes more or less quadrupled between 1990 and 2010, rising from 7 703 to 28 641.

In 2010, the number of alcohol-related crashes increased by 1.5% in comparison with 2009; however, the number of fatalities due to alcohol-related crashes dropped by 13.3%.

Speed

The table below summarizes the speed limit system in Korea.

One-lane road (including in urban areas)	60 km/h
Two-lane road	80 km/h
Motorways – urban areas	100 km/h
Motorways – outside urban areas	110 km/h

The speed limit in urban areas will be reduced to below 60 km/h, regardless of road width.

Seat belts and helmets

Seat-belt use in front seats has been compulsory since 1990 on all roads. The use of rear-seat belts on motorways was made compulsory from 2008. The nationwide 2011 observation survey (as part of the Transport Culture Survey), to measure the rate of seat-belt use, has shown that 84.1% of drivers and 72.1% of passengers wear seat belts

on the motorways. It is, however, lower than in 2010. Seat-belt use in rear seats has also decreased from 6.3% to 4.5%.

Table 6. **Seat-belt use by car occupants on motorways, 2009, 2010 and 2011**

Seat belt use on Motorways	2009	2010	2011
Front seat – driver	88%	88.5%	84.1%
Front seat – passenger	-	78.2%	72.1%
Rear seat – passenger	-	6.3%	4.5%

Distracted driving and use of mobile phone

It is not permitted to drive while using a hand-held mobile phone.

7. Useful websites and references

Ministry of Land, Transport and Maritime Affairs	(English) http://english.mltm.go.kr/intro.do
Korea Transportation Safety Authority	(English) http://eng.ts2020.kr/
Korea Transport Institute	(English) http://english.koti.re.kr/
Road Traffic Authority	(English) http://eng.rota.or.kr/Eng/Main/main.jsp
Statistics Korea	(English) http://kostat.go.kr/nso_main/nsoMainAction.do?method=main&catgrp=eng2009
Korea Transport Database	(English) http://www.ktdb.go.kr/ktdbeng/
National statistics	Annual accident information is available in English on the Danish Road Directorate website: http://webapp.vd.dk/uheldnykomm/UhAarStat.asp?page=document&objnr=105608

LITHUANIA[1]

- Capital : Vilnius
- 3.2 million inhabitants
- 661 vehicles / 1 000 inhabitants
- 300 road fatalities in 2010
- 9.2 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, the number of people killed on the roads of Lithuania was one of the lowest since 1965. In 2010, 3 625 fatal and injury crashes occurred in Lithuania, whereby 300 people were killed and 4 328 injured. If compared to 2009, the number of people killed was reduced by 19%.

Provisional data for 2011

Preliminary data for the first six months of 2011 (in comparison to the same period in 2010) show an upward trend, with a 13% increase in the number of fatalities.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1990 and 2010, the number of road crashes fell by 29.3%, from 5 135 to 3 625, and the number of fatalities by 70%, from 1 001 to 300. During the same period, the number of vehicles was multiplied by 3.5.

Risk and rates

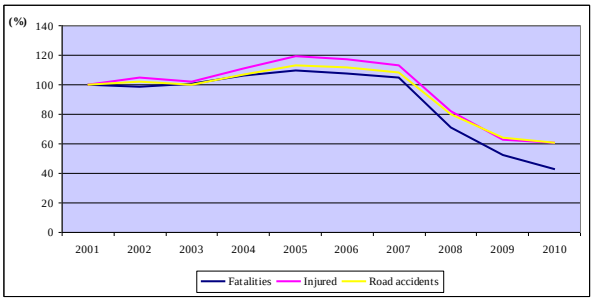
Between 1990 and 2010, the death rate (in terms of deaths per 100 000 population) decreased by more than 60%.

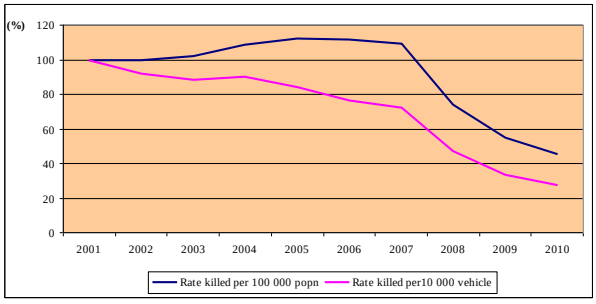
1. *Source*: Transport and Road Research Institute.

Table 1. **Reported road fatalities, injury crashes and rates 1990-2010**

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
Fatalities	1 001	641	370	300	-19%	-53%	-70%
Injury crashes	5 135	5 807	3 827				
Deaths / 100 000 population	26.9	17.3	11.1	9.2	-17%	-47%	-66%
Deaths / 10 000 registered vehicles	12.4	5	1.7	1.4	-18%	-72%	-89%

Figure 1. **Reported road fatalities, injured, injury crashes and rates 2001-2010**





3. National road safety strategies and targets

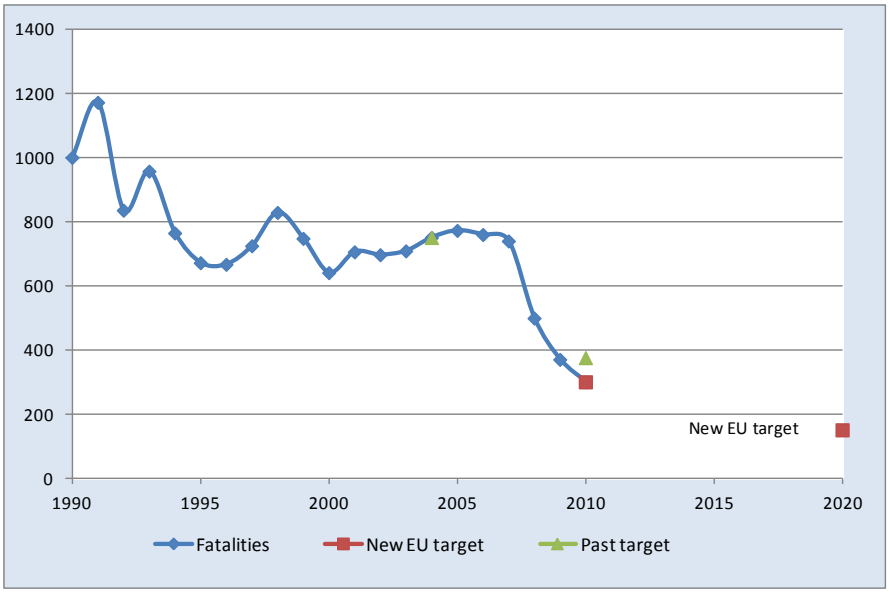
The Road Safety Strategy 2005-2010 has expired. The national target to cut road-user fatalities by half between 2004 (751 killed) and 2010 had already been reached by 2009 (370 killed).

Road safety strategy for 2011-2020

A new strategy for 2011-2017 has been adopted. Its goal is to "enter the top ten of safest European countries".

The strategy will focus in particular on the education of road users, driver training, enforcement, infrastructure, safety of vehicles, ITS and emergency services. Measures to improve the infrastructure of national and municipal roads will include safe intersection design, speed-calming measures in residential areas, safe roadside design, separate tracks for pedestrians and/or cyclists, etc.

Figure 2. **Trends toward national target**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, as seen in Table 3.

Table 3. **Cost of traffic crashes**

Costs (EUR million)	2010
Fatalities	153.18
Hospitalised people	200.70*
Slight injuries	
Property / damage costs	Not available

* total cost of slightly injured and hospitalised people.

4. Recent safety measures (2010-2011)

Speed management

Lithuania implemented a national speed camera programme, with more than 150 speed cameras installed.

Enforcement

Penalties for speeding and other violations were raised. A two-year probatory licence for novice drivers was introduced.

Campaigns

Several campaigns were launched:

- Speeding and aggressive driving, drink-driving.
- Seat-belt wearing and use of child restraints.
- Car renewal programme.

5. Crash trends

Road users

Car occupants and pedestrians are the main victims of traffic crashes. Pedestrians, in particular, represent around one-third of casualties, a high share in comparison with other IRTAD countries.

In 2010, all user groups benefited from the important improvements in road safety.

Table 4. **Reported fatalities by road user group**
1990, 2000, 2009 and 2010

					2010 % change over
	2009		2010		2009
Bicyclists	30	8%	24	8%	-20%
Mopeds	5	1%	3	1%	-40%
Motorcycles	20	5%	14	5%	-30%
Passenger car occupants	191	52%	136	45%	-29%
Pedestrians	121	33%	106	35%	-12%
Others	3	1%	17	6%	
Total	***370***	***100%***	***300***	***100%***	-19%

Age

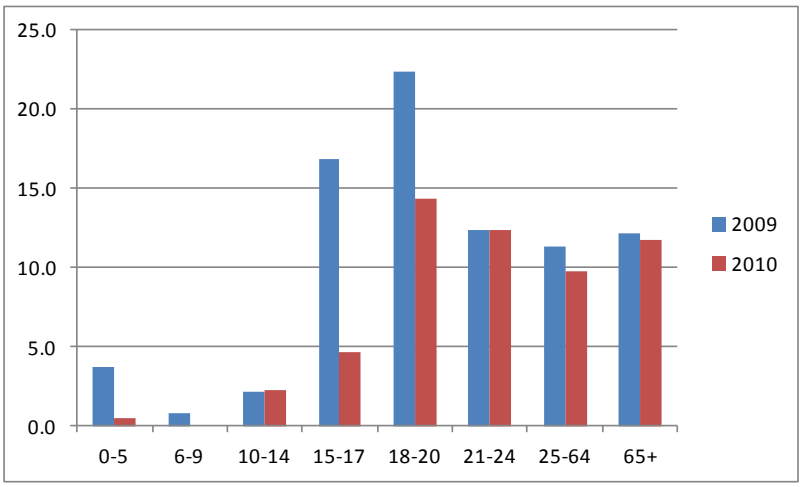
Road safety improvements in 2010 benefited the youngest population the most.

As in other countries, the 18-20 is the age group the most at risk, but their risk significantly decreased in 2010 (see Figure 3).

Table 5. **Reported fatalities by age group 2009, 2010**

Age group	2009	2010	% change 2010 over 2009
0-5	7	1	-86%
6-9	1	0	-100%
10-14	4	4	0%
15-17	24	6	-75%
18-20	35	22	-37%
21-24	27	26	-4%
25-64	202	173	-14%
>65	65	63	-3%
Total	370	300	-19%

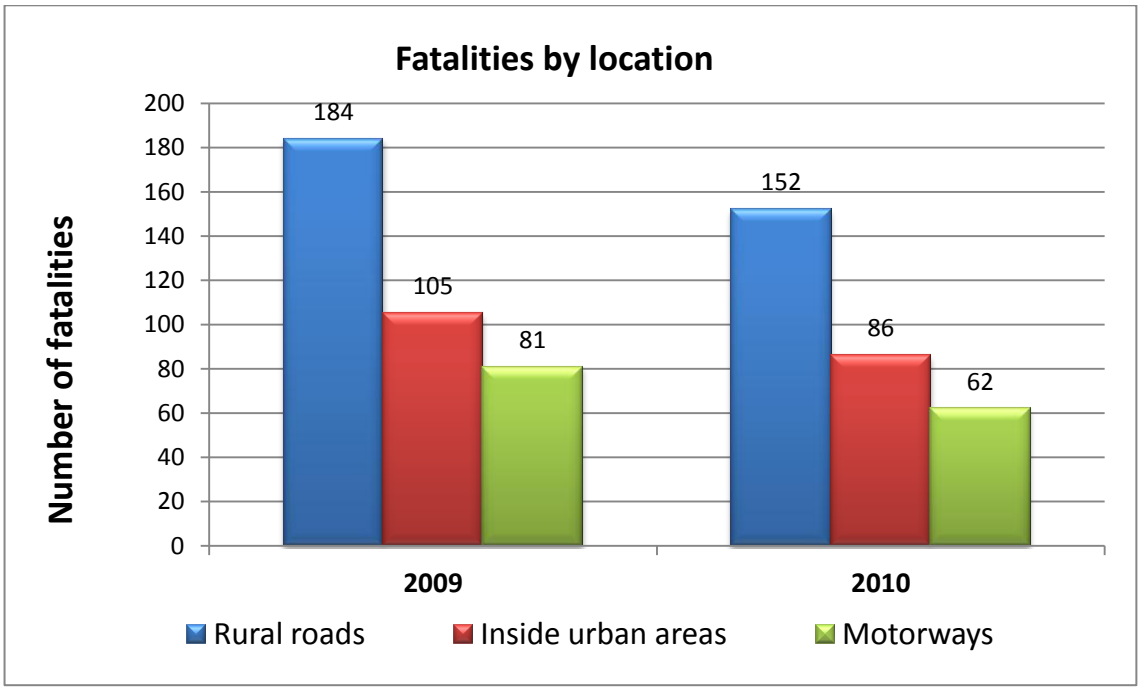
Figure 3. **Reported road deaths by age band (2009-2010)**



Road type

In 2010, 51% of fatalities occurred on rural roads. The improvement in 2010 benefited homogeneously the whole network.

Figure 4. **Reported fatalities by road type 2009 and 2010**



6. Recent trends in road user behaviour

Impaired driving

The general maximum blood alcohol content authorised in Lithuania is 0.4 g/l and 0.2 g/l for novice drivers (with driving experience of less than 24 months) and professional drivers.

In 2010, deaths caused by drink-driving decreased by 29% and there were 11% fewer injured by drunk drivers.

If a driver is caught driving under the influence of alcohol (BAC above 0.4 g/l), his/her licence is withdrawn. The most dangerous violations, as well as repeated drink-driving offences, can be punished by an administrative arrest.

Speed

The general speed limits in Lithuania are summarized below:

Urban areas	50 km/h
Rural roads	90 km/h (70 km/h on gravel roads)
Motorways	130 km/h (100 km/h in winter time)

Excessive and inappropriate speed is the main cause of traffic crashes in Lithuania. Speeding by 30 km/h above the limit is considered a very serious violation, with severe sanctions, including immediate licence withdrawal for novice drivers.

Seat belts and helmets

- Seat-belt wearing is compulsory in all seats.
- All riders of two-wheeled motor vehicles are required to wear helmets.
- Cyclists less than 18 must wear a helmet.

Distracted driving

It is not permitted to drive with a hand-held mobile phone. Hands-free mobile phones may be operated.

7. Useful websites and references

Ministry of Transport and Communications of the Republic of Lithuania	http://www.transp.lt
Transport and Road Research Institute	http://www.tkti.lt/en

MALAYSIA[1]

- Capital : Kuala Lumpur
- 28.4 million inhabitants
- 6 872 road fatalities in 2010
- 23.8 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

The number of road fatalities increased by 1.9% in the year 2010 to 6 872 and the number of crashes by 4.3% compared to the year 2009.

Provisional data for 2011

Based on provisional data for January to December 2011, the number of road fatalities increased 0.1% compared to the same period in the previous year.

2. Long term trends

Change in the number of fatalities and injury crashes

Since 2000, fatalities increased by 13.9%, while the number of seriously injured road users decreased by 20.5%. The increase in the number of fatalities and crashes can be associated with the rapid rise of motorisation in the country. Since 2000, the number of registered vehicles has increased each year by around 6%. The high number of registered vehicles also increased the number of vehicle-kilometres travelled in the country.

Risk and rates

The mortality rate is rather high (23.8 deaths/100 000 population). However, the risk (in terms of deaths per distance travelled) decreased significantly since 2000, due to the large rise in motorisation in Malaysia.

Between 2000 and 2010, the death rate (in terms of deaths per 100 000 population) declined by 8.4%, and risks, expressed in deaths per billion veh-km and in deaths per 10 000 registered vehicles respectively, decreased by 38.3% and 40.2%, mainly because of the very high increase in motorisation (+90.5%).

1. *Source:* MIROS.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	2000	2009	2010	2010% change over	
				2009	*2000*
Fatalities	6 035	6 745	6 872	1.90%	13.9%
Deaths/100 000 population	25.90	23.80	23.80	-0.30%	-8.0%
Deaths/10 000 registered vehicles	5.69	3.55	3.40	-4.20%	-40.2%
Deaths/billion veh-km	26.25	17.27	16.21	-6.14%	-38.3%
Number of motorised vehicles	10 598 804	19 016 782	20 188 565	6.26%	90.5%

3. National road safety strategies and targets

Malaysia adopted a Road Safety Plan for 2006-2010. The strategy included the following targets:

Targets	Results as of 2010
Reduce the number of road deaths per 10 000 vehicles from 4.2 in 2005 to 3.06 in 2010, to 2.72 in 2011 and 2.39 in 2012 (revised target)	3.40
Reduce the death rate per 100 000 population from 23 in 2005 to 10 in 2010	23.77
Reduce the death rate per billion vehicle-kilometres from 18 in 2005 to 10 in 2010	16.21

Road safety strategy for 2011-2020

A collaborative effort between the road authorities in the country is to develop the new road safety plan in line with the decade of action framework. A new, empirical target will be prepared and launched in the near future.

The launch of the UN Decade of Action was also celebrated in Malaysia on 11 May 2011.

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around USD 430 000 for all road fatalities. It is estimated that road crashes cost Malaysia around 1.6% of its GDP at constant prices.

4. Recent safety measures (2010-2011)

Motorcycle safety

- Vehicle-enhancing materials.
- National Helmet Initiative.

- Helmet manufacturers must comply with SIRIM or a higher standard.

- Motorcycle lane programme. Segregation of motorcycles from the mainstream traffic. There are two types of motorcycle lane, exclusive and non-exclusive. Exclusive motorcycle lanes fully segregate motorcycles from mainstream traffic with a guardrail, while non-exclusive motorcycle lanes separate motorcycles from mainstream traffic using chevron markings only.

Enforcement

Strengthened enforcement activities during festival periods. There are two major festivals in Malaysia: Hari Raya and Chinese New Year (CNY). During these periods, people usually travel to their home-towns and the traffic volume on the roads increases. In order to reduce fatalities during these periods, concentrated efforts on enforcement have been carried out for several years.

Campaigns

- Road safety education taught in all schools from Year 1, as part of Bahasa Malaysia, was expanded to years 3 and 5. In 2011, the programme has also covered years 2, 4 and 6.

- Media campaigns via television, radio, cinema and newspapers;

- Community-based programmes;

- "Love Life – Advocating Road Safety via Music" – venturing into social marketing as opposed to traditional means of campaigning. Twelve popular Malaysian works on the first Malaysian music album dedicated to road safety.

- Safety helmet programme at one of the districts in each state, including an advocacy programme each week and replacement of under-standard safety helmets.

5. Crash trends

Road users

Table 2 illustrates the evolution in fatalities by road user group since 2003. Some road user groups saw improvement, including pedestrians, bicyclists and van passengers. Motorcyclists represent almost 60% of all road fatalities, and safety in this category is a growing concern. Since 2003, fatalities among motorcyclists rose by 14%, to 4 036 in 2010.

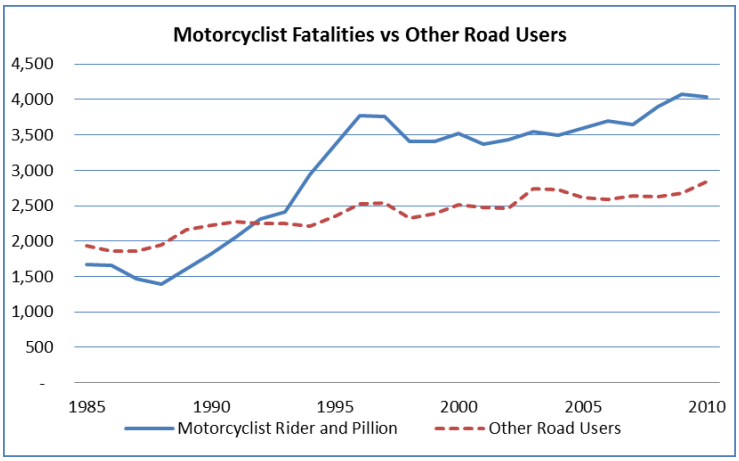
Deaths of car occupants have also risen by 19.71% in the year 2010 compared to the year 2003. Pedestrian fatalities represent about 9% of overall fatalities, and the number of fatalities for pedestrians in 2010 decreased by 8.35% compared to the year 2003.

Table 2. **Reported fatalities by road user group 2003, 2009 and 2010**

							2010 % change over	
	2003		2009		2010		*2009*	*2003*
Bicyclists	256	4%	224	3%	192	3%	-14%	-25%
Motorcycles	3 548	56%	4 067	60%	4 036	59%	-1%	14%
Passenger car occupants	1 187	19%	1 405	21%	1 421	20%	1%	20%
Pedestrians	683	11%	589	9%	626	9%	6%	-8%
Others	612	10%	460	7%	597	9%	30%	-2%
Total	***6 286***	***100%***	***6 745***	***98%***	***6 872***	***100%***	2%	9%

For many years, the motorcycle has been considered to be the most popular, convenient and affordable mode of transport. Figure 1 illustrates the number of motorcyclist fatalities compared to other road user deaths in Malaysia.

Figure 1. **Reported motorcycle fatalities (1985-2010)**



The trend for two decades shows that motorcyclists have continued to outnumber other road users. Recent statistics (2009) showed that the ratio of other road users to motorcyclist fatalities is 1:1.52. In 2009, the number of registered motorcycles reached almost nine million (accumulated figure). Assuming that 70% of the accumulative registered motorcycles are on the road, there are at least 6.2 million active motorcycles in the country. Out of them, 113 962 have been involved in road crashes, causing the deaths of 3 640 riders and another 430 pillion passengers. Most of the road crashes involving motorcycles occurred on straight roads, with no significant difference in the number of accidents during daytime and at night.

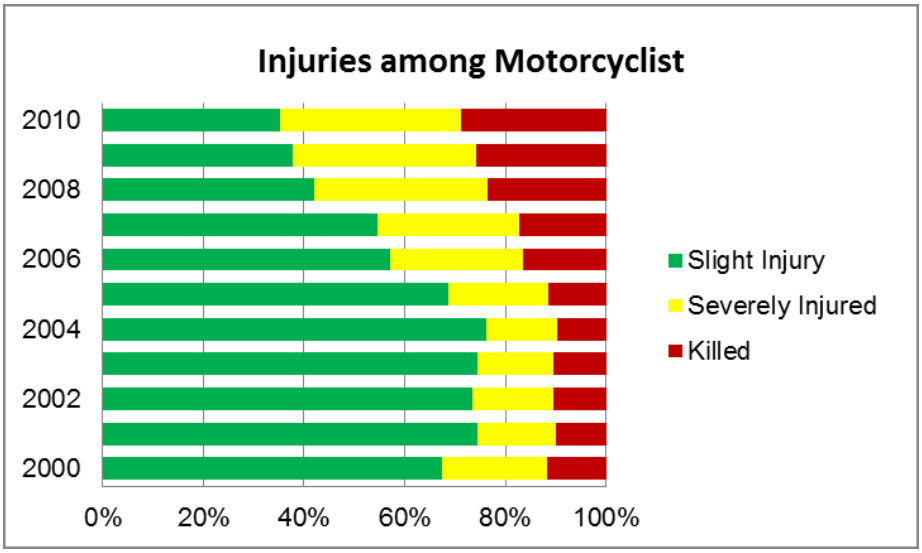
In the period 2000-2010, the biggest jump in motorcycle fatalities was in 2007 (3 646) to 2008 (3 898), almost a 7% rise, and the biggest reduction was in 2000 (3 591) to

2001 (3 693), by 4%. Annually, the number of fatalities among motorcyclists has on average risen by 2% over the last ten years.

Each year, the number of registered motorcycles continues to grow rapidly, and each year at least 1% of them get involved in road accidents. The percentage is small, but the numbers are high enough to bring huge losses to the economic output of the country. Out of the 1% of motorcycles involved in road accidents, more than 10 000 riders and pillion passengers are injured and killed every year. Recent statistics (2010) indicate that the number of casualties is at least 14 000 per year including fatal cases. Generally, this shows that the number of casualties is actually decreasing.

Unfortunately, out of the total casualties, a higher percentage of killed and seriously injured (KSI) pillion passengers and riders have been observed for the same period. The proportion of fatalities and seriously injured was small in early 2000, but it rose steadily with the approach of 2010. From 2000 to 2005, the KSI represented only about 30% of total casualties. However, in 2006 to 2010, the proportion of KSI increased dramatically to more than 50% of total casualties in 2010.

Figure 2. **Reported motorcycle injuries (2000-2010)**



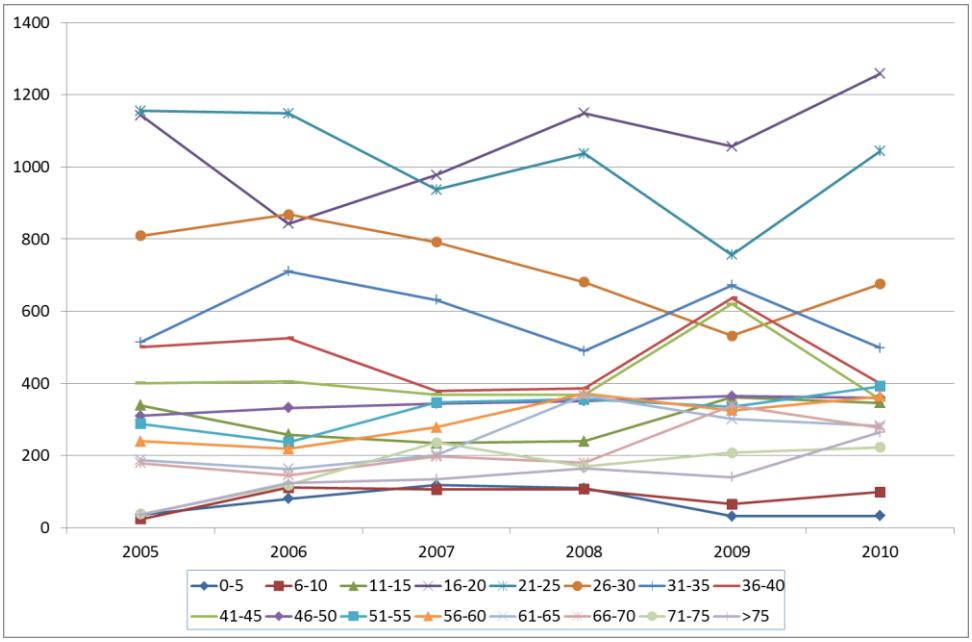
Age

Young people aged 16 to 20 years represent 18.3% of all fatalities.

Table 3. **Reported fatalities by age group 2005, 2009, 2010**

Age Group	2005	2009	2010	2010% change over	
				2009	*2005*
0-5	36	32	33	3.1%	-8.3%
6-10	24	65	99	52.3%	312.5%
11-15	339	361	346	-4.2%	2.1%
16-20	1 143	1 057	1 258	19.0%	10.1%
21-25	1 155	756	1 043	38.0%	-9.7%
26-65	3 251	3 787	3 329	-12.1%	2.4%
>65	252	687	764	11.2%	203.2%
Total	**6 200**	**6 745**	**6 872**	**1.9%**	**10.8%**

Figure 3. **Reported fatalities by age band (2002-2010)**



Road type

In 2010, 64.7% of the fatalities occurred in rural areas, and this was 7.3% higher than for the previous year. Analysis by type of road shows that federal roads accounted for 40.4% of all road deaths. Lesser fatalities were recorded on the expressways, which have a higher standard of road design.

6. Recent trends in road user behaviour

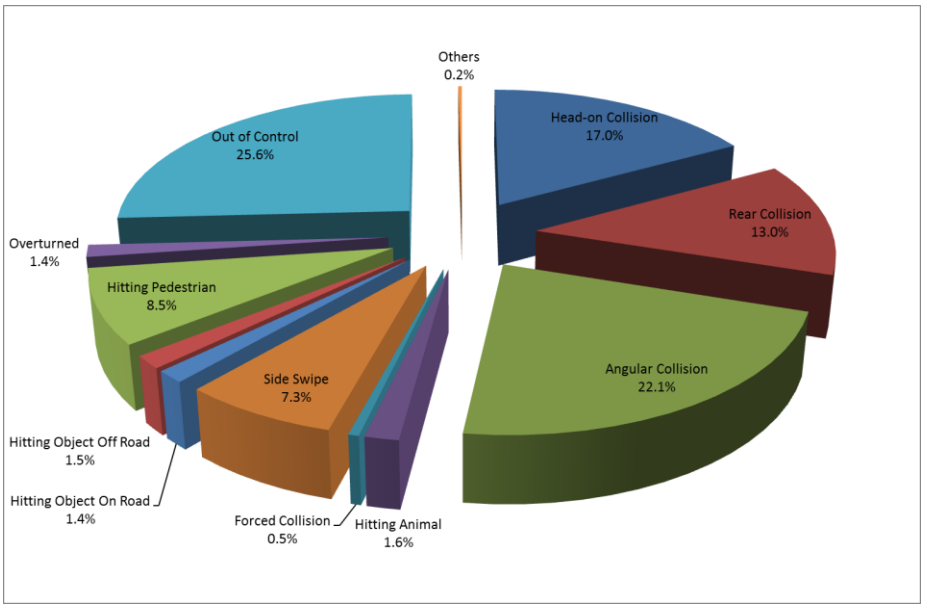
Impaired driving

Drink-driving is not an issue in Malaysia. Based on the reported figure produced by the Royal Malaysian Police (RMP), less than 0.5% of drivers in fatal crashes are tested positive for blood-alcohol content.

Speed

Speeding is an issue in Malaysia. The most frequent type of collision is due to "loss of control" (25.6%), which is mostly associated with speeding.

Figure 4. **Reported fatal accidents by collision type, 2010**



Seat belts and helmets

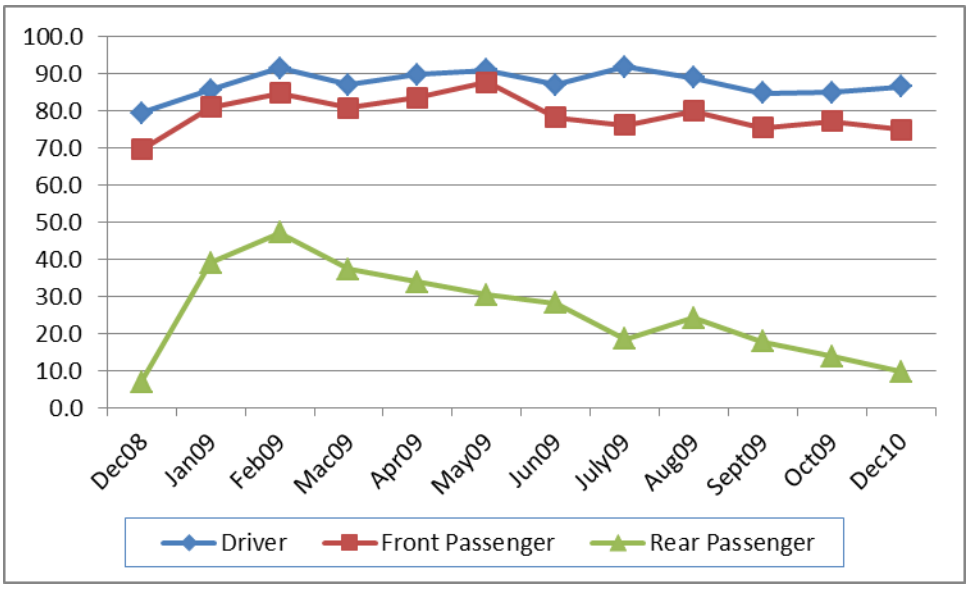
Seat-belt use has been compulsory in front seats since 1978 and in rear seats since 1 January 2009.

The compliance rates among drivers and front passengers are, respectively, about 80% and 70%, due to high awareness of the regulation. The compliance rate for rear seats was 40% shortly after the law came into force in 2009, but is now declining. The current rear seat-belt wearing rate is only 10%.

Helmet wearing has been compulsory for motorcycles since 1973. However, there is still an alarmingly high rate of motorcyclist fatalities due to head injuries. In general, the helmet-wearing rates are higher in urban areas compared to rural areas. The average helmet-wearing rate in the urban areas is about 90% while the average compliance rate

in rural areas is about 50%. The overall national helmet-wearing compliance rate is about 70%.

Figure 5. **Seat-belt use by car occupants**



Distracted driving

It is prohibited to drive while using a hand-held mobile phone. According to the law, *"no driver, whilst driving a motor vehicle on a road, shall use, or attempt to use, a hand-held telephone or any other communication equipment*".

7. Useful websites and references

MIROS - Malaysian Institute of Road Safety Research	http://www.miros.gov.my/

THE NETHERLANDS[1]

- Capital : Amsterdam:
- 16.6 million inhabitants
- 563 vehicles / 1 000 inhabitants
- 640 road fatalities in 2010
- 3.9 deaths / 100 000 inhabitants

Important note: Statistics in the Netherlands distinguish between *reported* and *real* numbers of casualties. The former category covers casualties reported by the police, while real numbers are higher, as they take into account data from sources such as hospitals and death certificates.

Any number given in this report concerns the real number, unless "reported" is specified.

1. Short term trends

General comments and trends for 2010

The numbers of road fatalities, which have shown a declining trend for several years, fell further in 2010 to 640 fatalities, a 11% decrease compared to 2009. The source for the total number of road fatalities is *"Death Cause Statistics"* (Statistics Netherlands).

For the vast majority of cases, detailed information about the circumstances of the crash is available in the police reports (90%). However, in 2010 the completeness of the police reporting showed a sudden drop to 84%. Recent developments concerning the police organisation are decisive factors in this sharp drop in the registration level of road fatalities in the Dutch national database of registered crashes (BRON). The registration of serious road injuries is even less accurate.

For the remaining cases only limited information is available. For fatalities, this is derived from the records (age, gender, mode, day, month and region). For serious road injuries, the additional information is derived partly from statistics and partly from the medical register.

Provisional data for 2011

Based solely on data from Statistics Netherlands (CBS) and available police reports on fatal accidents, it is expected that the number of fatalities in 2011 will be around 640 (+/-10%)

Registration will again in 2011 still pose a threat to reliable accident figures. Projects on enriching data via various other data sources are in progress but most likely will not show results earlier than 2014-15. In the meantime, the Netherlands have to rely on what is available from Death Cause Statistics (CBS), police and hospital records.

1. *Source*: IRTAD, SWOV, Ministry of Infrastructure and Environment.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 80% and the number of injury crashes by 60%, while the number of vehicles tripled. In recent years (2000-2010), the number of fatalities continued to fall, by 45%.

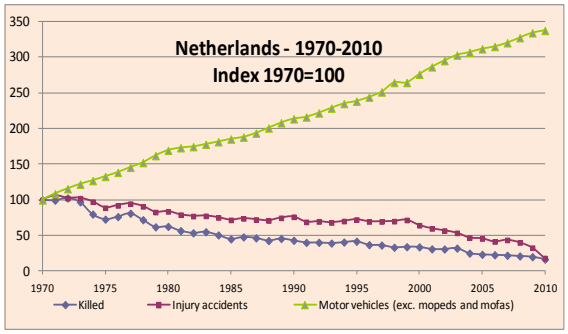
Risk and rates

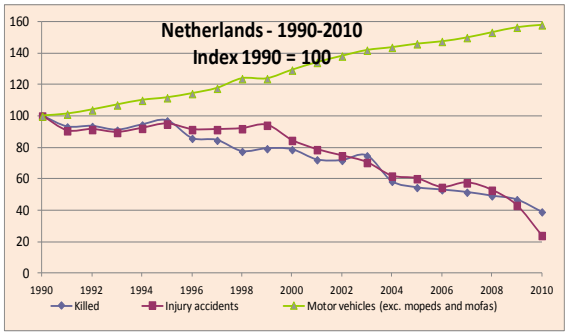
Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, fell by 85%.

Table 1a. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities (reported)	3 181	1 996	1 376	1 082	644	537	-16.6%	-50%	-83%
Injury crashes[1]	58 883	49 383	44 915	37 947	19 378	10 778	-44.4%	-72%	-82%
Rates									
Deaths / 100 000 population	24.6	14.2	9.2	6.8	3.9	3.6	-7.7%	-42%	-85%
Deaths / 10 000 registered vehicles	-	4.3	2.4	1.4	0.7	0.6	-8.6%	-54%	-
Deaths / billion veh-km	-	26.7	14.2	9.3	5				-
Motorisation veh / 1000 pop	213	333	390	482	561	563	+0.4%	+17%	+164%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres, 1970-2010**





The numbers of reported hospitalisations, which have shown a decreasing trend, fell further in 2010 to 4 119, a 41% decrease compared to 2009[1]. Recent research on serious

1. Because of under-reporting and changes in the reporting rate of slight injury crashes, the use of this indicator is not recommended.

traffic injuries shows that the number of police-reported hospitalised casualties is not a good indicator of serious injury.

In the Dutch linking studies, the police data are matched with the hospital records and compared with the ICD-derived MAIS. The estimated true number of serious injuries is now based on the MAIS and no longer on police severity. The Netherlands have recently adopted the new indicator of serious injuries using medical information (MAIS2+, complete estimate).

Table 1b. **Real number of road deaths and related rates, serious injuries 2000-2010**

	2000	2009	2010	2010% change over	
				2009	*2000*
Fatalities (real)	1 166	720	640	-11%	-45%
Seriously injured (MAIS2+)	16 500	18 880	19 200	+2%	+16%
(MAIS3+)	5 220	5 470			
Rates					
Deaths / 100 000 population	7.3	4.4	3.9	-11%	-47%
Deaths / 10 000 registered vehicles	1.5	0.8	0.7	-12%	-54%
Deaths / billion veh-km	10	5.6			

3. National road safety strategies and targets

Road safety policy in the Netherlands is guided by a philosophy of sustainable road safety, based on several key concepts – including that the human being is the reference standard and prevention is preferable to a curative approach – as well as the five safety principles: road functionality; homogeneity of mass and/or speed and direction; physical and social tolerance; recognition and predictability of roads and behaviour; and state of awareness.

Road safety strategy for 2011-2020

In 2008, the Road Safety Strategic Plan 2008-2020 (the Dutch "SPV") was laid down by the then Ministry of Transport and received support in Parliament. This plan is assessed every four years for topicality and adapted if necessary. As an aid in this four-yearly assessment, SWOV has recently made prognoses about the numbers of fatalities and serious road injuries that are to be expected in 2020. While making the prognoses, SWOV checked whether the starting points for the SPV were still applicable and how the implementation of intended SPV measures is being carried out. On the basis of the SWOV studies and in consultation with other governments, the Ministry of Infrastructure and

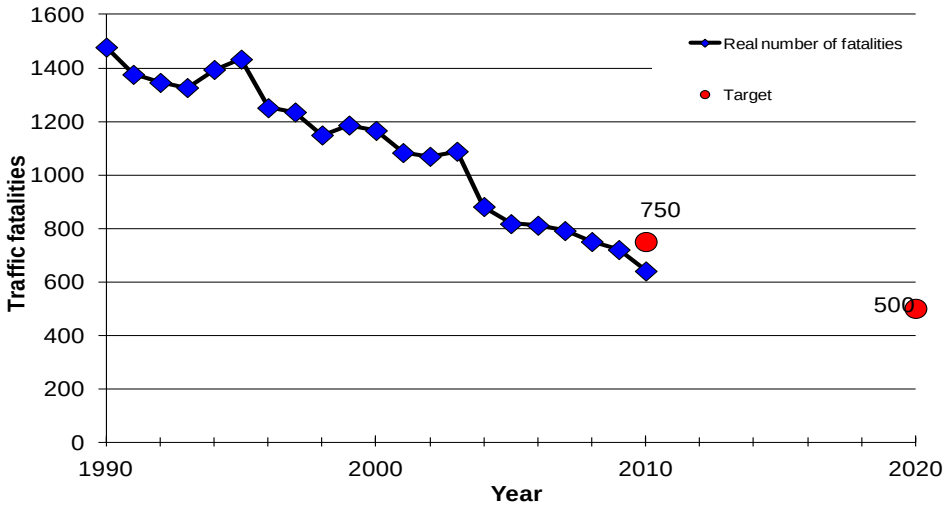
1. Due to changes in the registration software and internal police procedures, the numbers of reported injuries have dropped in 2009 and in 2010. This does not reflect an actual improvement in road safety.

the Environment has decided to take action. Adaptations of the strategy are being made to the SPV, and must be completed by mid-2012.

The targets presently set in the SPV for 2020 are a maximum of 500 road fatalities and a maximum of 10 600 serious road injuries (MAIS2+).

If current developments and efforts continue, the target for 2020 with respect to fatalities seems feasible. It will be much more difficult to achieve the target for seriously injured traffic victims.

Figure 2. **Trends towards national target**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 13 billion in 2009, i.e. 2.3% of GDP. This includes immaterial costs, see factsheet http://www.swov.nl/rapport/Factsheets/UK/FS_Costs.pdf.

Table 2. **Economic costs of traffic crashes, 2009**

Costs (EUR billion)	2009
Fatalities	1.9
Hospitalised people	5.6
Slight injuries	1.3
Property / damage costs	4.3
Total	**13.1**

4. Recent safety measures (2010-2011)

Impaired driving

It is prohibited to drive a vehicle whilst under the influence of a substance (for example, alcohol, medication or drugs) that affects the driving ability in such a way that one is unfit to drive. This is stated in Section 8 of the 1994 Road Traffic Act.

A stricter version of the law is being prepared regarding drugs and driving. Legal blood concentration limits have been established for a number of illegal drugs. This list was made up by an international commission of experts from the Netherlands, Belgium and Germany, chaired by the Netherlands' Forensic Institute (NFI). The list includes amphetamines, methamphetamines, XTC, THC, cocaine, morphine and GHB. By 2012, a saliva test will indicate the presence of any of these substances, except GHB. After a positive saliva test, a blood test will be used as supporting evidence. For some illegal drugs a tester is not yet available. In these cases, the police still have to determine fitness to drive by examining speech, eyes and balance.

As of 1st December 2011, an alcohol lock has been introduced, for car drivers caught with a 1.3‰ BAC or more. The system prevents the car from starting in cases where the driver exhales more than 0.2‰ of alcohol. The driver has to exhale at irregular intervals whilst driving to prevent the car from stopping.

Speed management

As of 1 September 2012, the Transport Minister will increase the general speed limit on motorways in the Netherlands from 120 km/h to 130 km/hour. Only where 130 km/h is not appropriate, due to the environment or road safety, will a lower limit remain. In practice, this means that nearly 40% of Dutch motorways will have a speed limit of 130 km/h as from September 2012. Another 20% of the Dutch motorways will have a speed limit of 130 km/h after the implementation of infrastructure improvements. An investigation is being carried out to see whether the new speed limit can be applied to a further 19% of motorways in the vicinity of nature conservation areas.

The decision was taken after trials with increased speed limits on a number of motorways were seen to be successful. Transport Minister, Melanie Schultz van Haegen, committed an extra EUR 85 million to improve road safety on the motorways, acknowledging that a higher speed without additional measures could lead to more deaths and serious injuries. The maximum speed around cities will also be increased from 80 km/h to 100 km/h in three out of five 80-kilometre zones. In the coming months the Minister will be preparing for the national rollout of the new speed limit.

The tolerance to enforce speeding on motorways (because of potential inaccuracy in measuring the speed) was lowered from 139 to 136 km/h.

Licensing

Accompanied driving effective as per 1 November 2011. This allows young people to start driving lessons at age 16.5 and obtain their driving licence at 17 upon passing a standard driving test. Then, until they are 18, they will be able to drive only when accompanied by an experienced driver who meets certain requirements in terms of driving experience and

behaviour. From the age of 18 it will remain possible to pass the driving test and drive unaccompanied immediately afterwards.

5. Crash trends

Road users

All user groups, but especially vulnerable road users, have benefited from the safety improvement. Between 1970 and 2010, the number of pedestrians and moped or mofa riders killed decreased by more than 90%. The number of cyclists killed fell by 77%. The sharp decline in the number of moped riders killed was in line with the number of such vehicles in traffic, which fell by 75% between 1970 and 1985. In contrast, pedestrian and bicycle mobility have not decreased. The only user group which has seen a moderate reduction is motorcyclists. The number of fatalities among motorcyclists fluctuates with the use of the motorbike.

In the period 2000-2010, all user groups benefited from a sharp drop in the number of fatalities. The decrease was more marked for moped and mofa riders, and somewhat slower for motorcyclists.

The Dutch success in achieving traffic safety is largely due to a key principle of sustainable safety: separating fast and slow (vulnerable) traffic. It is, however, interesting to note that a number of combinations of traffic modes showed a less marked decrease (the number of fatalities in single-vehicle car accidents has been almost stable since 1990). One of the Netherlands's main long-term goals is to reduce the number of fatalities in single-vehicle crashes and in those involving mopeds and motorcycles. The Netherlands are currently preparing a motorcycle road safety action plan.

Regarding injuries, it is remarkable that so many persons are injured in crashes without a collision with a motor vehicle. While in some countries these victims are not even considered as being road traffic victims, their number exceeds the number of injured in crashes with motor vehicles.

From the 19 200 persons severely injured (MAIS2+) in the Netherlands, about 50% resulted from bicycle accidents (bicycle alone, bicycle-bicycle, bicycle-pedestrian and pedestrian–bicycle). Special attention is now given to this growing group of injured persons.

Table 3. **Fatalities by road user group**
1990, 2000, 2009 and 2010

									2010 % change over		
	1990 (reported)		2000		2009		2010		2009	2000	1990
Bicyclists	304	22%	233	20%	185	26%	162	25%	-12%	-30%	n.a
Mopeds	95	7%	104	9%	52	7%	43	7%	-17%	-59%	n.a
Motorcycles	72	5%	95	8%	70	10%	63	10%	-10%	-34%	n.a
Passenger car & van occupants	747	54%	593	51%	320	44%	268	42%	-16%	-55%	n.a
Pedestrians	144	10%	114	10%	68	9%	72	11%	6%	-37%	n.a
Others	14	1%	27	2%	25	3%	32	5%	28%	19%	n.a
Total	**1 376**		**1 166**		**720**		**640**		-11%	-45%	***n.a***

Table 4 illustrates the relative fatality risk for the different road user groups. For a motorcyclist, the risk of dying in a traffic crash is higher than for a car occupant. Because of inaccuracy in the mobility figures, a quantitative estimate of the difference cannot be given.

Table 4. **Relative fatality risk by mode of transport**
average 2007-2009

	Fatalities	Exposure (billion persons-km)	Deaths per billion persons-km
Car & van occupants	339	150	2.2
Bicyclists	185	14.3	13
Mopeds	58	0.9	66
Motorcycles	67	1.0	66
Pedestrians	74	3.7	20
Other road traffic	31	-	
Rail transport	14		0.2
Air transport	8		
Water transport	4		

For other modes than road traffic, see *Veiligheidsbalans 2010*, IVW (2011) and earlier versions.
http://www.ilent.nl/Images/Veiligheidsbalans%202010_tcm334-315156.pdf
Air: includes crashes in NL territory as well as Dutch aircraft in foreign countries.
All modes: passenger transport only, excluding "labour accidents" and suicides.

Age

The number of fatalities varies with age. Inexperienced riders and drivers are killed more often in traffic, as are vulnerable road users. Most cyclists who are killed are between the ages of 12 and 20 or above 65 years, and the largest age group for car driver fatalities is 18 to 25.

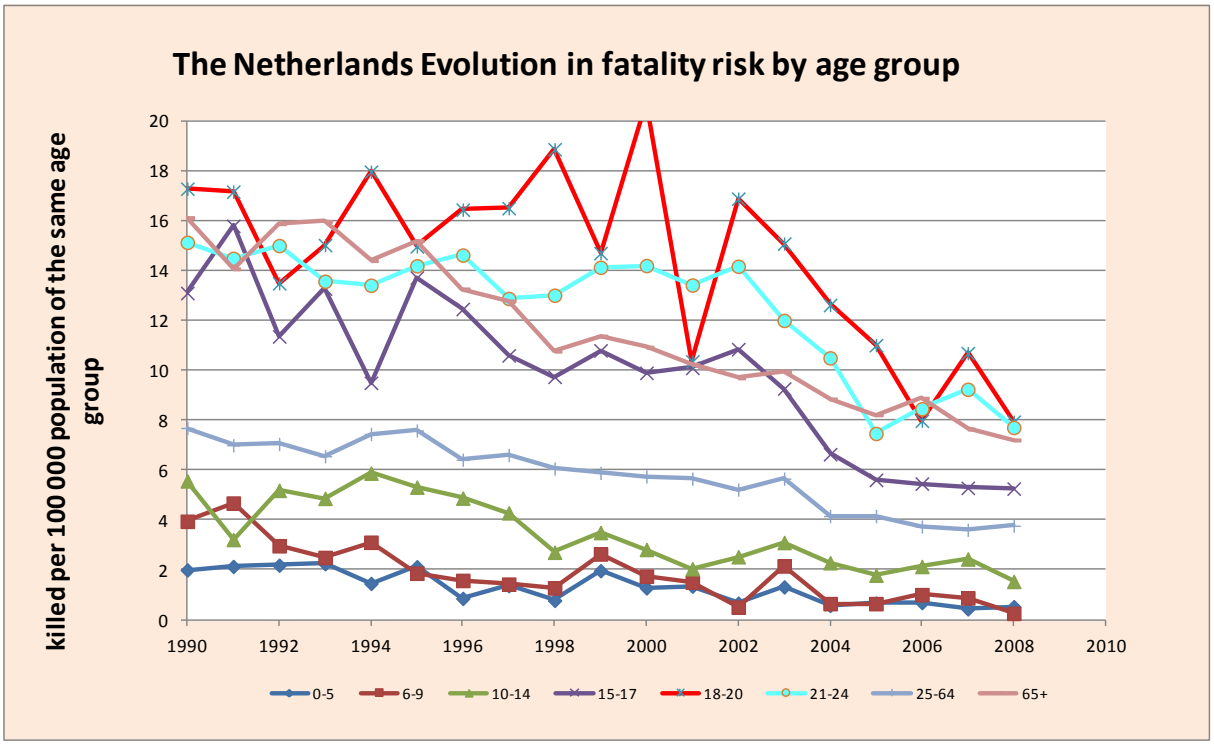
Since 1970, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned the youngest group (0-14), for which fatalities decreased by 95%, from 459 in 1970 to 18 in 2010.

The distribution of casualties across different age groups does not match the composition of the population in the Netherlands. Children aged 0-15 constitute 20% of the total population but account for only 5% of the total number of fatalities. This is probably due to the group's limited mobility. For the elderly, the opposite applies: the percentage of those aged 65 and above among fatalities is approximately twice as high as the group's share in the population. A similar picture emerges with respect to the 18-24 age group. For the elderly, this is probably linked to greater physical vulnerability. For the group of young drivers, it is due to the higher probability of being involved in a crash during the initial phase of participation in motorised traffic.

Table 5. **Fatalities by age group**
1990, 2000, 2009 and 2010

	1990 (reported)	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	22	17	3	4	c	-76%	n.a.
6-9	28	15	4	5	25%	-67%	n.a.
10-14	50	27	17	9	-47%	-67%	n.a.
15-17	81	57	26	20	-23%	-65%	n.a.
18-20	129	119	55	46	-16%	-61%	n.a.
21-24	152	115	73	52	-29%	-55%	n.a.
25-64	607	548	306	295	-4%	-46%	n.a.
>65	307	268	236	209	-11%	-22%	n.a.
Total	**1 376**	**1 166**	**720**	**640**	-11%	-45%	n.a.

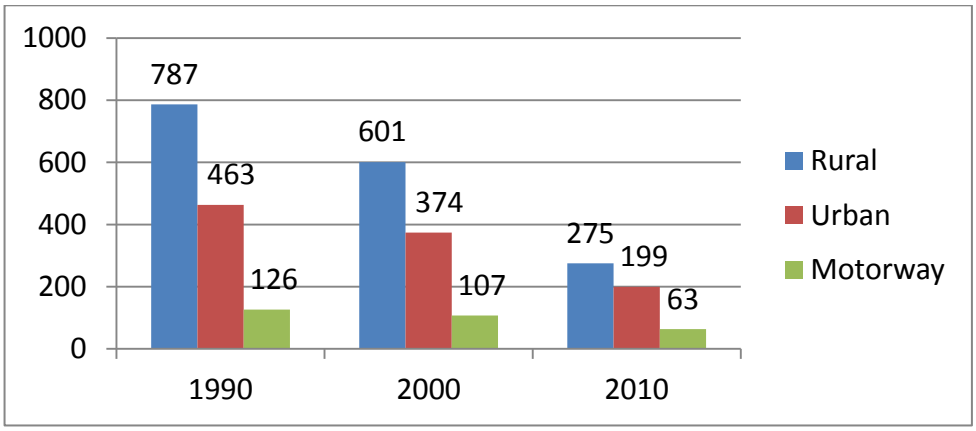
Figure 3. **Death rate by age band**
(Fatalities per 100 000 population in a given group, 1996-2010)



Road type

In 2010, 47% of fatalities occurred on rural roads, 37% in urban areas and 15% on motorways. The decrease in fatalities over the last 20 years has been achieved mainly through the improvement of urban and rural roads. Traffic has been significantly increasing on motorways, which explains why the reduction in fatalities was more limited for that category (Figure 4). In 2010, the reduction in the number of fatalities was homogeneous on the road network.

Figure 4. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

Until 2006, the BAC limit in the Netherlands was 0.5 g/l for all drivers. Since 2006, a lower limit of 0.2 g/l has applied for novice drivers (first five years). Driving under the influence of alcohol and/or drugs was a contributing factor in an estimated 30% of fatal crashes in 2008. The prevalence of driving under the influence of alcohol on weekend nights is stable at 3%. Among novice drivers, the prevalence is higher at 5%, and in about half of these cases the BAC is between 0.2‰ and 0.5‰.

Speed

The development of driving speeds on different road types is mixed. On roads with speed limits of 50 km/h and 80 km/h, the number of violations is rising. On motorways (120 km/h), the tendency since 2005 has been an increasing V90 speed1. The V90 on motorways with a limit of 100 km/h is slightly decreasing and thus shows a positive development.

The introduction of new road types has reduced the speed limits on many roads. In 1998, 15% of urban roads had speed limits of 30 km/h or less. As a result of the conversion of 50 km/h roads into 30 km/h in residential areas, 70% of urban roads had limits of 30 km/h or less in 2008. A similar development took place on rural roads (excluding state roads): in 1998, 3% of rural roads had a limit of 60 km/h. By 2008, the percentage had risen to 60%. These infrastructure developments have reduced driving speeds on these roads substantially.

On motorways, environmental measures to reduce emissions and noise have been introduced on about 3% of the network, which entailed decreasing speed limits from 120 km/h or 100 km/h to 80 km/h. As mentioned above, speed limits will be raised to

1. Speed below which 90% of motorists are driving.

130 km/h on motorways as of 1 September 2012 (except on motorways with lower limits due to environmental concerns). There is as yet no data on the effects of the announcement of this measure.

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1975 and in rear seats since 1992. The rate of seat-belt use is above 95% in front and in rear seats in passenger cars. For vans (87%) and trucks, the rate of use is lower.

Table 6. **Seat-belt use by car occupants**

	1980	1990	2000	2010
Front seats (driver)				
General			79%	97%
Urban areas	57%	59%	74%	96%
Rural areas	73%	78%	86%	97%
Front seats (passenger)		(1991)		
General			80%	97%
Urban areas		68%	74%	96%
Rural areas		78%	84%	97%
Rear seats				
General		19%	32%	82%
Urban areas			28%	80%
Rural areas			36%	85%

Helmet wearing has been compulsory on motorcycles since 1972 and on mopeds (up to 50 cc, maximum speed 45 km/h) since 1975. A helmet is not compulsory on mofas (up to 50 cc, maximum speed 25 km/h) and bicycles.

The percentage of riders wearing a helmet depends on the vehicle type: nearly all motorcycle riders wear helmets. In 2008, 96% of moped riders, but very few mofa riders, wore helmets. The use of moped helmets by passengers increased; in 2008, 86% wore them.

Distracted driving and use of mobile phone

Since April 2002, holding a phone while driving is illegal in the Netherlands. Additional legislation relevant to distracted driving is applicable in cases where behaviour that explicitly endangers road safety is directly observed.

In the Netherlands, it is not standard practice to collect data about the use of mobile phones in cars and their use prior to a crash, which makes it impossible to reliably determine the number of crashes due to phone use while driving. However, the following data might provide an indication of the extent of distracted driving in the Netherlands. Data for 2008 indicate that about 50% of all Dutch car drivers use a mobile phone while driving at least once a week. Around 30% of these drivers were reported to use a hand-held phone occasionally. In 2009, about 135 000 fines were issued for using a phone while driving. Fines are set at EUR 160 for car drivers and EUR 110 for moped riders.

Phone use in the Netherlands is estimated to have contributed to 3-4% of bicycle crashes involving injuries. This excludes listening to music.

7. Useful websites and references

Key Figures Road Safety in the Netherlands	English () Dutch (http://www.rijksoverheid.nl/bestanden/documenten-en-publicaties/kamerstukken/2010/07/31/kerncijfers-verkeersveiligheid-uitgave-2010/kerncijfers-verkeersveiligheid-uitgave-2010.pdf)
Road Safety Strategic Plan 2008-2020	Road Safety Strategy 2008-2020: http://english.verkeerenwaterstaat.nl/english/Images/strategischplan-E_tcm249-249506.pdf
SWOV fact sheets	**SWOV Factsheets** (listed are new and recent major updates): Road safety hazards of public transport Functionality and homogeneity Whiplash and prevention Naturalistic Driving: observing everyday driving behaviour Negative emotions and aggression in traffic Use of media devices by cyclists and pedestrians Visual impairments and their influence on road safety Rewards for safe road behaviour Rehabilitation courses for road users Shoulders on rural access roads Euro NCAP, a safety instrument Headway times and road safety Road safety aspects of agricultural traffic The elderly and Intelligent Transport Systems (ITS) Bicycle facilities on distributor roads Public lighting Dutch road safety in international perspective (to appear later this year)
SWOV publications	*The registration of road fatalities in the Netherlands*; Description and assessment of the registration process R-2011-10 *Run-off-road crashes: characteristics, crash scenarios and possible interventions*; Results of an in-depth study of run-off-road crashes on 60, 70, 80 and 100 km/h roads R-2011-24

NEW ZEALAND[1]

- Capital : Wellington
- 4.4 million inhabitants
- 734 vehicles / 1 000 inhabitants
- 375 road fatalities in 2010
- 8.6 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

The number of road fatalities and the number of injury crashes decreased by 2% in 2010.

Provisional data for 2011

Provisional data for 2011 show a 24 % reduction in the number of fatalities compared to the same period in 2010, with 284 road deaths.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by more than 40% and the number of injury crashes by 18%, while the number of vehicles tripled.

In recent years (2000-2010), the number of fatalities continued to fall, by 19%. The reported number of injury crashes increased; however, it should be noted that this can be partly attributed to better crash reporting by the police after 2001.

Since 2000, the distance travelled has increased by 18%. However, as a consequence of the economic recession, there was a drop in distance travelled in 2008 and a stagnation in 2009 and 2010.

Risk and rates

Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by more than 60%.

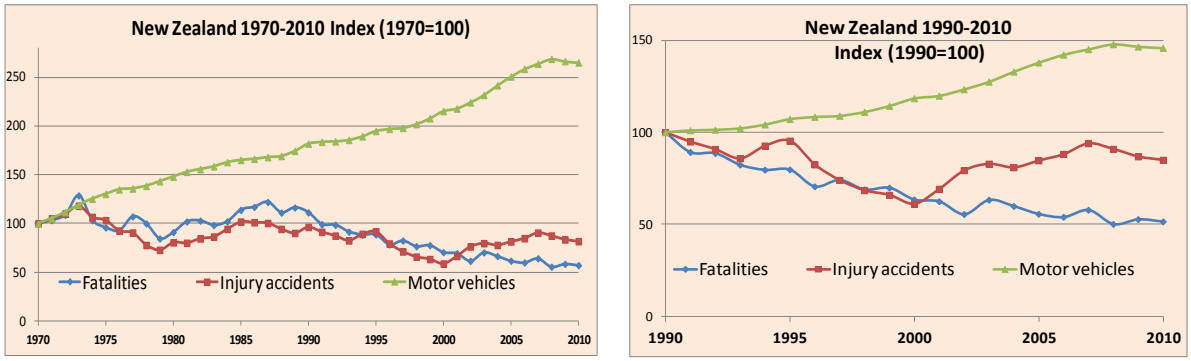
1. Source: IRTAD, Ministry of Transport of New Zealand.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2005	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	655	597	729	462	384	375	-2%	-19%	-43%
Injury crashes[1]	13 297	10 728	12 818	7 830	11 125	10 886	-2%	39%	-18%
Rates									
Deaths / 100 000 population	23.0	18.9	21.4	12.1	8.9	8.6	-3%	-29%	-63%
Deaths / 10 000 registered vehicles	5.4	3.3	3.3	1.8	1.2	1.2	0%	-33%	-78%
Deaths / billion veh-km	-	-	-	13.6	9.6	9.4	-2%	-31%	-
Motorisation*	424	563	645	679	746	734	-2%	8%	73%

*Number of motorised vehicles / 1 000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society. The social cost of injury crashes is estimated around $NZ 3.5 billion (i.e. around 2% of GDP). The social cost includes both monetary and intangible costs. A willingness-to-pay technique is used to express pain and suffering from loss of life or life quality in monetary terms. Monetary costs include loss of productivity, medical, legal and property damage costs. The social cost includes an allowance for non-reported crashes.

1 * Note that comparison of police-reported casualties and hospital data suggest there was an improvement in the rate of crash reporting by police after 2001.

Table 2. **Social costs of crashes**

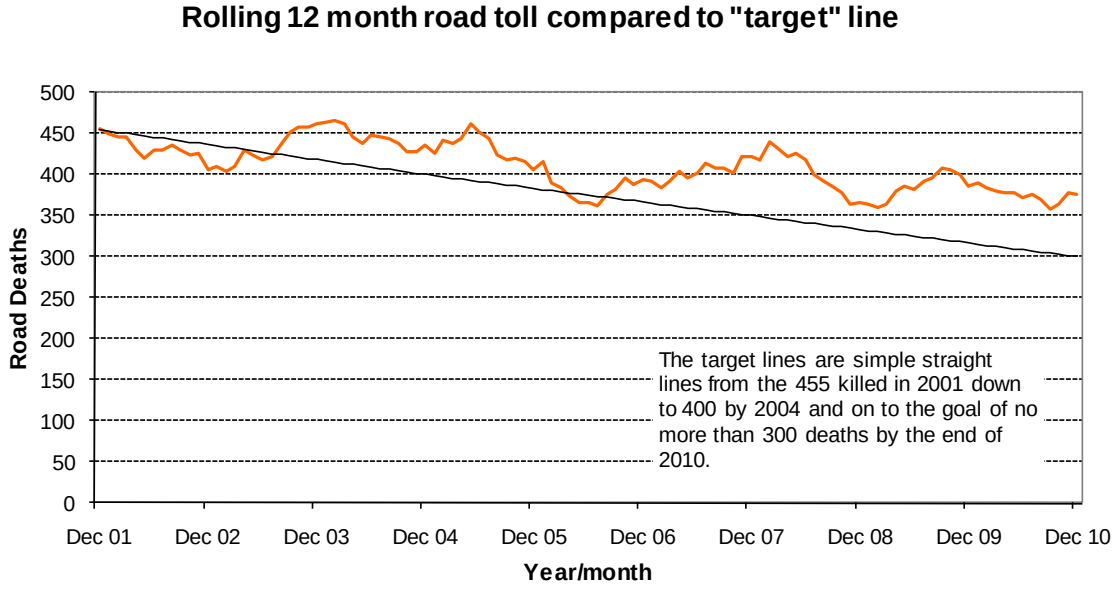
Costs ($NZ billion)	2010	2009	% change
Fatalities	1.34	1.38	-2.3%
Serious injuries	1.45	1.53	-5.6%
Slight injuries	0.74	0.76	-3.1%
Total	3.53	3.67	-3.9%

Social cost of crashes $NZ June 2010 prices. This includes an estimate for associated property damage and an allowance for non-reported crashes.

3. National road safety strategies and targets

Road Safety to 2010 was adopted in 2002 and expired in 2011. It provided a direction for road safety in New Zealand and described the results the Government wanted to achieve by 2010. New Zealand set overall road safety goals in relation to social costs, deaths and hospitalisations to the end of the year 2010.

Figure 2. **Trends towards national target**



Road safety strategy for 2011-2020

'Safer Journeys' is New Zealand's Road Safety Strategy 2010–2020, which was released in March 2010. The strategy's vision is a safe road system increasingly free of death and serious injury and introduces the Safe System approach to New Zealand. It does not include a general fatality target, but several sub-targets and performance indicators.

The Government released a 2011–12 Action Plan that outlines the actions for safe roads and roadsides, safe speeds, safe vehicles and safe road use that will be advanced over the next two years to help achieve the Safer Journeys' objectives. The action plan assigns responsibility for actions to specific agencies and progress against these will be monitored by the National Road Safety Committee.

Since the release of the Safer Journeys strategy the Government has progressed actions for improving the safety of young drivers and motorcyclists, and to target drink-drivers as well as other high-risk drivers (see section on recent measures). Progress has also been made on improving the safety of roads and roadsides.

4. Recent safety measures (2010-2011)

Impaired driving

New legislation:

- Introduces a zero drink-drive limit for drivers under 20 and implements fines and demerit points for drivers under 20 years who have a blood alcohol concentration between zero and 0.03.
- Introduces a zero blood alcohol limit for a minimum 3-year period for repeat drink-drivers, or drivers subject to an alcohol interlock, following the completion of their disqualification or interlock.
- Allows for the introduction of alcohol interlocks. This is a sentencing option for the courts to use for repeat offenders, and first-time offenders with a high blood alcohol content. . It is likely that this provision will come into force in mid-2012.
- Allows police to take alcohol readings for research purposes from drivers involved in fatal or serious injury crashes who have a blood alcohol concentration between 50 and 80 milligrams of alcohol per 100 millilitres of blood.

Speed management

- A number of initiatives are, or have already been introduced, for speed management. There has been an increase in the adoption of safer speed limits (30km/h and 40km/h) in urban areas, including around schools and busy shopping areas. A number of open road speed zone trials are also underway, particularly on roads where the 100km/h default speed limit is inappropriately high for the standard of the road.
- Police have strengthened speed enforcement by updating speed cameras with digital technology and applying a reduced tolerance of speeding during busy holiday weekends and outside schools.
- Further proposals are being considered including increasing the number of speed cameras, rebalancing fines and demerits for speeding and applying demerit points to offences detected by a speed camera. Trials are also underway testing emerging technologies such as Intelligent Speed Adaptation.

Young and novice drivers

- The minimum age for applying for a driver licence was raised to 16.
- The restricted driver licence test has been made more difficult to encourage novice drivers to undertake 120 hours of supervised practice before driving solo.

Safe roads and roadsides

Work already completed or underway includes:

- KiwiRAP star ratings of the state highway network. These have been developed, as part as the IRAP process and allow sections of high-risk rural roads to be identified so improvement programmes can commence.
- The development of a classification system for the state highway network. This is the first step towards a national classification system for the entire road network. This system categorises roads according to their function and sets a consistent and predictable level of service for each category. This can help drivers understand what to expect and how to behave on different categories of road.
- Progress on the seven Roads of National Significance. These were identified as roads that are important to the economy, and are busy, handle a lot of traffic and are located by our most populated areas. Each Road of National Significance will be built to a minimum four-star KiwiRAP rating to ensure they have significant safety as well as economic benefits.
- A change to the give way rule for turning traffic is due to be introduced in April 2012, which is expected to improve safety at intersections.

Enforcement
(See also the section on impaired driving and speed management.)

New legislation to reduce the impact of high-risk drivers:

- Increases the penalties for all dangerous driving (including drink and drug driving) causing death;
- Introduces the ability for police to extend a 28-day licence suspension for up to three continuous periods. This will be used in cases in which charges cannot be brought against a driver within 28 days.

Campaigns, education, communication

- Campaigns targeting key road safety issues are run continuously throughout the year, with a national programme also complemented by local programmes and those run by agencies and other groups focused on particular issues such as drug-driving. The national campaigns are closely linked with enforcement programmes for maximum effect.

5. Crash trends

Road users

All user groups, but especially vulnerable road users, have benefited from the improvement. Between 1990 and 2010, the number of pedestrians killed decreased by 66%, although most of the gains were achieved between 1990 and 2000. Since the year 2000 the number of pedestrians killed or seriously injured has remained relatively static. Between 1990 and 2000 the number of cyclists killed fell by about 30 percent and the number seriously injured halved. However, there has been little progress in the past decade and the number of cyclists killed or seriously injured has actually increased.

In 2000-2010, all user groups – except motorcyclists and cyclists – benefited from a decrease in the number of fatalities. The number of motorcyclists killed increased by more than 60% during the last decade.

An amendment to the Land Transport (Driver Licensing) Rule 1999 is underway. This is expected to be finalised in 2011 and will strengthen motorcycle rider training and licensing while introducing a power-to-weight restriction for novice motorcycle riders.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000		2009		2010		2009	2000	1990
Bicyclists	27	4%	19	4%	8	2%	10	3%	*Figures too small*		
Motorcycles	114	16%	31	7%	48	13%	50	13%	4%		
Passenger car occupants	465	64%	358	77%	287	75%	259	69%	-10%	-28%	-44%
Pedestrians	104	14%	35	8%	31	8%	35	9%	13%	0%	-66%
Others	19	3%	19	4%	10	3%	21	6%			
Total	***729***	***100%***	***462***	***100%***	***384***	***100%***	***375***	***100%***	-2%	-19%	-49%

Age

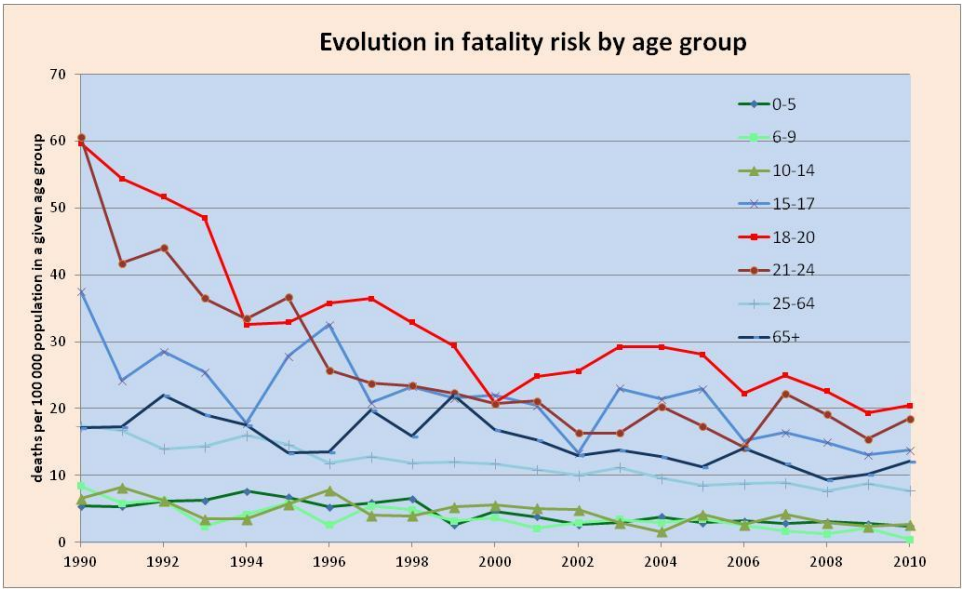
Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned the youngest group (0-14), for which fatalities decreased by 65%, from 52 in 1990 to 18 in 2010.

In 2010, the increase in fatalities was mainly borne by the oldest age group, over 65.

Table 4. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	18	16	10	9	-10%	-44%	-50%
6-9	17	9	5	1	-80%	-89%	-94%
10-14	17	16	7	8	14%	-50%	-53%
15-17	65	36	25	26	4%	-28%	-60%
18-20	108	34	38	41	8%	21%	-62%
21-24	131	42	37	46	24%	10%	-65%
25-64	290	232	198	175	-12%	-25%	-40%
>65	65	76	56	69	23%	-9%	6%
Total	*729*	*462*	*384*	*375*	*-2%*	*-19%*	*-49%*

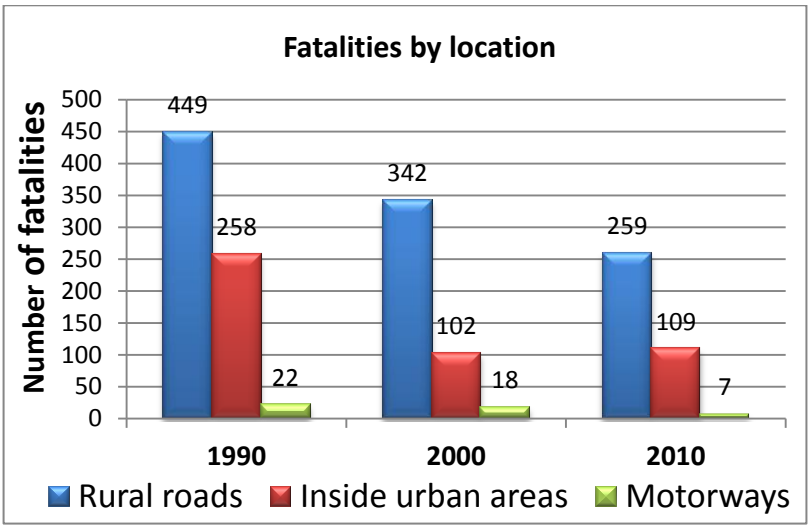
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road type

In 2010, the large majority (69%) of fatal crashes occurred on rural roads. The decrease in fatalities over the last 30 years has been achieved mainly through the improvement of urban roads, while, in absolute numbers, significant progress was also made on rural roads. Urban deaths have been largely stable from 2000 to 2010, whereas rural deaths dropped by approximately 42% in the same period.

Figure 4. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

The maximum authorised BAC is 0.8 g/l. In 2011 a zero drink-drive limit for drivers under 20 (before 0.3 g/l) was introduced. Table 5 indicates the number and percentage of drivers killed with a BAC above 0.8 g/l.

Table 5. **Number and percentage of drivers killed with a BAC > 0.8 g/l 2001-2010**

Drivers killed with excess alcohol	2001	2005	2009	2010
Number	55	58	66	68
Percentage	21%	25%	28%	30%

The Land Transport Act 1998 was also amended in 2009 to create a specific offence of driving while impaired by drugs, and creating penalties for these offences.

Speed

Table 6 illustrates the level of speeding in New Zealand. Much progress has been accomplished since 2001 in reducing the number of violations on both open roads and urban roads. However, the level of drivers exceeding the 50 km/h limit in urban areas remains very high (more 58%), which is worrying for ensuring the safety of vulnerable road users in these areas.

Table 6. **Percentage of drivers above the posted speed limit 2001-2010**

Speed (survey unimpeded speeds)	2001	2005	2009	2010
% exceeding open road 100 km/h limit	47%	36%	29%	29%
% exceeding urban 50 km/h limit	79%	63%	61%	58%

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1972 and in rear seats since 1979. The rate of seat-belt use is around 96% in front seats and 88% in rear seats.

Helmet wearing has been compulsory on motorcycles since 1956 if travelling over 50km/h and since 1973 at all speeds. Helmet wearing has been compulsory on mopeds (up to 50cc, maximum speed 45 km/h) since 1973.

A helmet has been compulsory on bicycles since 1994.

Table 7. **Seat-belt and helmet usage rate**

	2001	2005	2009	2010	2011
Seat belts used/Helmets worn					
Adult front seat	92%	95%	95%	96%	95%
Adult rear seat	70%	86%	87%	88%	87%
Child restraint – under 5 years	82%	89%	91%	93%	-
Bicycle helmets	94%	91%	92%	93%	93%

Distracted driving and use of mobile phone

The land transport road user rule was amended in August 2009 to include a ban on the use of hand-held mobile phones while driving.

7. Useful websites and references

New Zealand's road safety strategy to 2020	http://www.transport.govt.nz/saferjourneys/
KIWIRAP	www.kiwirap.org.nz

NORWAY[1]

- Capital Oslo:
- 4.9 million inhabitants
- 710 vehicles / 1 000 inhabitants
- 208 road fatalities in 2010
- 4.2 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, there was a 2% decrease in the number of fatalities compared to 2009, with 208 road fatalities, the lowest number since 1955.

Provisional data for 2011

Provisional data for 2011 show a 19% decrease in the number of fatally injured and an 8% decrease in the number of severely injured. The preliminary number of road fatalities recorded so far is 170 and 675 for serious injuries. All age groups benefited from the fall in fatalities, with the 18-24 group showing the highest decrease. There were fewer fatalities and severely injured during the summer months and a reduction in both head-to-head collisions and single-vehicle crashes. When it comes to road user groups, the reduction was highest for car drivers, passengers and motorcyclists.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by more than 60%, while the number of vehicles tripled. In recent years (2000-2010), the number of fatalities continued to fall, by 40%. Since 2000, the distance travelled has increased by more than 20%.

Risk and rates

Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by more than 70%.

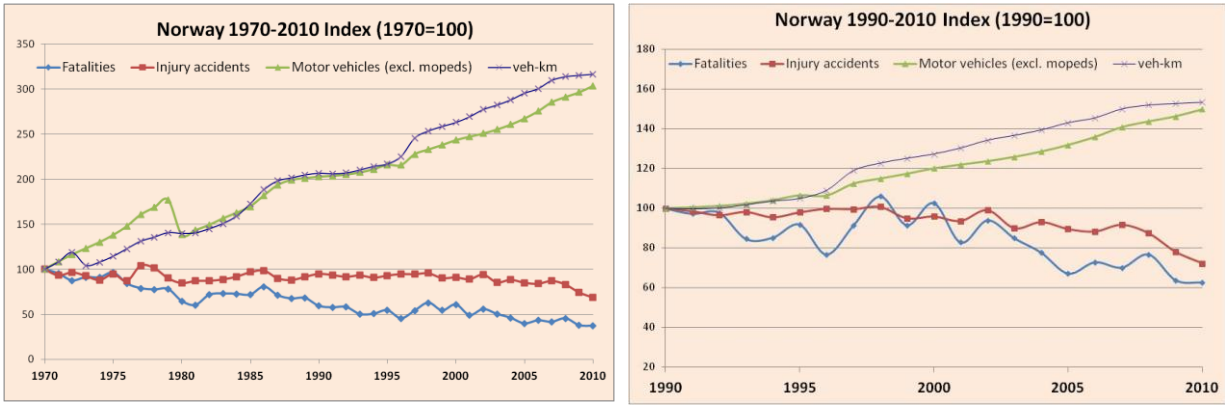
1. Source: IRTAD, Norwegian Public Road Administration.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	560	362	332	341	212	208	-2%	-39%	-63%
Injury crashes	9 266	7 848	8 801	8 440	7 108	6 362	-7%	-25%	-31%
Rates									
Deaths / 100 000 population	14.6	8.9	7.8	7.6	4.4	4.2	-5%	-45%	-71%
Deaths / 10 000 registered vehicles	4.9	2.2	1.5	1.3	0.7	0.6	-14%	-50%	-88%
Deaths / billion veh-km	-	19.3	12.0	10.5	5.4	4.9	-2%	-49%	-
Motorisation*	284	371	555	618	703	710	1%	15%	147%

*number of motorised vehicles / 1000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



3. National road safety strategies and targets

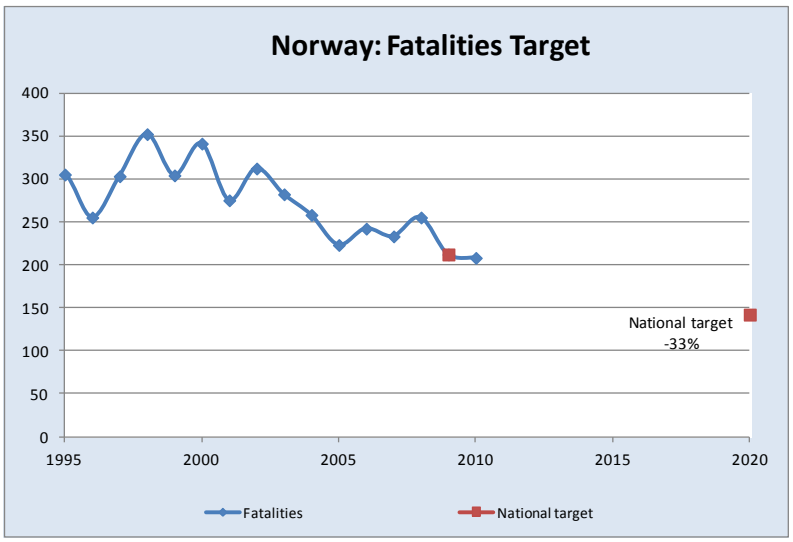
Norway has adopted a "Vision Zero" project, based on the experience of Sweden. Vision Zero was adopted for the first time as part of the National Plan of Action for Traffic Safety 2002-2011. The Government has decided that Vision Zero provides the basis for traffic safety activities in Norway.

The Norwegian Vision Zero involves the entire transport system. The intention is to reduce the total number of crashes, but the main emphasis is put on serious crashes that can lead to fatalities and serious injuries. Highest priority is given to reduction of head-on crashes, single-vehicle crashes and collisions with pedestrians.

Road safety strategy for 2011-2020

As part of its 2010-2019 National Transport Plan, Norway adopted a target of reducing the number of people killed and seriously injured by 33% between 2009 and 2020.

Figure 2. **Trends towards national target**



As stated in the document "National Plan of Action for Traffic Safety 2010-2013":

The Government has decided that the efforts to improve road traffic safety in Norway should be based on a vision of zero fatalities and severe injuries in road traffic – Vision Zero. During the parliamentary debate on Report No. 16 (2008-2009) to the Storting, National Transport Plan (NTP) 2010-2019, an intermediate goal of reducing the number of fatalities by one-third before 2020 was established. This means that the number of fatalities and serious injuries should be reduced from an expected level of 1 150 in 2010 to a maximum of 775 in 2020. Accordingly, the number of fatalities and severe injuries should be reduced from approximately 1 150 at the start of the planning period to approximately 950 in 2014.

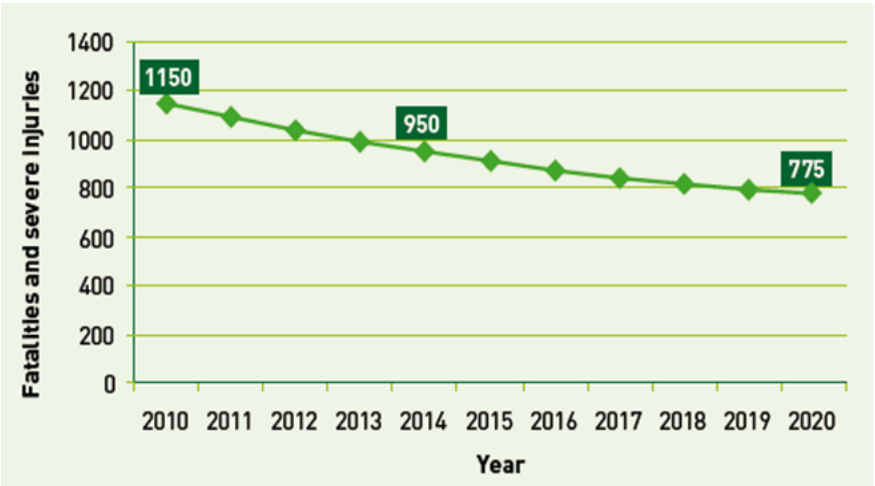


Figure 1: *Reductions in the number of fatalities and severe injures that will be required to reach the goals stipulated in Report no. 16 (2008-2009) to the Storting - NTP*

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated around EUR 2.18 billion (excluding property damage costs).

Costs (EUR billion)	2010	2009	% change
Fatalities	0.78	0.77	1.3
Hospitalised people	0.84	0.84	-1.6
Slight injuries	0.56	0.57	-3.0
Property/damage costs			
Total	**2.18**	**2.18**	

* Calculated at constant exchange rate 0.12 EUR/NOK, average 2009-2010 interbank rate.

4. Recent safety measures (2010-2011)

Impaired driving (National Action Plan 2010-2013)

Measures directed to road-users:

- Concentrate the number of sobriety tests to times and places where the risk of crash is the highest.
- Continue the learning of "Signs and symptoms" to detect the consumption of drugs other than alcohol.
- From 1st February 2012 impairment-based legislative limits for driving under the influence of non-alcohol drugs is implemented. For further information: Vindenes, V. et al. (2011), "Impairment based legislative limits for driving under the influence of non-alcohol drugs in Norway", Journal of Forensic Science Int. November, 24.

Measure directed to vehicles:

- Promote a proposal for introducing an alco-lock programme aimed at impaired drivers of goods transport vehicles. Instead of drivers losing their licence the vehicles will have alcolocks installed.

Speed management

NPRA has established new criteria for speed limits on roads with high traffic and severe crashes. The purpose is to reduce the number of fatalities and severely injured by 10 to 15 persons per year. High speed is found to be an important factor in almost 50% of all fatal accidents. This implies that on 420 km of road the speed limit will be lowered from 80 to 70 km/h and on 70 km of road from 90 to 80 km/h. The new criteria extends the existing policy regarding speed limits, but the focus is now more on road safety, especially for roads with a high risk of head-on collisions and for roads without a median barrier.

Enforcement

Penalty point endorsement of driving licences was introduced in 2004 to prevent high risk driving. On 1st July 2011 the system was renewed, targeting young drivers and risky behaviour.

Campaigns

A national speed campaign for 2009-2012 is being evaluated. So far, the main result is a significant change in self-reported speed behaviour of the target group (persons aged 25 to 40 years), whereas there is no change among the younger and older drivers. The evaluation does also contain objective measurements of average speed. A small decrease in speed was noticed; however, it is difficult to conclude if it is due to the campaign or related to other factors.

5. Crash trends

Road users

All user groups, with the exception of motorcyclists, have benefited from the improvement in safety. Between 1990 and 2010, the number of pedestrians killed decreased by more than 50%. The number of cyclists killed fell by about 70%. The number of fatalities among moped riders decreased by 100%, while the number of motorcycle fatalities increased slightly.

Table 2. **Reported fatalities by road user group**
1990, 2000, 2009 and 2010

									2010 % change over		
	1990		2000		2009		2010		*2009*	*2000*	*1990*
Bicyclists	17	5%	13	4%	9	4%	5	2%	-44%	-62%	-71%
Mopeds	14	4%	6	2%	2	1%	0	0%	-100%	-100%	-100%
Motorcycles	25	8%	40	12%	27	13%	26	13%	-4%	-35%	4%
Passenger car occupants	190	57%	194	57%	133	63%	139	67%	5%	-28%	-27%
Pedestrians	55	17%	50	15%	26	12%	24	12%	-8%	-52%	-56%
Others	31	9%	39	11%	15	7%	14	7%	-7%	-64%	-55%
Total	332	*100%*	342	*100%*	212	*100%*	208	*100%*	-2%	-39%	-37%

Age

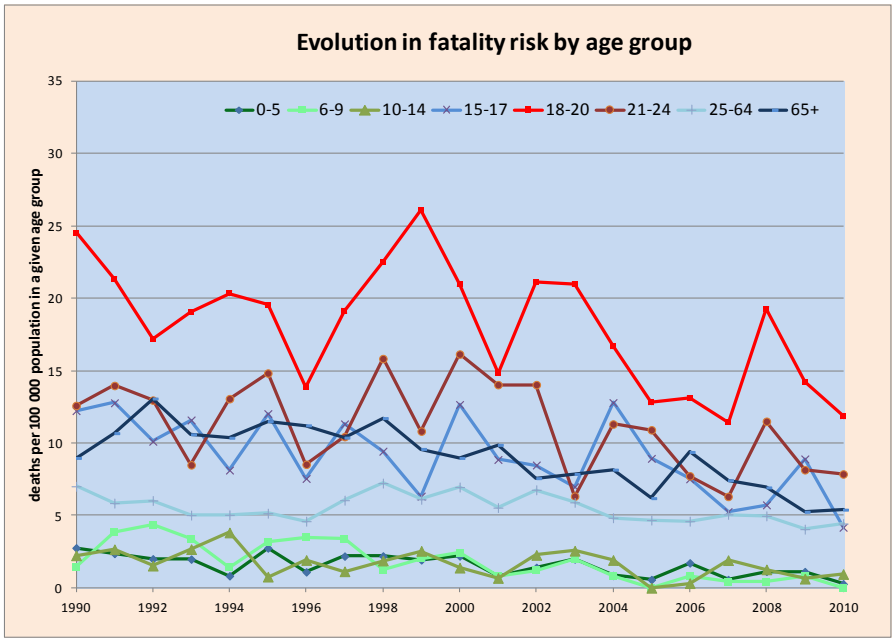
The number of fatalities varies with age. Since 2000, the reduction in fatalities has benefited most age groups, but the highest reduction concerned the youngest group (0-14), for which fatalities decreased from 33 in 1980 to 4 in 2010.

Young people (18-20) are the age group the most at risk, with a mortality rate almost three times that of the general population.

Table 3. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	9	8	4	1	-75%	-88%	-89%
6-9	3	6	2	0	-100%	-100%	-100%
10-14	6	4	2	3	50%	-25%	-50%
15-17	23	20	17	8	-53%	-60%	-65%
18-20	49	34	27	23	-15%	-32%	-53%
21-24	34	36	19	19	0%	-47%	-44%
25-64	146	165	104	115	11%	-30%	-21%
>65	62	61	37	39	5%	-36%	-37%
Total	332	341	212	208	-2%	-39%	-37%

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



6. Recent trends in road user behaviour

Impaired driving

The legal maximum blood alcohol content is 0.2 g/l. The number of impaired drivers due to alcohol seems to be fairly stable or slightly reduced. Impairment due to illegal substances is increasing slightly.

Speed

In the summer of 2009, the Ministry of Transport and Communications gave the Norwegian Public Roads Administration an opportunity to test out average speed cameras

on three stretches of road (control section). Average speed cameras appeared to be an effective and strong means of achieving a significant reduction in driving speeds on stretches of road where the speed is initially higher than the speed limit. More specifically, the results show that the average driving speed can be reduced by up to 10% (from around 90 km/h to 80 km/h). The size of the reduction is dependent on how high the driving speed is before the establishment of ATC. The Ministry has approved the extension of about 40 more road stretches from 2012 including some experiments in sub-sea tunnels.

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1975 and in rear seats since 1985. In 2010, the rate of seat-belt use in front seats among drivers is around 95% in rural areas, 91% in urban areas, and 92% on motorways. For front seat passengers, the rate is around 94% in rural areas, 91% in urban areas and 91% on motorwyas. There is no monitoring of seat-belt use in rear seats yet, but it is estimated to be seven to eight percentage points lower.

Helmet wearing has been compulsory on motorcycles and mopeds since 1977. Helmet use is not compulsory on bicycles, but the wearing rate was around 49% in 2010.

Table 4. **Seat-belt use by car occupants**

	2000	2010
Front seats		
General	88 %	91 %
Urban areas	92 %	91 %
Rural areas	80 %	94 %
Rear seats		
General:	84 %	
Urban areas	84 %	
Rural areas	68 %	

Distracted driving and use of mobile phone

In Norway, the law stipulates that mobile phones must be correctly attached to the front panel in the vehicle, as close as possible to the driver. Hands-free devices can be used.

7. Useful websites and references

Public Road Administration	www.vegvesen.no
TOI – Research Institute forTransport Economics	www.toi.no
International Research Institute	www.iris.no
SINTEF Norwegian Institute of Public Health, Division of Forensic medicine and Drug Abuse Research	www.sintef.no www.fhi.no

POLAND[1]

- Capital : Warsaw
- 38.2 million inhabitants
- 451 vehicles / 1 000 inhabitants
- 3 907 road fatalities in 2010
- 10.2 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

The number of road fatalities fell in 2010 to 3 907, a 15% decrease from 2009.

Provisional data for 2011

Provisional data for the year 2011 show an increasing trend in the number of fatalities (+6%).

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities increased by 13% and the number of injury crashes decreased by –7%, while the number of vehicles rose by a factor of almost six.

The peak in the number of fatalities was reached in 1991, with 7 901 deaths. In recent years (2000-2010) the upward trend was broken and the number of fatalities and injury crashes fell by 38 and 32%, respectively.

Risk and rates

Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 4%. Since its peak in 1991 with 21 fatalities per 100 000 population, the rate decreased by more than 50% as of 2010.

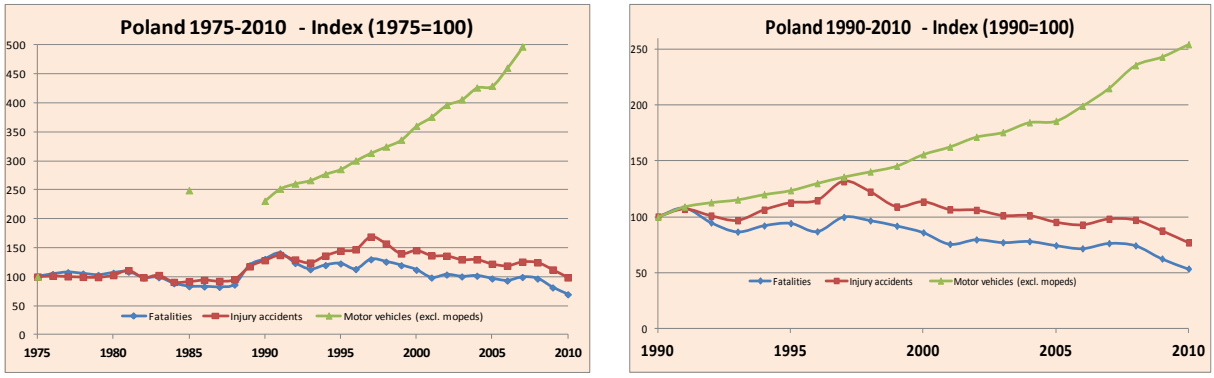
1. Source: IRTAD, Motor Transport Institute.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	3 446	6 002	7 333	6 294	4 572	3 907	-15%	-38%	13%
Injury crashes	41 813	40 373	50 532	57 331	44 196				
Rates									
Deaths / 100 000 population	10.6	16.8	19.2	16.3	12	10.2	-15%	-37%	-4%
Deaths / 10 000 registered vehicles	12.1	10.9	8.1	4.5	2.1	2.2	+4.8%	-51%	-82%
Motorisation*	87	154	237	365	432	451	+4.4%	+24%	+417%

* number of motorised vehicles / 1000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**

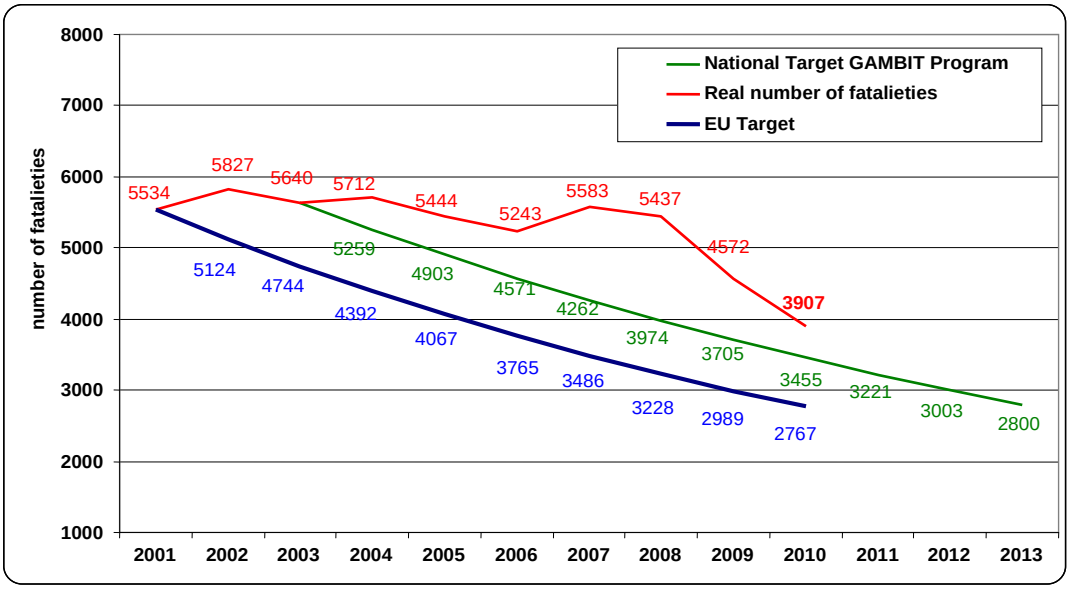


3. National road safety strategies and targets

In 2005, the Council of Ministers adopted the National Road Safety Program for 2005-2017: the GAMBIT 2005. It includes a long term vision of zero fatality on Polish roads and the strategic target to decrease by 50% the number of fatalities in comparison to 2003, (ie no more than 2800 fatalities in 2013).

In 2010, the establishment of the Polish Road Safety Observatory was launched. The aim of the Observatory will be the creation of a road safety data collection system which will enable the comprehensive analysis of road safety in Poland. The Observatory will also disseminate knowledge about road safety problems and successful activities. The Polish Road Safety Observatory will be a solid and reliable source of information for decisions within road safety policy and strategy. The new system for road safety data collection and its analysis will be a starting point for effective and efficient activities as well as the assessment of the measures taken.

Figure 2. **Trends towards national target**



4. Recent safety measures (2010-2011)

Speed management

A new law on speed-camera systems was implemented in 2011. The system is being developed gradually and expanded with installation of new speed cameras as well as section speed measurement. The first results of the new system will be available in 2012.

Campaigns

The Motor Transport Institute developed an educational package targeted at drivers above 50 years old, driving with a B licence.

The National Road Safety Council carried out awareness campaigns in the following areas: speed, alcohol, use of safety devices.

5. Crash trends

Road users

In 2000-2010, all user groups except motorcyclists benefited from a decrease in the number of fatalities. The decrease was more marked for bicyclists. In 2010, the number of fatalities among motorcyclists decreased by 11% compared to 2009. For a motorcyclist, the risk of dying in a traffic crash is double that for a car occupant.

Table 2. **Reported fatalities by road user group**
1990, 2000, 2009 and 2010

									2010 % change over		
	1990		2000		2009		2010		*2009*	*2000*	*1990*
Bicyclists	574	8%	692	11%	371	8%	280	7%	-25%	-60%	-51%
Mopeds	288	4%	75	1%	68	1%	83	2%	22%	11%	-71%
Motorcycles	749	10%	178	3%	290	6%	259	7%	-11%	46%	-65%
Passenger car occupants	2 237	31%	2 709	43%	2 179	48%	1 853	47%	-15%	-32%	-17%
Pedestrians	2 977	41%	2 256	36%	1467	32%	1 236	32%	-16%	-45%	-58%
Others	508	7%	383	6%	197	4%	196	5%	-1%	-49%	-61%
Total	7 333	100%	6 294	100%	4 572	100%	3 907	***100%***	-15%	-38%	-47%

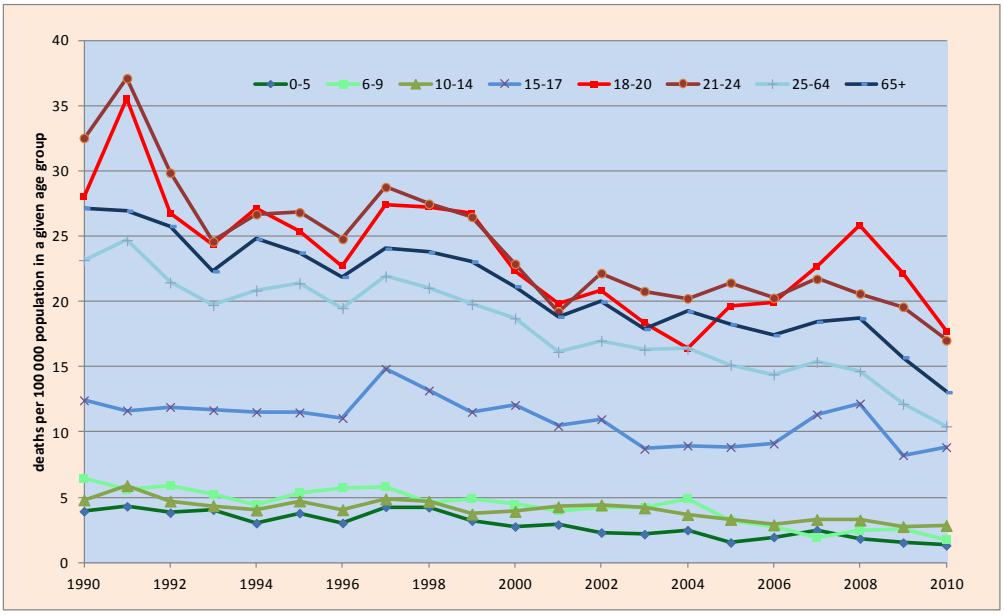
Age

Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned the youngest group (0-14), for which fatalities fell from 471 in 1990 to 112 in 2010.

Table 3. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	139	66	35	31	-11%	-53%	-78%
6-9	176	89	37	25	-32%	-72%	-86%
10-14	156	112	56	56	0%	-50%	-64%
15-17	223	245	119	122	3%	-50%	-45%
18-20	455	443	361	280	-22%	-37%	-38%
21-24	636	583	471	392	-17%	-33%	-38%
25-64	4 493	3 751	2 639	2293	-13%	-39%	-49%
>65	1 055	1 004	811	676	-17%	-33%	-36%
Total	7 333	6 294	4 572	3 907	-15%	-38%	-47%

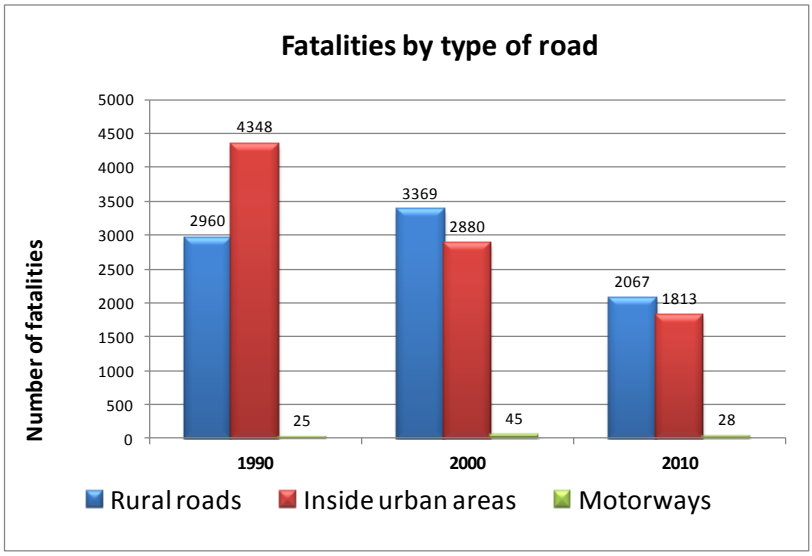
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road type

In 2010, the majority of fatal crashes occurred on country roads and in urban areas. The decrease in fatalities over the last twenty years has been achieved mainly through the improvement of country roads.

Figure 4. **Reported fatalities by road type**
1990, 2000 and 2010



6. Recent trends in road user behaviour

Impaired driving

The maximum authorised blood alcohol concentration (BAC) level in Poland is 0.2 g/l for all drivers.

In the last ten years, the number of crashes caused by drivers under the influence of alcohol decreased by 35%. People killed in crashes involving drink-driving represent 8% of all traffic fatalities, while in Europe this percentage equals 12%.

In 2010, 4% of all injury crashes involved a pedestrian under the influence of alcohol, resulting in 138 killed road users (4% of total). In 2000, the share was 6% of all injury accidents and fatalities.

Table 4. **Number and percentage of casualties and crashes involving a driver with a BAC above 0.2 g/l – 2000-2010**

Year	Crashes	Killed	Injured
2000	5 844	759	7 952
% of total	10%	12%	11%
2001	4 439	525	6 139
% of total	8%	9%	9%
2002	4 887	633	6 714
% of total	9%	11%	10%
2003	4 327	552	5 795
% of total	8%	10%	9%
2004	4 272	504	5 840
% of total	8%	9%	9%
2005	4 391	535	6 134
% of total	9%	10%	10%
2006	4 011	435	5 578
% of total	9%	8%	9%
2007	4 001	510	5 602
% of total	8%	9%	9%
2008	4 158	514	5 722
% of total	8%	9%	9%
2009	3 527	387	4 900
% of total	8%	8%	9%
2010	2 899	307	3 944
% of total	7%	8%	8%

Speed

The table below summarizes the main speed limits in Poland.

Table 5. **Speed limits in Poland**

Built-up areas	50 km/h
Two-carriage express roads	110 km/h
Single-carriage express roads and dual-carriage roads with at least two lanes in each direction	100 km/h
Motorways	130 km/h
Other types of road	90 km/h

In the last ten years, the number of fatal accidents involving speeding decreased by 50%; however, speed still remains one of the main causes of crashes in Poland and is a contributing factor in around 30% of fatal crashes. Speed enforcement efforts will be increased. The table below illustrates the number of fatal crashes due to speeding.

Table 6. **Fatal crashes due to excessive speed**

Year	Number of fatal crashes involving speeding	% change compared to previous year
2000	1 926	
2001	1 741	-11%
2002	1 782	2%
2003	1 674	-6%
2004	1 670	0%
2005	1 720	3%
2006	1 623	-6%
2007	1 795	10%
2008	1 687	-6%
2009	1 479	-14%
2010	1 117	-24%

Seat belts and helmets

Seat-belt use has been compulsory in front and rear seats since 1991. The rate of seat-belt use is around 86% in front seats and 65% in rear seats.

Helmet wearing has been compulsory on motorcycles and mopeds since 1997. Helmets are not compulsory on bicycles.

Table 7. **Seat-belt use by car occupants**

	2008*	2011**
Front seats		
General	78%	86%
Urban areas		84%
Rural areas		89%
Rear seats		
General	51%	65%
Urban areas		64%
Rural areas		66%
Child restraint system	85%	82%

* Road survey for the National Road Safety Council.
** Public opinion survey for Motor Transport Institute.

Distracted driving and use of mobile phone

In Poland the use of hand-held mobile phones while driving is forbidden, the use of hands-free phones is tolerated.

7. Useful websites and references

Ministry of Transport, Construction and Maritime Economy	www.transport.gov.pl
National Road Safety Council	www.krbrd.gov.pl
Motor Transport Institute	www.its.waw.pl

PORTUGAL[1]

- Capital : Lisbon
- 10.6 million inhabitants
- 545 vehicles / 1 000 inhabitants
- 937 road fatalities in 2010
- 8.8 deaths / 100 000 inhabitants

***Note**: As of 2010, to meet international agreed definitions, the fatality data for Portugal is recorded within 30 days. The National Authority for Road Safety (ANSR) has applied a revised conversion factor of 26% to all fatality data before 2010 in order to allow meaningful comparisons with recent data.*

1. Short term trends

General comments and trends for 2010

In 2010, the number of fatalities increased slightly by 1% in comparison to 2009, thus discontinuing the steady drop in fatalities started in 1997.

Provisional data for 2011

Provisional data suggests that the downward trend observed during the past few years continued in 2011. Road deaths in 2011 were down 6% to the end of July compared with the same period in 2010.

Period (January-July)	**2010**	**2011**	**var.**
Fatalities (30 days)	516	484	-6,2%

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 48% while the number of vehicles was multiplied by seven. In recent years (2000-2010), the decrease in fatalities was sustained (-54%).

Between 1970 and 1989, there was an annual average increase in road deaths (+3.5%) and injury accidents (+3.9%). The number of fatalities reached a peak in 1975

1. *Source:* IRTAD, National Authority for Road Safety (ANSR).

with 3 372 persons killed. At the same time, the number of vehicles rose by 8.3% on average.

Between 1990 and 2000 there was a steady decrease in the number of fatalities and injury crashes. On a yearly average, the number of fatalities fell by 3.2%.

Since 2000, the rate of decline has accelerated, with an average annual decrease of 7.3% between 2000 and 2010.

Risk and rates

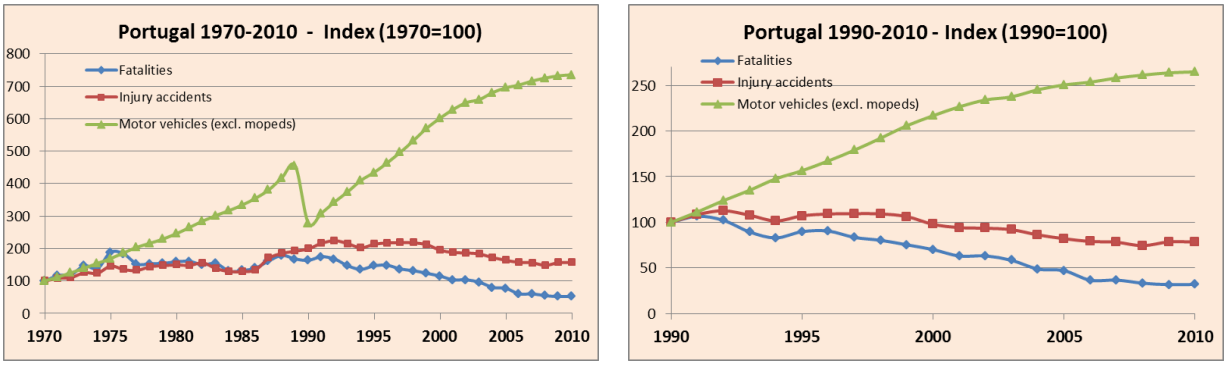
Between 1990 and 2010, the mortality rate (expressed in terms of deaths per 100 000 population) decreased by more than 70%.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1990*
Fatalities	1 785	2 850	2 924	2 053	929	937	0.9%	-54%	-68%
Injury crashes	22 662	33 886	45 110	44 159	35 484	35 426	-0.2%	-20%	-21%
Rates									
Deaths / 100 000 population	20.6	30.6	31.2	20.0	8.7	8.8	0.8%	-56%	-72%
Deaths / 10 000 registered vehicles	22.7	14.7	13.4	4.3	1.6	1.6	0.0%	-63%	-88%
Motorisation *	91	208	234	462	543	545	0.4%	18%	133%

* number of motorised vehicles / 1000 inhabitants.

Figure 1. **Reported road fatalities, injury crashes and motorised vehicles, 1970-2010**[1]



1. *Note:* there was a change in the data source for motor vehicles in 1990.

3. National road safety strategies and targets

In 2009, the Portuguese Plan for the Prevention of Road Accidents, launched in 2003, was terminated. Regarding the targets that Portugal adopted for the year 2009, the most important ones were achieved or even surpassed, namely a 50% reduction in the number of fatalities and seriously injured in comparison to the average for 1998-2000.

Road safety strategy for 2011-2020

The Council of Ministers approved a new National Road Safety Strategy, which sets new road safety targets for the year 2015; the Strategy identifies specific actions to be taken, deadlines and the entity responsible for its execution.

Both the Ministry of Health and the National Authority for Road Safety are working on the National Plan for the Decade (see also below), with a strong commitment to road safety management and mobility, safety promotion and injury prevention, capacity-building and better services for the victims.

Based on the analysis of the national accident data registered in previous years, the National Authority for Road Safety (ANSR) developed a detailed diagnosis of the Portuguese situation *per se*, as well as in comparison with other neighbouring countries, namely, Spain and France. The groups most exposed to accident risk were identified, as were several critical segments that deserved particular attention in the development of the new plan, such as accidents within urban agglomerations, speed monitoring systems and drinking and driving.

This led to the definition of ten strategic objectives:

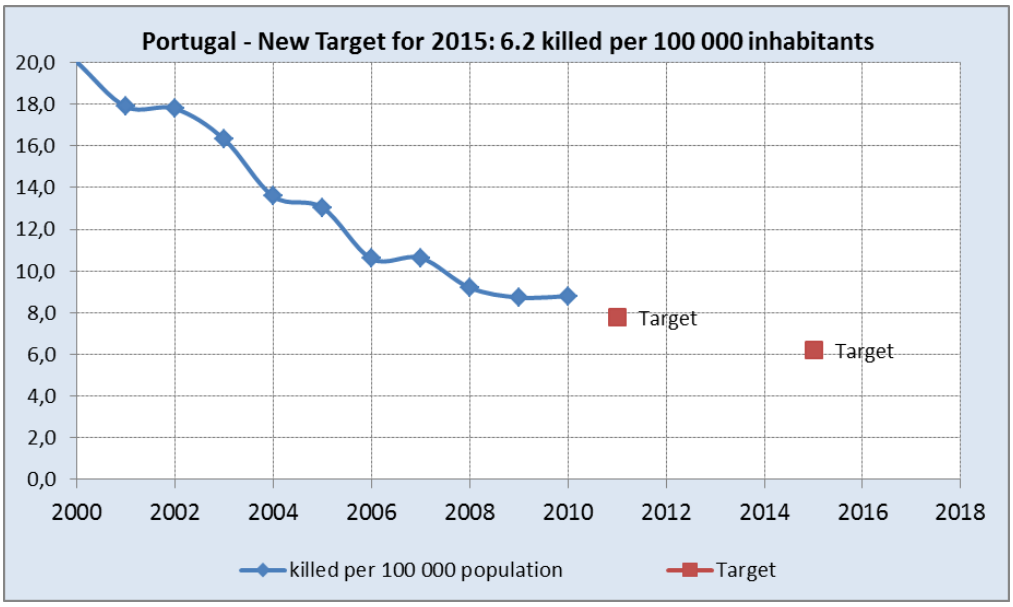
- Two-wheeled motor vehicle drivers;
- Light vehicle drivers;
- Pedestrians;
- Road traffic inside urban areas;
- Driving under the influence of alcohol or drugs;
- Speeding;
- Safety devices;
- Trauma management;
- Vehicles;
- Road infrastructure.

In the National Road Safety Strategy, the main quantitative goal is expressed in terms of a reduction in the mortality rate (number of killed per population):

- 78 deaths per million inhabitants by 2011;
- 62 deaths per million inhabitants by 2015.

In 2010, there were 88 deaths per million inhabitants. Therefore, important efforts are needed to reach the above-mentioned targets.

Figure 2. **Trends towards national target**



UN Decade of Action

Several events were organised in 2011 to launch the Decade of Action for Road Safety.

There was an official launch of the Decade in Portugal on 11 May 2011, during a Symposium and a press conference at the National School of Public Health.

The launch of the Decade was organised by the Directorate-General of Health, in collaboration with *Estrada Viva*, a Federation of the Portuguese NGOs working in the area of trauma and injury prevention.

The launch of the Decade was attended by the Minister of Health, members of parliament, and representatives from the National Institute of Medical Emergency, the National Authority for Road Safety, the Public Institute for Mobility and Inland Transport, the Institute of Road Infrastructure, the National Republican Guard and many other representatives of citizens' associations and youth associations, as well as the Press.

The non-governmental organisations stated their commitment to the Decade, launched a book on "Risk and Road Trauma in Portugal" and displayed a video of the 2nd Meeting of NGOs for Road Safety & Victims, translated into Portuguese.

The Portuguese NGO, ACA-M (Auto-Mobilized Citizens' Association), further launched an e-learning platform and, together with the Coordinator of the Decade, conducted a debate involving all participants.

All presentations and communications, posters, videos and other material related to the Decade (translated into Portuguese) were linked to the logo of the Decade, at the website of the Directorate-General of Health: http://www.dgs.pt/

At national level, the Minister of Health, together with the National Coordinator of the Decade, assumed the commitment of developing a project on Pillar 4 of the Decade's Global Plan – safer road users. The "Security of the Newborn" project is aimed to raise awareness regarding the use of child restraints as from birth.

Other events included:

- Portuguese Television (RTP2), through its regular programme "Civil Society", conducted, on 27 May, a 90 minute debate on the Decade, which produced important statements from a discussion between a number of experts.

- The National Authority for Road Safety has also launched a national campaign, using the YOURS – Youth for Road Safety "Surreal Poster Series", translated into Portuguese and duly authorised. Posters are available at following website: http://www.ansr.pt/Default.aspx?tabid=374

- The Portuguese NGO, ACA-M (Auto-Mobilized Citizens' Association) further launched a sensibilisation campaign, called "Death on the Road". This campaign aims at raising awareness among drivers, especially young drivers, to the dangers of driving under the influence of alcohol, which remains until today a major cause of road-traffic accidents in Portugal, especially among youngsters. The slogan of the campaign – "If you drink, let me drive" – is illustrated by the metaphorical figure of "Death". This campaign is conducted in collaboration with the Public Safety Police in the area of Lisbon, with the possibility of an extension throughout the country in the near future. It also includes statistics on road accidents in the city of Lisbon, as well as a few safety tips for drivers.

- The Municipality of Lisbon issues a Newsletter, "MOV LISBOA", entirely dedicated to the Decade. The Newsletter is available at: http://www.cm-lisboa.pt/archive/doc/MOV_9_Julho_2011.pdf

Economic costs of traffic crashes

The National Authority for Road Safety (ANSR) in partnership with a Portuguese university launched a study in 2010-11 to estimate the national costs of traffic crashes. The conclusions will be published in 2012.

4. Recent safety measures (2010-2011)

Speed management

- A project concerning the implementation of automatic speed cameras is under preparation.

Campaigns

- As in previous years, in 2010 ANSR undertook three annual road safety campaigns: at Easter, in the summer and during Christmas/New Year.
- In 2011, ANSR launched specific campaigns in collaboration with cartoonists, focusing on the following issues: Elderly pedestrians; Agricultural vehicle accidents; Two-wheeled motor vehicle riders; Children back to school.
- As mentioned earlier, special campaigns were also organised in the framework of the launch of the UN Decade of Action for Road Safety.

5. Crash trends

Road users

Between 1990 and 2010, all user groups benefited from safety improvements, with the exception of motorcyclists, for whom fatalities increased by 59%. The greatest improvements concerned moped riders (-90%), pedestrians (-74%) and cyclists (-73%).

Table 2. **Reported fatalities[1] by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000		2009		2010		*2009*	*2000*	*1990*
Bicyclists	120	4%	62	3%	32	3%	33	4%	3.1%	-47%	-73%
Mopeds	786	27%	248	12%	63	7%	77	8%	22.2%	-69%	-90%
Motorcycles	106	4%	234	11%	129	14%	126	13%	-2.3%	-46%	19%
Passenger car occupants	898	31%	809	39%	381	41%	367	39%	-3.7%	-55%	-59%
Pedestrians	742	25%	425	21%	164	18%	195	21%	18.9%	-54%	-74%
Others	272	9%	275	13%	160	17%	139	15%	-13.1%	-49%	-49%
Total	*2 924*	*100%*	*2 053*	*100%*	*929*	*100%*	*937*	*100%*	*0.9%*	*-54%*	*-68%*

Age

Between 1990 and 2010, all age groups benefited from safety improvements, with the greatest improvements concerning children (0-14) and young people (15-24).

1. Due to the adoption of the international methodology, the fatality data for Portugal is recorded within 30 days from 2010 onwards. The National Authority for Road Safety (ANSR) decided to apply a revised conversion factor of 26% to all fatality data before 2010 in order to allow meaningful comparisons with recent data.

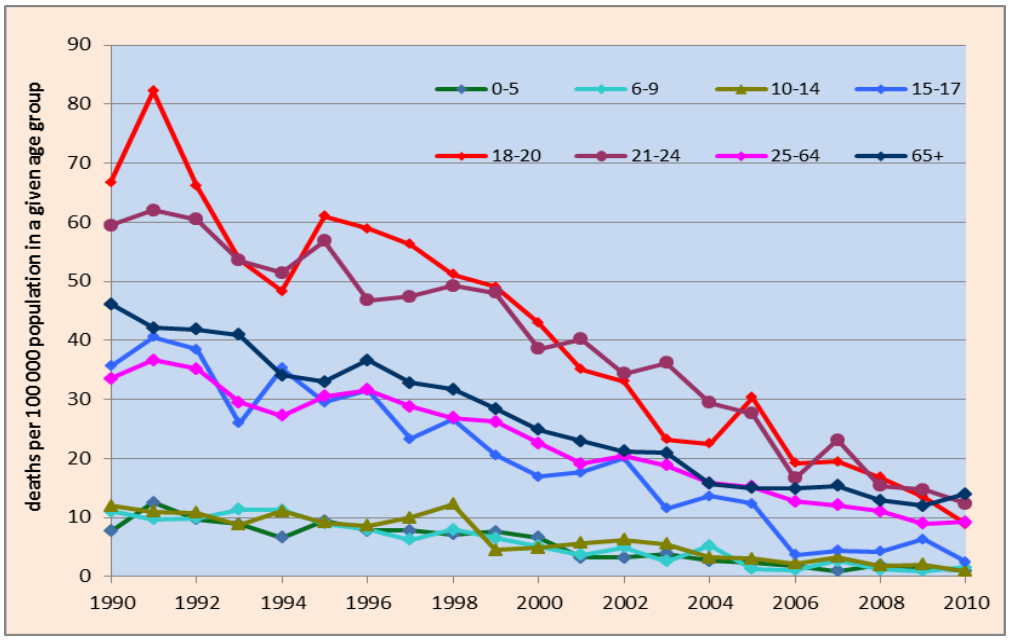
More recently (since 2000), the older age groups (65+) have shown a slower decrease than the other groups.

Table 3. **Reported fatalities by age group 1990, 2000, 2009, 2010**

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	47	38	9	6	-33.3%	-84%	-87%
6-9	52	20	4	7	75.0%	-65%	-87%
10-14	81	25	11	5	-54.5%	-80%	-94%
15-17	152	60	21	8	-61.9%	-87%	-95%
18-20	282	171	48	31	-35.4%	-82%	-89%
21-24	333	221	73	60	-17.8%	-73%	-82%
25-64	1 411	1 120	532	549	3.2%	-51%	-61%
>65	509	377	227	270	18.9%	-28%	-47%
Total	*2 924*	*2 053*	*929*	*937*	*0.9%*	*-54%*	*-68%*

Young people (18-20 and 21-24) were the group with the highest mortality rate until 2009. However, in 2010, the number of fatalities per 100 000 inhabitants was higher amongst the older age groups (65+). This increase can be partly explained by the new methodology for data recording (see Figure 3).

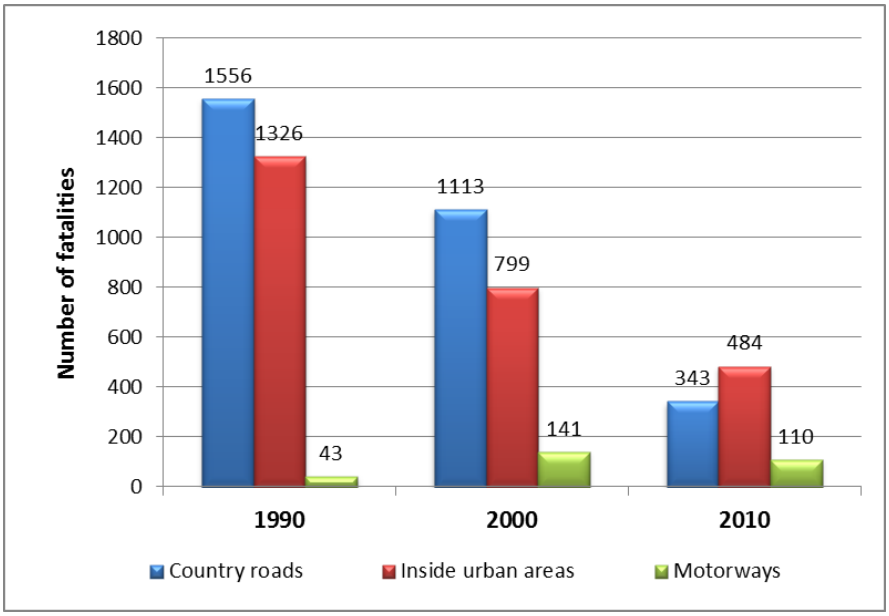
Figure 3. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2010)**



Road type

In 2010, there were more fatalities in urban areas (51.7%) than on country roads (36.6%). This represents a significant change compared with 1990 and 2000, as the reduction registered in the number of road deaths has been more prominent outside urban areas. The positive results registered for rural roads are closely related to the significant increase in the length of the motorway network and blackspot treatment. Therefore, improving urban road safety is now still a priority target of the new Road Safety Plan.

Figure 4. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

In Portugal, the maximum authorised BAC is 0.50 g/l for all drivers.

According to the data of INML (the National Forensic Medicine Institute – Toxicological Department), in 2010, 37% of drivers killed in road crashes were found to be over the legal blood alcohol limit and 7% tested positive for drugs.

Speed

National data on speed distribution are not available.

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1978 (outside urban areas), and in rear seats since 1994. Recent data are not available.

Distracted driving

The Portuguese law regarding mobile phone use while driving allows the use of hands-free kits and headset kits. There are no national data on phoning while driving.

7. Useful websites and references

Autoridade Nacional de Segurança Rodoviária – ANSR (National Authority for Road Safety)	www.ansr.pt
Instituto Infra-estruturas Rodoviárias – InIR (Road infrastructure Institute)	www.inir.pt
Instituto Mobilidade e Transportes Terrestres – IMTT (Mobility and Inland Transport Institute)	www.imtt.pt
Estradas de Portugal – EP (Portuguese Roads Institute)	www.estradasdeportugal.pt
Polícia Segurança Pública – PSP (Public Security Police)	www.psp.pt
Guarda Nacional Republicana – GNR (National Republican Guard)	www.gnr.pt

SLOVENIA[1]

- Capital : Ljubljana
- 2.05 million inhabitants
- 630 vehicles / 1 000 inhabitants
- 138 road fatalities in 2010
- 6.7 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

Recent studies show that road safety is still improving in Slovenia. In 2010 there were 138 fatalities (-19% change in comparison to 2009), 880 seriously injured (-16% change) and 9 512 slightly injured (-16% change). Mobility expressed in vehicle kilometres decreased slightly in 2010 due to the economic crisis.

Provisional data for 2011

Provisional data suggest that the downward trend did not continue in 2011, as 141 people were killed, a 2% increase compared to 2010. The most notable increase in fatalities took place in January, February and June, whereas in March and July there was a decrease in fatalities of 50% and 70%, respectively.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by almost 80% while distances travelled were multiplied nearly fivefold. In recent years (2000-2010), the number of fatalities has continued to fall, by 56% overall.

Fatality numbers reached a peak in 1979, when 735 people died on the roads. Since then the number of killed has steadily decreased, though with a period of relative stagnation between 2002 and 2007.

There was a noticeable overall declining trend in fatalities from 2007 to 2010, probably due to the new motorway toll system (vignettes), constant media campaigns promoting road safety, and the Road Safety Act which came into force in 2008 (UL RS, No. 56/2008).

Risk and rates

Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by almost 80%.

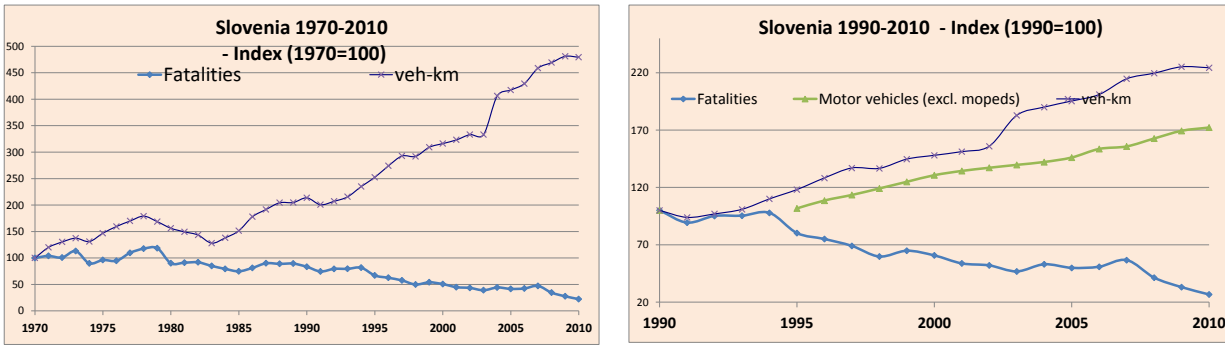
1. Source: IRTAD, Slovenian Traffic Safety Agency.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	2009	2000	1990	2009	2000	1990	2010% change over		
							2009	*2000*	*1970*
Fatalities	620	558	517	314	171	138	-19%	-56%	-78%
Injury crashes	-	-	-	8 951	8 707	7 596	-13%	-15%	-
Rates									
Deaths / 100 000 population	35.8	29.2	25.9	15.8	8.4	6.7	-20%	-57%	-81%
Deaths / 10 000 registered vehicles	-	-	6.9	3.2	1.3	1.1	-15%	-66%	-
Deaths / billion veh-km	166.7	96.1	65.1	26.7	9.6	7.7	-19%	-71%	-95%
Motorisation *	-	-	375	492	625	630	1%	28%	-

* number of motorised vehicles / 1 000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



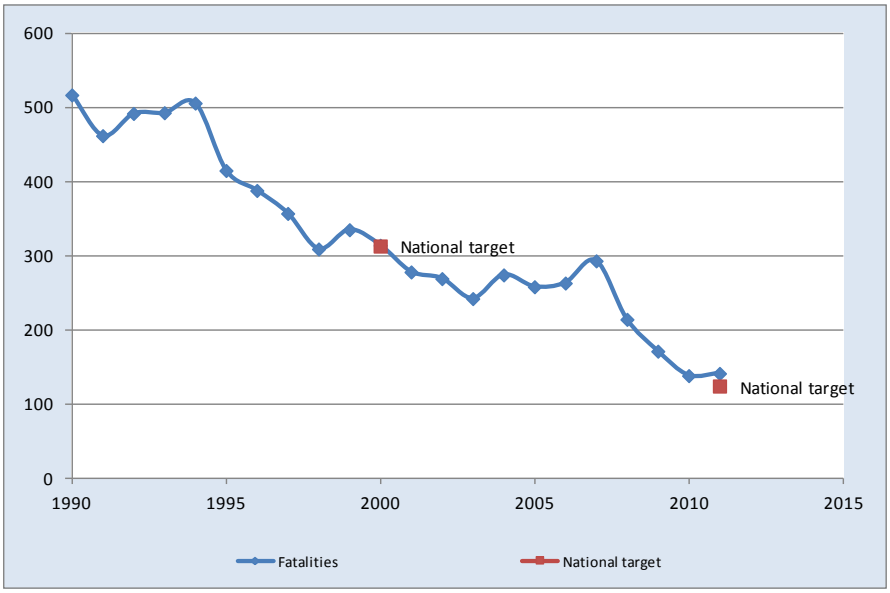
3. National road safety strategies and targets

The Slovenian Traffic Safety Agency was created in 2010. It is becoming the main national traffic safety organisation, combining all expertise from the road safety field. The Agency's tasks begin with road safety and cover research and analysis, preventive and educational programmes, expert tasks related to the national road safety programme, tasks related to drivers and vehicles and rehabilitation programmes. The Agency will also take over independent investigation of traffic accidents resulting in death.

The target of the current National Road Safety Programme was to achieve no more than 124 deaths in road traffic accidents in 2011. This goal was set in accordance with the EU goal of halving the number of deaths in road traffic accidents by 2010.

There was a noticeable overall declining trend in fatalities from 2007 to 2010; however, based on the provisional figure for 2011, the target was not reached.

Figure 2. **Trends towards national target***



*provisional data for 2011.

Road safety strategy for 2011-2020

The *Slovenian National Road Safety Programme 2012–2021* was drafted in January 2011 and should be adopted in February 2012.

The strategic document on road safety is the new national road safety programme for the period 2012 to 2021, in line with the vision zero – no fatalities and no seriously injured on Slovenian roads. The main goal in the national road safety programme is to halve the number of fatalities and seriously injured, so the number will not exceed 35 fatalities per million and 210 seriously injured per million.

Priorities addressed in the national road safety programme are:

- Driver education and training;
- Preventive action and media campaigns for vulnerable road users, such as pedestrians, children, the elderly and cyclists;
- Measures against the main killers on roads – speed and alcohol.

The implementation of the new national road safety programme has been established at three levels:

- At the political level, the Parliament is responsible for policy co-ordination and control and once a year considers the development of and issues concerning road safety in Slovenia.
- At the strategic level, the Government establishes the Board of Directors, which prepares the strategic guidelines and baseline measures, defines and assigns specific tasks, provides financial and other resources and monitors implementation of the national road safety programme.

- At the professional level, an interdepartmental working group was established for monitoring and implementing the programme, bringing together individual experts, organisations and NGOs in the field of road safety. Local councils, civil society and socially responsible companies are also involved in the process of organisation and implementation.

Special event to launch the UN Decade of Action for Road Safety

On 11 May 2011, the Slovenian Traffic Safety Agency, in co-operation with the Automobile Association of Slovenia, organised a public event on Main Square (Prešeren Square) in Ljubljana, with the participation of the President of the Republic of Slovenia, Mr. Türk. The event was also attended by the Minister of the Interior, the Minister of Transport, the Minister of Health and the Mayor of Ljubljana.

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2010 at around EUR 628 million, i.e. 1.8% of GDP.

4. Recent safety measures (2010-2011)

Legislation

At the end of 2010, the National Assembly approved a package of new road traffic legislation, which includes the Vehicle Law, the Law on the Public Roads Act and the Law of Rules. The legislation was applied on 1 July 2011. The whole area of road traffic legislation is now covered by the Ministry of Transport.

The Law of Rules provides stricter penalties for more serious traffic offences which may result in serious crashes (such as driving in the opposite direction on motorways, driving under the influence of alcohol, speeding in residential areas) and lower penalties for minor violations.

The Law on drivers focuses on advanced training for beginner drivers; the possibility of medical examination with the advice of a personal doctor for drunk drivers with an alcohol level of under 0.8 g/l; the opportunity to participate in rehabilitation programmes for drunk driving or serious violations related to speeding; and a health control check system.

Infrastructure

In October 2011, Slovenia launched safety audits of its road network. Professional training is conducted by the Slovenian Traffic Safety Agency. The area of auditors in Slovenia is currently limited to the motorway network, which is part of the trans-European road network. Auditors focus the audit on the planning, design and construction of new roads, and on the maintenance and operation of existing roads.

Campaigns

Many campaigns were implemented in 2011:

- *"Safety of powered two-wheelers"*, focused on the respect of traffic rules and the attitude of the rider;
- March–April 2011: *"40 days without alcohol"*, annual campaign to raise awareness about the consequences of driving under the influence of alcohol;
- *"Speed – slower is safer"*;
- *"Wearing a seat belt"*. The campaign aimed to increase the seat-belt usage rate for drivers and passengers of cars, trucks and buses;
- *"Safety in the tourist season"*. Additional activities that were actualised during the tourist season to improve road safety;
- June, November and December 2011: *"0.0 driver – sober decision"*. Preventive campaign to prevent drunk driving and reduce road accidents indirectly caused by alcohol abuse;
- January 2011: "*Pedestrians, be cautious/noticeable*", promoting the use of reflectors for pedestrians;
- March 2011: "*Do not miss bends*", promoting correct driving through bends, proper stopping and warning on proper maintenance of the bike;
- February 2011: "*Stop. The train cannot*", preventive campaign launched to improve safety at level crossings;
- August–September 2011: Preventive action, *"Beginning of the school year".* Well-known annual activities include: the review of school paths, and review and update of school path maps; meetings with school teachers and parents; provision of yellow scarves to first- and second-grade scholars, etc.
- September–October 2011: "*Promotion of correct use of child safety seats and seat belts amongst children*".

Research

- *"Review of road facilities for the period 2007-2009"*. The main purpose of the assignment was to analyse the existing traffic and safety situation on the Slovenian motorway/highway network.
- February 2011: "*Analysis of a large-scale traffic accident on the A2 motorway on 27th November 2010*". In this large-scale accident 38 vehicles and over 50 people were involved, of which 3 were killed, 6 seriously injured and 13 slightly injured. The analysis was the first of this type and was conducted by the Slovenian Traffic Safety Agency. It will serve as a comprehensive guide for future reports on fatal traffic accidents on national roads, which are part of the trans-European road network. The analysis was prepared in collaboration with the Motorway Company of the Republic of Slovenia, the Slovenian Roads Agency, the Transport Directorate, the Administration Office for Protection and Rescue and the Police.
- June 2011: "*Dangerous spots 2008–2010*". Annual analysis and identification of dangerous spots on the Slovenian road network.

5. Crash trends

Road users

All user groups, especially cyclists and pedestrians, have benefited from the improvement. Between 2000 and 2010, the number of pedestrians killed decreased by more than 60%, the number of cyclists by 38% and the number of moped riders by more than 70%.

In 2010, passenger car occupants saw the largest decrease in fatalities in comparison to 2009 (-18 fatalities: -21%), followed by motorcycle drivers (-11 fatalities: -39%). Unfortunately, the number of pedestrian and moped rider fatalities increased.

Table 3. **Reported fatalities by road user group 2000, 2009 and 2010**

							2010 % change over	
	2000		2009		2010		*2009*	*2000*
Bicyclists	26	8%	18	11%	16	12%	-11%	-38%
Mopeds	21	7%	3	2%	6	4%	50%	-71%
Motorcycles	19	6%	28	16%	17	12%	-39%	-11%
Passenger car occupants	179	57%	86	50%	68	49%	-21%	-62%
Pedestrians	60	19%	24	14%	26	19%	8%	-57%
Others	9	3%	12	12%	4	3%	-64%	-56%
Total	*314*	*100%*	*171*	*100%*	*138*	*100%*	-19%	-56%

Age

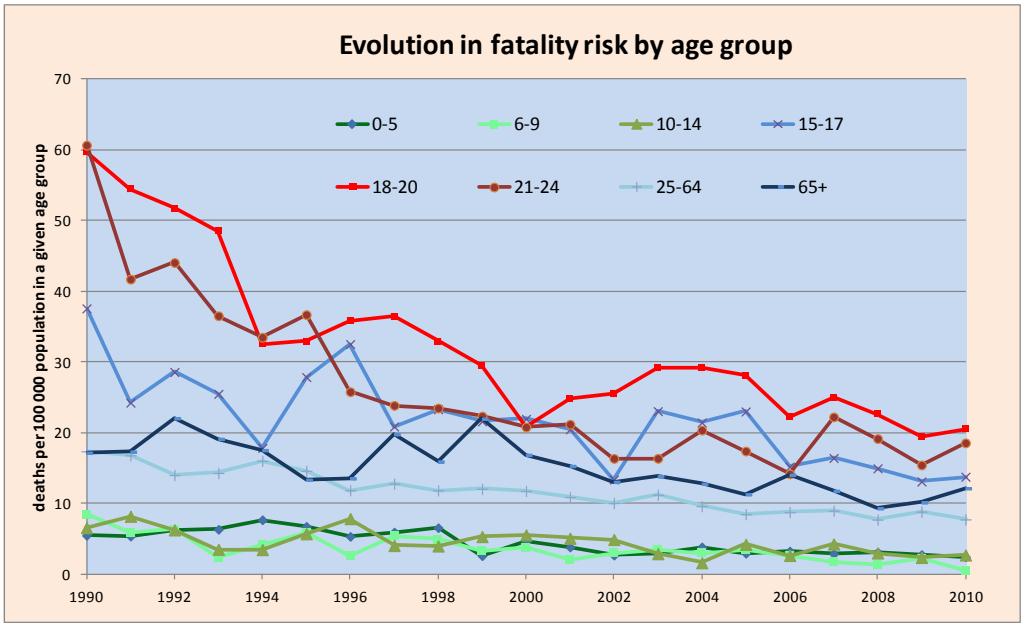
Since 2000, all age groups have benefited from the improvements in road safety, with the best results for young people (the 15-20 age group).

The share of fatalities between different age groups remained around the 2009 level. The largest share of fatalities was in the group of 65 years and more, the lowest being amongst young people (20 years and less).

Table 4. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	2000	2009	2010	2010% change over	
				2009	2000
0-5	2	1	2	*Figures too small for %*	
6-9	2	0	0		
10-14	4	1	0		
15-17	18	4	4	0%	-78%
18-20	23	11	3	-73%	-87%
21-24	28	19	16	-16%	-43%
25-64	181	96	82	-15%	-55%
>65	56	39	31	-21%	-45%
Total	***314***	***171***	***138***	-19%	-56%

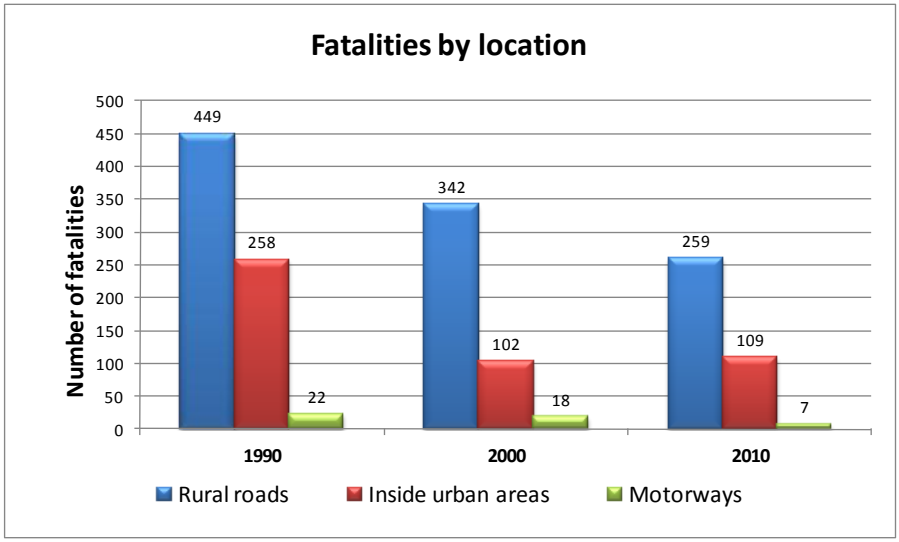
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road type

In 2010, 45% of fatal crashes occurred on country roads, 47% on urban roads and 18% on motorways.

Figure 4. **Reported fatalities by road type 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

The maximum permissible blood alcohol content is 0.5 g/l. Driving under the influence of alcohol represents a major problem in Slovenia. Around one-third of serious crashes involve persons with blood alcohol levels higher than that allowed by law. Some 40 000 of those driving under the influence of alcohol are penalised by the police every year.

Speed

Speeding is one of the major causes of traffic accidents in Slovenia. Fatal crashes caused by speeding represented 32% of all fatal traffic accidents in Slovenia in 2010.

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1977 and in rear seats since 1998. The rate of seat-belt use is around 88% in front seats and 56% in rear seats.

There was a 1.2% increase in the seat-belt wearing rate on motorways in 2010 compared to 2009, from 95.9% to 97.1. The slight decrease in the seat-belt usage rate on urban and rural roads was almost unnoticeable. In 2010, it amounted to 74% for urban roads and 93% for rural roads.

Table 6. **Seat-belt use by car occupants**

	2010
Front seats	
General	92.3%
Urban areas	87.9%
Rural areas	92.9%
Motorways	96.5%
Rear seats	
General:	76.4%
Urban areas	67.8%
Rural areas	59.1%
Motorways	67.4%

Helmet wearing is compulsory for all motorised two-wheelers.

Helmets are compulsory for young cyclists up to 14 years of age.

Distracted driving and use of mobile phone

The use of mobile phones while driving is not allowed in Slovenia, except in cases when the driver uses a Bluetooth earphone or the vehicle has an in-car device for hands-free calling. However, trainee drivers practising with a driving instructor or accompanying drivers are not allowed to use a mobile phone in any circumstances.

There is no statistical data available at the present time on the effect on traffic accidents of mobile phone use while driving.

7. Useful websites and references

Slovenia Traffic Safety Agency	http://www.avp-rs.si
Slovenian Road Directorate	http://www.vozimo-pametno.si
Slovenian Traffic Statistics	http://www.policija.si/eng/index.php/statistics

SPAIN[1]

- Capital: Madrid
- 46.0 million inhabitants
- 676 vehicles / 1 000 inhabitants
- 2 478 road fatalities in 2010
- 5.4 deaths / 100 000 inhabitants

1. Short term trends and trends for 2010

In 2010, the number of road fatalities decreased by 9% compared to 2009, thus continuing the downward trend of the last decade. Over the same period, traffic outside urban areas (vehicles-km) fell by 3%, freight transport volume (tonnes-km) fell by 5% and GDP grew by 0.3%. These factors most likely contributed to the reduction in fatalities, but further analysis needs to be carried out.

Provisional data for 2011

Preliminary data suggest that the downward trend continued in 2011. Road deaths in 2011 were down 6% to the end of June compared with the same period in 2010. The number of people killed within 24 hours in roads outside urban areas fell by 14% in 2011 compared to 2010.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 55%, while the number of vehicles was multiplied by seven.

Since 1980, the following periods can be identified:

Between 1983 and 1989 (base year 1982): There was an increase in the number of fatalities, with a peak in 1989, when 9 344 persons died on the roads. During this period, the vehicle fleet increased by 33% and the traffic volume outside urban areas rose by 41%.

Between 1990 and 1994 (base year 1989): During this four-year period, the number of fatalities dropped by 39%. A new road safety law was approved and there was an enormous effort to improve high-capacity roads. Traffic volumes outside urban areas increased by 17%.

Between 1995 and 2003 (base year 1994): There was no clear trend in the number of deaths, which varied up and down by 5%. Traffic volume outside urban areas increased by 76%, and in 2003 the length of high-capacity roads was 10 296 km (6 497 km in 1994).

1. *Source*: IRTAD, DGT.

Since 2004 (base year 2003): Between 2004 and 2010, the number of deaths decreased by 54% and traffic volumes outside urban areas increased by 2%. In 2004, the implementation of the 2004-2008 Road Safety Strategic Plan started.

A large set of measures have been taken, such as the creation of the National Road Safety Observatory (2004), the Strategic Infrastructure and Transport Plan (2005-2020), the Automatic Speed Cameras Plan (2005), the introduction of road safety as a compulsory subject in the education system (2006), a new system for collecting data (2006), a penalty point system (July 2006), the establishment of a special public prosecutor's office for road safety offenses (2006), the Urban Road Safety Master Plan (2007), the reform of the Spanish Penal Code dealing with alcohol, speed and driving without a licence (December 2007), the Strategic Plan for Motorcycles (2007) and the implementation of the Driving Licence Directive 2006/126/CE (December 2009).

Risk and rates

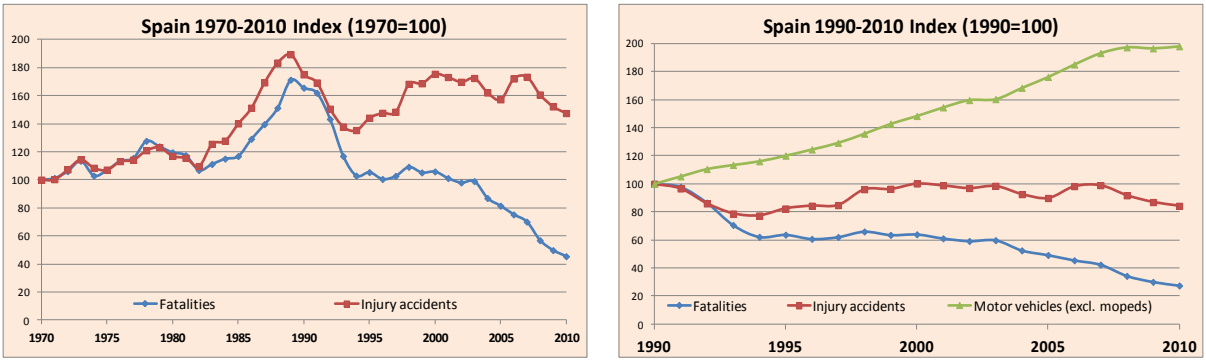
Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 66%. The number of deaths per 10 000 registered vehicles decreased by 94%.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	5 456	6 522	9 032	5 776	2 714	2 478	-8.7%	-57%	-55%
Injury crashes	57 968	67 803	101 507	101 729	88 251	85 503	-3.1%	-16%	+48%
Rates									
Deaths / 100 000 population	16.3	17.7	23.2	14.5	5.9	5.4	-9.0%	-63%	-66%
Deaths / 10 000 registered vehicles	12.4	6.4	5.8	2.5	0.9	0.8	-9.1%	-68%	-94%
Motorisation *	126	276	403	586	673	676	+0.4%	+15%	+437%

* Number of motorised vehicles/1 000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**

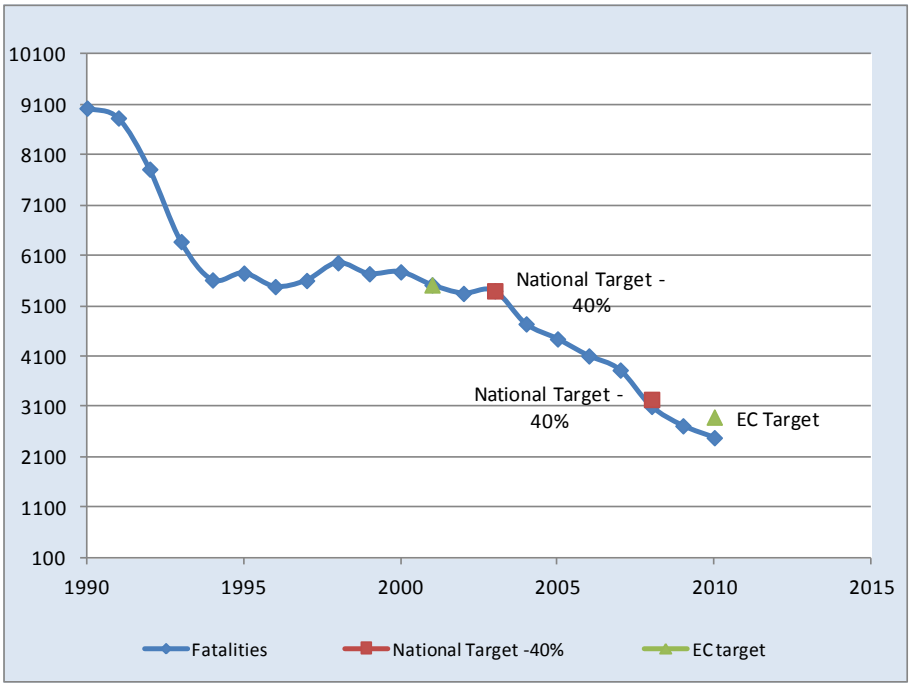


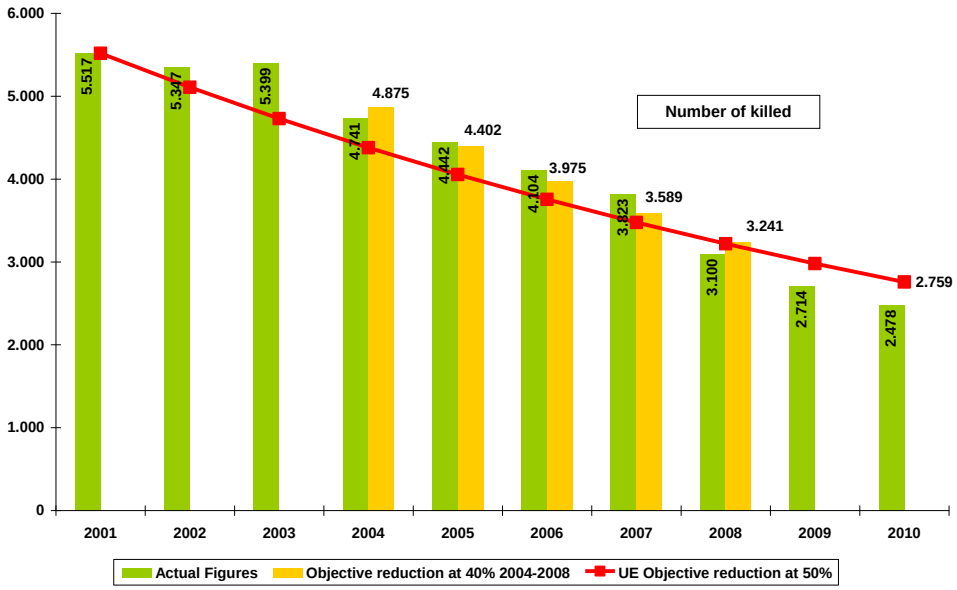
3. National road safety strategies and targets

Spain's objective for 2008 was to reduce by 40% the number of road accident fatalities compared to 2003. The target was reached, with a 43% reduction in fatalities.

In relation to the EU target (reduction by 50% in the number of fatalities between 2001 and 2010), Spain achieved a 55% reduction.

Figure 2. **Trends towards national target**





Road safety strategy for 2011-2020

The new Spanish Road Safety Plan 2011-2020 was passed by the Council of Ministers on 25 February 2011. This Plan set as its main objective to reduce by 2020 the rate of killed per million of the population to below 37. This target is aligned with the European objective of halving the number of people killed in 2020; it will be revised in 2015. There are specific targets for the main groups of users and roads.

Spain adopted a number of safety performance indicators, which are summarized below:

1 Lower the fatality rate to 37 deaths per million inhabitants
2 Reduce the number of serious injuries by 35%
3 Zero children killed without a child-restraint system
4 25% less drivers between the ages of 18 and 24 killed or seriously injured at the weekend
5 10% less drivers killed above the age of 64
6 30% less deaths due to being run over
7 1 million more cyclists without their death rate rising
8 Zero deaths in cars in urban areas
9 20% less deaths and serious injuries among motorcyclists
10 30% less deaths due to having come off a single carriageway
11 30% less deaths in accidents driving to and from work
12 1% reduction in those testing positive for alcohol in the blood in random preventive tests
13 50% reduction in the percentage of light vehicles which exceed the speed limit by more than 20km/h.

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 6.8 billion, i.e. 0.6% of GDP. This estimation does not include property damage costs. The average personal costs applied for 2010 are the following: EUR 1.4 million in the case of fatalities, EUR 219 000 in the case of hospitalisations and EUR 6 100 for slight injuries. More information is available at:

http://www.dgt.es/was6/portal/contenidos/documentos/publicaciones/boletines/profundidad_observatorio/boletines044.pdf.

Costs (EUR billion)	2010	2009	% change
Fatalities	3.469	3.809	-8.9%
Hospitalised people	2.627	3.057	-14.1%
Slight injuries	0.661	0.679	-2.7%
Property damage costs			
Total	**6.757**	**7.545**	**-10.4%**

4. Recent safety measures (2010-2011)

Impaired driving

Aside from the continuous surveillance campaigns on alcohol, at least once a year a special campaign on alcohol tests was carried out. In this special campaign, people from road traffic victims' associations work with the police to explain their own experience and the risk of driving under the effect of alcohol.

A new methodology to collect information on drink driving has been introduced, based on a random sample of road segments and times. Therefore, the results on alcohol prevalence can be considered representative of the population of drivers on the roads.

An Agreement between the Ministry of Health, the State Attorney General and the Government's Prisons Directorate was signed on 25 November 2011. Its objective is to offer rehabilitation programmes to a group of drivers convicted of alcohol offences.

Speed management

In March 2011, the Spanish Government reduced the speed limit on *autovias* and motorways from 120 to 110 km/h. The limit was introduced in order to make savings on fuel costs, as the price of oil was particularly high (around USD 125 per barrel) at that time. In July 2011, when the crude oil prices fell, the Government returned the speed limit on motorways to 120 km/h. A reduction of fuel consumption by 8.4% and savings of EUR 450 million in fuel were estimated during the four months the measure was in force.

Between March and June 2011, the average speed on *autovias* and free motorways was 101.09 km/h, signifying a 5.84% reduction relative to the value of 107.36 km/h observed between March and June of 2010, when the general speed limit was 120 km/h.

This reduction rate is larger than the historical reduction rate; for example, the average speed decreased by only 1.01% between 2009 and 2010.

On toll motorways, a significant reduction in average speed was also observed. Between March and June 2011, the average speed was 105.14 km/h, a 7.31% reduction relative to the same months of 2010 (113.43 km/h). Again, this value exceeds the historical reduction rate; between 2009 and 2010, the average speed decreased by only 0.22%.

The total number of fatalities on *autovias* and motorways between March and June 2011 was 76, representing a 34% reduction relative to the same four months of 2010. On rural roads, the number of fatalities decreased by only 10%. Applying before-and-after methods, with rural roads as the comparison group, it has been estimated that the reduction in the number of fatalities attributable to the reduction in speed limit is at least 30%.

Two average-speed control sections were installed in 2010 and four more in 2011. At the end of 2011 there were 558 fixed-speed control cameras and six average-speed controls on roads outside urban areas.

Enforcement and media campaigns

A number of special road surveillance and control campaigns were undertaken throughout 2010 and 2011, targeting speed, safety belt and child restraint use, motorcycle and moped helmet use, drink-driving, mobile phone use, school buses, trucks and vans.

A specific mass-media communications campaign on PTW safety in 2010 was realised within the Strategic Plan on road safety for motorcycles and mopeds. The plan, launched in 2007, is being monitored within the Spanish Road Safety Council.

Cooperation between Administrations

In 2009, a Collaboration Agreement was signed between the Spanish Federation for Municipalities and Provinces and the General Directorate for Road Traffic (DGT), for the purpose of developing a more effective participation by town/city councils in road safety policy development. As of December 2011, 153 bilateral agreements had been signed between different municipalities and the DGT. In ten of them, the DGT provided local governments with funding for the development of local road safety plans.

Safer infrastructure

Motorcycle-friendly crash barriers have been installed, according to a specific regulation issued by the Spanish Central Administration. As of 2010; the Ministry of Public Works has already protected 1 600 km of roads.

Implementation of the Directive 2008/96/CE on road infrastructure safety management 2008/96/CE, which came into force on 13 March 2011, in Spain.

In July 2011, chevron markings were painted on 88 km of road surfaces over 43 road sections with a high rear-end collision risk.

Signposting of black spots started in 2009 on some roads belonging to the main network. An evaluation of this measure is available at:
http://www.dgt.es/portal/es/seguridad_vial/estudios_informes.

Safer vehicles

From 10 July 2011, a new vehicle regulation requires the use of conspicuous markings on heavy goods vehicles and trailers. It is also recommended on other types of vehicles.

Work-related road safety

From October 2011 to November 2011, a specific mass-media campaign was carried out on road traffic accidents occurring while working or while driving to or from work.

Tax discounts were accorded to companies which had implemented a Road Safety Plan.

Others

In February 2011, the "Intervention protocol and good practices for medical emergency services" was published and distributed to those services.

5. Crash trends

Road users

Since 1990, all user groups, but especially car occupants and moped riders, have benefited from improvements in road safety.

In recent years (2000-2010), motorcyclists fatalities showed strong increments until 2007, but this trend was broken in the following years with large reductions, by 22% in 2008 and 12% in both 2009 and 2010.

In 2010, fatalities decreased for all types of road users compared to 2009, except in the cases of cyclists and pedestrians: the number of fatalities involving bicycles increased for the second consecutive year in 2010.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000		2009		2010		*2009*	*2000*	*1990*
Bicyclists	160	2%	84	1%	56	2%	67	3%	20%	-20%	-58%
Mopeds	683	8%	474	8%	156	6%	100	4%	-36%	-79%	-85%
Motorcycles	792	9%	392	7%	438	16%	386	16%	-12%	-2%	-51%
Passenger car occupants	5 034	56%	3 289	57%	1 263	47%	1 197	48%	-5%	-64%	-76%
Pedestrians	1 542	17%	898	16%	470	17%	471	19%	0%	-48%	-69%
Others	821	9%	639	11%	331	12%	257	10%	-22%	-60%	-69%
Total	*9 032*	*100%*	*5 776*	*100%*	*2 714*	*100%*	*2 478*	*100%*	-9%	-57%	-73%

Age

Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned children and young people.

Young people (18-24) still constitute a high-risk group; however, the mortality rate dropped significantly, from 46 killed per 100 000 population in 1990 to 10 in 2010 for the 18-20 age group (Figure 3).

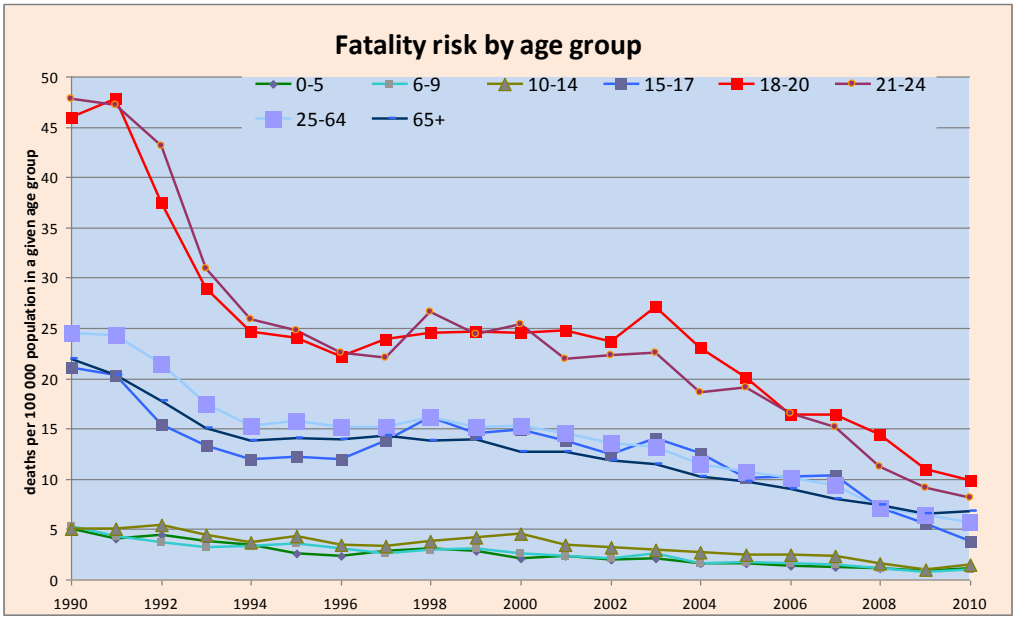
Since 2000, there have been reductions in all age groups. The two greatest reductions have been observed in the group of young people, 15-24 years, which has fallen by 72%, and the 25-34 age group, by 63%. People older than 64 showed the lowest rate since 2000, with a 37% reduction in fatalities.

In 2010, reductions in fatalities were registered for nearly all age groups compared to 2009, except in the group over 64, with a rise of 6% and the age group between 0-14 years, which increased by 32%.

Table 4. **Reported fatalities by age group 1990, 2000, 2009, 2010**

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	129	46	25	32	28%	-30%	-75%
6-9	111	40	14	17	21%	-58%	-85%
10-14	160	95	21	30	43%	-68%	-81%
15-17	417	223	74	50	-32%	-78%	-88%
18-20	902	422	158	139	-12%	-67%	-85%
21-24	1 266	661	202	174	-14%	-74%	-86%
25-64	4 759	3 267	1 686	1 489	-12%	-54%	-69%
>65	1 134	843	501	529	6%	-37%	-53%
Total	*9 032*	*5 776*	*2 714*	*2 478*	*-9%*	*-57%*	*-73%*

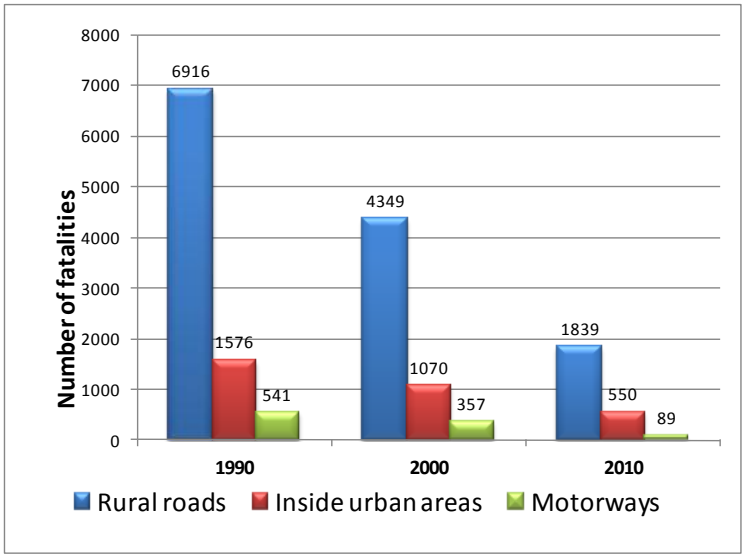
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010



Road type

In 2010, 74% of fatal crashes occurred on rural roads, 22% on urban roads and 4% on motorways.

Figure 4. **Reported fatalities by road type**
1990, 2000 and 2010



6. Recent trends in road user behaviour

Impaired driving

In Spain, the legal BAC limit is 0.5 g/l for general drivers and 0.3 g/l for novice and professional drivers.

Spain increased the number of preventive blood alcohol controls in roads outside urban areas, from almost 2 million in 2003 to 4.6 million in 2010. The rate of violations registered during those controls dropped from 4% to 1.8%.

Concerning the BAC level of killed drivers, a clear downward trend can be observed between 2003 and 2006, during which the percentage of drivers killed with a BAC higher than 0.3 g/l, fell from 34.7% to 28.8%. The percentages for 2007, 2008, 2009 and 2010 remained around 30%.

According to the data collected during 2008 and 2009 in the framework of the European DRUID Project, 2.3% of the drivers' population shows a BAC level higher than 0.5 g/l while driving, with 4.5% higher than 0 3 g/l. As for illegal drugs, 12.3% of the driving population drive after recent consumption, 7.7% of drivers after taking cannabis and 3.5% on cocaine.

Speed

Speeding is a major concern in Spain and a contributory factor in about 27% of fatal crashes.

The percentage of drivers exceeding the speed limit by 20 km/h or less declined from 24% in 2007 to 9% in 2010. The percentage of drivers exceeding the speed limit by more than 20 km/h fell from 2.9% in 2007 to 0.5% in 2010. This information applies only to sites with fixed speed cameras.

Seat belts and helmets

Seat-belt use has been compulsory in front seats outside urban areas since 1974, and in front seats inside urban areas and rear seats since 1992.

Helmet use is compulsory for riders of all motorised two-wheelers. It is also compulsory for cyclists (except in built-up areas).

In 2010, helmet-wearing rates for moped riders were 95% inside urban areas and 96% outside urban areas, whereas wearing rates for motorcyclists were 97% and 99%, respectively.

Table 6. **Seat-belt use by car occupants**

Seat-belt wearing rate	**2003**	**2005**	**2006**	**2008**	**2009**	**2010**
Seat-belt wearing rate: car driver inside urban areas	60%	69%	82%	80%	88%	83%
Seat-belt wearing rate: car driver outside urban areas	86%	81%	92%	95%	97%	95%
Helmet wearing rate	**2003**	**2005**	**2006**	**2008**	**2009**	**2010**
Helmet wearing rate: moped inside urban areas	59%	93%	91%	97%	98%	95%
Helmet wearing rate: moped outside urban areas	70%	88%	94%	97%	99%	96%
Helmet wearing rate: motorcycle inside urban areas	78%	98%	98%	99%	100%	97%
Helmet wearing rate: motorcycle outside urban areas	93%	99%	99%	100%	100%	99%

Distracted driving

Since 2002, the use of hand-held mobile phones while driving is forbidden. Only hands-free phones are permitted. As of 1 July 2006, driving while using hand-held mobile phones, GPS or other communications devices entails the loss of three points from the driving licence.

In 2010 3.1% of the driving population were observed to be using hand-held mobile phones while driving, 2.9% outside and 3.4% inside built-up areas.

7. Useful websites and references

Websites

General Traffic Directorate	www.dgt.es
Research studies	http://www.dgt.es/portal/es/seguridad_vial/estudios_informes
National Road Safety Strategy	http://www.dgt.es/portal/es/seguridad_vial/planes_seg_vial/
Motorcycle safety plan	http://www.dgt.es/was6/portal/contenidos/documentos/seguridad_vial/planes_seg_vial/sectoriales/plan_sectorial006.pdf
Safety Plan – Urban areas	http://www.dgt.es/portal/es/seguridad_vial/planes_seg_vial/tipo_seg_vial

Other useful references

Aparicio Izquierdo, F.; B. Arenas Ramírez; J.M. Mira McWilliams; and J. Páez (2011), The endurance of the effects of the penalty point system in Spain three years after. Main influencing factors. *Accident Analysis and Prevention* 43 (2011) 911–922.

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Segui-Gomez, Maria, Francisco J. Lopez-Valdes, Francisco Guillen-Grima, Ernesto Smyth, Javier Llorca, Jokin de Irala (2011), Exposure to Traffic and Risk of Hospitalization Due to Injuries. *isk Analysis*, Vol. 31, Issue 3, 466–474, March.

Spanish Society of Epidemiology (2011), Lesiones Medulares Traumáticas y Traumatismos Craneoencefálicos en España, 2000-2008. (Evolution of Spinal Injuries and Brain Trauma in Spain in 2000-2008.).

SWEDEN[1]

- Capital : Stockholm
- 9.3 million inhabitants
- 584 vehicles / 1 000 inhabitants
- 266 road fatalities in 2010
- 2.8 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

In 2010, the number of fatalities decreased by 26% compared to 2009, from 358 to approximately 266. This is a sharp drop from an already historically low level. The number of serious injuries also declined compared to the previous year.

The decrease in the number of fatalities and injuries is likely to be due not only to improvements in various traffic and usage conditions but also to the weather conditions. The winter months of 2010 experienced historically heavy snowfalls, which meant that fewer two-wheelers were on the roads, while car occupants were protected by snowdrifts at the roadsides. Since the reduction was greater than might be expected from the measures taken, it cannot be excluded that some of the decline was due to chance.

Important explanations for the decline in the number of fatalities and injuries may also be the gradual improvements for roads and vehicles, and a lower than average travel speed.

Provisional data for 2011

Provisional data show that the downward trend will not continue in 2011. In 2011, the number of fatalities has increased by 18% from 266 to 314. Fatalities rose for all road user categories except for cyclists. The largest increase occurred among pedestrians killed, rising from 31 to 54.

Over the same period, the number of seriously injured (reported by police) increased by 9%, from 2 888 to 3 162. This increase concerned all road user categories. The largest increase occurred among seriously injured motorcyclists, the number rising from 208 to 319, an increase of 53%.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 80%, while the number of vehicles and distance travelled doubled. The number of injury crashes remained quite

1. *Source*: IRTAD, Swedish Transport Agency, Swedish Transport Administration, VTI.

constant during this period. This can be explained by the fact that most safety measures have targeted the severest crashes, and by a much better reporting of injury crashes in recent years.

Risk and rates

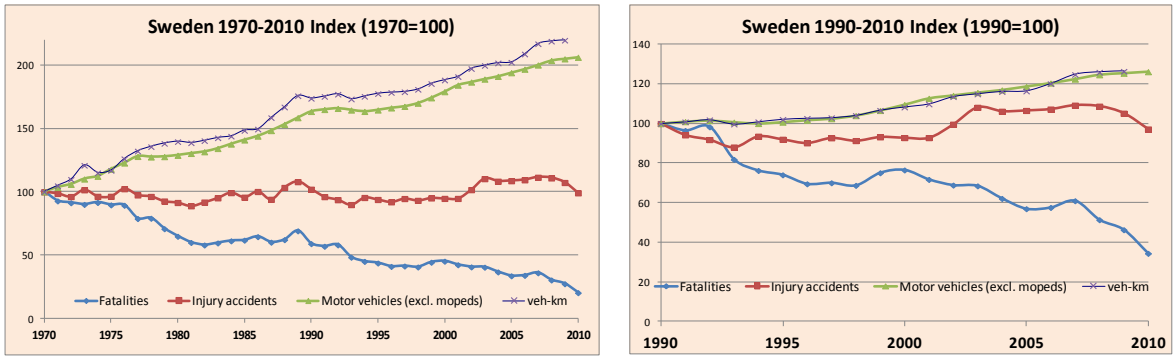
Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by more than 80%. Sweden has among the lowest mortality rate in the world, with 2.8 fatalities / 100 000 population.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**[1]

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	1 307	848	772	591	358	266	-26%	-55%	-80%
Injury crashes	16 636	15 231	16 975	15 770	17 858	16 504	-8%	5%	-1%
Rates									
Deaths / 100 000 population	16.3	10.2	9.1	6.7	3.9	2.8	-28%	-58%	-83%
Deaths / 10 000 registered vehicles	4.9	2.5	1.8	1.2	0.7	0.5	-27%	-55%	-89%
Deaths / billion veh-km	35.3	16.4	12.0	8.5	4.4	3.2	-27%	-62%	-91%
Motorisation *	330	410	507	534	586	584	-0.3%	9%	77%

*number of motorised vehicles / 1000 inhabitants

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



1. Since 2010, suicides on the road are excluded from road crash statistics.

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 5 billion, i.e. 1.3% of GDP.

Costs (EUR billion)	2010	2009	% change
Fatalities	0.7	1.0	-24%
Hospitalised people	2.5	3.0	-14%
Slight injuries	0.9	0.9	-4%
Property / damage costs	0.8	0.8	+8%
Total	**4.9**	**5.6**	**-11%**

3. National road safety strategies and targets

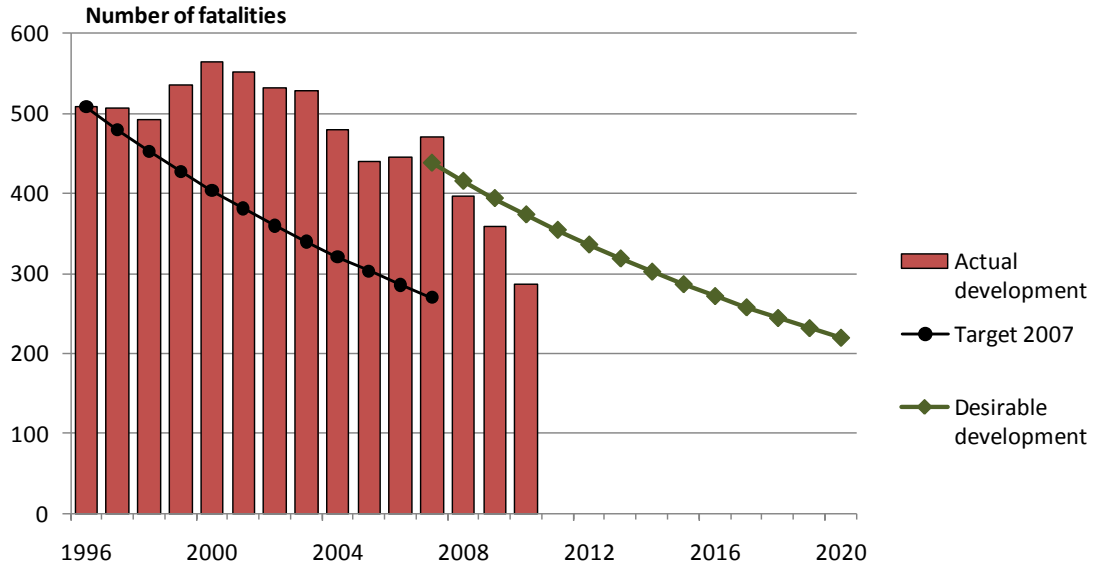
The basis of Swedish road safety work is *Vision Zero,* a strategic approach towards a safe system, whereby no-one is at risk of being fatally or severely injured while using road transport.

There is no safety plan in a traditional sense. However, a number of other agencies and stakeholders, representing municipalities, the police, the insurance industry, the car industry and others, along with the Swedish Transport Administration, have adopted a management-by-objective approach to road safety in order to achieve the new, interim target towards Vision Zero. All the stakeholders (including the SRA) have agreed upon objectives for a number of performance indicators, such as speed compliance and seat-belt usage. These objectives are supposed to guide the road safety work towards the interim target of 2020 and towards Vision Zero.

The Swedish interim target for fatalities is a 50% reduction between 2007 (the average for 2006-2008 is used as the base figure) and 2020, which corresponds to maximum of 220 deaths in traffic by 2020. This requires an annual reduction of a little more than 5%, which has been achieved so far.

The Parliament also decided on a 25% reduction target for severely injured persons, as defined by functional capacity after the injury, rather than police reports.

Figure 2. **Trends towards national target**



Road safety strategy for 2011-2020

Sweden has an interim target for the year 2020, which states a reduction in fatalities by 50% between 2007 and 2020.

The target, and the monitoring set-up for reaching this target, will be revised in 2012. The revision years (2012 and 2016) were fixed to ensure that target levels and indicators are always as relevant as possible.

The year 2012 revision started in autumn 2011 and will take into consideration a sharpening of the interim goal due to the new EU targets.

4. Recent safety measures (2010-2011)

Impaired driving

On 1 January 2012, a system was introduced to allow the driving licence to be kept after commiting drunk-driving offences. Anyone can apply for a licence with alcolock conditions for a period of one or two years instead of losing their licence. A longer term is required for persons convicted of severe drunken driving offences. The conditions include regular medical checkups, with sampling and inspections, and servicing of Interlock and its log.

Speed management

The Swedish Government adopted a new speed limit system in 2008. The new system includes a larger number of speed limits (in 10 steps, ranging from 30 km/h to

120 km/h) and new instructions aimed at making speed limits correspond better to the safety requirements and capacity of the various roads.

A review of all Swedish roads began in autumn 2008 and continued in 2009, with speed limits revised as necessary. Speed limits have been changed on 17 000 kilometres of roads and out of this, 15 400 kilometres have lowered speeds. Since 2010, changes in speed limits are targeting urban areas.

Enforcement

During 2011, the number of speed cameras (1 100) increased by 5% (50 additional cameras on rural roads). This will have a significant impact on speed compliance on these roads.

Campaigns

The Government has requested an action plan for increased and safer cyclist traffic. The action plan is currently taking form and will be ready for presentation by the start of 2012.

5. Crash trends

Road users

All user groups, but especially vulnerable road users, have benefited from the improvement. Between 1970 and 2010, the number of riders of mopeds killed decreased by 93%. The numbers of cyclists and pedestrians killed fell by more than 85% (although the number of fatalities among motorcyclists decreased only by 30%). Improvements in moped fatalities must, however, be seen in conjunction with the decreasing use of this mode of transport.

In 2000-2010, the number of motorcyclists killed decreased by 5% and the number of moped riders killed by 20%. In April 2010, the Swedish Transport Administration presented a new national strategy on motorcycle and moped safety.

The main result is to focus on ABS brakes for motorcyclists and proper helmet use for moped riders. Speeding should be reduced for both groups.

In 2010, the number of fatalities decreased for all road user categories, except for cyclists where the number of fatalities rose by one. The number of fatalities among car passengers had the largest relative decline, falling by 31% compared to 2009.

Since 2003, Sweden has experienced a substantial drop in injured passenger car occupants (both in-patients and fatalities) since 2003. For in-patients the drop is so radical that from the year 2008 there are more cyclists as in-patients than car occupants. This is mainly due to safer cars, lower speeds and the introduction of median barriers. Injured motorcyclists and moped riders have increased during the last decade but for in-patients they decreased substantially in 2010.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

									2010 % change over		
	1990		2000		2009		2010		*2009*	*2000*	*1990*
Bicyclists	68	9%	47	8%	20	6%	31	8%	5%	-55%	-69%
Mopeds	22	3%	10	2%	11	3%	8	3%	-27%	-20%	-64%
Motorcycles	46	6%	39	7%	47	13%	37	14%	-21%	-5%	-20%
Passenger car occupants	468	61%	393	66%	219	61%	151	57%	-31%	-62%	-68%
Pedestrians	134	17%	73	12%	44	12%	31	12%	-30%	-58%	-77%
Others	34	4%	29	5%	17	5%	18	7%	6%	-38%	-47%
Total	*772*	*100%*	*591*	*100%*	*358*	*100%*	*266*	*100%*	-26%	-55%	-66%

Table 4. **Relative fatality risk by road user group 2010**

	Reported fatalities	Deaths per billion veh-km
Passenger car occupants	151	2.2
Rail transport	61	0.0002
Air transport	2	

Age

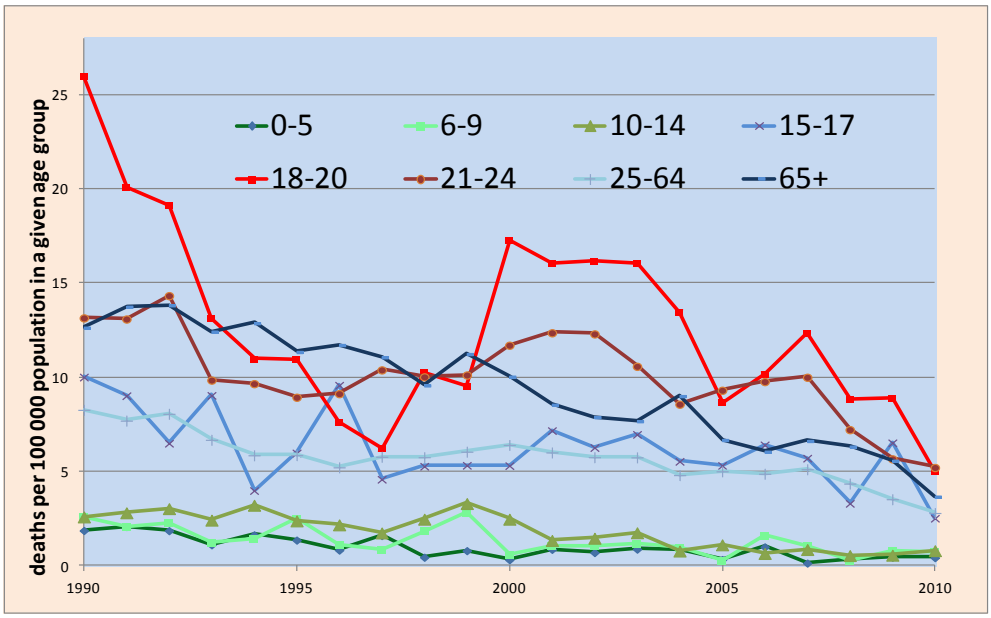
Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned the younger groups. Child (0-14) fatalities have been halved since 2000, partly due to the legislation on child-restraint systems and to work on separating traffic modes in urban areas.

Young people (18-20) constitute a high-risk group, with a mortality rate twice as high as the older age groups. On the other hand, the mortality rate of the 21-24 age group reduced considerably in 2008-2009, maybe due to the economic downturn and its impact on the mobility patterns of this age group.

Table 5. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	12	2	3	3	0%	50%	-86%
6-9	10	3	3	3	0%	0%	-84%
10-14	13	14	3	4	33%	-71%	-87%
15-17	34	16	25	9	-64%	-44%	-83%
18-20	88	53	34	20	-41%	-62%	-68%
21-24	66	49	26	26	0%	-47%	-54%
25-64	357	300	172	137	-20%	-54%	-65%
>65	192	154	92	64	-30%	-58%	-69%
Total	772	591	358	266	-26%	-55%	-69%

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



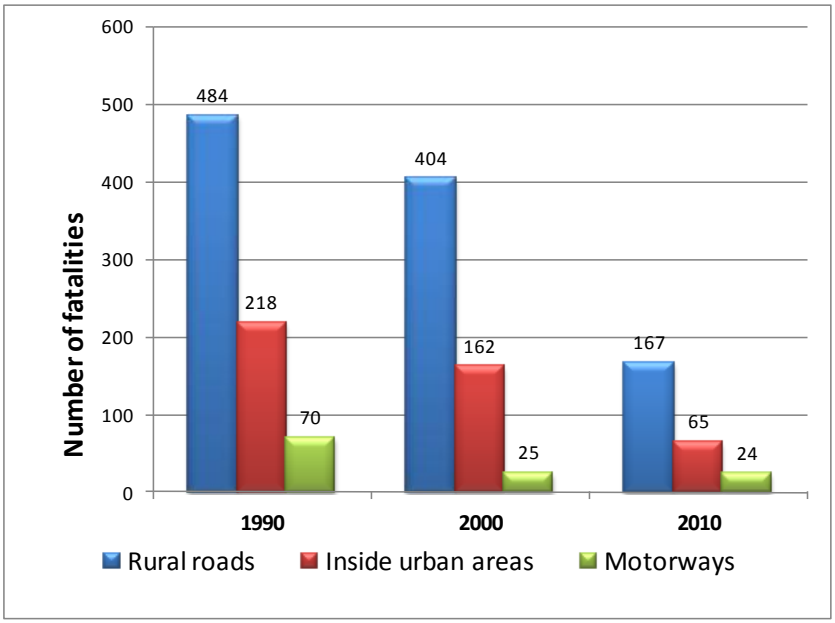
Road type

In 2010, 63% of fatal crashes occurred on rural roads, 24% on urban roads and 9% on motorways.

Over the past twenty years there has been a major improvement over the whole network but the decrease in fatalities has been achieved mainly through the improvement of urban road conditions, in particular for pedestrians and cyclists, i.e. construction of mini-roundabouts, bicycle lanes and other countermeasures in infrastructure.

On rural roads, improvements in road safety since 2000 are in part due to the implementation of speed cameras and the generalisation of the "2+1" roads[1], which has been very cost effective in reducing head-on collisions on rural roads. In 2010, 250 kilometres of road with median barriers were added, of which 60 kilometres were motorways.

Figure 4. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

In Sweden, the legal BAC limit is 0.2 g/l. In 2010, 16% of motor vehicle drivers killed in crashes were under the influence of alcohol.

Speed

Speeding is a major problem in Sweden and the percentage of drivers exceeding speed limits was increasing at the beginning of the decade; however, there are now indications that compliance with speed limits is somewhat better, mainly due to road safety cameras.

In 2010, the average speed decreased by 2.1%. The sharp reduction in average speed is largely a result of the harsh winter that led to winter road conditions throughout the

1. A « 2+1 » road is a 3-lane road, with 2 lanes in one direction and 1 lane in the other, separated by a median barrier.

country. But even during those months with no snow, the measurements have shown a marked decline.

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1 January 1975 and in rear seats since 1 July 1986.

In 2010, the rate of seat-belt use for car occupants was about 96% in front seats, 95% for children and 81% for adults in rear seats. Although the seat-belt usage rate is high in Sweden, the non-wearing of seat belts is still a serious problem.

Helmet use is compulsory for riders of all motorised two-wheelers. Helmets have been compulsory for cyclists under the age of 15 since 1 January 2005. In 2010, the helmet usage rate for motorised two-wheelers was about 90% for mopeds and 95% for motorcycles; the rate was 27% for bicycles.

Table 6. **Seat-belt use by car occupants (urban and arterial roads)**

	1980	1990	2000	2010
General		87.3%	89.6%	95.4%
Front seats				
Driver		88.8%	90.1%	96.5%
Passenger		91.1%	92.3%	95.7%
Rear seats				
Adults		64.6%	72.3%	81.3%
Children		78.5%	89.3%	95.2%

Distracted driving and use of mobile phones

There is no law in Sweden to ban or restrict the use of mobile phones (whether hand-held or hands-free) while driving.

At the request of the Government, VTI is currently carrying out a literature review on distracted driving and the effectiveness of relevant legislation and measures in other countries.

7. Useful websites and references

VTI	http://www.vti.se/default____2782.aspx
Chalmers	http://www.chalmers.se/en/Pages/default.aspx
Transport Analysis	http://www.trafa.se/In-English/English-Start/
Swedish Transport Administration	http://www.trafikverket.se/Om-Trafikverket/Spraksida/English-Engelska/
Swedish Transport Agency	http://www.transportstyrelsen.se/en/

SWITZERLAND[1]

- Capital : Bern
- 7.8 million inhabitants
- 688 vehicles / 1 000 inhabitants
- 327 road fatalities in 2010
- 4.2 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

The number of road fatalities fell in 2010 to 327, a 6% decrease from 2009, thus reaching its lowest level since fatalities have been recorded.

Provisional data for 2011

The figures for the first six months of 2011 showed a slight reduction in the number of fatalities compared to the first half of 2011.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 80% and the number of injury crashes by more than 30%, while the number of vehicles more than tripled. In recent years (2000-2010), the number of fatalities continued to fall (by 45%). Moreover, since 2000, distances travelled have increased by 12%. Recent figures show a downward trend in the numbers of those seriously injured, after years of little change.

Road fatalities peaked in 1971, when 1 720 people died on the roads. Between 1971 and 1996, the number of fatalities was significantly reduced. The average annual reduction was initially 7.5%, and then 3%, until 1996. Between 1997 and 2000, the number of casualties was stable at around 600 per year. In 2004-2006, the rate of decrease significantly accelerated. In 2010, Switzerland had its lowest level of fatalities since record-keeping began.

Risk and rates

Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 84%.

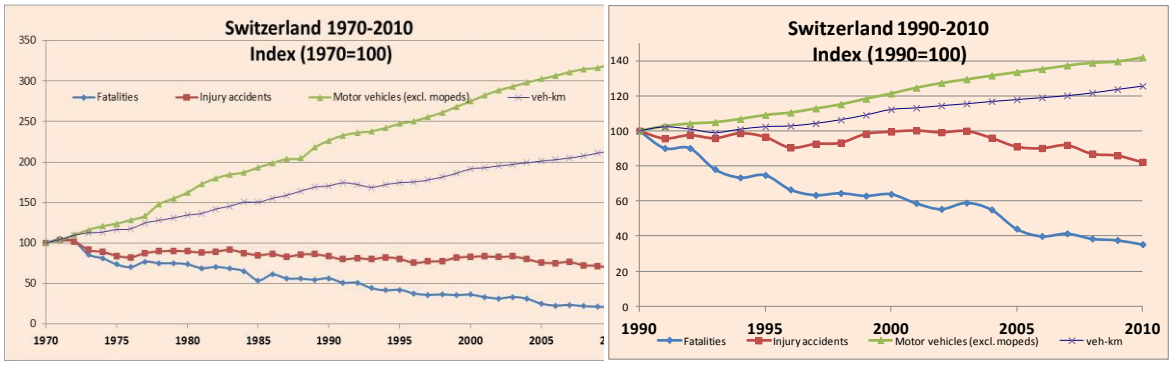
1. Source: IRTAD, FEDRO, bfu.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	1 643	1 209	925	592	349	327	-6%	-45%	-80%
Injury crashes	28 651	25 649	23 834	23 737	20 506	19 609	-4%	-17%	-32%
Rates									
Deaths / 100 000 population	26.6	19.2	13.9	8.3	4.5	4.2	-7%	-49%	-84%
Deaths / 10 000 registered vehicles	9.9	4.5	2.4	1.3	0.7	0.6	-14%	-54%	-94%
Deaths / billion veh-km	56.5	30.9	18.6	10.4	5.7	5.3	-8%	-50%	-91%
Motorisation*	270	429	567	640	685	688	1%	8%	155%

* motorised vehicles / 1000 inhabitants)

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



3. National road safety strategies and targets

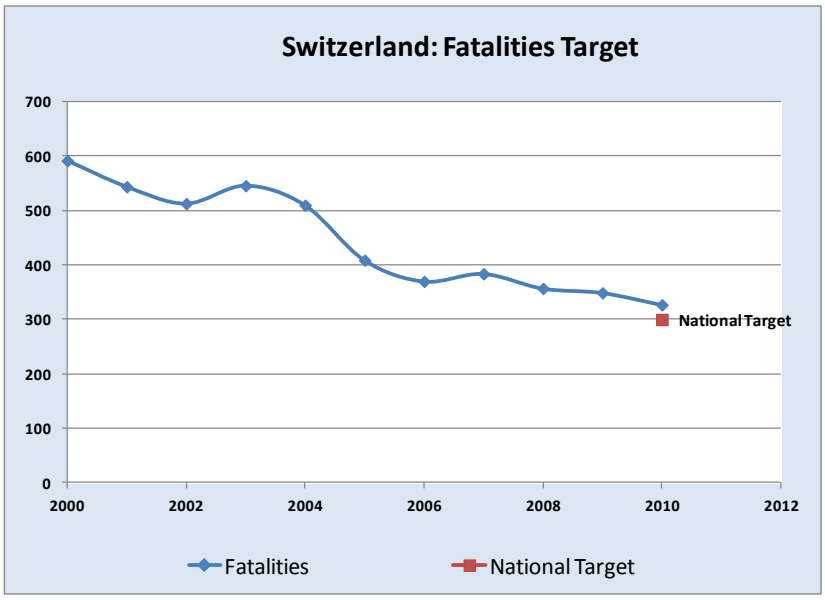
The past target in Switzerland was to halve the number of fatalities and seriously injured by 2010 in comparison to 2000.

Despite a substantial improvement in road safety during the last decade, the target for 2010 was not reached. Much progress has been made towards the fatality target.

Table 2. **General road safety targets**

Type	Targets (% and absolute figures)	Base year	Target year	Base year figure	Final figure 2010
Fatalities	-50% (300)	2000	2010	592	-45% (327)
Seriously injured	-50% (3 000)	2000	2010	6 191	-28% (4 458)

Figure 2. **Trends toward national target**



Road safety strategy for 2011-2020

- An action plan, "*Via sicura*", has been drawn up and is being discussed by the Swiss parliament. Among its measures, all of which have undergone cost-benefit analysis, are:
- 0 BAC for young drivers and professional drivers;
- Increasing the safety of the infrastructure by the treatment of black spots and other dangerous points;
- Optimization of statistics.

On 20 October 2010, the Swiss Federal Council submitted the *Via sicura* programme to Parliament for consent. Some measures require legal amendments. The process will therefore still take time and implementation is not expected before 2013.

4. Recent safety measures (2010-2011)

Data reporting and monitoring

Since January 2011, the Federal Roads Office (FEDRO) is responsible for all Swiss road accident data. A new reporting form was introduced to all cantonal police forces and a new platform for data entry and data analysis (statistical and geographical) is online.

A new project on linking road accident data with other data has been launched. The FEDRO plans to combine road accidents with car registrations, driving rights, licence withdrawal, hospital and infrastructure data.

Speed management

Purely automatic speed control does not exist in Switzerland. The fines are also processed manually. The first section control systems (to control the average speed between two points) were implemented in 2009. The pilot test and evaluation started in 2010. Results are expected for 2012.

Campaigns

Ongoing and future campaigns:

- Speeding (www.slow-n-easy.ch);
- Advanced driver assistance systems (http://www.auto-iq.ch);
- Head-rest campaign, 2011-2013 (www.kopfstuetzen.ch);
- Driver fatigue, 2011-2013 (www.turbosieste.ch);
- Campaign on motorcycle safety (http://www.fahr-weise.ch);
- Campaign on bicycle helmets, starting 2012.

5. Crash trends

Road users

All user groups have benefited from the improvement in road safety since 1990. Very good results were achieved for mopeds (-92%), mainly due to a large reduction in kilometrage in the last years.

In 2010, the decrease in bicycle fatalities (-37%) must be seen in the context of the adjacent years. In 2009, the number of killed bicyclists reached its highest peak since 1994. In 2010 there was a sharp increase in pedestrian fatalities. The relatively small numbers can be subject to large random variations. An interpretation at this point is almost impossible.

Table 3. **Reported fatalities by road user group 1990, 2000, 2009 and 2010**

	1990		2000		2009		2010		2010 % change over		
									2009	*2000*	*1990*
Bicyclists	58	6%	48	8%	54	15%	34	10%	-37%	-29%	-41%
Mopeds	49	5%	19	3%	8	2%	4	1%	-50%	-79%	-92%
Motorcycles	155	17%	92	16%	78	22%	67	20%	-14%	-27%	-57%
Passenger car occupants	455	49%	273	46%	136	39%	129	39%	-5%	-53%	-72%
Pedestrians	167	18%	130	22%	60	17%	75	23%	25%	-42%	-55%
Others	41	4%	30	5%	13	4%	18	6%	38%	-40%	-56%
Total	*925*	*100%*	*592*	*100%*	*349*	*100%*	*327*	*100%*	-6%	-45%	-65%

Table 4. **Relative fatality risk by road user group, 2010**

	Reported fatalities	Deaths per billion veh-km
Passenger car occupants	129	2.4
Mopeds	4	43.6
Motorcycles	67	18.6

Age

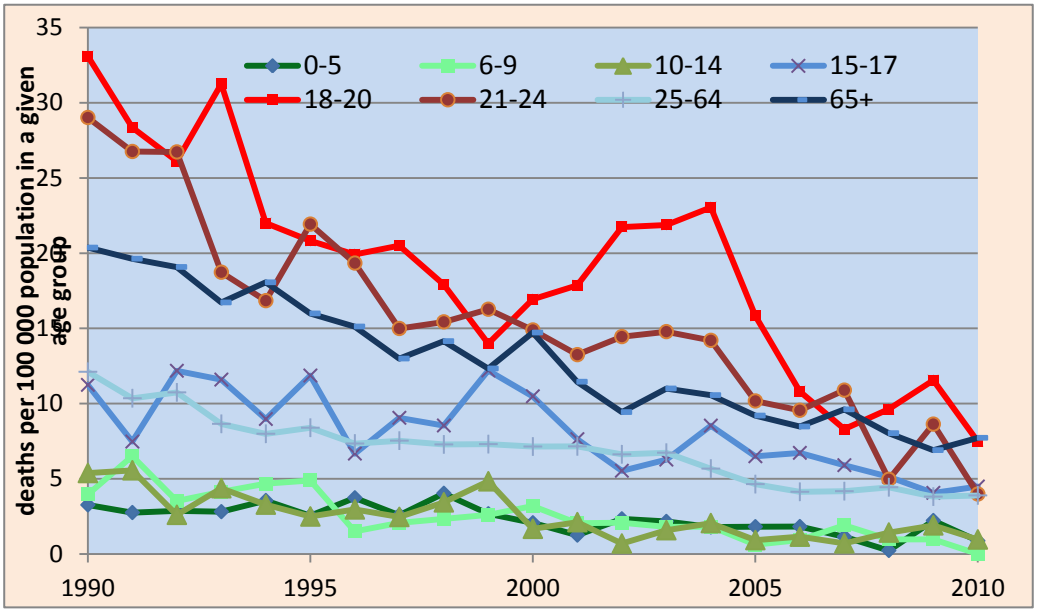
Since 1990, a reduction in fatalities has been observed in all age groups, with the strongest decrease for children aged 0-14.

Relative to the number of inhabitants, young people aged 18-24 represent the largest group of casualties (Figure 3), mainly as car occupants and motorcyclists. This age group continues to be over-represented in traffic accidents. Their situation improved in 2010, with a 50% decrease in fatalities in the 21-24 age group. Measures have been introduced to reduce the risks for young drivers, including a two-phase driving licence and a provisional licence.

Table 5. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	2000	1990
0-5	15	10	10	4	-60%	-60%	-73%
6-9	12	11	3	0	-100%	-100%	-100%
10-14	20	7	8	4	-50%	-43%	-80%
15-17	28	26	11	12	9%	-54%	-57%
18-20	93	42	32	21	-34%	-50%	-77%
21-24	121	49	32	15	-53%	-69%	-88%
25-64	438	285	165	170	3%	-40%	-61%
>65	198	161	88	101	15%	-37%	-49%
Total	925	592	349	327	-6%	-45%	-65%

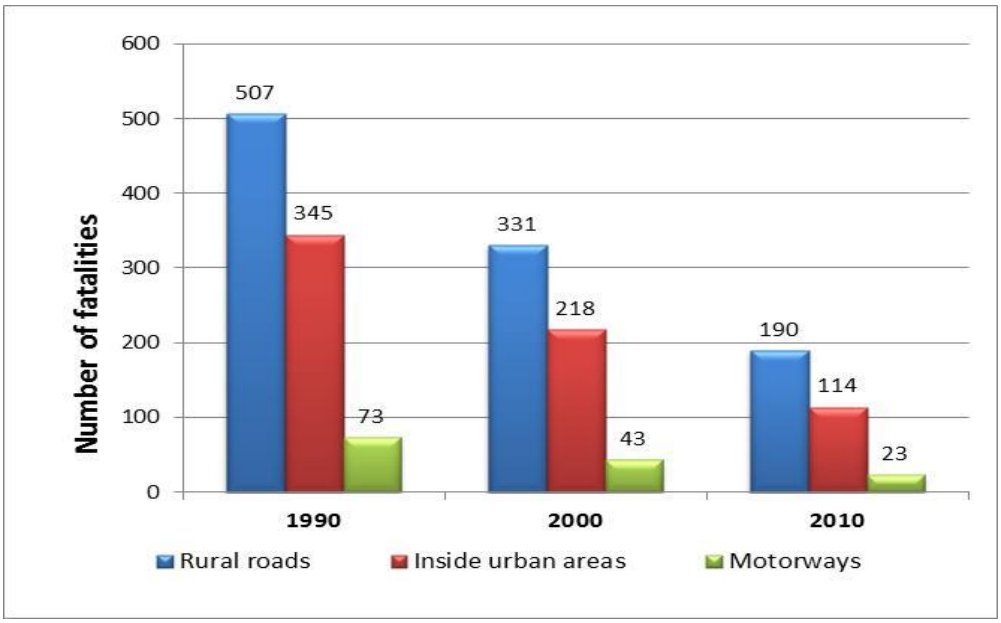
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road type

In 2010, 58% of fatal crashes occurred on rural roads, 35% on urban roads and 7% on motorways. The decrease in fatalities over the last 20 years encompassed all road types.

Figure 4. **Reported fatalities by road type 1990, 2000 and 2010**



6. Recent trends in road user behaviour

Impaired driving

In 2005, the maximum legal BAC was reduced from 0.8 g/l to 0.5 g/l and random breath-testing was introduced.

In 2010, 15% of fatal crashes involved a driver with a BAC above 0.5 g/l.

Speeding

Speeding is a contributing factor in around 35% of fatal accidents. In 2010, the proportion of drivers above the speed limit was 23% on urban roads, 31% on rural roads and 18% on motorways. In most cases, inappropriate speed is to blame rather than excessive speed.

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1981 and in rear seats since 1994. In addition, since 2002, dedicated child-restraint systems have been mandatory for all children below the age of seven. Starting from 1 April 2010, new regulations have been applied for the transport of children in cars: children between 7 and 12 and smaller than 150 cm must be restrained with a certified child-restraint system.

In 2011, the rate of seat-belt use was around 89% for drivers, 88% for front seat passengers and 79% for rear seat passengers.

Helmet wearing has been compulsory on motorcycles since 1981 and on mopeds (up to 50cc, maximum speed 45 km/h) since 1990. Observation indicates the compliance rate is almost 100%.

A helmet is not compulsory on bicycles, but the estimated wearing rate is around 40%.

Table 6. **Seat-belt use by car occupants**

	1980	1990	2000	2011
General				
Front seats				
General	35% (driver)	67% (driver)	77% (driver)	88% (driver) 89% (passenger)
Urban areas	23% (driver)	53% (driver)	66% (driver)	
Rural areas	34% (driver)	71% (driver)	74% (driver)	
Motorway	51% (driver)	80% (driver)	89% (driver)	
Rear seats				
General			32%	79%

Distracted driving and use of mobile phone

The use of mobile phones without a hands-free set or for texting is subject to a fine of CHF 100. Although using mobile phones with hands-free sets is not generally prohibited, the Swiss Federal Court in several cases qualified mobile phone use as a situation which leads to impaired driving.

In 2010, the police registered two fatalities, where the use of mobile phones was involved. But since it is difficult for the police to identify mobile phone use at the accident site, the true number is supposed to be higher.

7. Useful websites and references

Federal Roads Office (FEDRO/ASTRA)	www.astra.admin.ch
Swiss Council for Accident Prevention (bfu)	www.bfu.ch
Road accident data	www.astra.admin.ch/unfalldaten

UNITED KINGDOM[12]

- Capital : London
- 62.7 million inhabitants
- 565 vehicles/1 000 inhabitants
- 1 905 road fatalities in 2010
- 3.1 deaths/100 000 inhabitants

1. Short term trends

General comments and trends for 2010 (United Kingdom)

The number of people killed in road accidents fell by 18% in 2010 in comparison to 2009. The 18% reduction in deaths between 2009 and 2010 follows a 12% fall between 2008 and 2009, which was the largest percentage fall in a single year in the post-war period. There are a variety of factors which may contribute to the recent large reductions in fatalities, in addition to longer-term trends in improved vehicle safety and road safety engineering. The economic downturn, falling traffic levels for the last three years (-2% veh-km in 2010) and a continued reduction in free-flow speeds have each played a part. In addition, heavy snowfalls in the first and fourth quarters of 2010 contributed to the decrease in traffic levels and fatalities in 2010. Slower and more careful driving during periods of extreme bad weather may also contribute to reducing fatalities.

Provisional data for 2011 (Great Britain)

Provisional estimates for Great Britain for the year ending in the second quarter of 2011 show a continuation of the downward trends in road casualties seen in recent years, with a 4% decrease in the number of fatalities compared to the 12 months ending June 2010. However, the number of fatalities increased in both the first and second quarters of 2011 compared to the equivalent periods in 2010.

2. Long term trends

Change in the number of fatalities and injury crashes

United Kingdom:

Between 1970 and 2010, the number of fatalities decreased by 75% and the number of injury crashes reported to the police by 41%, while the number of vehicles increased by 140%. Since 1970, the average distance travelled has increased in Great Britain by

1. Source: IRTAD, UK Department for Transport (DfT).

2. Data are provided for Great Britain (95% of UK fatalities), where comparable information is not available for Northern Ireland.

around 150%. In recent years (2000-2010), the number of fatalities continued to fall, by 47%.

Great Britain:

In 2010, compared with the 1994-98 average (the baseline period used in Great Britain to measure progress on road safety), the number of killed or seriously injured casualties was 49% lower, while traffic rose by an estimated 13% over this period.

Between the mid-1990s and mid-2000s, the number of fatalities changed very little. Figure 2 shows that, in Great Britain, trends in numbers of fatalities and serious injuries were similar between 1990 and 1998, with a divergence between 1998 and 2005; deaths falling by 6% and serious injuries by 29%.

Between 2005 and 2010, the number of deaths fell by 42%, compared with a 22% decrease in serious injuries. These differences in trends are mainly for car occupants: other road user groups, particularly pedestrians and pedal cyclists have seen less of a divergence between fatalities and serious injuries.

As mentioned above, the 18% decrease in the number of fatalities in 2010 can be explained by a variety of factors, including the longer-term trends in improved vehicle safety and road safety engineering, the economic downturn (similar large falls in fatalities were seen in earlier recessions), heavy snowfalls in the first and fourth quarters of 2010 which impacted both traffic levels and driving behaviour (with more careful driving during extreme bad weather) and lower vehicle speeds.

Risk and rates

Between 1970 and 2010, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 75%. In 2010, the UK had a fatality rate of 3.1 killed per 100 000 population, one of the lowest rates among OECD countries.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1970*
Fatalities	7 771	6 182	5 402	3 580	2 337	1 905	-18.5%	-47%	-75%
Injury crashes	272 765	257 282	265 600	242 117	169 805	160 080	-5.7%	-34%	-41%
Rates									
Deaths / 100 000 population	14.0	11.0	9.4	6.1	3.8	3.1	-19.5%	-50%	-78%
Deaths / 10 000 registered vehicles	5.3	3.3	2.2	1.2	0.66	0.54	-18%	-55%	-90%
Deaths / billion veh-km (GB)	-	-	-	7.59	4.59	3.7	-19%	-50%	
Motorisation*	264	330	436	501	573	565	-1%	13%	114%

* number of motorised vehicles / 1 000 inhabitants)

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**

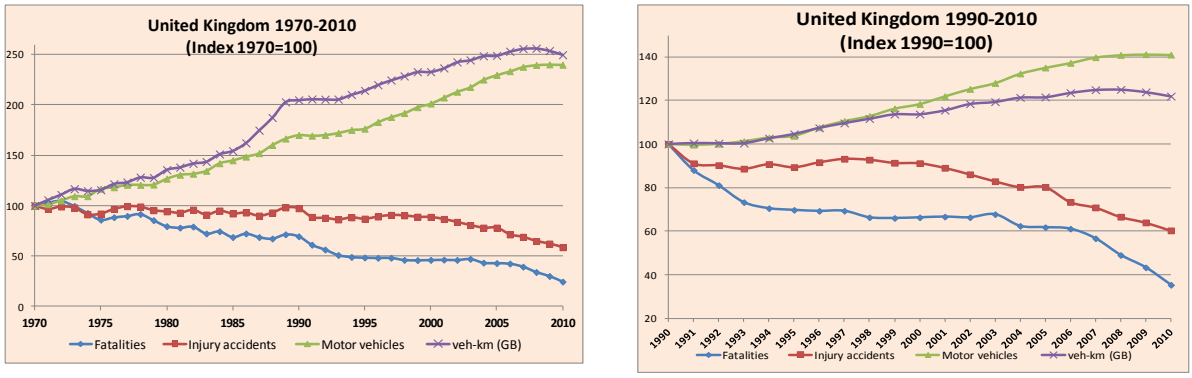


Figure 2. **Casualty trends by severity – Great Britain 1990-2010**

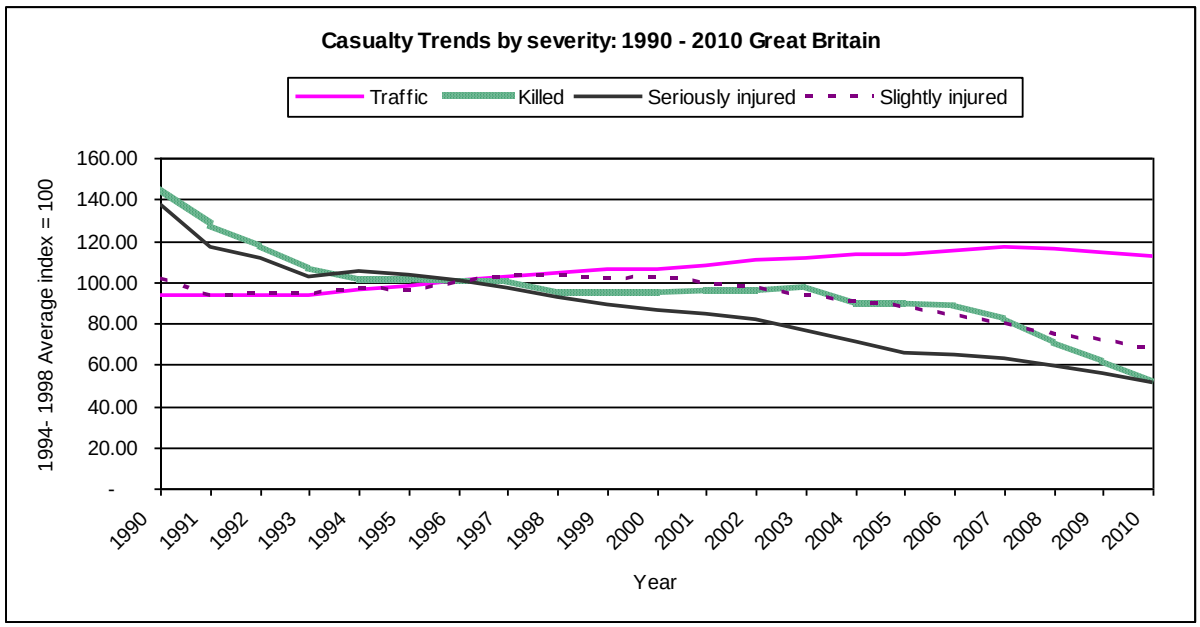
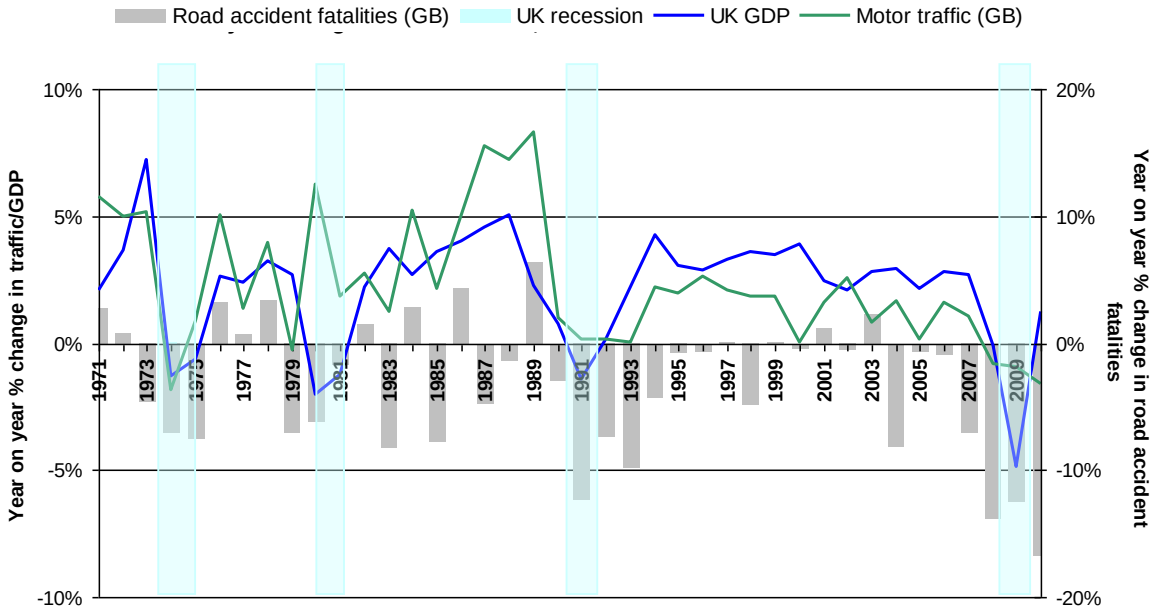


Figure 3. **Year-on-year change in road deaths, traffic and GDP: Great Britain, 1970-2010**



3. National road safety strategies and targets

In 2000, the then government published a safety strategy for Great Britain, "*Tomorrow's roads - safer for everyone",* covering the period up to 2010.

Table 2. **Targets set in 2000 for the year 2010**

Type	Targets (in % or absolute figures)	Base year	Target year	Base year figure (Great Britain)	2010 results (Great Britain))
Fatalities and serious injuries (all)	40% reduction	1994-98 average	2010	47 656	24 510 (-49%)
Fatalities and serious injuries (children)	50% reduction	1994-98 average	2010	6 860	2 502 (-64%)
Slightly injured persons	10% reduction in casualty rate per veh-km	1994-98 average	2010	986 (casualties per bn v-miles)	592 (casualties per bn v-miles) (-40%)
Disadvantaged areas	Greater reduction in number of casualties in 88 Neighbourhood Renewal areas in England than for England as a whole	1999-2001 average	2005	Average for the period 1999-2001: 118 345	Target met in 2005

Strategic Framework for Road Safety for 2011-2020: Great Britain

A new Strategic Framework for Road Safety for Great Britain was launched on 11 May 2011, when the UN launched its Decade of Action. This set out an outcomes framework to monitor progress on road safety, including six key, and a range of other, indicators for which initial figures were published in the 2010 Annual Report.

The six key indicators are:

1. Number of road deaths (and rate per billion vehicle miles);
2. Rate of motorcyclist deaths per billion vehicle miles;
3. Rate of car occupant deaths per billion vehicle miles;
4. Rate of pedal cyclist deaths per billion vehicle miles;
5. Rate of pedestrian deaths per billion miles walked;
6. Number of deaths resulting from collisions involving drivers under 25.

The Government's approach translates into a number of key themes for road safety:

- Making it easier for road users to do the right thing and going with the grain of human behaviour;
- Better education and training for children and learner and inexperienced drivers;
- Remedial education for those who make mistakes and for low-level offences, where this is more effective than financial penalties and penalty points;
- Tougher enforcement for the small minority of motorists who deliberately choose to drive dangerously;
- Extending this approach to cover all dangerous and careless offences, not just focusing upon speeding;
- Taking action based upon cost-benefit analysis, including assessing the impact on business;
- More local and community decision-making from decentralisation, and providing local information to citizens to enable them to challenge priorities; and
- Supporting and building capability by working with the road safety community on better tools to support road safety professionals.

This approach has led to the following list of actions on education and enforcement:

Educational Measures

1. Increase the educational courses that can be offered to low-level offenders in the place of a fixed penalty notice.
2. Develop courses that can be offered by the courts as an alternative to disqualification.
3. Develop a course that must be taken by drivers who are returning from a substantial period of disqualification.
4. Include safety messages during the theory test process.
5. Consider ways to improve post-test interventions to develop driving skills after passing the practical test.
6. Continue to improve the initial training for learner drivers and riders.

Enforcement Measures

7. Introduce a fixed penalty notice for careless driving.
8. Increase the level of fixed penalty notices and consider introducing a proportionate penalty for uninsured driving.
9. Withdraw the statutory option for drivers who are up to 40% over the limit to request a blood or urine test.
10. Seek to make greater use of existing powers for the courts to take away an offender's vehicle.
11. Work to type approve equipment to improve the enforcement efforts on drink-driving and driving whilst impaired by drugs.

The table below shows projected reductions based on assumptions about the effectiveness of measures contained in the new strategic framework, both in terms of casualty numbers and percentage reduction compared with the 2005-09 average.

Table 3. **Projected casualty reduction up to 2030**

Casualty reduction forecasts to 2030				
	2005-09 average	**2020**	**2025**	**2030**
Killed				
Central projection	2 816	1 770	1 720	1 670
Change on 05-09 average		-37%	-39%	-41%
Low projection		1 530	1 370	1 220
Change on 05-09 average		-46%	-51%	-57%
Killed or seriously injured				
Central projection	30 040	18 070	15 820	13 570
Change on 05-09 average		-40%	-47%	-55%
Low projection		15 110	12 130	9 150
Change on 05-09 average		-50%	-60%	-70%

Full details for the Strategy can be found at: http://www.dft.gov.uk/publications/strategic-framework-for-road-safety.
See Annex A for Road Safety Action Plan.

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 17.4 billion, i.e. 1% of GDP.

Costs (EUR bn)	2010	2009	% change
Fatal crashes	3.7	4.5	-18
Serious injury crashes	5.0	5.4	-7
Slight injury crashes	3.4	3.6	-5
Damage only crashes	5.3	5.3	-
Total	**17.4**	**18.8**	**-7**

4. Recent safety measures (2010-2011)

Impaired driving

The Government published its response to the North Review on Drink and Drug Driving (2010). This included a package of measures to tackle drink- and drug-driving, such as improved testing equipment to detect drink and drug drivers and streamlining enforcement of both offences. The Government will also examine the case for a new specific drug-driving offence – alongside the existing one – which would remove the need for the police to prove impairment on a case-by-case basis where a specified drug has been detected.

The prescribed alcohol limit for driving will not be changed, with the focus instead on improving enforcement and education to tackle the drink and drug drivers who put lives at risk, including:

- Revoking the right of individuals to opt for a blood test when their breath test result is less than 40% over the limit;
- Introducing a more robust drink-drive rehabilitation scheme, so that the most serious drink-drivers are required to take remedial training and a linked driving assessment before recovering their licences;
- Approving portable evidential breath-testing equipment for the police.

"A Survey of HM Coroners Regarding the Provision of Data on Drugs in Road Traffic Accident Fatalities" was carried out to discover how coroners might provide the same kind of data on drug-related road fatalities that they have supplied for many years on drink-drivers. The report has identified a way forward, which is in progress, through obtaining data which could be used to monitor trends in fatalities linked to drug-driving.

Speed management

The Government plans to launch a consultation on raising the national speed limit on motorways from 70 to 80 miles per hour later this year. Vehicles have changed dramatically since the current national speed limit was set in 1965. Technological advances mean that cars are significantly safer than they were - contributing to a fall of more than 75% in the number of people killed on British roads since 1965. This is why the Government feels it is now time to look again at whether the speed limit set in 1965 is still appropriate.

Enforcement

New powers to tackle uninsured drivers were announced on 11 January 2011. Under these new powers it will be an offence to keep an uninsured vehicle, rather than just to drive when uninsured. It is estimated that motorists pay an average of £30 each year within their premiums to cover crashes involving uninsured and untraced drivers. It is also estimated that uninsured and untraced drivers kill 160 people and injure 23 000 every year.

Campaigns and other developments

A free website to help road safety practitioners evaluate their education, training and publicity activities was launched on 7th December 2010 by the Royal Society for the Prevention of Accidents and the Department for Transport. The key feature is E-valu-it - an interactive tool that helps practitioners define exactly what they are doing and why, allows them to design and carry out their evaluation, and promotes the publication and sharing of results. The site also includes background information and guidance about evaluation. It was developed after it was found that, while evaluation of road safety engineering was already an established discipline, road safety practitioners faced difficulties in evaluating their education, training and publicity (ETP) activities.

During 2011, the Department for Transport ran a number of Think! campaigns to promote road safety, including:

- **Motorcycles** - a campaign focusing on safety gear at Compulsory Basic Training Centres;
- **Children** – "Tales of the Road" campaign on children's television channels, at the cinema, and through books and road safety exercises delivered to over 1 500 primary schools. Working with partners, for example cinema chains, giving out highly visible school bags, reflective tags and advice leaflets to children;
- **Drink Drive** – a digital and radio campaign, posters in over 1 900 venues (bars and pubs) during the Christmas period and, in partnership with a soft drinks company, the provision of free soft drinks for designated drivers.

5. Crash trends

Road users

Between 1990 and 2010, the number of pedestrians killed decreased by 76%, the number of passenger car occupants by 65% and the number of bicyclists by 58%. The number of motorcyclists observed a more modest decrease of 35%.

In ***Great Britain***, between 2009 and 2010, fatalities fell by at least 15% for all of the main road-user types except for pedal cyclists (up 7%). Over the same period, traffic fell by 1.6%, although pedal cycle traffic increased by 1%.

Table 4. **Reported fatalities by road user group 1990, 2000, 2009 and 2010 (UK)**

	1990		2000		2009		2010		2010 % change over		
									2009	*2000*	*1990*
Bicyclists	267	5%	131	4%	104	4%	111	6%	7%	-15%	-58%
Mopeds	37	1%	15	0%	16	1%	9	0%	-44%	-40%	-76%
Motorcycles	634	12%	597	17%	472	20%	404	21%	-14%	-32%	-36%
Passenger car occupants	2 462	46%	1 784	50%	1 130	48%	864	45%	-24%	-52%	-65%
Pedestrians	1 754	32%	889	25%	524	22%	415	22%	-21%	-53%	-76%
Others	248	5%	164	5%	91	4%	102	5%	12%	-38%	-59%
Total	*5 402*	*100%*	*3 580*	*100%*	*2 337*	*100%*	*1 905*	*100%*	*-18%*	*-47%*	*-65%*

Table 5. **Relative fatality risk by road user group 2010 (GB)**

	Reported fatalities	Deaths per billion veh-km	Deaths per billion passenger-km
Passenger car occupants	835	2.12	1.3
Bicyclists	111	22	22
Motorcycles	411	85.7	79
Pedestrians	405		23
Rail transport	0	0	0
Air transport	0	0	0

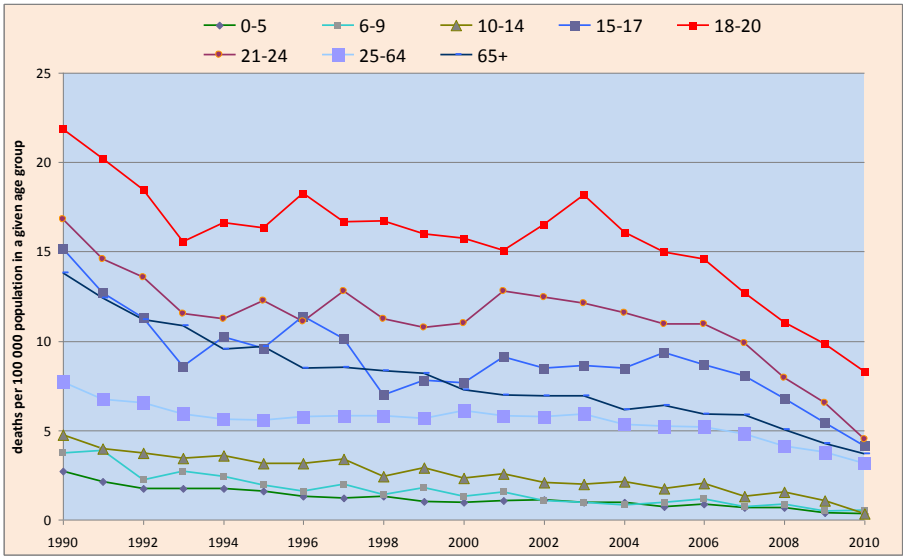
Age

Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned the youngest group (0-14), for which fatalities decreased by 89%, from 394 in 1970, to 42 in 2010.

Table 6. **Reported fatalities by age group 1990, 2000, 2009, 2010**

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	123	41	17	16	6%	-61%	-87%
6-9	108	41	13	14	8%	-66%	-87%
10-14	163	89	39	12	-69%	-87%	-93%
15-17	335	169	126	93	-26%	-45%	-72%
18-20	558	342	243	206	-15%	-40%	-63%
21-24	616	304	224	156	-30%	-49%	-75%
25-64	2 223	1 908	1 243	1031	-17%	-46%	-54%
>65	1 241	679	432	377	-13%	-44%	-70%
Total	*5 402*	*3 580*	*2 337*	*1 905*	*-18%*	*-47%*	*-65%*

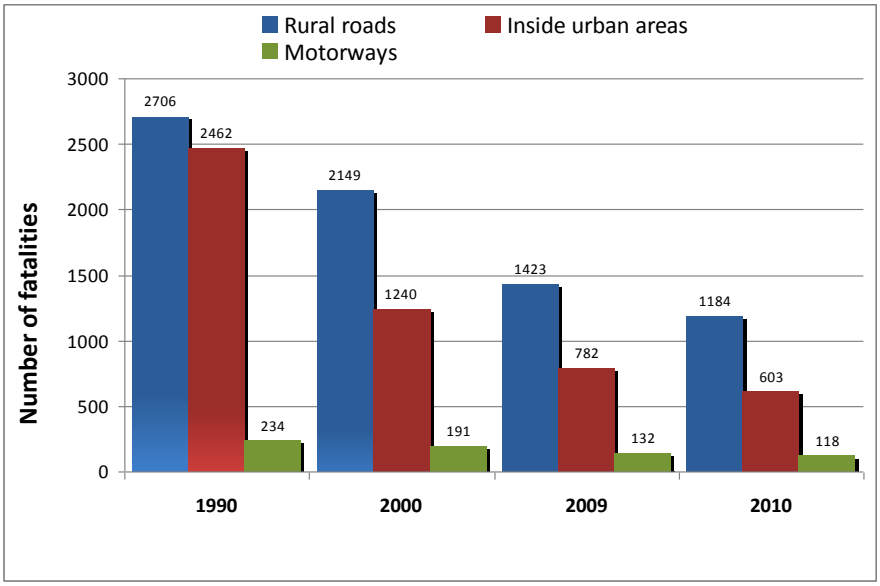
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road type

In 2010, 62% of fatal crashes occurred on rural roads, 32% on urban roads and 6% on motorways. The majority of fatal crashes now occur on country roads. Since 1980, the largest improvement has been made on urban roads.

Figure 4. **Reported fatalities by road type**
1990, 2000 and 2010



6. Recent trends in road user behaviour

Impaired driving

In Great Britain, the maximum authorised blood alcohol content is 0.8 g/l. In 2010, provisional estimates indicate that in 13% of fatal crashes one of the drivers had a BAC above 0.8 g/l.

In Great Britain, the number of people killed in drink-drive accidents fell from 400 in 2008 to 380 in 2009. The provisional figure for 2010 is 250 (14% of all road deaths), a decrease of 130 fatalities (35%) compared to the 2009 final estimate.

Speed

Exceeding the speed limit was reported as a factor in 5% of accidents, but these accidents involved 14% of fatalities. At least one case of exceeding the speed limit and travelling too fast for the conditions was reported in 12% of all accidents, and these accidents accounted for 24% of all fatalities.

Seat belts and helmets

Seat-belt use is compulsory on all seats:

- Front seat-belt wearing regulations for drivers and passengers, both adult and children came into force on 31 January 1983;
- Seat-belt wearing regulations for children in rear seats came into force on 1 September 1989.
- Seat-belt wearing regulations for adults in rear seats came into force on 1 July 1991.
- Van drivers and passengers were included for the first time in the October 1994 survey.

Helmet wearing has been compulsory on motorcycles since 1973 and on mopeds (up to 50cc, maximum speed 45 km/h) since 1977. A helmet is not compulsory on bicycles.

In 2009, it is estimated that 96% of car drivers and front-seat passengers and 90% of rear-seat occupants wore seat belts.

Table 7. **Seat-belt use by car occupants**

	2009
Front seats	96%
Rear seats	90%

Distracted driving and use of mobile phone

Research demonstrates that reaction times for drivers using a hand-held phone are 30% worse than for driving under the influence of alcohol at the legal limit.

It is illegal to use a hand-held mobile phone or similar device while driving. The fine is £60 and three penalty points. If the case goes to court, a maximum fine of £1 000 (£2 500 if driving a bus, coach or heavy goods vehicle), discretionary disqualification and three points are imposed.

A driver can also be prosecuted for using a hands-free phone or similar device if distracted and not in proper control of the vehicle. The same penalties apply. Employers could also be prosecuted if employees are distracted because they require them to use their mobile phones while driving.

A 2009 survey[1] in England showed the proportion of drivers observed using hand-held mobile phones whilst driving increased from 1.1% to 1.4% for car drivers and from 2.2% to 2.6% for van and lorry drivers, compared to 2008. The number of drivers who appeared to be using hands-free mobile phones increased from 0.5% to 1.4% for car drivers and from 1.1% to 2.4% for van and lorry drivers.

7. Useful websites and references

UK Department for Transport – Road Safety Unit	http://www.dft.gov.uk/topics/road-safety/
Reported road casualties Great Britain 2010: Annual Report	http://www.dft.gov.uk/statistics/releases/road-accidents-and-safety-annual-report-2010
Quarterly estimates	http://www.dft.gov.uk/statistics/releases/road-accidents-and-safety-quarterly-estimates-q2-2011
Road Casualties Online (RCOL),	http://www.dft.gov.uk/statistics/blog/series/road-accidents-and-safety/
Road Safety Research Reports	http://www.dft.gov.uk/topics/road-safety/research/
Strategic framework for road safety	http://www.dft.gov.uk/publications/strategic-framework-for-road-safety/
Recently published reports	http://www.dft.gov.uk/pgr/roadsafety/research/
E-valu-it	www.roadsafetyevaluation.com
Department for Regional Development (Northern Ireland)	http://www.drdni.gov.uk/

1. http://webarchive.nationalarchives.gov.uk/20110503151558 ; www.dft.gov.uk/adobepdf/162469/221412/221549/564852/mobileusedrivers.pdf

UNITED STATES[1]

- Capital : Washington D.C.
- 309 million inhabitants
- 841 vehicles / 1 000 inhabitants
- 32 885 road fatalities in 2010
- 10.6 deaths / 100 000 inhabitants

1. Short term trends

General comments and trends for 2010

There were 32 885 road fatalities in 2010, a 2.9% decrease compared to 2009. 2010 saw the lowest fatality rate ever recorded, with 1.10 deaths per 100 million vehicle miles travelled in 2010, down from 1.15 deaths per 100 million vehicle miles travelled in 2009. Other key statistics include:

- Fatalities declined in most categories in 2010, including for occupants of passenger cars and light trucks (including SUVs, minivans and pickups).
- Deaths in crashes involving drunk drivers dropped 4.9% in 2010, taking 10 228 lives compared to 10 759 in 2009.
- Fatalities rose among pedestrians, motorcycle riders and large truck occupants.

Overall, traffic volume increased by 1.6% in 2010 in comparison with 2009 (after two consecutive years of decrease due to the economic downturn).

Provisional data for 2011

A statistical projection of traffic fatalities for the first nine months of 2011 shows that an estimated 24,050 people died in motor vehicle traffic crashes. This represents a decline of about 1.6 percent as compared to the estimated 24,437 fatalities that occurred in the first nine months of 2010.

Preliminary data reported by the FHWA show vehicle miles travelled (VMT) in the first half of 2011 decreased by 1.1%.

2. Long term trends

Change in the number of fatalities and injury crashes

Between 1970 and 2010, the number of fatalities decreased by 38% and the number of injury crashes by 13%. In the same period, the number of vehicles and the distance travelled more than doubled.

1. Source: IRTAD, NHTSA.

During the 1990s, there was little progress in terms of reductions in the number of casualties. Traffic fatalities have been declining steadily since reaching a near-term peak in 2005, and the reduction accelerated in 2008, 2009 and 2010.

The reduction in fatalities in 2008-2010 may be partly explained by a reduction in distance travelled (vehicle miles travelled lower than in 2007), as a consequence of the economic recession; but the overall decline in fatalities has been much greater than the reduction in traffic volume, thus assuming that the recent safety measures promoted by the US DoT have been effective.

Risk and rates

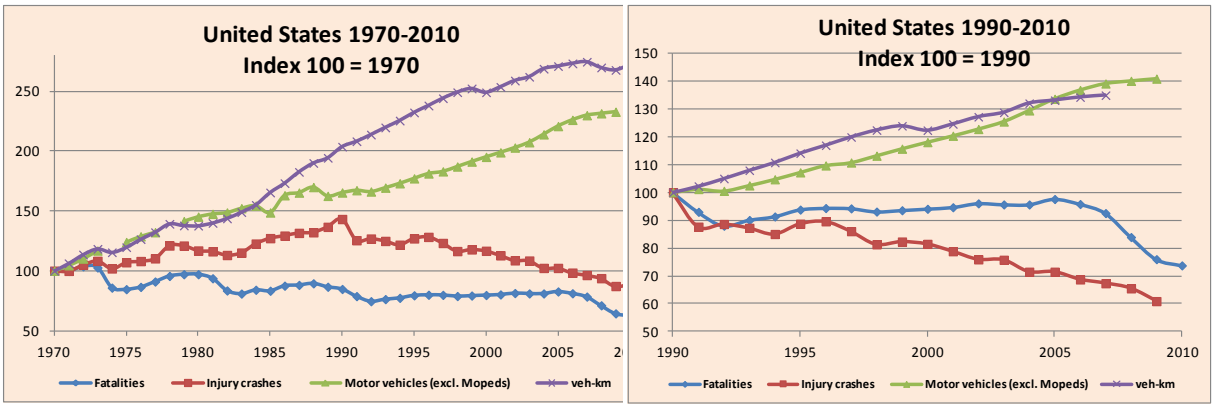
Between 1970 and 2010, the mortality rate expressed in terms of the number killed per 100 000 population was reduced by 59%, and the risk expressed by the number killed per billion vehicle-kilometres decreased by 77%. The fatality rate per 100 million v-miles travelled (VMT) fell to an historic low of 1.10 in 2010.

It is important to note that, while there has been a consistent decrease in vehicle-miles travelled from December 2007 to December 2009 – partly explained by the economic crisis – the decline in the number of fatalities has been even steeper, as the continued drop in the fatality rate shows.

Table 1. **Reported road fatalities, injury crashes and rates 1970-2010**

	1970	1980	1990	2000	2009	2010	2010% change over		
							2009	*2000*	*1790*
Fatalities	52 627	51 091	44 599	41 945	33883	32885	-2.9%	-22%	-38%
Injury crashes	1 774 612	2 074 257	2 122 000	2 070 000	1 517 000	1 546 000	-1.9%	-25%	-13%
Rates									
Deaths / 100 000 population	25.7	22.5	17.9	14.9	11.1	10.6	-3.8%	-29%	-59%
Deaths / 10 000 registered vehicles	4.7	3.5	2.4	1.9	1.3	1.3	-3.8%	-35%	-73%
Deaths / billion veh-km	29.5	20.8	12.9	9.5	7.1	6.8	-4.5%	-28%	-77%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1970-2010**



3. National road safety strategies and targets

The number one priority of the Department of Transportation (USDoT) remains safety. Despite encouraging recent trends showing a decrease in the number of motor vehicle traffic fatalities, there is still considerable work to be accomplished. Even in the country's best year in six decades, nearly 33 000 lives were lost on US roadways. USDoT is identifying new strategies and initiatives to pursue highway safety more aggressively. It is continuing to focus on trends that have had detrimental consequences and other external factors that are impeding progress, most notably:

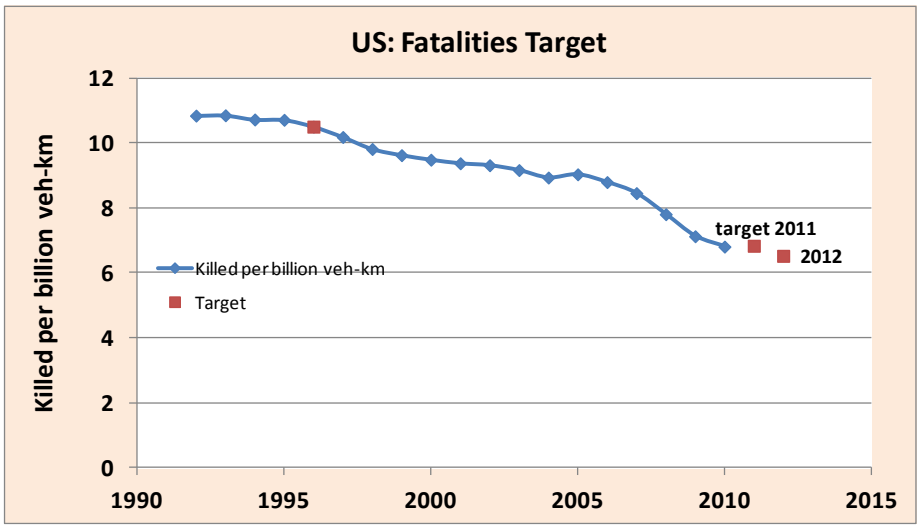
- Alcohol-impaired driving fatalities – while the number of fatalities has decreased – still account for almost one-third of all motor vehicle crash fatalities;
- Motorcycle fatalities declined 15% from 2008, but still account for 14% of total fatalities.

USDoT is also preparing for highway reauthorization and planning an agenda for the future.

USDoT remains committed to reducing highway fatalities; however, the motor vehicle crash fatality rate goal has been revised to account for the dramatically changing nature of the challenges in highway safety. To most effectively align the programme and policy actions needed to meet key challenges, USDoT has established four fatality submeasures – on passenger vehicles, non-occupants, motorcycle riders, and large truck- and large bus-related fatalities – which represent the breadth of all highway users. The purposes of this approach are to more closely examine the fatality rates of the different segments of highway users, increase the energy and resources involved and develop new strategies to combat submeasure trends. The new approach raises the four fatality submeasures from agency-specific goals to departmental metrics to highlight the overall commitment by USDOT and the three surface transport agencies that directly support the respective submeasures and the overall fatality rate goal – the NHTSA, the FHWA and the Federal Motor Carrier Safety Administration (FMCSA).

While the USDOT has developed submeasures for programmatic effectiveness, the overall fatality rate goal continues to be measured and has been re-established to take into account the recent declines in the frequency of fatal motor-vehicle crashes. In 2010, there were 1.10 fatalities per 100 million vehicle-miles travelled. The overall fatality rate goal for 2011 has a target of 1.10 fatalities per 100 million vehicle-miles travelled, which was reached by the end of 2010.

The target for 2012 is 1.05 fatalities per 100 million vehicle-miles travelled.



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated around USD 230 billion, i.e. 2.3% of GDP (2000 figures).

4. Recent safety measures (2010-2011)

Impaired driving

- "***Drive Sober or Get Pulled Over***" campaign was launched in 2011 with the involvement of thousands of law-enforcement agencies across the country. The December winter holiday enforcement crackdown was supported by a USD 7 million national "Drive Sober or Get Pulled Over" advertisement campaign that ran from December 16 through January 2. The ads are designed to raise awareness and support law-enforcement activities in every state. They convey the message that law-enforcement officers are vigilant in deterring drunk drivers. But this represents the tip of the iceberg – strong enforcement needs to be coupled with programs that address the underlying alcohol dependency problems. Special drunk driving courts that provide intensive interventions, as well as the use of ignition interlocks on the vehicles of offenders, are two examples. The NHTSA provides a variety of technical resources to help States develop and expand the use of these special courts and ignition interlock programs.

Speed management

- NHTSA has developed a two-day speed management workshop for law-enforcement agencies to help communities design and implement effective speed-management programs tailored to their area. For more information, see: NHTSA Speed Management Workshop.

Distracted driving

- As the US Department of Transportation and NHTSA continue to focus on distracted driving and its deadly consequences, there are several new resources, including a redesigned www.distraction.gov. A teen micro-site has been developed, which can be found at http://distraction.gov/teens/. In addition, a new social norming component, *One Text or Call Could Wreck It All,* was launched in late 2011 with a television ad and other supporting materials. All of the PSAs direct audiences to StopTextsStopWrecks.org, a new campaign website where teens and young adults can find facts about the impact of texting while driving, and tips for how to curb the behaviour. The website also has an area where individuals can post on Facebook and share their solutions to stop texting and driving.

Campaigns

- In 2011, NHTSA developed new child passenger safety guidelines and a new child safety seat campaign, *Think Safe, Ride Safe, Be Safe*, in partnership with *Chuggington*, an international computer-animated television series for children, ages 3-6, broadcast in 175 territories throughout the world.

- NHTSA has a newly-redesigned and improved marketing website: www.TrafficSafetyMarketing.gov, which provides the latest tools and ideas for implementing traffic safety campaigns. NHTSA has also added more robust social media elements to all of the highway safety campaigns. From more posts and groups on Facebook, to tweets, retweets and Twitter parties, to other social marketing opportunities, NHTSA expects to be more aggressive in using these tools to engage audiences in conversations in all of our programs.

5. Crash trends

Road users

Since 1990, all road users except motorcycle riders have benefitted from the improvement in road safety. Motorcycle rider fatalities increased by 39% between 1990 and 2010.

Between 1990 and 2010, the United States experienced a marked reduction of 48% in *passenger car occupant fatalities*. A further reduction in passenger car occupant fatalities is expected with increased availability of front and side airbags, electronic stability control, safety belt use, use of age-appropriate child safety seats and a continued reduction in alcohol- and drug-impaired driving.

Over the same period, the number of pedestrians and cyclists killed in motor vehicle crashes decreased by 34% and 28%, respectively.

Motorcycle fatalities reached their lowest level in 1997, and increased continuously and substantially until 2008. In 2008, motorcyclist fatalities made up 14% of all motor vehicle traffic crash fatalities and accounted for 5 312 lives, an increase of 132% since 1998.

In 2009, motorcyclist fatalities broke the continuous 11-year increase, with a large decline of 843 fatalities (24% of the total decline of 3 540). But the number of motorcyclists increased again in 2010.

The increase was less than 1% (33 fatalities) and is thus too small to conclude that the trend in motorcyclist fatalities is on the increase again.

Table 2. **Reported fatalities by road user group**
1990, 2000, 2009 and 2010

									2010 % change over		
	1990		2000		2009		2010		*2009*	*2000*	*1990*
Bicyclists	859	2%	693	2%	628	2%	618	2%	-1.6%	-11%	-28%
Motorcycles	3 244	7%	2 897	7%	4 469	13%	4 502	14%	0.7%	55%	39%
Passenger car occupants	24 092	54%	20 699	49%	13 135	39%	12 435	38%	-5.3%	-40%	-48%
Pedestrians	6 482	15%	4 763	11%	4 109	12%	4 280	13%	4.2%	-10%	-34%
Others (including SUVs)	9 922	22%	12 893	31%	11 542	34%	11 050	34%	-4.3%	-14%	11%
Total	*44 599*	*100%*	*41 945*	*100%*	33 883	100%	32 885	100%	-2.9%	-22%	-26%

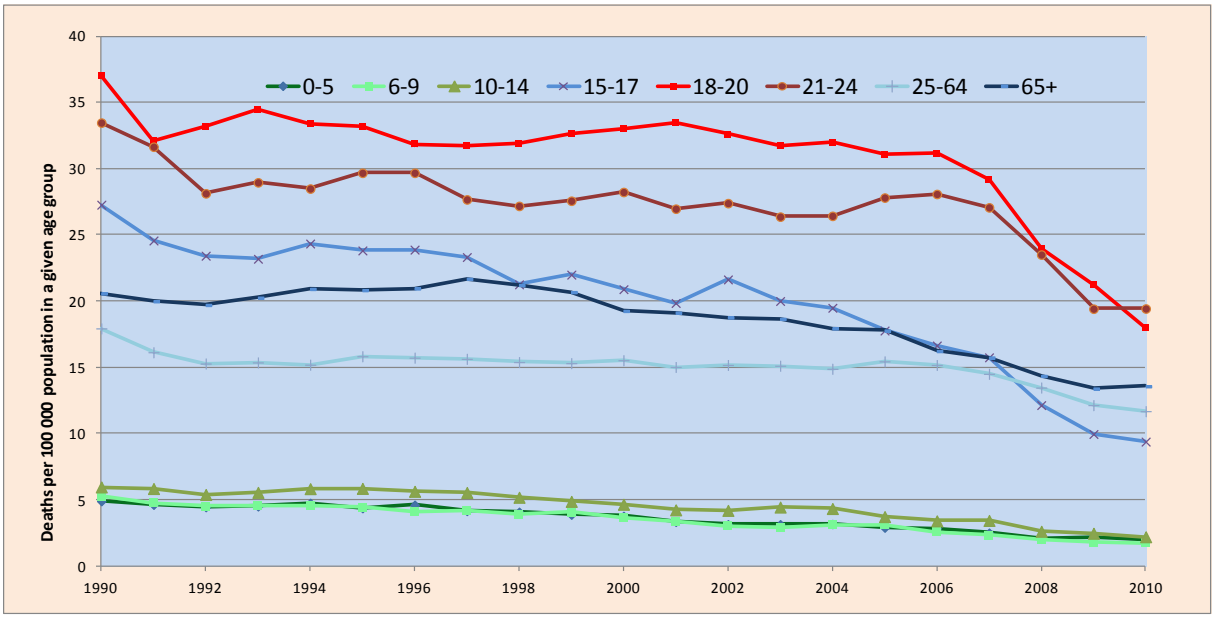
Age

From 1990 to 2010, the United States experienced fatality reductions in all age groups, with the most impressive reduction for the youngest age groups (0-14). Young people (21-24) are still a high-risk group in road safety, with a fatality risk almost two times higher than the general population. Fatalities in the 25-64 group have remained high (the group spans 40 years) and relatively stable over the last 20 years.

Table 3. **Reported fatalities by age group**
1990, 2000, 2009, 2010

	1990	2000	2009	2010	2010% change over		
					2009	*2000*	*1990*
0-5	1 101	858	523	470	-10.1%	-45%	-57%
6-9	752	579	288	285	-1.0%	-51%	-62%
10-14	1 025	926	509	455	-10.6%	-51%	-56%
15-17	2 744	2 467	1 299	1 212	-6.7%	-51%	-56%
18-20	4 564	3 967	2 871	2 447	-14.8%	-38%	-46%
21-24	5 049	4 061	3 302	3 325	0.7%	-18%	-34%
25-64	22 812	22 267	19 726	19 161	-2.9%	-14%	-16%
>65	6 427	6 701	5 304	5 484	3.4%	-18%	-15%
Total	*44 599*	*41 945*	*33 883*	*32 885*	*-2.9%*	*-22%*	*-26%*

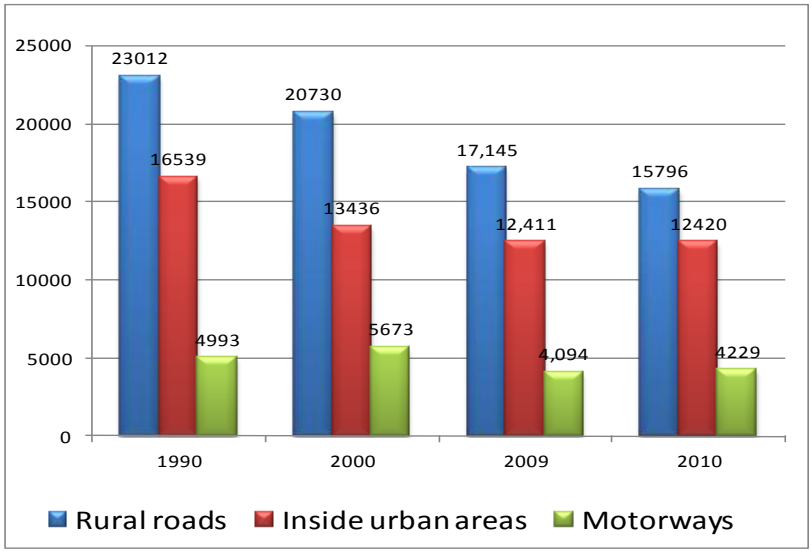
Figure 2. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road type

Since 1990, the reduction in fatal crashes has been spread equally between urban and rural networks. From the beginning of the 2000s, less progress was made on urban roads. *Motorways* experienced an increase in the number of fatalities between 1990 and 2000, which certainly must be analyzed in conjunction with the increase of the motorway.

Figure 3. **Reported fatalities by road type**
1990, 2000 and 2010



6. Recent trends in road user behaviour

Impaired driving

Alcohol-related crashes

Each state makes its own laws governing BAC levels for law enforcement action. In general, state BAC laws fall into three categories: zero tolerance; 0.08 BAC *per se*; and high BAC (0.08+). All 50 states have enacted zero tolerance laws (primarily, *per se* laws at 0.02% BAC or lower) that make it illegal for drivers under age 21 to have any detectable amount of alcohol in their bodies. As of August 2005, all 50 states, the District of Columbia and Puerto Rico, had enacted 0.08 BAC *per se* laws. Additionally, as of January 2005, 32 states had enacted high BAC laws.

Alcohol-impaired driving fatalities [fatalities in crashes involving a driver or motorcycle rider (operator) with a blood-alcohol concentration (BAC) of 0.08 grams per decilitre (g/dL) or greater] declined by 4.9% in 2010 still for 31% of overall fatalities.

The proportion of alcohol-related crashes has remained stable over the years.

Table 4. **Evolution in alcohol-impaired fatalities**

Year	Alcohol-Impaired driving fatalities (driver BAC 0.08+)		Total fatalities in crashes
	Number	Percent of total fatalities	
1998	12 546	30%	41 501
1999	12 555	30%	41 717
2000	13 324	32%	41 945
2001	13 290	31%	42 196
2002	13 472	31%	43 005
2003	13 096	31%	42 884
2004	13 099	31%	42 836
2005	13 582	31%	43 510
2006	13 491	32%	42 708
2007	13 041	32%	41 259
2008	11 711	31%	37 423
2009	10 759	32%	33 883
2010	10 228	31%	32 885

Source: FARS 1998-2010.

Drug-related crashes

While data focusing on the danger of driving under the influence of alcohol is readily available and often cited, less is known or discussed about drivers under the influence of other drugs. The Fatality Analysis Reporting System (FARS) contains a number of variables to describe drug involvement for those in fatal crashes. The Drug Test variable

contains three linked elements (Test Status, Test Type and Test Result). The Test Status element provides information on whether or not the person was tested for drugs; Test Type records the type of test (if one was given); and Test Result reports which specific drug (if any) was found. Up to three tests and associated types of drugs can be recorded for an individual.

It is important to note that drug involvement means only that drugs were found in the driver's system. Drug involvement does not imply impairment or indicate that drug use was the cause of the crash. Drug presence as recorded in FARS includes both illegal substances as well as over-the-counter and prescription medications, which may or may not have been misused. Unlike alcohol data in FARS, there is no measure of the amount of drug present.

In 2009, 63% of fatally injured drivers were tested for the presence of drugs. Overall, 3 952 fatally injured drivers tested positive for drug involvement in 2009. This number represents 18% of all fatally injured drivers and 33% of those with known drug test results in 2009. Both the proportion of fatally injured drivers tested and the proportion of these drivers testing positive for drugs generally increased over the past five-year time period.

Table 5. **Drug Test Results for Fatally Injured Drivers**

Year	Total Drivers	All Drivers Tested	Percent Drivers Tested	Drivers Tested					
				Drugs Reported		Drugs Not Reported		Results Unknown	
2005	27 491	15 363	56%	3 710	13%	9 614	35%	2 039	7%
2006	27 348	16 193	59%	4 018	15%	10 307	38%	1 868	7%
2007	26 570	16 676	63%	4 214	16%	10 679	40%	1 783	7%
2008	24 254	15 683	65%	4 267	18%	10 114	42%	1 302	5%
2009	21 798	13 801	63%	3 952	18%	8 103	37%	1 746	8%

Source: FARS 2005-2009.

Speed

Speeding is a contributing factor in around 30% of fatal crashes (31% in 2009, 31% in 2010.

Speeding-related fatalities, as a percentage of total fatalities, showed a downward trend from a high of 36.8% in 1986 to a low of 29.9% in 2000. Since 2000, the number of total fatalities and speeding-related fatalities has decreased; however, the proportion related to speeding has remained constant.

Seat belts and helmets

Primary belt laws (PBLs) allow law enforcement to stop a driver solely for not wearing a seat belt. As of January 2012, 32 States and the District of Columbia have primary seat-belt laws. In 17 states, drivers must commit another driving offence before they can be stopped, thus the seat-belt law is referred to as a secondary law. One state has no

belt use law – primary or secondary – for adults, although this state does have a primary child-passenger safety law that covers all drivers and passengers under 18.

In 2010, among fatally injured passenger vehicle occupants, more than half (51%) of those killed in 2010 were unrestrained.

The NHTSA conducts a national seat-belt campaign each May, involving more than 10 000 state and local law enforcement agencies. As a result of stronger laws and high visibility enforcement, the overall seat-belt rate reached a high of 85% in 2010. Usage rates fell to an estimated 84% in 2011. Seat-belt use continued to be higher in the states with primary belt laws (87%) as compared with states with secondary belt laws (76%).

Figure 4. **Overall seat-belt usage rate, 1994-2011**

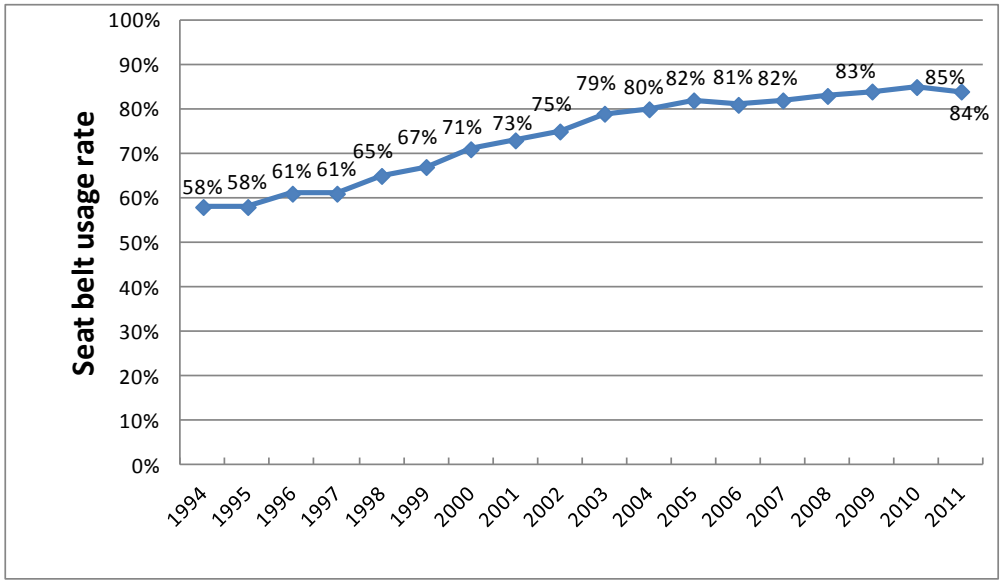


Table 6. **Seat-belt use by car occupants**

	2009	2010
Front seats	84%	85%
Rear seats	70%	74%

Motorcycle helmet laws are issued and enforced by the individual states; there is no national law requiring motorcycle helmet use. Twenty states plus the District of Columbia and Puerto Rico require helmet use by all operators and passengers. In 27 states, only a specific population segment is required to wear helmets. Three states have no motorcycle helmet use laws. As of 31 January 2012, 21 states and the District of Columbia have enacted age-specific bicycle helmet laws. Table 7 shows the evolution in motorcycle helmet usage since 1998.

Table 7. **Evolution in motorcycle helmet usage 1998-2010**

	1998	2000	2002	2004	2006	2008	2010
Usage rate	67%	71%	58%	58%	51%	63%	54%

Distracted driving and use of mobile phone

In 2010, 3 092 people were killed on US roadways, and an estimated additional 417 000 were injured in motor vehicle crashes that were reported to have involved distracted driving (FARS and GES). Of those people killed in distracted-driving-related crashes, 408 involved reports of a cell phone as a distraction (13% of fatalities in distraction-related crashes). Of those injured in distracted-driving-related crashes, 24 000 involved reports of a cell phone as a distraction (6% of injured people in distraction-related crashes). Nine per cent of fatal crashes and 18% of the injury crashes in 2010 involved reports of distracted driving.

In November and December 2010, NHTSA conducted a nationally representative telephone survey of 6 002 drivers 18 years and older from all states. The goal of the National Survey of Distracted Driving Attitudes and Behaviours was to assess current attitudes and self-reported behaviours about distracted driving.

Most drivers will answer a call while driving and most will continue to drive after answering. About two out of ten drivers (18%) report that they have sent text messages or e-mails while driving; about half (49%) of those 21 to 24 years old report doing so.

More than half believe that using a cell phone and/or sending a text message/e-mail makes *no difference* to their driving performance, yet as passengers, 90% said they would feel *very unsafe* if their driver was talking on a handheld cell phone or texting/e-mailing while travelling with them. Where gender, age and income differences exist, males and younger respondents tend to underestimate the negative effects that cell phone use has on driving. Those in the upper income tier (USD 100 000/year or more) tend to report higher incidences of cell phone use while driving and perceive such behaviour as safer than do those in the lower income tiers. Overall, most drivers report that driving becomes more dangerous when they take their eyes off the road for more than two seconds, and this is related to age. About one-third of drivers 18 to 24 years old said they can take their eyes off the road for three to ten seconds or more before driving becomes significantly more dangerous.

7. Useful websites and references

NHTSA	http://www.nhtsa.gov
NHTSA 2010 survey on Distracted Driving	http://www.nhtsa.gov/staticfiles/nti/pdf/811555.pdf
Traffic Safety – Overview of 2008	http://www-nrd.nhtsa.dot.gov/Pubs/811162.PDF
NHTSA database on behavioural safety research reports going back to 1969	www.nhtsa.gov/portal/site/nhtsa/menuitem.935ae205e29ac00baff82410dba046a0/
Vehicle Safety Research Portal	www.nhtsa.gov/portal/site/nhtsa/menuitem.272a2ad16c06afd24ec86e10dba046a0/

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International Transport Forum

Road Safety Annual Report 2011

The IRTAD Annual report 2011 provides an overview of road safety indicators for 2010 in 32 countries, with preliminary data for 2011. The report outlines recent safety measures adopted nationally, with detailed safety data by road user, location and age. This edition highlights contributions to the development of road safety policies by the IRTAD Group in 2011, with detailed reports for all member countries on targets and national strategies, including new strategies being developed for the UN Decade of Action for Road Safety.

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