



ORGANISATION
FOR ECONOMIC
CO-OPERATION
AND DEVELOPMENT



IRTAD

Road Safety 2010

Annual Report

International Traffic Safety Data
& Analysis Group

www.irtad.net

IRTAD ANNUAL REPORT 2010

International Traffic Safety Data and Analysis Group
www.irtad.net

IRTAD ANNUAL REPORT

Abstract

This second Annual report of the IRTAD Group comprises:

- A synthesis of the main trends in the year 2009, in terms of the development in the number of traffic deaths and crashes and preliminary trends for the year 2010. It also presents longer term trends in order to better understand the development taking place in the different countries.
- A report activity of the IRTAD Group for the year 2010 summarising the activities of the Group.
- Detailed reports from 32 countries, focusing on :
 - Latest data for the year 2009 and in some cases preliminary data for 2010.
 - 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.
 - The national strategies in place in IRTAD countries, including targets and performance towards meeting the targets.
 - Measures implemented in 2008-2010 to improve safety.
 - Recent safety research.

Foreword

It is with great pleasure that I present the second edition of the IRTAD Annual Report. This report provides an overview of safety trends for the year 2009 in IRTAD countries and an activity report of the IRTAD Group for the year 2010.



The year 2009 was marked in most countries by a continuous decline in the number of traffic casualties. The recurrent question worldwide is, to what extent has this (much welcomed) decline been influenced by the economic recession that hit many countries in 2008-2009, and what will happen when growth returns? The IRTAD group has been discussing this important topic based on the work done in the United Kingdom, Sweden and the United States. Unfortunately, for those seeking a simple response, this is a complex issue. While the economic recession certainly influenced the level of traffic in some countries, more work is still needed to understand the links between economic development and road safety, and there is ample evidence that effective road safety policies have played an important role in reducing the number of traffic casualties over the past couple of years. Other local factors can also explain the reduction in the number of casualties. As an example, in some countries, the reduction in traffic in 2009-10 owed more to the amount of snowfall during the winter than anything else.

While the IRTAD Group includes many industrialised countries, with relatively good levels of safety performance, it is important to pay particular attention to the situation in low- and middle-income countries. I am therefore very satisfied with the evolution of the IRTAD Group, which over recent years has multiplied its activities to involve these low- and middle income countries. “Traditional” IRTAD members have a duty to transfer their knowledge, and the twinning programmes developed by the Group are an excellent example of co-operation. 2011 will see the launch of the Decade for Action, announced by the United Nations, which set the goal to stabilize and then reduce the forecast level of road traffic fatalities around the world by increasing activities conducted at the national, regional and global levels. 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.

This volume includes data and information from 33 countries which are either members of the IRTAD Group, or which provide data on a regular basis. We hope to include progressively more countries in the IRTAD annual report and to enrich this report year after year.

To conclude, I would like to extend my deep gratitude to all those IRTAD members who contributed to this report, and who contribute all year round to the richness of exchange which makes the IRTAD Group an invaluable and unique forum on road safety issues.

Prof. Fred Wegman
Chairman of IRTAD

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1. IRTAD: AN INTERNATIONAL GROUP AND DATABASE ON ROAD SAFETY DATA

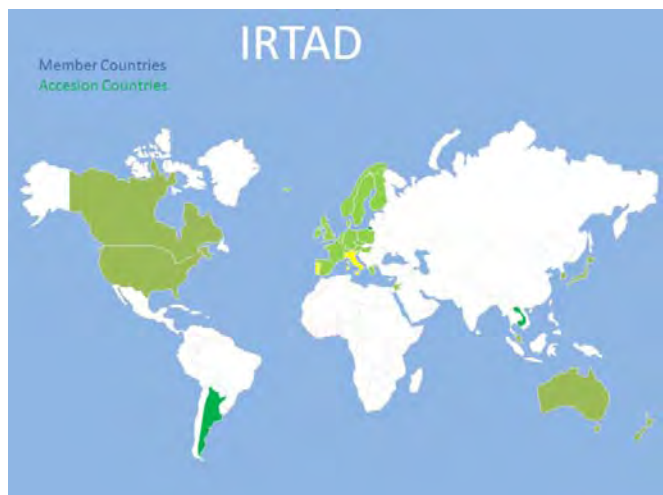
The IRTAD Group

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, automobilist associations, car automobile industry, and others from OECD and non OECD countries. Its main objectives are to contribute to international co-operation on road accident 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 trends on 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 institutes from 31 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, vehicle fleet, road network length, vehicle kilometrage 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 TRENDS IN 2009

Data for the year 2009 shows that road deaths decreased in most IRTAD countries, carrying forward the significant reductions in the number of road deaths accomplished in 2008 (See Table 1 and Figure 1). Several countries, such as the United States, even reached their lowest fatality records for the past 50 years in 2009. Preliminary data for 2010 suggest that a number of countries recorded further sharp decreases in road fatalities in the first half of 2010 (see Figure 2).

The effects of the economic crisis on road traffic perhaps partly explain this favourable development. Many countries found a pattern of a slight decrease or stagnation in traffic volumes, but a much more significant reduction in fatalities. For example, the United Kingdom recorded a 1.3% decrease in the number of vehicle-kilometres driven but a 12% decrease in the number of fatalities and a 10% decrease in risk expressed as the number of fatalities per vehicle–kilometre.

Trends over a longer period of time are more relevant to policy analysis. Table 1 shows that for most IRTAD countries the average annual reduction in the number of deaths between 2000 and 2009 was higher than in the three preceding decades. We have strong evidence that effective road safety policies contributed to this favourable development.

Although the number of seriously injured road users also decreased in nearly all IRTAD countries, this reduction was less marked than for fatalities. International comparisons are difficult to interpret since definitions of injury crashes, reporting practices and underreporting rates vary from country to country. The IRTAD Group will release a report on *Linking Hospital and Police Data* in 2011 (see more in section 5).

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 and Figure 4). Comparisons of the developments between 2000 and 2009 show that Portugal, Spain and France have done best over the past ten years, with average annual reduction of more than 7%.

However, not all road users groups benefited equally from the progress achieved. In most countries overall road deaths have fallen more quickly than motorcycle fatalities. The number of killed motorcyclists increased in 13 out of 29 countries since the year 2000 (see Table 2 and Figure 3). Over the same time the number of motorcycles in circulation increased by more than 30 per cent. If the trend of increased use of motorised two wheelers continues, we can fear a continued increase in the risk for motorcyclists, unless targeted measures are implemented. The International Transport Forum has set up a *Motorcycle Safety Working Group* to assess mobility and safety issues for motorcyclists in more detail.

While the high income countries are looking back on a decade with record reductions in road fatalities, the picture is not shared in many countries undergoing rapid motorisation and where the number of traffic casualties is increasing year after year. The United Nations is therefore launching a Decade of Action for Road Safety with the aim of stabilising and then reducing global road deaths by 2020. Road crashes kill at least 1.3 million people worldwide each year and injure 50 million, 90% of these road casualties are in low and middle income countries. The UN resolution reaffirms the critical importance of addressing road safety issues and the need for the further strengthening of international cooperation, particularly to meet the needs of low-income and middle-income countries (see <http://www.makeroadssafe.org/Pages/home.aspx>).

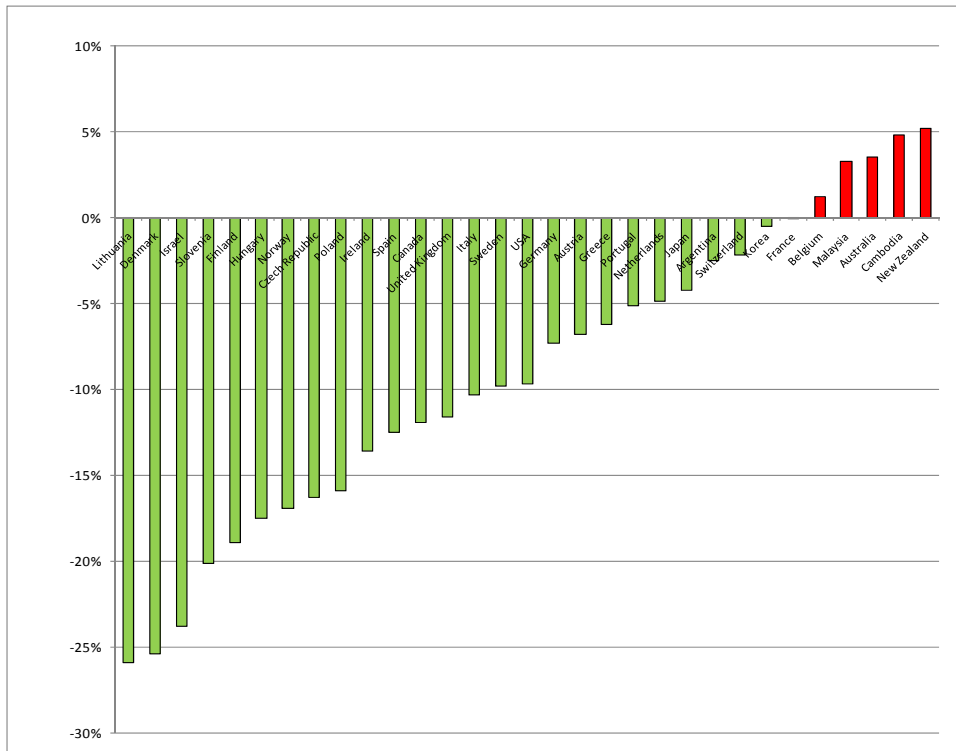
Table 1. Road safety trends

Road Fatalities ¹								
Recent data				Long-term trends – Average annual change				
Country	2009	2008	Change 2009-2008	Change 2009-2000 ³	2000-2009 ³	1990-1999	1980-1989	1970-1979
Argentina ⁴	7,364	7,552	-2.5%	12%		-	-	-
Australia	1,492	1,442	3.5%	-18%	-2.2%	-3.0%	-1.7%	-0.9%
Austria	633	679	-6.8%	-35%	-4.7%	-4.0%	-2.7%	-1.8%
Belgium ²	955	944	1.2%	-35%	-4.7%	-3.8%	-2.0%	-3.0%
Cambodia ⁴	1,717	1,638	4.8%	328%	17.5%	-	-	-
Canada ²	2130	2,419	-11.9%	-27%	-3.4%	-3.1%	-2.8%	1.6%
Czech Republic	901	1,076	-16.3%	-39%	-5.4%	1.3%	-1.7%	-4.0%
Denmark	303	406	-25.4%	-39%	-5.4%	-2.3%	-0.3%	-5.4%
Finland	279	344	-18.9%	-30%	-3.8%	-4.4%	3.2%	-5.2%
France	4,273	4,275	-0.05%	-48%	-6.9%	-0.7%	-1.8%	-2.1%
Germany	4,152	4,477	-7.3%	-45%	-6.4%	-3.8%	-4.7%	-3.4%
Greece	1,456	1,553	-6.2%	-29%	-3.7%	0.4%	3.7%	3.4%
Hungary	822	996	-17.5%	-32%	-4.1%	-6.7%	3.2%	0.8%
Iceland	17	12	41.7%	-47%	-6.8%	-1.5%	1.3%	3.4%
Ireland	238	279	-14.7%	-43%	-6.0%	-1.6%	-2.2%	1.4%
Israel	314	412	-23.8%	-31%	-4.0%	1.2%	1.0%	0.8%
Italy	4,237	4,725	-10.3%	-40%	-5.5%	-0.7%	-3.1%	-2.3%
Japan	5,772	6,023	-4.2%	-45%	-6.3%	-3.7%	2.7%	-7.3%
Korea	5,838	5,870	-0.5%	-43%	-6.0%	-3.0%	9.4%	7.7%
Lithuania ⁴	370	499	-25.9%	-42%	-5.9%	-3.2%	2.9%	2.0%
Luxembourg	48	36	33.3%	-37%	-5.0%	-2.2%	-4.1%	-4.2%
Malaysia ⁴	6,745	6,527	3.3%	12%	1.2%	-	-	-
Netherlands	644	677	-4.9%	-40%	-5.6%	-2.6%	-3.4%	-5.1%
New Zealand	384	365	5.2%	-17%	-2.0%	-3.9%	2.7%	-1.8%
Norway	212	255	-16.9%	-38%	-5.1%	-1.0%	0.6%	-2.7%
Poland	4,572	5,437	-15.9%	-27%	-3.5%	-0.9%	1.3%	5.9%
Portugal	840	885	-5.1%	-55%	-8.5%	-3.1%	0.5%	4.9%
Slovenia	171	214	-20.1%	-46%	-6.5%	-4.7%	-0.1%	1.9%
Spain	2,714	3,100	-12.5%	-53%	-8.0%	-4.9%	4.1%	2.4%
Sweden	358	397	-9.8%	-39%	-5.4%	-3.1%	0.7%	-3.8%
Switzerland	349	357	-2.2%	-41%	-5.7%	-5.0%	-3.3%	-3.2%
United Kingdom	2,337	2645	-11.6%	-35%	-4.6%	-4.5%	-1.2%	-1.7%
United States	33,808	37,423	-9.7%	-19%	-2.4%	-0.7%	-1.3%	-0.3%

Source: IRTAD, see www.irtad.net

1. Police-recorded fatalities. Death within 30 days.
Lithuania: death within 7 days for 1990.
2. Provisional data for 2009.
3. 2004-2009 for Argentina.
4. Accession countries. Data are under review

Figure 1. Short-term change
Road fatalities: 2009 in comparison to 2008 *



* the graph does not include data for Luxembourg and Iceland.

Figure 2. Road fatalities: 1st Half 2010 – 1st Half 2009
(Provisional data)

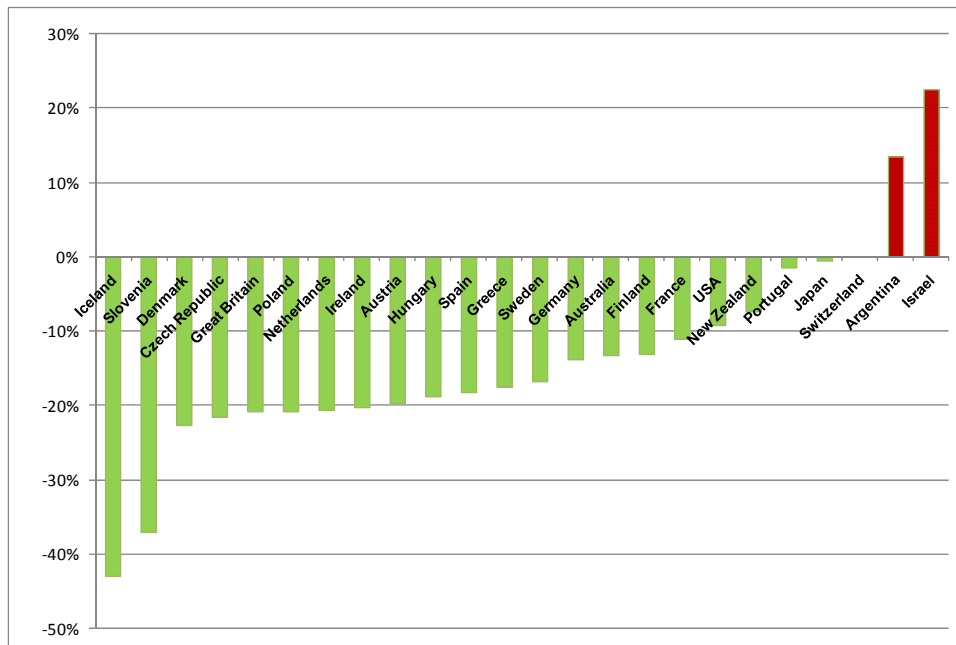


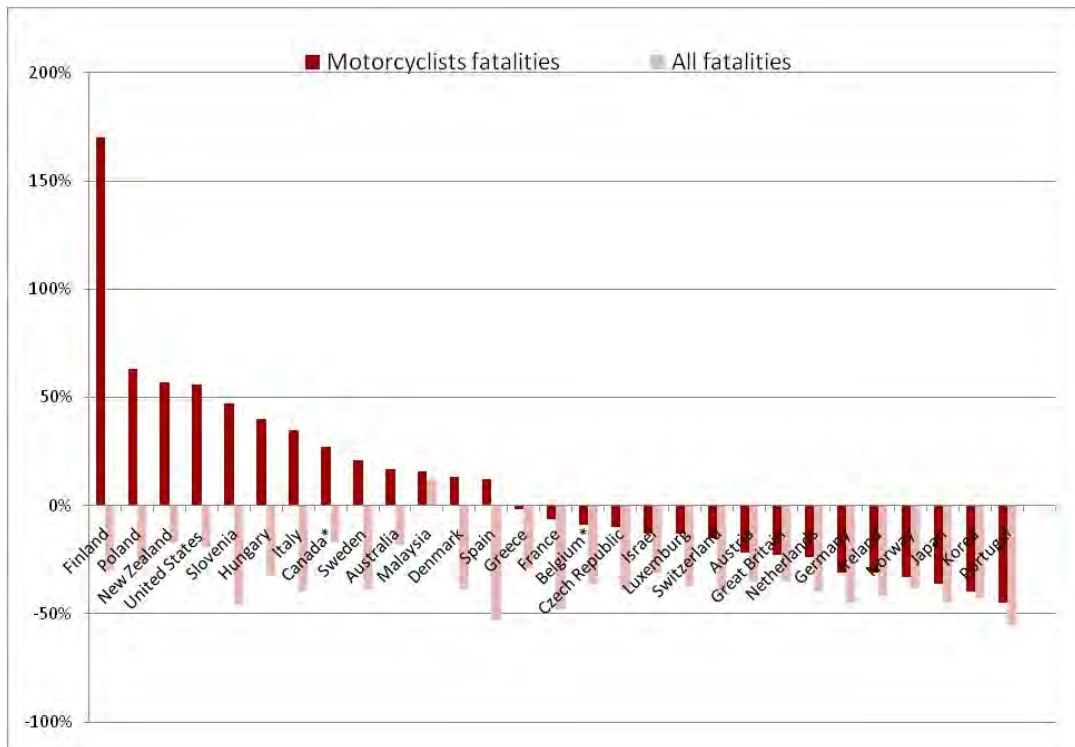
Table 2. Change in the number of motorcycles, killed motorcyclists and total road deaths

	Motorcycle fatalities				All fatalities	Number of motorcycles
	2009	2008	2009 – 2008	2009 – 2000	2009 - 2000	2009-2000
Australia¹	224	245	-8.6%	17%	-18%	83%
Austria	87	91	-4.4%	-22%	-35%	35%
Belgium	-	108	-	-9% ³	-36% ³	45%
Canada	-	211	-	27% ³	-17% ³	91% ¹
Czech Republic	90	121	-25.6%	-10%	-39%	20%
Denmark	27	40	-32.5%	13%	-39%	109%
Finland	27	33	-18.2%	170%	-30%	170%
France	888	795	11.7%	-6.2%	-48%	18%
Germany	650	656	-0.9%	-31%	-45%	10%
Great Britain	456	474	-3.8%	-23%	-35%	42%
Greece	405	394	2.8%	-1.7%	-29%	95%
Hungary	73	91	-19.8%	40%	-32%	61%
Iceland	3	1	200%	200%	-47%	367%
Ireland¹	27	29	-6.9%	-31%	-42%	19% ²
Israel	33	44	-25.0%	-13%	-31%	107%
Italy	1,037	1,086	-4.5%	35%	-40%	74% ³
Japan	577	637	-9.4%	-36%	-45%	13%
Korea	737	740	-0.4%	-40%	-43%	-6% ³
Luxemburg	7	9	-22.2%	-13%	-37%	50%
Malaysia	4,067	3,898	4.3%	16%	12%	-
Netherlands	68	67	1.5%	-24%	-40%	46%
New Zealand	47	49	-4.1%	57%	-17%	71% ¹
Norway	27	32	-15.6%	-33%	-38%	59% ³
Poland	290	262	10.7%	63%	-27%	21%
Portugal	116	116	0%	-45%	-55%	36%
Slovenia	28	38	-26.3%	47%	-46%	282%
Spain	438	495	-11.5%	12%	-53%	80%
Sweden	47	51	-7.8%	21%	-39%	98%
Switzerland	78	83	-6.0%	-15%	-41%	30%
United States	4,462	5,312	-16.0%	56%	-19%	64% ²

Source: IRTAD database www.irtad.net

1. Motorized two-wheelers (including mopeds).
2. 2007-2000.
3. 2008-2000.

Figure 3. Change in the number of fatalities 2000-2009
 (* 2000-2008 for some countries)



Trends in deaths 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 are 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 has traditionally been favoured by road transport authorities as it implicitly discounts fatality rates if travel is increased.

Fatalities per 100 000 population. The number of inhabitants is the denominator the 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. It is a very 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 industrialized countries and countries where the level of motorization is very low.

Fatalities per billion vehicle-kilometres (or fatalities per billion vehicle-miles). 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.

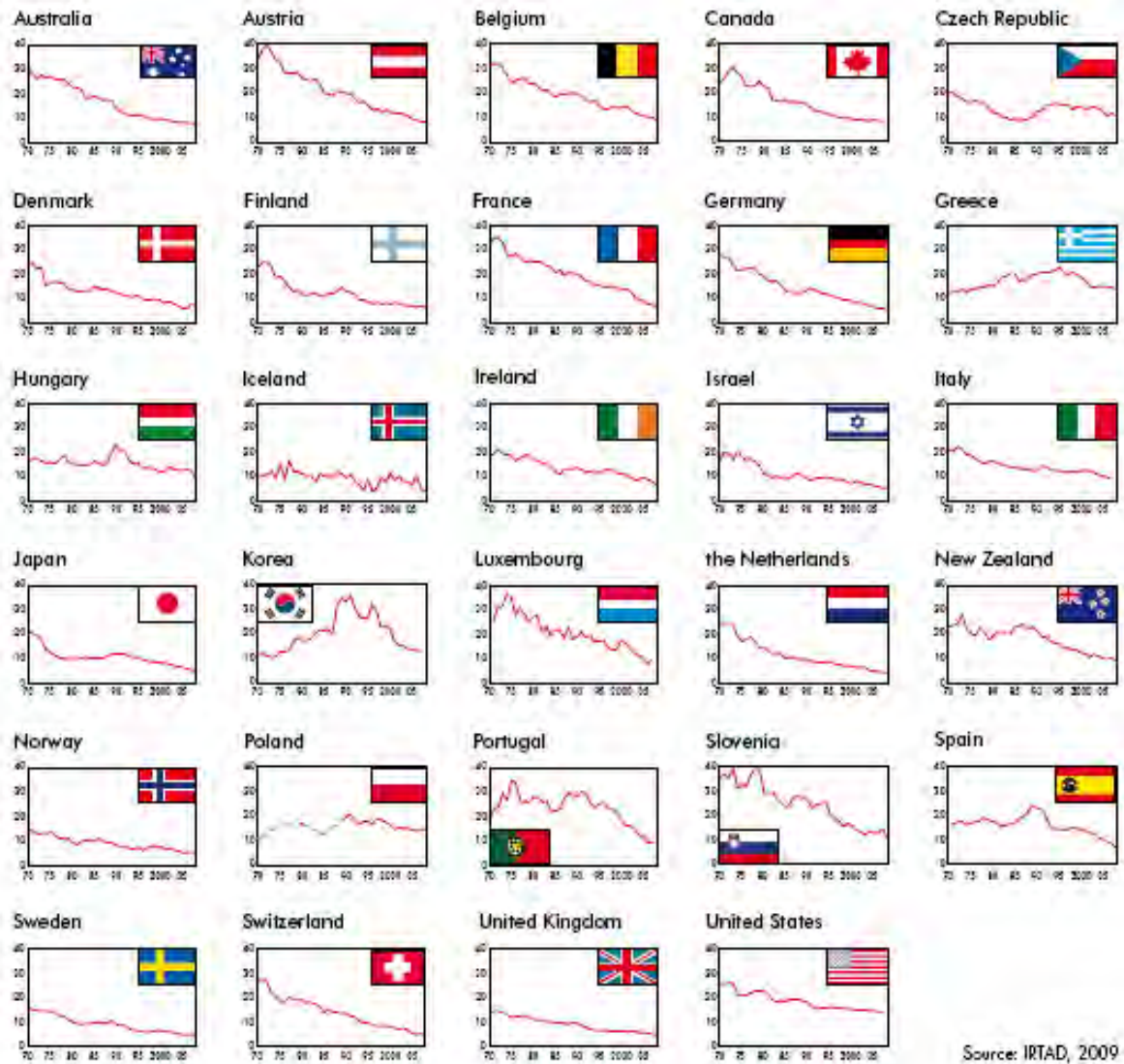
Fatalities per 10 000 registered vehicles. This rate can be seen as an alternative to the previous one, although it differs in that the annual distance travelled is unknown. This indicator can therefore only be used to compare the safety performance between countries with similar traffic and car use characteristics. It requires reliable statistics on the number of registered vehicles. In some countries, scrapped vehicles are not systematically removed from the registration database, undermining accuracy.

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 4** show the evolution of the 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 4. Traffic deaths per 100 000 population
1970-2009



Source: IRTAD, 2009

Table 3. Traffic deaths per 100 000 inhabitants / per billion veh-km
1970, 1980, 1990, 2000 and 2009

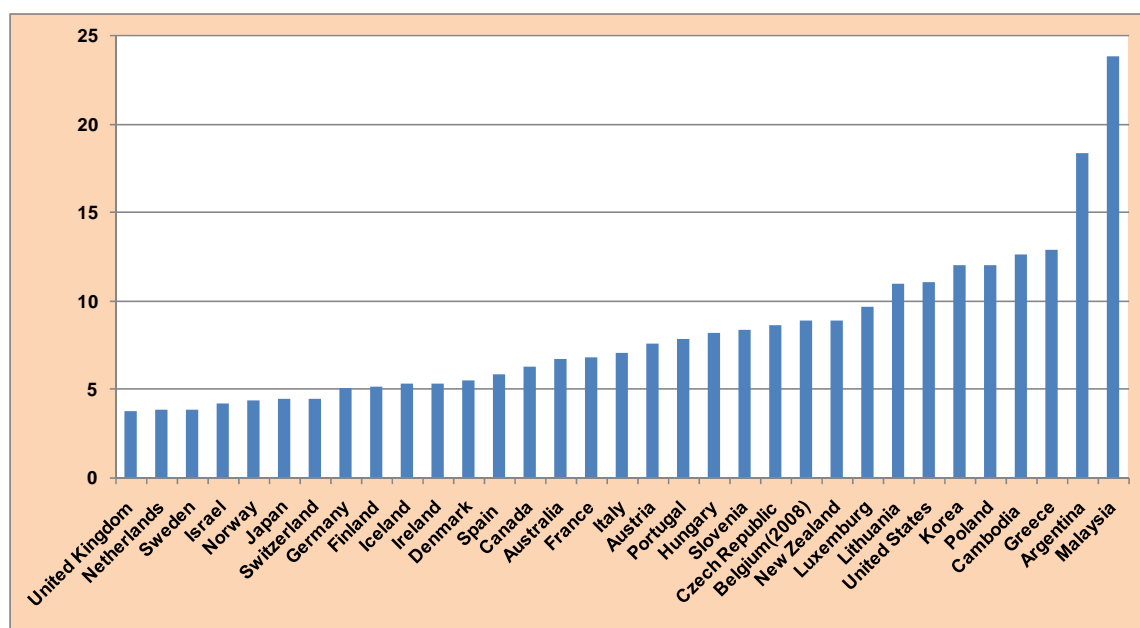
Country	Killed per 100 000 inhabitants					Killed per billion veh-km				
	1970	1980	1990	2000	2009	1970	1980	1990	2000	2009
Argentina					18.4					
Australia	30.4	22.3	13.7	9.5	6.8	49.3			9.3	6.7
Austria	34.5	26.5	20.3	12.2	7.6	109	56.2	27.9	13.2	9a
Belgium	31.8	24.3	19.9	14.4	8.9a	105	50.0	28.1	16.3	9.6a
Cambodia					12.6					
Canada ¹	23.8	22.7	14.9	9.5	6.3				9.3	6.3
Czech Republic	20.0	12.2	12.5	14.5	8.6		53.9	48.3	37	19.4 a
Denmark	24.6	13.5	12.4	9.3	5.5	51	25.0	17.3	10.7	8.2a
Finland	22.9	11.6	13.1	7.7	5.2		20.6	16.3	8.5	5.2
France	32.6	25.1	19.8	12.9	6.8	90	43.6	25.7	15.1	7.8
Germany	27.7	19.3	14.0	9.1	5.1		37.3	20.0	11.3	6.0
Greece	12.5	15	20.1	18.7	12.9					
Hungary	15.8	15.2	23.4	12	8.2					
Iceland	9.8	11	9.5	11.5	5.3		21.1	14.9	13.8	5.5
Ireland	18.3	16.6	13.6	11.0	5.3		28.4	19.2	12.6	4.9
Israel			8.67		4.2					6.4
Italy	20.5	16.4	12.6	12.2	7.1					
Japan	21.0	9.3	11.8	8.2	4.5	96	29.3	23.2	13.4	7.7
Korea		17.2	33.5	21.8	12				49.5	20.0
Lithuania					11					
Luxemburg		27.0	18.8	17.5	9.7					
Malaysia					23.8					17.7
Netherlands	24.6	14.2	9.2	6.8	3.9		26.7	14.2	9.1	5.6
New Zealand	23.0	18.9	21.4	12.1	8.9				12.4	9.6
Norway	14.6	8.9	7.8	7.6	4.4		19.3	12.0	10.5	5.4
Poland	10.6	16.8	19.2	16.3	12				12.4	9.1a
Portugal	18.6	27.7	28.3	18.1	7.9					
Slovenia	35.8	29.2	25.9	15.8	8.4	167	96.1	65.1	26.7	9.6
Spain		17.7	23.2	14.5	5.9					
Sweden	16.3	10.2	9.1	6.7	3.9	35	16.4	12.0	8.5	4.4
Switzerland	26.6	19.2	13.9	8.3	4.5	56.5	30.9	18.5	10.4	5.7
United Kingdom	14.0	11.0	9.4	6.1	3.8				7.4	4.6
United States	25.8	22.5	17.9	15.3	11.1	29.7	20.9	12.9	9.5	7.1

1. Provisional data for 2009.
a 2008

Since 1990 remarkable progress has been made in all countries. For most countries risk has been reduced by more than 40%. Greatest improvements were recorded in Spain (-75%), Portugal (-72%), Switzerland (-68%) and Slovenia (-68%). In 2009, the lowest risks were found in the United Kingdom, the Netherlands and Sweden which all had rates below 4.0 (see Figure 5). While this rate is useful to

compare the performance of countries with similar levels of development and motorization, it should not be used as a universal tool to rank all countries.

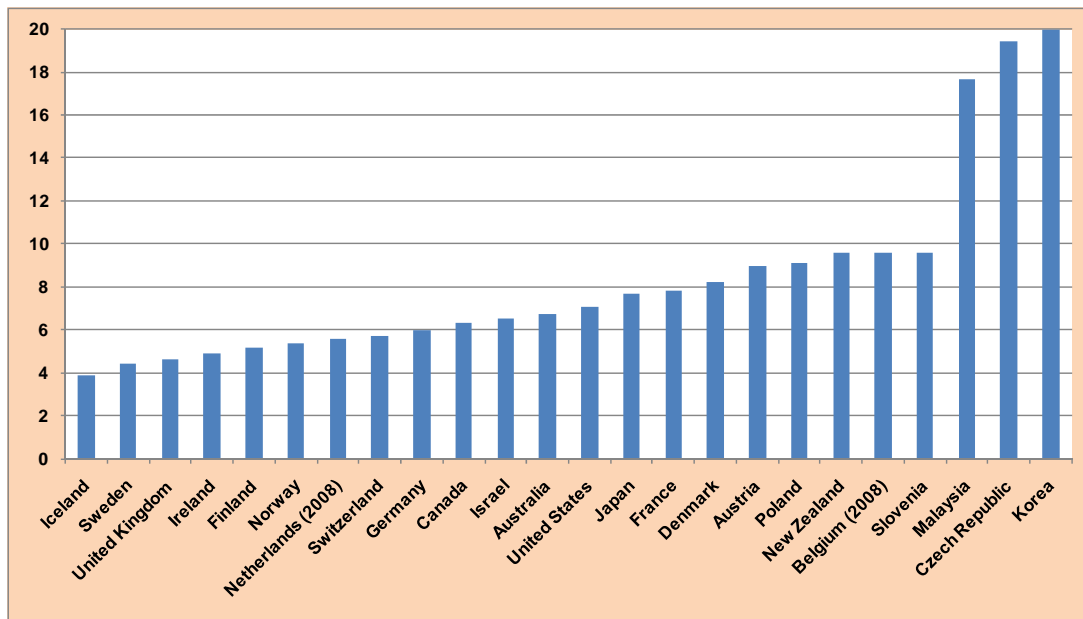
Figure 5. Risks of road fatalities per 100 000 population in 2009 (or 2008)



❖ Fatalities per billion vehicle-kilometres

Data on risks expressed in terms of deaths per billion vehicle-kilometres are included in **Table 3**. 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 has improved substantially between 1990 and 2008-2009. In 2008-09, the indicator ranged from 3.9 to 20.1, while in 1990 it ranged from 12 to 65. In almost all countries for which data are available, the risk has diminished by more than 50%. Slovenia is the country showing the biggest change with the risk divided by five (from 65 to 12). In 2009, the best performing countries recorded risk below 6 deaths per billion vehicle-kilometres (Iceland, Sweden, the United Kingdom, Switzerland and Ireland) (see **Figure 6**).

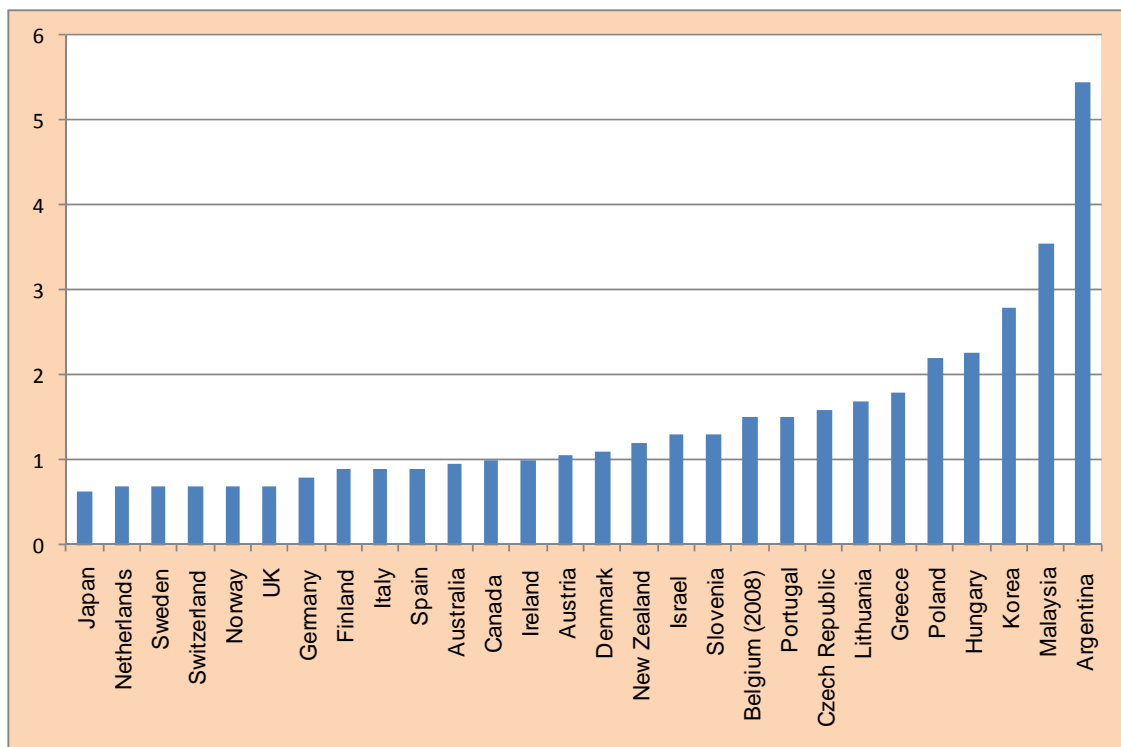
Figure 6. Deaths per billion vehicles-kilometres in 2009 (or 2008 when indicated)



❖ Deaths per registered vehicle

Figure 7 illustrates risk exposure expressed as the number of deaths per 10 000 registered vehicles.

Figure 7. Deaths per 10 000 registered vehicles, 2009



3. LEGISLATION ON SOME KEY ISSUES

Drink driving, speeding and non-wearing of seatbelts 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 becoming a growing concern in many countries.

The following tables summarise information on legislation on drink driving, seatbelt wearing and the use of mobile phone while driving.

3.1. Drink Driving

Table 4 summarises the maximum blood alcohol content authorised in IRTAD countries together with an estimation of the share of alcohol-related crashes.

It shows that drink driving is responsible for between 10 and 32 % of fatal crashes. A number of factors make it difficult to compare the importance of drink driving between countries. The way accidents are classified as alcohol-related varies from country to country. Not all countries have the same legal blood alcohol content (BAC) limit and methodologies and protocols for checking the presence of alcohol in drivers involved in an injury crash differ. An alcohol-related crash is usually defined in one of two ways

- A crash where one of the drivers tests positively for any level of alcohol (even if below the legal limit)
- or
- A crash where one of the drivers has blood alcohol content above the legal limit.

Most IRTAD countries have a maximum permissible blood alcohol content of 0.5 g/l. 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 the United States, where the legal limit is 0.8 g/l.

Table 4. Maximum blood alcohol content in 2010

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 for novice drivers 0.2 g for professional drivers
Austria	0.5 g/l	0.1g/l moped riders < 20 y Novice and professional drivers
Belgium	0.5 g/l	
Cambodia	0.5 g/l	
Canada	0.8g/l	0.2 g/l in some provinces for professional drivers
Czech Republic	0.0 g/l	-l
Denmark	0.5g/l	-
Finland	0.5g/l	-
France	0.5g/l	0.2g/l (bus drivers)
Germany	0.5g/l	0.0 g/l (novice drivers)
Greece	0.5g/l	0.2g/l, professional drivers, motorcycles and moped riders
Hungary	0.0g/l (sanctions when BAC > 0.2g/l)	
Iceland		
Ireland	0.5g/l (implementation in 2011)	0.2g/l young drivers, professional drivers
Israel	0.5g/l	-
Italy	0.5g/l	0 g/l for novice and professional drivers since July 2010.
Japan	0.3g/l	
Korea	0.5g/l	-
Lithuania	0.4g/l	0.2g/ novice and professional drivers
Malaysia	0.0 g/l	
Netherlands	0.5g/l	0.2g/l novice drivers
New Zealand	0.8g/l	0.3 g/l drivers under 20 -
Norway	0.2g/l	
Poland	0.2 g/l	-
Portugal	0.5g/l	-
Slovenia	0.5g/l	-
Spain	0.5g/l	0.3g/l novice and professional drivers
Sweden	0.2 g/l	-
Switzerland	0.5g/l	-
United Kingdom	0.8 g/l	-
United States	0.8g/l	0.2 g/l for drivers < 21 0.4 g/l for professional drivers

3.2. Seatbelt wearing

Table 5 summarises the situation regarding the seatbelt laws in IRTAD countries and provides an estimation for the seatbelt wearing rate in 2009 or 2010.

Seatbelt wearing is compulsory in front seats and rear seats in almost all IRTAD countries. In most of the countries, mandatory seatbelt laws for rear seats were introduced 10 to 15 years after the front seat law. In some countries, mandatory seatbelt laws in rear seats were introduced only very recently; for example in 2008 in Japan and in 2003 in Greece. The wearing rate in these countries is much lower than in countries where the law is older. In almost all countries, however, there is a significant difference in wearing rates between front seats and rear seats. Much effort can 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. Even in France, where the wearing rate is among the highest in IRTAD countries, it was estimated that, in 2007 if every passenger and driver had worn a seatbelt,) 397 lives could have been saved (around 9% of total fatalities).

Table 5. **Mandatory seatbelt wearing law and wearing rates in passenger cars
2009- 2010**

Country	Front seats		Rear seats	
	Y/N date of application	Wearing rate	Y/N date of application	Wearing rate (adults)
Argentina	Yes, 1995	-	Yes, 1995	
Australia	Yes, 1970s	Around 95%	Yes	Around 80%
Austria	Yes	89%	Yes	65%
Belgium	Yes, 1975	86%	Yes, 1991	Unknown
Cambodia	Yes, 2007	48% drivers 25% passengers	No	unknown
Canada	Yes, 1976-1988	Around 96% (drivers)	Yes, 1976-1988	Unknown
Czech Republic	Yes, 1966	90% (2006)	Yes, 1965	68% (2006)
Denmark	Yes, 1970s	92% (drivers)	Yes, 1980s	71%
Finland	Yes, 1975	Around 90%	Yes, 1987	
France	Yes, 1973	95-99% (drivers)	Yes, 1990	78%
Germany	Yes, 1976	97%	Yes, 1984	96%
Greece	Yes, 1987	75%	Yes, 2003	23%
Hungary	Yes, 1976	79%	Yes, 1993 (outside built up areas), 2001 (inside built up areas)	50%
Iceland	Yes		Yes	
Ireland	Yes, 1979	90%	Yes, 1979	79%
Israel	Yes, 1975	96% (drivers) 91% (passengers)	Yes, 1995	69%
Italy	Yes, 1988	Around 65%	Yes, 1994	
Japan	Yes, 1985	97% (drivers) 91% (passengers)	Yes, 2008	34%
Korea	Yes, 1990	88% (drivers) 74% (passengers)	Yes on motorways, since 2008	12%
Lithuania	Yes		Yes	
Malaysia	Yes, 1978	80% (drivers) 70% (passengers)	Yes, 2009	10% (it was 40% in 2009)
Netherlands	Yes, 1975	95%	Yes, 1992	80%
New Zealand	Yes, 1972	95%	Yes, 1979	87%
Norway	Yes, 1975	97% (drivers) 89-94% (passengers)	Yes, 1985	
Poland	Yes, 1991	78%	Yes, 1991	47%
Portugal	Yes, 1978	87% (2004)	Yes, 1994	16% (2004)
Slovenia	Yes, 1977	88%	Yes, 1998	56%
Spain	Yes, 1974	88-97% (drivers)	Yes, 1992	
Sweden	Yes, 1975	96%	Yes, 1986	80%
Switzerland	Yes, 1981	89% (passengers) 88% (drivers)	Yes, 1994	74%
United Kingdom	Yes, 1983	95%	Yes, 1989 (children); 1991 (adults)	89%
United States	Primary law in 30 out of 50 states.	84%	Varies by State	70%

Figure 8. Seatbelt wearing rate in front seats (2009 or 2010)

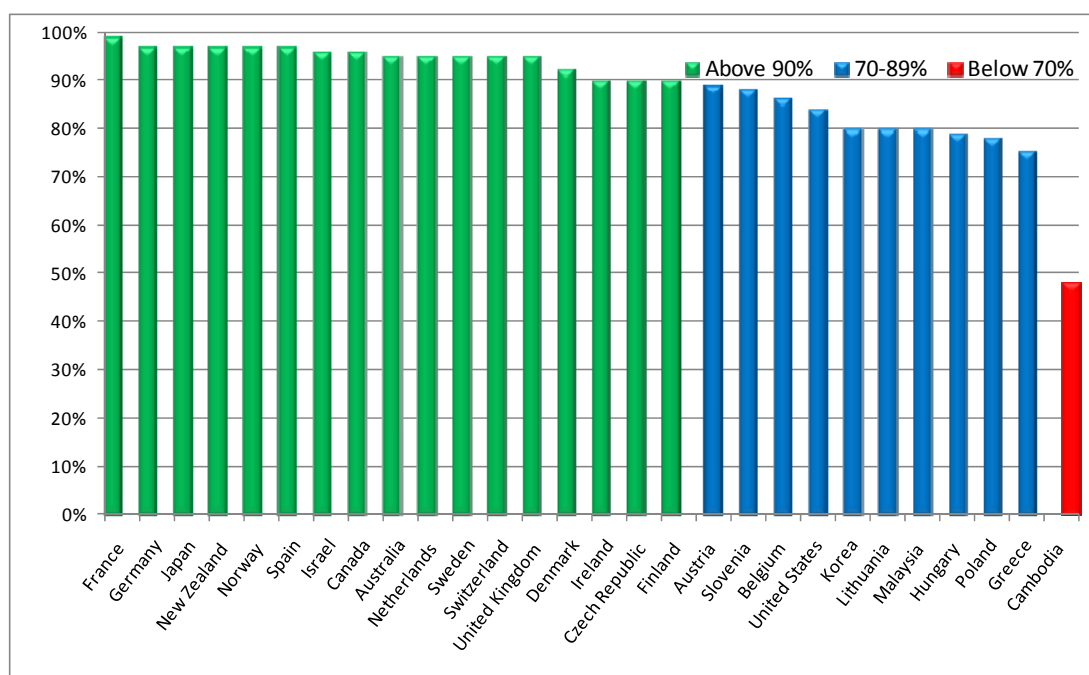
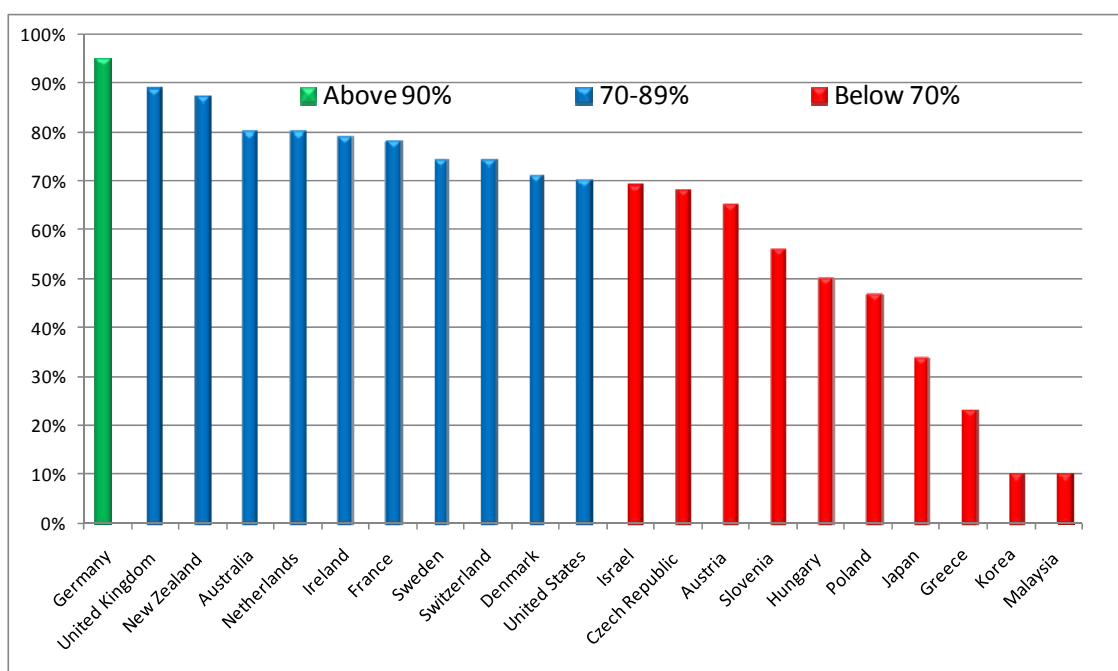


Figure 9. Seatbelt wearing rate in rear seats (2009 or 2010)



3.3 Current legislation on the use of mobile phone while driving

Table 6 summarises 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 phone while driving

Country	Law prohibiting the use of hand held phones	Law prohibiting the use of hand free phone	Estimated % of drivers using a mobile phone while driving
Argentina	No	No	-
Australia	Yes	In some jurisdictions, total ban of using a mobile phone for learners and novice drivers	61% of drivers admit using a 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 some 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 2009, at any time, 2.3% of car drivers and 4.4% of truck drivers were using a hand held phone while driving.
Germany			
Greece	Yes	No. Hand free phone not allowed when wired (eg with headphones)	According to a national survey of 2008, 8% of car drivers and 2% of PTW riders were observed using mobile phone while driving
Hungary	Yes	No	
Ireland	Yes	No	In 2009, 6% of drivers were observed using a hand held mobile phone while driving.
Israel	Yes	No	
Italy	Yes	No	2-3 %
Japan	Yes	No	
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 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	
Sweden	No	No	
Switzerland	Yes	In some cases, using hand free phone can be considered as impaired driving.	
United Kingdom	Yes	A driver can be prosecuted for using a handsfree 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. IRTAD SPECIAL PROJECTS – 2010

This section presents some specific activities undertaken by the IRTAD Group in 2010, focussing on :

- Twinning projects with Argentina and Cambodia
- A Study on Linking Hospital and Police Data
- A Survey on distracted driving, conducted by NHTSA

4.1. 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 system.
- 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 launched in 2010 with Argentina and Cambodia. It is expected to launch new projects in 2011.

Twinning project between Argentina and Spain

In April 2010, the first twinning programme between Spain (Dirección General del Trafico of Spain) and Argentina was launched. This Programme is part of a broader project financed by the World Bank Global Road Safety Facility aiming at Building Capacity to Manage for Results; increasing Road Safety Awareness and developing Demonstration Program; and developing a Road Safety Monitoring and Evaluation System within the National Road Safety Observatory of the Argentinean Road Safety Agency. The IRTAD twinning concerns the third part of the project and is focused on:

- Improvement of the accident registration system, with the aim of developing a uniform system to be used in all provinces of Argentina, for reporting by the National Road Safety Observatory (ANSV).
- Development of analysis tools to monitor key performance indicators throughout the country
- Nationwide installation of software to upload and exchange information on traffic casualties.

The assistance of the DGT Team has been very valuable in developing a standardized police form. This form is now already adopted in all provinces in Argentina. For the first time, in 2011, police in all provinces will record the same accident data, which will allow sharper analysis by the National Road Safety Observatory

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

A team from the General Direccion de Tráfico of Spain visited Argentina twice in 2010 to provide training on

- The development and use of specific statistical indicators
- Specifications for the design of the safety database structure

Further steps in 2011 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.



Stephen Perkins (ITF), Fred Wegman (Chairman of IRTAD), Bjorn Stafbom (World Bank), Corina Puppo (ANSV), Anna Ferrer (DGT)

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 All¹ 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;

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

- 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.

The following activities took place in 2010:

Visit of a Cambodian Delegation at SWOV and participation in the IRTAD meeting.

Socheata Sann came to Europe in April to attend the Spring meeting of the IRTAD group and a training session at SWOV in the Netherlands, focusing on accident registration, exposure data, accident analysis, development of road safety policy and target setting.



Workshop on safety targets and performance indicators, Phnom Penh, July 2010

In July 2010, Paul Wesemann on behalf of IRTAD and representing Road Safety for All, organised a workshop in Phnom Penh for the National Road Safety Committee to discuss the development of targets and performance indicators for implementation in the 2011-2020 road safety action plan. The ultimate goal of the workshop was to conclude on targets for the reduction of fatal accidents and for improvements on a number of safety performance indicators (drink-driving, helmet wearing and speeding).



Following the workshop, a set of targets and indicators have been developed. Their adoption is currently under consideration by the Minister of Transport of Cambodia.

Training session at SWOV, October 2010

An expert from Cambodia attended a training session at SWOV particularly focused on procedures for linking databases (e.g. of police and hospital records), including the development of software.

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.
- Further review of Cambodia road safety data record and analysis systems.
- Development of a system to monitor the targets and implementation of the Road Safety Action Plan.

4.2. Linking police and hospital data to better assess the real number of traffic casualties

In 2009, the IRTAD group initiated a study on linking police and hospital data to better the real number of traffic casualties with a Workshop held in London.

Underreporting of crashes is an issue in all countries. Even best performing countries recognise a shortfall in crash reporting, including fatal crashes. It is essential to have a precise picture of the number, severity and consequences of road crashes to better assess their social and economic impact. More accurate knowledge — especially on non-fatal crashes — is also needed in order to develop better counter-measures. The issue of crash underreporting has been studied by the IRTAD Group for a number of years (IRTAD (2001) and IRTAD (2007) ¹. Table 7 is extracted from the 2007 report and shows the magnitude of underreporting in some IRTAD countries.

Linking hospital and police data offers a tool to get a more comprehensive picture of the consequences of accidents, particularly with respect to non fatal casualties. More accurate data on injury crashes is critical to responding adequately. The study of the IRTAD group focuses on:

- The definition of serious injuries
- The use of police data and its limitations
- The use of hospital data and other sources of information
- The quality of data
- Linking procedures for hospital and police data
- Best practices for assessing the real number of casualties.

A final report will be available in 2011.

Table 7. Reporting rate mentioned by IRTAD members (extract from IRTAD 2007 report “Underreporting of road traffic casualties”

Country	Killed	Hospitalised	Severely injured	Slightly injured	Damage only accidents
Australia	100	90	Hospital patients only	Hospital patients only	Not registered
Germany	95	No data on reporting rates	68	64	No data on reporting rates
Netherlands	94	60	14	5	30
New Zealand	100	100	67	No data on reporting rates	No data on reporting rates
Slovenia	100	No data on reporting rates	94	82	49
Spain	97	No data on reporting rates	67	No data on reporting rates	No data on reporting rates
Sweden	100	90	50	20	
Switzerland	98	No data on reporting rates	77	25	No data on reporting rates
US	100	No data on reporting rates	95	75	50

Most countries responded that the reporting rate was unknown. In many cases, this means that the issue of underreporting is identified, but cannot be quantified.

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- ¹ IRTAD (2001), The Availability of Hospitalised Road User Data in OECD Member Countries
 - IRTAD (2007), Underreporting of road traffic casualties

4.3. Distracted driving

NHTSA Survey among IRTAD Member on distracted driving

Distracted driving, which encompasses a wide range of activities while driving including phoning, texting, watching video and regulating the GPS navigator, is recognized by many countries as a growing issue, given the explosion in the sales of mobile phones and on-board equipment. NHTSA estimates that in 2009, 17% of all crashes in the United States involved distracted driving, representing nearly 5500 fatalities.

Combating distracted driving has become a priority in the United States and two high level summits were held there in 2009 and 2010. In follow-up to the Distracted Driving Summit held in autumn 2009, NHTSA undertook a survey among IRTAD members to identify methods that other countries are developing to collect and report on crashes involving distracted driving. This section summarizes the main findings¹.

Purpose and methodology of the survey

The NHTSA survey pertained to:

- the definition of distraction
- data collection methods
- means of reporting crash and injury data regarding distracted driving.

Results of the survey

Respondent countries generally collect data on motor vehicle crashes from area police or law enforcement agencies. Additionally, injury and fatality data are retrieved from hospitals to accompany crash information from law enforcement. Finland uses data collected from multidisciplinary accident investigation teams. These collection methods are similar to those of the United States, where motor vehicle crash data is collected from police accident reports (PARs); in some police jurisdictions, additional information from hospitals or investigators is also used as source information.

With respect to distracted driving, 12 of the responding countries identified distraction in the motor vehicle crash information. Table 8 details which countries identify distraction for total crashes, fatal crashes, and injury crashes.

The ability to glean information about driver distractions at the time of the crash is difficult. Responding countries collected this information through interviews with crash victims and witnesses, investigation of the crashes and crash scenes, as well as telephone records at times. However, in a few of the responding countries some of these details are collected but not included in the statistical data record used for reporting of incidents. The United States uses interviews and investigations for crash-specific information, but access to phone records is not widespread practice if used at all.

¹ Source : NHTSA (2010), *Overview of Results From the International Traffic Safety Data and Analysis Group Survey on Distracted Driving Data Collection and Reporting*, Traffic Safety Facts, October 2010.

Table 8. Collection of Distracted Driving Crash Data for Respondent Countries

Country	Total crashes	Fatal crashes	Injury crashes	Does not report
Austria		X		
Canada	X	X	X	
Finland		X		
France		X	X	
Great Britain	X	X	X	
Hungary		X	X	
Japan		X	X	
New Zealand	X	X	X	
Spain		X	X	
Sweden		X		
Switzerland	X	X	X	
United States	X	X	X	
Australia				X
Belgium				X
Denmark				X
Germany				X
Greece				X
Israel				X

One challenge in many countries is that between police jurisdictions, there are different methods by which the law enforcement officers record the data on the accident reporting form.

With the increasing presence of communication technologies provided as original equipment in the vehicle or portable equipment brought into the vehicle, these electronic communication devices are receiving increased attention regarding their role in a motor vehicle crash. The survey asked about both cell phone use and text messaging with regard to crash involvement. Few countries specifically identify cell phone use as the distracting activity and even fewer identify text messaging. The countries that identify these are shown below, along with the specificity of the activity with the cell phone or texting device.

Type of distraction: Cell Phone Use

- Finland – specifically identifies phone use at the time of the crash, phone in the car but the use was unknown, hand-held mobile phone, and hands-free mobile phone
- Great Britain – specifically identifies hands-free mobile phone use
- Japan – specifically identifies phone use at the time of the crash, hand-held mobile phone use, and hands-free mobile phone use
- New Zealand – does not identify specific activities/characteristics with the phone, just a general classification that a cell phone was involved
- Switzerland – specifically identifies phone use at the time of the crash
- United states – specifically identifies cell phone as a type of distraction

Type of distraction: Text Messaging

- Finland – does not identify specific activities with regard to text messaging, just that a text messaging device was involved
- Japan – specifically identifies whether the driver was sending or receiving a text and whether the texting device was integrated into the vehicle.

Other type of distraction: fatigue, sleeping, emotional state of a driver

From reviewing the literature regarding distraction-specific activities, there are differing positions on whether fatigue or sleeping is considered a distraction as well as whether the emotional state of a driver is considered distraction. From the results of the survey, most countries do not include fatigue and sleeping as distracted driving. The table below shows how emotional distress is classified (see Table 9).

Table 9. Classification of emotional distress

	Not considered as a distraction	Considered as "inattention"	Considered as "distraction"
Austria	X		
Belgium	X		
Canada	X	X	
Finland	X	X	
France			X
Germany	X		
Great Britain			X
Greece	X		
Hungary	X		
Israel	X		
Japan			X
New Zealand	X	x	
Spain			X
Sweden	X		
Switzerland	X		
United States	X	X	

Reported driver distraction in traffic crashes

Most countries do not report on distracted driving involvement as related to exposure data, thus not able to provide a rate-based figure. France, starting in 2009, estimates the use of mobile phones when driving (excluding hands-free devices) via a national observational survey. The United States also has such a survey that provided estimates of cell phone use at any given daylight time (the National Occupant Protection Use Survey).

Given the challenges of identifying and collecting driver distraction involvement in motor vehicle crashes, NHTSA discloses the limitations of the data in the data reports. Six responding countries (Finland, France, Great Britain, New Zealand, Spain, and Switzerland) also include similar discussions with such information as:

- Large proportions of missing data for distraction elements;
- Need for improvement in specific details of the distraction activities;
- Difficult to ascertain the specific activity of the driver (at the time of the crash) at the crash site;
- No clear definition of what police should consider as distraction
- Three countries stated discussions of limitations without specifications.

5. COUNTRY REPORTS

ARGENTINA¹

Argentina joined the IRTAD Group in 2010. It benefits from a twinning programme with DGT (Spain) to review and improve its road crash data system. Most of the data are available from 2005 onward.

1. Short term trends

❖ General comments on trends for 2009

2009 saw a 2.5% decrease in the number of road fatalities in Argentina compared with 2008.

❖ Preliminary trends for 2010

Based on provisional data for the 1st semester 2010, the number of fatalities and crashes declined by 11.73% and 5.9% respectively in comparison with 2009.

2. Long-term trends

Since the creation of the National Road Safety Agency in 2008, road safety has become a priority and is included on the political agenda. In order to prevent accidents and control road safety on all national routes, a new statistical system, a new national drivers' licence and innovative technologies have been introduced and are contributing to improvements in road safety throughout the national territory.

The car fleet has risen by 500 000 units a year since 2007.

❖ Changes in the numbers of fatalities and injury crashes

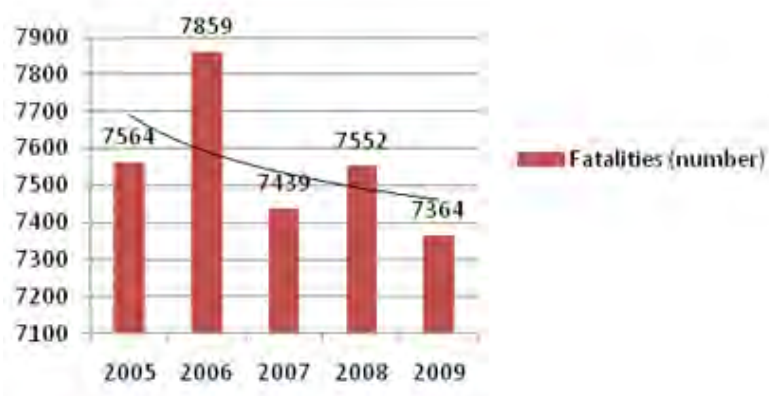
There is no comprehensive national data for the whole country before 2008. Whereas data on fatalities are available from 2005 onward, data on injuries is only available as from 2008.

Table 1. Reported road fatalities and injury crashes
2005-2009

	2005	2006	2007	2008	2009	2009 % changeover	
						2008	2005
Fatalities	7564	7859	7439	7552	7364	-2.5%	-2.6%
Injury crashes	No data	No data	73445	97474	90851	-6.8%	No data

¹ Source : Agencia Nacional de Seguridad Vial (ANSV), IRTAD

Figure 1. **Reported road fatalities
2005-2009**



❖ Risks and rates

In 2009, the fatality rate, expressed in the number of fatalities per 100 000 of the population, was 18.3.

Table 2. **Rates
2005-2009**

	2005	2006	2007	2008	2009	2009 % change over 2008
Deaths/100 000 population	19,13	20,17	18,90	19,00	18,34	-3.5%
Deaths/ 10 000 registered vehicles	No data	No data	No data	5.82	5.45	-6.4%

3. Accident trends

❖ Road users

The safety of motorcyclists is a major concern in Argentina. In 2009, the number of traffic crashes involving motorcycles and mopeds rose significantly when compared to 2008, reaching the same levels as in 2007. There is also concern about an increase in the share of accidents involving public transport vehicles. Table 3 shows the share of road crashes by type of vehicle.

Table 3. Breakdown of road crashes by type of vehicle
2007, 2008, 2009

Vehicle type	2007	2008	2009
Car	54.23%	55.71%	52.49%
Motorcycle / Moped	15.65%	11.79%	15.00%
Utility / Pick-up	14.14%	15.24%	14.44%
Other	1.19%	2.99%	4.11%
Automotive hire (taxis)	2.74%	2.26%	3.48%
Public road transport	3.34%	2.89%	3.21%
Truck	3.82%	3.88%	3.21%
Human-powered	2.88%	1.66%	1.64%
Unknown	0.03%	0.45%	0.56%
Truck-trailer	0.45%	0.88%	0.54%
ATV	0.61%	1.45%	0.53%
Official vehicles	0.37%	0.38%	0.35%
Animal traction	0.13%	0.11%	0.14%
Ambulance	0.09%	0.05%	0.12%
Tractor	0.09%	0.07%	0.08%
Tractor trailer	0.11%	0.04%	0.06%
Agricultural machinery	0.11%	0.13%	0.04%
Funeral service	0.01%	0.01%	0.00%

❖ Age

In Argentina, the age groups between 15 and 34 years old have the highest risk of accidents.

Table 4 below shows the number of fatalities by age group. In 2009, for only two age groups did the number of fatalities decrease: children (-32%) and young people (-17%). The 35-44 age group saw the biggest increase since 2008.

Table 4. Reported fatalities by age group, 2008- 2009

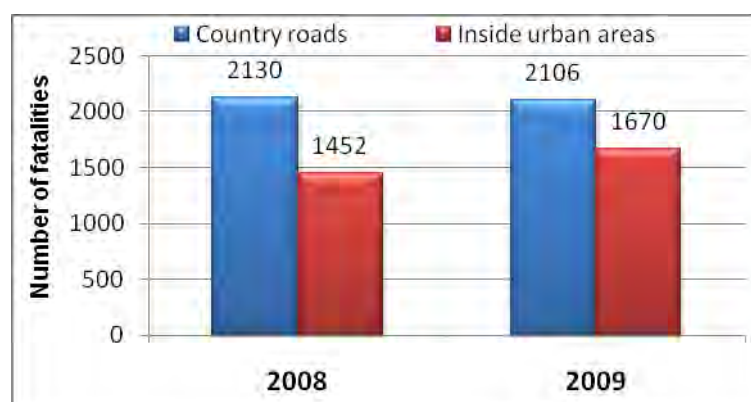
Fatalities by age	2008	2009	Diff. % 2009/2008
0-14	831	564	-32.1%
15-24	1 911	1 588	-16.9%
25-34	1 432	1 542	7.7%
35-44	998	1 131	13.3%
45-54	853	915	7.3%
55-64	709	747	5.4%
65 years +	818	878	7.3%
Total	7 552	7 364	-2.5%

❖ Road type

Sixty per cent of fatalities occur on rural roads and 40% in urban areas. The safety of pedestrians in urban areas remains a major challenge. The condition of Argentina's roads is a major issue for road safety. The deterioration of transport infrastructure, poorly-designed roads and

limited signalling also contribute to Argentina’s road safety conditions. Most recently, however, much progress has been achieved on rural roads.

Figure 3. **Reported fatalities by road type**
2008 and 2009



4. Recent trends in road user behaviour

Driver behaviour is a contributing factor in over 60% of road crashes.

❖ Drink 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 breath tests by the roadside. Action against drink-driving has resulted in a 30% decrease in the number of drivers with a BAC above the limit.

❖ Speed

The table below summarises the main speed limits in Argentina.

	Cars	Trucks	Buses
Urban areas	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

As of 2011, speed-measurement surveys will be undertaken on roads.

❖ Seat belts and helmets

Seatbelt wearing is compulsory in front and rear seats since February 1995. Dedicated child restraint systems are mandatory for children under 4. There is no data as yet on the rate of seatbelt use in Argentina; however, surveys will start in 2011.

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

❖ Distracted driving

There is no national legislation regarding the use of mobile phones while driving.

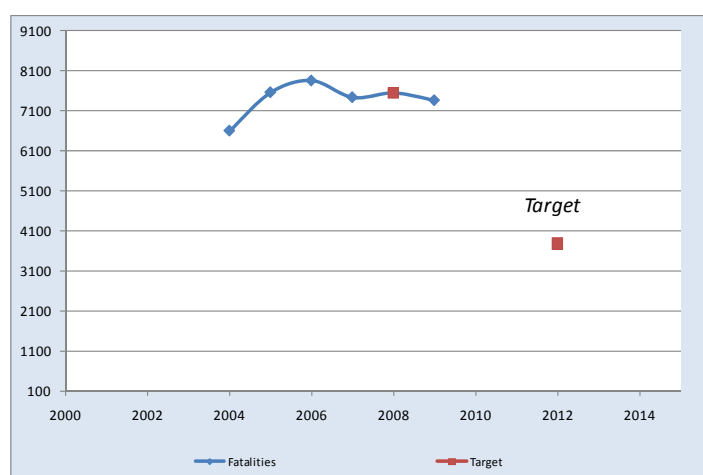
5. National road safety strategies and targets

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, and it is funded through a 1% allocation from all vehicle insurance fees collected. The Observatory 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 programmatic 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 four years, taking 2008 as the base year.

Figure 4. Progress towards road safety target



❖ Road safety strategies beyond 2010

The ANSV will conduct several actions during 2011.

- National surveys on seat-belt usage;
- Creation of a national speed baseline to monitor speeds;
- Consolidation of the new crash data system;
- Consolidation of the new National Drivers' Licence;
- Integral SRI research analysis, in co-operation with the Gonzalo Rodriguez Memorial Foundation;
- Further deployment of speed enforcement devices (cinemometers, radars, etc.);
- Development of educational programme together with the Education Ministry.

6. Recent safety measures (2008-2010)

The National Road Safety Agency, created in 2008, has started an ambitious programme to improve road safety, including the following actions:

Co-ordinating actions at provincial level

- Leading an inter-jurisdictional dialogue with all provinces in order to ratify Law 26,363. To date, 21 of the 24 provinces have supported the law.
- Signed agreements with provinces, in which ANSV provides speed- and alcohol-measuring devices and funds the development of urban road safety plans.
- Implementation of a National Drivers' Licence, which is being settled progressively according to the availability of technology and the capacity of the provinces.

Monitoring and publication of data

- A National Road Safety Observatory was created within the ANSV. The Observatory will regularly publish safety data showing, *inter alia*, national statistics on injuries and fatalities during 2008.
- Improvement of data collection and analysis: as part of the IRTAD Programme of Work, the World Bank is supporting a twinning project between DGT (Spain) and the ANSV to review and improve data collection and analysis in Argentina.
- A major achievement in 2010 has been the adoption of a common Accident Form in all provinces. The Road Safety Observatory has created a new process and instrument to register road traffic accidents. This form will be completed by the police in all provinces in order to better classify the types of accident, their characteristics and the degree of injury (fatal, serious and slightly injured). In a follow-up process, the form will also enable the logging of the severity of injuries using the ICD classification.

Education and awareness

- Educational campaigns throughout Argentina to create awareness of the high risks of reckless and drink-driving.

Enforcement

- In 2009, signature of an agreement between ANSV and the national security forces to develop more effective enforcement, *inter alia*, for drink-driving, speeding, mobile phone use, wearing of seat-belts and helmets;
- Special road surveillance and control campaigns in 2009: summer campaigns focussed on speed, safety-belt use, helmet and alcohol-abuse controls;
- In 2009, the ANSV implemented a GPS audit on public road transport in order to control and collect data.

Motorcyclist safety

- The ANSV provides free helmets to motorcycle users and has initiated specific communications campaigns for motorcyclists. This is a collaborative action within all provinces.

Drink-driving

- Preventive programmes, through roadside tests. A 30% reduction in testing positive has been recorded over time.

Infrastructure

- Development of a Road Risk Analysis System that assesses roads countrywide and aims to significantly reduce road casualties by improving the safety of road infrastructure.

7. [References – Useful websites](#)

National Road Safety Agency (ANSV)	http://www.mininterior.gov.ar/ansv/segVial.php
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AUSTRALIA¹

1. Short term trends

❖ General comments on trends for 2009

Road deaths in Australia increased by 3.5% in 2009 compared with 2008. This increase followed a large reduction in 2008 (-8.7%) which was preceded by several years when there was little change in the number of deaths (between 2003 and 2007). Despite the increase, the number of deaths in 2009 was still the second lowest annual total since 1949 (behind 2008).

In 2009, there was an annual decrease in motorcyclist deaths but increases for all other road user groups; the complete reverse of the previous year. There were also fewer deaths of young adults (17-25 years) and the elderly (70 years and over), with increases for all other age groups.

Total vehicle-kilometres travelled in 2009 were largely unchanged from the previous two years.

❖ Preliminary data for the year 2010

Preliminary data suggests that there will be fewer road deaths in 2010 than in 2009; road deaths in 2010 were down 9.2% to the end of October compared with the same period in 2009.

2. Long term trends

❖ Reported number of fatalities and injury crashes

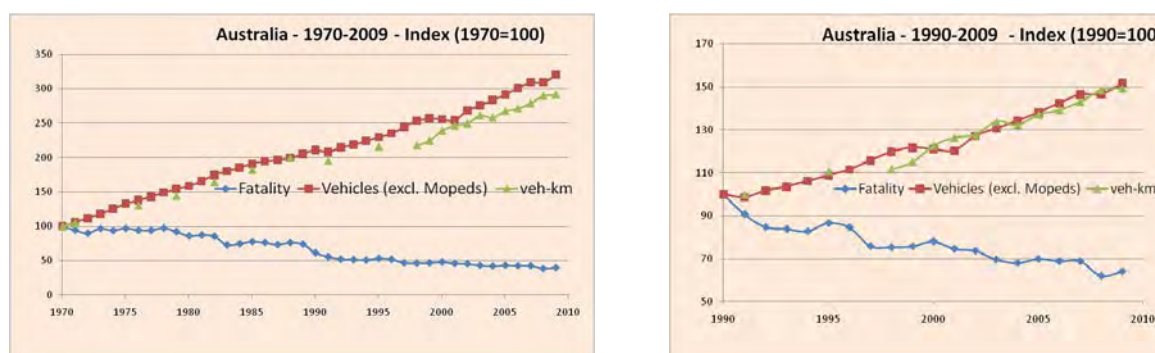
Between 1970 and 2009, the number of fatalities decreased by 61%, while the number of vehicles and the distance travelled was multiplied by 3. In recent years (2000-2009), the number of fatalities decreased by 18%. Since the middle of this decade, there has been a small decline in the total number of Australian road fatalities.

Table 1. Reported road fatalities
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % change over		
								2008	2000	1970
Fatalities	3 798	3 272	2 331	1 817	1 627	1 442	1 492	3%	-18%	-61%

¹. Source: IRTAD, Department of Infrastructure and Transport

Figure 1. **Reported road fatalities, vehicles and veh-km
1970-2009**



❖ Risks and rates

In the last 39 years the mortality rate (in terms of deaths per 100 000 population) decreased by 78% and fatality risk (in terms of deaths per billion vehicle-kilometres) declined by 86%.

Table 2. **Rates
1970, 1990, 2000, 2008, 2009**

	1970	1990	2000	2009	2009 % change over	
					2000	1970
Deaths/100 000 population	30.4	13.7	9.5	6.8	-28%	-78%
Deaths/billion veh-km	49.3	14.37	9.2	6.7	-27%	-86%
Deaths/ 10 000 registered vehicles	8.0	2.31	1.5	0.95	-37%	-88%

3. Accident trends

❖ Road users

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

Since 1990, the percentage reduction in **pedestrian** fatalities (-53%) has been considerably larger than that for vehicle occupant fatalities (-34%). 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 61% since 1990. Reduced urban travel speeds and introduction of **compulsory helmet laws** for cyclists have contributed to this improvement.

Changes in **motorcycle fatalities** have been influenced by exposure changes (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 2009, 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 15%. As the chart below illustrates, 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 2009, the number of motorcycle vehicle-kilometres travelled in Australia increased by 72%.

Despite the longer term upward trend, motorcyclist deaths in 2009 were 9% lower than in 2008. In 2009, motorcycles accounted for:

- 1.1% of vehicle-kilometres (and a lower proportion of person-kilometres), but:
- 18% of motor vehicle user road deaths
- 30% of motor vehicle users hospitalised after road crashes¹
- 42% of male motor vehicle users hospitalised after road crashes.

Figure 2. Relative evolution in fatalities by user group
January 2000 = Index 100

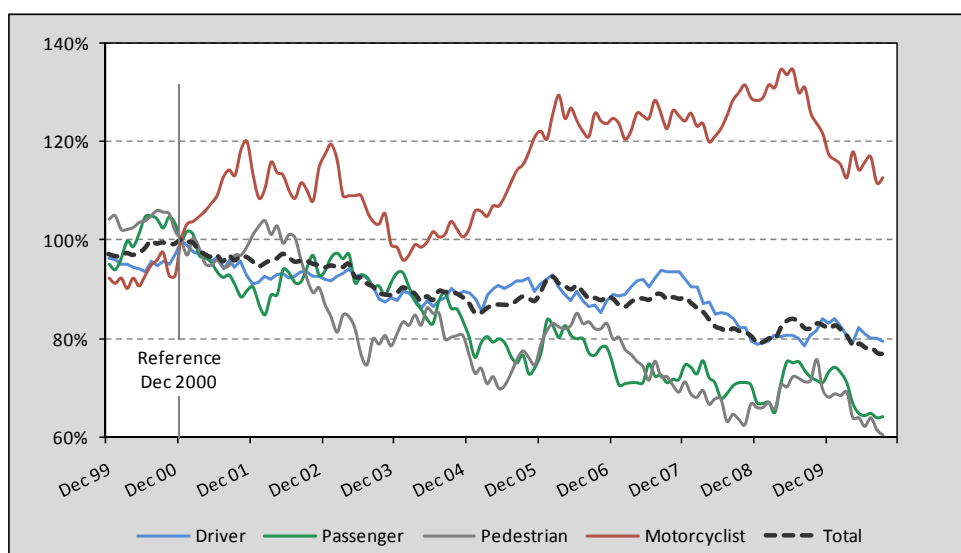


Table 3. Reported fatalities by road user
1970, 1990, 2000, 2008 and 2009

	1970		1990		2000		2008		2009		2009 % change over		
	Count	%	Count	%	Count	%	Count	%	Count	%	2008	2000	1970
Bicyclists	98	3%	80	3%	31	2%	28	2%	31	2%	11%	0%	-68%
Motorized 2-wheelers	173	5%	262	11%	191	11%	245	17%	224	15%	-9%	17%	29%
Vehicle occupants	2 693	71%	1 569	67%	1 302	72%	997	68%	1 040	70%	6%	-20%	-61%
Pedestrians	822	22%	420	18%	287	16%	190	13%	196	13%	3%	-32%	-76%
Other	12	0%	0	0%	6	0%	2	0.1%	1	0%	-50%	-83%	-92%
Total	3 798	100%	2 331	100%	1 817	100%	1 442	100%	1 492	100%	3%	-18%	-61%

¹. Hospitalisation figures are for 2006-07, which are the latest available.

❖ Age

The highest road fatality rates (in terms of fatalities per population) are among young adults (17-24 years) and elderly people (over 70); children aged 0-16 have the lowest fatality rate.

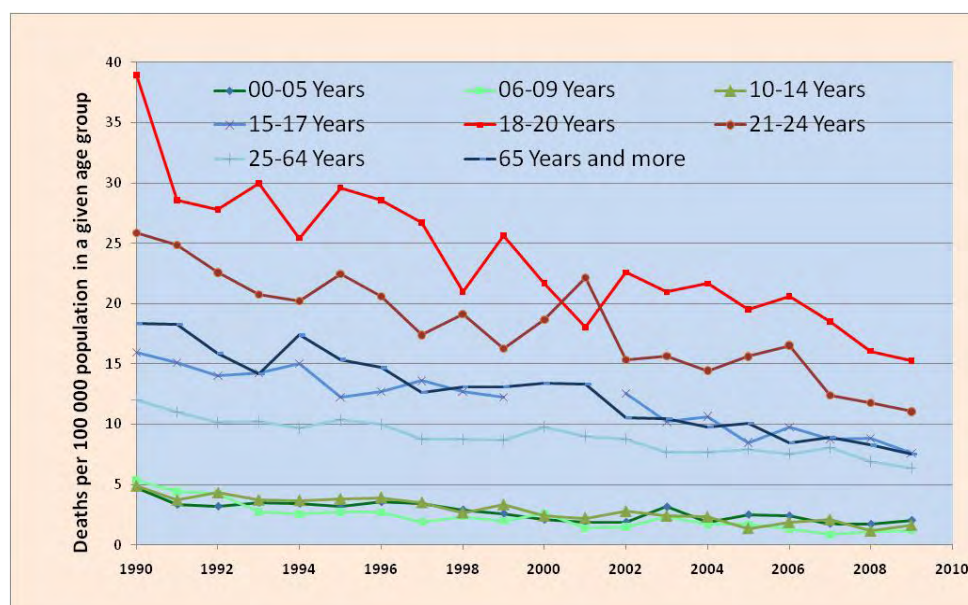
In percentage terms, the biggest fatality reductions since 1990 have been among infants and young children (ages 0-9): -62%. Pedestrian and cyclist fatalities in this age group have dropped dramatically (by 84%), though vehicle passenger fatalities are also down (by 36%). Exposure changes may have contributed 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 (ages 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), the majority of fatalities are drivers or passengers; these fatalities have dropped by 47% since 1990, while young adult fatalities in other road user groups are down by 68%.

A 5% increase in road deaths amongst 40-59 year-olds since 1990 is largely due to an increase in motorcyclist deaths (from 18 to 92) and is associated with the growth in motorcycle activity discussed above.

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



❖ Road type

Road fatality rates are higher for people who live in rural areas (particularly remote ones) than for people living in major cities. People living outside cities tend to do more of their driving at highway speeds, more driving on lower standard rural roads and 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 motorway standard.

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

4. Road user behaviour

❖ Drink driving and drug driving

In Australia, the maximum authorized 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 30% of driver and rider fatalities still have 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, other 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, methamphetamine 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 in the National Road Safety Action Plan.

❖ 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 generally in excess of 95% and rear seat rates above 80%.

Despite high general usage rates, the rates of non-use among fatally injured vehicle occupants are still estimated at 30%. Analysis indicates that this high 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.

Although **helmets** are compulsory for motorcycle and moped riders and bicyclists, approximately 1 in 10 motorcyclists and 1 in 3 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 61% 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.

5. National road safety strategies and targets

❖ Current national road safety strategies

In November 2008, the Australian Transport Council (made up of federal, state and territory transport ministers) released the **National Road Safety Action Plan 2009 and 2010** (http://www.atcouncil.gov.au/documents/actionplan_0910.aspx). The Action Plan sets out a comprehensive range of policy measures and supporting activities for priority implementation. Key items in the plan include:

- Development of a national best practice speed management strategy.
- Creation of a systematic crash risk assessment model for major parts of the road network.
- Stronger focus on safe system practice in road design, construction and maintenance.
- Actions to improve consumer awareness and uptake of vehicle safety features, including stability control, side impact head protection, seat belt reminder systems and intelligent speed adaptation.
- Renewed focus on effective enforcement of drink and drug driving laws, teamed with targeted public education.

The current National Road Safety Strategy ends in 2010 and a new 10-year national strategy for 2011-2020 is under development (see below).

❖ Safety targets and progress towards targets

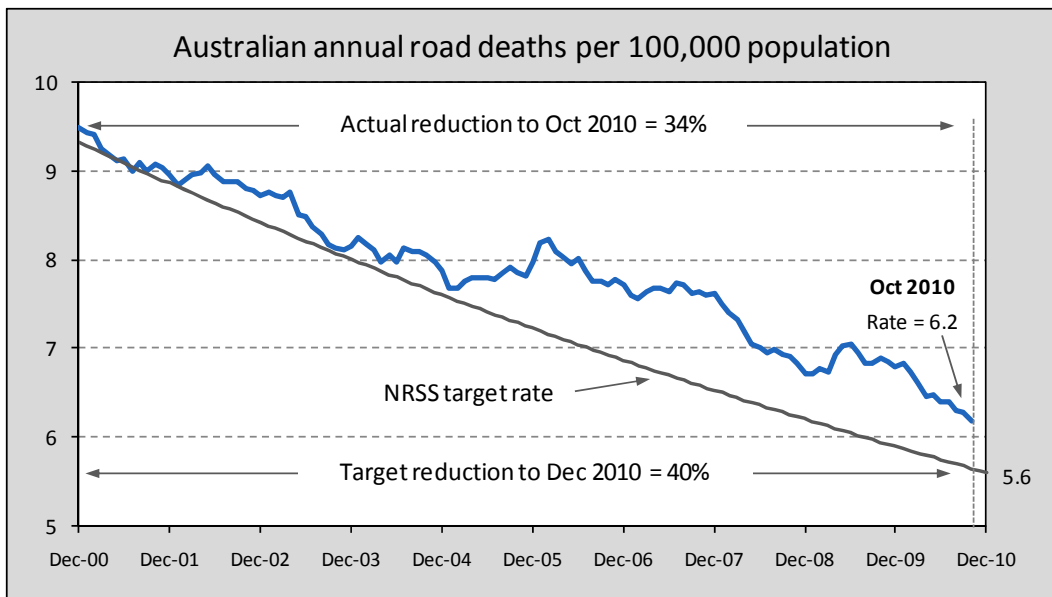
The target adopted for Australia's current National Road Safety Strategy was to reduce the annual road fatality rate to 5.6 deaths per 100 000 population by the end of 2010. This represented a 40% reduction relative to the 1999 benchmark rate of 9.3 deaths per 100 000 people. Up to the end of 2004, the fatality rate was essentially on track to reach the 2010 target. However, a substantial gap has since developed between projected progress and actual outcomes, and there is now little prospect of achieving a rate of 5.6 by the end of 2010. For the 12-month period to the end of October 2010, the fatality rate stood at 6.2 deaths per 100,000 people.

The reasons for the slower than expected progress are not entirely clear, though Australia's strong economic performance through most of the decade – reflected to some extent in measures of travel activity – is thought to have played a part.

❖ Road safety strategies beyond 2010

- The Australian Transport Council (comprising federal, state and territory transport Ministers) has agreed to establish a new National Road Safety Strategy for the period 2011 to 2020. The Federal Government is leading the development of the new strategy, which will set national targets for reductions in deaths and serious injuries to the end of 2020. The strategy is expected to be finalised and released in early 2011.
- Transport Ministers recently approved a new National Cycling Strategy for 2011 to 2016. 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.

Figure 4. Progress towards national targets



6. Recent safety measures (2009-2010)

❖ Speed management

- A national speed management vision is being prepared as a central component of the new National Road Safety Strategy. This part of the strategy is expected to cover 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.

❖ Measures against drink and drug driving

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

❖ Vehicle standards and equipment

- In June 2009, Australia mandated the installation of electronic stability control in all new model cars, passenger vans and off-road vehicles from November 2011.
- A proposed vehicle standard for pedestrian protection is being assessed.

❖ Infrastructure

- In 2009, the federal government announced significant increases in 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.

❖ Child restraints

- States and territories have begun to implement 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 years to be in an approved forward-facing child restraint or booster seat.

❖ Education, training, communication

- The federal government is funding a new 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, as well as educational materials.
- The Victorian Government is leading the development and trial of an education programme designed for newly licensed (provisional) drivers.

7. Major research undertaken in 2009-2010

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>

8. References

❖ List of useful websites and references

National Road Safety Action Plan 2009 and 2010	http://www.atcouncil.gov.au/documents/actionplan_0910.aspx
International Road Safety Comparisons 2009	http://www.bitre.gov.au/Info.aspx?ResourceId=780&NodeId=167
Road Deaths Australia, 2009 Statistical Summary	http://www.bitre.gov.au/info.aspx?ResourceId=769&NodeId=167

AUSTRIA¹

1. Short term trends

❖ General comments on trends for 2009

In 2009, Austria observed a 7% reduction in fatalities. After a sharp increase in 2008, cyclist fatalities fell in 2009 back to the same level as in 2007. The number of pedestrians killed, however, remained as high as in the previous years.

❖ Preliminary trends for 2010

The total numbers of injury accidents, injured people and fatalities will most likely drop to an all-time low. Yet, probability calculations indicate that the number of pedestrians killed remains as high as in previous years and could even increase. The number of fatal accidents at zebra crossings, which should be the safest places for pedestrians to cross streets, is most likely to increase, resulting in an overall rise in pedestrian fatalities. Detailed analyses of accidents on zebra crossings should be conducted in order to find solutions to this most disturbing development in the general accident trend.

For the months to come, safety concerning elderly people (>65 years) should also be brought into focus, since figures tend to be as high as in the year 2009.

2. Long term trends

❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities decreased by 75% and the number of injury crashes by 25%. Yet, in the same time period, the number of vehicles and the distances driven tripled. In recent years (2000-2009), the number of fatalities declined by 35%. 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 multiphase driving licences (2003).

¹ Source: IRTAD, Kuratorium für Verkehrssicherheit.

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	2 574	2 003	1 558	976	768	679	633	-6.8%	-35.1%	-75.4%
Injury crashes	51 631	46 214	46 338	42 126	40 896	39 173	37 925	-3.2%	-10.0%	-26.5%

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009

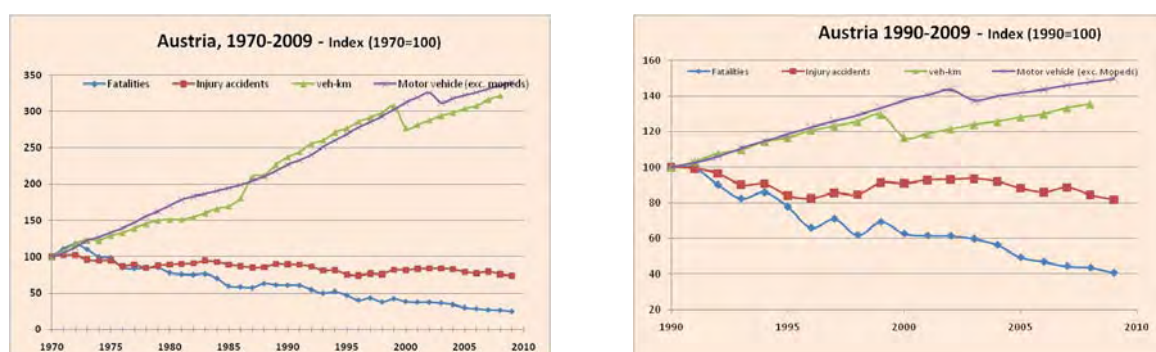
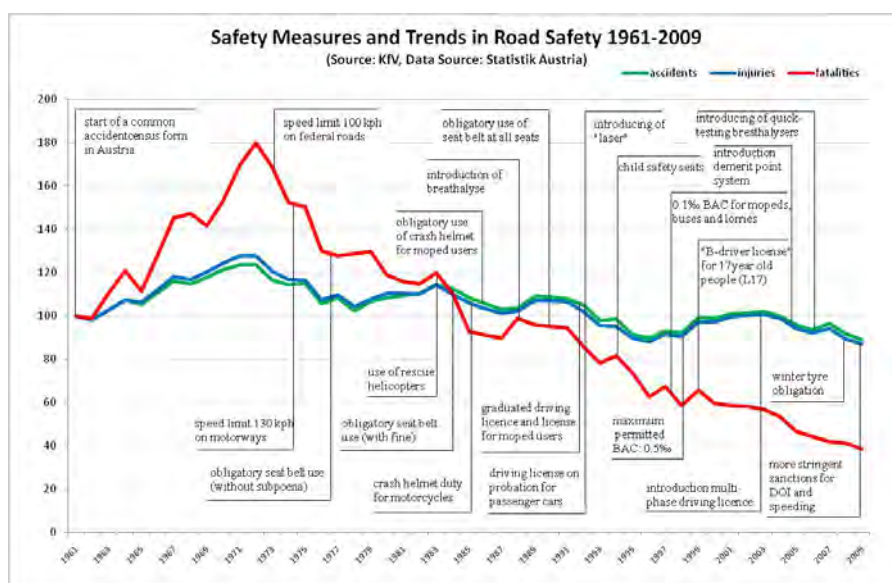


Figure 2. Impact of safety measures on road safety performance



❖ Risks and rates

Between 1970 and 2009, the death rate, expressed in terms of deaths per 100 000 population, diminished by 33%.

Table 2. Risk indicators
1970, 1990, 2000, 2008 and 2009

	1970	1990	2000	2008	2009	2009 % changeover	
						2000	1990
Deaths/100 000 population	34.53	20.26	12.18	8.16	7.58	-38%	-63%
Deaths/billion veh-km	109.26	27.9	14.98	8.97	-	-	-
Deaths/10 000 vehicles	-	3.28	1.75	1.16	1.06	-39%	-68%
Motorisation (number of vehicles/1 000 inhabitants)	285	555	697	705	715	3%	29%

3. Accident trends

❖ Road users

Since 1970, all road users except motorcycle riders have benefited from the improvement of road safety. Motorcycle fatalities increased by 10% between 1970 and 2009.

It is interesting to observe that since 1970, mopeds and mofas have lost some of their popularity, which explains in part the good results represented by the decrease in numbers of moped riders killed. The number of motorcycles and scooters in traffic has increased in the same period by a factor of three (see Figure 3).

After a sharp increase in 2008, the number of cyclists killed dropped by 37%, close to the 2007 level. The number of pedestrians killed, however, remained as high as in the years before, and preliminary data for 2010 do not show improvements.

Table 3. Fatalities by road user group
1970, 2000, 2008 and 2009

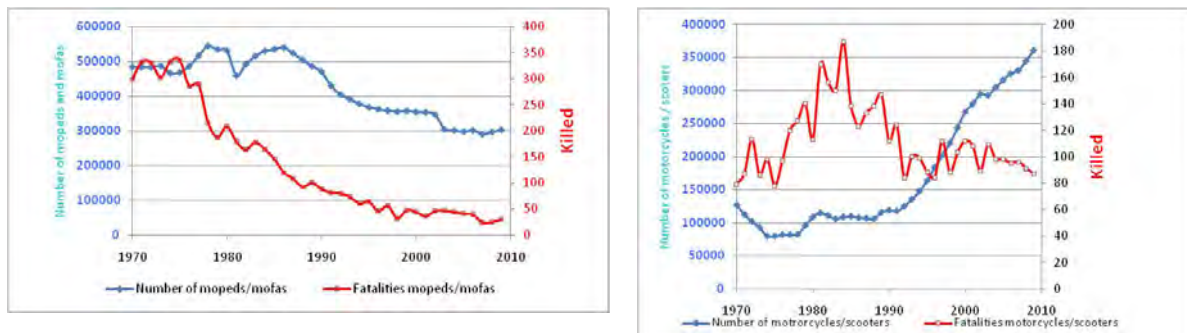
									2009 % changeover		
	1970		2000		2008		2009		2008	2000	1970
Bicyclists	202	8%	62	6%	62	9%	39	6%	-37.1%	-37.1%	-80.7%
Mopeds	298	12%	44	5%	25	4%	30	5%	20.0%	-31.8%	-89.9%
Motorcycles and scooters	79	3%	112	11%	91	13%	87	14%	-4.4%	-22.3%	10.1%
Passenger car occupants	1 005	39%	549	56%	367	54%	328	52%	-10.6%	-40.3%	-67.4%
Pedestrians	817	32%	140	14%	102	15%	101	16%	-1.0%	-27.9%	-87.6%
Other	173	7%	69	7%	32	5%	48	8%	50.0%	-30.4%	-72.3%

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 15 times higher than for a car occupant.

Table 4. Relative fatality risk by road user group (average 2004-2009)

	Fatalities (annual average 2004-2009)	Deaths (inside or on the vehicle) per million vehicles	Average kilometres per vehicle	Deaths (inside or on the vehicle) per billion vehicle/km
Mopeds	33,8	113,2	1 000	113.2
Motorcycles	94,2	274,8	2 800	98.1
Car and van occupants	394,8	93,2	14 200	6.6
Heavy goods vehicles	30,2	86,0	50 000	1.7

Figure 3. Relative change in the number of motorised two-wheelers in traffic and the number of moped riders and motorcyclists killed in traffic



❖ Age

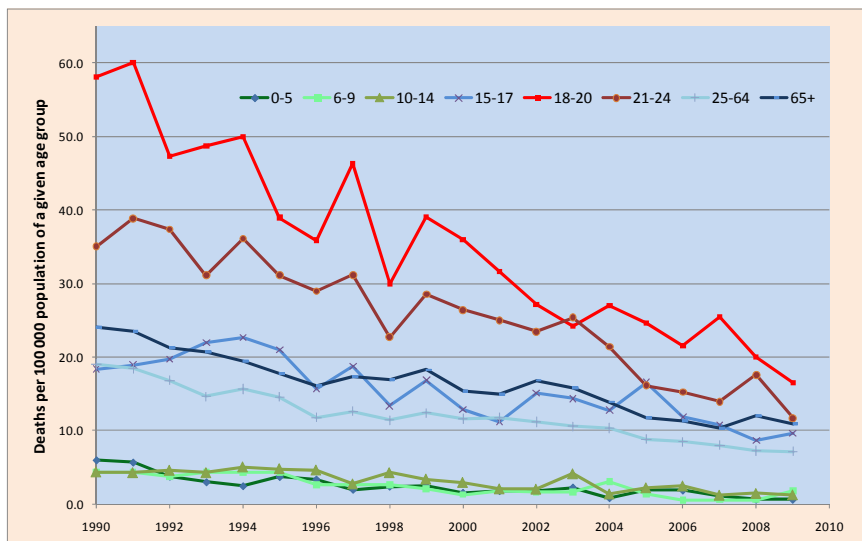
The number of fatalities varies with age. Inexperienced riders and drivers are killed more often in traffic. Since 1980, the reduction in fatalities has benefitted all age groups, but the most impressive reduction concerns the youngest age group (0-14), for which fatalities decreased by 89%.

Young people (15-24) still represent a high risk group in road safety, with a fatality risk nearly two times higher than the general population.

Table 5. Reported fatalities by age group
1980, 1990, 2000, 2008, 2009

	1980	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1980
0-5	49	32	8	3	3	0%	-63%	-94%
6-9	41	16	5	2	6	200%	20%	-85%
10-14	41	19	14	7	6	-14%	-57%	-85%
15-17	146	55	37	26	29	12%	-22%	-80%
18-20	250	205	105	60	50	-17%	-52%	-80%
21-24	196	186	99	74	49	-34%	-51%	-75%
25-64	891	764	518	335	331	-1%	-36%	-63%
>65	386	278	190	172	159	-8%	-16%	-59%

Figure 4. Reported death rate by age band
(Fatalities per 100 000 population in a given group, 1990-2009)



❖ Road type

Around 62% of fatal crashes occur on rural roads, 27% in urban areas and 10% on motorways (Figure 5).

Since 1980, there has been a reduction in the number of accidents on urban roads, and especially rural roads, which have the highest share of fatalities in Austria. This is why the implementation of road safety programmes on a regional and local level is necessary. Measures such as harmonisation of black-spot treatment and implementation of road safety inspection on the secondary road network would improve country, as well as urban, road safety. A slight reduction in fatalities has been recorded on motorways, although the network has been extended and traffic has greatly increased.

In 2009, the greatest reduction was achieved on motorways.

Figure 5. Reported fatalities by road type
1980, 1990, 2000 and 2009

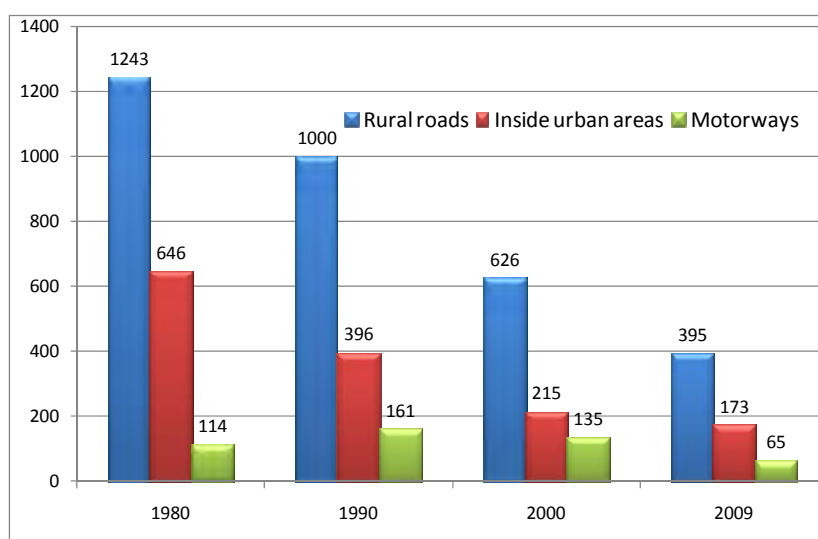


Table 6. **Fatalities by road type**

	1980	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1980
Rural roads	1 243	1 000	626	415	395	-4.8%	-36.9%	-68.2%
Inside urban areas	646	396	215	189	173	-8.5%	-19.5%	-73.2%
Motorways	114	161	135	75	65	-13.3%	-51.9%	-43.0%

4. Recent trends in road user behaviour

❖ Drink 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 killed 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 about 11%.

❖ Speed

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

While restraint systems and the wearing of helmets are compulsory in Austria, the rate of restraint enforcement is still nearly 10% lower than that of other European countries, although records show an increase in recent years. A clear correlation can be identified between restraint campaigns and use of restraint.

Table 7. **Seat belt wearing rates for car occupants**

	2000	2005	2009
General	73.9%	81.7%	88.2%
Front seat – driver	74.4%	82.9%	89.1%
Front seat – passenger	78.6%	81.8%	89.2%
Rear seat	44.9%	51.7%	64.7%
Motorway – driver	77.8%	86.1%	93%
Rural roads – driver	75.4%	85.3%	89%
Urban areas – driver	70.4%	78.0%	87%

❖ Distracted driving

It is prohibited to drive while using a hand held mobile phone. The use of hand free mobile phone is allowed. 78% of drivers admit using a phone while driving (2009).

5. National road safety strategies and targets

❖ National road safety strategies

Austrian Road Safety Programme 2002-2010

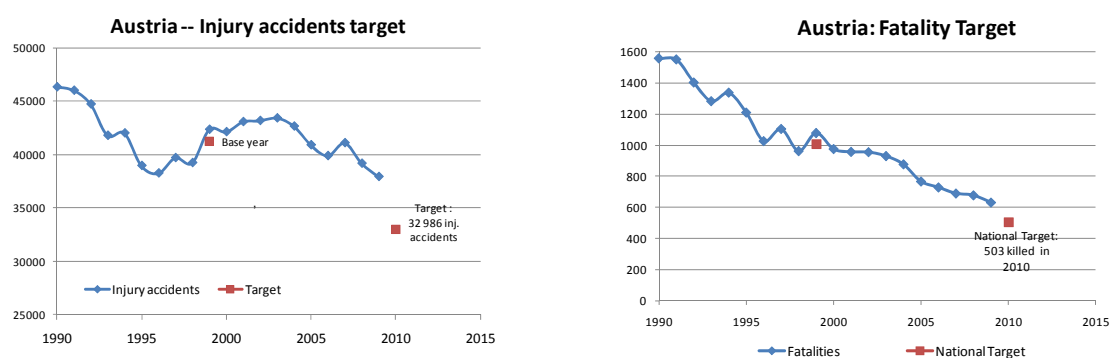
This third edition of the programme represents the implementation status in 2009 and shows the challenges ahead until end-2010. Many of the measures are already implemented, such as graduated driver training for novice drivers, who are especially at risk, the penalty points system for high-risk drivers, the nationwide introduction of quick-testing alcohol breathalysers and section controls.

❖ Safety targets and sub-targets

In 2002, Austria adopted several targets for reducing the number of fatalities and injury crashes. It also adopted targets for particular road user groups:

Type	Targets	Base year	Target year	Base year figure	Current results (2009)
Fatalities	-50%	average 1998-2000	2010	1 006	633
Injury accidents	-20%	average 1998-2000	2010	41 233	37 925
Restraint systems:					
<i>Increase seat belt use</i>	+10%	average 1998-2000	2010	Driver: 72.7%	Driver: 86%
<i>Increase use of child restraints</i>	rate of 95%	average 1998-2000	2010	70.4%	92%

Figure 6. Progress towards road fatality target



❖ Road safety strategies beyond 2010

A new Austrian Road Safety Programme will be developed for the upcoming decade (2011-2020). Great importance will be attached to the consideration of all road users, especially the most vulnerable.

6. Recent safety measures (2009-2010)

❖ Drink-driving

- Minimum penalties for drunken driving were raised considerably and driving licences are revoked for longer periods. Since September 2009, first offenders with a blood alcohol concentration between 0.8 g/l and 1.19 g/l have to attend special “traffic coaching”. This is an obligatory four-hour course at which psychologists and personnel of rescue services try to increase the awareness of the risks of driving while drunk.

❖ Speeding

- Since September 2009, very excessive speeding has been penalised more severely. Exceeding the speed limit by more than 30 km/h now results in penalties of between EUR 70 and EUR 2 180.

❖ Seat belt and child restraint systems

- Children less than 150 cm must use suitable child restraints. These must at least comply with test standard ECE 44, version 03 (ECE44/03). Car drivers are responsible for buckling up all children up to the age of 14. Since September 2009, violators have to attend a four-hour course.

❖ Infrastructure

- Between 2008 and 2009, the safety of 1 897 level crossings was enhanced with new level-crossing barriers, reflective level-crossing signs, signal devices and markings. The number of fatalities at level crossings decreased in 2008, with a further reduction predicted for 2009.

❖ Licensing, regulation, enforcement

- 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.

7. References – 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.statistics.at
Information site on child safety in cars	www.autokindersitze.at
Automobile, Motorcycle and Bicyclists Club Austria	www.arboe.at
Austrian Automobile, Motorcycle and Touring Club	www.oeamtc.at
Austrian Road Safety Programme 2002-2007	www.bmvit.gv.at/en/roadsafetyprogramme

BELGIUM¹

1. Short-term trends

❖ General comments on trends for 2008

The number of fatalities in the year 2008 has decreased by almost 12% compared to the previous year. This decrease is reflected in an even slightly more marked decrease in fatality rates.

❖ Preliminary trends for 2009

No 2009 data had been released when this report was prepared. Provisional data show a slight increase in fatalities.

2. Long-term trends

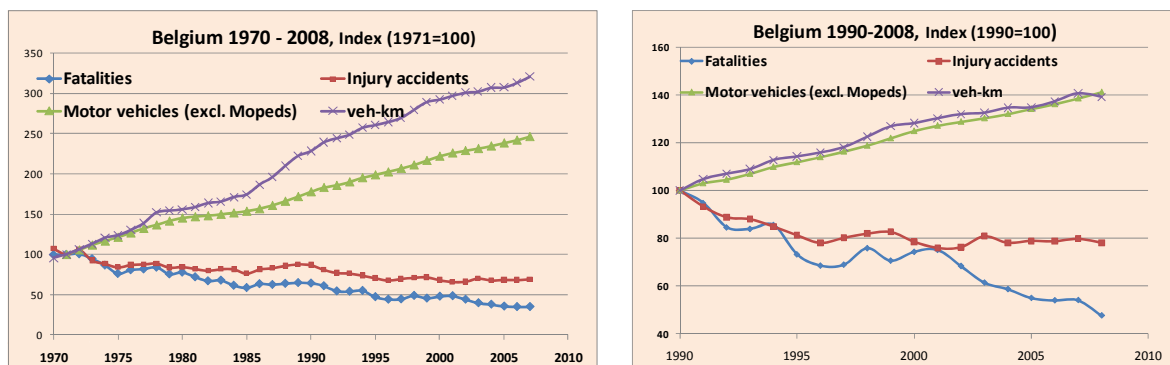
❖ Reported number of fatalities and injury crashes

Between 1970 and 2008, the number of fatalities decreased by nearly 70%, and the number of injury crashes by 58%. In the same period, the number of vehicles more than doubled while the distances travelled tripled. In recent years (2000-2008), the decrease in the number of fatalities was sustained (-36%).

Table 1. Reported road fatalities and injury crashes
1970-2008

	1970	1980	1990	2000	2005	2007	2008	2008 % changeover		
								2007	2000	1970
Fatalities	3 070	2 396	1 976	1 470	1 089	1 067	944	-12%	-36%	-69%
Injury crashes	76 968	60 758	62 446	49 065	49 286	49 794	48 827	-2%	-23%	-58%

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2008



¹ Source: IRTAD and Institut Belge pour la Sécurité Routière.

❖ Risks and rates

Between 1970 and 2008, the road traffic mortality rate, expressed in terms of deaths per 100 000 population, decreased by 72%, and risks (expressed in deaths per distance travelled) decreased by more than 90%.

Table 2. Risk indicators
1970, 1990, 2000, 2008

	1970	1990	2000	2008	2008 % changeover	
					2000	1970
Deaths/100 000 population	31.8	19.9	14.4	8.9	-38%	-72%
Deaths/billion veh-km	104.6	28.1	16.3	9.6	-42%	-91%
Deaths/10 000 vehicles	12.6	4.3	2.6	1.5	-42%	-88%
Motorisation (number of vehicles/1 000 inhabitants)	252	462	560	608	9%	141%

3. Accident trends

❖ Road users

All user groups, but especially pedestrians and moped riders, benefited from safety improvement between 1980 and 2008. The number of moped riders killed during the period decreased by 82% and the number of pedestrians killed, by 80%.

In recent years (2000-2008), improvements benefited all road users. There were, however, fewer improvements for motorised two-wheelers, mainly due to their increased exposure, in terms of v-km driven, but the risks for a motorcyclist of being killed per km driven has been reduced. Improvements for motorcyclists were recorded for 2008, with a 22% decrease in fatalities. More detailed data reveal that the motorcyclists the most at risk are those whose vehicles have engines of above 400cc. In 2008, motorcyclists represented 1% of vehicle-kilometres but 11.4% of road fatalities. Most riders killed are between the ages of 20 and 50, and 90% are male.

Table 3. Reported fatalities by road user type
1980, 2000, 2008

	1980		2000		2007		2008		2008 % changeover		
									2007	2000	1980
Cyclists	241	10%	134	9%	90	8%	86	9%	-4%	-36%	-64%
Mopeds	179	7%	64	4%	26	2%	32	3%	23%	-50%	-82%
Motorcycles and scooters	170	7%	118	8%	139	13%	108	11%	-22%	-8%	-36%
Car occupants	1 227	51%	922	63%	550	51%	479	51%	-13%	-48%	-61%
Pedestrians	507	21%	142	10%	104	10%	99	10%	-5%	-30%	-80%
Other	72	3%	90	6%	162	15%	140	15%	-14%	56%	94%
Total	2 396	100%	1 470	100%	1 071	100%	944	100%	-12%	-36%	-61%

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 15 times higher than that for a car occupant.

Figure 2. Relative change in the number of motorised two-wheelers in traffic and the number of moped riders and motorcyclists killed in traffic

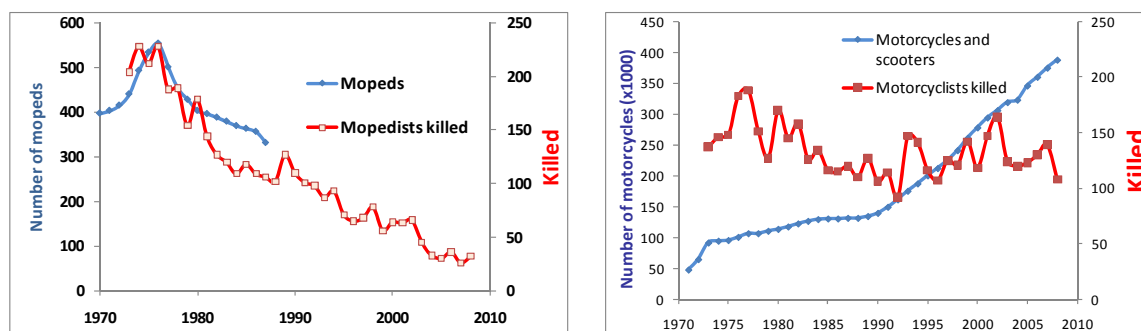


Table 4. Relative fatality risk by road user group (2008)

	Fatalities	Deaths (inside or on the vehicle) per million vehicles	Average kilometrage per vehicle	Deaths (inside or on the vehicle) per billion veh-km
Motorcycles	108	278.1	3 397	81.9
Car and van occupants	479	93.3	15 172	6.3
Heavy goods vehicles	25	166.1	85 002	2.8

❖ Age

Since 1980, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned children aged 6 to 9 (-89%). 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 2).

Table 5. Reported fatalities by age group 1980, 1990, 2000, 2007, 2008

	1980	1990	2000	2007	2008	2008 % changeover		
						2007	2000	1980
0-5	33	33	17	12	13	8%	-24%	-61%
6-9	46	27	12	4	5	25%	-58%	-89%
10-14	55	48	23	14	17	21%	-26%	-69%
15-17	125	72	55	27	28	4%	-49%	-78%
18-20	304	202	130	90	68	-24%	-48%	-78%
21-24	261	245	198	125	109	-13%	-45%	-58%
25-64	1 056	992	784	623	550	-12%	-30%	-48%
>65	494	334	238	170	149	-12%	-37%	-70%

❖ Road type

In 2008, around 50% of fatal crashes occurred on rural roads, 29% in urban areas and 15% on motorways (Figure 4). Since 1980, the greatest reduction in fatalities has occurred on urban roads (-73%). The development on the motorways has to be seen in conjunction with the expansion of the network.

Table 6. Reported fatalities by road type

	1980	2000	2008	% changeover	
				2008-2000	2008-1980
Rural roads	1 196	836	474	-43%	-60%
Inside urban areas	1 028	401	274	-32%	-73%
Motorways	172	233	139	-40%	-19%

Figure 3. Reported death rates by age band
(deaths per 100 000 population in a given group)
1990-2008

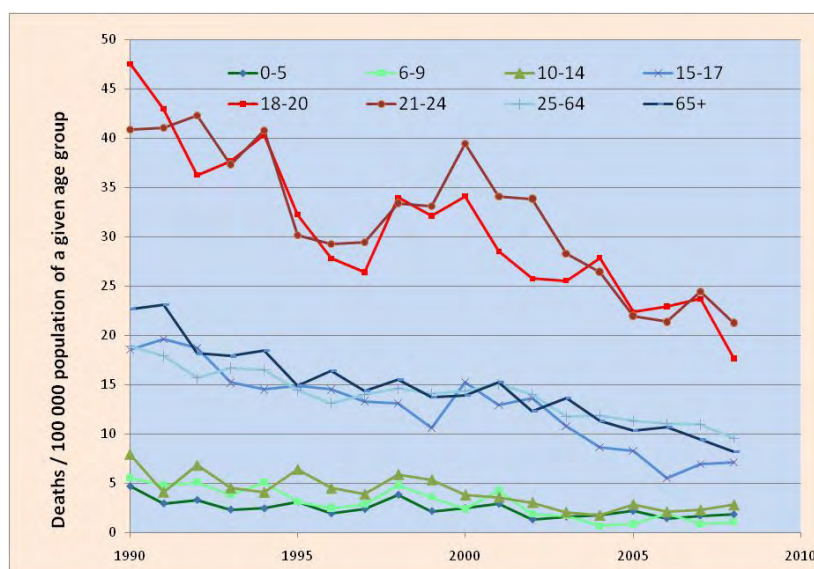
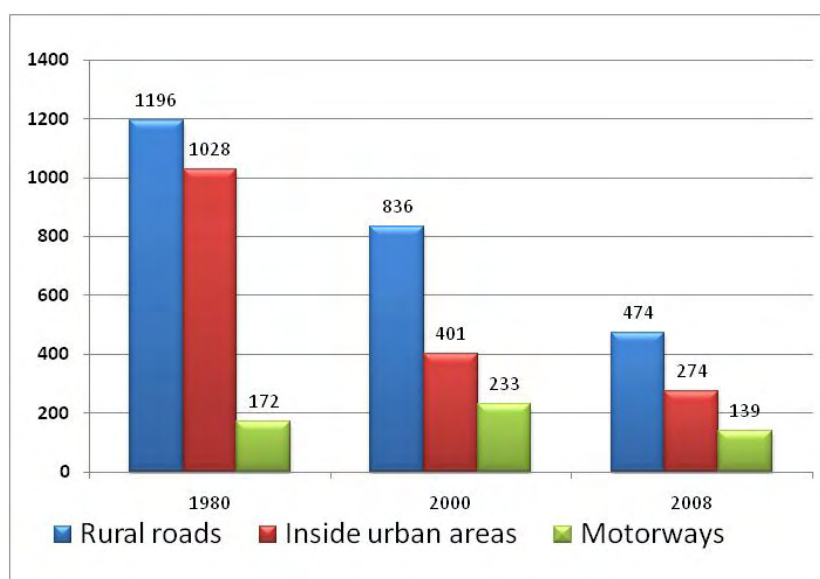


Figure 4. Reported fatalities by road type
1980, 2000 and 2008



4. Recent trends in road user behaviour

❖ Drink-driving and drug-driving

The BAC limit in Belgium is 0.5 g/l for all drivers. There is currently a political discussion about a lower limit (0.2 g/l) for novice drivers (those licensed for less than two years), truck drivers and motorcyclists.

The latest roadside survey (2009) showed that 2.6% of car drivers are driving under the influence of alcohol. On weekend nights, 13% of all drivers are driving under the influence. 12% of the 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 of speeds on 50 km/h and 90 km/h roads. It also shows that speeding remains an issue for all road categories.

❖ 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 7 shows the progress made in the seat belt usage rate between 2003 and 2010. Figure 6 illustrates the recent evolution in seat-belt use by drivers and front-seat passengers.

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

Figure 5. Evolution in the V85 speed
2003-2009

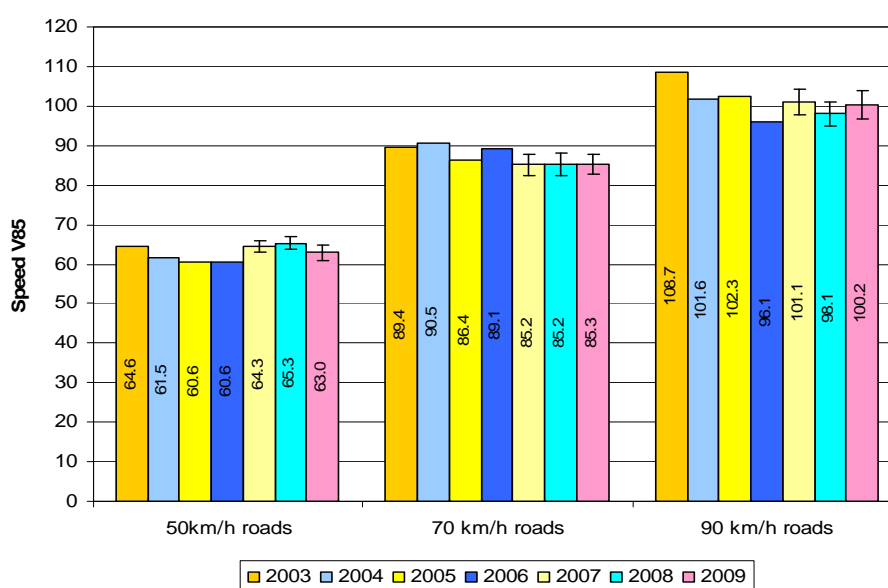
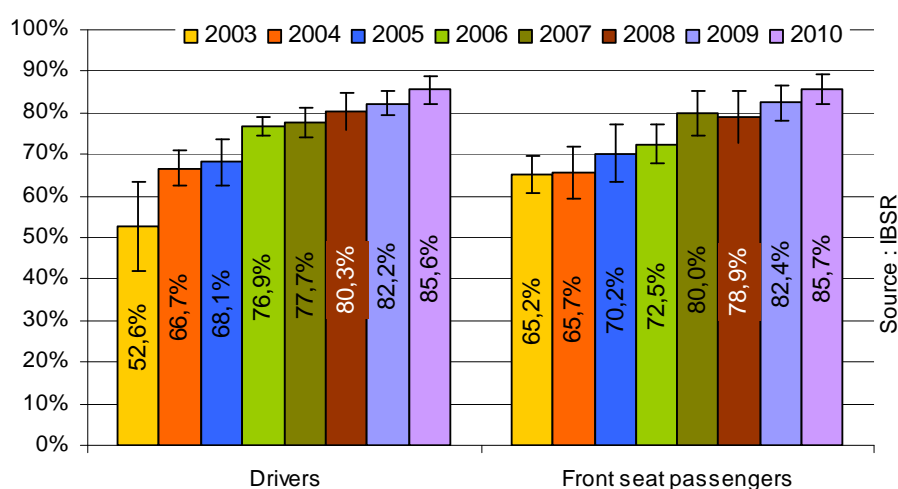


Table7. Seat-belt use for car occupants

	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



❖ 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.

5. National road safety strategies and targets

❖ National road safety strategies

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 2010, the Government approved the recommendations of the *Etats Généraux de la Sécurité Routière* (see: www.cfsr.be).

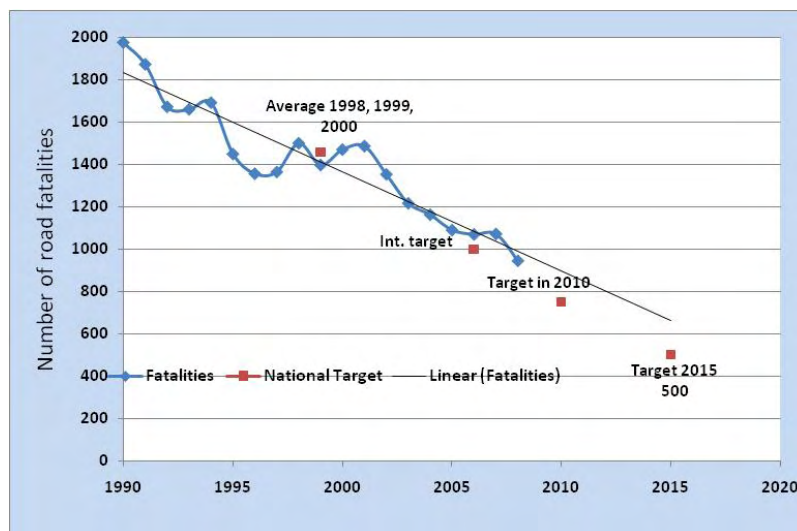
❖ Safety targets

Following a major review of road safety in 2001, the Government adopted the following targets:

- Less than 1 000 fatalities by 2006;
- Less than 750 fatalities by 2010;
- Less than 500 fatalities by 2015.

The 2006 target was reached in 2008 (944 fatalities in 2008). In order to meet the target 2010 (750 fatalities), the decrease in fatalities achieved in 2008 must continue. Provisional figures for 2009 and 2010 (available until May 2010) suggest, however, that the 2010 target will not be met.

Figure 8. **Progress towards road fatality target**



6. Recent safety measures (2009-2010)

❖ Road user behaviour, enforcement, licensing, regulation

- Increased penalties for hit-and-run drivers and for repeat offenders (1 January 2009);
- Fluorescent vest is compulsory in all cars (1 June 2009);
- Alcolock: The alcolock law was approved in 2009 and the law came into effect in October 2010. The judge now has the possibility to request the installation of an alcolock system in the car of a person convicted of drink and driving. All the costs are at the charge of the offender.
- 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 are enough to trace drugs. A urine analysis or blood analysis is not required. The possibility to perform a blood analysis is kept for (only) those cases where a saliva sample cannot be taken.

❖ Education and communication

- Regular campaigns on drink-driving (on “Bob” the designated driver and on speed, seat-belts, mobile phones):
 - Speed (October 2009);
 - Drink-driving (December 2008-January 2009);
 - Seat-belt wearing (March 2010);
 - The use of mobile phones behind the steering wheel (August 2009);
 - Motorcycles (April 2009) and visibility;
 - Drug use (September-October 2010), to announce that the saliva test to trace drugs came into force on 1 October 2010;
 - (Hand-held) mobile phone use (July-August 2010);
 - Speed (June 2010): special attention to company cars.

7. Major recent or ongoing research (2009-2010)

- All research reports: www.bivvweb.ipower.be/observ/observatorium_fr.htm.
- Subjects of reports published since March 2010:
 - Road Safety Statistics 2008 (data 2008);
Measurement of Road Safety Attitudes 2009 (data 2009);
 - Belgian Accident Road Team (BART) Pilot Study In-Depth Analysis of Accidents with HGVs;
 - Accidents on highways.
- Subjects of reports in development:
 - Young drivers;
 - Measurement of Road Safety Behaviour 2009, Alcohol (data 2009);
 - Measurement of Road Safety Behaviour 2009, Speed (data 2009).

8. Useful websites and references

❖ Useful websites

IBSR Belgium Road Safety Institute	www.bivv.be
IBSR research reports	http://bivvweb.ipower.be/observ/observatorium_fr.htm#
Statistical report, 2008	http://bivvweb.ipower.be/Observ/FR/Statistiques%20de%20securite%20routiere%202008_FR.pdf
Commission Fédérale pour la Sécurité Routière	www.cfsr.be

CAMBODIA¹

Cambodia joined the IRTAD Group in 2010. It benefits from a twinning programme with SWOV (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.

1. Short-term trends

❖ General comments on trends for 2009

In 2009, the RCVIS reported 1 717 road fatalities, a 5% increase compared to 2008. 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. The most vulnerable road users (motorcyclists, pedestrians and cyclists) represented almost 90% of all road traffic casualties in 2009. Cambodia still ranks among the ASEAN countries the most affected by road crashes.

It is estimated that in 2009 the annual economic cost of road crashes equalled approximately USD 248 million. This estimation represents an increase of USD 135 million compared to 2003.

❖ Preliminary trends for 2010

Provisional data for the first quarter of 2010 shows a slight decrease (-2%) in the number of road fatalities.

2. Long term trends

❖ Change in the number of fatalities and injury crashes

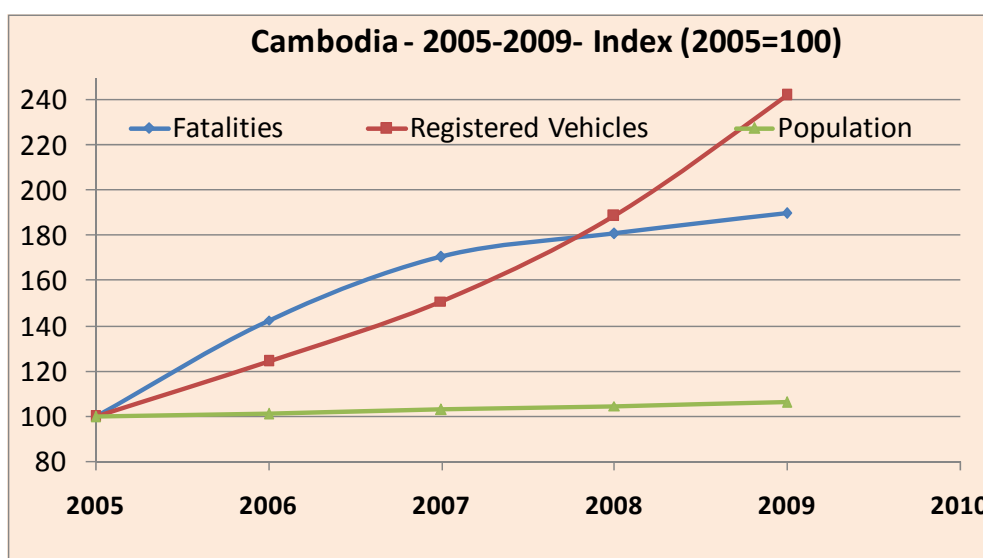
Over the last five years, the number of fatalities has almost doubled, while the number of registered motorized vehicles has risen by 142% and the population has increased by 6%.

Table 1. Reported number of road fatalities and injury crashes 2005-2009

						2009 % change over	
	2005	2006	2007	2008	2009	2008	2005
Fatalities	904	1292	1545	1638	1717	5%	90%
Injury crashes	15039	24854	25858	24158	19802	-18%	32%

¹ Source : IRTAD, RCVIS

Figure 1. Reported road fatalities, vehicles and population 2005-2009



❖ Risks and rates

Since 2005, the number of fatalities per 100 000 population rose by 77%. This marked deterioration can be explained by the growing population of young people – who are particularly vulnerable -- associated with a lack of safety education, insufficient enforcement and inadequate public health infrastructure to cope with road injuries. In addition, the rehabilitation of roads has led to increased speeds.

The 22 % decrease in the number of persons killed by 10 000 registered vehicles can be attributed to the huge increase in motorisation.

Table 2. Fatality rates and motorisation - 2005-2009

	2005	2006	2007	2008	2009	2009 % changeover 2005
Deaths/100 000 population	7.1	10.0	11.7	12.3	12.6	+77%
Deaths/ 10 000 registered vehicles	15.7	18.1	17.8	15.1	12.3	-22%
Motorisation (number of registered vehicles / 1 000 inhabitants)	45	55	66	81	102	+127%

3. Accident trends

❖ Road users

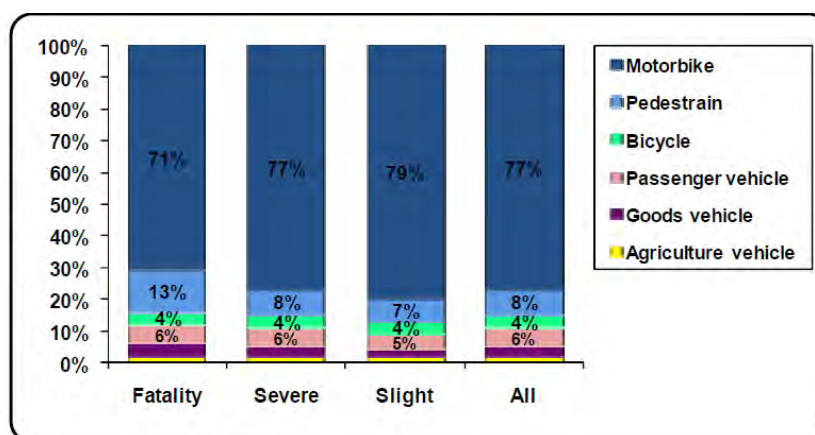
Vulnerable road users (motorcyclists, pedestrians and cyclists) represent almost 90% of traffic casualties in Cambodia. Motorcyclists are the most vulnerable road users and represent 71% of all fatalities. Pedestrians are the second most vulnerable road users (13% of fatalities). The most at risk are children between the ages of 0 and 9 -- accounting for 30% of total pedestrian fatalities -- and elderly people (55+) who account for 24% of pedestrian fatalities.

Compared to 2008, the number of motorcyclists and pedestrians killed increased by 10% and 4%, respectively, in 2009. Table 3 shows the breakdown of road fatalities by user category.

Table 3. Reported fatalities by road user category
2006-2009

									2009 % change over	
	2006		2007		2008		2009		2008	2005
Bicyclists	67	5%	73	5%	71	4%	65	4%	-8%	-11%
Motorised two wheelers	749	58%	971	63%	1107	68%	1218	71%	10%	25%
Car occupants	102	8%	116	8%	111	7%	99	6%	-11%	-15%
Pedestrians	198	15%	206	13%	207	13%	215	13%	4%	4%
Others	176	14%	179	12%	142	9%	120	7%	-15%	-33%
Total	1292	100%	1545	100%	1638	100%	1717	100%	5%	11%

Figure 2. Fatalities by road user category 2009y



❖ Age

In 2009, the average age of an injured person was 28, and 31 for fatalities. The active population (20-54 years old) was the most affected, representing 79% of fatalities. The peak in fatalities shifted from 25-29 years old in 2007 and 2008, to 20-24 years old in 2009. Figure 3 illustrates the percentage of casualties by age group and for the different road users.

Figure 3. Percentage of casualties by age group and road user category

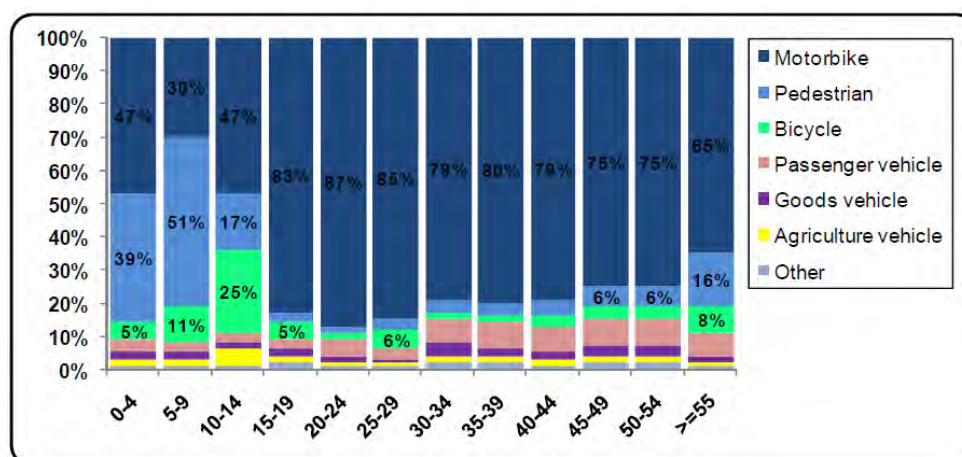
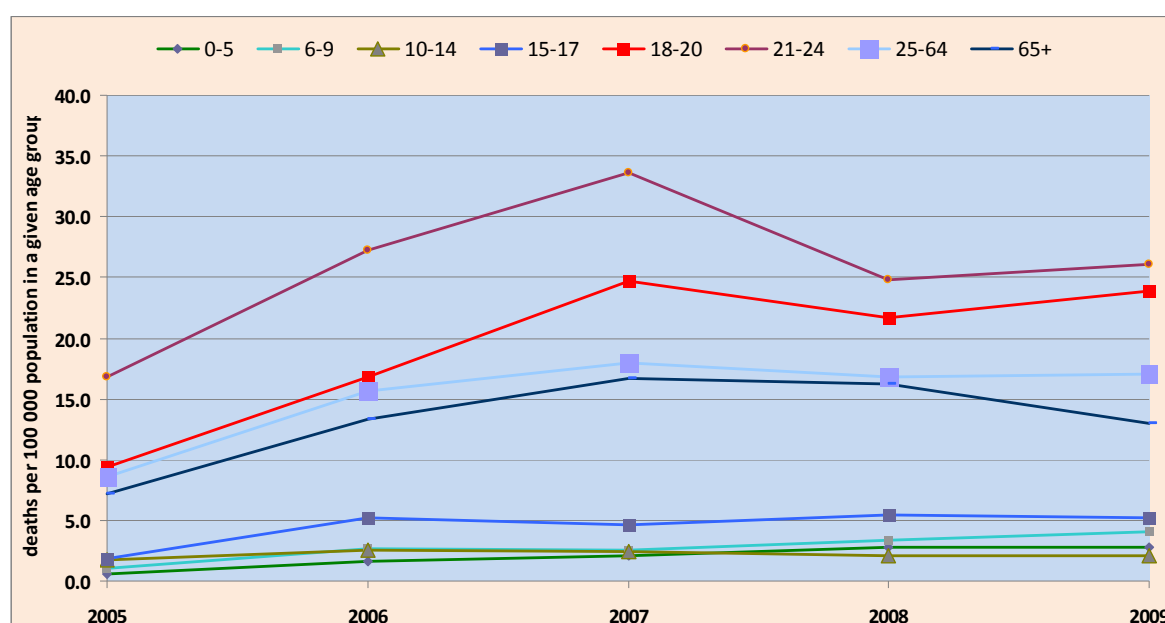


Table 4. **Reported fatalities by age group**
1980, 1990, 2000, 2008, 2009

	2005	2006	2007	2008	2009	2009 % change over	
						2008	2005
0-5	13	35	45	47	48	2%	269%
6-9	16	42	41	40	49	23%	206%
10-14	33	47	46	35	36	3%	9%
15-17	18	52	47	53	51	-4%	183%
18-20	68	123	184	207	232	12%	241%
21-24	108	177	222	263	281	7%	160%
25-64	390	719	840	896	921	3%	136%
>65	32	60	76	93	75	-19%	134%
Unknown	275	37	44	4	24		
Total	904	1292	1545	1638	1717	5%	90%

Figure 4. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 2005-2009)



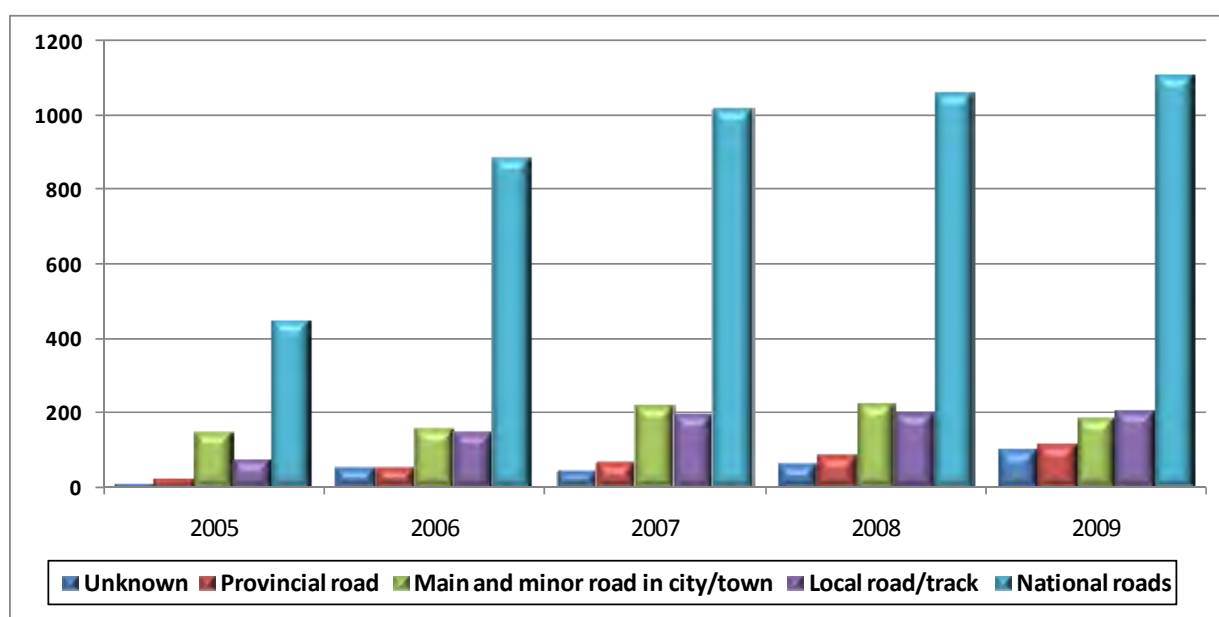
❖ Road type

In Cambodia, the roads are classified as follows:

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

As yet, there is no motorway network in Cambodia. The large majority of fatalities (68%) occur on national roads.

Figure 5. Reported fatalities by road type 2005-2009



Note: All types of road cover both urban and rural areas.

4. Recent trends in road user behaviour

❖ Drink 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 guideline, a drink-driving related crash is defined as a crash caused by a road user with a BAC over the limit.

Drink-driving is the second major cause of fatal crashes in Cambodia. It accounts for around 17% of fatal crashes. Most alcohol-related crashes occurred in the evening between 6 p.m. and midnight, with a peak observed between 6 pm and 8 pm.

❖ Speed

Speed is a contributing factor in more than 50% of fatal crashes. The number of speed-related fatal crashes has risen since 2006. The table below summarises 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	60 km/h
Outside built-up areas	90 km/h	90 km/h	100 km/h

❖ Seat belts and helmets

Seat-belts

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 must sit in a child seat with the safety-belt attached.

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

Front seat*	48% for drivers 25% for front-seat passengers
-------------	--

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

Helmets

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 yet compulsory for the passengers; but it is expected that a legal amendment will be passed in 2011.

The table below shows the results of a survey undertaken at the end of 2009 on helmet wearing, which shows a wide variation in the rate of use between riders and passengers.

Table 7. **Results of 2009 survey on the wearing of helmets**

	Motorbike riders	Motorbike passengers
Research study by Handicap International Belgium in Phnom Penh	85%	11%
Ministry of Health, survey in 7 provinces (excluding Phnom Penh)	65%	9%

❖ **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.

5. National road safety strategies and targets

❖ **National road safety strategies**

To cope with the growing trends in traffic casualties, the Royal Government of Cambodia has highlighted road safety as a key national challenge. In 2004, a significant milestone was achieved with the approval of a Five-Year National Road Safety Action Plan, covering 15 critical components of road safety. The Action Plan has been implemented through a partnership approach, which enables different ministries and departments to work together with the private sector and civil society stakeholders.

The creation of the National Road Safety Committee (NRSC) in 2006 was another major milestone. It is chaired by the Minister of Public Works and Transport. Its mission is to co-ordinate, monitor and support the implementation of the road safety action plan throughout Cambodia. This strong institutional framework is complemented by a series of actions, including awareness campaigns, school-based education, road crash surveillance systems and emergency care for road crash victims. These activities have been conducted by a variety of stakeholders active in the sector, including local and international non-governmental organisations and relevant ministries, as well as private businesses.

❖ Road safety strategies beyond 2010

Since the beginning of 2010, with support from various stakeholders, such as HIB, GRSP, IRTAD, Road safety for all and SWOV, Cambodia has been drafting the second National Road Safety Action Plan 2011-2020, in line with the Global Decade of Action on Road Safety. The focus will be especially on the risk factors involved in riding without a helmet, speeding and drink-driving over the coming decade. 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.

For the first time, this new Plan includes quantified national targets and sub-targets. The Plan was submitted to the National Road Safety Committee in mid-October and is expected to be approved by the Council of Ministers in early 2011.

❖ Safety targets and sub-targets

As part of the IRTAD Twinning Programme with SWOV / Road safety for all, national targets and safety performance indicators have been set for the 10-year Action Plan.

Table 8. Proposed safety targets and performance indicators

Main national target	Description
Reduction in the number of fatalities	Reduce by 30% the expected number of fatalities by 2020
Reduction in fatality rates	Reduce by 30% the fatality rate (per 10 000 registered vehicles) by 2020
Safety performance indicators	
Head injuries	Reduce number of fatalities caused by head injuries by 30% in 2020
Helmet wearing rate	To increase helmet wearing rate to 85%
Speed-related crashes	Reduce number of fatalities caused by speed-related crashes by 30% in 2020
Speeding	Reduce over-speeding by 30% by 2020
Alcohol-related crashes	Reduce the number fatalities caused by drink-driving crashes by 30% in 2020
% of drunk drivers	Reduce the prevalence of drivers exceeding the BAC limit by 30% in 2020

Figures 6A to 6E illustrate these various targets and sub-targets.

Figure 6A. **Estimated numbers of fatalities:**
2010-2020

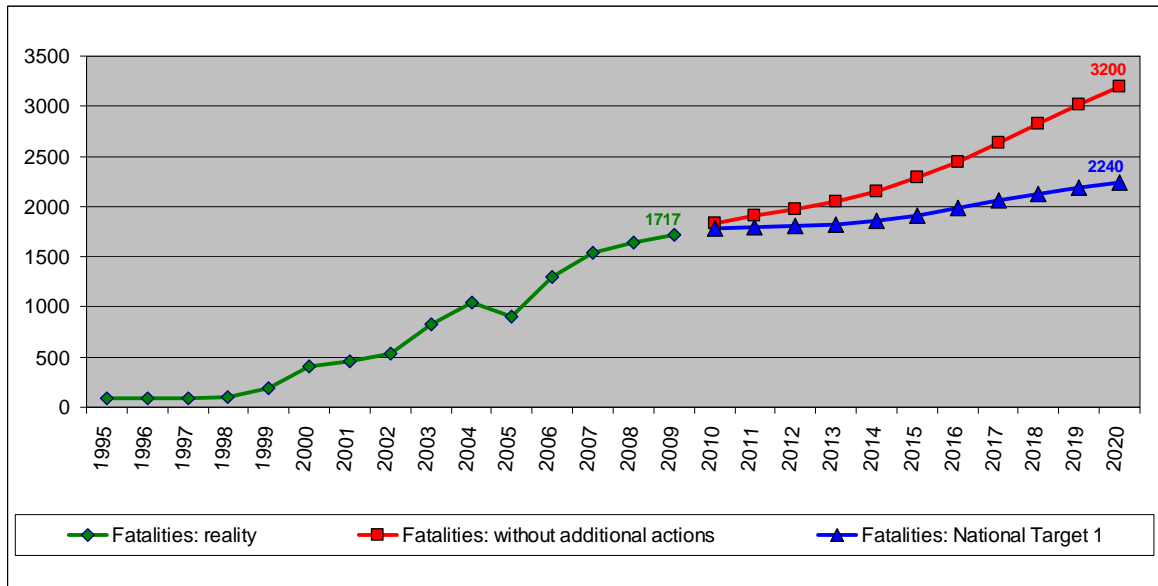


Figure 6b. **Estimated fatality rate (per 10 000 registered vehicles)**
2010-2020

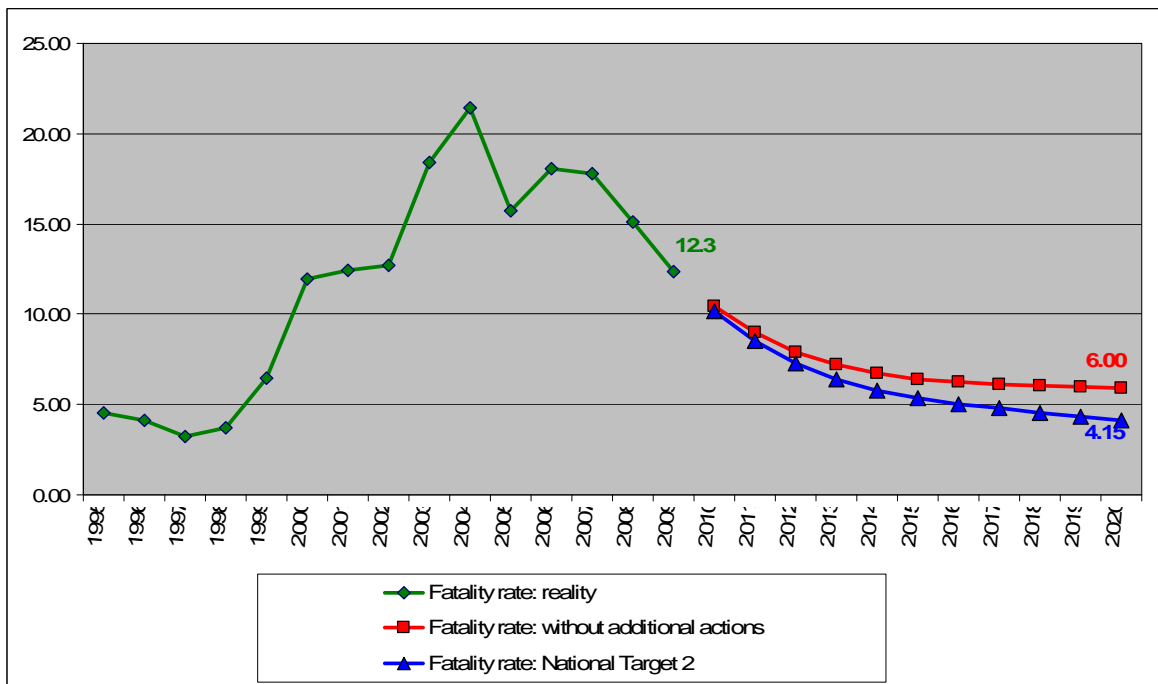


Figure 6c. Estimated numbers of fatalities caused by head injuries: 2010-2020

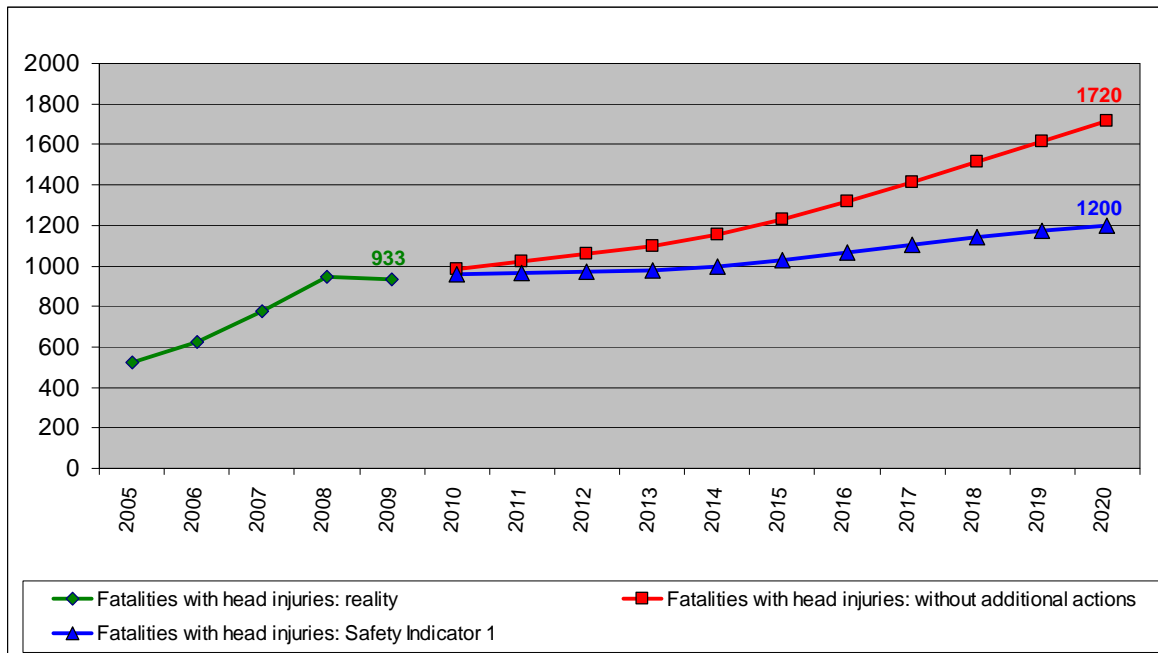


Figure 6d. Estimated numbers of fatalities caused by speeding: 2010-2020

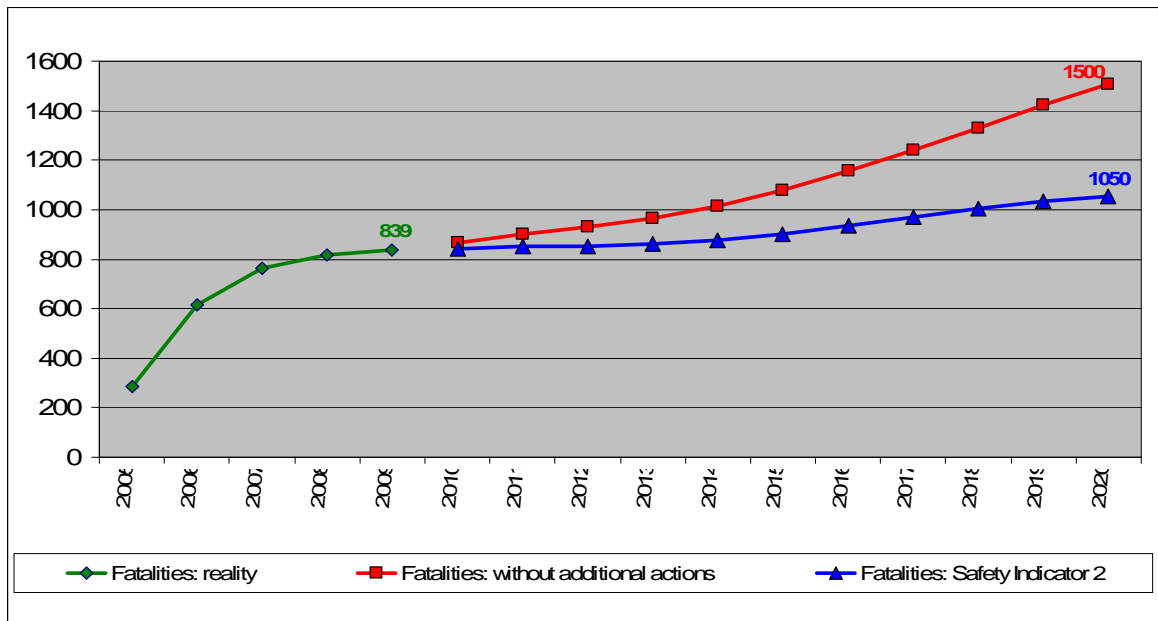
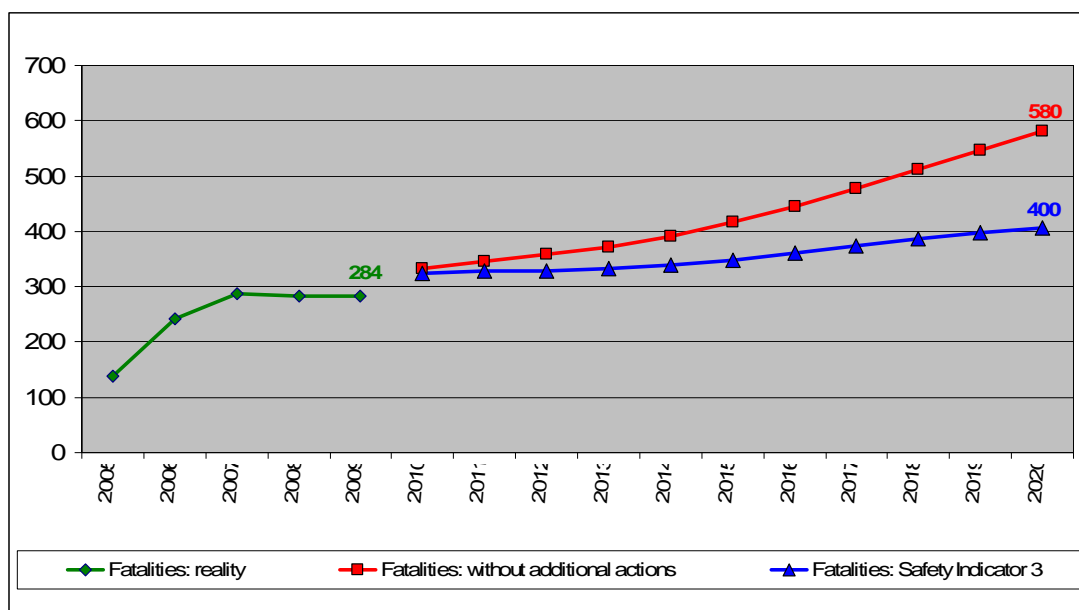


Figure 6e. **Estimated numbers of drink-driving related fatalities from 2010-2020**



6. Recent safety measures (2009-2010)

- Monitoring of helmet wearing

With support from the Johns Hopkins University, helmet observations have been conducted since July 2010, to monitor the helmet wearing rate in Phnom Penh, Kandal and Kampong Speu.

- Fighting against drink-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 helmet-wearing, in order to inform the public about the importance of wearing a helmet, the consequences of drink-driving, and on the coming enforcement measures.

7. References – Useful websites

Cambodia Road Crash and Victim Information System

www.roadsafetycambodia.org

CANADA¹

1. Short-term trends

❖ **General comments on trends for 2009**

Canada's 2009 provisional traffic death toll (2 130) was approximately 12% lower than that of 2008.

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 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 during this period by almost 23%. 2008 is the most recent year for which comprehensive information is available on victims fatally injured in traffic collisions.

❖ **Preliminary trends for 2010**

Preliminary fatality data for the first six months of 2010 from selected provinces and territories suggest that the decreasing trend in annual traffic fatalities may continue during 2010.

2. Long term trends

❖ **Change in the number of fatalities and injury crashes**

Between 1970 and 2009, the number of fatalities decreased by 58%, while the number of vehicles more than doubled. The fatality figures improved despite the fact that overall progress in road safety levelled off during the early 1990s. In recent years (2000-2009), the number of fatalities decreased by 27%, although most of this reduction occurred in 2008 and 2009 (preliminary data for 2009).

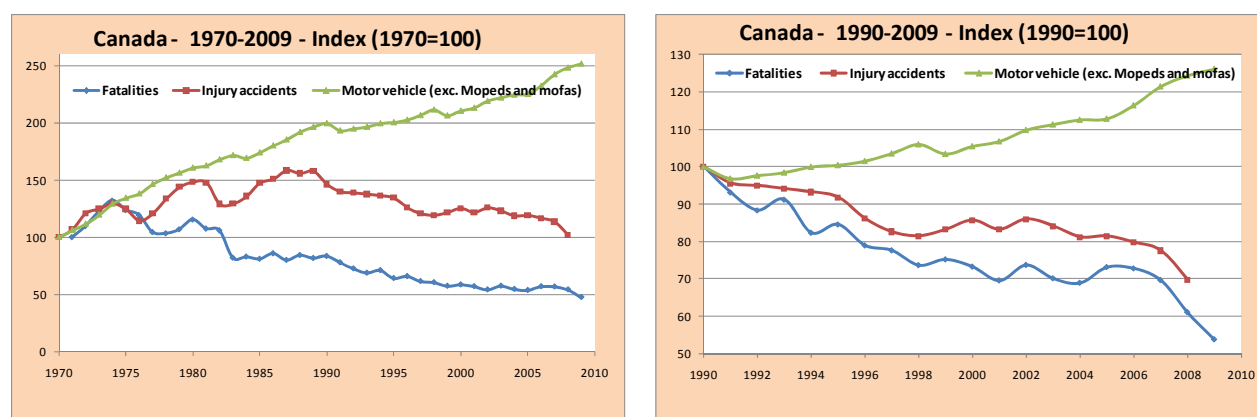
¹ Source : IRTAD, Transport Canada

Table 1. Reported road fatalities and injury crashes 1970-2009

	1970	1980	1990	2000	2007	2008	2009	2009 % change over		
								2008	2000	1970
Fatalities	5 080	5 461	3 963	2 903	2 761	2 419	*2 130	-12%	-27%	-58%
Injury crashes	124 200	184 302	181 960	15 5847	141 093	129 862	-	-	-	-

* Preliminary figure.

Figure 1. Reported road fatalities, injury crashes and vehicles 1970-2009



❖ Mortality rate and risks

In the last 19 years the mortality rate (in terms of deaths per 100 000 population) has decreased by 33%.

Table 2. Rates
1990, 2000, 2008, 2009

	1990	2000	2008	2009*	2009 % changeover	
					2000	1990
Deaths/100 000 population	9.79	9.44	7.18	6.3	-33%	-36%
Deaths/billion veh-km	-	9.30	7.3	6.3	-32%	-
Deaths/10 000 vehicles	2.33	1.62	1.15	1.0	-38%	-57%
Motorisation (number of vehicles/1 000 inhabitants)	638.8	581.3	633.0	638.0	10%	0%

* Preliminary figure.

3. Accident trends

❖ Road users

Canadians rely heavily on privately owned motor vehicles for basic transport, due in large part to the size of the country and the lack of public transport outside of urban centres. As a result, motor vehicle occupants account for the large majority of traffic fatalities that occur each year on Canadian roads.

All classes of road user fatalities decreased substantially during 2008, when compared with 2007 death figures despite continued growth in Canada's population, licenced drivers and motorised vehicles in use. However, as previously stated, vehicle travel did decrease slightly between 2007 and 2008.

The road user classes that experienced the most noteworthy decreases in traffic-related deaths between 2000 and 2008 were pedestrians (-20%) and passenger car occupants (-20%).

Table 3 shows the breakdown of road fatalities by road use.

Table 3. **Reported fatalities by road user type**
1990, 2000, 2007, 2008

	1990		2000		2007		2008		2008 % change over	
	Count	%	Count	%	Count	%	Count	%	2000	1990
Bicyclists	106	3%	40	1%	65	2%	42	2%	5%	-60%
Motorised two-wheelers	260	7%	170	6%	225	8%	216	9%	27%	-17%
Passenger car occupants	2 244	57%	1 669	57%	1526	55%	1331	55%	-20%	-41%
Pedestrians	584	15%	372	13%	376	14%	299	12%	-20%	-49%
Other	769	19%	652	22%	569	21%	5311	22%	-19%	-31%

❖ Age

The age group most at risk in Canada is 18-20, followed by 21-24. The 18-20 year old age group has a mortality rate that is more than two times higher than that of the general population.

In terms of road deaths among 15- to 24-year-olds, motor vehicle occupant fatalities are the principal problem. Despite graduated licensing programmes being in place in most parts of the country, driver inexperience and high-risk behaviours such as driving after drinking and non-use of seat belts, particularly among those aged 16 to 19, remains a concern and is reflected in this group's higher driver fatality rate per billion vehicle-kilometres travelled. Only very old drivers (75+) have higher fatality rates.

Figure 2. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2008)



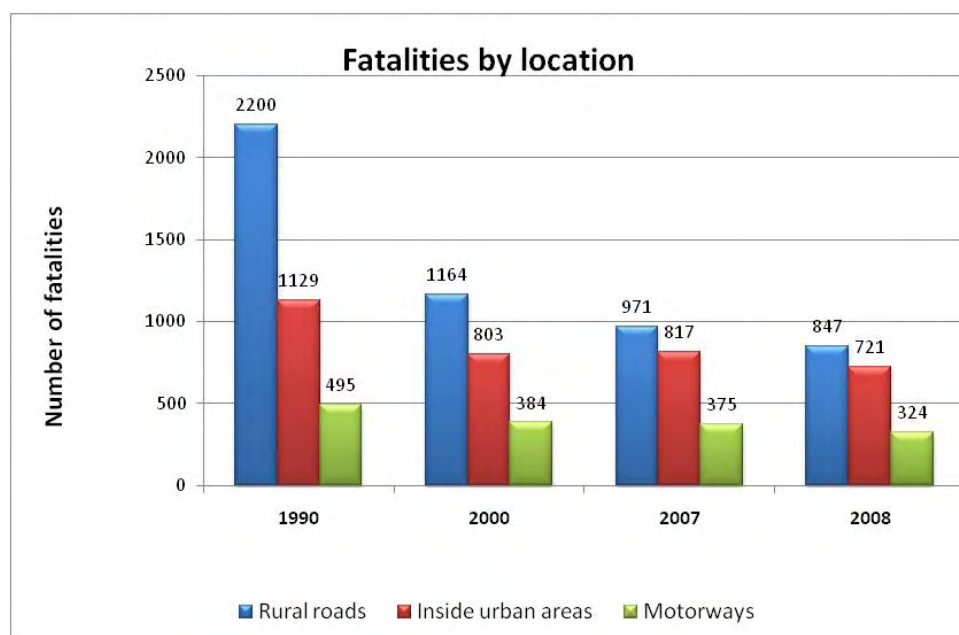
❖ Road type

Rural roads with posted speed limits of 80-90 km/h are the most dangerous type of location for road users. In 2008, more than 40% of all traffic fatalities occurred on undivided roads outside of urban areas.

Although the death toll on rural undivided roads is still high, the number of victims killed on these roads decreased substantially during 2008 compared with the 2007 fatality figure. Increased police enforcement in some jurisdictions that targeted high-risk driver behaviours resulted in substantial increases in the number of citations issued and corresponding decreases in serious crashes and resulting fatalities.

The large majority of fatalities involving vulnerable road users (pedestrians, motorcyclists, bicyclists) occur 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 3. **Reported fatalities by road type**
1990, 2000, 2007, 2008



4. Recent trends in road user behaviour

❖ Drink driving

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 mg% and 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 2008, 34% 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), rising to more than 45% in cases involving fatally injured drivers in the 16-45 age group and to 59% among drivers fatally injured in single-vehicle crashes.

❖ Speed

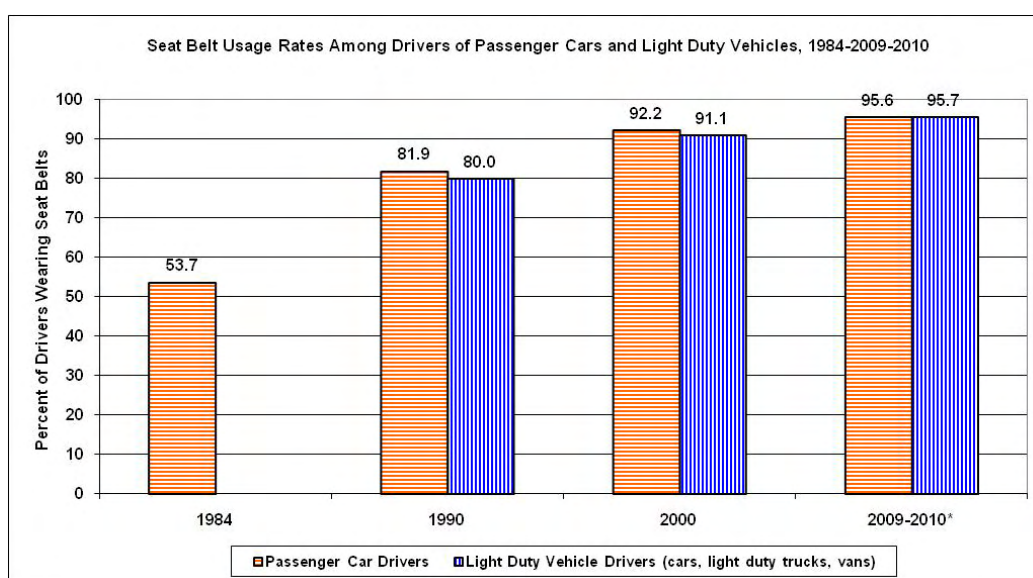
Excess speed was a factor in approximately 27% of fatalities and about 19% of serious injuries in 2008. Speed is often cited as a factor in combination with other high-risk behaviour, such as drink driving, non-use of seat belts and the running of red lights. A study of single vehicle crashes occurring on rural roads identified speed as a factor in 35% of driver fatalities and 25% of serious injuries to drivers. Speeding is also a serious problem on urban streets with posted speed limits of 60 km/h or less, where it is cited as a contributing factor in one-third of all fatalities and serious injuries.

❖ 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 that were introduced under the auspices of the National Occupant Restraint Programme have contributed to progressively higher seat belt usage rates.

Figure 3 and Table 4 show the evolution of seat belt use.

Figure 4. **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.

Table4. **Seat belt wearing rates**

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

Despite the high restraint usage rates in Canada overall, almost 38% of motor vehicle occupants killed in traffic collisions in 2008 – and 19% 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 (47%). 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 38%, followed by victims killed on rural roads, at almost 37%, and motorways (31%).

Provincial and territorial laws require all riders of motorized 2-wheelers to wear helmets. Some jurisdictions also have helmet use laws for cyclists, but these vary in application. In some cases, the law only applies to children and young adults up to age 18. In general, police services do not rigorously enforce helmet use laws among cyclists.

In September 2010, Transport Canada conducted an observational survey of seat belt use in urban communities across Canada. Survey results revealed that restraint use among all light duty vehicle occupants in urban areas of Canada increased to 94% (from 93%) in 2007, when the survey was last conducted in Canada's urban areas.

❖ **Distracted driving**

Concerns over the negative outcomes of the ever-increasing use of cell phones by drivers while operating their vehicles led a number of Canadian jurisdictions to introduce legislation banning their use while operating a vehicle. Data on cell phone use by drivers was also collected as part of the 2010 national seat belt use survey. It revealed that 3.3% of drivers were observed using cell phones while driving.

5. National road safety strategies and targets

❖ **National road safety strategies and targets**

Canada has a national target of reducing the average number of road users fatally or seriously injured by 30% in 2008-2010, compared with 1996-2001. It has also set sub-targets of percentage decreases in the following categories (decrease in numbers, except as indicated):

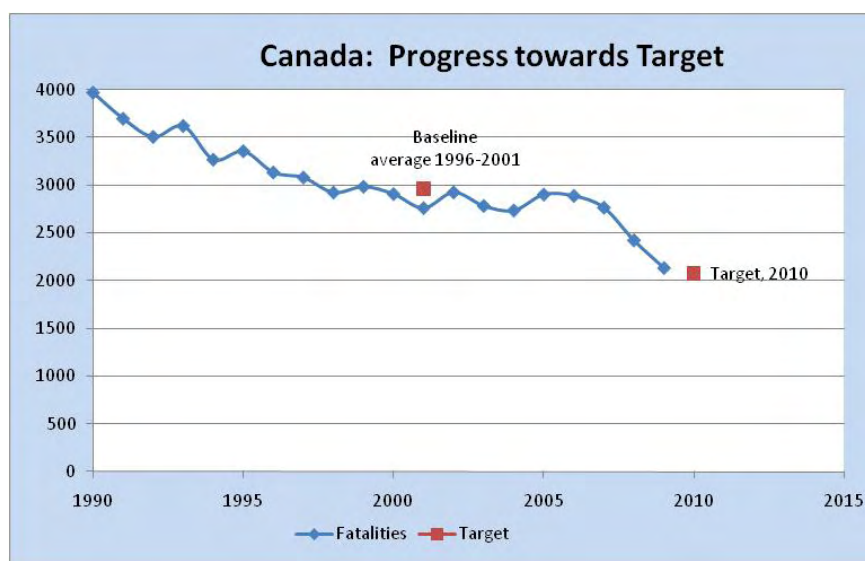
- unbelted fatally or seriously injured occupants, 40%;
- percentage of road users fatally or seriously injured in crashes involving drink drivers, 40%;
- road users fatally or seriously injured on rural roads, 40%;
- young drivers and riders (those aged 16 to 19) killed or seriously injured in crashes, 20%;
- number of road users killed or seriously injured in speed-related crashes, 20%;
- road users killed or seriously injured in intersection-related crashes, 20%;
- fatally or seriously injured vulnerable road users (pedestrians, motorcyclists, bicyclists), 30%;
- road users killed or seriously injured in crashes involving commercial vehicles, 20%.

Progress towards targets

The national target for Canada's road safety plan, called Road Safety Vision 2010, is to achieve a 30% decrease in deaths and serious injuries during the period 2008-2010, when compared with comparable figures for the period 1996-2001.

Considerable progress occurred towards the achievement of the national objective during 2008, as traffic deaths decreased by 12% and serious injuries declined by 9% over comparable 2007 figures. Provisional fatality figures for 2009 indicated that considerably more progress continued during that year, as traffic fatalities decreased by a further 12% over the 2008 death toll. Canada's 2009 provisional fatality total was almost 28% lower than the number of road users killed during the 1996-2001-comparison period. The dramatic improvement was attributed to a combination of focused intervention efforts by many jurisdictions that addressed Canada's three most serious road safety challenges – drinking and driving, non-use of occupant restraints and speeding/aggressive driving as well as a challenging economic climate.

Figure 4. Progress towards road safety target



❖ Road Safety Strategies beyond 2010

Canada's current national road safety plan will expire at the end of 2010. The Canadian Council of Ministers Responsible for Transportation and Highway Safety endorsed a new five-year national road safety strategy in September 2010. The key elements of the successor plan – the vision, strategic objectives, the identification of the primary risk groups and contributing factors that will be targeted under the strategy, as well as the best practices framework for the overall national strategy – have been developed. The new initiative, which is called Road Safety Strategy 2015, will be officially launched in January 2011.

6. Recent safety measures (2009-2010)

❖ Road user behaviour

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>

Seat Belt Sense. In 2008, Transport Canada published a new brochure on seat belts, for national distribution. The brochure explains why occupants need seat belts and how they work with other safety features to protect people. <http://www.tc.gc.ca/roadsafety/tp/tp14646/menu.htm>

Winter driving brochure. A new edition of Transport Canada's winter driving brochure was prepared to give drivers; this contains tips on how to deal with heavy snow and ice, skidding, and preparations for winter road travel. <http://www.tc.gc.ca/roadsafety/safevehicles/safetyfeatures/winterdriving/index.htm>

❖ Vehicle standards and equipment

- The federal government reached an agreement with industry in Canada to continue increasing the number of vehicles available for sale that are equipped with electronic stability control.

- In 2009, the operations of all federally regulated transit services, which had been exempt from National Safety Code regulations for the previous twenty years, were subjected to the federal hours of service regulation.
- A new Canadian Motor Vehicle Safety Standard pertaining to the fitment of electronic stability control on prescribed vehicles with a gross vehicle weight rating of 4,536 kilograms or less and manufactured on or after September 1, 2011 was published. The regulation creates harmonized requirements between Canada and the United States and is aligned with the same UN ECE global technical regulation.
- The technical requirements for Canada's roof crush resistance safety regulation were harmonized with those of the United States.
- In May 2010, the new Canadian Restraint Systems and Booster Seat Safety Regulations were published. The regulations, which will become effective in January 2011, include a requirement that all child seats with three-point belts must be tested.

❖ Infrastructure

- Guidelines for collision prone location screening. Transport Canada is partnering with provinces and territories as well as key stakeholders on a project to develop national guidelines for collision prone location screening.
- Canadian Road Assessment Program. Canada is undertaking a project to test the technological and institutional feasibility of instituting a Canadian Road Assessment Program (CanRAP) under the iRAP umbrella.
- The Transportation Association of Canada completed the Guide to Practices for Median Design. Technical data found in the Guide includes calculations for crash reduction factors for various design considerations.
- Transport Canada partnered with academia to conduct research on Energy-Absorbing Guide Rail Terminal (EAGRT) devices and with Ryerson University to develop tools for estimating the safety and operational impacts of roundabouts at high-speed approaches. It is hoped that the process/warrant will help establish roundabouts as a safe, efficient, and cost-effective alternative form of intersection traffic control in Canada.
- The Transportation Association of Canada completed the Guide to Network Screening for Collision Prone Locations. The guide provides methodologies to provincial and territorial jurisdictions to undertake safety assessments of their road network that identify high collision areas and where to best target limited resources to make these locations safer.
- Transport Canada 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.

❖ Other measures

- National Day of Remembrance for Road Crash Victims. This event, first held in 2008, is to be held every November. It was established to remind people about the extent of the road crash problem and to commemorate the victims of serious crashes

7. Research

❖ Major research undertaken in 2009-2010

- Transport Canada researchers completed a paper entitled Canadian Legislative Approaches to Discourage Distracted Driving. The paper provides an overview of distraction research, a

review of legislation (Canada, US & some EU countries) to address distraction and a review of research that had addressed the effectiveness of the various measures.

- 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 driving behaviour characteristics 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 to the feedback/reward phase.
- Transport Canada researchers completed a '**Backing Aids Field Operational Study**' in order to gain a better understanding of how drivers use backing aids in day-to-day driving. Three different types of backing aids were tested (two camera and one sensor system). Differences between backing aid systems were explored in terms of driver behaviour, performance, use, and subjective satisfaction.
- **Automated Control in Motor Vehicles:** Advanced Driver Assistance Systems (ADAS) apply sophisticated in-vehicle sensor, information and communications technologies to support the driver. These innovative systems are taking over tasks that were traditionally performed by the driver. However, the safety implications of these advanced systems (e.g., collision warning and lane keeping assistance) are uncertain. The project is reviewing the legal liability considerations in Canada associated with automated control in passenger vehicles from the perspectives of the driver, manufacturer, insurer and regulator. This review discusses potential liability relating to negligence, driver duty of control, defects, warnings and operating instructions, insurance coverage and claims. The principle goal of the research is to identify obstacles and potential solutions for deploying safe and efficient automated technologies in Canada.
- **Design and Evaluation of In-Vehicle Warning Interfaces:** Advanced Driver Assistance Systems (e.g., forward collision warning or lane departure warning systems) are designed to help drivers avoid, or mitigate, the effect of crashes. These systems use warning signals in dangerous situations to raise driver awareness and help them make timely and appropriate responses. These systems present a variety of warning signals to drivers (e.g., different symbols, colours, flashing, text, vibrations, sounds, and even speech). Drivers may not be able to make timely and appropriate responses if they do not understand the warning signals or are confused by them. Guidelines for warnings have been developed to help drivers understand them and methods are being developed to evaluate warnings.
- **Collision Mitigation Braking System Research:** Transport Canada is evaluating the performance of systems that can automatically apply a vehicle's brakes when a collision is inevitable in order to reduce the severity of the crash. The risk of collision is monitored through sensors and when they determine that a collision is inevitable (typically, about 0.5 second before a crash), the automatic emergency braking system is activated to reduce crash severity. Preliminary testing was performed using an inflatable target shaped as a car. Efforts are now focused on improving the targets and test methods. Transport Canada is also monitoring and supporting the development of international standards and regulations for this technology.

8. References

❖ 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>

CZECH REPUBLIC¹

1. Short-term trends

❖ General comments on trends for 2009

In 2009, road fatalities decreased by 16.3% and the number of persons seriously injured also decreased by 6.9%. These positive developments have to be analysed in conjunction with the economic recession, which affected the growth in traffic volume.

❖ Preliminary trends for 2010

The positive trend in traffic safety continued in 2010. It is expected that the number of road fatalities and the injured will be lower in 2010 than in 2009.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities decreased by 55% and the number of injury crashes by 18%. In the same period, the number of vehicles more than doubled. In recent years (2000-2009), the number of fatalities decreased by 39%.

Table 1. **Reported road fatalities and injury crashes**
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	1 983	1 261	1 291	1 486	1 286	1 076	901	-16%	-39%	-55%
Injury crashes	26 478	18 326	21 910	25 445	25 329	22 481	21 706	-3%	-15%	-18%

Four periods can be observed:

From 1970 to 1986, the number of fatalities decreased and reached its lowest 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 the development in reducing road fatalities. This good 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 the regulation of the Federal Ministry of the Interior, No. 101/1981 Coll., on suspending driving licences of drivers not able to pay a fine for their

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

road traffic offence. The regulation, which came into effect on 1 January 1982, contributed significantly to an improvement in road safety at the time, although it is no longer in effect;

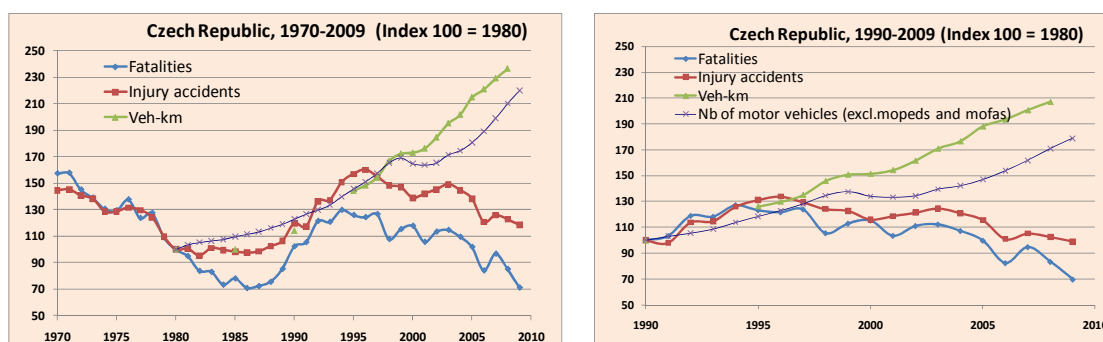
- Intensive development of the motorway network started at the end of the 1960s (in 1980, a motorway opened between Prague and Brno);
- Faster development and modernisation of the vehicle fleet;
- Strong enforcement.

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”.

1997-2003: The number of fatalities oscillated in a certain range. The first significant 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 pedestrian zebra crossings were introduced in the framework of a new traffic code.

2004-2009: 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. 2007 was not a very good year; but results in 2008 and 2009 are again encouraging.

Figure 1. **Reported road fatalities, injury crashes and vehicles**
1970-2009



❖ Risks and rates

Between 2000 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 40%.

Table 2. **Rates**
1980, 1990, 2000, 2008, 2009

	1980	1990	2000	2008	2009	2009 % changeover	
						2000	1980
Deaths/100 000 population	12.2	12.5	14.5	10.4	8.6	-40%	-30%
Deaths/billion veh-km	53.9	48.3	36.7	19.4			
Deaths/10 000 vehicles	4.8	4.0	3.4	1.9	1.6	-54%	-68%
Motorisation (number of vehicles/1 000 inhabitants)	254	322	420	530	550	31%	117%

3. Accident trends

❖ Road users

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

Table 3. **Fatalities by road user group
1990, 2000, 2008 and 2009**

	1990		2000		2008		2009		2009 % changeover		
	Nb	%	Nb	%	Nb	%	Nb	%	2008	2000	1990
Bicyclists	135	11%	151	10%	93	9%	84	9%	-10%	-44%	-38%
Motorised 2-wheelers	113	9%	116	8%	123	11%	94	10%	-24%	-19%	-17%
Car occupants	597	47%	784	53%	573	53%	497	55%	-13%	-37%	-17%
Pedestrians	359	28%	362	24%	238	22%	176	20%	-26%	-51%	-51%
Others	90	7%	73	5%	49	5%	50	6%	2%	-32%	-43%
Total	1 261	100%	1 486	100%	1 076	100%	901	100%	-16%	-39%	-30%

Figure 2. **Relative change in the number of motorised two-wheelers in traffic and the number of moped riders and motorcyclists killed in traffic**

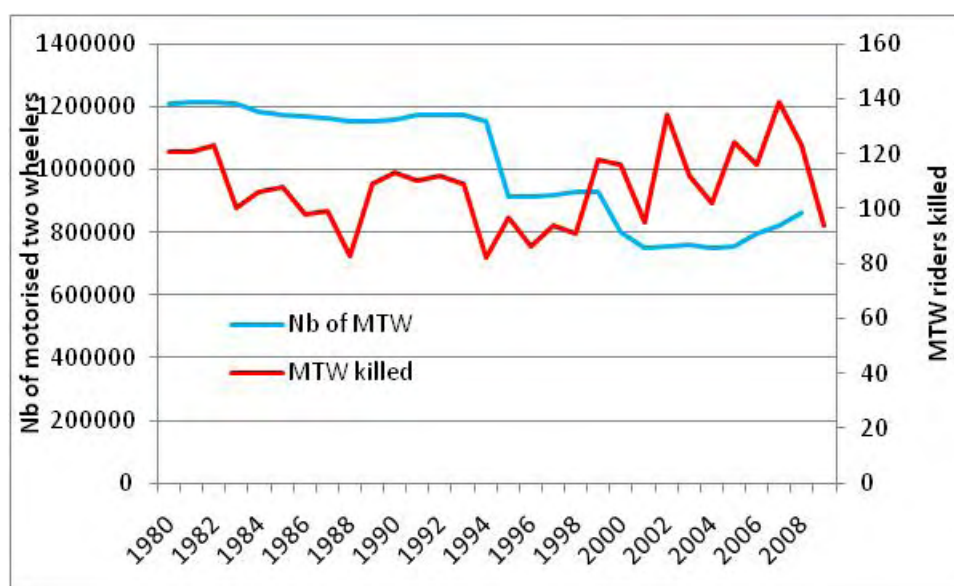


Table 4 illustrates the relative fatality risk for the different road user groups. For a motorcyclist, the risk of dying in a traffic crash is 27 times higher than that for a car occupant.

Table 4. Relative fatality risk by road user group (2008)

	Fatalities	Deaths (inside or on the vehicle) per million vehicles	Average kilometrage per vehicle	Deaths (inside or on the vehicle) per billion v/km
Pedestrians	238			
Bicycles	93			
Mopeds	2	4.2		
Motorcycles	121	315	825	382
Car and van occupants	573	134	9 570	14
Heavy goods vehicles	45	84	25 000	3.4

❖ Age

Since 1980, the reduction in fatalities has benefited the youngest age groups (more than 80%) and the oldest, but young people aged 18-20 have suffered a serious increase in the number of casualties. In 2009, the number of 18-20 year olds killed was reduced by half and is now almost back to the 1980 level. Deaths among drivers aged 21-64 also increased compared to 1980. For 2000-2009, all age groups saw improved safety.

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 5. Reported fatalities by age group
1980, 1990, 2000, 2008, 2009

Age	1980	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1980
0-5	25	16	13	6	3	-50%	-77%	-88%
6-9	39	25	17	4	7	75%	-59%	-82%
10-14	17	18	24	9	6	-33%	-75%	-65%
15-17	28	57	44	14	13	-7%	-70%	-54%
18-20	40	107	103	83	41	-51%	-60%	3%
21-24	76	123	155	110	92	-16%	-41%	21%
25-64	498	668	881	646	572	-11%	-35%	15%
>65	278	270	243	186	163	-12%	-33%	-41%

❖ Road type

In 2008, around 56% of fatal crashes occurred on rural roads, 41% in urban areas and 3% on motorways (Figure 4). Since 1980, the greatest reduction in fatalities occurred on urban roads (-31%), while there has been no 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.

In 2008, the greatest improvement occurred on motorways, while no progress was made on urban roads.

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

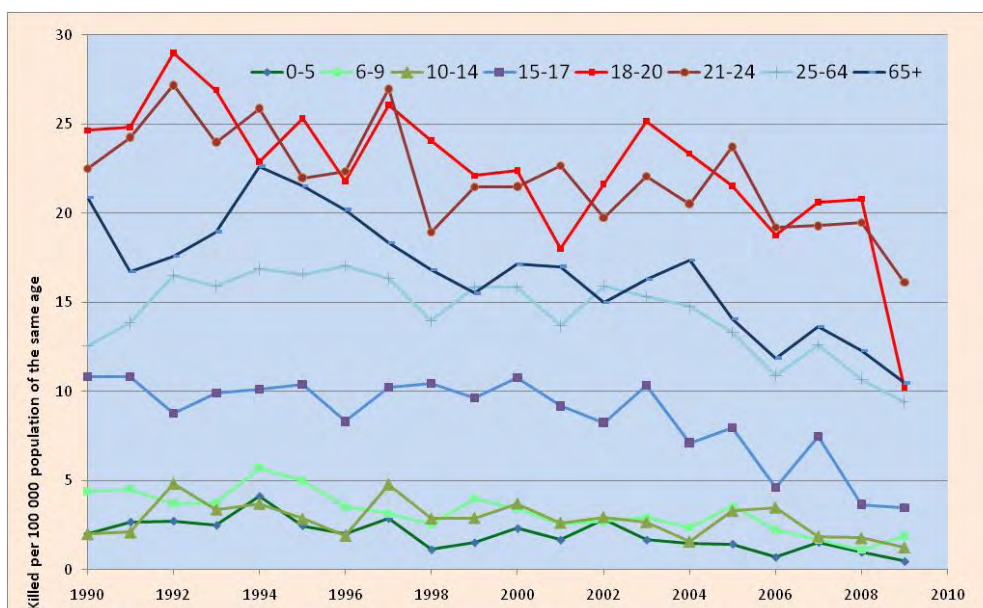


Figure 4. Reported fatalities by road type
1980, 1990, 2000 and 2008

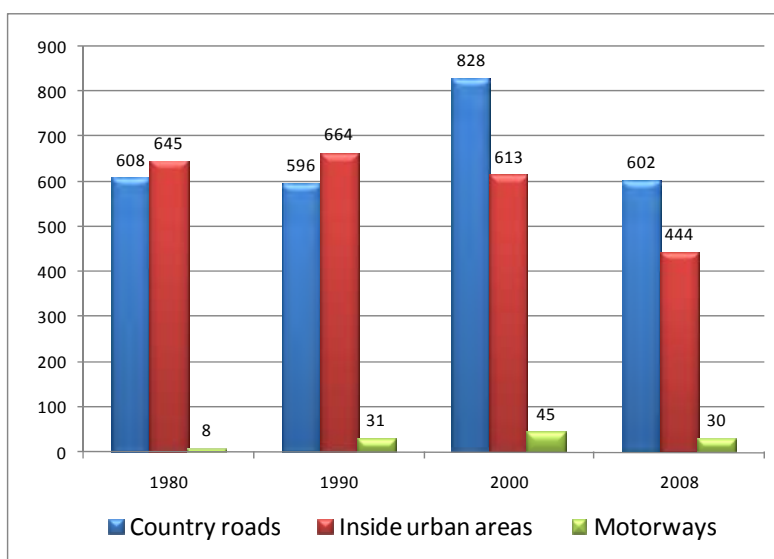


Table 6. Reported fatalities by type of road

	1980	2000	2007	2008	% changeover		
					2007-2008	2000-2007	1980-2008
Country roads	608	828	732	602	-18%	-27%	-1%
Inside urban areas	645	613	442	444	0%	-28%	-31%
Motorways	8	45	48	30	-38%	-33%	275%

4. Recent trends in road user behaviour

❖ Speed

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

The share of injury crashes due to excessive speed was 25% in 1980, 24% in 2000 and 28% in 2009. The share of fatal crashes due to excessive speed was 33% in 1980, 40% in 2000 and 44% in 2009).

❖ Drink-driving

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

In 2009, 15% of fatal crashes involved a driver with a positive blood-alcohol content. This share was only 3.4% in 2007.

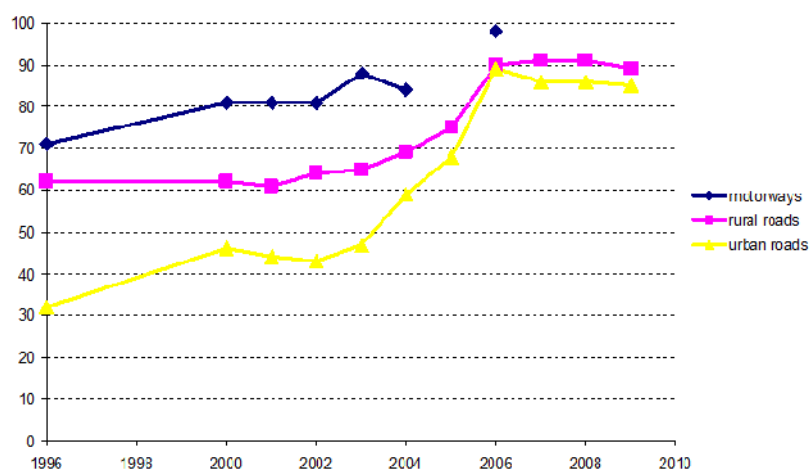
❖ Seat-belts and helmets

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 2006, the general usage rate was 88% (Table 7). Figure 5 shows the evolution in seat-belt wearing rates for car drivers.

Table 7. Seat-belt use for car occupants

	2000	2003	2006
General	46%	56%	88%
Rear seat	7%	13%	68%
Front seat	63%	61%	90%
Motorways - driver	81%	88%	98%
Rural roads - driver	62%	65%	90%
Urban areas - driver	46%	47%	88%

Figure 5. Seat-belt wearing rates for car drivers, 1996-2009



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

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

❖ **Distracted driving**

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

5. National road safety strategies and targets

❖ **National road safety strategies**

The very bad results in 2007 led to a growing awareness among policymakers. The Ministry of Transport initiated the 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.

Recently a strong accent has been laid on public awareness and prevention activities.

❖ **Safety targets**

In 2002, the Czech Republic agreed on a 2010 target to reduce the number of fatalities by 50%. There is no sub-target. Despite the good progress made in recent years, the target will not be met in 2010.

Figure 6. **Trend in progress towards road fatality target**



❖ **Road safety strategies beyond 2010**

The new National Strategic Safety Plan for the years 2011-2020 is in preparation, with the target of reducing serious injuries by 40%, compared to the year 2010, and reducing fatalities “more than the average for the EU countries”. In addition, special attention will be given to the following areas:

- Children;
- Pedestrians;
- Cyclists;
- Motorcyclists;
- Young and new drivers;
- Elderly population;
- Alcohol and other narcotics in the course of driving;
- Speeding;
- Aggressive driving.

6. Recent safety measures (2009-2010)

❖ Road user behaviour, enforcement

- The road traffic police significantly increased enforcement activities for drink-driving, excess speed 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.
- Introduction of GPS-based localisation of accident spots.

❖ Licensing, regulation

- 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.

❖ Education and communication

- The Ministry of Transport and the traffic police jointly launched the campaign “Safe Holiday 2009”, which resulted in a significant decrease in accidents and their consequences (-27%) compared to 2008.
- The Designated Driver Campaign, “Let’s agree”, targeting young drivers, was successfully continued.
- A new safety campaign, “If you don’t think, you will pay”, was initiated to target the most dangerous behaviours (aggressive and drunken driving, speeding and failure to wear seat-belts).
- Permanent attention is devoted to children’s safety education. The “Safe road to school” programme is widely accepted.
- The Multimedia project, “The Action”, targeting secondary school students, was extended.
- A contest for elementary school pupils, “Safe on the roads”, was organised in October 2009.
- BESIP (Road Safety) Teams are trying to develop local public safety activities in each region. However, only two regions have developed their regional road safety programmes and plans.

7. Major recent or ongoing research (2009-2010)

- The Ministry of Transport has contracted several ongoing road safety research projects, targeting safer road infrastructure, road user behaviour and driver licensing.

8. References – Useful websites and references

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

DENMARK¹

1. Short-term trends

❖ General comments on trends for 2009

After having experienced a large increase in traffic fatalities in 2007-2008 (100 more fatalities than in 2006), the number dropped again to around 300 killed in 2009. This can be partly explained by a reduction in average speeds and in the volume of traffic. The economic situation could have had some influence, encouraging slower speed in order to save fuel. Also, the winter of 2009-2010 was very rigorous with much snow, which is in turn favourable for road safety, because people drive less and slower.

In 2009, the number of fatalities decreased by 25% and the number of injury accidents was reduced by 17%.

The number of people seriously injured also decreased by 10% compared to 2007. The number of those killed and injured was at its lowest level since 1932, while the number of injury accidents reached a 10-year low. Between 2003-2008, single-vehicle accidents, head-on collisions and accidents involving parked vehicles, pedestrians or alcohol, all decreased.

❖ Preliminary trends for the year 2010

Preliminary data for the year 2010 show a continuous downward trend in the number of traffic fatalities, which should be around 250-275. The beginning of the winter saw a lot of snow, which, as explained above, could contribute to a good performance at the end of the year.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities decreased by 75% and the number of injury crashes by 79%. In the same period, the number of vehicles and the distance travelled (in vehicle-kilometres) more than doubled.

Table 1. Reported road fatalities and injury crashes
1970-2009

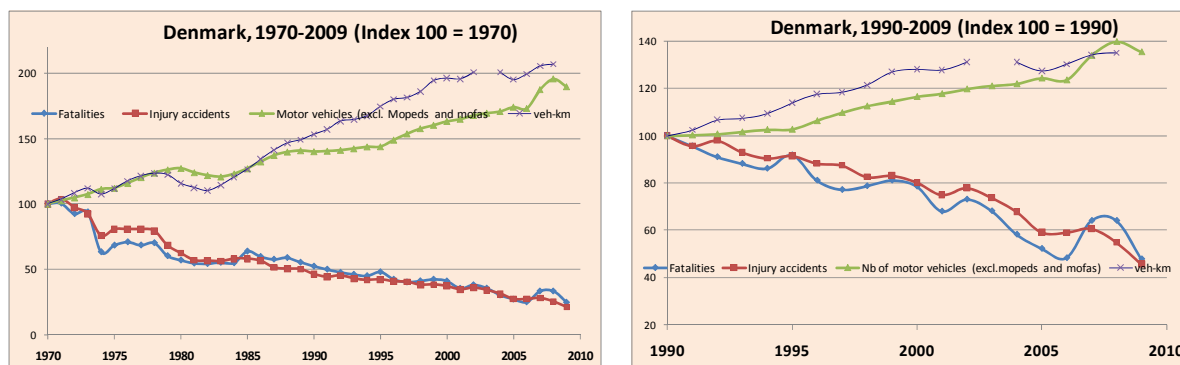
	1970	1990	2000	2005	2008	2009	2009 % changeover		
							2008	2000	1970
Fatalities	1 208	634	498	331	406	303	-25%	-39%	-75%
Injury crashes	19 782	9 155	7 346	5 412	5 020	4 174	-17%	-43%	-79%

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

¹ Source: IRTAD, Danish Road Directorate.

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.

Figure 1. **Reported road fatalities, injury crashes and vehicles 1970-2009**



❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in deaths per 100 000 population, decreased by 78%.

Table 2. **Rates 1970, 1990, 2000, 2008, 2009**

	1970	1990	2000	2008	2009	2009 % changeover	
						2000	1970
Deaths/100 000 population	24.62	12.35	9.34	7.37	5.5	-41%	-78%
Deaths/billion veh-km	50.54	17.32	10.65	8.22			
Deaths/10 000 vehicles		3.1	2.1	1.4	1.1	-48%	
Motorisation (number of vehicles/1 000 inhabitants)			463	524			

3. Accident trends

❖ Road users

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

The user groups benefiting most from safety progress are pedestrians (-84%) and moped riders (-90%). The fatality reduction in the latter group is largely linked to a decreasing popularity for this transport mode, as Figure 2 shows.

Table 3. Reported fatalities by road user type
1970, 2000, 2008 and 2009

	1970		2000		2008		2009		2009 % changeover		
	Fatalities	%	Fatalities	%	Fatalities	%	Fatalities	%	2008	2000	1970
Bicyclists	152	13%	58	12%	54	13%	25	8%	-54%	-57%	-84%
Mopeds	154	13%	47	9%	30	7%	15	5%	-50%	-68%	-90%
Motorcycles & scooters	42	3%	24	5%	40	10%	27	9%	-33%	13%	-36%
Passenger cars	444	37%	239	48%	201	50%	169	56%	-16%	-29%	-62%
Pedestrians	327	27%	99	20%	58	14%	52	17%	-10%	-47%	-84%
Others	131	11%	31	6%	23	6%	15	5%	-35%	-52%	-83%
Total	1 208	100%	498	100%	406	100%	303	100%	-25%	-39%	-75%

Figure 2. Relative change in the number of motorised two-wheelers in traffic and the number of moped riders and motorcyclists killed in traffic

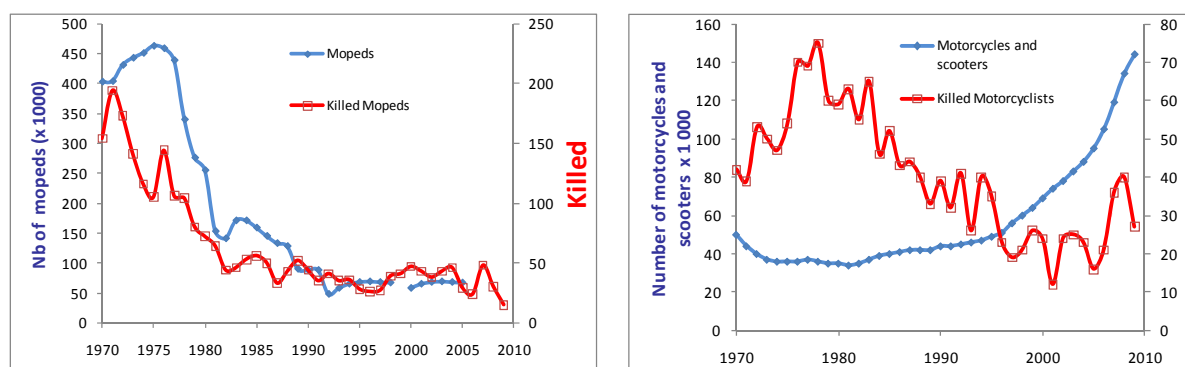


Table 4 illustrates the relative fatality risk for the different road user groups. For a motorcyclist, the risk of dying in a traffic crash is 7.5 times higher than that for a car occupant.

Table 4. Relative fatality risk by road user group (2004)

	Fatalities	Deaths (inside or on the vehicle) per million vehicles	Average kilometrage per vehicle	Deaths (inside or on the vehicle) per billion veh-km
Bicycles	53	NA	NA	(bicycles & mopeds together)
Mopeds	38	NA	NA	
Motorcycles	24	NA	NA	
Car and van occupants	199	NA	NA	5
Heavy goods vehicles (2004)	3	NA	NA	2

❖ Age

Since 1970, 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 94%, from 172 in 1970, to 10 in 2009. A possible explanation for this decline may be that children are now less active traffic

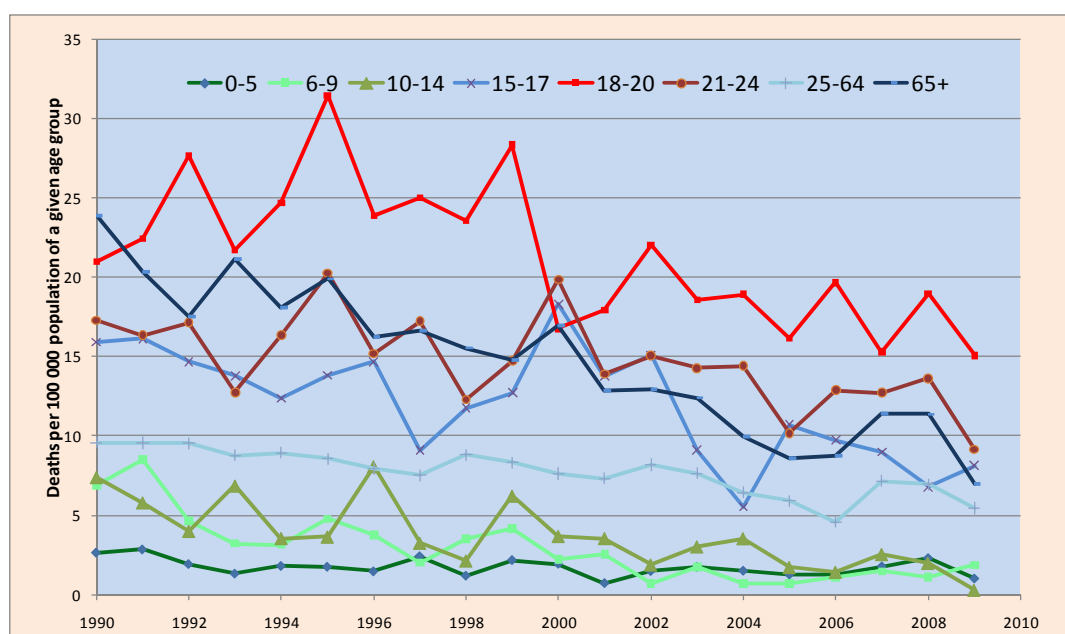
participants than in the 1970s. They are often driven to school by their parents and spend most of the day in school or activities instead of playing in the streets.

Young people, especially those aged 18 to 20, are still a high-risk group in terms of road safety, with a fatality risk three times higher than for the general population (Figure 3).

Table 5. Reported fatalities by age group
1980, 1990, 2000, 2008, 2009

	1980	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1970
0-5	14	9	8	9	4	-56%	-50%	-92%
6-9	11	15	6	3	5	67%	-17%	-92%
10-14	25	24	11	7	1	-86%	-91%	-98%
15-17	66	35	30	14	17	21%	-43%	-73%
18-20	88	46	30	36	30	-17%	0%	-71%
21-24	66	57	55	33	23	-30%	-58%	-72%
25-64	249	257	224	207	162	-22%	-28%	-67%
>65	171	191	134	97	61	-37%	-54%	-79%
Total	634	498	369	406	303	-25%	-39%	-75%

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



❖ Road type

In 2009, 62% of fatal crashes occurred on rural roads, 30% in urban areas and 8% on motorways (Figure 4). Since 1980, the greatest reduction in fatalities has occurred on urban roads (-70%), which can be partly explained by a change in traffic patterns. Another explanation is the use of automatic speed control, which was introduced first in urban areas.

Between 1980 and 2009, several new motorways were constructed, which explains the increase in the number of fatalities on motorways; this does not mean motorways have become less safe.

Figure 4. Reported fatalities by road type
1980, 1990, 2000 and 2009

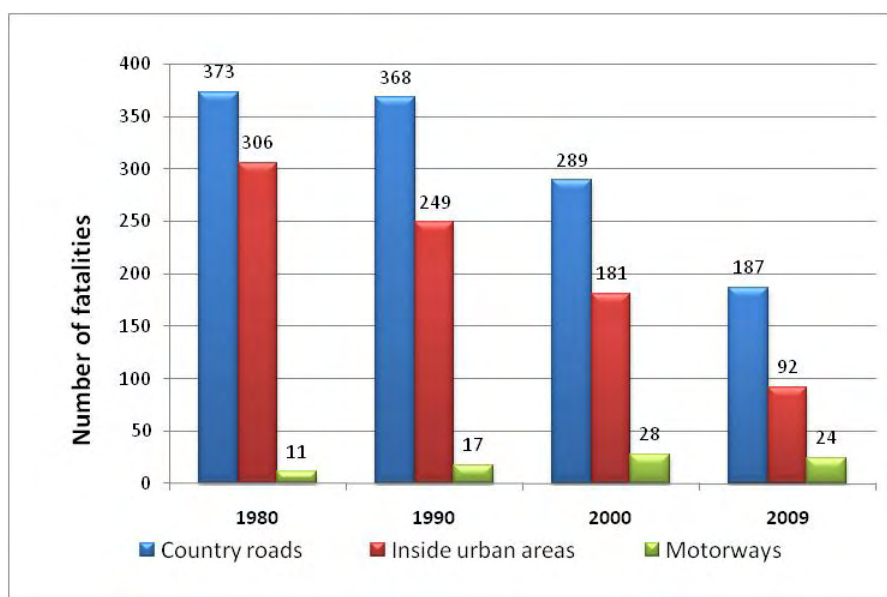


Table 6. Reported fatalities by road type

	1980	2000	2008	2009	2009 % changeover		
					2008	2000	1980
Rural roads	373	289	243	187	-23%	-35%	-50%
Inside urban areas	306	181	129	92	-29%	-49%	-70%
Motorways	11	28	34	24	-29%	-14%	118%

4. Recent trends in road user behaviour

❖ Drink-driving and drug-driving

The maximum authorised BAC is 0.5 g/l for drivers of any motorised vehicle requiring a driving licence (including professional drivers). There is no maximum authorised BAC for cyclists, moped drivers 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 more recordings of drug-related crashes. This is due to the fact that before 1 July 2007, it was up to the police to prove that the use of drugs had influenced a crash, which meant that often the police neither delved further into the case nor did they register it in the statistics.

❖ Speed

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, except for hours characterised by heavy traffic or unusually low speeds, in which case no measurements are made. The mean speeds for cars are published monthly. In addition to mean speeds, other results are calculated, including the number and percentage of cars driving above the speed limit.

Table 7. **Percentage of drivers exceeding speed limits**
2005-2009

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

❖ 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 8. **Seat-belt use by car occupant**

	2003	2005	2006	2007	2008	2009
Rear seat – adults		63%	71%	70%	79%	71%
Front seat – driver		87%	91%	90%	92%	92%
Motorways – driver	88%	92%	93%	94%	96%	96%
Rural roads – driver	89%	91%	94%	92%	93%	93%
Urban areas – driver	81%	83%	88%	87%	88%	89%

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

In Denmark, it is not allowed to drive while using a hand held mobile phone. This also applies to motorcyclists and cyclists.

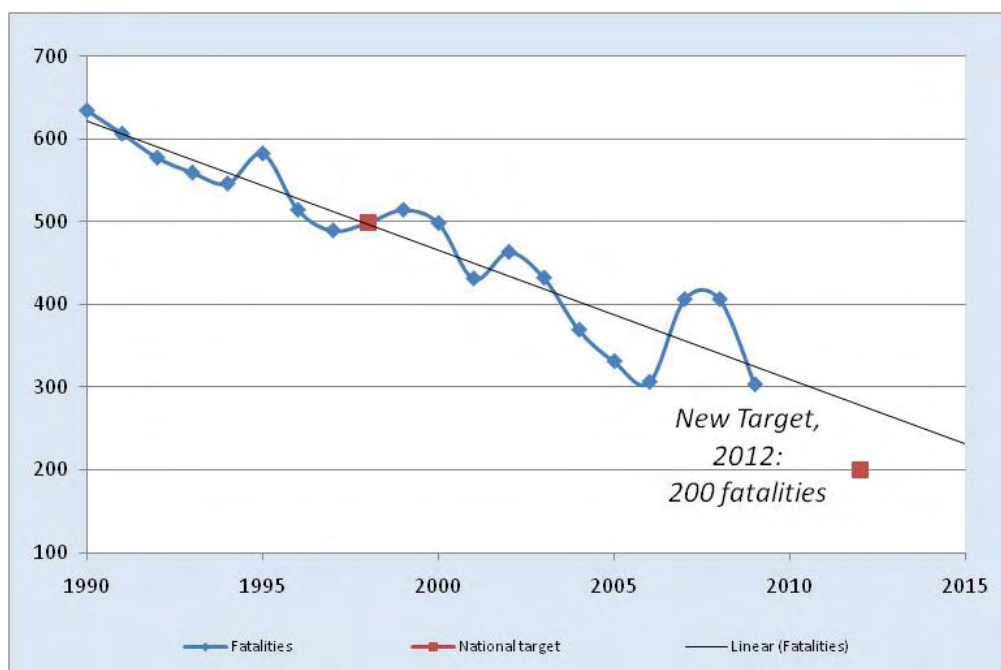
5. National road safety strategies and targets

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.

Figure 5. Trend in progress towards road fatality target



6. Recent safety measures (2009-2010)

❖ Road user behaviour, enforcement

- Mobile speed cameras have been supplemented with six stationary speed cameras as a pilot project.
- A special focus has been made on lorries turning right in front of bicyclists.

7. Major research undertaken in 2009-2010

- DTU Transport recently published a risk analysis by transport modes and age groups.
- DTU Transport participates in the research on the prevalence of drug and alcohol use in the driving population in Europe (DRUID).

8. References – 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
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FINLAND¹

1. Short-term trends

❖ General comments on trends for 2009

In 2009, there were 65 fewer fatalities than in 2008 (-19%). The number of accidents involving personal injury decreased by 7% and the number of injured persons by 5%. The fatalities in single vehicle accidents decreased most remarkably.

❖ Preliminary trends for 2010

Data for the first half of 2010 shows a continuous decreasing trend in the number of traffic casualties.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

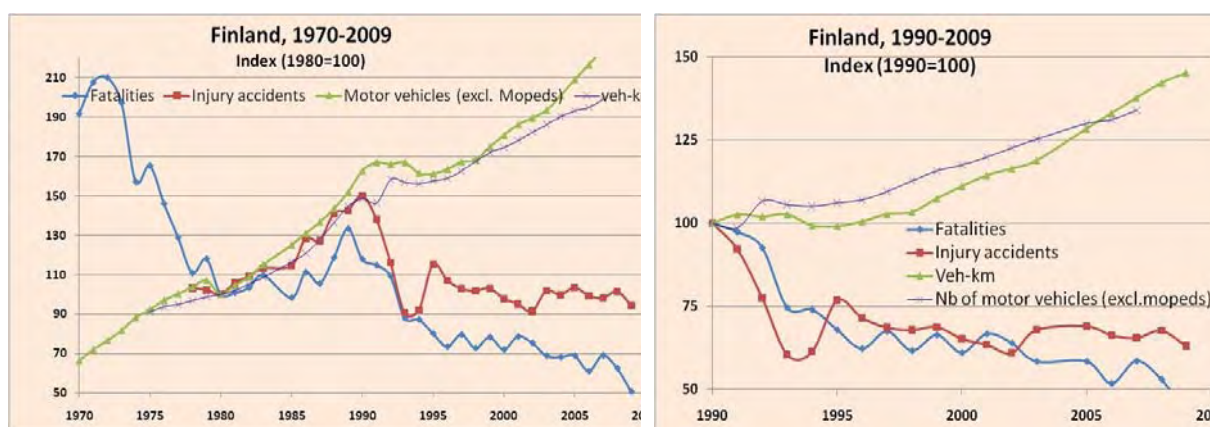
Between 1970 and 2009, the number of fatalities decreased by 74% while the number of vehicles more than tripled. In recent years (2000-2009), fatalities decreased by 30%.

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	1 055	551	649	396	379	344	279	-19%	-30%	-74%
Injury crashes	11 439	6 790	10 175	6 633	7 020	6 881	6 414	-7%	-3%	-74%

¹. Source: IRTAD, FINNRA.

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009



❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by more than 90%.

Table 2. Risk indicators, 1970, 1990, 2000, 2008, 2009

	1970	1990	2000	2008	2009	2009 % changeover	
						2000	1990
Deaths/100 000 population	22.87	13.1	7.6	6.5	5.2	-31%	-60%
Deaths/billion veh-km	n.a.	16.3	8.5	6.5	5.2	-39%	-68%
Deaths/10 000 vehicles	12.7	2.9	1.6	1.1	0.9	-46%	-70%
Motorisation (number of vehicles/ 1 000 inhabitants)	180	450	476	594	609	28%	35%

3. Accident trends

❖ Road users

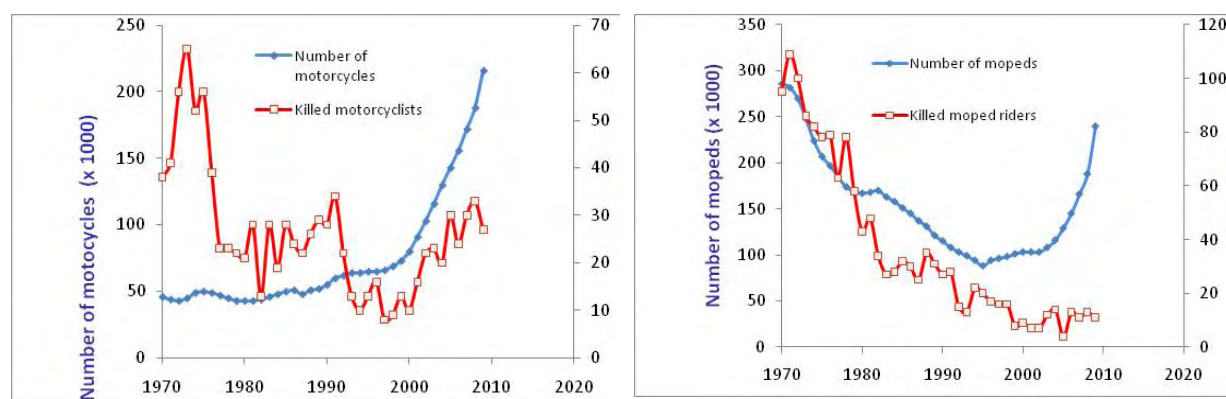
All user groups have benefited from important safety improvements since the 1970s. Bicyclists and pedestrians are the user groups that benefited the most from the safety progress. There has also been a sharp decrease in fatalities among moped riders, which must be analysed in relation to the decreasing popularity of this transport mode (Figure 2).

However, the decrease has been very small for motorcyclists and in recent years, the number of motorcyclists killed increased dramatically from 10 in 2000 to 27 in 2009, with a peak of 33 in 2008.

Table 3. Reported fatalities by road user group
1970, 2000, 2008 and 2009

	1970		2000		2008		2009		2009 % changeover		
	Count	%	Count	%	Count	%	Count	%	2008	2000	1970
Bicycles	151	14%	53	13%	18	5%	20	7%	11%	-62%	-87%
Mopeds	95	9%	9	2%	13	4%	11	4%	-15%	22%	-88%
Motorcycles and scooters	38	4%	10	3%	33	10%	27	10%	-18%	170%	-29%
Passenger cars	354	34%	224	57%	202	59%	165	59%	-18%	-26%	-53%
Pedestrians	322	31%	62	16%	53	15%	30	11%	-43%	-52%	-91%
Others	95	9%	38	10%	25	7%	26	9%	4%	-32%	-73%
Total	1 055	100%	396	100%	344	100%	279	100%	-19%	-30%	-74%

Figure 2. Relative change in the number of motorised two-wheelers in traffic and the number of moped riders and motorcyclists killed in traffic



❖ Age groups

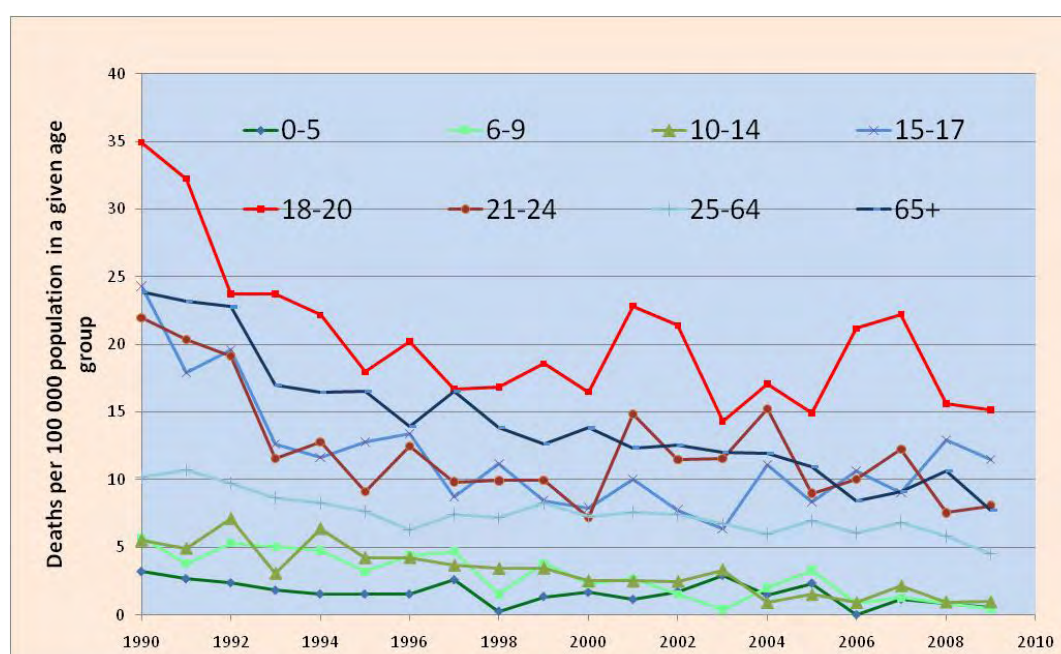
Since 1970, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned the youngest groups (0-14), for which fatalities decreased by more than 90%, from 132 in 1970 to 6 in 2009.

Young people, and especially 18 to 20-year-olds, are still a high-risk group in 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
1970-2009**

Age	1970	1980	1990	2000	2008	2009	2009 % changeover		
							2008	2000	1970
0-5	30	8	12	6	3	2	-33%	-67%	-93%
6-9	67	13	15	6	2	1	-50%	-83%	-99%
10-14	35	15	18	8	3	3	0%	-63%	-91%
15-17	55	30	43	16	26	23	-12%	44%	-58%
18-20	83	35	66	32	30	30	0%	-6%	-64%
21-24	102	33	63	19	20	21	5%	11%	-79%
25-64	514	265	274	203	167	130	-22%	-36%	-75%
>65	169	152	158	106	93	69	-26%	-35%	-59%

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



❖ Road type

In 2009, 68% of fatal crashes occurred on rural roads, 27% in urban areas and 4% on motorways (Figure 4). Since 1990, the reduction in fatalities has been spread equally between urban and country 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 type of road
1990, 2000 and 2009**

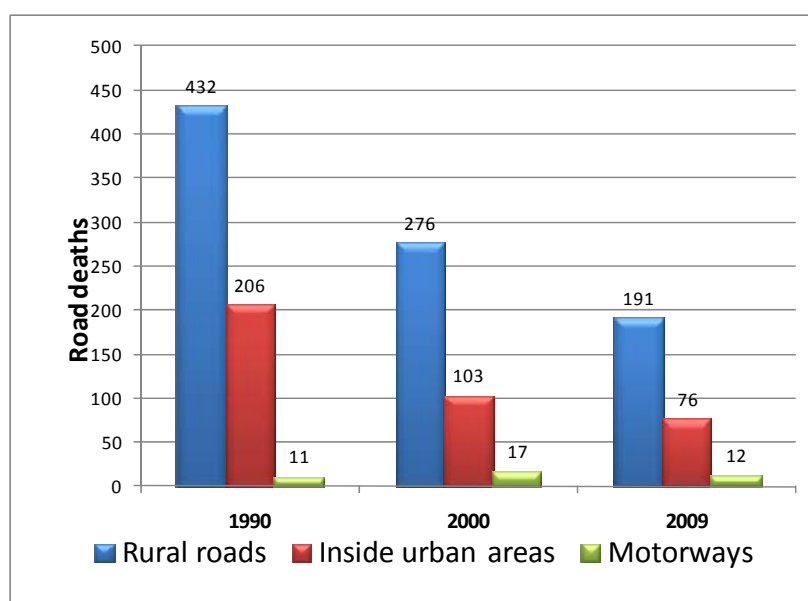


Table 5. **Reported fatalities by type of road
1990, 2000, 2008, 2009**

	1990	2000	2008	2009	2009 % changeover		
					2008	2000	1990
Country roads	432	276	227	191	-16%	-31%	-56%
Inside urban areas	206	103	108	76	-30%	-26%	-63%
Motorways	11	17	9	12	33%	-29%	9%

4. Road user behaviour

❖ Drink-driving

The maximum authorised BAC is 0.5 g/l for all drivers. Around 30% of fatal crashes involve drivers with a BAC above the 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.

In 2009, it was estimated that 24% of fatal crashes involved a driver with a BAC above the 0.5 g/l 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 2009.

❖ **Seat-belts and helmets**

Seat-belt use is compulsory in front seats since 1975 and in rear seats since 1987. Table 7 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. **Evolution in seat belt use by car occupants**

	1980	2000	2007	2008
Rural roads – driver		89%	95%	92%
Urban areas – driver	22%	80%	87%	85%

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.

5. 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 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. With the following resolution, of 9 March 2006, the Government confirmed the goals set previously.

With the measures planned so far, it will be difficult to reach the goal. The final fatality figure for the year 2009 is 279. To reach the target, a 10% reduction is required for the year 2010.

❖ **Road safety strategies beyond 2010**

The Road Safety Plan 2011-2014 will be published during the first semester of 2011.

Figure 5. Trend in progress towards road fatality target



6. Major research undertaken in 2009-2010

- LINTU long-term research and development programme for road safety (<http://www.lintu.info/research.htm>)

8. References – 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

FRANCE¹

1. Short term trends

❖ General comments on trends for 2009

The results for 2009 are mitigated, with a quasi stability in the number of fatalities and a slight decrease in the number of injury accidents (-2.9%) and in the number of injured (-3.1%).

- -4 273 fatalities in 2009 (compared to 4 275 in 2008)
- 72 315 injury accidents (73 390)
- 90 934 injured.

To understand the situation, it is important to look more precisely at the evolution of safety for the different road users. Despite an increase in mobility (+1.2%) (which followed an historical decline in 2008 as a consequence of the economic crisis), there has been an overall continuous decrease in the number of road users killed, with the exception of motorcyclists for which the situation deteriorated seriously in 2009, with a 11.7% increase in the number of fatalities (see more details in Section 2).

❖ Preliminary trends for 2010

Based on preliminary data for 2010, an overall improvement in road safety was observed during the first semester of 2010 compared to the first semester of 2009:

- Fatalities : -10.6%
- Injury accidents: -15.3%
- Injured people: - 18.1%

2. Long term trends

❖ Change in numbers of fatalities, seriously injured and injury crashes

Between 1970 and 2009, the number of fatalities decreased by 74% and the number of injury crashes by 69%. In the same period, the number of vehicles tripled. In recent years (2000-2009), the decrease in the number of fatalities has been sustained (-48%).

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.

While the rate of decrease has been sustained until 2009, there has been a slowing down in the progress made in 2009, mainly in the period March to May. Nevertheless the downward trend recommenced in Autumn 2009 and preliminary results for 2010 are encouraging.

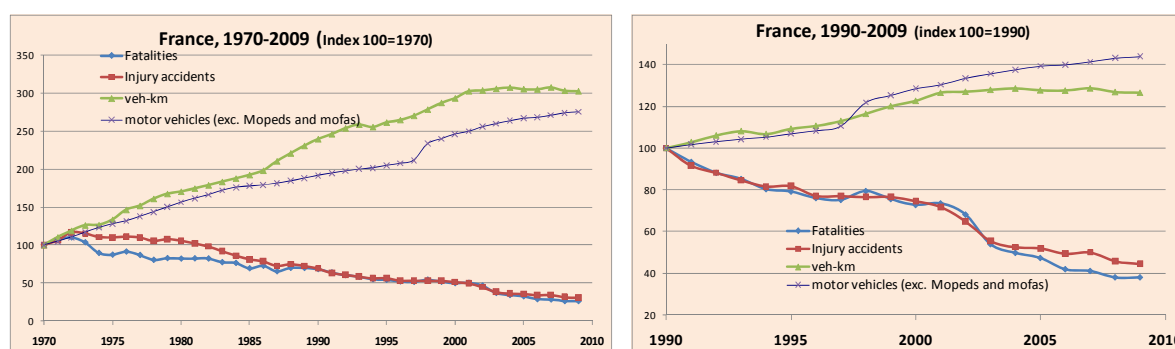
¹. Source IRTAD, ONISR, SETRA.

Table 1. Number of road fatalities and injury crashes, 1970-2009*

	1970	1980	1990	2000	2005	2008	2009	% changeover		
								2008-09	2000-09	1970-2009
Fatalities*	16 445	13 499	11 215	8 170	5 318	4 275	4 273	-0.0%	-47.7%	-74.0%
Injury crashes	235 109	248 469	162 573	121 223	84 525	74 487	72 315	-2.9%	-40.3%	-69.2%

*For the years 2000 to 2004 a factor of 1.069 was applied to the fatality data for conversion from a six-day to 30-day recording period.

Figure 1. Change in numbers of road fatalities, injury crashes and vehicles 1970-2009



❖ Risks and rates

Between 1970 and 2009 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) decreased by 91% (Table 2).

Table 2. Risk indicators 1970, 2000 and 2009

	1970	2000	2009	Change	
				2000-2009	1970-2009
Deaths/100 000 population	32.55	12.9	6.80	-47%	-79%
Deaths/billion veh-km	90.36	15.1	7.75	-49%	-91%
Deaths/ 10 000 registered vehicles		2.4			

3. Recent accident trends

❖ Road users

Since 1970, all road users benefited significantly from progress in road safety, with the exception of motorised two-wheelers. (The number of motorcyclists killed increased dramatically (+166%) since 1970 (see Table 3).

In the year 2009, all road user groups – with the exception of motorised two-wheelers and cyclists – benefitted from a slight decrease in mortality (-3.2% on average).

Motorised two-wheelers continued to be the user group most at risk. In 2009, they represented 1.6% of the motorised traffic but 28% of fatalities and 33% of motorised road users. In 2009, the number of motorcyclists killed increased by 11.7%. This increase mainly concerned motorcyclists (and to a lesser extent riders of mopeds and mofas). Improving the safety of motorised two-wheelers is a priority of the current road safety strategy (see recent measures adopted in Section 6).

Figure 2 shows the respective change in the number of mopeds and motorcycles in traffic and the number of moped and motorcycle riders killed.

Table 3. **Fatalities by road user group 1970, 2000, 2008 and 2009**

	1970		2000*		2008		2009		2009 % changeover		
	Count	%	Count	%	Count	%	Count	%	2008	2000	1970-
Bicyclists	867	5%	273	3%	148	3%	162	4%	+9,5%	-40,7%	-81,3%
Mopeds	2 874	17%	461	6%	273	6%	299	7%	+2,7%	-35,1%	-89,6%
Motorcycles and scooters	334	2%	947	12%	795	19%	888	21%	+11,7%	-6,2%	+165,9%
Car occupants	8 199	50%	5 351	65%	2205	52%	2160	51%	-2,0%	-59,6%	-73,7%
Pedestrians	3 490	21%	848	10%	548	13%	496	12%	-9,5%	-41,5%	-85,8%
Others	681	4%	365	4%	288	7%	268	6%	-6,9%	-26,6%	-60,6%
Total	16 445	100%	8 170	100%	4275	100%	4273	100%	-0,0%	-47,7%	-74,0%

* For the year 2000 a factor of 1.069 was applied to the fatality data for conversion from a six-day to a 30-day recording period.

Figure 2. **Relative evolution of the number of motorised two-wheelers in traffic and the number of moped riders and motorcyclists killed in traffic**

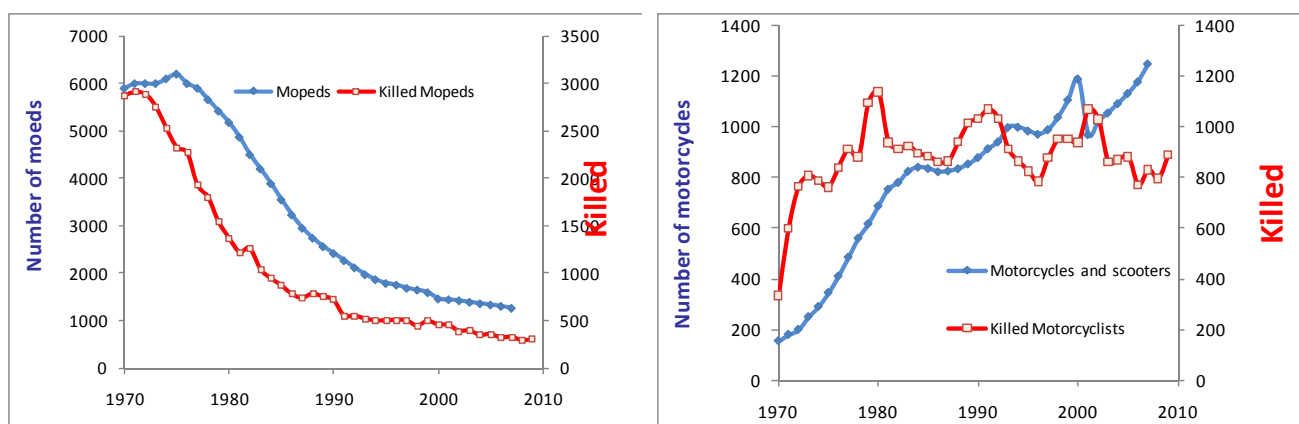


Table 4 illustrates the relative fatality risk for the different road user groups. For a motorcyclist, the risk of dying in a traffic crash is 23 times higher than that for a car occupant.

Table 4. **Relative fatality risk by road user group, 2009**
(* = 2007)

Breakdown in relation to number of vehicles	Deaths per million vehicles	Average kilometres travelled	Deaths per billion vehicle/km
Mopeds	245	2 020*	125
Motorcycles	642	4 728*	135
Light vehicles	70	12 745	6
Heavy vehicles	99	47 776	2

❖ Age groups

Since 1980, the reduction in fatalities has benefitted all age groups, but the most impressive reduction concerned the youngest groups – 6-9 years, 10-14 and 0-5 – for which fatalities respectively decreased by 92%, 86% and 83%.

Young people are overrepresented in road fatalities (see Figure 3A). The 18-24 age group represents around 9% of the population but 21% of road fatalities. The 18-20 group continues to be the one most at risk, with a rate of 18 fatalities per 100 000 population of the same age, while the rate for the general population is around 7 (see Figure 3B).

In 2009, there was a slight relative increase in the share of fatalities among those aged 25 to 65.

Table 5. **Reported fatalities by age group**
1980, 1990, 2000, 2008, 2009

	1980	1990	2000*	2008	2009	2009 % changeover		
						2008	2000	1970
0-5	296	220	125	42	49	17%	-60%	-83%
6-9	261	132	68	25	21	-16%	-69%	-92%
10-14	362	222	173	58	52	-10%	-70%	-86%
15-17	840	534	354	172	189	10%	-46%	-78%
18-20	1 693	1 224	867	424	403	-5%	-53%	-76%
21-24	1 703	1 566	879	534	498	-7%	-43%	-71%
25-64	6 118	5 684	4 204	2 209	2 265	3%	-46%	-64%
>65	2 092	1 603	1 358	811	796	-2%	-41%	-62%

* For the year 2000 a factor of 1.069 was applied to the fatality data for conversion from a six-day to a 30-day recording period.

Figure 3A. **Relative representation in fatalities by age group 2009**

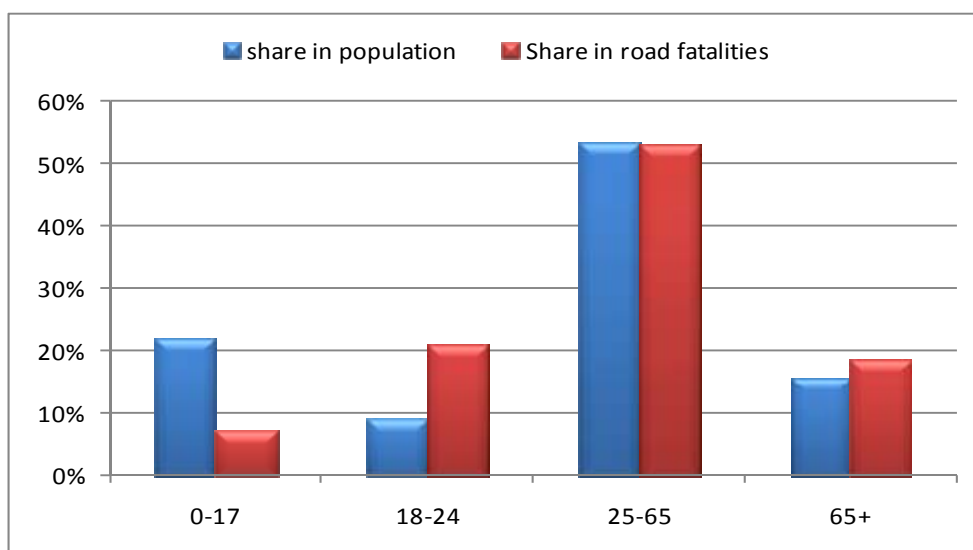
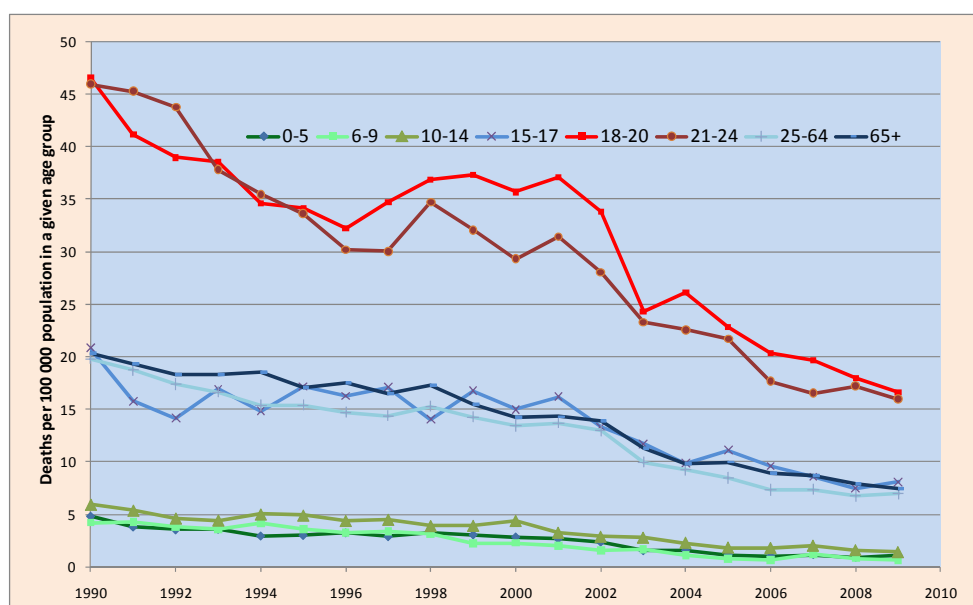


Figure 3B. **Change in fatality risks by age group (deaths per 100 000 population in a given group), 1990-2009**

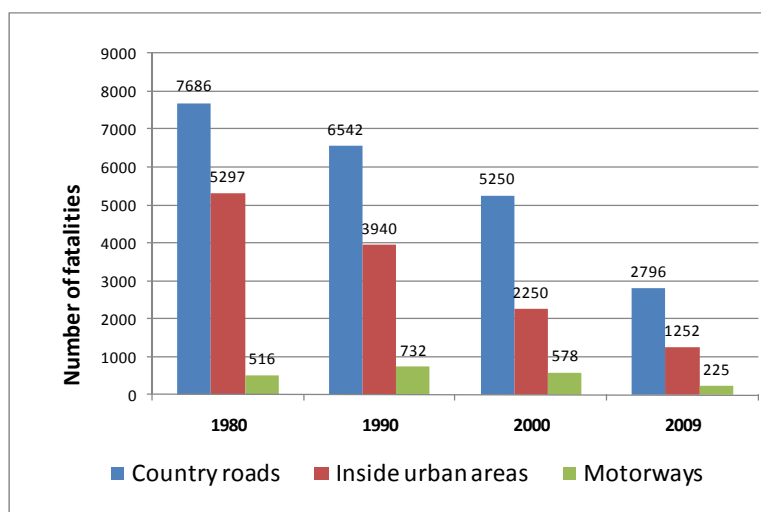


❖ Road type

France has a very large road network (1 million km), of which 80% is rural (not including interurban motorways). When fatalities per billion vehicle-km travelled are broken down by type of road, the road risk on country roads is shown to be very high. In 2009, 65% of fatalities occurred on rural roads, 29% on urban roads and 5% on motorways.

Motorways are the safest network, since they absorb 20% of the traffic and account for 5.3% of fatalities.

Figure 4. Reported fatalities by type of road
1980, 1990, 2000 and 2009



4. Recent trends in road user behaviour

❖ Drink-driving

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

In 2009, alcohol was a contributing factor in 24% of fatalities. Among those drivers killed, 30.1% had a BAC above the limit (this figure was 28.3% in 2008). Drink-driving is now the first cause of fatalities in France (mainly due to the fact that speed-related crashes have diminished).

❖ Speed

In 2002, speed enforcement was significantly strengthened with the introduction of automatic speed cameras. Between 2002 and 2009, the average speed decreased by 10% (see Figure 5) and the rate of speed violation decreased from 52% in 2002 to 26% in 2009. It is estimated that this contributed toward saving 11 000 lives between 2003 and 2009.

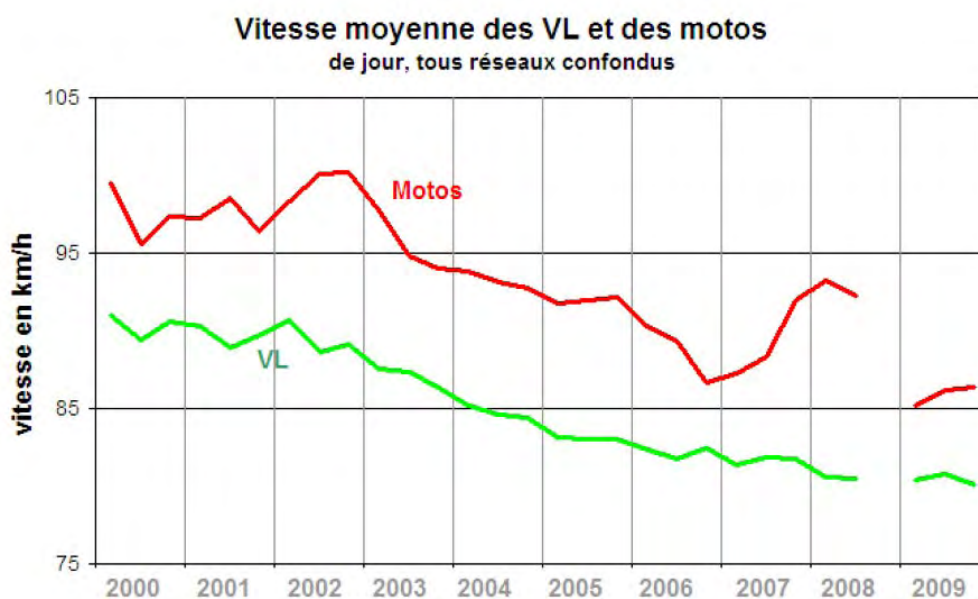
In 2009, the decrease in average speed by passenger cars continued. It is estimated that the average speed decreased by 0.6 km/h, contributing to the saving of 130 lives. Nevertheless, 760 lives could have been saved in 2009 if speed limits had been strictly respected.

Between 10-15% of car and truck drivers drive 10 km/h above the limit. This proportion is significantly higher for motorcyclists (between 25-30%).

Table 6. Change in average speed, January 2008-December 2009

	Jan-April 2008	May-August 2008	Jan-April 2009	May-August 2009	Sept-Dec 2009
Average speed of passenger cars (km/h, all networks)	80.8	80.4	80.4	80.6	80.0
% of drivers above the limit	35.7%	32.3%	34.7%	31.0%	31.9%
% of drivers 10km/h above the limit	13.3%	10.9%	11.7%	9.1%	10.8%

Figure 5. Change in the average speed of passenger cars and motorcycles, 2000-2009



❖ Seat belts and helmets

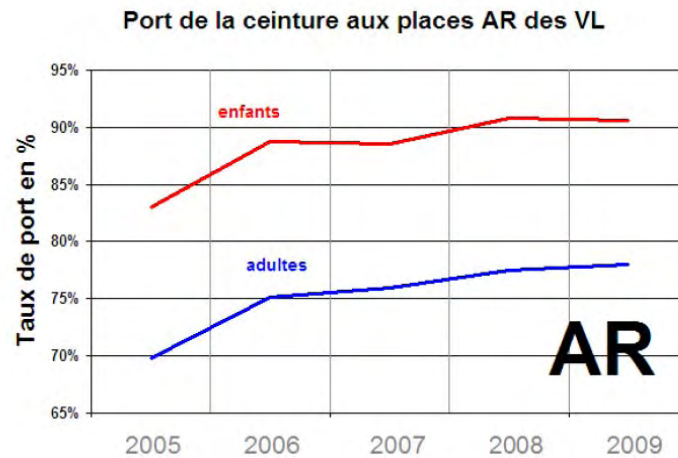
The seat-belt usage rate is very high in France, and among the best in OECD/ITF countries (see Table 7). However, in 2009 the wearing rate for drivers slightly decreased in urban areas (from 96.3% in 2008 to 94.6% in 2009). Regarding rear-seat passengers, the usage rate progressed for adults (78%) but slightly decreased for children (96.6%).

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.

Table 7. Change in seat-belt usage rate

	1980	1990	2000	2009
Motorway – driver	94%	91%	96%	99%
Rural roads – driver	79%	87%	94%	99%
Urban areas – driver	55%	55%	78%	95%

Figure 6. **Change in seat-belt usage rate on rear seats of cars for children and adults**



❖ **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. France started to monitor the use of phones while driving in 2009. In 2009, it was estimated that at any time, 2.3% of car drivers and 4.4% of truck drivers were using a hand-held phone while driving. Further research is needed to understand the contributing role of hand-held phones in accidents.

5. National road safety strategies and targets

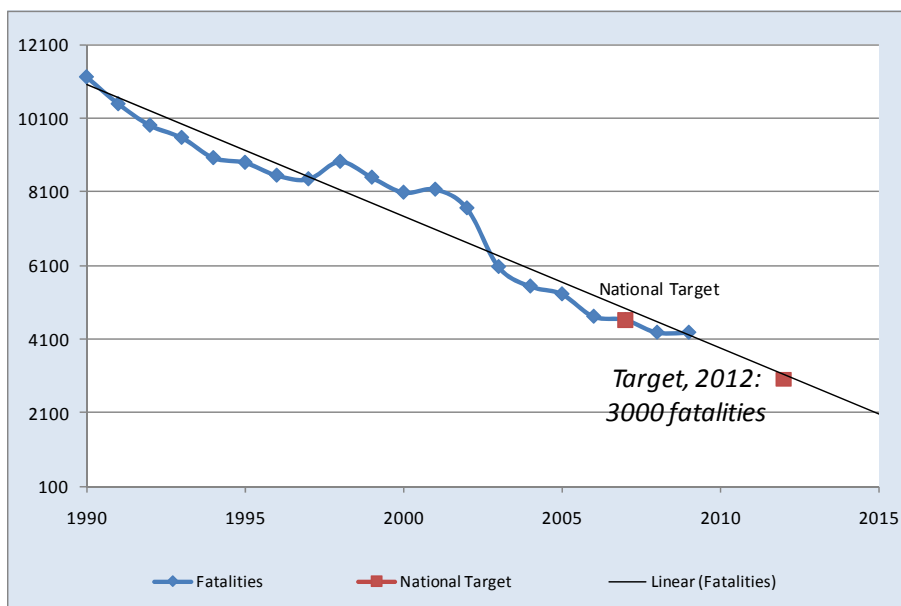
❖ **National road safety strategy**

On 18 February 2010, the Interdepartmental Committee for Road Safety (chaired by the Prime Minister), determined 14 new measures under six main objectives (see details in Section 6).

❖ **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. In 2009, there was no improvement in comparison to 2008. An average annual reduction in fatalities of 11% in 2010, 2011 and 2012 will be required to reach the target set for 2012.

Figure 7. Trend in progress towards road fatality target



6. Recent safety measures (2008-2010)

❖ Alcohol and drug abuse

New measures adopted in 2010

- 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.

Continuous implementation of previous measures:

- Preparation of a law allowing judges to oblige a driver testing with a positive BAC to install an alcohol interlock in his car, or to confiscate the vehicle in case of recidivism under the influence of alcohol or drugs. This law will be presented to Parliament at the end of 2009;
- Mandatory alcohol interlock in school buses (September 2009).

❖ Speed management: fighting speeding

New measures adopted in 2010

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

Continuous implementation of previous measures:

- The implementation of automatic speed cameras continued in 2009 and will continue until 2012 (500 devices per year, including red light or headway cameras).

❖ Enforcement

New measures adopted in 2010

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

Continuous implementation of previous measures:

- First implementation of red light cameras started at the beginning of 2009.

❖ **Safety of motorised two-wheelers:**

New measures adopted in 2010

- Making moped power-restraining devices 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.

❖ **Increasing awareness of future drivers**

New measures adopted in 2010

- Organising road safety events in high schools

❖ **Preventing occupational road risks**

- Developing occupational road safety plans

❖ **Vehicle standards and equipment**

- July 2008, compulsory reflecting jacket and triangle
- Cyclists must wear a reflecting jacket outside urban areas at night.

7. Major recent or ongoing research (2009-2010)

This section presents a selection of road safety research reports published in 2009. Further information can be found on the following websites:

PREDIT: www.predit.prd.fr

INRETS: www.inrets.fr

CERTU: www.certu.fr

SETRA: www.setra.fr

LCPC: www.lcpc.fr

❖ **On-going research projects**

- PREDIT: major project on the quality and safety of the transport system.
See: <http://www.predit.prd.fr/predit4/goDirect.fo?cmd=go&inCde=2>

❖ **The economics of road safety**

- ICASES: *Comparaison internationale sur les systèmes de contrôle automatisé de la vitesse – International comparison of automatic speed control systems.* Carnis, INRETS, 2009.
- ATSERR: *Approche territoriale et socio économique du risque routier – Territorial and socio-economic approach toward road risk.* Fleury, D., INRETS, and Saint-Gérand, T., Université de Caen, 2009.
- ISOMERR : *Comparaison Rhône-Alpes/Catalogne : Les pratiques de mobilité et risques d'accidents routiers des ménages : inégalités sociales, culturelles et territoriales en France et en Espagne.* Haddak, M., UMRESTTE, 2009.
- ESPARR-ECO : *Domages économiques et sociaux des accidents corporels de la circulation : une approche par la victime, à partir des données de la cohorte ESPARR.* Hours, M., UMRESTTE, INRETS, 2009.

- ❖ Biomécanique
 - Willinger, R. (2009), *Critère de blessure de la colonne cervicale sous choc arrière*. University of Strasbourg, CCAR.
 - PROMOTO : *Amélioration de la Protection des Motocyclistes par un gilet avec Airbag Intégré* Serre, T., L. Thollon, D. Cesari, J.-L. Martin, C. Masson, C. Perrin, A. Moskal, Y. Godio, M. Llari, S. Bidal, F. Delcroix, F. Njilie, O. Deroaldes, F. Dufour, H. Maillard (2009).
 - APROSYS : Final report on Biomechanics subproject activities. Verriest, J.-P., (2009), Sustainable Surface Transport, Integrated Project on Advanced Protection Systems, TIP3-CT-2004-506503, APROSYS.
- ❖ Design and road safety
 - Boutin, A.-M. (2009), *Design, Transport et Mobilité*, APCI.
- ❖ Fatigue and distracted driving
 - ATLAS : *Impacts des inattentions sur la conduite automobile : approche multidisciplinaire - psychologie cognitive, neurophysiologie, épidémiologie, mathématiques*. Gabaude C., INRETS, 2009.
- ❖ Technologies for road safety
 - SPEEDCAM : *Limitation de vitesse*. Nashashibi, F., ARMINES, 2009.
 - SAGILLIS (Safe And Green Intelligent Led Lighting Systems): Feasibility Study, 2009.
 - SURVIE (*Sécurité des usagers de la route et visibilité*) : *Approche systématique des situations dégradant la visibilité du conducteur*.
 - ARPOD (*Architecture Radar pour une Protection OmniDirectionnelle*): *Pare-choc intelligent*, 2009.
- ❖ Road safety policy
 - Guilbot, M. (Ed.) (2009), *Sécurité routière et réseaux institutionnels locaux. Actes des séminaires du département Mécanismes d'accidents*. Vol. 2, Coll. Actes INRETS No. 111, 162p.
- ❖ Infrastructure
 - Brenac, T. (2009), Common before-after accident study on a road site: a low-informative Bayesian method. *European Transport Research Review*, Vol. 1, No. 3, pp. 125-134.
 - Goyat Yann, A. Riouall, T. Chateau, L. Malaterre, L. Trassoudaine (2009), Trajectory measurement of vehicles: a new observatory, *Advances in Transportation Studies, an international Journal*, Section A 18, 30 September.

8. References – Useful websites and references

Road Safety in France, analysis by the National Road Safety Observatory	http://www2.securiteroutiere.gouv.fr/infos-ref/observatoire/observatory.html
SETRA, Technical Department for Transport, Roads and Bridges	http://www.setra.equipement.gouv.fr/English-presentation.html
INRETS – Transport and Safety Research Institute	www.inrets.fr
CERTU	www.certu.fr
LCPC	www.lcpc.fr

GERMANY¹

1. Short-term trends

❖ General comments on trends for 2009

Like most other countries, Germany had a 2009 fatality total that was substantially lower than that of the previous year: about 7% fewer road users died than in 2008. The 2009 toll represents the lowest number of road users killed in crashes since 1950.

Rural roads accounted for 58% of all road deaths, representing the greatest decrease in number of fatalities observed. From 2008 to 2009, the number of persons killed in accidents on rural roads diminished by 9%. In contrast, the number of road fatalities on urban roads decreased by about 4%.

A comprehensive analysis of 2009 data will not occur for some time. As a result, it is difficult to assess the impact of several factors on specific road user groups or on the 2009 death toll. These factors include the recent economic downturn and interventions introduced during the first eight years of Germany's current national road safety programme.

However, one of the measures taken, that has already been analysed and proven to be successful so far, is the zero tolerance law on alcohol for novice drivers, with an overall effect of -9%.

It is interesting to note, however, given the large drop in fatalities, that the number of vehicle-kilometres travelled in 2009 was only 0.4% lower than the corresponding 2008 figure.

❖ Preliminary trends for 2010

Based on provisional data for January to July 2010, the number of fatalities has decreased by 10% and the number of injury accidents by almost 8%. There have been enormous reductions in January, February and May (-30%, -25%, -21%) but an unusual increase in July (+18%). More detailed data is available for the months of January to April 2010. Apart from the age group <15, all age groups show reductions in the number of fatalities in the first four months of the year 2010. The biggest decrease occurred for teenagers (15-17 years of age), with -53%. Reductions in the number of fatalities occurred for all types of road user. The number of fatalities in drink-driving accidents fell by nearly one-third. As at present only 4 months of detailed data are available, these trends can still change in the course of the year.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

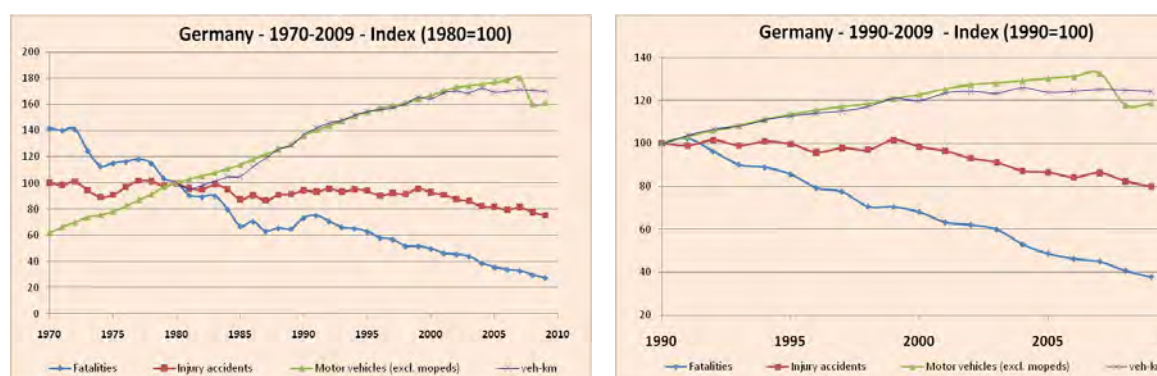
Between 1970 and 2009, the number of fatalities decreased by 81%, the number of injury crashes fell by only 25% and the number of vehicles nearly tripled. The fatality figures improved despite structural changes caused by German reunification in the early 1990s. In recent years (2000-2009), the number of fatalities decreased by 45%.

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

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	21 332	15 050	11 046	7 503	5 361	4 477	4 152	-7%	-45%	-81%
Injury crashes	414 362	412 672	389 350	382 949	336 619	320 614	310 806	-3%	-19%	-25%

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009¹



❖ Risks and rates

In the last 19 years, the mortality rate (in terms of deaths per 100 000 population) has decreased by 64% while motorisation has increased by 14%.

Table 2. Rates
1990, 2000, 2008, 2009

	1990	2000	2008	2009	2009 % changeover	
					2000	1990
Deaths/100 000 population	14.0	9.1	5.5	5.1	-45%	-64.0%
Deaths/billion veh-km	20.0	11.3	6.5	6.0	-47%	-70%
Deaths/10 000 vehicles ²	2.6	1.5	0.9	0.8	-47%	-69%
Motorisation (number of vehicles/1 000 inhabitants)	528.8	625.2	600.0	604.9	-3%	14%

3. Accident 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. Motor-vehicle occupant and pedestrian fatalities have gradually decreased in recent years, with the reduction being strongest for passenger-car occupants.

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

². From 2008, registered vehicles exclude temporarily decommissioned vehicles. Therefore, 2008 data cannot be compared with previous years.

Compared to the year 1990, the share of motorcyclists has more than doubled, reflecting the increase in the number of motorised two-wheelers registered. On the contrary, the share of pedestrians has decreased slightly since 1990, and considerably since 1970.

Table 3 shows the breakdown of road fatalities by user group.

Table 3. **Reported fatalities by road user group
1970, 1990, 2000, 2009**

	1970		1990		2000		2009		2009 % changeover	
	Number	%	Number	%	Number	%	Number	%	2000	1970
Bicyclists	2 094	10%	908	8%	659	9%	462	11%	-30%	-78%
Motorised two-wheelers	2 415	11%	1 443	13%	1 102	15%	749	18%	-32%	-69%
Passenger car occupants	9 400	44%	6 256	57%	4 396	59%	2 110	51%	-52%	-78%
Pedestrians	6 843	32%	2 113	19%	993	13%	591	14%	-40%	-91%
Other	580	3%	326	3%	353	5%	240	6%	-32%	-59%

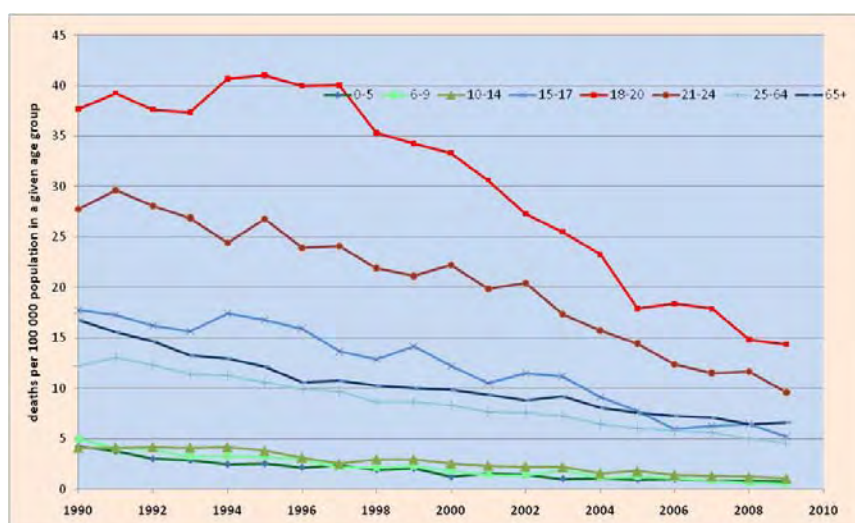
❖ Age

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.

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.

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

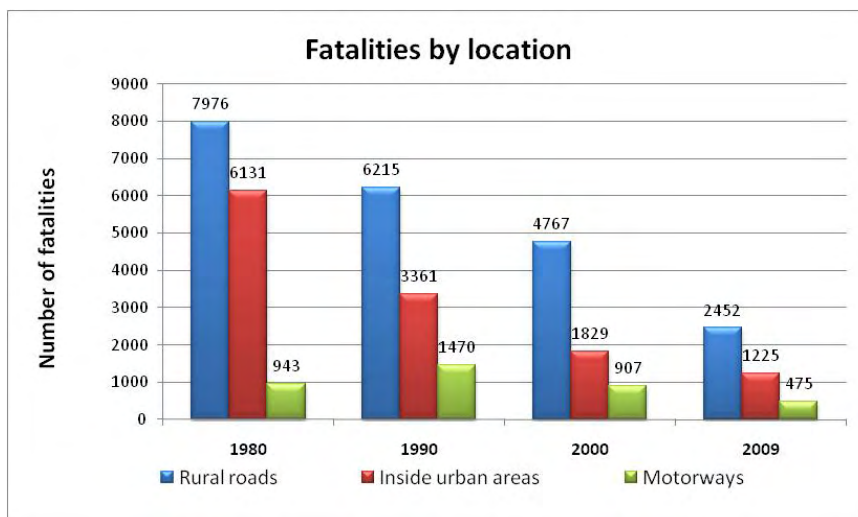
Figure 2. **Evolution of fatality risks by age group
(deaths per 100 000 population in a given group, 1990-2009)**



❖ Road type

Rural roads are the most dangerous for road users, despite the fact that rural roads account for the greatest reduction in road fatalities in recent years. In 2009, the large majority of all traffic fatalities occurred on rural roads.

Figure 3. Reported fatalities by road type



4. Recent trends in road user behaviour

❖ Drink-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, Germany's graduated licensing programme has forbidden alcohol for drivers under 21 and during the probationary period.

In 2009, alcohol use was cited as a contributing factor in 10% of fatal crashes (car drivers involved in a fatal crash with any amount of alcohol in their blood, including those below the 50 mg% threshold), rising to almost 20% in cases involving car drivers under the influence of alcohol in the 25-34 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 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 35% of fatal accidents and about 24% of serious injury accidents in 2009. 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. Table 4 shows the evolution of seat-belt use.

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

Table 4. **Seat-belt usage rate**

	2000	2009
Urban roads – car drivers	90%	97%
Rural roads – car drivers	95%	98%
Motorways – car drivers	98%	99%

Table 5. **Helmet wearing rates**

	2001	2009
Urban roads – motorcycle drivers	99%	97%
Urban roads – motorcycle passengers	99%	98%
Urban roads – bicyclists	5%	10%
Urban – bicyclists under 10 years old	40%	55%

5. National road safety strategies and targets

❖ National road safety strategies

Germany's federal Road Safety Action Plan, launched in 2001, is called the "*Programme for more safety in road transport*". A new programme, currently in development, will soon replace it.

❖ Road safety strategies beyond 2010

The new programme is expected to be launched in 2011 and will contain many road safety measures under all the main categories ("human related safety", "vehicle safety" and "infrastructure safety"). The principal aim of the planned programme is to enable safe, ecologically sensitive and sustainable mobility for all road users in Germany.

❖ Safety targets and sub-targets

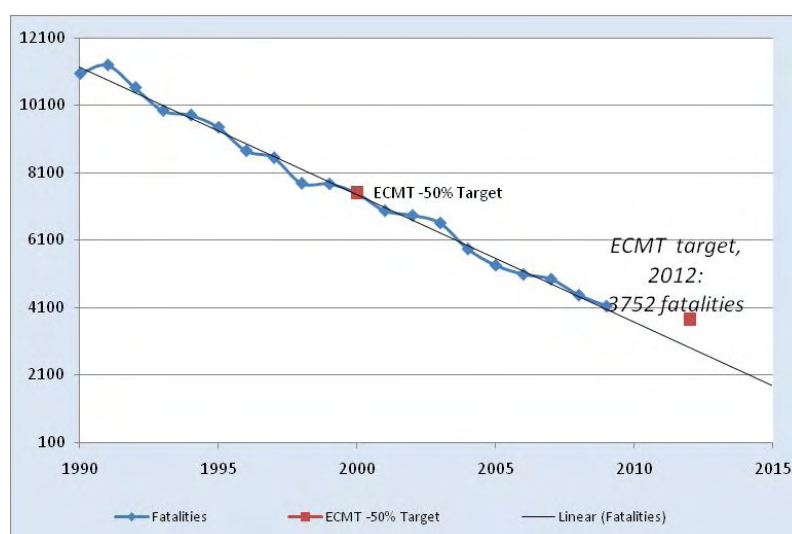
Germany has no national target in terms of numbers but instead aims at reducing fatalities and injuries as much as possible. The federal Road Safety Action Plan is entitled "*Programme for more safety in road transport*". It includes the following priorities:

- to improve the transport climate in Germany (e.g. aggressiveness);
- to protect vulnerable road users (children and the elderly, pedestrians, cyclists and motorcyclists);
- to reduce the accident risk among young drivers;
- to reduce the potential danger of heavy goods vehicles;
- to improve road safety on rural (interurban) main roads.

❖ Progress towards targets

Germany is making good progress towards the overall ECMT target of a 50% reduction in the number of fatalities between 2000 and 2012.

Figure 4. Progress towards road safety target



6. Recent safety measures (2008-2010)

The Programme for More Safety in Road Transport has provided a good basis for a positive decade of road safety development on German roads.

The success of the programme provides a good example of efficient road safety implementation without setting a specific numeric target. Regarding recent road safety developments, Germany benefits from an excellent road network, with over 12 000 km of highways which are among the safest roads worldwide without a general speed limit; an optimised legal framework with a highly sophisticated penalty point system; and impressive progress in passive safety technology, as well as, increasingly, active safety as the vehicle industry strives to meet customer demand.

In recent years, further promising measures that have been introduced include:

- Spending more than EUR 9 billion to build more than 900 km of new highways since 2001;
- Construction of more than 3 000 parking devices for heavy goods vehicles (by 2012, 11 000 further parking devices are planned);
- Augmenting the number of crossing devices for animals on interurban roads;
- Reducing the legal BAC limit from 0.08% to 0.05% and to zero for novice drivers;
- Increasing sanctions for main offences (enhancing of penalties for speed, right-of-way and red-light violations, and for driving under the influence of alcohol and drugs);
- Introducing accompanied driving in all *Bundesländer*;
- Higher standards for road safety and mobility education in secondary school education through implementing evaluation instruments;
- Recommending the application of day-time-running lights;
- Carrying out nation-wide safety campaigns ("*Gelassen läuft's*" and "*Runter vom Gas*");
- The wide introduction of ESP in the vehicle fleet, while other active safety systems, such as ACC, are on the brink of market penetration;

- Developing and implementing a new assessment procedure for Euro NCAP (before: separate stars for "passive safety for adult passengers on front seats", "protection of children" and "of pedestrians"; now: a one-star system considering all aspects).

7. Major research undertaken in 2009-2010

- **Profiles of children and adolescents involved in road accidents** (the study examines profiles of children and adolescents in connection with road accidents. The profiles consist of psychological, medical and socio-demographic characteristics; BAST-Bericht M 206) and an **Atlas of traffic accidents involving children** (evaluation shows that accidents involving children are not evenly distributed over the Federal Republic of Germany -- the population-related analysis at regional level shows a clear north-south gradient; BAST-Bericht M 192).
- **The effects of strain and stress on the traffic behaviour of heavy goods vehicle drivers** (the study examines the influence of work- and activity-related strain and stress on the traffic behaviour of heavy goods vehicle drivers in road freight traffic. As a result, it emerged that the general traffic conditions for heavy goods vehicle drivers, such as poor resting facilities, the behaviour of other road users and heavy traffic, form the main aspects of stress; BAST-Bericht M 204).
- **Cost-benefit analysis for ABS of motorcycles** (all calculated benefit-cost ratios are over the critical barrier of 1.0; BAST-Bericht F68).
- **Situation of the number of severely injured victims of road traffic accidents in Germany** (the investigation uses data from the DGU Trauma Registry, to discover whether the number of very severely injured patients is decreasing; BAST-Bericht M200).
- The **SIM TD** (*Sichere Intelligente Mobilität Testfeld Deutschland*) research project is shaping tomorrow's safe and intelligent mobility through researching and testing car-to-infrastructure communication and its applications (<http://www.simtd.de>).

8. References – Useful websites

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/

GREECE¹

1. Short-term trends

❖ General comments on trends for 2009

In 2009, Greece observed a 6.3% reduction in fatalities compared to 2008. The number of road crashes decreased by 2% in 2009, despite an overall increase in the number of motor vehicles (+2.4%). The decrease in the number of road accident fatalities observed in 2009 may be partly attributed to the economic crisis and its impact on traffic volumes.

❖ Preliminary trends for 2010

In 2010, a significant decrease (-14.7%) in the number of fatalities is expected, based on the trend of provisional data up to September 2010. This significant decrease 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, from 5-15%, with a more important decrease for the traffic of accident-prone road-users: the younger and older drivers.

2. Long-term trends

❖ Change in the numbers of fatalities and injury crashes

Since 1970, the number of vehicles has increased very rapidly, nearly multiplied by 20 between 1970 and 2009. Since 1990, the increase in motorisation has continued, with the number of motorised vehicles almost 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 2008, Greece observed a sharp decrease in fatalities (-36%). This is mainly attributed to intensified enforcement within the first road safety strategic plan (2001-2005), but also to a significant rise in traffic flow (and a consequent decline in average speed) in the urban and interurban road networks of Greece, following a sizeable increase in vehicle ownership.

However, the fatality decline has clearly slowed since 2004, indicating that further measures of a more integrated nature are required. Since mid-2008, the economic crisis has brought a further decrease in road fatalities in Greece.

During the last decade, Greece has shown the lowest level of road safety (highest fatality rate) among the 15 older European Union (EU) countries, and one of the lowest levels among the 27 EU countries, reflecting insufficient effort from both the authorities and the population. The fatality rate (deaths per 10 000 vehicles) in Greece over the last ten years has progressively decreased, from 5.7 in 1996 (2.6 in the EU 27) to 2.3 in 2006 (1.5 in the EU 27) and to 1.8 in 2009, highlighting the vast potential for further improvement if a more systematic effort is made.

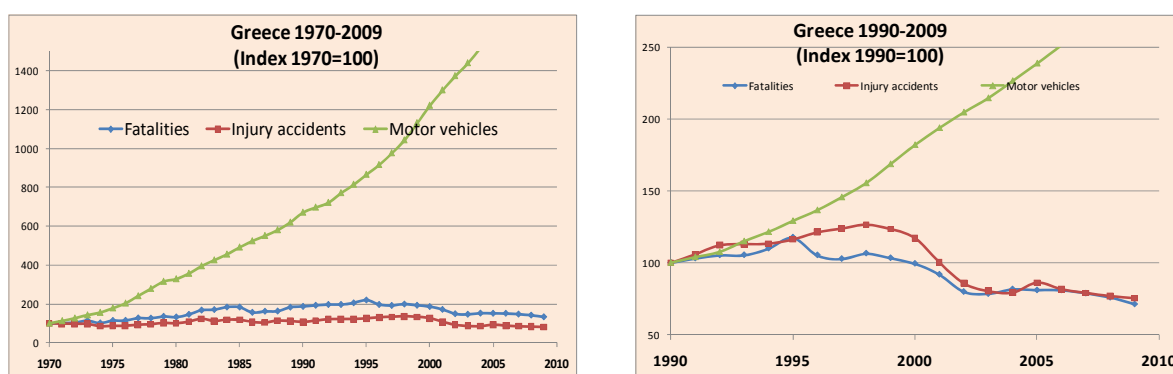
¹ Source: IRTAD and National Technical University of Athens (NTUA).

In addition, account should be taken of the successful practices of other European countries which have shown significant improvement.

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2007	2008	2009	2009 % changeover		
									2008	2000	1970
Fatalities	1 099	1 446	2 050	2 037	1 658	1 612	1 553	1 456	-6%	-29%	32%
Injury crashes	18 289	18 233	19 609	23 001	16 914	15 499	15 083	14 789	-2%	-36%	-19%

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009



❖ Risks and rates

Table 2. Rates
1990, 2000, 2008, 2009

	1970	1990	2000	2008	2009	2009 % changeover	
						2000	1990
Deaths/100 000 population	12.5	20.18	18.68	13.84	12.93	-31%	-36%
Deaths/10 000 vehicles	26.5	7.4	4.0	2.0	1.8	-55%	-76%

3. Accident 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 2009, the number of moped riders killed decreased by 85%, pedestrian fatalities by 62% and cyclist fatalities by 42%. The number of motorcyclists killed increased by 48%.

Table 3. **Fatalities by road user group
1990, 2000, 2008 and 2009**

	1990		2000		2008		2009		2009 % changeover		
									2008	2000	1990
Bicyclists	26	1%	22	1%	22	1%	15	1%	-32%	-32%	-42%
Mopeds	192	9%	90	4%	41	3%	28	2%	-32%	-69%	-85%
Motorcycles and scooters	274	13%	412	20%	394	25%	405	28%	3%	-2%	48%
Car occupants	712	35%	891	44%	708	46%	805	55%	14%	-10%	13%
Pedestrians	524	26%	375	18%	248	16%	202	14%	-19%	-46%	-61%
Other	322	16%	247	12%	140	9%	1	0%	-99%	-100%	-100%
Total	2 050	100%	2 037	100%	1 553	100%	1 456	100%	-6%	-29%	-29%

Figure 2 illustrates the relative evolution in the number of riders of motorised two-wheelers killed and the number of motorised two wheelers in traffic. Since 1990, the number of motorcycles has been multiplied by more than 6, which of course explains in part the 28% of motorcyclists killed. Since 1995, the number of moped riders fatalities dropped significantly (-88%) compared to 2009, while the number of mopeds in traffic continued to increase.

Figure 2. **Relative change in the number of motorised two-wheelers in traffic
and the number of moped riders and motorcyclists killed in traffic**

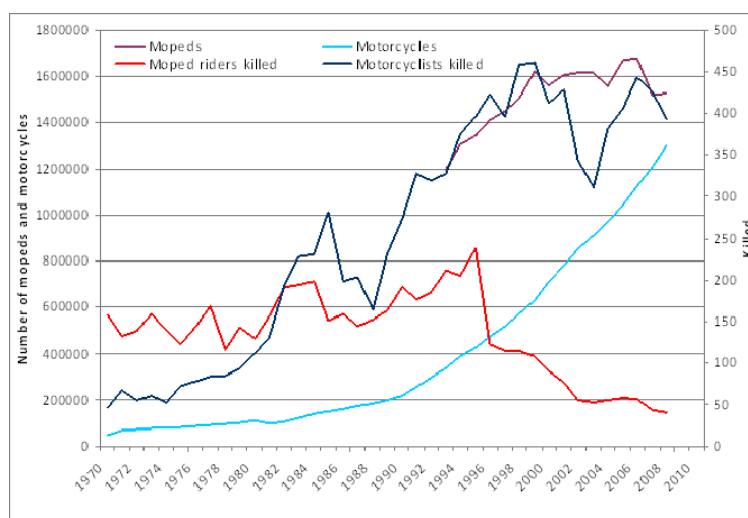


Table 4 illustrates the relative fatality risk for the different road user groups. For a motorcyclist, the risk of dying in a traffic crash is 10 times higher than that for a car occupant. Preliminary data for 2009 confirm this fact.

Table 4. **Relative fatality risk by road user group
2004**

	Deaths per billion vehicle/km
Mopeds	34
Motorcycles	67
Car occupants	6.9

❖ 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 -88% and -51% decrease between 1990 and 2009).

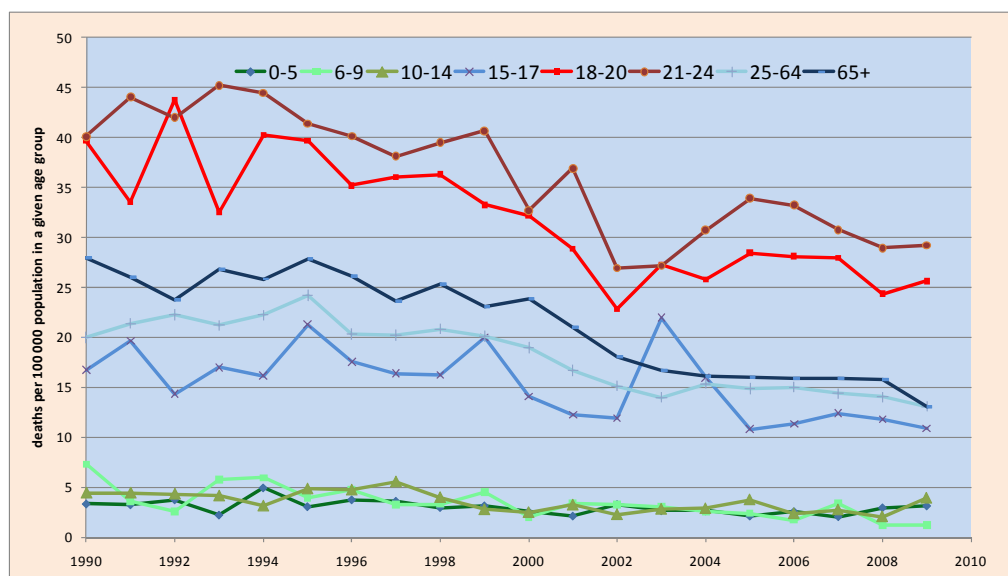
Between 2000 and 2009, the 0-5 and 10-14 age groups showed an increase in the number of fatalities (respectively +6% and +40%).

Table 5. Reported fatalities by age

	1980	1990	2000	2007	2008	2009	2009 % changeover		
							2008	2000	1990
0-5	47	22	16	13	19	17	-10.5%	6%	-23%
6-9	24	40	9	14	5	5	0.0%	-44%	-88%
10-14	31	33	15	15	11	21	90.9%	40%	-36%
15-17	51	76	60	43	41	37	-9.8%	-38%	-51%
18-20	125	183	156	103	87	89	2.3%	-43%	-51%
21-24	145	249	219	177	159	153	-3.8%	-30%	-39%
25-64	734	1 051	1 107	892	879	828	-5.8%	-25%	-21%
>65	278	392	428	330	329	275	-16.4%	-36%	-30%
Total	1 446	2 050	2 037	1 612	1 553	1 456	-6.2%	-29%	-29%

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).

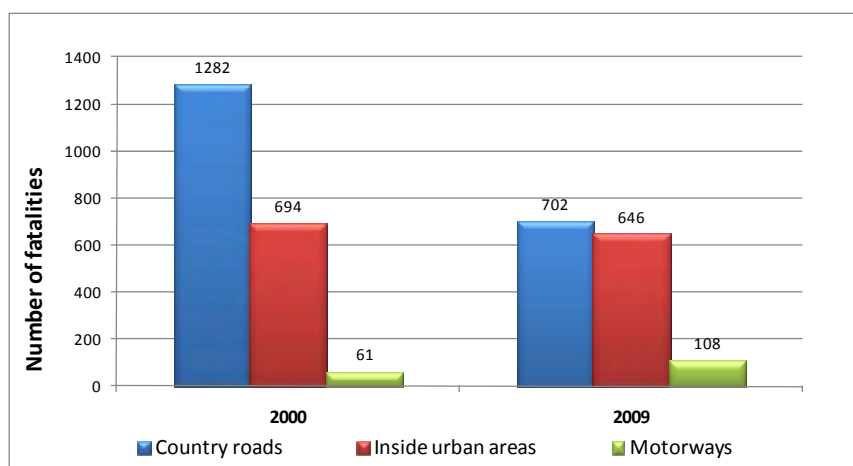
Figure 3. Fatality risks by age group (deaths per 100 000 population in a given group) 1990-2009



❖ Road type

In 2009, 44% of fatal crashes occurred in urban areas (mainly due to the increased motorcycle and pedestrian traffic), 48% on rural roads and 7% on motorways (Figure 4). For injury crashes, 44% occurred in built-up areas and 56% outside urban areas. This is mainly explained by the higher speeds observed on the interurban road network.

Figure 4. **Fatalities by road type
2000 and 2009**



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.

Table 6. **Fatalities by road type**

	2000	2008	2009	2009 % changeover	
				2008	2000
Rural roads	1 282	689	702	2%	-45%
Inside urban areas	694	744	646	-13%	-7%
Motorways	61	120	108	-10%	77%

4. Recent developments in road user behaviour

❖ **Drink-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, analysis carried out for the period 2000-2008, using the induced exposure technique, revealed that the accident risk for drivers under the influence of alcohol is 2.4 times greater than the risk for other drivers.

❖ **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

Seat-belt use has been compulsory in front seats since 1987, and in rear seats since 2003. The rate of seat belt use is 77% for the driver, 74% for the front passenger, and only 23% for rear seat passengers. The percentage of use of seat-belts by drivers is 72% in urban areas, 78% on rural roads, and 95% on motorways. The available seat-belt usage rates are presented in Table 7.

Table 7. **Seat-belt use for car occupants**
2009

	2009
General	72%
Rear seat	23%
Front seat	75%
Motorways – driver	95%
Rural roads - driver	78%
Urban areas - driver	72%

Helmet wearing is compulsory for all motorcycles and moped riders. The wearing rate is 75% for drivers and 46% for passengers. The percentage of helmet use by drivers is 73% in urban areas, 85% on rural roads, and 98% on motorways.

❖ Distracted driving

Even though no official data are recorded, distracted driving has been the subject of research during the last decade in Greece, and several interesting results have been produced by the research organisations. The impact of the use of mobile phones and other new, on-board technological devices has been examined, and the results confirm that their use implies lower speeds (potentially more safe), longer reaction times (potentially less safe) and an overall increase of the probability to be involved in a road accident.

In Greece, it is forbidden to drive with a hand held phone. It is allowed to use a hand free phone if it is not wired (the use of headphones is not allowed).

According to a 2008 national survey, 8% of car drivers and 2% of PTW riders were observed using a mobile phone while driving.

5. National road safety strategies and targets

❖ National road safety strategies

The first national road safety plan covered the period 2001-2005. Its implementation has contributed to a significant decrease in the number of road accidents and related casualties in Greece.

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). With that purpose, a set of 50 priority measures were proposed, with some already implemented, focussing mainly on:

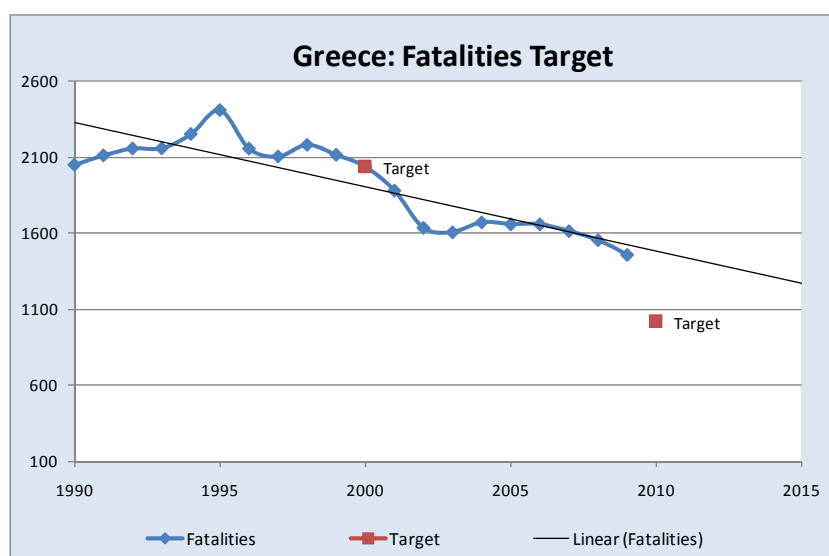
- The intensification of road safety enforcement (mainly speeding, drinking and driving, and use of seat-belts and helmets);

- A large programme of maintenance and road safety interventions on the interurban road infrastructure;
- An important programme of motorway development, totalling 2 500 km of motorways (the total length in 2005 was 868 km);
- A more modern and stricter Road Code (already in force since June 2007);
- Frequent and targeted road safety education and information campaigns.

The third national road safety strategic plan is under development by the National Technical University of Athens and it is expected to adopt the European target: to reduce the number of road fatalities by 50% between 2010 and 2020, together with specific intermediate targets, e.g. reduction by 100 road fatalities per year. With that purpose, a series of specific actions within targeted programmes of the central and the regional governments are set. The Inter-Ministry Committee and its newly founded Secretariat are expected to play a critical role for the efficient implementation of the actions and programmes set in this strategic plan.

The low level of road safety in Greece, together with the significant reduction of road casualties during the last decade, indicates that there is great potential for further improvement. However, the unprecedented economic crisis does play a critical role for road safety in Greece. The crisis could entail the risk that road safety measures are abandoned due to lack of resources but it could also well imply more serious efforts from the present re-engineering of the central and regional administrations. In any case, the prerequisite for the achievement of the European and national targets is the consistent and continuous implementation of priority measures by all parties involved.

Figure 5. Progress towards road fatality target



6. Recent safety measures (2009-2010)

A number of road safety measures of national, regional and local dimensions are being implemented, covering traffic regulations, infrastructure improvements, behaviour enforcement, etc. However, no inventory is kept and evaluation of these measures are rarely carried out.

7. Major recent or ongoing research (2009-2010)

The Greek road safety research organisations participate in several national, European and international research projects covering most areas of road safety research. The research results are then used by the various central and regional authorities to support road safety decisionmaking at strategic, tactical and operational levels.

National and international research projects and activities are carried out by the Greek research organisations (universities, etc.), and several of the findings are presented on occasions such as the 4th National Road Safety Conference in November 2009.

8. References – Useful websites and references

Hellenic Statistical Authority	www.statistics.gr
Ministry of Infrastructure, Transport and Networks	www.yme.gr
National Technical University of Athens	www.ntua.gr
Road Safety Institute Panos Mylonas	www.ioas.gr

HUNGARY¹

1. Short term trends

❖ General comments on trends for 2009

After several years of stagnation in the number of road traffic casualties, the years 2008 and 2009 were marked by a significant decrease in fatalities and injury crashes. These good results are the fruit of the implementation of stringent safety measures, including the increased number of speed cameras, the “zero tolerance” approach to drink driving and further development of the demerit point system.

In 2009 the volume of road traffic and the vehicle fleet decrease slightly by 1.3%.

❖ Trend for 2010

Data for 2010 show a continuous decrease in the number of fatalities. In the first nine months of 2010 the number of people killed decreased by 12.7% in comparison with the same period of the previous year.

	Jan-Sept. 2009	Jan-Sept 2010	Change
Fatalities	613	535	-12.7%
Injury crashes	13 414	12 094	-9.8%

2. Long term trends

❖ Change in the numbers of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities fell by 49% and the number of injury crashes by 23%. In the same period, the number of vehicles and distances travelled (vehicle-kilometres) were multiplied by four.

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	1 627	1 630	2 432	1 200	1 278	996	822	-17%	-32%	-49%
Injury crashes	23 225	18 994	27 801	17 493	20 777	19 174	17 864	-7%	2%	-23%

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.

¹ . Source: Prof. Dr. Péter Holló (KTI) and IRTAD

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, explosions in the size of the vehicle fleet, etc.): 1990 was the worst year for Hungarian road safety, with nearly 2 500 people killed.

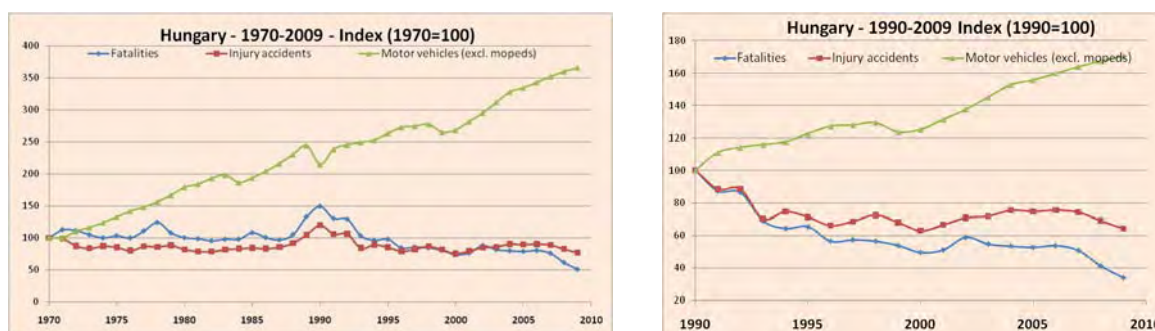
1991-2000: Important improvements and major initiatives:

- 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 lamps outside built-up areas, intensified police control and road safety campaigns, more severe sanctions, etc.
- 2000 was the most positive year until 2008, with 1 200 people killed, representing a more than 50% reduction compared to 1990. Some demographic and economic factors influenced the positive trend – a decrease in the number of young novice drivers and an increase in vehicle operation 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.

2007-2009: 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 2009, the number of road accident fatalities was as low as that of 50 years ago.

Figure 1. **Reported road fatalities, injury crashes and vehicles**
1970-2009



❖ Risks and rates

Between 1990 and 2009 the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 65%.

Table 2. **Rates**
1970, 1990, 2000, 2009

	1970	1990	2000	2009	2009 % changeover	
					2000	1990
Deaths/100 000 population	15.78	23.44	11.76	8.21	-31%	-65%
Deaths/10 000 vehicles	-	10.13	4.23	2.26	-47%	-78%

3. Accident trends

❖ Road users

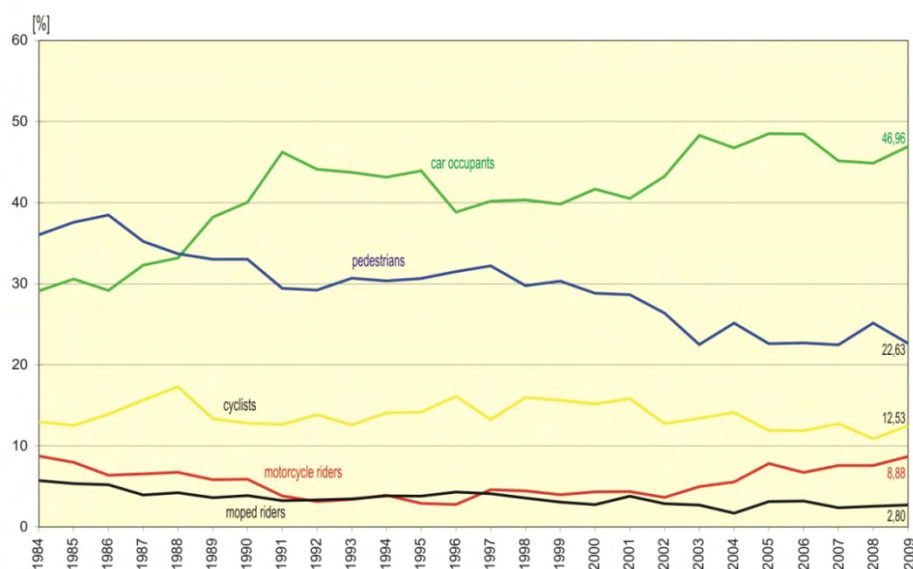
All user groups have benefitted from important safety improvements since 1990 (when fatalities peaked), with the largest benefits for moped riders (-76%), pedestrians (-77%) and bicyclists (-67%). Improvement was slower for motorcyclists. The benefit to mopeds has to be analysed in conjunction with the relative evolution of mopeds and motorcycles in traffic.

In 2009, the user group that benefitted most from safety improvement was pedestrians (-26%), followed by motorcyclists (-20%).

**Table 3. Reported fatalities by road user type
1990, 2000, 2008 and 2009**

	1990		2000		2008		2009		2009 % changeover		
	Fatalities	%	Fatalities	%	Fatalities	%	Fatalities	%	2008	2000	1990
Bicyclists	313	13%	182	15%	109	11%	103	13%	-6%	-43%	-67%
Mopeds	95	4%	33	3%	26	3%	23	3%	-12%	-30%	-76%
Motorcycles and scooters	143	6%	52	4%	91	9%	73	9%	-20%	40%	-49%
Passenger cars	974	40%	500	42%	448	45%	386	47%	-14%	-23%	-60%
Pedestrians	803	33%	346	29%	251	25%	186	23%	-26%	-46%	-77%
Others	104	4%	87	7%	71	7%	51	6%	-28%	-41%	-59%
Total	2 432	100%	1 200	100%	996	100%	822	100%	-17%	-32%	-66%

**Figure 2. Reported road fatalities by road user type,
1984-2009**



❖ Age

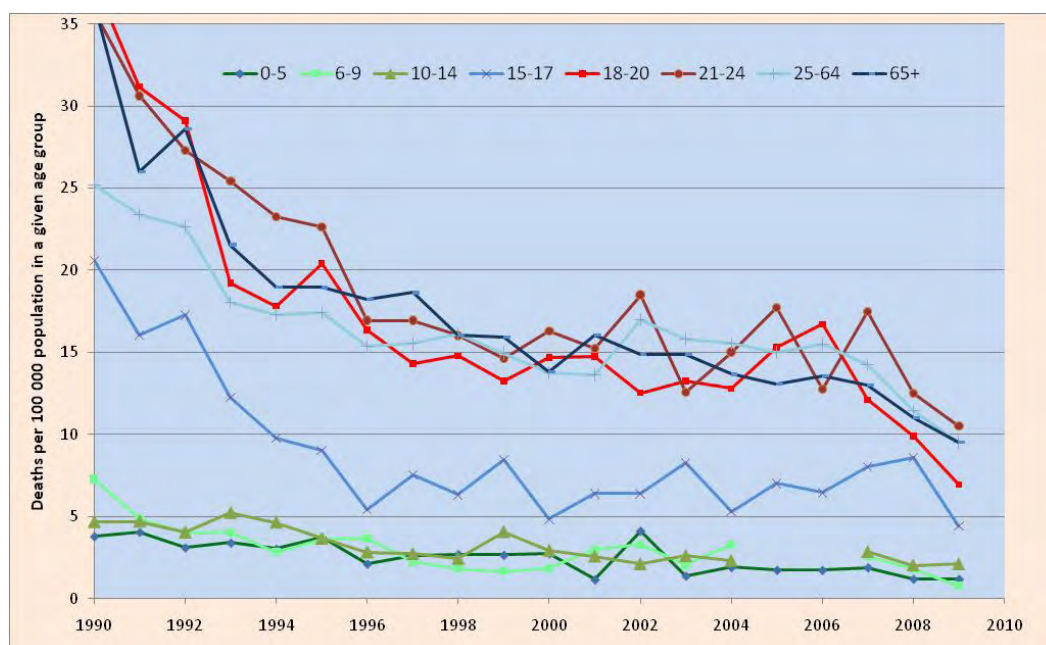
Since 1990, the reduction in fatalities has benefitted all age groups, but the most impressive reduction concerned the youngest children (0-5), for whom fatalities decreased by 75%, as well as the 18-20 group, in which fatalities decreased by 84%.

In 2009, young road users (15-24) saw the largest safety improvements (-28%).

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

	1990	2000	2008	2009	2009 % changeover		
					2008	2000	1990
0-5	28	17	7	7	0%	-59%	-75%
6-9	39	9	7	3	-57%	-67%	-92%
10-14	40	18	11	11	0%	-39%	-73%
15-17	99	18	32	16	-50%	-11%	-84%
18-20	162	64	37	26	-30%	-59%	-84%
21-24	191	114	66	55	-17%	-52%	-71%
25-64	1 365	736	644	537	-17%	-27%	-61%
>65	498	203	179	156	-7%	-18%	-67%
Total	2 432	1 200	996	822	-17%	-32%	-66%

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



❖ Road type

In 2009, 59% of fatal crashes occurred on rural roads, 37% in urban areas and 5% on motorways (Figure 3). 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
1989, 2000, 2002 and 2009

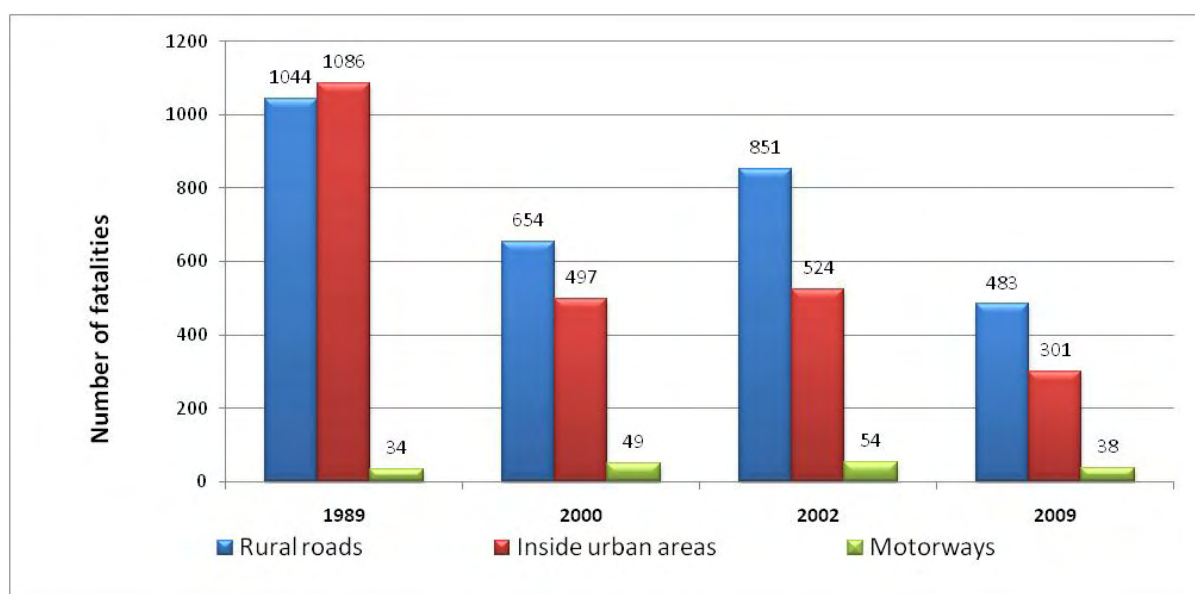


Table 5. Reported fatalities by road type

	1989	2000	2008	2009	2009 % changeover		
					2008	2000	1989
Rural roads	1044	654	523	483	-8%	-26%	-54%
Inside urban areas	1086	497	419	301	-28%	-39%	-72%
Motorways	34	49	54	38	-30%	-22%	12%

4. Recent trends in road user behaviour

❖ Drink-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: their licence is withdrawn on the spot.

In 2009, the number of personal injury accidents caused by driving under the influence of alcohol decreased by 3% in comparison with 2008: 12.7% of all personal injury accidents was caused by driving under the influence of alcohol.

❖ Speed

Speeding is a causal factor in around 40% of fatal crashes. Automatic speed cameras are being introduced.

❖ Seat-belts and helmets

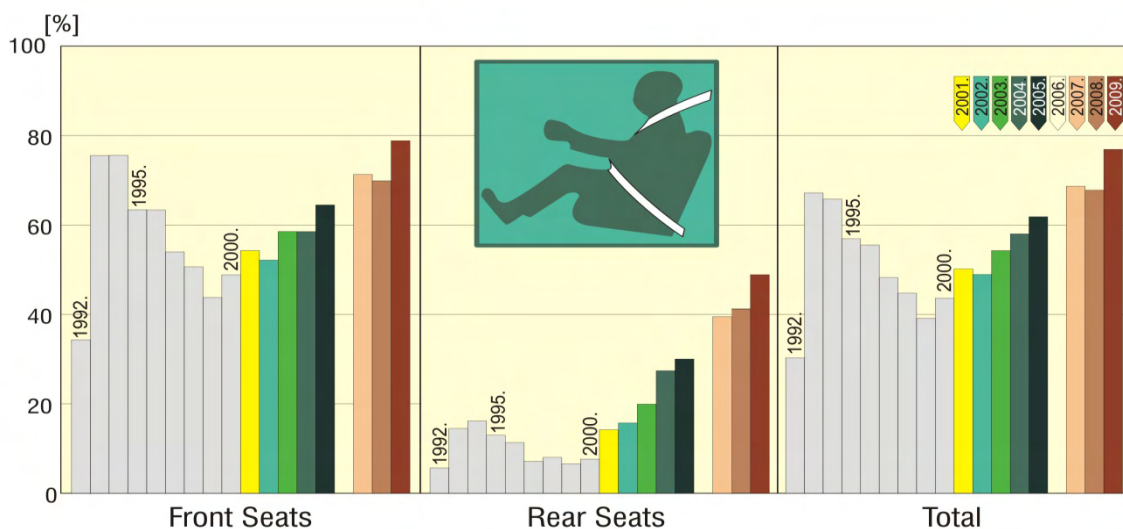
Seat-belts

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 4 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 the CRS (child restraint system) also shows a great improvement, the fatality rate for unprotected children decreased from 65% (1994) to 28% (2009), although on the other hand it means that almost one-third of children still travel unprotected.

Figure 5. Evolution in seat-belt use for car occupants outside built-up areas



Helmets

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%.

❖ 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 phone while driving is not authorised. The penalty for using a hand-held mobile phone while driving is HUF 10 000 inside built-up areas (ca. EUR 40), HUF 15 000 outside built-up areas (ca. EUR 60) and HUF 20 000 on motorways (ca. EUR 80).

5. National road safety strategies and targets

The Road Safety Action Programme for 2008-2010 is a three-year project for road safety improvement. On the basis of the Action Programme a yearly action plan has to be 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 (base year 2001):

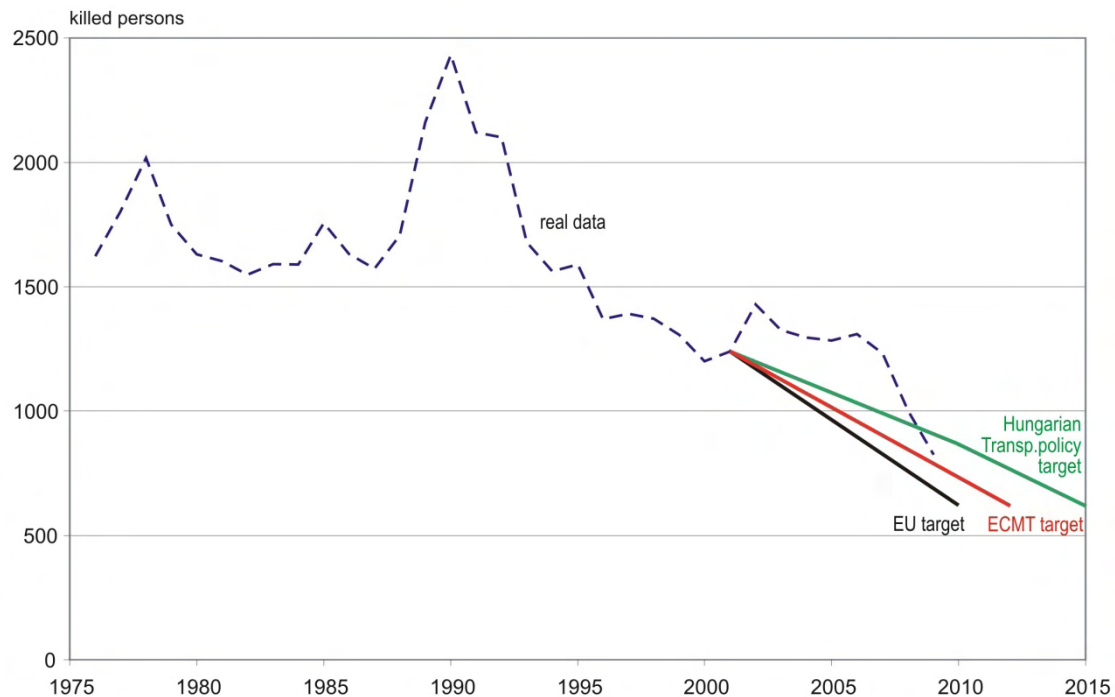
- -30% fatalities by 2010 and -50% fatalities by 2015;
- -30% injury accidents by 2010 and -50% injury accidents by 2015.

❖ Road safety strategies beyond 2010

A new road safety programme for the years 2011-2013 will be adopted soon.

Figure 6 illustrates the trend in progress towards the fatality target.

Figure 6. Progress towards road fatality target



6. Recent safety measures (2009-2010)

❖ Speed

- The number of automatic speed cameras is increasing progressively. The most important legal prerequisite for their use was the introduction of owner responsibility (i.e. the owner of a vehicle is responsible for the offences caused by the vehicle). This rule was introduced on 1 January 2008 and entered into force on 1 May 2008.

❖ Drink-driving

- On 20 January 2008, the so-called “zero tolerance” rule against drinking and driving entered into force. It means that the driver’s licence can be withdrawn on the spot if the driver is under the influence of alcohol (even a small amount).

❖ Enforcement

- **More severe sanctions.** From 1 August 2009 some sanctions became more severe. The penalties for not wearing the safety belt, not using the child restraint system (CRS) or using a hand-held mobile phone while driving have been significantly increased. For example, the penalty for using a hand-held mobile phone while driving is HUF 10 000 inside built-up areas (ca. EUR 40), HUF 15 000 outside built-up areas (ca. EUR 60) and HUF 20 000 on motorways (ca. EUR 80). The penalties for not using a child restraint system are HUF 15 000, HUF 30 000 or HUF 45 000, and those for not using the safety belt or safety helmet are HUF 10 000,

HUF 20 000 or HUF 30 000, depending on the road category. The increases could be useful from the point of view of road safety, but could also be problematic, as higher penalties will be imposed without demerit points.

- **Development of the demerit point system.** Since January 2008, the system has been stricter, with the risk of losing more points for an offence.

7. Major recent or ongoing research (2009-2010)

- Janis Gyarmati *et al.* (2003-2008), Warning traffic signs for railway crossings without barriers.
- Hollo, P. *et al.* (2008), Actualisation of road accident losses, revealing real consequences of accidents.
The aim of the research is to improve the method of defining losses caused by road accidents, by recalculating former estimations with actual rates.
- Hollo, P. *et al.* (2007-2008), Preparation of a methodology for the examination of driver behaviour in realistic traffic situations.
Based on the technical literature we have reviewed, the research covers the methods used during journey observations, what behavioural elements are registered and what indicators are calculated. The experts examined separately the implementation of a micro camera system in Hungary within the framework of the "Safe Drive" programme. On the basis of the results of the research, proposals were provided for the further development of the methodology.
- Hollo, P. *et al.* (2008), Analysis of Hungary's road safety and action plan in connection with the tasks of the National Transport Authority
The study first reviews the situation of national road safety over the past 30 years. Afterwards, it gives detailed proposals for the main directions of activities needed in different professional fields. The study also deals with the influence of passenger behaviour, the development of infrastructure, technical questions for vehicles, legal and organisational questions, rescue and R&D.

8. References – Useful websites and references

KTI – Institute for Transport Sciences	WWW.KTI.HU
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ICELAND¹

1. Short-term trends

❖ General comments on trends for 2009

In 2009, there were 17 persons killed in road traffic, five more than in 2008.

❖ Preliminary trends for 2010

In the first nine months of 2010 there were five persons killed in traffic in Iceland.

2. Long-term trends

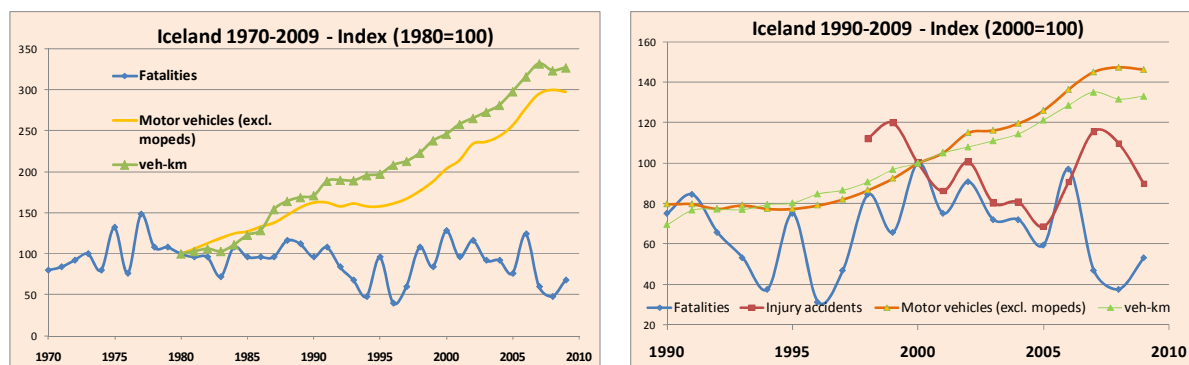
❖ Change in the number of fatalities and injury crashes

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	20	25	24	32	19	12	17	<i>Figures too small</i>		
Injury crashes				979	671	1073	878	-18%	-10%	

Iceland reached the maximum number of killed in 1977, with 37 fatalities.

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009



❖ Risks and rates

In 2009, the mortality rate (expressed in terms of deaths per 100 000 population) was 5.4.

¹ Source : IRTAD ; Icelandic Road Administration.

Table 2. Risk indicators 1970, 1990, 2000, 2009

	1970	1990	2000	2009
Deaths/100 000 population	9.8	9.4	11.5	5.4

3. Accident trends

❖ Road users

In Iceland, most of the victims are occupants of passenger cars.

Table 3. Fatalities by road user group 2000, 2007, 2008 and 2009

	2000	2007	2008	2009
Bicyclists	0	0	0	0
Mopeds	0	0	0	0
Motorcycles and scooters	1	3	1	3
Passenger cars	25	11	10	9
Pedestrians	1	1	0	2
Others	5	0	1	3
Total	32	15	12	17

❖ Age

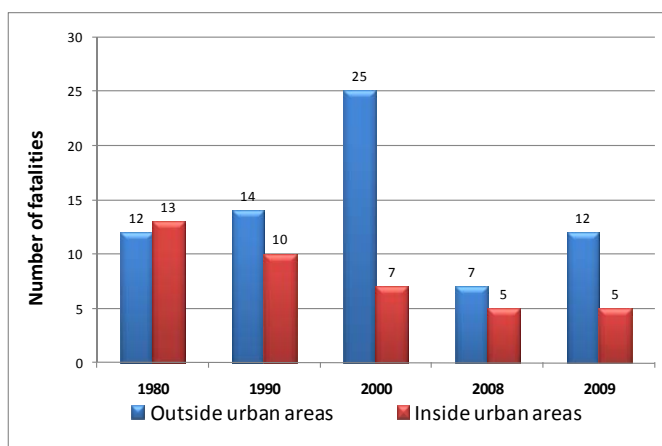
Table 4 shows a breakdown of fatalities by age group.

Table 4. Reported fatalities by age group

	2000	2007	2008	2009
0-5	0	1	0	0
6-9	0	0	0	0
10-14	0	0	0	0
15-17	5	0	0	1
18-20	4	1	2	1
21-24	1	1	1	0
25-64	16	9	5	12
>65	6	3	4	3
Total	32	15	12	17

❖ Road type

Figure 2. Reported fatalities by road type
1980, 1990, 2000, 2008 and 2009



4. Recent trends in road user behaviour

❖ Drink-driving and drug-driving

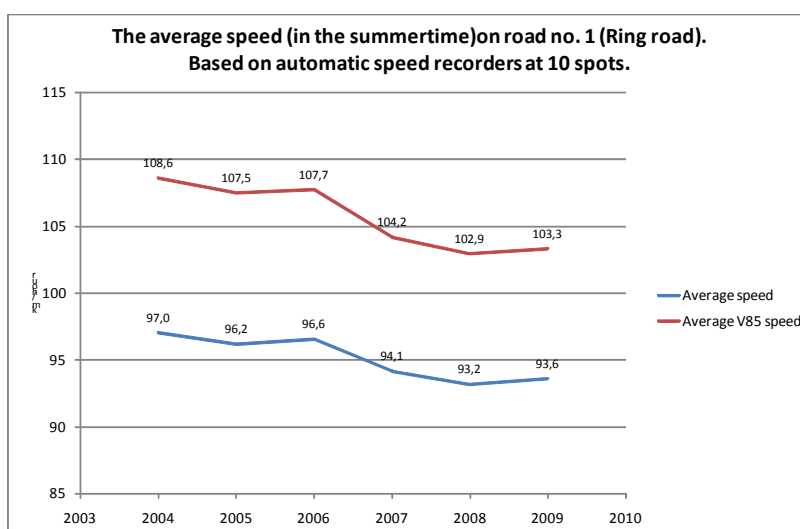
The maximum authorized blood alcohol content is 0.5 g/l.

In 2005-2009, on average, 26% of those killed and 8% of those seriously injured in traffic in Iceland were involved in accidents in which one of the drivers had been drinking alcohol or using drugs.

❖ Speed

Speed has been a big problem on Icelandic roads. However, since 2004 Iceland has recorded positive development, as the figure below on the evolution in average speed shows. This is mainly due to increased enforcement (both traditional enforcement and automatic speed control).

Figure 3. Evolution in average speed limits, 2003-2010

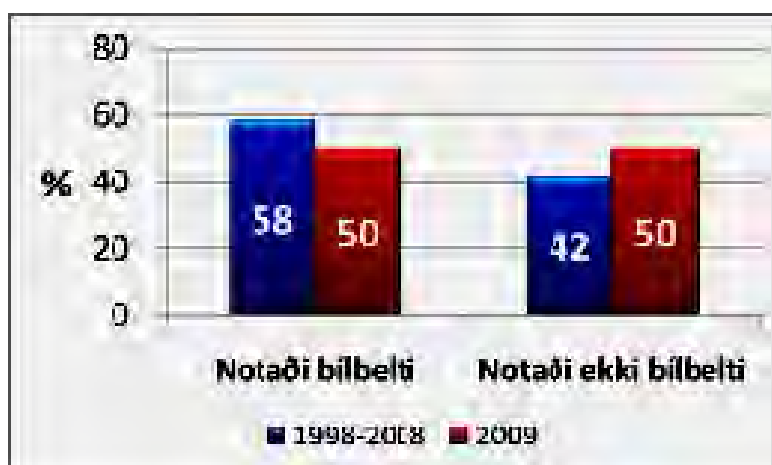


❖ Seat-belts and helmets

In Iceland, it is compulsory to wear seat-belts in both front and rear seats, if they are available. In 1998-2008, 42% of victims in fatal accidents were not wearing seat-belts. In 2009, this percentage was 50%

Helmet wearing is mandatory for all motorised two-wheelers and is compulsory for cyclists up to 14 years of age.

Figure 4. Percentage of victims wearing seat-belts



5. 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 be higher than in countries with outstanding traffic safety (e.g. Great Britain, Sweden and the Netherlands now have the lowest numbers, i.e. five-year average 1999-2003).
- The number of killed and seriously injured in traffic in Iceland must decrease by 5% on average per year until 2016.

Table 5. General road safety targets

Type	Targets (in % or absolute figures)	Base years	Target year	Base year figure	Current results (2009 figure)
Fatalities per 100 000 population	Not higher than the best performing countries	1999-2003	2016	9.0	5.4
Killed and seriously injured	-5% per year	1999-2003	2016	197.4	187

* 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.

IRELAND¹

1. Short-term trends

❖ General comments on trends for 2009

There was a 15% decrease in road fatalities in 2009 compared to 2008: 2009 was the safest year on Ireland's roads since 1959, when safety record-keeping began. 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 on the total number of taxed vehicles (2 467 660) represents a decrease of 29 908 units (-1.2%) on the 2008 return - the first decrease recorded since 1982.

Substantial collision reductions have been recorded in all road user categories, with the highest reduction in pedestrian casualties.

❖ Preliminary trends for 2010

Based on preliminary data for the first eleven months of 2010, the downward trend is continuing with a -9% decrease in the number of fatalities as compared to 2009.

	2009	2010	+/-
Jan	18	15	-17%
Feb	15	14	-7%
Mar	24	12	-50%
Apr	20	19	-5%
May	28	28	0%
Jun	15	11	-27%
Jul	20	22	10%
Aug	21	19	-10%
Sep	14	13	-7%
Oct	22	36	64%
Nov	25	13	-48%
Total	222	202	-9%

2. Long term trends

❖ Change in the numbers of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities dropped by 56%. In the same period, the number of vehicles on the roads quadrupled.

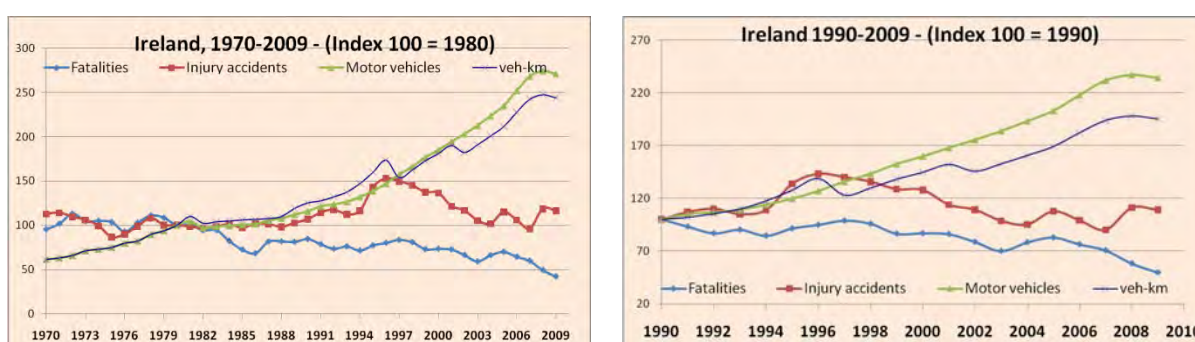
After a peak in 1972, with 640 fatalities, traffic casualties fell steadily. The rate of improvement rose in the last three years: fatalities decreased by 40% between 2005 and 2009.

¹ Source: IRTAD, Irish Road Safety Authority.

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	540	564	478	415	396	279	238	-15%	-43%	-56%
Injury crashes	6 405	5 683	6 067	7 757	6 533	6 736	6 618	-2%	-15%	3.3%

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009



❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 71%. Since 2000, the risk has been more than halved for three risk indicators.

Table 2. Rates
1970, 1990, 2000, 2008, 2009

	1970	1990	2000	2009	2009 % changeover	
					2000	1970
Deaths/100 000 population	18.3	13.6	11.0	5.3	-51%	-71%
Deaths/billion veh-km	44.3	19.2	12.6	4.9	-61%	-89%
Deaths/10 000 registered vehicles	9.6	4.5	2.5	1.0	-61%	-90%

3. Collision trends

❖ Road users

All user groups have benefited from the important safety improvements introduced since the 1970s. The apparent increase in car occupant fatalities is related to an increase in car sales, from 711 098 in 1984 to 1 902 429 in 2009. Cyclists and pedestrians are the groups showing the greatest reduction in fatalities (respectively -88% and -82%).

The number of car users who were killed in 2009 showed a reduction of 10% compared to 2008. Fatalities among motorcyclists fell by 7% compared to 2008 figures.

Table 3. **Reported fatalities by road user group
1970, 2000, 2008 and 2009**

	1970		2000		2008		2009		2009 % changeover		
									2008	2000	1970
Cyclists	56	10%	10	2%	13	5%	7	3%	-46%	-30%	-88%
Motorised 2-wheelers	53	10%	39	9%	29	10%	27	11%	-7%	-31%	-49%
Car occupants	178	33%	260	63%	160	57%	144	61%	-10%	-45%	-19%
Pedestrians	219	41%	85	20%	49	18%	40	17%	-18%	-53%	-82%
Others	34	6%	21	5%	28	10%	20	8%	-29%	-5%	-41%
Total	540	100%	415	100%	279	100%	238	100%	-15%	-43%	-56%

Table 4 illustrates the relative fatality risk for the different road user groups in 2009. For a motorcyclist, the risk of dying in a traffic crash per vehicle kilometres travelled is about 21 times higher than that for a car occupant.

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

	Fatalities (2009)	Deaths (inside or on the vehicle) per million vehicles	Average kilometrage per vehicle	Deaths (inside or on the vehicle) per billion veh-km
Bicycles	7	-	-	-
Motorcycles	27	683	8 095	84.3
Car occupants	144	76	18 864	3.8
Goods vehicles	19	55	27 381	2.0
Public service Vehicles	1	27	16 942	1.6

❖ Age

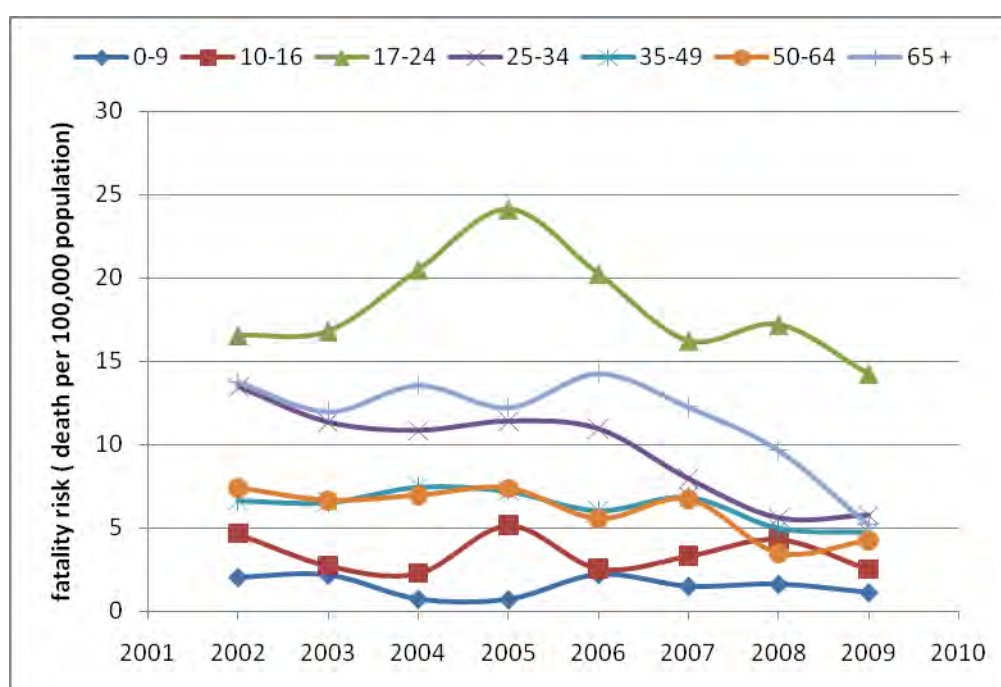
Since 1980, the reduction in fatalities has affected all age groups. The most impressive reduction concerned the youngest age groups: fatalities decreased by 83% for the 0-5 group and 95% for the 6-9 group. Improvements have been less marked for the 21-24 and 25-64 age groups.

There is a reduction in fatalities for all age groups over the period 2001-2009 (Figure 2). The most impressive reduction concerned the youngest age groups, among which fatalities decreased by 53% for the 0-14 group. Improvements have been less marked for the 55-64 age group.

Table 5. Reported fatalities by age group
1980, 1990, 2000, 2008, 2009

	1980	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1980
0-5	40	15	8	5	7	40%	-13%	-83%
6-9	19	12	6	5	1	-80%	-83%	-95%
10-14	21	19	8	10	4	-60%	-50%	-81%
15-17	33	28	23	20	9	-55%	-61%	-73%
18-20	71	56	63	33	31	-6%	-51%	-56%
21-24	51	53	54	41	33	-20%	-39%	-35%
25-64	214	195	195	155	127	-18%	-35%	-41%
>65	104	81	44	47	26	-45%	-41%	-75%

Figure 2. Reported death rate by age band



❖ Road type

A large majority of fatal crashes occur on rural roads. In 2009, 66% of fatal crashes occurred on rural roads, 32% in urban areas and 2% on motorways (Figure 3). Since 1980, the greatest reduction in fatalities has occurred on urban roads (-63%).

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 3. Reported fatalities by type of road
1980, 1990, 2000, 2008 and 2009

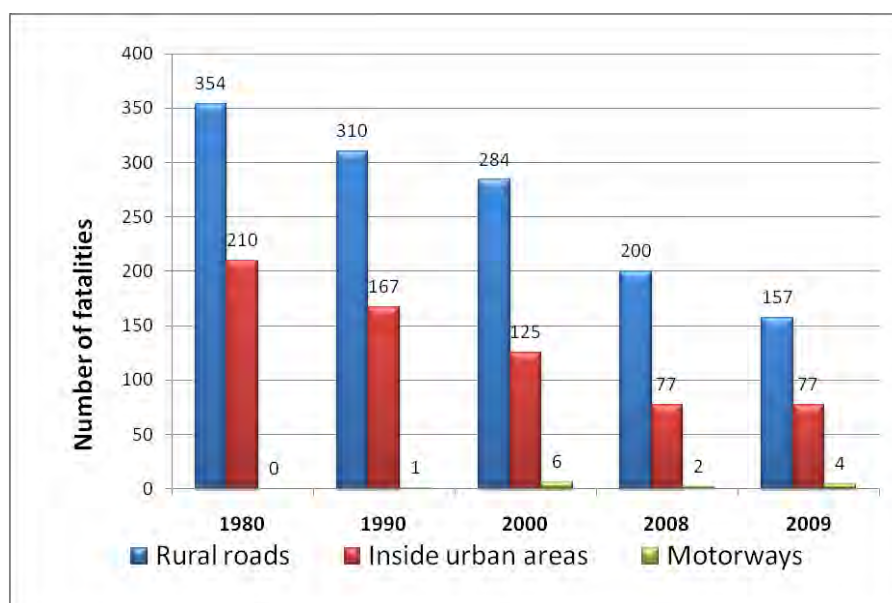


Table 6. Reported fatalities by type of road

	1980	2000	2009	% changeover	
				2009-2000	2009-1980
Rural roads	354	284	157	-45%	-56%
Inside urban areas	210	125	77	-38%	-63%
Motorways	0	6	4	-33%	n.a.

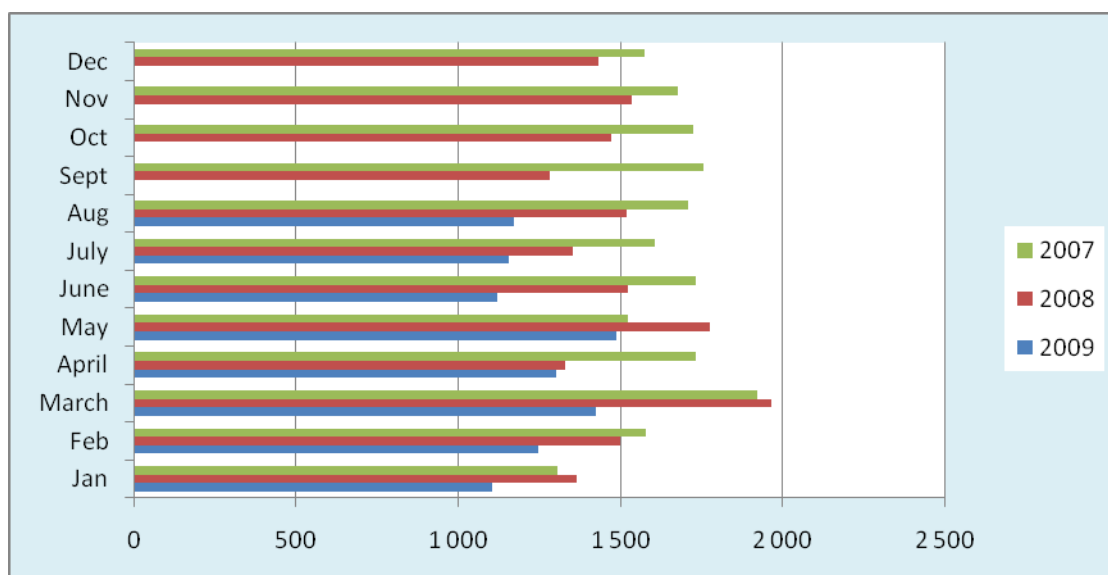
4. Recent trends in road user behaviour

❖ Drink-driving and drug-driving

Legislation has been passed by the Irish Parliament 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. Over the period 2005 to 2007, it was estimated that drink-driving (driver with a BAC > 0.2 g/l) was responsible for 28% of fatal crashes.

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.

Figure 4. Driving while intoxicated, by month, 2007-2009*



* Data for September to December 2009 is not available.

❖ Speed

Speeding is a factor in a large number of fatal crashes. Figure 5 illustrates the change in the proportion of car drivers who exceeded the posted speed limits. During the last 10 years, the proportion of drivers exceeding the limits has decreased on all types of road.

Figure 5. Percentage of cars exceeding posted speed limits, 1999-2009

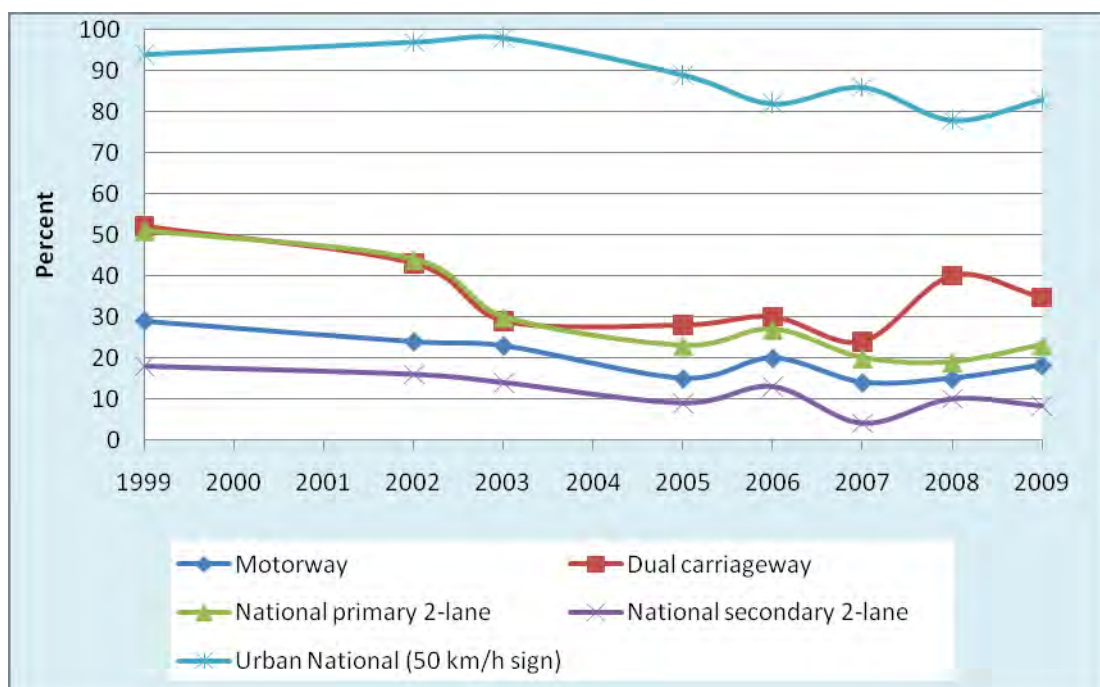
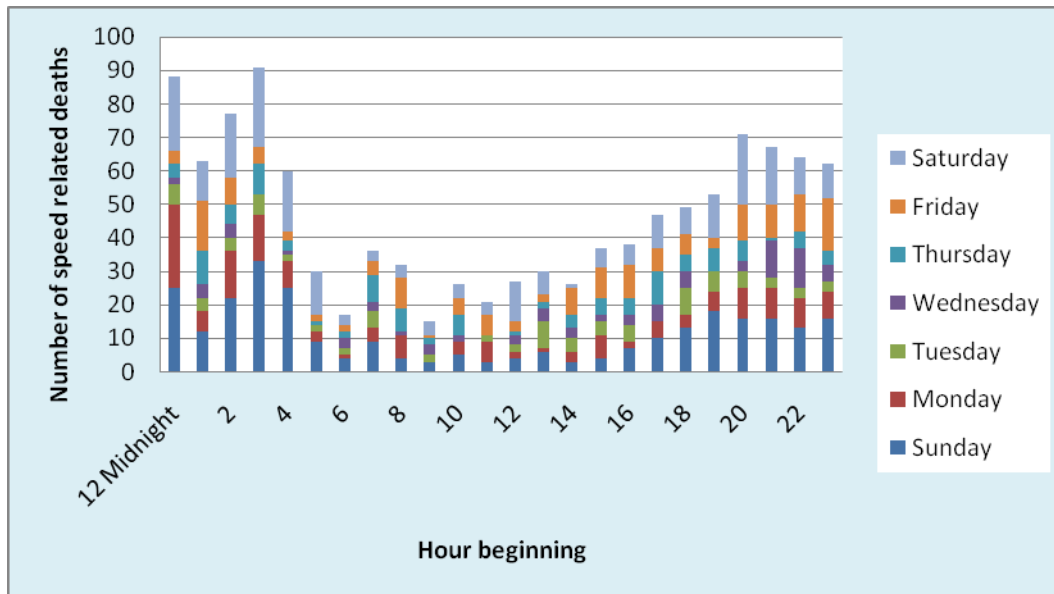


Figure 6. All road deaths where excessive speed was cited as a contributory factor by hour and month, 1997-2008



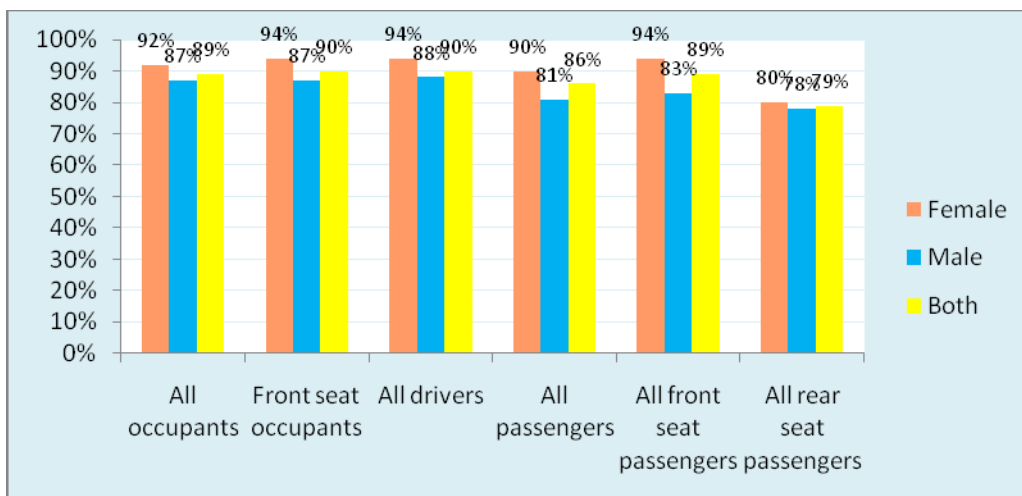
❖ **Seat-belts and helmets**

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. Overall, a 90% seatbelt usage rate for front occupants of cars and light goods vehicles was observed in 2009. The rear seat-belt wearing rate for adults was 79% in 2009.

Helmet use is compulsory for all motorcycle and moped riders. The usage rate among motorcyclists in 2009 was around 99.5%. The usage rate among pedal cyclists in 2009 was around 40.3%.

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%.

Figure 7. Adult seat-belt wearing by driver/passenger class, 2009



❖ Pedestrian road-crossing behaviour

In 2009, on average 29% of adults crossing roads did not use the formal crossing point. Children appear to be no more disciplined in their crossing habits, with 28% on average crossing elsewhere rather than at the formal crossing point.

❖ Mobile phone usage

In 2009, 6% of drivers were observed using a hand-held mobile phone while driving.

❖ Driver fatigue

12% of drivers surveyed in 2009 have fallen asleep or nodded off while driving. From surveys, it is estimated that 6% of drivers in Ireland still use a mobile phone while driving; this is despite the fact that it has been illegal to do so (hands-held only) for a number of years.

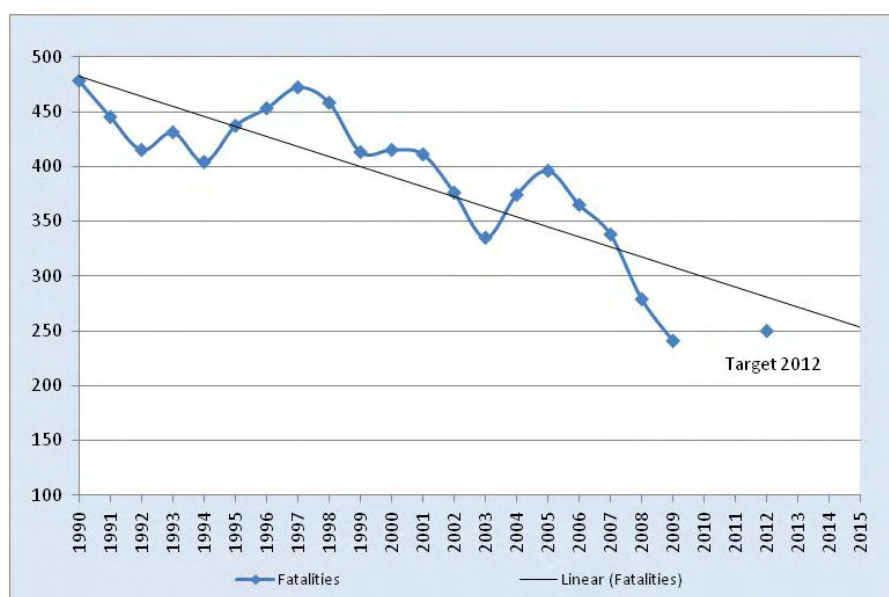
5. National road safety strategies and targets

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 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.

Figure 8. Progress towards road fatality target



6. Recent safety measures (2009-2010)

❖ Road user behaviour, enforcement

- Drink driving – new maximum authorised BAC adopted by Parliament in 2010 (see Section 4);
- Implementation of automatic number-plate recognition by traffic police;
- Increase in the number of speed cameras;
- Effective enforcement effort for heavy goods vehicles, drivers and operators.

❖ Education and communication

- 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.

7. Major recent or ongoing research (2009-2010)

- Observational survey of the use of high-visibility clothing by cyclists;
- Observational survey of pedestrian road-crossing behaviour;
- Observational survey of mobile-phone use;
- National survey of driver attitudes and behaviour;
- Speed and restraint use observational studies;
- Review of pre-crash behaviour.

8. References – Useful websites and references

Irish Road Safety Authority	www.rsa.ie
Penalty points	www.penaltypoints.ie
Rules of the Road online	www.rulesoftheroad.ie

ISRAEL¹

1. Short term trends

❖ General comments on trends for 2009

In 2009 there was a decrease of 24% in the number of traffic fatalities and 2% in the number of injury crashes over 2008.

There was a sharp drop in fatalities across all risk groups (except one): pedestrians, drivers, passengers, young drivers, older drivers, motorcyclists, heavy truck drivers, bus and taxi drivers, in the Jewish sector and in the Arab Sector. The only exception to this trend was the increase in cyclist fatalities (from 13 to 15; 15%).

This one-year drop is the greatest in all of Israel's history and follows a downward trend of 40% since the mid-90s. It is attributed to the concerted endeavours of nearly all public traffic safety stakeholders, and the co-ordinated efforts of the four-year old National Road Safety Authority.

❖ Preliminary trends for 2010

Based on provisional data for the 1st semester 2010, there is an increase of 21% in the number of traffic fatalities. The sharp increase in fatalities is notable across outside urban areas (52%) and in fatal motorcycle accidents (from 12 deaths in 2009 to 27 in 2010).

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities decreased by 39% and the number of injury crashes increased by 22%. Over the same period, the number of vehicles and the distance travelled (vehicle-kilometres) grew by a factor of eight.

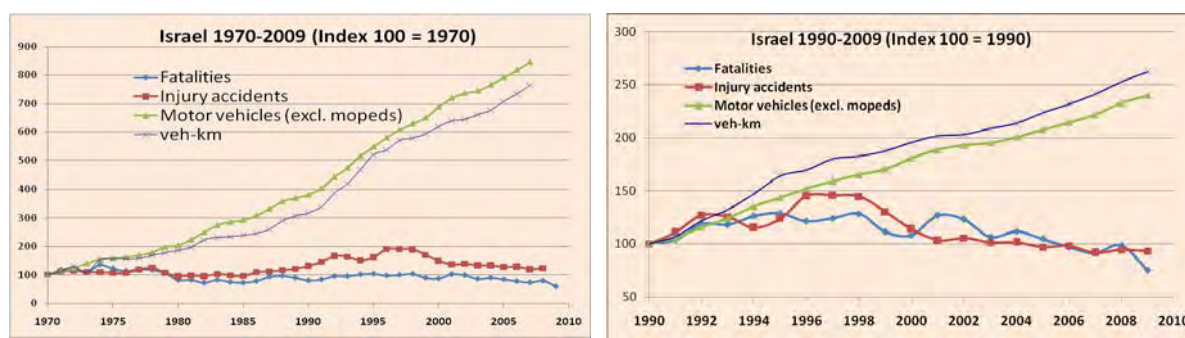
Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	518	425	418	452	437	412	314	-24%	-31%	-39%
Injury crashes	13 35 5	12 71 6	17 49 6	19 92 5	16 98 6	16 53 1	16 308	-1%	-18%	22%

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.

¹ Source: IRTAD, Israel Road Safety Authority.

Figure 1. **Reported road fatalities, injury crashes and vehicles
1970-2009**



❖ Accident risk

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 2009 Israel had 4.2 fatalities per 100 000 inhabitants and 6.5 fatalities per billion vehicle-kilometres. Between 1970 and 2009, the mortality rate (expressed in terms of deaths per 100 000 population) decreased by 76% and the fatality risk (expressed in terms of deaths per distance travelled) decreased by more than 90%.

Table 2. **Rates
1970, 1990, 2000, 2009**

	1970	1990	2000	2009	2009 % changeover		
					2000-	1990-	1970-
Deaths/100 000 population	17.1	8.7	7.1	4.2	-41%	-52%	-75%
Deaths/billion v-km	87.9	22.4	12.6	6.5	-48%	-71%	-92%
Deaths/ 10 000 registered vehicles	19.5	4.2	2.5	1.3	-48%	-69%	-93%

3. Accident trends

❖ Road users

Data by user group is available only from 2000.

The majority of the traffic accident victims in Israel are vehicle occupants, with a small minority of riders of motorised and non-motorised two-wheelers. 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 2009, 51% of the fatalities were vehicle occupants, 33% were pedestrians, 11% were riders of motorised two-wheelers and 5% were bicyclists.

Heavy trucks are over-represented in fatal crashes, relative to their kilometres driven, by a factor of 20%. Bicycle-related injuries are underreported by the police by a factor of 46%, compared with the data from trauma centres. Bicycle-related fatalities increased in 2009, reflecting an increase in ridership. Despite a drop of 22% in pedestrian fatalities, they still constitute 33% of all road deaths, with 34% of them being on interurban roads.

Table 3. Fatalities by road user group
2003, 2008 and 2009

	2000		2008		2009		2009 % changeover	
							2008	2000
Bicyclists	20	4%	13	3%	15	5%	15%	-25%
Motorised two-wheelers	45	10%	46	11%	33	11%	-28%	-26%
Car and coach occupants	218	48%	218	53%	161	51%	-26%	-28%
Pedestrians	169	37%	134	33%	105	33%	-22%	-38%
Others	0	0%	1	0%	0	0%		
Total	452	100%	412	100%	314	100%	-24%	-31%

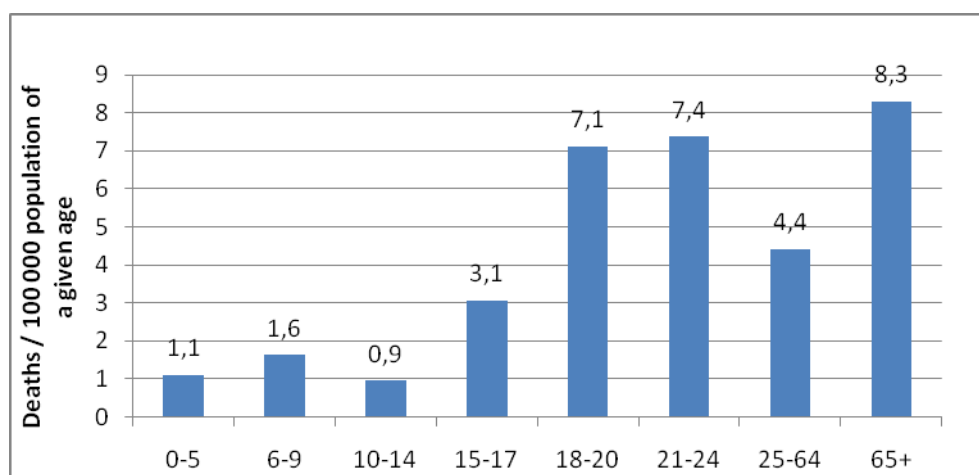
❖ Age

Data by age group is only available from 2000. Recently, safety improvements have benefited mainly the youngest groups (aged 0-14). Young people, especially the 18-24 age group, are still a high-risk group concerning road safety, with a fatality risk two times higher than the general population (Figure 2). The oldest age group is also at high risk.

Table 4. Reported fatalities by age group

	2000	2008	2009	2009 % change over	
				2008	2000
0-5	20	20	10	-50%	-50%
6-9	16	7	9	-29%	-44%
10-14	10	7	6	-14%	-40%
15-17	23	15	11	-27%	-52%
18-20	51	26	25	-4%	-51%
21-24	43	41	34	-17%	-21%
25-64	201	193	154	-20%	-30%
>65	89	76	61	-20%	-22%
Total	452	412	314	-24%	-29%

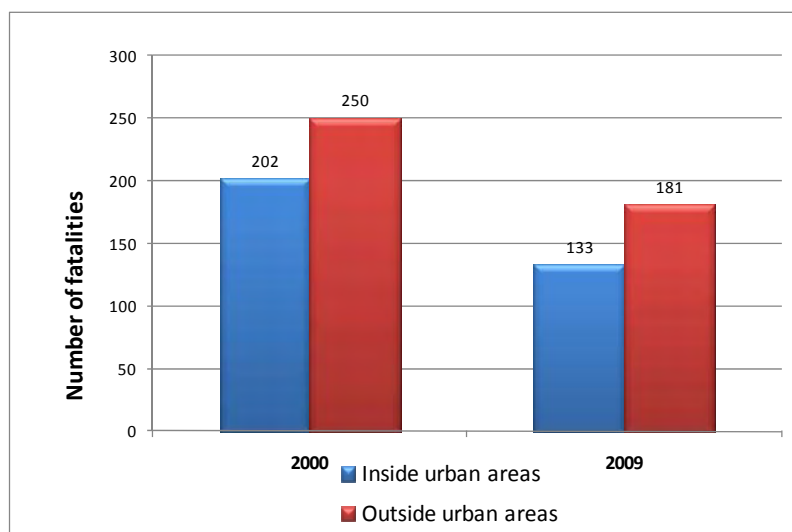
Figure 2. Fatality risk by age group in 2009
(deaths per 100 000 population in a given group)



Road type

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 traffic circles and the construction of urban high-speed, limited-access, divided roads.

Figure 3. Reported fatalities by type of road
2000 and 2009



4. Recent trends in road user behaviour

❖ Drink-driving and drug-driving

The maximum authorised blood alcohol content is 0.5 g/l.

The extent of drink-driving had been long underestimated and not identified 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).

❖ Speed

The most recent speeding survey revealed that on rural roads, the 85th percentile of speeds is higher than the speed limits on all road types, as follows: by 15-16 kph on freeways; by 26-28 kph on dual-carriageway roads without at-grade junctions; by 17-20 kph on other dual-carriageway roads; by 18-20 kph on single-carriageway roads; and by 9-10 kph on local roads. The share of vehicles travelling at speeds over the limits in free-flow hours was: about half on freeways, over 60% on dual-carriageway roads without at-grade junctions; 60% on other dual-carriageway roads; about two-thirds on single-carriageway roads; and a third on local roads. Thus, all rural road types are associated with a significant share of non-compliance with speed limits, where the highest level of non-compliance was observed on these road types: dual-carriageway roads without at-grade junctions, other dual-carriageway roads, single carriageway roads.

According to the findings on urban roads, the 85th percentile of speeds was higher than the speed limits: by 2-5 kph on the right lanes and by 7-9 kph on the left lanes of arterial roads, by 15-17 kph on central collector streets (dual-carriageway) and by 7-9 kph on residential collector streets (single-carriageway). The share of vehicles travelling over the speed limits, in free-flow hours, was: from a quarter to a third on arterial roads, about 60% during day hours and about 70% during night hours on central collector streets, and from a quarter to a third on residential collector streets. Among the urban road types, the highest speeds were observed, during both day and night hours, on the left lanes of arterial roads, where the highest share of vehicles over the speed limit was found on central collector streets: with a dual-carriageway layout and 50 kph speed limits.

❖ Seat-belts and helmets

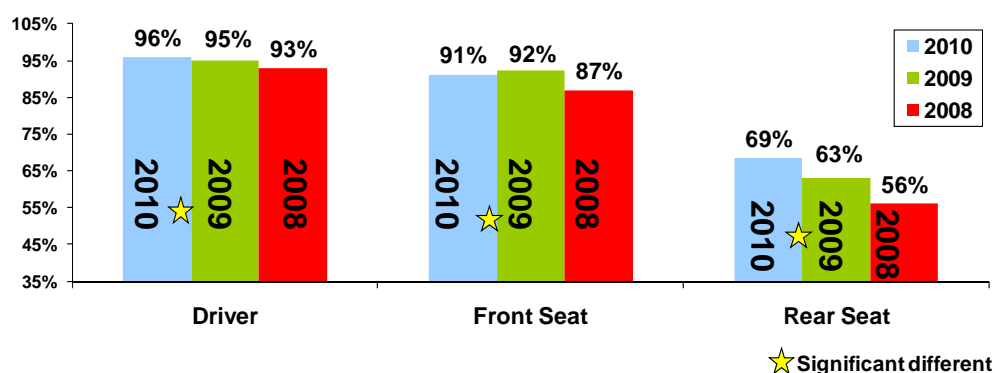
Seat-belt use has been compulsory in front seats since 1975 and in rear seats since 1995.

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 2010, the seat-belt wearing rate among drivers increased by 1%; however, the seat-belt wearing rate among front seat passengers declined by 1%. The most significant improvement in the seat-belt wearing rate was among rear seat passengers – an increase of 6%. But the seat-belt wearing rate for rear seats is still quite low.

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

	2003	2005	2008	2009	2010
Driver	89%	90%	93%	95%	96%
Front seat passenger	85%	84%	87%	92%	91%
Rear seat passengers	23%	25%	56%	63%	69%

Figure 4. **Seat-belt use**



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 6. **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 geographic 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**

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.

The campaign's strategic message: log off cellular hand-held phones, and don't disconnect from life. Using a mobile hand-phone the driver disconnects his eyes from the road, and doesn't see the surprises and risks that exist on the road.

<http://www.rsa.gov.il/Distracted/DisCampaignsi/Pages/DisCampaignOnAir.aspx>

5. National road safety strategies and targets

Israel has set a goal for the reduction of fatalities by at least 6% annually between 2006 and 2015. Figure 4 illustrates the progress made toward that target.

Figure 5. **Progress toward road fatality target**



6. Recent safety measures (2009-2010)

❖ **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 red-light cameras programme will be accompanied by a three-year evaluation study.
- 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 planned survey (for December 2010) of drinking and driving.
- 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.

❖ Licensing, regulation

- A Law has been passed prohibiting digital and video commercial signs adjacent to urban motorways.

❖ Education and communication

- A special child safety education programme for the Arab and Bedouin populations.

❖ Vehicles

- A law requiring all new passenger cars imported after 1 January 2010, and all buses imported after 1 January 2012, to have Electronic Stability Control.

7. Major research undertaken in 2009-2010

- First comprehensive annual speed survey, covering both inter-city and urban roads;
- Third annual survey on seat-belt use;
- First alcohol-when-driving survey planned (covering weekend evenings/nights only);
- First annual survey on the use of bicycle helmets;
- First annual survey on pedestrian street crossing.

8. References – 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

ITALY¹

1. Short-term trends

❖ General comments on trends for 2009

In 2009, 215 405 injury crashes occurred and 4 237 persons were killed on the Italian roads. Compared to 2008, this represents a 2% decrease in crashes and a 10% decrease in fatalities.

❖ Preliminary trends for 2010

No provisional data are available.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

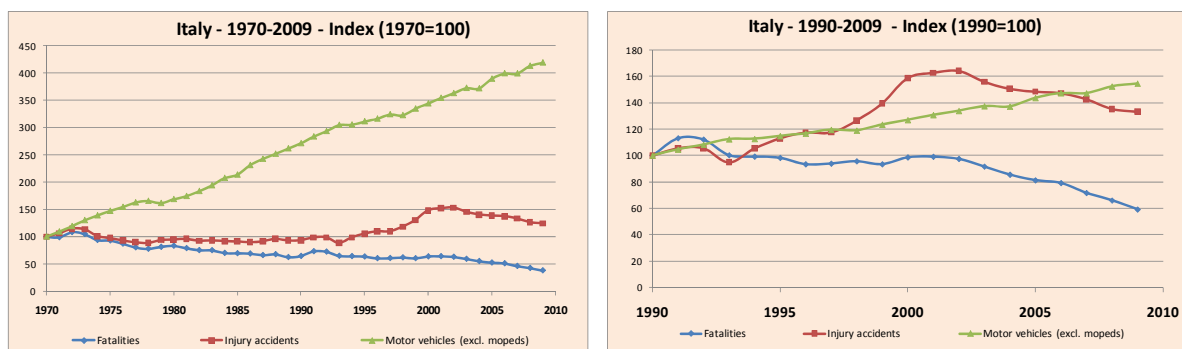
Between 1970 and 2009, the number of fatalities decreased by 62%: but the number of injury crashes increased by 16%. The number of vehicles increased fourfold. In recent years (2000-2009), the number of fatalities decreased by 40% and the number of injury crashes started decreasing in 2001 (-16% since 2000).

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	11 025	9 220	7 151	7 061	5 818	4 725	4 237	-10%	-40%	-62%
Injury crashes	173 132	163 770	161 782	256 546	240 011	218 963	215 405	-2%	-16%	+24%

Death within 30 days

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009



¹ Source : IRTAD, National Institute of Statistics, University La Sapienza.

❖ Risks and rates

In the last nine years the death rate (in terms of deaths per 100 000 population) has decreased by 42% and the death rate (expressed in deaths per 10 000 vehicles) decreased by 50% while motorisation has increased by 19%.

Table 2. Rates
1970, 1990, 2000, 2009

	1970	1990	2000	2009	2009 % changeover	
					2000	1970
Deaths/100 000 population	20.5	12.6	12.2	7.1	-42%	-66%
Deaths/10 000 registered vehicles	7.9	2.1	1.7	0.9	-50%	-89%

3. Accident trends

❖ Road users

During the past decade, the number of fatalities decreased for all user groups except for motorcyclists, for this road user group the number of fatalities increased by 35% compared to 2000 (Table 3).

In 2009, moped riders (-28%) represent the road user group that has seen the largest decrease compared to 2008. The number of fatalities for vulnerable users, such as pedestrians and cyclists, have increased by +3% and +2%, respectively.

Table 3. Reported fatalities by road user type
1970, 2000, 2008, 2009

	1970		2000		2008		2009		2009 % changeover		
	Number	%	Number	%	Number	%	Number	%	2008	2000	1970
Bicyclists	1 204	11%	401	6%	288	6%	295	7%	+2%	-26%	-75%
Mopeds	1 194	11%	637	9%	294	6%	212	5%	-28%	-67%	-82%
Motorcycles and scooters	948	9%	770	11%	1 086	23%	1 037	24%	-5%	+35%	+9%
Car occupants	4 173	38%			2 098	44%	1 785	42%	-15%		-57%
Pedestrians	2 863	26%	982	14%	648	14%	667	16%	+3%	-32%	-77%
Others	643	6%			311	7%	241	6%	-23%		-95%
Total	11 025	100%	7 061	100%	4 725	100%	4 237	100%	-10%	-40%	-62%

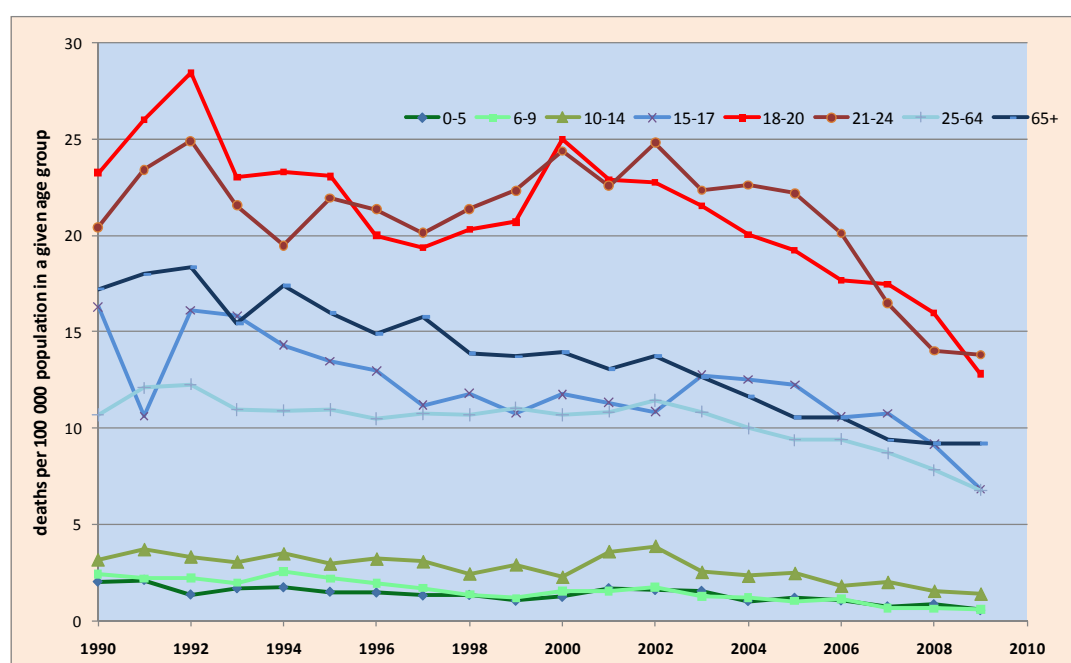
❖ Age

Since 1980, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned the youngest groups (6-9, 0-5 and 10-14), for which fatalities respectively decreased by 92%, 87% and 85%. Young people (18-24) have a higher risk compared to the other age groups (Figure 3).

Table 4. Reported fatalities by age group
1980, 1990, 2000, 2008, 2009

	1980	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1980
0-5	150	69	39	29	19	-34%	-51%	-87%
6-9	165	60	34	14	13	-7%	-62%	-92%
10-14	261	118	63	43	39	-9%	-38%	-85%
15-17	572	429	211	163	121	-26%	-43%	-79%
18-20	683	640	485	286	234	-18%	-52%	-66%
21-24	753	786	740	351	345	-2%	-53%	-54%
25-64	4 211	3 245	3 637	2 598	2 265	-13%	-38%	-46%
>65	1 941	1 436	1 437	1 100	1 111	1%	-23%	-43%

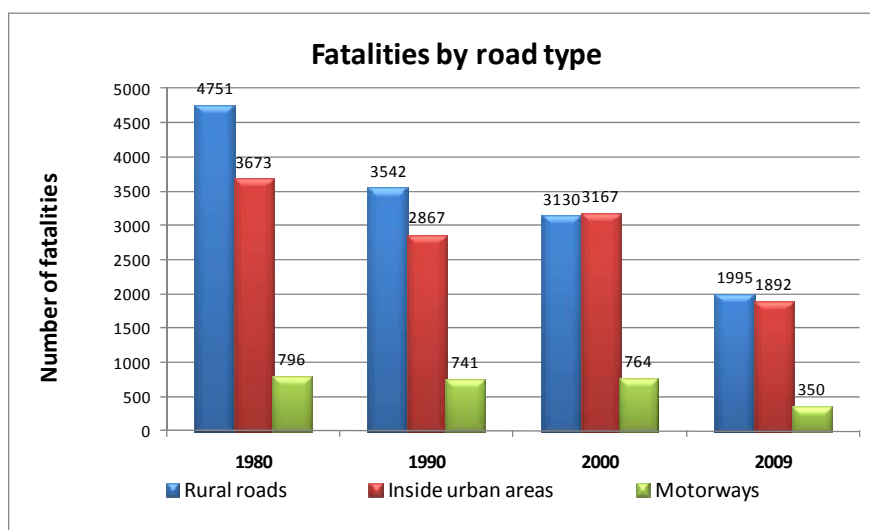
Figure 3. Reported death rate by age band
(Fatalities per 100 000 population in a given group, 1990-2009)



❖ Road type

In 2009, 47% of fatalities occurred on rural roads, 45% inside urban areas and 8% on motorways (Figure 4). Since 1980, the biggest improvement was observed on rural roads (-58% for fatalities). In 2009, the greatest improvement was observed on motorways (-23% fatalities compared to 2008).

Figure 4. **Reported fatalities by road type
1980, 1990, 2000 and 2009**



4. Recent trends in road user behaviour

❖ Drink-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 g/l.

Speed

The general speed limits are:

Urban areas	50 km/h
Rural roads	90-110 km/h
Motorways	130 km/h.

In 2009, inappropriate speed was reported in about 8% of injury crashes.

❖ Seat-belts and helmets

Seat-belt usage is compulsory in front seats since 1988 and rear seats since 1994. Table 5 shows seat-belt use in 2005, 2006 and 2007.

Table 5. **Seat belt wearing rates**

	2005	2006	2007
General (rear and front seats)	72%	72%	65%

Since 1986, all motorcyclists are required to wear a helmet. The same obligation for moped riders (older than seventeen) was introduced in 2000.

Since 2010, helmet wearing has been compulsory for cyclists under 14.

The helmet wearing rate varies considerably across the country.

❖ Distracted driving

Since 2002, the use of hands-held mobile phones while driving is not permitted. In 2007, the percentage of car drivers using mobile phones while driving was around 2-3%.

5. National road safety strategies and targets

❖ National road safety strategies

In Italy, the Road Safety National Plan covers 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). The Plan is structured according to a two-level action strategy:

- The first-level actions support, also economically, the implementation of immediately feasible measures in high-risk situations.
- The second-level actions aim 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.

❖ Road safety strategies beyond 2010

The revision of the Road Safety National Plan is expected in 2011.

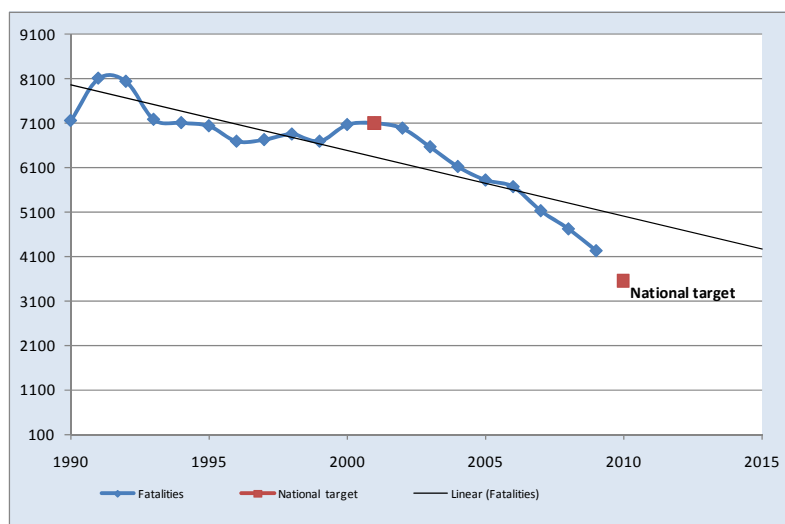
❖ Safety targets and subtargets

The 2010 targets identified in the Road Safety National Plan are:

- to reduce the number of fatalities by 50% compared to 2001;
- to reduce the number of injuries by 20% compared to 2001.

The figure below shows the progress made towards the ECMT target, approved by Transport Ministers in 2002, of a 50% reduction in the number of fatalities by 2012 compared to the level in 2000.

Figure 5. Progress towards road safety target



6. Recent safety measures (2009-2010)

The main safety measures taken in 2009-2010 are:

- Zero BAC limit for young drivers, novice drivers and professional drivers;
- Lower speed limits for young drivers;
- Compulsory use of safety-belts in microcars;
- Alcohol cannot be sold between 2 and 7 a.m.; and between 10 p.m. and 6 a.m. on motorways.

7. Major research undertaken in 2009-2010

Some Italian road safety research organisations participate in national and European research projects covering most areas of road safety research. The research results are then used to support public authorities in road safety decision-making.

8. References – Useful websites

Ministry of Infrastructure and Transport	www.infrastrutturetrasporti.it/
National Institute of Statistics	www.istat.it

JAPAN¹

1. Short term trends

❖ General comments on trends for 2009

In 2009, the number of road fatalities decreased by 4%, reaching its lowest level since record-keeping began. The number of injury crashes also fell by 4%.

2. Long term trends

❖ Change in the number of fatalities and injury crashes

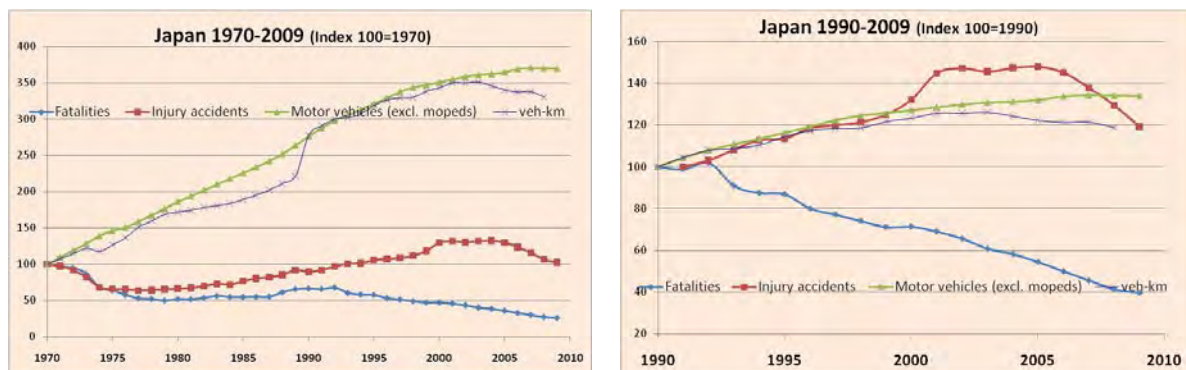
Between 1970 and 2009, the number of fatalities decreased by 74% but the number of injury crashes rose by 3%. In the same period, the number of vehicles and the distance travelled (vehicle-kilometres) were multiplied by more than three. In recent years (2000-2009), the decline in the number of fatalities was sustained (-45%).

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	21 795	11 388	14 595	10 403	7 931	6 023	5 772	-4%	-45%	-74%
Injury crashes	718 080	476 677	643 097	931 934	933 828	766 147	736 688	-4%	-21%	3%

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.

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009



¹ Source : IRTAD, Institute for Traffic Accident Research and Data Analysis; National Police Agency.

❖ Risks and rates

Between 1970 and 2009 the road traffic mortality rate, expressed in terms of deaths per 100 000 population, fell by 78% and the fatality risk (expressed in deaths per distance travelled) fell by 91%.

Table 2. Risks
1970, 1990, 2000 and 2009

	1970	1990	2000	2009	2009 % changeover	
					2000	1970
Deaths/100 000 population	21.01	11.81	8.2	4.53	-45%	-78%
Deaths/billion veh-km	96.43	23.22	13.4	7.74	-42%	-92%
Deaths/10 000 vehicles	7.68	2.4	1.17	0.64	-45%	-92%

3. Accident trends

❖ Road users

All user groups have benefited from the important safety improvements made since the 1980s. The user groups that most benefitted from safety progress were car occupants (-60%) and moped riders (-59%).

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 drivers' licence and as pedestrians they are therefore more exposed to accidents.

Table 3. Fatalities by road user group
1980, 2000, 2008 and 2009

	1980		2000		2008		2009		2009 % changeover		
									2008	2000	1980
Bicyclists	1 366	12%	1 273	12%	971	16%	933	16%	-4%	-27%	-32%
Mopeds	1 108	10%	944	9%	526	9%	456	8%	-13%	-52%	-59%
Motorcycles & scooters	1 093	10%	903	9%	637	11%	577	10%	-9%	-36%	-47%
Passenger car occupants	3 006	26%	2 901	28%	1 269	21%	1 190	21%	-6%	-59%	-60%
Pedestrians	3 597	32%	2 955	28%	1 976	33%	2 012	35%	2%	-32%	-44%
Others	1 218	11%	1 427	14%	644	11%	604	10%	-6%	-58%	-50%
Total	11 388	100%	10 403	100%	6 023	100%	5 772	100%	-4%	-45%	-49%

❖ Age

Since 1980, the reduction in fatalities has benefitted all age groups except the elderly (+65). This is due to the ageing of Japanese society. In 2009, victims over age 65 accounted for more than half of all fatalities. Unlike in other countries, the oldest age group is also the one the most at risk in traffic (Figure 2). Young people (18-20) have a slightly higher risk than the general population but the difference is much less marked than in other countries.

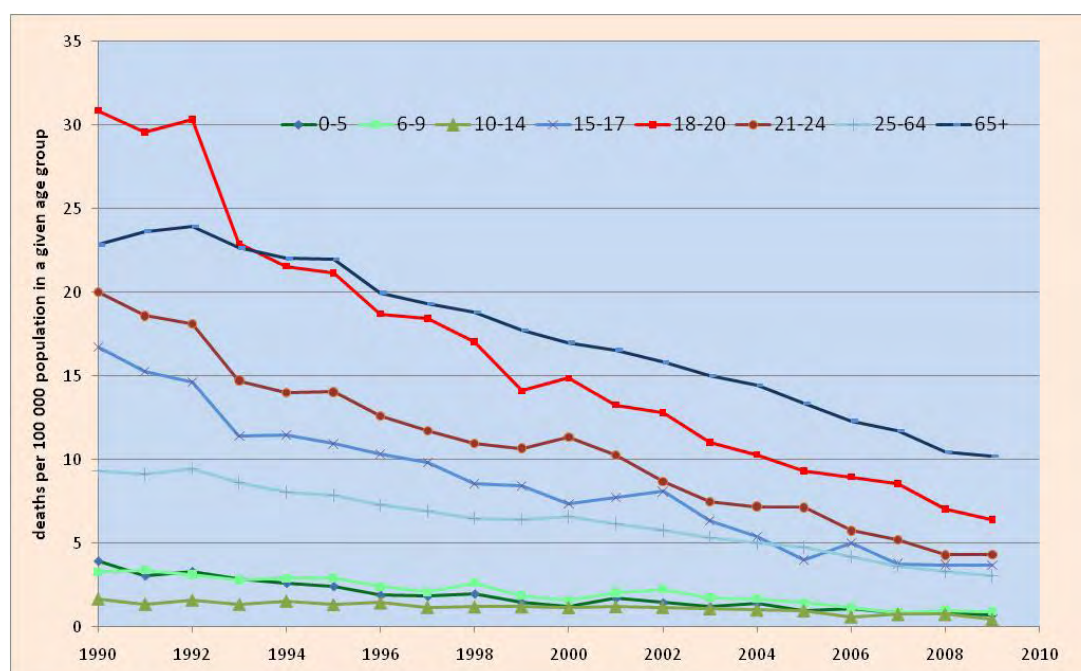
The most impressive reduction concerned the youngest group (0-9), for which the fatality figure was reduced by more than 90% in 29 years.

The national goal of making Japan's roads the "safest in the world", by reducing annual traffic fatalities to below 5 000 by 2012, can be realised only if greater effort is made to improve senior traffic safety. 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 4. **Reported fatalities by age group**
1970, 1980, 1990, 2000, 2008, 2009

	1970	1980	1990	2000	2008	2009	2009 % changeover		
							2008	2000	1980
0-5	1 537	647	312	88	55	47	-15%	-47%	-93%
6-9	666	381	198	76	45	42	-7%	-45%	-89%
10-14	381	151	143	75	45	27	-40%	-64%	-82%
15-17	1 218	909	1 006	327	134	133	-1%	-59%	-85%
18-20		1 034	1 820	690	274	242	-12%	-65%	-77%
21-24		814	1 381	772	247	242	-2%	-69%	-70%
25-64	10 568	5 233	6 261	4 635	2 273	2 082	-8%	-55%	-60%
>65	3 554	2 220	3 475	3 740	2 950	2 957	0%	-21%	33%
Total	21 795	11 388	14 595	10 403	6 023	5 772	-4%	-45%	-49%

Figure 2. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2009)



❖ Road type

In 2009, 43% of fatal crashes occurred on rural roads, 54% in urban areas and 2% on motorways (Figure 3). Since 1990, the greatest reduction in fatalities occurred on motorways (-72%).

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 3. Reported fatalities by road type
1990, 2000 and 2009

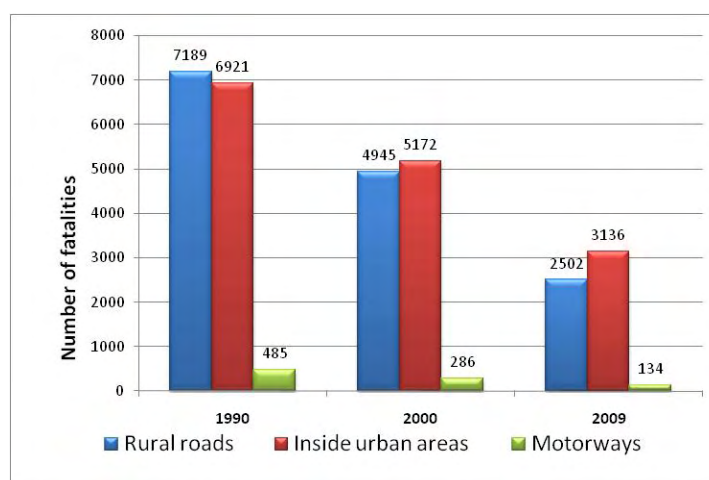


Table 5. Reported fatalities by road type

	1990	2000	2008	2009	2009 % changeover		
					2008	2000	1990
Rural roads	7 189	4 945	2 603	2 502	-4%	-49%	-65%
Inner urban areas	6 921	5 172	3 274	3 136	-4%	-39%	-55%
Motorways	485	286	146	134	-8%	-53%	-72%

4. Recent trends in road user behaviour

❖ Drink-driving

In 2002, the maximum BAC was lowered from 0.5g/l to 0.3g/l. Since then, the number of fatal crashes caused by alcohol has been divided by 4.

In 2009, it was estimated that 6.7% of fatal crashes were alcohol (ie a driver or a cyclist with a positive BAC, even below the limit).

❖ Seat-belts and helmets

Seatbelt wearing has been compulsory in front seats since 1985 and in rear seats since 2008 only. The use of seat-belts in rear seats is still very low.

Helmet wearing is compulsory for all motorcycle and moped riders. The usage rate is around 99%.

Table 6. **Seat-belt wearing rates for car occupants**

	1990	2002	2008	2009
Drivers	77%	88%	96%	97%
Passenger - Front seat	72%	75%	90%	91%
Passengers - Rear seats	-	7%	31%	34%
Motorways – driver	90%	97%	98%	99%
Passenger - Front seat	84%	91%	96%	97%
Passengers - Rear seats	-	9%	63%	63%

*According to road side survey.

❖ **Distracted driving**

Since 1999, using hand-held phones or gazing at any electronic display unit while driving is prohibited. Causing an accident due to the use of these devices is subject to punishment; and since 2004, even if there is no accident caused, the offence is still punishable.

In 2009, the number of accidents due to mobile phone use was 757 (including accidents involving cyclists), representing 0.1% of all injury accidents.

5. **National road safety strategies and targets**

Since 1971, the government sets up a National Traffic Safety Programme every five years.

The 8th Programme covers the period 2006 to 2010. It initially included the target to have less than 5 500 deaths (within 24 hours¹) and one million casualties, by 2010. This target was achieved two years earlier than expected; therefore, the Prime Minister set new targets:

- To reduce the number of fatalities to less than 5 000² by 2012 and to less than 2 500 by 2018;
- By 2010, pedestrian and cyclist fatalities to be reduced by 20% compared to 2005;
- Also by 2010, fatal accidents caused by drivers (70+) to be reduced by more than 10% compared to 2005.

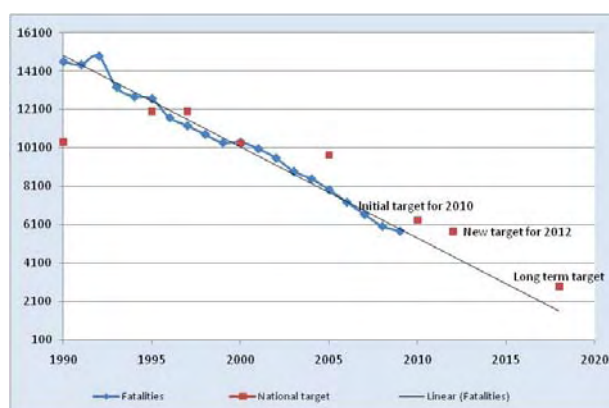
The 8th National Traffic Safety Programme has four strategic objectives and eight pillars. The four strategic objectives are:

- Coping with the declining birth rate and an ageing society;
- Improving safety for pedestrians;
- Encouraging citizens to improve their awareness;
- Utilising new technologies.

¹. Equivalent to 6 325 deaths within 30 days : $K(30d)=K(24h)*1.15.$.

². Deaths within 24 days, equivalent to 5 750 deaths within 30 days.

Figure 4. Trend in progress towards road fatality target



6. Recent safety measures (2009-2010)

❖ Road user behaviour, enforcement, regulation

- The Road Traffic Law was revised in June 2009 and is now in force.
- Drink-driving :
 - Since 2007, a fine is imposed not only on drivers (up to 8 800 EUR) but also on their passengers and the alcohol providers (up to 4 400 EUR);
 - Drunken driving (drive not in a condition to drive, whatever the level of alcohol) is subject to 35 penalty points and drink-driving (BAC above 0.3g/l) to 13 or 25 penalty points;
 - For serious drink-driving offences, the penalty points and maximum suspension period of the licence have been raised: for example, if a drunken driver causes a fatal crash and runs away, his driver's licence is revoked for ten years.
- Older drivers (+75) are required to take a cognitive function test before their licence is renewed. If they are diagnosed with dementia their licence is cancelled.
- Two infants may be carried on a bicycle only if the bicycle follows the newly prescribed safety measures.

❖ Education and communication

- Pedestrians are being educated to wear reflective clothing.

❖ Infrastructure

- As from April 2010, exclusive parking spaces have been designated near administrative and health services for the elderly aged 70 or over and for pregnant mothers.
- A traffic signal control system has been introduced which separates cars from pedestrians.
- Barrier-free signals have been installed using sound displays.

6. References – Useful websites

National Police Agency	www.npa.go.jp
ITARDA - Institute for Traffic Accident Research and Data Analysis	www.itarda.or.jp

KOREA¹

1. Short-term trends

❖ General comments on trends for 2009

The number of road fatalities, which has shown a decreasing trend since the early 1990s, fell slightly in 2009, to 5 838, whereas the number of injury accidents increased by 7.5%.

Vehicle-kilometres decreased by 11% in comparison to 2008.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities increased by more than 65% and the number of injury crashes by more than 500%, while the number of vehicles rose by a factor of more than 150.

Fatalities peaked in 1991 at 13 429. Since then, road deaths have decreased, with some fluctuations. Between 1991 and 2004, the number of traffic casualties was halved.

Factors involved in the decrease in traffic accidents include the implementation of strict enforcement procedures, legislation making front seat-belt use compulsory (1990), sanctions against drink-driving (from 1988) and installation of speed-monitoring cameras (starting in 1997). These measures led, for example, to reductions in the number of alcohol-related fatalities (-40%) and fatalities due to speeding (-50%).

After 2004, the rate of decrease slowed. The Government therefore adopted a national road safety plan, *“Cutting road fatalities by half by 2010”* (compared with 2005). The project had a strong focus on pedestrian safety to reduce the very high death rates for that group.

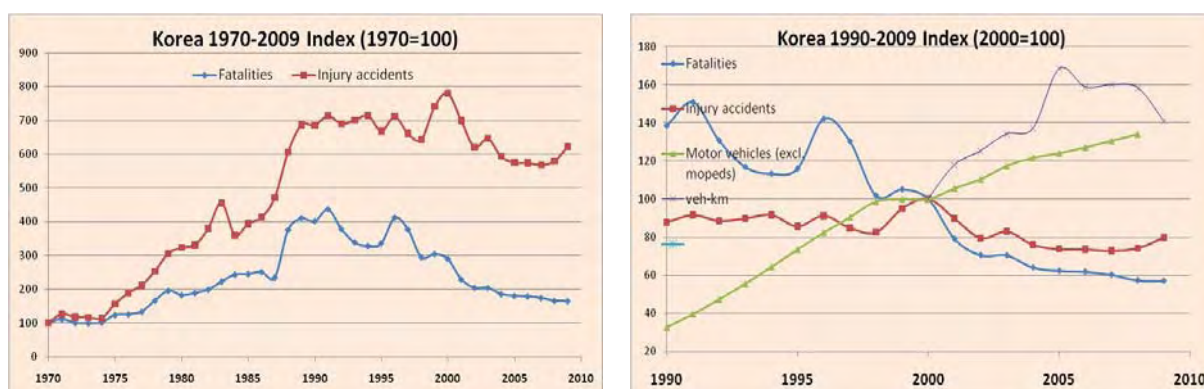
The 2008 decrease in road fatalities coincided with a decrease in mobility, partly due to the economic recession. In 2008, vehicle-kilometres decreased by 12% in comparison to 2007.

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	3 529	6 449	14 174	10 236	6 376	5 870	5 838	-1%	-43%	65%
Injury crashes	37 243	120 182	255 303	290 481	214 171	215 822	231 990	-7%	-20%	523%

¹ Source: IRTAD, Ministry of Land, Transport and Maritime Affairs.

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009



❖ Accident risk

Between 2000 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 45%.

Table 2. Rates
1970, 1980, 1990, 2000, 2009

Rates (reported)	1970	1980	1990	2000	2009	2009 % changeover	
						2000	1990
Deaths/100 000 population	11.0	16.9	33.1	21.8	12	-45%	-65%
Deaths/10 000 motor vehicles	-	67.9	28.9	6.9	2.8	-59%	-90%
Deaths/billion veh-km	-	-	-	49.5	20.0	-60%	
Motorisation (number of vehicles/1 000 inhabitants)	-	24.9	114.2	317.6			

3. Recent development of accident trends

❖ Road users

All user groups except moped riders have benefited from the overall improvement in safety since the 1990s. Between 1990 and 2009, the number of pedestrians killed decreased by 70% and the number of cyclists killed by almost 50%.

Since 2000, there was a sharp increase in the number of moped riders killed, in line with the number of registered mopeds, which rose by 47% between 2000 and 2009.

In 2000-2009, all user groups, excepting moped riders and bicyclists, benefited from a sharp decrease in the number of fatalities. Compared to 2008, the number of bicyclists killed increased 7% because of insufficient bicycle-crossing facilities and improper speed management.

Table 2. **Reported fatalities by road user group
1990, 2000, 2008 and 2009**

	1990		2000		2008		2009		2009 % changeover		
									2008	2000	1990
Passenger car occupants	2 100	15%	2 792	27%	1 342	23%	1 330	23%	-1%	-52%	-37%
Bicyclists	644	5%	317	3%	310	5%	333	6%	7%	5%	-48%
Mopeds	-	-	343	3%	490	8%	503	9%	3%	47%	-
Motorcycles and scooters	1 674	12%	1 221	12%	740	13%	737	13%	-0.4%	-40%	-56%
Pedestrians	7 063	50%	3 764	37%	2 137	36%	2 137	37%	0%	-43%	-70%
Other	2 692	19%	1 799	18%	851	14%	798	14%	-6%	-56%	-70%

❖ Age

Since 2000, the reduction in fatalities has benefited all age groups, but particularly the youngest group (0-14), for which fatalities decreased by 74%, from 588 in 2000 to 154 in 2009. The number of fatalities among road users aged 15 to 24 also decreased by 60%.

The oldest user group (>65), by contrast, has seen only a moderate reduction. Unlike in most other OECD countries, this group is the most at risk in traffic, with a death rate twice that of the general population. In 2009, the number of killed in this age group increased by 5%.

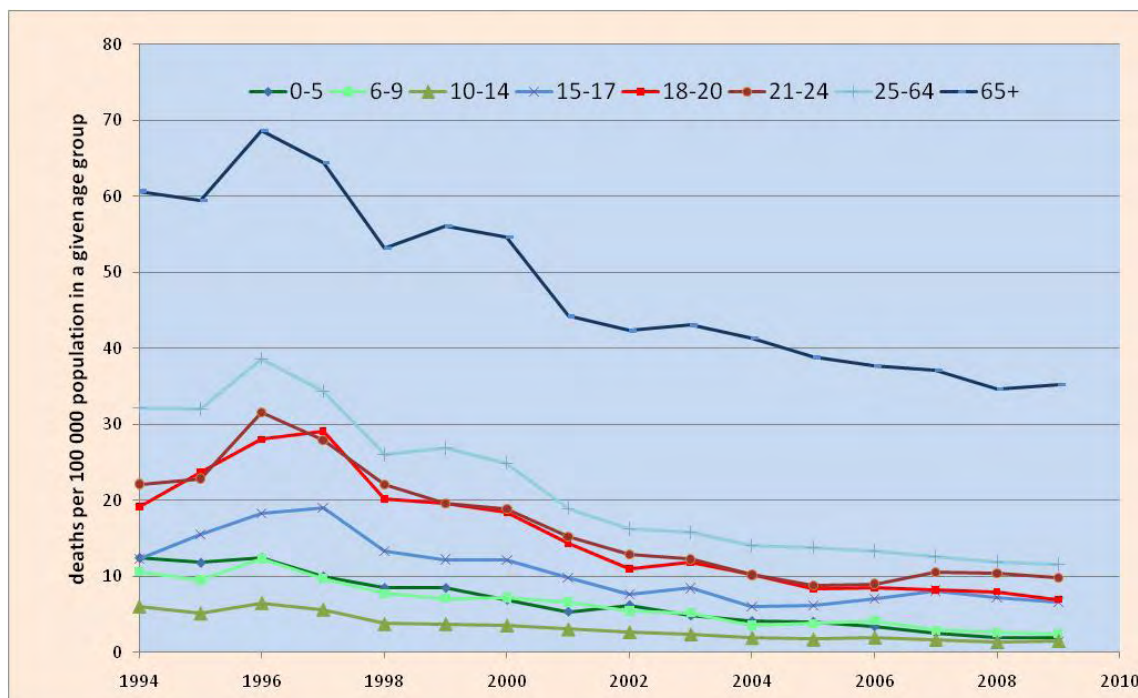
Table 3. **Reported fatalities by age group**

				2009% changeover	
	2000	2008	2009	2008	2000
0-5	275	54	51	-6%	-81%
6-9	202	61	53	-13%	-74%
10-14	111	46	50	9%	-55%
15-17	263	147	137	-7%	-48%
18-20	459	148	132	-11%	-71%
21-24	573	274	248	-9%	-57%
25-64	6 474	3 401	3 340	-2%	-48%
>65	1 853	1 735	1 826	5%	-1%

Table 4. **Fatalities ≥65 years old by road user type**

	Drivers	Pedestrian	Others
2009	585	952	289
%	32	52	16

Figure 2. Evolution of fatality risks by age group
(deaths per 100 000 population in a given group)
1990-2009



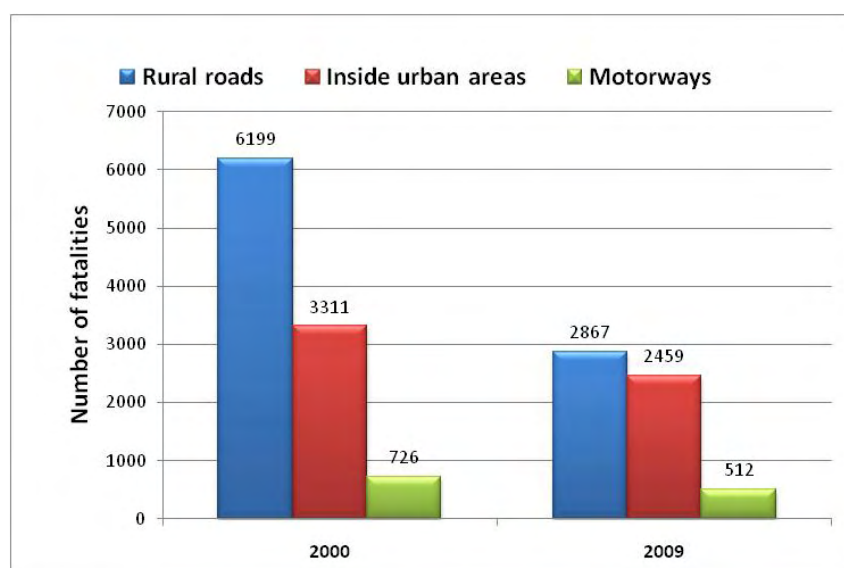
❖ Road type

In 2009, almost 50% of fatal crashes occurred on rural roads, more than 40% in urban areas and about 9% on motorways. Since 2000, the greatest reduction has been that achieved on rural roads.

Table 4. Reported fatalities by road type

	2000	2008	2009	2009 % changeover	
				2008	2000
Inside urban areas	3311	2445	2459	1%	-26%
Rural roads	6199	2946	2867	-3%	-54%
Motorways	726	479	512	7%	-29%

Figure 3. Fatalities by type of road
2000 and 2009



4. Recent trends in road user behaviour

❖ Drink-driving

The maximum authorised BAC is 0.5 g/l. The number of alcohol-related crashes more than tripled between 1990 and 2008, rising from 7 703 to 26 873.

Driving under the influence of alcohol increased by 9.6% from 2008 to 2009 (from 26 973 to 288 207 crashes). However, the number of fatalities under the influence has been reduced compared to previous years by 7.3% (from 969 to 898 fatalities). A noticeable point is that 27% of fatalities occurred in daytime.

❖ 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

Seat-belt use has been compulsory in front seats since 1990 on all roads. The use of rear seat-belts on motorways was made compulsory in 2008. The rate of seat-belt use in passenger cars in 2009 was around 80% in front seats and 10% in rear seats.

Table 5. Seat belt use by car occupants¹

	2007	2008	2009
General	82%	76%	78%
Front seat – driver	92%	89%	88%
Front seat – passenger	71%	78%	74%
Rear seat – passengers	4%	4%	12%
Motorway – driver	92%	89%	88%

5. National road safety strategies and targets

❖ National road safety strategies

The current road safety plan was adopted in 2007 and covers 2008-2012. The main objective is to halve the number of fatalities by 2012, in comparison to 2007, to fewer than 3 000.

The national road safety plan comprises 5 strategic fields and 20 main measures, as described below.

Strategic fields	Main measures
Improved Pedestrian Safety	<ul style="list-style-type: none"> ➤ 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	<ul style="list-style-type: none"> ➤ Use of digital tachographs ➤ Traffic safety audits for commercial vehicles ➤ Experience-oriented safe-driving training centres
Advanced Speed Management and Road Facilities	<ul style="list-style-type: none"> ➤ 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	<ul style="list-style-type: none"> ➤ 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	<ul style="list-style-type: none"> ➤ Minimization of time taken to access accident sites ➤ Enhancement of emergency medical capabilities

¹. From the results for highway users in “The Survey on Traffic Culture Index”, conducted by the Korea Transportation Safety Authority.

Figure 4. Progress towards road safety target



❖ Road safety strategies beyond 2010

The new National Transportation Safety Plan (2012-2016) is under preparation. The plan will cover all transport sectors such as road, rail, aviation and maritime transport. In addition, the 2nd National Public Transportation Plan and 2nd National Plan for the Mobility Handicapped in the traffic sector are now under consideration and the Government will initiate those new plans from 2012 onwards.

6. Recent safety measures (2009-2010)

❖ Road user behaviour, enforcement

- Reinforcement of drink-driving enforcement (April 2009): three years in jail or a fine (maximum equivalent to almost EUR 585);
- Compulsory experience-oriented safe driving education for drivers who caused serious traffic accidents (2009);
- Revision of the Transport Safety Law (June 2008): The law adopted a new road and transportation safety audit, experience-oriented safe driving education, local government's safety plan etc.;
- Legislation of compulsory installation of digital tachographs on commercial vehicles (February 2009): After standardization of the digital tachograph device, the MLTM¹ revised the traffic safety law to install digital tachographs on commercial vehicles. Therefore, all commercial vehicles will have to install digital tachographs as from 2014. In 2010, the Digital Tachograph Analysis Centre in KOTSA² will offer daily analysis results through its website to 600 transportation companies (covering almost 30 000 vehicles).

¹ Ministry of Land, Transport and Maritime Affairs(www.mltm.go.kr).

² Korea Transportation Safety Authority(www.ts2020.kr)

- Campaign on wearing seat-belts in rear seats (November 2009): Since February 2008, all passengers using highways have to wear seat-belts according to the road traffic law. To promote the seat-belt wearing rate, KOTSA is conducting various campaigns such as TV and radio commercials, UCC (User-Created Content) contests, and so on.
- Road Supporters campaign (March 2009): This is a road traffic safety campaign conducted by KOTSA. KOTSA employees carry road safety equipment (emergency signal signs, night flares, etc.) in their vehicles. When they meet drivers in emergencies, the Road Supporters offer safety support, such as traffic control and emergency signalling, before police or emergency vehicles arrive at the site.
- Commercial Vehicle Safety Project (January 2009): To reduce traffic accidents caused by commercial vehicles, KOTSA chose 1 000 transport businesses and black spots with the highest traffic accident record. By monitoring high-risk companies and spots, a reduction in total traffic accidents would be expected. KOTSA experts offer safety management consultation, education and safety audits for those companies and spots. In 2010, KOTSA increased the number of transport business companies monitored, and provided recommendations to local road administrations on black spots where fatal pedestrian accidents were caused frequently by commercial vehicles.

❖ Licensing, regulation

- Revision of the Transportation Safety Law (June 2008), adopting new road and transport safety audits, experience-oriented safe driving education, local government safety plans, etc.
- Road safety audit and inspection (July 2008).

❖ 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);
- Road Supporters (March 2009): This is a road traffic safety campaign conducted by the Korean Transportation Safety Authority (TS). TS employees carry road safety equipment (emergency signal signs, night flares, etc.) in their vehicles. When they meet drivers in emergencies, the Road Supporters offer safety support, such as traffic control or emergency signalling, before police or emergency vehicles arrive.
- Commercial Vehicle Safety Project, “Chunsa¹ 2020” (2009): To reduce traffic accidents caused by commercial vehicles, TS chose 1 000 transport businesses and black spots with the highest traffic accident records. The concept of the project is based on the Pareto principle, which states that, for many events, roughly 80% of the effects come from 20% of the causes. The hope is that monitoring these high-risk companies and spots will lead to a reduction in total traffic accidents. Experts from TS offer safety management consultation, education, and safety audits for the companies and spots.

❖ Vehicles

- Standardization of motorcycle production (2009);
- Reinforcement of vehicle safety standards to improve pedestrian protection (2009).

¹. The name means ‘1000 companies and spots’ in Korean.

7. Major research undertaken in 2009-2010

- KOTI¹, TS, KRRI², KT³ (2010-2014), *Integrated Greenhouse Gas Management System in the Transport Sector*. It consists of three research themes: 1) Integrated Greenhouse Gas Management System in the Transport Sector; 2) Integrated Eco-Driving Management System; 3) Pedestrian Environment Assessment System. Planned investment in this programme amounts to EUR 5.8 million over the five years.
- TS (2010), *A Study on National Bicycle Safety Plan*. A study to support the introduction of a bicycle safety law and a nationwide plan.
- TS (2009), *A Study on Total Vehicle Kilometres of Korea*.
- TS (2007, 2008, 2009), *A Survey on the Traffic Culture Index of Cities in Korea*.
- TS (2009), *Development of a Sustainable Transport and Logistics System*.
- KOTI (2009~2010), *Integrated information system for management and auditing of road safety*.
- KOTI (2008~2009), *Planning for Sustainable Transport and Logistics System Development*.
- ROTA (2009), *A Study on Socio-Psychological Factors in Drink Driving*.
- ROTA (2009), *A Study on Standardization of Traffic Lights Safety Mark*.

- KOTSA (2010-2011), *Study on 2nd National Public Transportation Plan for 2012-2016*
- KOTSA (2010-2011), *Study on 7th National Transportation Safety Plan for 2012-2016*

8. References – 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.rotta.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/

¹ Korea Transport Institute (www.koti.re.kr).

² Korea Railroad Institute (www.krri.re.kr).

³ Korea Telecommunication (www.kt.com).

LITHUANIA¹

1. Short-term trends

❖ General comments on trends for 2009

In 2009, the number of people killed on the roads of Lithuania was one of the lowest since 1965. In 2009, 3 827 fatal and injury crashes occurred in Lithuania, whereby 370 people were killed and 4 459 were injured. If compared to 2008, the number of fatal and injury crashes was reduced by 20.2%, the number of people killed by 25.9% less and the number of people injured by 23.4%.

Due to the economic recession, the rapid growth of traffic volume has stabilized. Between 2007 and 2008 the average increase in traffic volume was only 3%, and in 2009 the traffic volume decreased by 8% compared to the previous year.

The improvement of road safety has led to a significant diminution in the economic losses due to crashes and to the costs to society. However, in 2008 road accidents still represented 1 558 million Litass (451 million EUR).

Preliminary trends for 2010

Data for the first 11 months of 2010 (in comparison to the same period in 2009) confirm the downtrend trend with an 18.6% reduction in the number of fatalities.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

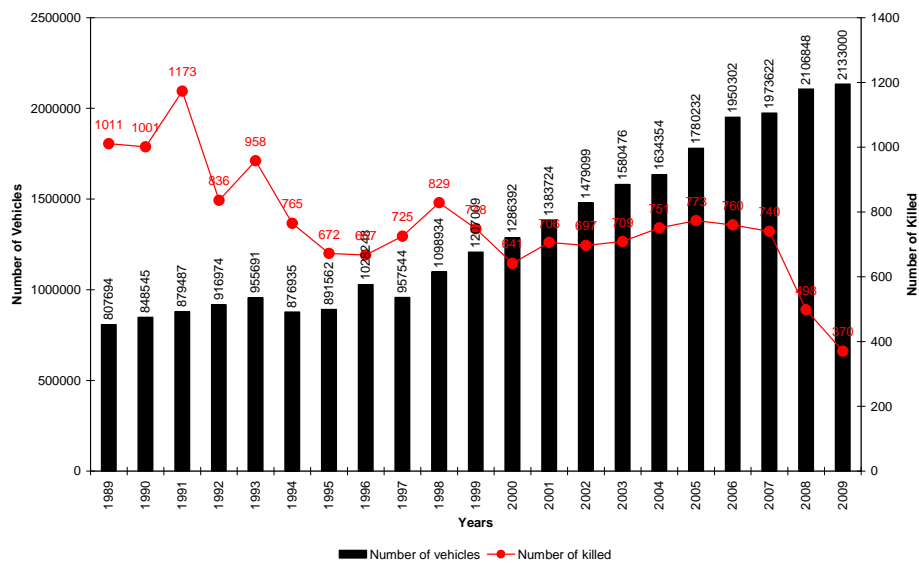
Between 1990 and 2009, the number of road crashes fell by 25.5%, from 5 135 to 3 827; the number of fatalities by 63%, from 1 001 to 370; and the number of injured people by 18%, from 5 123 to 4 459. During the same period, the number of vehicles was multiplied by 3.5.

Table 1. **Reported road fatalities and injury crashes
1990-2009**

	1990	2000	2005	2008	2009	2009 % changeover		
						2008	2000	1990
Fatalities	1 001	641	773	499	370	-26%	-42%	-63%
Injury crashes	5 135	5 807	6 771	4 795	3 827	-20%	-34%	-25%

¹ Source : IRTAD, Road Administration of Lithuania.

Figure 1. Reported road fatalities and motor vehicles 1989-2009



❖ Risks and rates

Between 1990 and 2009, the death rate (in terms of deaths per 100 000 population) decreased by almost 60%.

Table 2. Rates
1990, 2000, 2008, 2009

	1990	2000	2008	2009	2009 % changeover	
					2000	1990
Deaths/100 000 population	26.9	17.3	14.8	11.0	-36%	-59%
Deaths/10 000 registered vehicles	12.4	5	2.4	1.7	-66%	-86%

3. Accident trends

❖ Road users

The evolution in 2009 in comparison to 2008 can be summarized as follows:

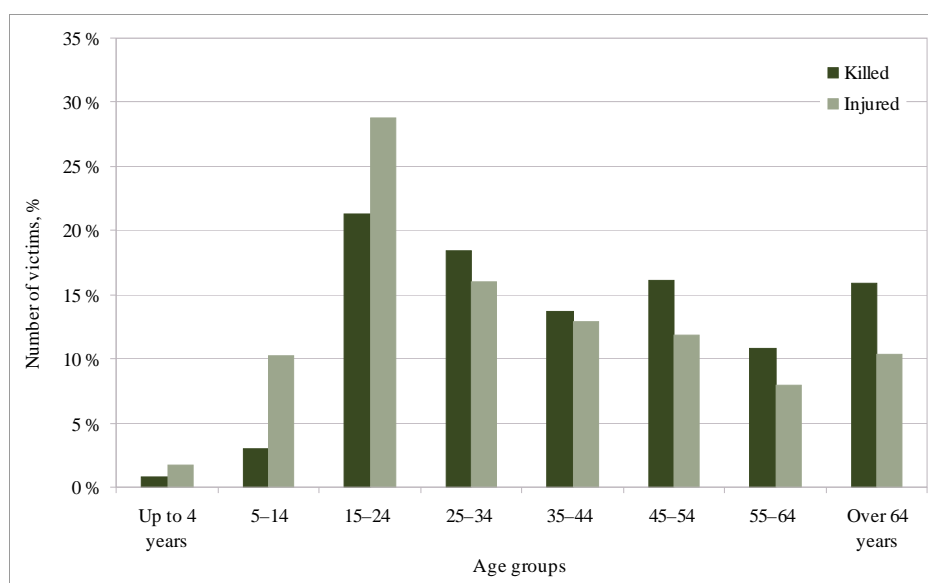
- -30.9% pedestrians killed and -18.7% injured;
- -22.4% drivers killed and -25.3% injured;
- -31.5% vehicle passengers killed and -29.3% injured;
- -10.5% bicyclists killed and -12.5% injured.

In 2009, pedestrians and drivers represented almost 65% of the total number of road fatalities.

❖ Age

Compared to 2008, the number of children injured in traffic accidents fell by 20.8%; however, the number of children killed rose by 9.1%. Pedestrian child fatalities decreased by 45.5%.

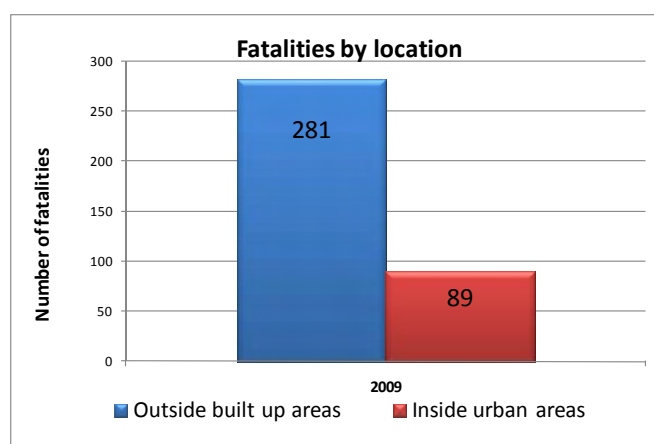
Figure 2. Reported deaths by age band (2009)



❖ Road type

In 2009, 76% of fatal crashes occurred outside built-up areas, but the majority of injury crashes (61%) occurred in urban areas. In comparison to 2008, the number of crashes in urban areas decreased by 18.7%.

Figure 3. Reported fatalities by road type 1990, 2000 and 2009



4. Recent trends in road user behaviour

❖ Drink-driving

The general maximum blood alcohol content authorised in Lithuania is 0.4g/l and 0.2 g/l for novice drivers (with driving experience of less than 24 months) and professional drivers.

In 2009, deaths caused by drink-driving decreased by 26 % and there were 47 % less injured by drunk drivers.

If a driver is caught driving under the influence of alcohol (BAC above 0.4g/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 limit in Lithuania is:

- Urban areas – 50 km/h;
- Rural roads – 90 km/h (70 km/h on gravel roads);
- Motorways – 130 km/h (110 km/h in winter time).

Excessive and inappropriate speed is the main cause of traffic crashes in Lithuania. Speeding (driving above the speed limits) is an important problem in Lithuania, as shown table 3.

Speeding by 30 km/h above the limits is considered a very serious violation, with severe sanctions, including immediate licence withdrawal for novice drivers.

Table 3. Percentage of drivers above the speed limit

	Main roads	National roads	Regional roads
Speed by up to 10 km/h above the limit	26%	24%	17%
Speeding by more than 10 km/h above the limit	17%	22%	13%

❖ Seat-belts and helmets

Seat-belt wearing is compulsory in all seats.

All riders of two-wheeled motor vehicles are required to wear helmets. There is no mandatory helmet use law for cyclists older than 18 years of age.

❖ Distracted driving

It is not permitted to drive with a hand-held mobile phone. Hands-free mobile phones may be operated.

5. National road safety strategies and targets

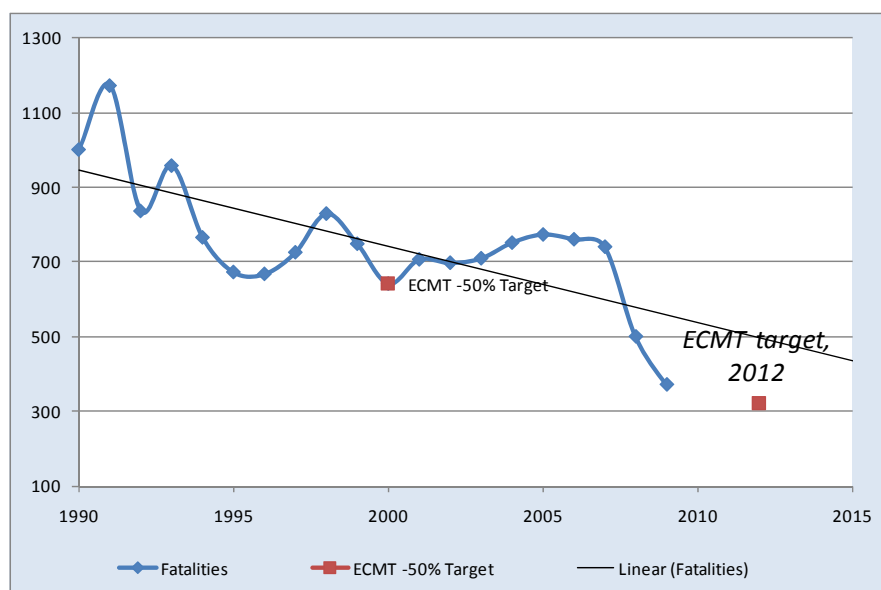
❖ National road safety strategies. Road safety strategies beyond 2010

The 2005-2010 Road Safety Strategy was approved in 2005. A new strategy for 2011-2015 is currently under preparation. It will focus in particular on the education of road users, driver training, enforcement, infrastructure, safety of vehicles, ITS and emergency services.

❖ Safety targets and sub-targets

The graph below illustrates the progress towards the achievement of the ECMT target agreed by ECMT transport ministers in 2002, which aims at a reduction by 50% in the number of fatalities by 2010, in comparison with the 2000 level. Lithuania is on track to achieve the target.

Figure 4. Progress towards road safety target



6. Recent safety measures (2009-2010)

Road user awareness (campaigns September-December 2009)

- A massive awareness campaign was conducted, including: seven audio clips, broadcast by 19 radio stations; five video clips broadcast by five TV channels; articles published by five daily newspapers; and co-operation with TV channels to broadcast a weekly programme in 2009. These were specifically aimed at:
 - Encouraging drivers not to exceed the speed limit;
 - Encouraging drivers and passengers to use safety-belts and child protection measures within their cars;
 - Discouraging driving while intoxicated and creating an atmosphere of intolerance against drunken drivers;
 - Encouraging pedestrians to follow traffic regulations;
 - Educating pedestrians and cyclists to carry reflectors and wear vests with light-reflecting elements.
- Full-scale demonstrations in several Lithuanian towns on the benefits of the seat-belt: this involved demonstrating a car turning over (full 360 degrees rotation along the longitudinal axis of a vehicle).

Enforcement

151 stationary speed cameras implemented.

Infrastructure

- Road safety audits carried out for all infrastructure projects;
- Seminars for designers and road-safety specialists;

- Implementation of cost-effective measures: roundabouts, traffic calming, black spots marked with yellow painted signs, recognisable intersections and traffic islands, left-turning lanes, raised pedestrian crossings with a red surface.
- Black-spot analysis: a new methodology for safety inspections is being developed.

Legislation

Preparation of new rules for:

- Markings and signposting;
- Restraint system;
- Traffic lights.

6. Useful websites

Ministry of Transport and Communications of the Republic of Lithuania
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http://www.transp.lt

MALAYSIA¹

1. Short term trends

❖ General comments on trends for 2009

The number of road fatalities increased by 3.3% in the year 2009 to 6 745 and the number of crashes by 6.5% compared to 2008. 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.

❖ Provisional data for 2010

Based on the provisional data for January to July 2010, the number of deaths has increased 1.5% compared to the same period in the previous year.

2. Long term trends

❖ Change in the number of fatalities and injuries

Since 2000, fatalities increased by 12%, while the number of seriously injured road users decreased by 10%.

Table 1. Reported road fatalities and injuries
1970-2009

						2009 % changeover	
	1998	2000	2007	2008	2009	2008	2000
Fatalities	5 740	6 035	6 282	6 527	6 745	3.90%	11.8%
Seriously injured road users	12 068	9 790	9 273	8 868	8 849	-0.21%	-10%

❖ Mortality rate and fatality risks

The mortality rate is rather high (23.7 deaths/100 000 population). However, the risk (in terms of deaths per distance travelled) decreased significantly (-39%) over the past ten years, due to the large increase in motorisation in Malaysia.

Between 2000-2009, the death rate (in terms of deaths per 100 000 population) declined by 8%, and risks expressed in deaths per billion veh-km and in deaths per 10 000 registered vehicles respectively decreased by 34% and 38%, mainly because of the very high increase in motorisation (+79%).

¹ Source: MIROS

Table 2. Rates
2000, 2008, 2009

	2000	2008	2009	2009 % changeover	
				2008-	2000
Deaths/100 000 population	25.94	23.54	23.83	1.2%	-8%
Deaths/billion veh-km	26.25	17.65	17.27	-2.1%	-34%
Deaths/ 10 000 registered vehicles	5.69	3.70	3.55	-4.5%	-38%

3. Accident trends

❖ Road users

Table 3 illustrates the evolution in fatalities by road user group since 2002. Some road user groups saw improvement, including pedestrians, bicyclists and van passengers. Motorcyclists represent 60% of all road fatalities, and safety in this category is a growing concern.

Table 3. Reported fatalities by road user group
2002-2009

Road user group	2002	%	2008	%	2009	%	2009 % changeover	
							2008	2002
Pedestrian	650	11%	598	9%	593	9%	-0.8	-9.3
Motorcycle	3 429	58%	3 898	60%	4 070	60%	4.4	18.6
Bicycle	261	4%	203	3%	215	3%	10.3	-14.2
Car	1 023	17%	1 335	20%	1 411	21%	5.7	37.3
Van	156	3%	96	1%	87	1%	-9.3	-41.7
Bus	45	1%	48	1%	31	1%	-35.4	-31.1
Lorry	197	3%	195	3%	213	3%	9.2	8.1
4-wheel	74	1%	106	2%	78	2%	-26.4	5.4
Others	56	1%	48	1%	47	1%	-2.1	-16.1
Total	5 891	100%	6 527	100%	6 745	100%	3.3	14.5

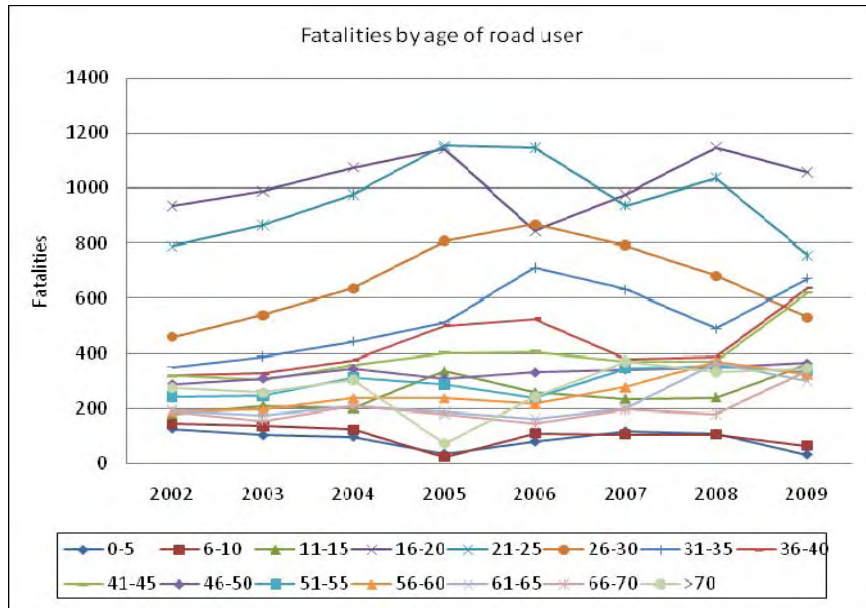
❖ Age

Young people aged 16 to 20 years represent 15.7% of all fatalities, as illustrated in Figure 1.

❖ Road type

Generally in the year 2009, 57% of the fatalities occurred in rural areas, and this was 4.4% lower than for the previous year. Analysis by type of roads shows that federal roads accounted for 41% of all road deaths. Lesser fatalities were recorded on the expressways which have a higher standard of road design.

Figure 1. Reported fatalities by age group
2001-2009



4. Recent trends in road user behaviour

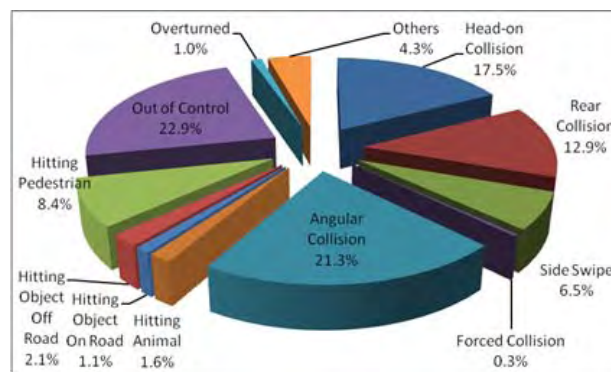
❖ Drink-driving

Drink-driving is not an issue in Malaysia. 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”, which is mostly associated with speeding.

Figure 3. Reported fatal accidents by collision type, 2009



❖ Seat-belts and helmets

Seat-belt

Seat-belt use has been compulsory in front seats since 1978 and in rear seats since 1 January 2009.

The compliance rate among drivers and front passengers are, respectively, about 80% and 70% due to the 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%.

Helmets

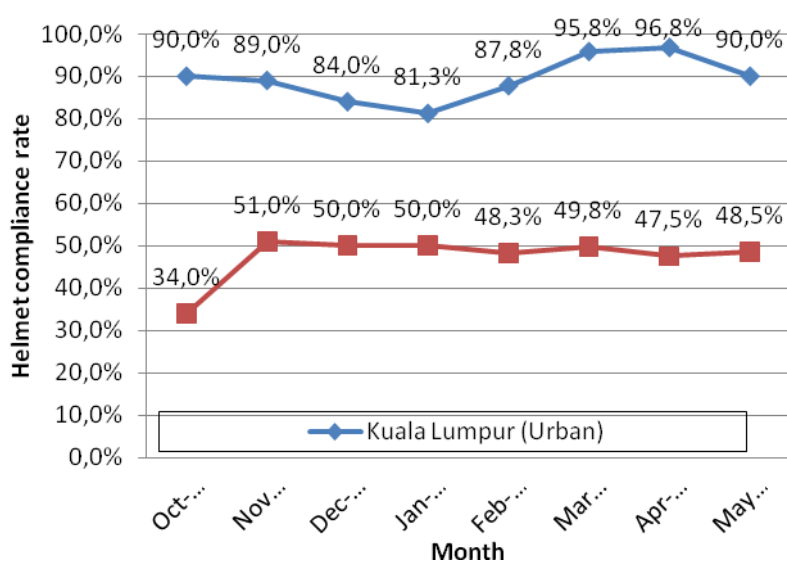
Helmet wearing has been compulsory for motorcycles since 1973. However, there is still an alarmingly high rate of motorcyclist fatalities due to head injuries. In general, the helmet-wearing rates are higher in urban areas compared to rural areas. The average helmet-wearing rate in the urban areas is about 90% while the average compliance rate in rural areas is about 50%. The overall national helmet-wearing compliance rate is about 70%.

Figure 4 shows the evolution in seat-belt usage in recent months and figure 5 illustrates the evolution in the level of helmet wearing in Kuala Lumpur and one rural area.

Figure 4. Seat-belt use for car occupants, December 2008-June 2010



Figure 5. Helmet wearing rate, 2007-2008



❖ 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*’.

5. National road safety strategies and targets

Malaysia adopted a Road Safety Plan for 2006-2010. The strategy includes the following targets:

Targets	Results as of 2009
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)	3.55
Reduce the death rate per 100 000 population from 23 in 2005 to 10 in 2010	23.8
Reduce the death rate per billion vehicle-kilometres from 18 in 2005 to 10 in 2010	17.28

6. Recent safety measures (2009-2010)

❖ Changing road user attitude

- Road safety education taught in all schools from Year 1 as part of *Bahasa Malaysia*;
- Media campaigns via television, radio, cinema and newspapers;
- Community-based programmes.

❖ Motorcyclists

- Vehicle-enhancing materials;
- National Helmet Initiative;
- Helmet manufacturers must comply with SIRIM or a higher standard.

❖ Motorcycles / Infrastructure

- **Motorcycle lane programme.** Segregation of motorcycles from the mainstream traffic. There are two types of motorcycle lanes, 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.
- **Road Safety Audit.** A Road Safety Audit on new projects has been in force in Malaysia since 1994. It is compulsory for all Public Works Departments’ new projects. It is carried out at five different stages of project implementation. Firstly, at the feasibility stage, then preliminary design, detail design, construction and pre-opening stage, and lastly at operational stage. The audit is also carried out on existing roads.

❖ Vehicles

- The rear seat-belt regulation for most types of passenger vehicles with a capacity of up to eight passengers has been enforced since 1 January 2009.
- A new design standard for buses has been adopted: UNECE Regulations 66, 88 and R36.
- All new car models are to be equipped with ABS brakes, two front airbags and rear seat-belts as a standard feature.
- The introduction of R58 guidelines for rear under-run protection in lorries and trailers is in progress.

❖ Pedestrians

- “Take your child safely across” programme;
- Pedestrian safety in schools;
- Traffic calming in school areas (pilot study).

7. Major research undertaken in 2009-2010

The Malaysian Institute of Road Safety Research published a number of research reports, including:

- Road Safety Education Programme;
- Pilot Project on Electronic Enforcement;
- Evaluation and Upgrading of the Driver System in Malaysia;
- Profile and Risk Index of Drivers in Malaysia;
- Pilot Project on Optimally Designed Traffic Lights;
- Effectiveness of the Traffic Calming Schemes;
- National Accident and Injury Database System;
- Accident and Injury Costing in Malaysia;
- VKT and Travel Surveys;
- Safety and Pedestrian Protection System;
- Design of Motorcycle Terminals;
- Guardrails and Barriers System;
- Policy and Design of Road Furniture and Landscape in Malaysia;
- Real-World Crashworthiness Programme;
- Community Crash Helmet Programme;
- Motorcycle Visibility Programme;
- Driving under the Influence of Drugs and Alcohol.
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8. References – Useful websites and references

MIROS - Malaysian Institute of Road Safety Research	http://www.miros.gov.my/
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NETHERLANDS¹

1. Short term trends

❖ General comments on trends on 2009

The numbers of road fatalities and hospitalisations, which have shown a decreasing trend, fell further in 2009 to 720 fatalities and 7 028² reported hospitalisations, respectively, a 4% and a 24% decrease compared to 2008.

The impact of the economic recession on the reduction in fatalities is unclear; however, it can be noted that a sharp decrease in the sale of new vehicles was observed in 2009.

❖ Preliminary trends for the year 2010

Preliminary figures for 2010 show that a further decrease can be expected.

During the period December 2009 to February 2010, when bad weather and much snow were recorded, the Netherlands reported more road casualties than average. The number of cyclists treated in hospitals' accident and emergency departments and/or admittances was approximately eight times higher than during a normal winter (Consument & Veiligheid).

2. Long-term trends

❖ Change in the numbers of fatalities, seriously injured and injury crashes

Statistics in the Netherlands distinguish between *reported* and *real* numbers of crashes. The former category covers crashes reported by the police, while real numbers are higher, as they take into account data from sources such as hospitals and death certificates.

Between 1970 and 2009, the number of fatalities decreased by nearly 80% and the number of injury crashes by 67%, while the number of vehicles tripled. In recent years (2000-2009), the number of fatalities continued to fall, by 41%.

Recent research on serious traffic injuries shows that the number of police-reported hospitalised casualties is not a good indicator of serious injury. The research derived a new series of MAIS 2+ (Maximum Abbreviated Injury Scale of at least 2) casualties for 1993-2008. It showed a decrease over 1993-2006 and an increase in the last two years. Further research is expected.

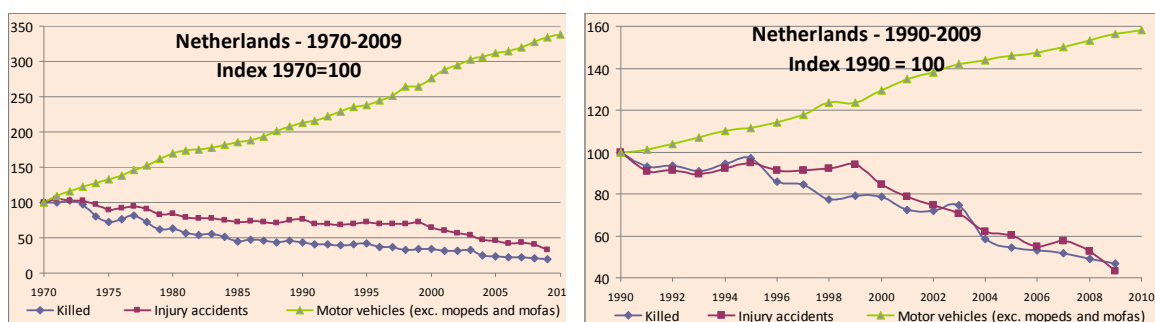
¹ Source: IRTAD, SWOV, Netherlands Ministry of Transport.

² Due to changes in the registration software and internal procedures at the police, the numbers of injuries in 2009 have dropped. This does not reflect an actual improvement of road safety.

Table 1. Number of road fatalities, seriously injured and injury crashes
1970-2009

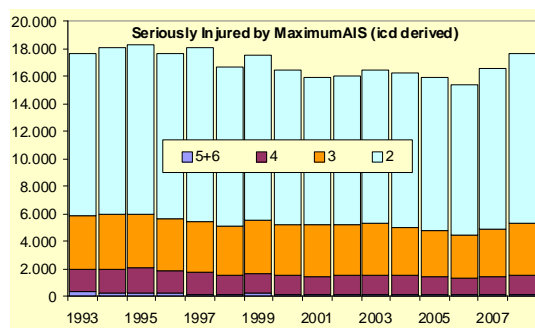
Reported numbers	1970	1980	1990	2000	2008	2009	2009 % changeover		
							2008	2000	1970
Fatalities	3 181	1 996	1 376	1 082	677	644	-4.9%	-40.5%	-79.8%
Seriously injured (hospitalised)		18 616	13 658	11 505	9 310	7 028	-24.5%	-38.9%	
Injury crashes ¹	58 883	49 383	44 915	37 947	23 708	19 378	-18.3%	-48.9%	-67.1%
Real numbers									
Fatalities				1 66	750	720	-4.0%	-38.3%	
Seriously injured (MAIS 2+)				16 700	17 600				

Figure1. Evolution in numbers of road fatalities, injury crashes and vehicles
1970-2009

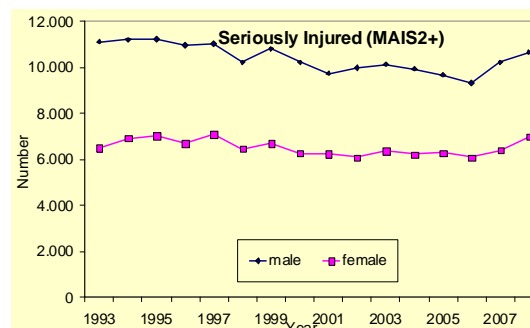


A new study linking hospital and police data on the seriously injured (MAIS = 2 or more) revealed that the number of casualties in crashes without the involvement of a motor vehicle is higher than previously thought and that this number is increasing. The number of traffic casualties in crashes involving at least one motor vehicle is decreasing, as is the number of more severe casualties (MAIS = 3 or more).

Split by MAIS

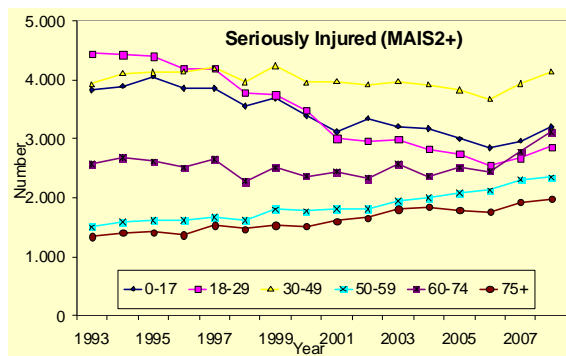


Split by gender

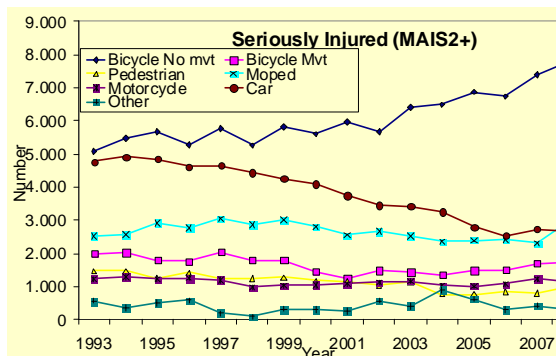


¹ Because of under-reporting and changes in the reporting rate of slight injury crashes, this indicator is not to be used.

Split by age group



Split by mode



❖ Risk indicators

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 83%.

Table 2. Risk indicators
1970, 1980, 1990, 2000, 2009

	1970	1980	1990	2000	2009	2009 % change over:	
Rates (reported number)						2000	1970
Deaths/100 000 population	24.6	14.2	9.2	6.8	3.9	-43%	-84%
Deaths/10 000 motor vehicles		4.26	2.37	1.42	0.7	-51%	
Deaths/per billion veh-km		26.7	14.2	9.1	5.6 (2008)		
Rates (real number)							
Deaths/100 000 population				7.4	4.4	-41%	

3. Accident trends

❖ Road users

All user groups, but especially vulnerable road users, have benefited from the improvement. Between 1970 and 2009, the number of pedestrians and moped or mofa riders killed decreased by more than 90%. The number of cyclists killed fell by 73%. The sharp decline in the number of moped/mofa riders killed was in line with the number of such vehicles in traffic, which fell by 75% between 1970 and 2008 (Figure 2). 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.

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.

In 2000-2009, 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. In 2009, the number of pedestrians killed was higher than in 2008.

Table 3. Reported fatalities by road user group
1970, 2000, 2008 and 2009

	1970		2000		2008		2009		2009 % changeover		
									2008	2000	1970
Bicyclists	512	16%	198	18%	145	21%	138	21%	-4.8%	-30%	-73%
Mopeds	540	17%	107	10%	51	8%	47	7%	-7.8%	-56%	-91%
Motorcycles and scooters	85	3%	89	8%	67	10%	68	11%	1.5%	-24%	-20%
Passenger car occupants	1 322	42%	513	47%	330	49%	312	48%	-5.5%	-39%	-76%
Pedestrians	609	19%	106	10%	56	8%	63	10%	13%	-41%	-90%
Other	113	4%	69	6%	28	3%	16	2%	-43%	-77%	-86%

Figure 2. Relative evolution of the number of motorised two-wheelers in traffic and the number of reported moped/mofa riders and motorcyclists killed in traffic

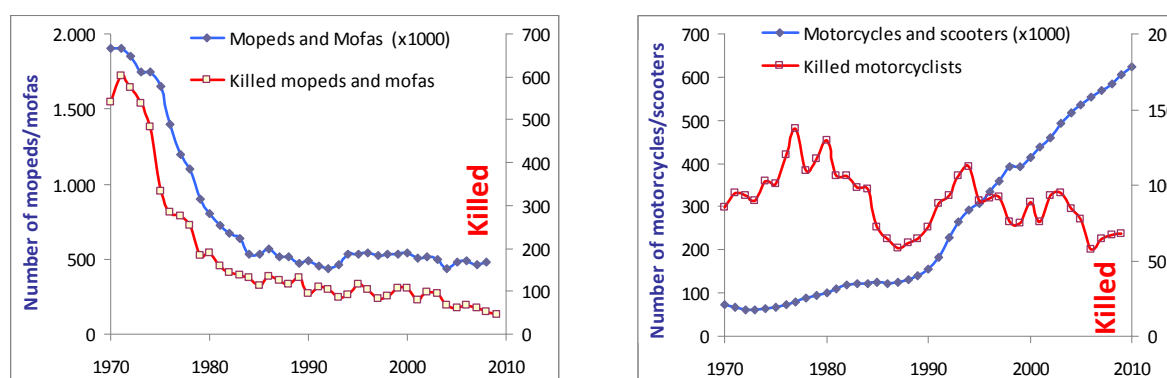


Table 4 illustrates the relative fatality risk for the different road user groups. For a motorcyclist, the risk of dying in a traffic crash is 21 times higher than that for a car occupant.

Table 4. Relative fatality risk by road user group (average 2004-2008)

	Reported fatalities (annual average 2004-2008)	Deaths (inside or on the vehicle) per million vehicles	Average kilometrage per vehicle	Deaths (inside or on the vehicle) per billion vehicle/km
Bicycles	156	11	1 000	11
Mopeds	57	121	2 000	63
Motorcycles	70	131	2 000	64
Car and van occupants	355	45	15 000	3.0
Heavy goods vehicles	9	69	50 000	1.3

❖ Age groups

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 25, and the largest age group for car driver fatalities is 18 to 25.

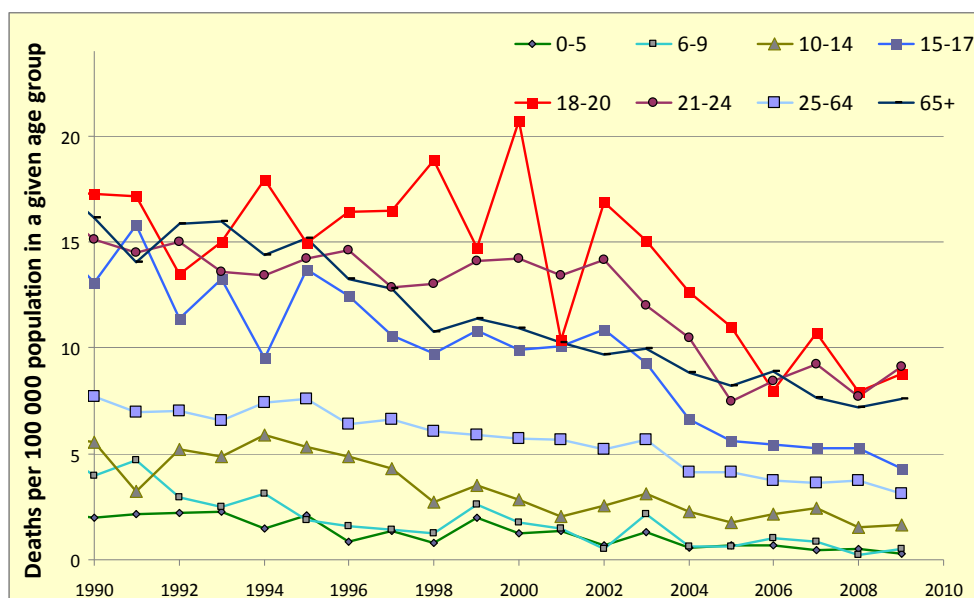
Since 1970, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned the youngest group (0-14), for which fatalities decreased by 95%, from 459 in 1970 to 23 in 2009.

In 2009, the number of young people killed (18-24) was higher than in 2008.

Table 5. **Reported fatalities by age group**

	1970	1980	1990	2000	2008	2009	2009 % changeover		
							2008	2000	1970
0-5	175	36	22	15	6	3	-50.0%	-80%	-98%
6-9	144	78	28	14	2	4	100.0%	-71%	-97%
10-14	140	89	50	27	15	16	6.7%	-41%	-89%
15-17	222	147	81	54	32	26	-18.8%	-52%	-88%
18-20	280	253	129	118	47	53	12.8%	-55%	-81%
21-24	309	206	152	109	60	73	21.7%	-33%	-76%
25-64	1 263	726	607	510	341	282	-17.3%	-45%	-78%
>65	648	461	307	235	174	187	7.5%	-20%	-98%

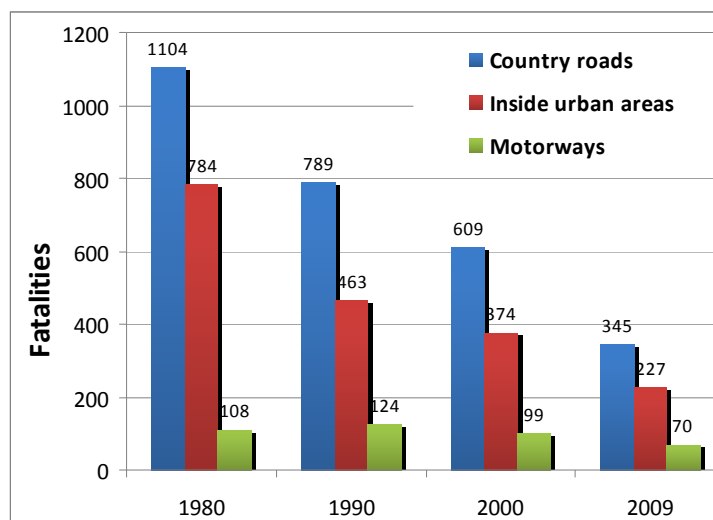
Figure 3. **Evolution of fatality risks by age group (deaths per 100 000 population in a given group) 1990-2009**



❖ Types of road

In 2009, 54% of fatalities occurred on rural roads, 35% in urban areas and 11% 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).

Figure 4. Reported fatalities by type of road
1980, 1990, 2000 and 2009



In 2009, the reduction in the number of fatalities was homogeneous on the road network.

Table 6. Reported fatalities by type of road

	1980	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1980
Country roads	1104	789	609	356	345	-3.1%	-43%	-69%
Inside urban areas	784	463	374	243	227	-6.6%	-39%	-71%
Motorways	108	124	99	75	70	-6.7%	-29%	-35%

4. Recent developments in driving behaviour

❖ Drink-driving and drug-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‰.

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, metamphetamines, XTC, THC, cocaine, morphine and GHB. By 2012, a saliva test will indicate 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.

❖ 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 system, which entailed decreasing speed limits from 120 km/h or 100 km/h to 80 km/h.

The new Dutch Government, elected in June 2010, is considering a possible increase of the speed limit from 120 to 130 km/h on some motorways. It is also proposed to review current limits on other roads.

❖ 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 around 95% in front seats and 80% in rear seats in passenger cars. For vans, the rate of use is lower.

Table 7. Evolution in seat-belt use for car occupants

	1980	1990	2000	2005	2008
General	-	-	-	-	-
Front seat – driver	-	-	79%	92%	95%
Front seat – passenger	-	-	80%	90%	94%
Rear seat	-	19%	32%	64%	81%
Motorway – driver	-	-	-	-	-
Rural roads – driver	73%	78%	86%	93%	96%
Urban areas – driver	57%	59%	74%	91%	95%

Helmet wearing has been compulsory on motorcycles since 1972 and on mopeds (up to 50cc, maximum speed 45 km/h) since 1975. A helmet is not compulsory on mofas (up to 50cc, maximum speed 25 km/h) and bicycles.

The percentage of riders wearing a helmet depends on vehicle type: nearly all motorcycle riders wear helmets. In 2008, 96% of moped riders, but very few mofa riders, wore helmets. Although the use of moped helmets by passengers increased in 2008, only 75% wore them.

¹ Speed below which 90% of motorists are driving.

❖ Distracted driving

Since April 2002, holding a phone while driving is legally banned in the Netherlands. Additional legislation relevant to distracted driving is applicable in cases where behaviour that explicitly endangers road safety is directly observed.

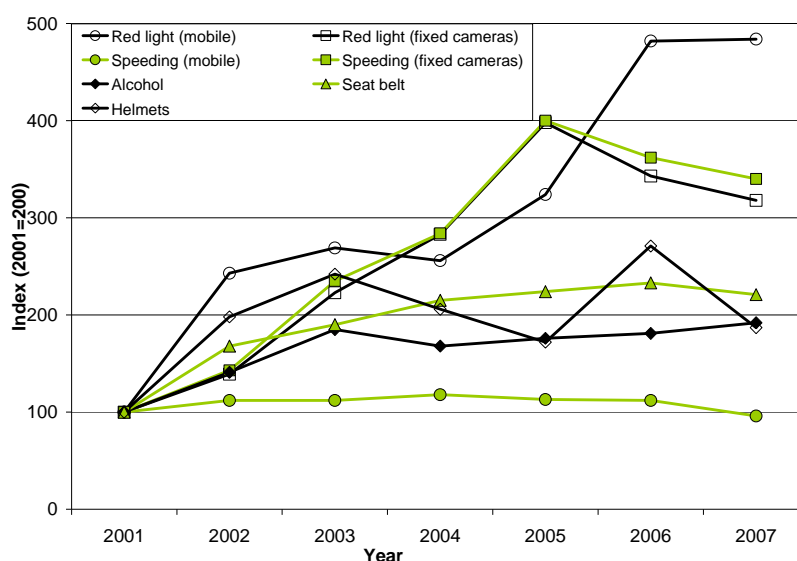
In the Netherlands, it is not standard practice to collect data about the use of a mobile phone in the car and its use prior to a crash, which makes it impossible to reliably determine the number of crashes due to phone use while driving. However, the following data might provide an indication of the 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.

In the Netherlands, phone use is estimated to have contributed to 3-4% of bicycle crashes that involved injuries.

❖ Enforcement

Traffic enforcement regarding helmets and seat belts, running through red lights, alcohol use and speeding, has increased since 2001, although it has levelled off in recent years.

Figure 5. Index of the number of checks by regional police for traffic offences 2001-2007



Source: BVOM; see [R-2008-12](#).

5. National road safety strategies and targets

Road Safety Strategic Plan 2008-2020

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.

The 2005 Mobility Policy Document set ambitious goals, including the reduction of annual fatalities to no more than 500 by 2020 and of hospitalised casualties to at most 12 250. These goals necessitate ambitious policies, which led to the elaboration of the Road Safety Strategic Plan 2008-2020. It is based on the three successful cornerstones of recent years: co-operation, an integral approach and sustainable safety. The 2008-2020 policy relies on two approaches:

- Applying traditional measures to continue building on what has successfully been done for years;
- Focusing on specific areas that require targeted attention:
 - vulnerable groups;
 - a tougher approach to those who cause unsafe traffic situations.

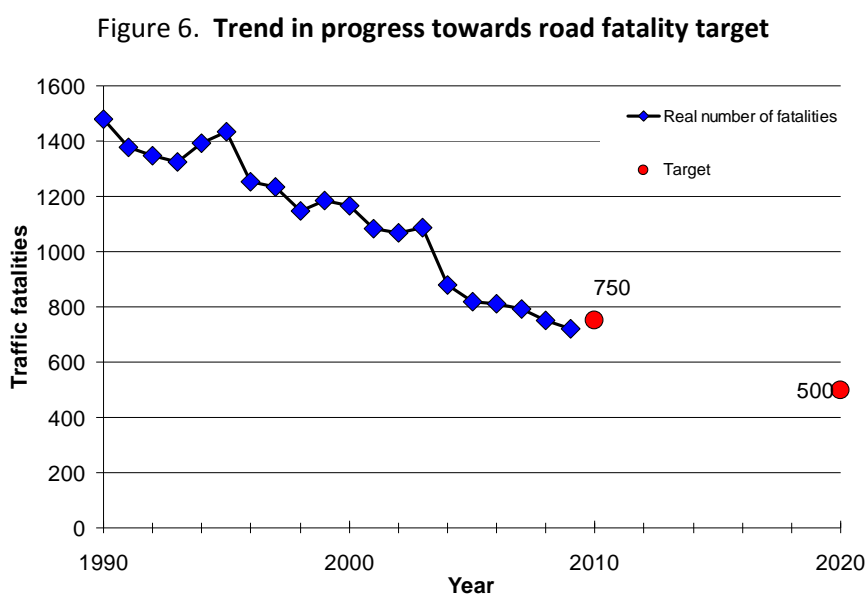
Innovative solutions are an integral part of the range of measures that will be implemented.

❖ Safety targets and subtargets

In 2008, in view of the good results achieved, new safety targets were adopted:

- fewer than 500 fatalities by 2020 (750 by 2010);
- fewer than 12 250 hospitalised casualties by 2020 (17 000 by 2010).

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 hospitalised traffic victims.



6. Recent safety measures (2007-2010)

❖ Road user behaviour, enforcement

- Accompanied driving (for implementation in 2011). A new programme is under preparation;
- Illegal drugs: a stricter version of the law on drugs and driving is under preparation. A roadside saliva test will be implemented in 2012;
- Light Educational Measure on Alcohol (LEMA) for drivers who slightly exceed the maximum allowed amount of alcohol (October 2008);

- Educational Measure on Dangerous Behaviour (EMG): aggressive motor-vehicle drivers must follow a special course (October, 2008);
- 20% increase in the number of fines (April 2008);
- An “alcolock” law is under preparation.

❖ Licensing, regulation

- Moped licensing: Since March 2010, a practical examination is required in order to drive a moped (License AM). If a person already has an A or B licence, an exam is not required. The AM exam can be passed at the age of 16 after sitting an exam on theory. Similar rules are implemented for micro-cars;
- New category of driving licence for mopeds (October 2009);
- Ban on mobile phone use for light moped riders (May 2009);
- Speed limit of 90 km/h on trunk roads and motorways for any car or delivery van with a light trailer (May 2009);
- Compulsory post-test for truck drivers (March 2009);
- Obligatory post-test for bus drivers (September 2008);
- New driving test (January 2008);
- New regulation on driving times and rest periods for heavy vehicles (European Directive) (April 2007);
- Practical exam for light moped riders (under preparation, January 2010);
- Accompanied driving (under preparation, January 2011).

The proposal would allow 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 would be able to drive only when accompanied by an experienced driver who met 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.

❖ Education and communication

- Educational campaigns to prevent blind-spot crashes (August 2008);
- Information campaign on fatigue (June 2008).

❖ Vehicles

- All lorries within the European Union must have blind spot mirrors (under preparation, January 2011).

7. Major recent or ongoing research (2008-2010)

- Wegman (2010) [De prijs van water bij de wijn](#). Oratie Prof Ir. F.C.M. Wegman, Delft.
- De Craen, S. (2010) [The X-factor : a longitudinal study of calibration in young novice drivers](#). PHD-thesis, Delft.
- SWOV (2009) [The balance struck](#) Sustainable Safety in the Netherlands 1998-2007. Leidschendam.
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- Schoon C.C., Doumen M.J.A., Bruin D. de (2008). [De toedracht van dodehoekongevallen en maatregelen voor de korte en lange termijn](#) Een ongevalanalyse over de jaren 1997-2007, verkeersobservaties en enquêtes onder fietsers en vrachtautochauffeurs en bijlagen (**The circumstances of blind spot crashes and short- and long-term measures. A crash analysis over the years 1997-2007. Traffic observations, and surveys among cyclists and lorry drivers and appendices**), SWOV, [R-2008-11A](#) and [R-2008-11B](#).

- Aarts L.T., Weijermars W.A.M., Schoon C.C., Wesemann, P. (2008). [Maximaal 500 verkeersdoden in 2020: waarom eigenlijk niet?](#) Maatregelpakketten en effectschattingen om te komen tot een aangescherpte verkeersveiligheidsdoelstelling (*A maximum of 500 road deaths in 2020: why not? Measures and effect estimates aimed at achieving a more ambitious road safety target*), SWOV, [R-2008-05](#).
- Schermers G., Reurings M.C.B. (2009), [Verkeersveiligheidseffecten van de invoering van Anders Betalen voor Mobiliteit](#) Een doorkijk naar de periode tot 2040 (*Road safety impact of another way of paying for mobility*). SWOV, R-2009-02.
To minimize congestion after 2012, motor vehicle drivers will pay a higher fee to use the motorway and some A-roads. This will be compensated by a decrease of taxes on new vehicles and general road tax. It is estimated that mobility will decrease by 10% in 2020 with respect to the development without this plan. The number of fatalities and hospitalized casualties will decrease by between 3% and 7%.
- Reurings M.C.B., Bos N.M. (2009), [Ernstig gewonde verkeersslachtoffers in Nederland in 1993-2008](#). (*Seriously injured road crash casualties in the Netherlands in the period 1993-2008*, The real number of in-patients with a minimum MAIS of 2). SWOV, R-2009-12.
Reurings M.C.B. (2010), [Serious road injuries in the Netherlands in 1993-2008](#): road casualties admitted to hospital with a MAIS score of at least 2; Description and justification of the estimation method. SWOV, R-2010-15.
In the Netherlands a “seriously injured traffic casualty” has usually been defined as a hospitalized casualty (at least one night in hospital). SWOV research shows that these persons were not always seriously injured. The minister of transport decided that future road traffic safety monitoring should take into account only the casualties actually seriously injured by including only those with a Maximum AIS (Abbreviated Injury Scale) of at least 2. The report gives the real number of seriously injured for 1993-2008 by this new definition and describes the new method of estimating real numbers.

8. References – Useful websites and references

Key Figures Road Safety in the Netherlands	English (2008): www.rijkswaterstaat.nl/dvs/Images/Road%20safety%20in%20the%20NL%20key%20figures%202008_tcm178-237833.pdf Dutch (2009): www.verkeerenwaterstaat.nl/english/Images/strategischplan-E_tcm249-249506.pdf
Road Safety Strategic Plan 2008-2020	www.verkeerenwaterstaat.nl/english/Images/strategischplan-E_tcm249-249506.pdf
SWOV fact sheets	SWOV Factsheets (listed are new and recent major updates): Road crash casualties in the Netherlands Dutch road safety in international perspective Mobility on Dutch roads Risk in traffic Time series analysis VVR-GIS 3.0: support for investment decisions Safe road shoulders Hazard perception in traffic Training hazard perception Roadworks and road safety Periodic Vehicle Inspection of cars (MOT) Vehicle regulations Intelligent Transport Systems (ITS) and road safety Electronic Stability Control (ESC) Moped and light-moped riders Social forgivingness Use of mobile phone while driving Whiplash and prevention Visual impairments and their influence on road safety Contents and assessment of traffic education programmes Public information about road safety

NEW ZEALAND¹

1. Short term trends

❖ General comments on trends for 2009

The number of road fatalities increased by 5% in 2009, to 384, despite a decrease in the number of vehicles. However, the number of injury crashes fell by 4.5%.

❖ Preliminary trends for the year 2010

Preliminary data for the 10 months of 2010 show a 6.7% reduction in the number of fatalities compared to the same period in 2009.

2. Long-term trends

❖ Evolution in numbers of fatalities, seriously injured and injury crashes

Between 1970 and 2009, the number of fatalities decreased by more than 40% and the number of injury crashes by 16%, while the number of vehicles almost tripled. In recent years (2000-2009), the number of fatalities continued to fall, by 17%. 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 8%. However, as a consequence of the economic recession, there was a drop in distance travelled in 2007 and 2008 and a stagnation in 2009.

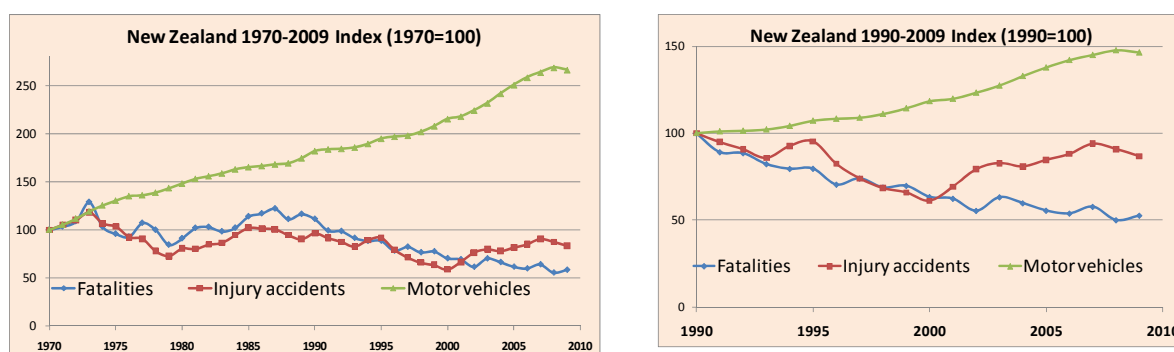
Table 1. Number of road fatalities, seriously injured and injury crashes, 1970-2009

	1970	1990	2000	2005	2006	2007	2008	2009	2009 % changeover		
									2008	2000	1970
Fatalities	655	729	462	405	393	421	365	384	5.2%	-16.9%	-41.4%
Injury crashes	13 297	12 818	7 830	10 849	11 293	12 043	11 647	11 125	-4.5%	42.1%	-16.3%

* 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.

¹ Source: IRTAD, Ministry of Transport of New Zealand.

Figure 2. Evolution in numbers of road fatalities, injury crashes and vehicles 1970-2009



❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 61%.

Table 2. Risk indicators
1970, 1980, 1990, 2000, 2009

Rates (reported)	1970	1980	1990	2000	2009	2009 % changeover	
						2000	1970
Deaths/100 000 population	23.0	18.9	21.4	12.1	8.9	-26%	-61%
Deaths/10 000 motor vehicles	5.4	3.3	3.3	1.8	1.2	-33%	-78%
Deaths/per billion veh-km	-	-	-	12.4	9.6	-23%	
Motorisation (number of vehicles/1 000 inhabitants)	423.8	563.3	644.6	679.2	746.2	10%	76%

3. Accident trends

❖ Road users

All user groups, but especially vulnerable road users, have benefited from the improvement. Between 1970 and 2009, the number of pedestrians killed decreased by almost 70%. The number of cyclists killed fell by 71%.

In 2000-2009, all user groups – except motorcyclists – benefited from a decrease in the number of fatalities. The number of motorcyclists killed increased by more than 50% during the last decade.

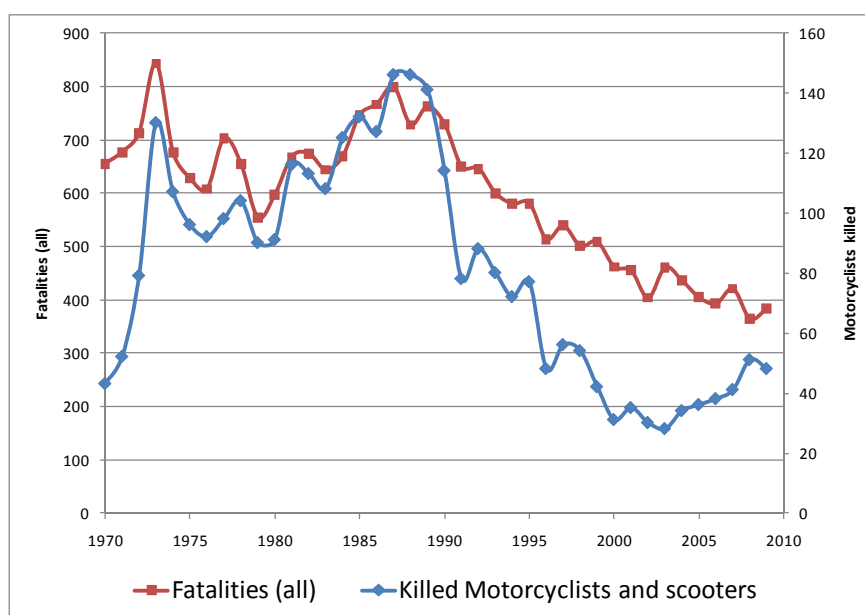
Table 3. Reported fatalities by road user group
1970, 2000, 2008 and 2009

	1970		2000		2008		2009		2009 % changeover		
	Count	%	Count	%	Count	%	Count	%	2008	2000	1970
Passenger car occupants	467	71%	358	77%	257	70%	287	75%	12%	-20%	-39%
Bicyclists	28	4%	19	4%	10	3%	8	2%	-20%	-58%	-71%
Motorised two-wheelers	43	6%	31	7%	51	13%	48	12%	-6%	55%	12%
Pedestrians	99	15%	35	8%	31	8%	31	8%	0%	-11%	-69%
Other	18	3%	19	4%	16	5%	10	3%	-41%	-47%	-44%
Total	655	100%	462	100%	365	100%	384	100%	+5%	-17%	-41%

The evolution in the number of motorcyclists killed has followed a particular trend in New Zealand. After having peaked in 1988 with 146 motorcyclists killed, it reached its lowest level in 2003 (28 fatalities killed), representing a decrease of 81% (while the total number of fatalities only decreased by 37%). Since 2004, the number of motorcyclists killed has increased again.

The exceptional reduction in the 1990s is mainly explained by the fact that during this period many motorcycles were replaced by second-hand cars imported from Japan.

Figure 3. Evolution in the number of road users and motorcyclists killed 1970-2009



❖ Age groups

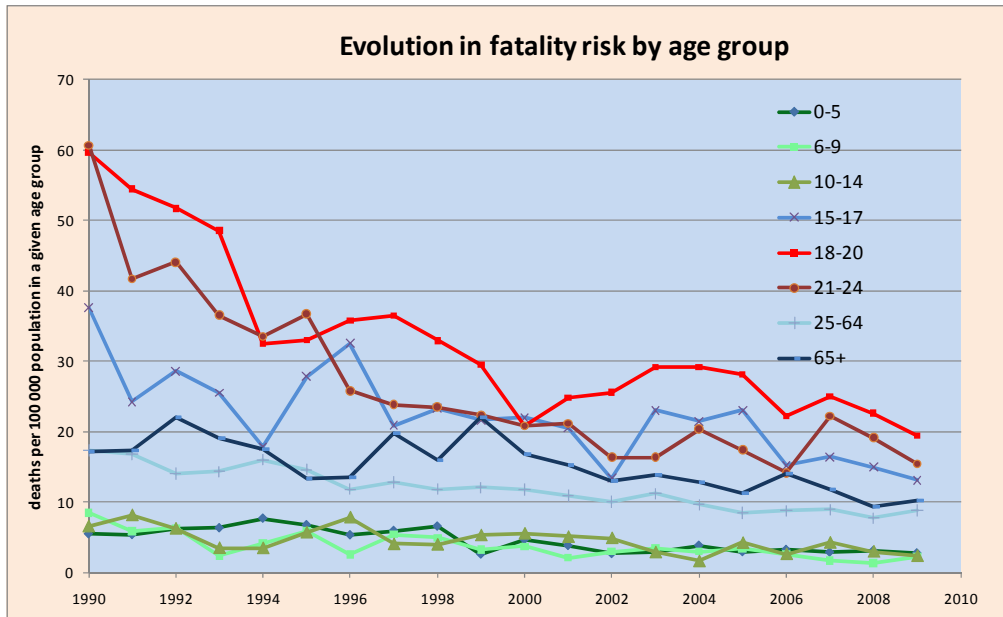
Since 1970, the reduction in fatalities has benefited all age groups, but the highest reduction concerned the youngest group (0-14), for which fatalities decreased by 73%, from 83 in 1970 to 22 in 2009.

In 2009; the increase in fatalities was mainly borne by the oldest age groups, 25-64 and over 65.

Table 4. Reported fatalities by age group

	1970	1980	1990	2000	2008	2009	2009 % changeover		
							2008	2000	1970
0-5	30	29	18	16	11	10	-9%	-38%	-67%
6-9	28	18	17	9	3	5	67%	-44%	-82%
10-14	25	16	17	16	9	7	-22%	-56%	-72%
15-17	58	52	65	36	29	25	-14%	-31%	-57%
18-20	91	102	108	34	43	38	-12%	12%	-58%
21-24	76	88	131	42	45	37	-18%	-12%	-51%
25-64	267	218	290	232	171	198	16%	-15%	-26%
>65	71	67	65	76	50	56	12%	-26%	-21%

Figure 2. Evolution of fatality risks by age group
(deaths per 100 000 population in a given group)
1990-2009



❖ Road type

In 2009, the large majority (72%) of fatal crashes occurred on country roads. The decrease in fatalities over the last 30 years has been achieved mainly through improvement of urban roads. However, in 2009 the increase in fatalities mainly concerned the urban area.

Figure 3. Reported fatalities by type of road
1980, 1990 and 2009

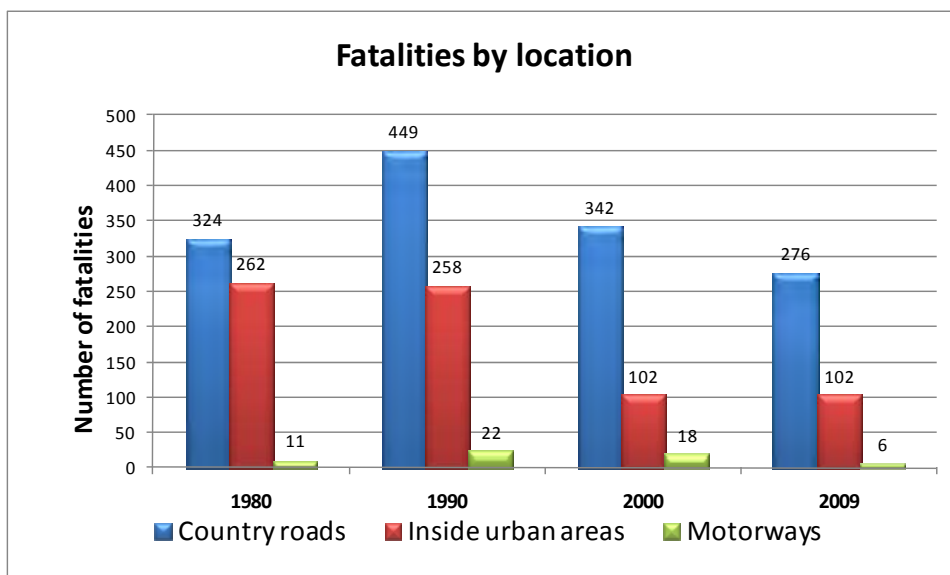


Table 5. Reported fatalities by type of road

	1980	1990	2000	2008	2009	2009 % change over		
						2008	2000	1980
Inside urban areas	262	258	102	90	102	13%	0%	-61%
Country roads	324	449	342	269	276	3%	-19%	-15%
Motorways	11	22	18	6	6	-0%	-67%	-45%

4. Recent trends in road user behaviour

❖ Drink-driving

The maximum authorised BAC is 0.8 g/l and 0.3 g/l for drivers under 20. Table 7 indicates the number and percentage of drivers killed with a BAC above 0.8 g/l.

Table 6. Number and percentage of drivers killed with a BAC > 0.8 g/l 2001-2009

Drivers killed with excess alcohol	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number	55	60	70	69	58	54	65	59	66
Percent	21%	24%	27%	27%	25%	24%	27%	28%	28%

❖ Speed

Table 7 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 than 60%), which is worrying for ensuring the safety of vulnerable road users in these areas.

Table 7. Percentage of drivers above the posted speed limit 2001-2009

Speed (survey unimpeded speeds)	2001	2002	2003	2004	2005	2006	2007	2008	2009
% exceeding open road 100 km/h limit	47%	43%	39%	39%	36%	32%	29%	30%	29%
% exceeding urban 50 km/h limit	79%	76%	72%	67%	63%	63%	63%	64%	61%

❖ 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 95% in front seats and 87% in rear seats (Table 8).

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 8. Evolution in seat-belt and helmet usage rate
2001-2008

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Seat belts used/Helmets worn									
Adult front seat	92%	92%	92%	94%	95%	95%	95%	95%	95%
Adult rear seat	70%	78%	81%	86%	86%	89%	87%	87%	87%
Child restraint – under 5 years	82%	86%	86%	87%	89%	91%	91%	90%	91%
Bicycle helmets	94%	89%	89%	92%	91%	94%	92%	92%	92%

❖ Distracted driving

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.

One study [Drews and Strayer (2008), Chapter 11, Cellular phones and driver distraction, in: Regan *et al.*, (Eds.), *Driver distraction: Theory, effects and mitigation*, CRC Press, London] has shown that using a mobile phone while driving can as much as quadruple a driver's risk of being involved in a crash.

5. National road safety strategies and targets

Road Safety to 2010 was adopted in 2002. It provides a direction for road safety in New Zealand and describes the results the Government wants to achieve by 2010. New Zealand has set overall road safety goals in relation to social costs, deaths and hospitalisations to the end of the year 2010 (Table 9).

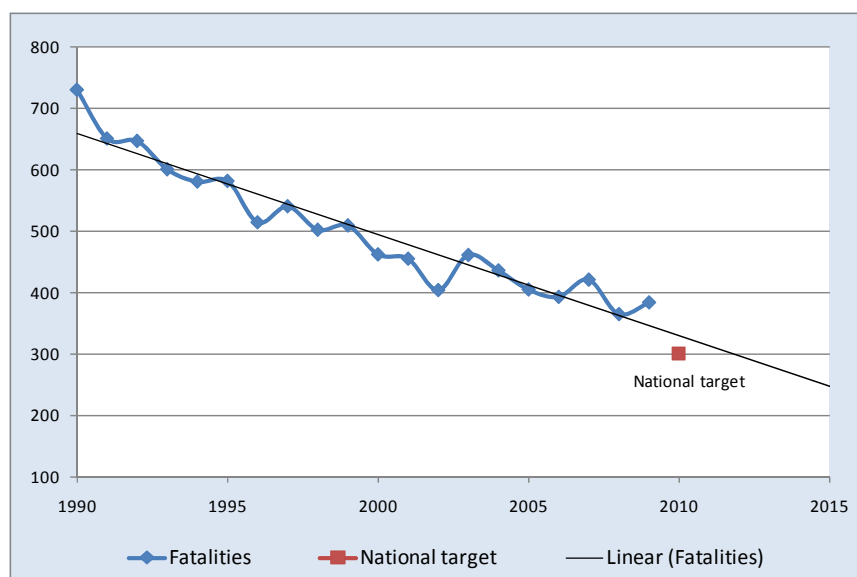
A new government strategy to 2020, *Safer Journeys*, has been developed, which was announced in March 2010. This followed wide public consultation from August to October 2009. The first Action plan is currently being developed.

Table 9. Road safety goals

		Goals 2010 - not exceeding
Social cost ¹	\$ billion	2.15
	Cents per vehicle-kilometre	4.4
	\$ per person	650
	\$ per vehicle	940
Deaths ²	Total	300
	Rate per billion veh-km	6.1
	Rate per 100 000 persons	7.3
	Rate per 10 000 vehicles	1.1
Hospitalisations ³	Total	4 500
	Rate per billion veh-km	90
	Rate per 100 000 persons	110
	Rate per 10 000 vehicles	16
	Hospitalisations for more than 1 day	2 200
	Hospitalisations for more than 3 days	1 400

Progress made towards the target of no more than 300 deaths by December 2010 is illustrated in Figure 4.

Figure 4. Trend in progress towards road fatality target



¹ The cost of crashes resulting only in property damage is excluded because the data are unreliable and the cost is relatively small. Social costs are expressed in June 2001 prices.

² Deaths include injuries that result in death within 30 days of the crash.

³ Hospitalisations are the number of hospital admissions in each area reported by the New Zealand Health Information Service. Along with fatalities, the numbers of people hospitalised for more than one and more than three days have been included as measures of more serious injuries.

6. Recent safety measures (2007-2010)

- **Ban on hand-held cell phones.** 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.
- **Illegal street racing.** The Land Transport Act 1998 was amended in 2009 to allow for greater enforcement of illegal street racing and associated activities (such as sustained loss of traction).
- **Drug-driving.** The Land Transport Act 1998 was also amended in 2009 to create specific offences of driving while impaired by drugs, and creating penalties for these offences.
- **Road safety measures currently being progressed.** An amendment to the Land Transport Act 1998 is currently being considered by Parliament. The main proposals of the Bill are:
 - raise the minimum driver licensing age from 15 to 16;
 - introduce an alcohol interlock programme and a zero alcohol limit for serious first-time offenders and repeat drink drivers.

7. References – Useful websites and references

New Zealand's road safety strategy to 2020	http://www.transport.govt.nz/saferjourneys/
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NORWAY¹

1. Short-term trends

❖ General comments on trends for 2009

In 2009, there was a 17% decrease in the number of fatalities compared to 2008, with 212 road fatalities, the lowest number since 1955.

Three-quarters of fatal crashes were frontal collisions and single-vehicle accidents. Accidents involving pedestrians are the third largest accident type. Compared to 2008, the largest decrease was in the number of single accidents.

Preliminary trends for 2010

Data for the first semester of 2010 are similar to those for the period in 2009 and 2007; however, there was a 19% decrease in the number of severely injured.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities decreased by more than 60%, while the number of vehicles almost tripled. In recent years (2000-2009), the number of fatalities continued to fall, by 38%. Since 2000, the distance travelled has increased by more than 20%.

In general, for the last five-year period (2005-2009) 70% of fatal accidents were frontal collisions and single-vehicle accidents. There is a decrease in number of frontal collisions since 2006, but in the last two years the number of fatalities for these accidents has remained the same.

High speed was one of the most significant causal factors in these accidents, and lack of seat-belt use was a main contributing factor to the incidence of many accidents.

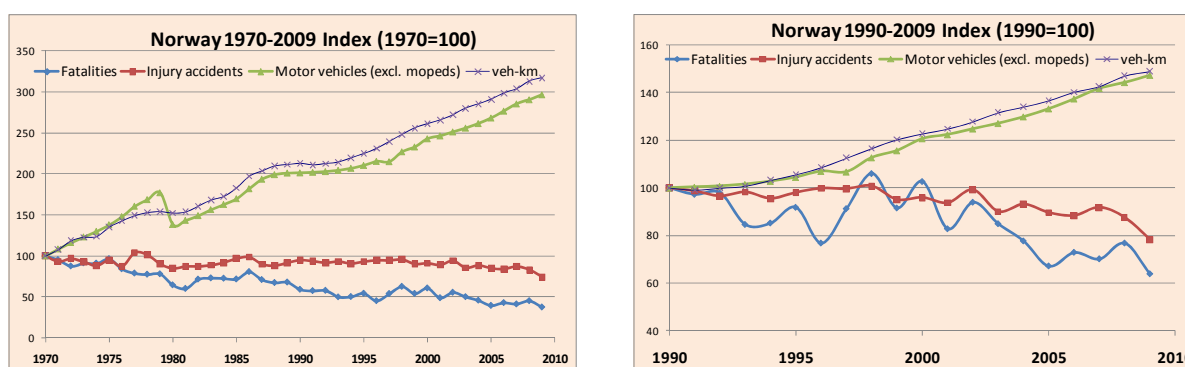
Finally, the post-crash situation is improved as a result of better health personnel (ambulance personnel at accident spots, etc.). There is an increased use of seat-belts, safer vehicles and road and roadside improvements.

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	560	362	332	341	223	255	212	-17%	-38%	-62%
Injury crashes	9 266	7 848	8 801	8 440	7 883	7 537	7 108	-8%	-16%	-23%

¹. Source: IRTAD, Norwegian Public Road Administration.

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009



❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 70%.

Table 2. Rates
1970, 1980, 1990, 2000, 2009

Rates (reported)	1970	1980	1990	2000	2009	2009 % changeover	
						2000	1990
Deaths/100 000 population	14.6	8.9	7.8	7.6	4.4	-42%	-44%
Deaths/10 000 motor vehicles	5.1	2.4	1.5	1.3	0.7	-46%	-53%
Deaths/billion veh-km	-	19.3	12.0	10.5	5.4	-48%	-55%
Motorisation (number of vehicles/1 000 inhabitants)	287		555	618	703		

3. Accident trends

❖ Road users

All user groups, but especially vulnerable road users, have benefited from the improvement in safety. Between 1970 and 2009, the number of pedestrians killed decreased by more than 80%. The number of cyclists killed fell by almost 80%. The number of fatalities among moped riders decreased by more than 80%.

Table 3. Reported fatalities by road user group
1970, 2000, 2008 and 2009

	1970		2000		2008		2009		2009 % changeover		
	Count	%	Count	%	Count	%	Count	%	2008	2000	1970
Passenger car occupants	248	44%	224	66%	149	58%	143	67%	-4%	-36%	-42%
Bicyclists	42	8%	13	4%	10	4%	9	4%	-10%	-31%	-79%
Mopeds	29	5%	6	2%	5	2%	2	1%	-60%	-67%	-93%
Motorcycles and scooters	26	5%	40	12%	32	12%	27	13%	-16%	-33%	4%
Pedestrians	182	33%	47	14%	33	13%	25	12%	-24%	-47%	-86%
Other	33	6%	11	3%	26	10%	6	3%	-77%	-45%	-82%

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 five times higher than that for a car occupant.

Table 4. Relative fatality risk by road user group
(average 2004-2008)

	Reported fatalities (annual average 2004-2008)	Deaths (inside or on the vehicle) per million vehicles	Average kilometrage per vehicle	Deaths per billion veh- km
Pedestrians	29			
Bicycles	8			
Mopeds	5			
Motorcycles	33	279		
Car and van occupants	164	(including heavy vehicles) 59	13 541	
Other (small trucks, heavy trucks, buses)	4		82 445	

❖ Age

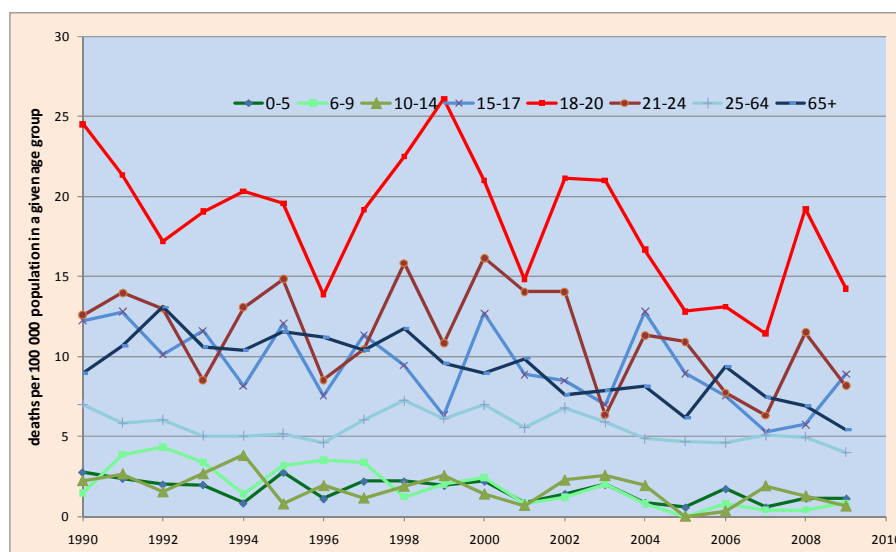
The number of fatalities varies with age. Since 2000, the reduction in fatalities has benefited most age groups, but the highest reduction concerned the youngest group (0-14), for which fatalities decreased from 33 in 1980 to 8 in 2009.

Young people (18-24) are the age group the most at risk, with a mortality rate almost three times that of the general population.

Table 5. Reported fatalities by age group

	1970	1980	1990	2000	2008	2009	2009 % changeover		
							2008	2000	1980
0-5	-	9	9	8	4	4	0%	-50%	-56%
6-9	-	14	3	6	1	2	100%	-67%	-86%
10-14	-	10	6	4	4	2	-50%	-50%	-80%
15-17	34	35	23	20	11	17	55%	-15%	-51%
18-20	-	52	49	34	35	27	-23%	-21%	-48%
21-24	-	46	34	36	26	19	-27%	-47%	-59%
25-64	186	121	146	165	126	104	-17%	-37%	-14%
>65	131	75	62	61	51	37	-23%	-39%	-51%

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2008)



4. Recent trends in road user behaviour

❖ Drink-driving and drug-driving

The legal maximum blood alcohol content is 0.2 g/l.

An in-depth investigation of accidents that occurred in 2005-2009 showed that alcohol and drug abuse was a contributing factor in 22% of crashes, on average. In 2009, the figure was 23%.

❖ Speed

The in-depth investigation of fatal crashes for 2005-2009 showed that excessive speed was a contributing factor in 50% of crashes, on average, with the figure for 2009 being 46%.

Speed management is a priority of the road administration (see Section 6 on Recent Measures).

❖ Seat-belts and helmets

Seat-belt use has been compulsory in front seats since 1975 and in rear seats since 1985. The rate of seat-belt use in front seats is around 89.0% in rural areas, 94.3% outside rural areas, and 91.6% on motorways. There is no monitoring of seat-belt use in rear seats yet, but it is estimated to be seven to eight percentage points lower.

Every four years, the Norwegian Public Roads Administration investigates attitudes and self-reported behaviour among traffic participants. The results for 2008 showed that the seat-belt usage rate for car drivers was 97%, unchanged from 2002 and 2004. The survey also questioned car passengers for the first time: 82% said they had used the seat-belt the last time they travelled in a car.

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

	1980	1990	2000	2004	2008
Motorways – driver	-%	-%	91%	89%	94%
Rural roads – driver	90%	91%	92%	92%	94%
Urban areas – driver	74%	67%	78%	87%	90%

Helmet wearing has been compulsory on motorcycles and mopeds since 1977. Helmet use is not compulsory on bicycles.

❖ **Distracted driving**

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. An in-depth analysis (2009) shows that the use of mobile phones when driving was a contributing factor in three of the 186 (1.6%) fatal accidents. However, the actual number may be higher.

5. National road safety strategies and targets

Norway has adopted a Vision Zero project based on the experience of Sweden. The project is 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. Vision Zero was first discussed in parliament when the National Transport Plan 2002-2011 was introduced and also featured in discussion of the National Transport Plan 2006-2015.

As stated in the document “*Road Traffic Safety 2002-2011*”:

The Government views the large number of killed and injured in road traffic as a serious national concern. Therefore, a vision of no-one being killed or permanently disabled has been established as a basis for the long-term traffic safety effort. The vision means that the Government, in addition to conducting a policy with the goal of reducing the total number of accidents, will focus strongly on measures that can reduce the most serious accidents.

The Norwegian Vision Zero involves the entire transport system. The intention is to reduce the total number of accidents, but the main emphasis is put on serious accidents that can lead to fatalities and serious injuries.

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.

6. Recent safety measures (2009-2010)

❖ **Speed**

- Norway is seeking to make speeding socially unacceptable. The authorities have adopted a strategy with a special focus on people aged 16 to 24. A national campaign for 2009-2012 was launched, targeting drivers who consider themselves responsible even though they exceed the speed limit. The goal is to improve drivers’ knowledge of the relationship

between speed and crash risk and reduce the number of fatalities and seriously injured by changing speeding behaviour.

- In 2009-10, speed section control (to measure the average speed between two points) was implemented on three sections, selected according to their crash risk. Evaluation is on-going and decisions will be taken on whether or not to expand their implementation.
- Automatic cameras are progressively being replaced with digital cameras.
- Speed limits (30-100 km/h) are being reviewed on the whole network.

❖ Drink-driving

The police have invested in alcometers to detect intoxicated drivers.

A working group (appointed by the Ministry of Transport and Communication) has delivered a report from a study of Alcolock as an alternative to suspending the driving licence of those apprehended for driving while intoxicated.

7 Major research undertaken in 2009-2010

- Drink-driving with heavy vehicles. Prevalence, accident risk and possible counter measures, 1021/2009 (Terje Assum, Alena Katharina Høyve), TØI (The Institute of Transport Economics, Oslo).
- Speed: Attitude, knowledge and behaviour, 1005/2009 (Agathe Backer-Grøndahl), TØI (The Institute of Transport Economics, Oslo).
- Factors contributing to road fatalities, 1067/2010 (The Institute of Transport Economics, Oslo).

8. References – useful websites and references

Public Road Administration	www.vegvesen.no
TOI – Research Institute for Transport Economics	www.toi.no
	www.sintef.no
International Research Institute	www.iris.no

POLAND¹

1. Short term trends

❖ General comments on trends for 2009

The number of road fatalities fell in 2009 to 4 572, a 16% decrease from 2008. The situation improved for all users, except motorcyclists.

❖ Preliminary trends for the year 2010

Preliminary data from 2010 show a continuous decreasing trend in the number of fatalities (-17%).

2. Long-term trends

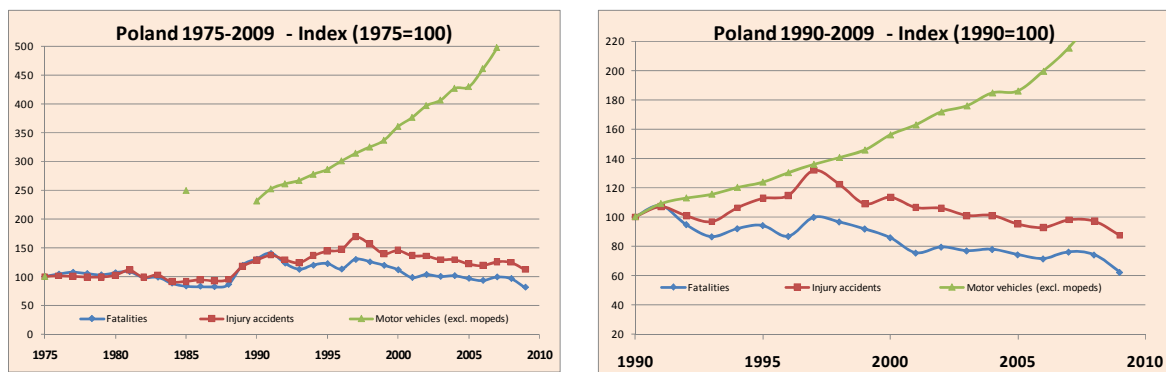
❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities increased by almost 33% and the number of injury crashes by -6%, while the number of vehicles rose by a factor of almost six. The peak in the number of fatalities was reached in 1991, with 7901 deaths. In recent years (2000-2009) the upward trend was broken and the number of fatalities and injury crashes fell by 27 and 23%, respectively.

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1990	2000	2008	2009	2009% changeover:			
						2008	2000	1990	1970
Fatalities	3 446	7 333	6 294	5 437	4 572	-16%	-27%	-38%	58%
Injury crashes	41 813	50 532	57 331	49 054	44 196	-10%	-23%	-13%	6%

Figure 1. Road fatalities, injuries crashes and number of motor vehicles



¹ Source: IRTAD ; Motor Transport Institute.

❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, increased by 13%. Since its peak in 1991 with 21 fatalities per 100 000 population, the rate decreased by 43% as of 2009.

Table 2. **Risk indicators**
1970, 1980, 1990, 2000, 2009

Rates (reported)	1970	1980	1990	2000	2008	2009	2009 % changeover:		
							2000	1990	1970
Deaths/100 000 population	10.6	16.8	19.2	16.3	14.3	12	-26%	-38%	13%
Deaths/10 000 motor vehicles	12.1	10.9	8.1	4.5	2.8	2.2	-51%	-73%	-82%
Deaths/billion veh-km	-	-	-	12.4	9.1				
Motorisation (number of vehicles/1 000 inhabitants)	87.3	153.8	236.8	365.0	510.8				

3. Accident trends

❖ Road users

In 2000-2009, all user groups except motorcyclists benefitted from a decrease in the number of fatalities. The decrease was more marked for bicyclists. In 2009, the number of fatalities among motorcyclists continued to increase, rising by more than 11% from 2008. For a motorcyclist, the risk of dying in a traffic crash is double that for a car occupant.

Table 3. **Reported fatalities by road user group**
2000, 2008 and 2009

	2000		2008		2009		2009 % changeover	
							2008	2000
Bicyclists	692	11%	433	8%	371	8%	-14%	-46%
Mopeds	75	1%	87	2%	68	1%	-22%	-9%
Motorcycles and scooters	178	3%	262	5%	290	6%	11%	63%
Passenger car occupants	2 709	43%	2 540	47%	2 179	48%	-14%	-20%
Pedestrians	2 256	36%	1 882	35%	1 467	32%	-22%	-35%
Other	383	6%	233	4%	197	4%	-15%	-49%
Total	6 294	100%	5 437	100%	4 572	100%	-16%	-27%

Table 4. Accidents with motorcyclists in Poland
2001-2009

Year	Accidents		Killed			Injured		
	Total number of accidents involving motorcyclists	% of total number of accidents	Total number killed in accidents with motorcyclist involvement	Number of motorcycle drivers and passengers killed	% of total number killed	Total number of injured in accidents with motorcyclist involvement	Number of motorcycle drivers and passengers injured	% of total number injured
2001	1 668	3%	198	169	3%	1 937	1 528	2%
2002	1 712	3%	189	167	3%	1 992	1 592	2%
2003	1 618	3%	170	145	3%	1 821	1 444	2%
2004	1 524	3%	210	181	3%	1 714	1 391	2%
2005	1 443	3%	183	157	3%	1 540	1 290	2%
2006	1 588	3%	185	164	3%	1 732	1 428	2%
2007	1 924	4%	243	215	4%	2 121	1 781	3%
2008	2 486	5%	300	262	5%	2 707	2 270	4%
2009	2522	5,7%	325	290	6,3%	2716	2297	4,1%
change 09/08	1%		8%	10%		0,5%	1%	
change 09/01	51%		61%	71%		40%	50%	

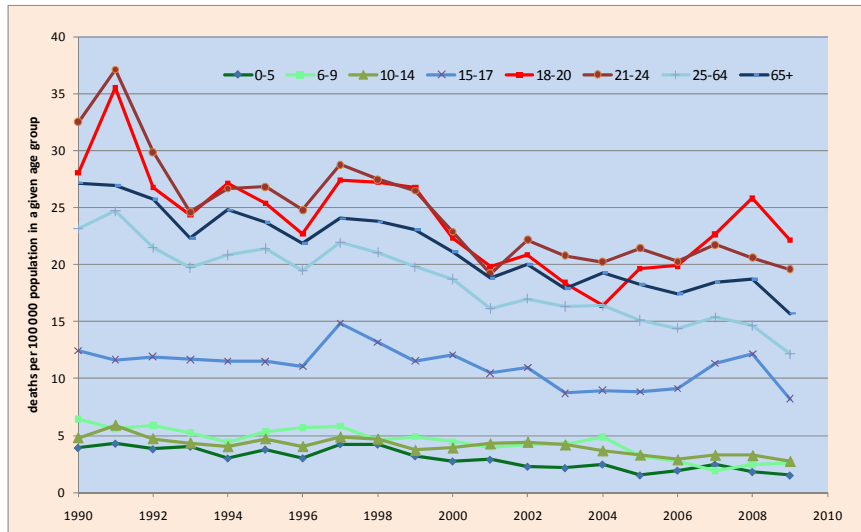
❖ Age

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 128 in 2009.

Table 5. Reported fatalities by age group
1990, 2000, 2007

	1990	2000	2008	2009	2009 % changeover	
					2008	1990
0-5	139	66	41	35	-15%	-75%
6-9	176	89	36	37	3%	-79%
10-14	156	112	69	56	-19%	-64%
15-17	223	245	185	119	-36%	-47%
18-20	455	443	430	361	-16%	-21%
21-24	636	583	517	471	-9%	-26%
25-64	4 493	3 751	3 146	2 639	-16%	-41%
>65	1 055	1 004	962	811	-16%	-23%

Figure 2. Evolution of fatality risks by age group
(deaths per 100 000 population in a given group)
1990-2009



❖ Road type

In 2009, 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.

In 2009, the number of fatalities increased on motorways. This reflects the continuous augmentation of the motorway network.

Figure 3. Reported fatalities by type of road
1990, 2000, 2009

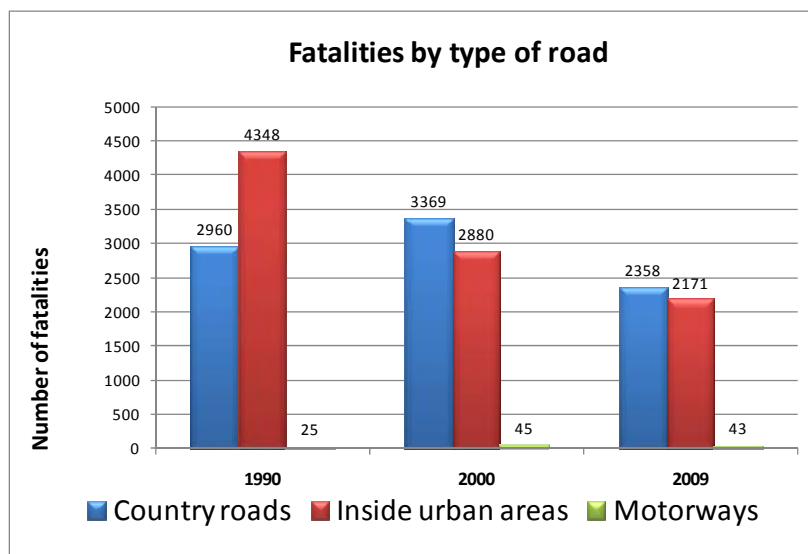


Table 6. Reported fatalities by type of road

	1990	2000	2008	2009	2009 % changeover		
					2008	2000	1990
Country roads	2 960	3 369	2 903	2 358	-19%	-30%	-20%
Inside urban areas	4 348	2 880	2 499	2 171	-13%	-25%	-50%
Motorways	25	45	35	43	23%	-4%	72%

4. Recent trends in driving behaviour

❖ Speeding

The table below summarises the main speed limits in Poland.

Table 7. 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 23%; 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 8. 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%

❖ Drink-driving and drug-driving

The maximum authorised blood alcohol concentration (BAC) level in Poland is 0.2 g/l for all drivers. In Poland, the number of crashes caused by drivers under the influence of alcohol decreased by 35% in the last ten years. People killed in crashes involving drink-driving represent 8% of all traffic fatalities, while in Europe this percentage equals 12%.

Table 9. **Number and percentage of casualties and crashes involving a driver with a BAC above 0.2 g/l – 2000-2009**

Year	Crashes	Killed	Injured
2000	5844	759	7 952
% of total	10%	12%	11%
2001	4439	525	6 139
% of total	8%	9%	9%
2002	4887	633	6 714
% of total	9%	11%	10%
2003	4327	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%

❖ 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 78% in front seats and 47% in rear seats.

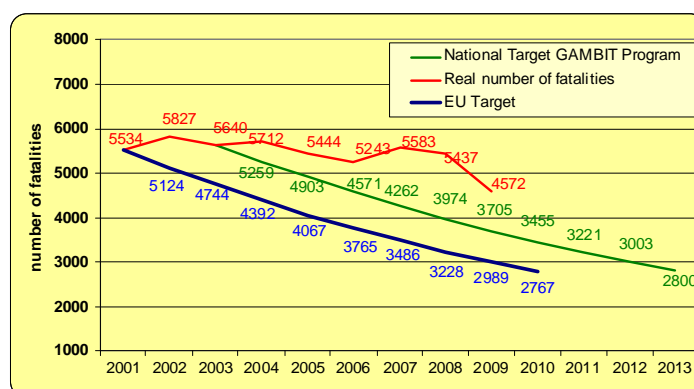
Helmet wearing has been compulsory on motorcycles and mopeds since 1997. A helmet is not compulsory on bicycles.

❖ Distracted driving

In Poland the use of hand-held mobile phones while driving is forbidden, the use of hands-free phones is tolerated.

5. National road safety strategies and targets

Figure 4. Trend in progress towards road fatality target



6. Recent safety measures (2007-2010)

❖ Road user behaviour, enforcement

The Polish police have evaluated a special programme of control and surveillance of road user behaviour, including speeding and seat-belt use, as well as particular road vehicle groups such as school buses or trucks.

Enforcement has been increased concerning:

- Speed:
 - o Further implementation of speed-camera systems;
 - o Preparation of a new law on speed-camera systems which will be implemented in 2011;
- Alcohol and drug use in traffic;
- Seat-belt use.

7. Major research undertaken in 2007-2010

Poland is an active partner of the EU DRUID Project (Driving Under the Influence of Drugs, Alcohol and Medicines) (www.druid-project.eu) and of the EU DACOTA Project on Data Collection and Analysis.

Furthermore, the Motor Transport Institute is involved in the following European projects, among others:

- FP7 Project: SAFEWAY2SCHOOL (Integrated System for Safe Transportation of Children to School);
- FP7 Project: DaCoTA (road safety Data Collection, Transfer and Analysis);
- DG-Move grants: SARTRE4 (Social Attitudes to Road Traffic Risks in Europe);
- DG-Move grants: BESTPOINT (Criteria for BEST practice Demerit POINT Systems);
- Central Europe Programme -- European Regional Development Fund project: SOL (Save Our Lives – A comprehensive road safety strategy for Central Europe);
- Intelligent Energy Europe project: ISEMOA (Improving Seamless Energy-efficient MObility chains for All).

8. References – Useful websites and references

Ministry of Infrastructure	www.mi.gov.pl
National Road Safety Council	www.krbrd.gov.pl
Motor Transport Institute	www.its.waw.pl

PORTUGAL¹

1. Short term trends

❖ General comments on trends for 2009

In 2009, the number of fatalities decreased by 5.1% in comparison to 2008, thus continuing the steady drop in fatalities started in 1997.

❖ Preliminary trends for the year 2010

Preliminary data for the first nine months of 2010 show a 6% decrease in the number of injury crashes and a 5% decrease in the number of fatalities and the injured.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities decreased by 48% while the number of vehicles was multiplied by 7. In recent years (2000-2009), the decrease in fatalities was sustained (-55%).

Table 1. Number of road fatalities and injury crashes
1970-2009

	1970	1990	2000	2005	2008	2009	2009 % changeover		
							2008	2000	1970
Fatalities	1 615	2 646	1 857	1 247	885	840	-5.1%	-55%	-48%
Injury crashes	22 662	45 110	44 159	37 066	33 613	35 484	+5.6%	-20%	+57%

Figure 1 gives an overview of the changes in the number of fatalities, injury crashes and motor vehicles since 1970.

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 with 3 051 persons killed. At the same time, the number of vehicles rose by 8.3% on average.

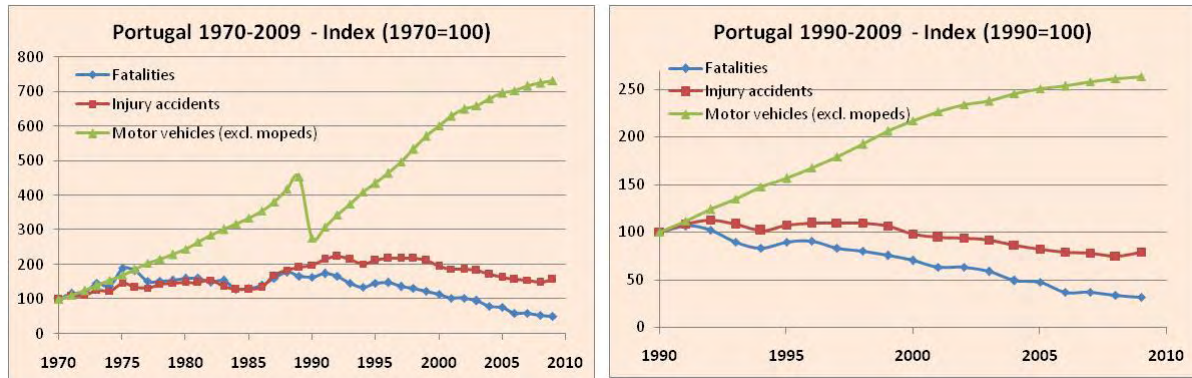
Between 1990 and 2000 there was a steady decrease in the number of fatalities and injury crashes. On a yearly average, the number of fatalities fell by 3.2%.

Since 2000, the rate of decline has accelerated, with an average annual decrease of 8.2% between 2000 and 2009.

¹ Source: IRTAD, Autoridade Nacional de Segurança Rodoviária.

Figure 1. **Reported number of road fatalities, injury crashes and vehicles 1970-2009**

Note: there was a change in the data source for motor vehicles in 1990.



❖ Rates and risks

Between 1970 and 2009, the mortality rate (expressed in terms of deaths per 100 000 population), decreased by 57.5%.

Table 2. **Risk indicators 1970, 1980, 1990, 2000, 2009**

Rates (reported)	1970	1980	1990	2000	2009	2009 % changeover	
						2000	1970
Deaths/100 000 population	18.6	27.7	28.3	18.1	7.9	-56.4%	-57.5%
Deaths/10 000 motor vehicles	20.5	13.3	12.1	3.9	1.5	-61.5%	-92.7%
Deaths/per billion veh-km	-	-	-	-	-	-	-
Motorisation (number of vehicles/1 000 inhabitants)	91	207.9	233.6	462.4	542.5	+17.3%	+496,2%

3. Recent developments in accident trends

❖ Road users

Between 1970 and 2009, all user groups benefited from safety improvements, with the exception of motorcyclists, for whom fatalities increased by 137%. The greatest improvements concerned moped riders (-82%), cyclists (-78%) and pedestrians (-76%).

In 2009, there was a significant improvement for bicyclists and moped riders.

Table 3. **Reported fatalities by road user group
1970, 2000 and 2009**

	1970		2000		2009		2009 % changeover	
							2008	1970
Bicyclists	131	8%	56	3%	29	3%	-31%	-78%
Mopeds	325	20%	225	12%	57	7%	-20%	-82%
Motorcycles and scooters	49	3%	212	11%	116	14%	0%	137%
Passenger cars	412	26%	732	39%	344	41%	-4%	-17%
Pedestrians	611	38%	384	21%	148	18%	-5%	-76%
Others	88	5%	248	13%	146	17%	2%	66%
Total	1 615	100%	1 857	100%	840	100%	-5%	-48%

❖ Age groups

Between 1970 and 2009, all age groups except the older group (65+) benefited from safety improvements, with the greatest improvements concerning children (0-14). The number of older citizens (65+) killed in traffic accidents increased by 55% due, partly, to the ageing of the population.

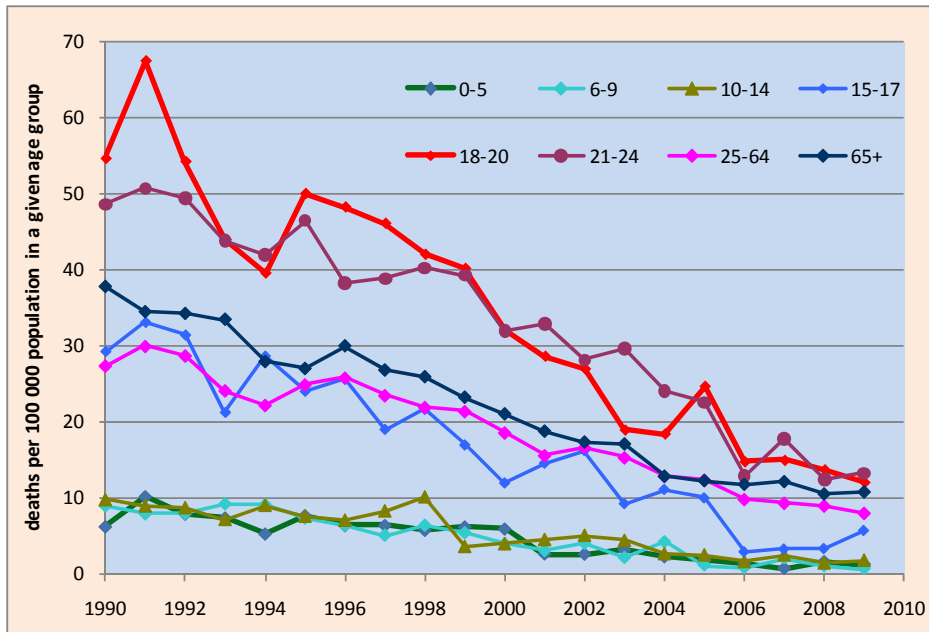
More recently (since 2000), the older age groups (25-64 and 65+) have shown a slower decrease than the other groups.

Table 4. **Reported fatalities by age group**

	1970	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1970
0-5	86	42	34	10	8	-22%	-74%	-91%
6-9	60	47	18	5	3	-34%	-84%	-95%
10-14	63	73	23	8	10	25%	-61%	-84%
15-17	56	138	52	11	19	67%	-81%	-66%
18-20	67	255	155	49	43	-12%	-65%	-36%
21-24	141	301	200	64	66	3%	-64%	-53%
25-64	868	1 277	1 013	537	481	-10%	-43%	-45%
>65	132	461	342	197	205	4%	-37%	55%
Total	1 615	2 646	1 857	885	840	-5%	-48%	-48%

Young people (18-20 and 21-24) have a much higher mortality rate -- about twice as high as the general population (see Figure 2).

Figure 2. Evolution of fatality risks by age group
(deaths per 100 000 population in a given group)
1990-2009



❖ Road type

In 2009, there were more fatalities in urban areas (46.0%) than on country roads (43.4%), which represents a significant change compared with 1990 and 2000. The reason for this is that the reduction registered in the number of road deaths has been more prominent outside the urban areas. The good results registered for rural roads are closely related to the significant increase in the length of the motorway network and blackspot amelioration. Therefore, improving urban road safety is still a priority target of the new Road Safety Plan. Regarding the motorways, the proportion of people killed in accidents was 10.6% in 2009.

Figure 3. Reported fatalities by type of road
1990, 2000 and 2009

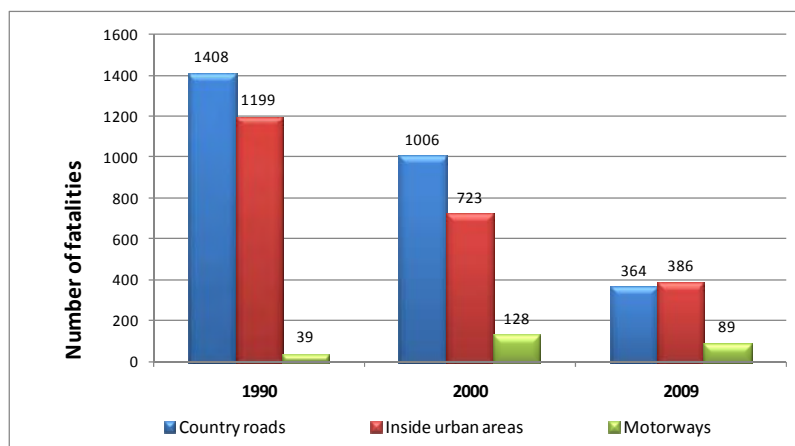


Table 5. **Reported fatalities by type of road**

	1990	2000	2008	2009	2009 % changeover:		
					2008	2000	1990
Country roads	1 408	1 006	372	364	-2%	-64%	-74%
Inside urban areas	1 199	723	417	386	-7%	-47%	-68%
Motorways	39	128	96	89	-7%	-30%	128%

4. Recent trends in road user behaviour

❖ Drink-driving and drug-driving

In Portugal, the maximum authorised BAC is 0.50 g/l for all drivers. According to official statistics, 6.2% of fatal crashes involved a driver with a BAC above the limit in 2009. The data, however, may be largely underestimated because they are based on the injury crashes reported by the police, which do not include the results of blood tests taken from drivers killed in road crashes.

According to the data of INML (the National Forensic Medicine Institute – Toxicological Department), 34% of drivers killed in road crashes who were tested were over the legal blood alcohol limit in 2009.

A new legislation was adopted in 2007 regarding testing and enforcement procedures for driving impairment. Testing equipments to assess the use of drugs by drivers (cannabis, amphetamines, cocaine, methamphetamine, ecstasy or MDMA, opiates and benzodiazepines) at the road side, was distributed by the ANSR to the police forces.

❖ 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. The rate of seat-belt use was 87% in front seats and 16% in rear seats in 2004.

Table 6. **Evolution in seat-belt use for car occupants**

	2000	2004	2009
General	80%	83%	NA*
Front seat	85%	87%	NA*
Rear seat	11%	16%	NA*

*NA – not available

Helmet wearing is compulsory on all motorised two wheelers. It is not compulsory on bicycles. There are no data available for helmet usage rates.

❖ 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.

5. National road safety strategies and targets

❖ National road safety strategies

In 2009, the Portuguese Plan for the Prevention of Road Accidents, launched in 2003, was terminated.

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.

Based on the analysis of the national accident data registered in previous years, the National Authority for Road Safety (ANSR) developed an accurate diagnosis of the Portuguese situation *per se*, as well as in comparison with other 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 10 strategic objectives:

- Two-wheeled motor vehicle drivers;
- Light vehicle drivers;
- Pedestrians;
- Road circulation inside urban areas;
- Driving under the influence of alcohol or drugs;
- Speeding;
- Safety devices;
- Trauma management;
- Vehicles;
- Road infrastructure.

❖ Safety targets and sub-targets

Regarding the targets that Portugal adopted for the year 2009, the most important ones were achieved or even surpassed, namely those related to the decline in the number of fatalities and serious injuries, as illustrated by Figure 4a) and Table 7.

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 2009, there were 79 deaths per million inhabitants. The target was therefore nearly reached (Figure 4b).

Figure 4a). Trend in progress towards road fatality target for 2009



Figure 4b). New target for 2015



Table 7. Current road safety targets in Portugal (target year =2009)

Type	Targets (in % or absolute figures)	Base year	Target year	Base year figure	Current results (2009)
Fatalities ¹	-50%	1998-2000	2009	1 748	737 (-57.8%)
Seriously injured	-50%	1998-2000	2009	7 597	2624 (-65.5%)
Pedestrians: <i>Decrease in the number of pedestrians killed or seriously injured in an accident</i>	-60%	1998-2000	2009	K=346 Sl=1538	K=130 (-62.4%) Sl=501 (-67.4%)
Two-wheeled motor vehicle users: <i>Decrease in the number of TWMV users killed or seriously injured in an accident</i>	-60%	1998-2000	2009	K=438 Sl=2227	K=152 (-65.3%) Sl=627 (-71.8%)
Front/rear seatbelt wearing rates: <i>increase in seatbelt wearing rates</i>	Fseatbelt>=90% Rseatbelt>=60%	2000	2009	Fseatbelt=85% Rseatbelt=11%	Not available
Child restraints: <i>increase in child restraints wearing rate</i>	Child restraints use rate>=70%	2000	2009	39%	Not available
Drinking and driving: <i>Decrease in the % of drivers killed in road accidents who were above the legal limit (BAC>=0,50 g/l)</i>	-50%	2001/2002	2009	27.5%	34.4%*
Speed: <i>Decrease in the mean speeds inside and outside urban areas</i>	Outside= -5km/h Inside= -15km/h	2000	2009	Different average speeds by type of road	Not available
Urban areas: <i>Decrease in the number of road users killed or seriously injured inside urban area</i>	-60%	1998-2000	2009	K=718 Sl=4 715	K=339 (-52.8%) Sl=1500 (-68.2%)

*Source: INML –National Forensic Medicine Institute (toxicological department).

6. Recent safety measures (2007-2010)

❖ Road user behaviour, enforcement

Protocols were made with the police authorities in order to promote the acquisition of the necessary equipment for intensified enforcement.

❖ Licensing, regulation

New legislation related to driving under the influence of alcohol and drugs was approved (L. 18, of 17 May 2007), changing the testing and enforcement procedures for impaired driving. In connection with this new law, a significant amount of roadside testing equipment was distributed by the ANSR to the police force, to assess the use of various drugs by drivers (cannabis, amphetamines, cocaine, methamphetamines, ecstasy or MDMA, opiates and benzodiazepines).

In 2009, a revised Road Code was proposed concerning the introduction of new rules on, inter alia, the penalty point system and a decrease in the maximum authorised BAC for specific drivers.

¹ Death within 24h (the correction factor=1.14 was not applied).

❖ Education and communication

- A national and local campaign entitled: “Deaths on the Road – let’s stop this tragedy”, focused on driving under the influence of alcohol, speeding and the use of seat-belts, was launched during the 2009 Easter, Summer, Christmas and New Year holidays.
- Production of a daily, one-minute television sketch (“Friendly Road”), covering 50 different road safety issues.
- A “100% Cool” campaign against drink-driving, based on the “designated driver” message.

7. Major recent or ongoing research (2007-2010)

A study on the possible adoption of the international concept of “Deaths within 30 days of a road accident” in 2010, instead of applying a correction factor (1.14) to deaths within 24 hours of a road accident.

A study carried out by the National Laboratory of Civil Engineering (LNEC), resulting from a partnership with ANSR, on the criteria for selecting sites and adequate equipment for the implementation of automatic speed cameras.

Elaboration of the following documents: “Guide for the implementation of Municipal Road Safety Plans” and “Technical Guidelines concerning variable message signs”.

8. References – 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 Land 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

SLOVENIA¹

1. Short-term trends

❖ General comments on trends for 2009

The number of road fatalities fell to 171 in 2009, a decrease of 20% compared to 2008. This continues the long-term downward trend in fatalities.

Several measures introduced in 2008 and 2009 contributed to the decrease of road fatalities in 2009. Probably due to the economic crisis, the motorways toll system (vignettes), constant media campaigns promoting road safety, better co-operation between national organisations, local communities and NGOs, the Road Safety Act that came into force in the year 2008 (ULRS, No. 56/2008) and improvements in different parts of the road safety system, there has been a noticeable overall trend towards a decline in fatalities from 2007 to 2009.

A decreasing trend is also noticeable in the case of seriously injured road users. There has been a slight fall in slightly injured road users in comparison to 2008, but a slight rise in comparison with 2000.

❖ Preliminary trends for 2010

Based on provisional data for the first ten months of 2010, the decreasing trend in road fatalities is still noticeable. A 20% decrease in fatalities compared to 2009 is expected, meaning that Slovenia would meet the target to reduce road fatalities by 50% compared to 2001.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities decreased by more than 70% while distances travelled were multiplied nearly fivefold. In recent years (2000-2009), the number of fatalities has continued to fall, by 46% overall. Since 2000, the number of injury crashes has increased slightly, by 1%.

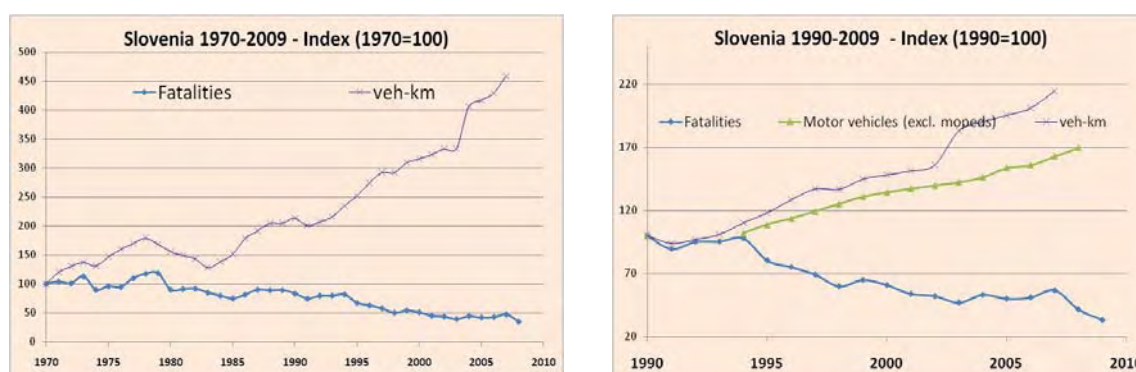
Fatality numbers were highest in 1979, when 735 people died on the road. Since then the number of killed has steadily decreased, though with a period of relative stagnation between 2002 and 2007. There was a general decline in fatalities and injury accidents on all road types in 2009 compared to previous years, probably due to the Road Safety Act, which came into force in 2008.

¹ Source: IRTAD, Slovenian Traffic Safety Agency.

Table 1. **Reported road fatalities and injury crashes**
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % change over		
								2008	2000	1970
Fatalities	620	558	517	314	258	214	171	-20%	-46%	-72%
Injury crashes	-	-	-	8 469	10 309	8 938	8 588	-4%	+1%	-

Figure 1. **Reported road fatalities, injury crashes and vehicles**
1970-2009



❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by more than 76%.

Table 2. **Rates**
1970, 1980, 1990, 2000, 2009

Rates (reported)	1970	1980	1990	2000	2009	2009 % changeover	
						2000	1990
Deaths/100 000 population	35.8	29.2	25.9	15.8	8.4	-47%	-67%
Deaths/10 000 motor vehicles	-	-	6.9	3.2	1.3	-58%	-81%
Deaths/billion v-km	166.7	96.1	65.1	26.7	9.6	-54%	-81%
Motorisation (number of vehicles/1 000 inhabitants)	-	-	375	506	667	+32%	+78%

3. Accident trends

❖ Road users

Almost all user groups, especially cyclists and pedestrians, have benefited from the improvement. Between 2000 and 2009, the number of pedestrians killed decreased by 60%, the number of cyclists by 31% and the number of moped riders by 86%. However, the number of motorcyclists killed increased by 47% in the same period.

In 2009, passenger car drivers saw the largest decrease in fatalities in comparison to 2008 (-28 fatalities : -36%), followed by pedestrians (-15 fatalities : -38%) and motorcycle and mopeds

drivers (-15 fatalities: -33%). Unfortunately, the number of fatalities in the passengers group increased (+8 fatalities: 29%).

Table 3. **Reported fatalities by road user group
2000, 2008 and 2009**

	2000		2008		2009		2009 % change	
							2008	2000
Passenger car occupants	179	57%	107	50%	86	50%	-20%	-52%
Cyclists	26	8%	16	7%	18	11%	+13%	-31%
Mopeds	21	7%	8	4%	3	2%	-62%	-86%
Motorcycles and scooters	19	6%	38	18%	28	16%	-26%	+47%
Pedestrians	60	19%	39	18%	24	14%	-38%	-60%
Other	9	3%	5	2%	12	12%	+120%	+33%
<i>Total</i>	<i>314</i>	<i>100%</i>	<i>214</i>	<i>100%</i>	<i>171</i>	<i>100%</i>	<i>-20%</i>	<i>-45%</i>

Table 4 illustrates the relative fatality risk for different road user groups. For a motorcyclist, the risk of dying in a traffic crash is 35 times higher than for a car occupant.

Table 4. **Relative fatality risk by road user group (2009)**

	Reported fatalities	Deaths (inside or on the vehicle) per million vehicles	Average kilometrage per vehicle	Deaths (inside or on the vehicle) per billion vehicle*km
Mopeds	3	99	-	-
Motorcycles	28	673	-	170
Car and van occupants	86	82	-	5
Heavy goods vehicles	6	72	-	3

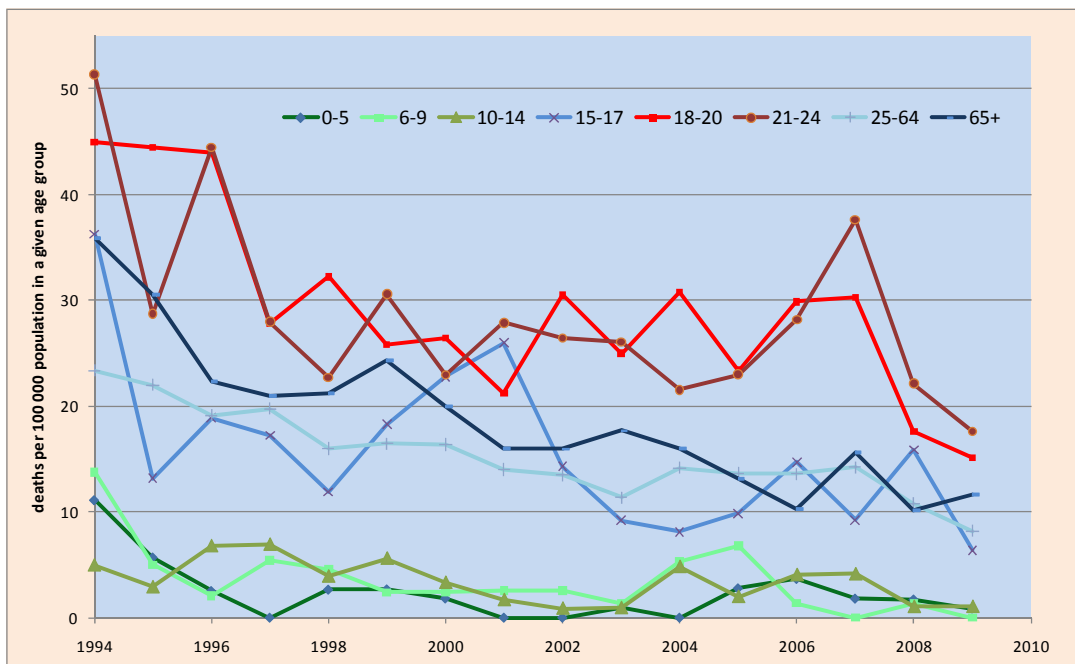
❖ Age

Since 2000, all age groups have benefited from the improvements in road safety, with the best results for young people (15-20 age group).

Table 5. **Reported fatalities by age group
2000, 2008 and 2009**

				2009 % changeover	
	2000	2008	2009	2008	2000
0-5	2	2	1	-50%	-50%
6-9	2	1	1	0	-100%
10-14	4	1	0		
15-17	18	10	4	-60%	-78%
18-20	23	13	11	-15%	-52%
21-24	28	25	19	-24%	-32%
25-64	181	128	97	-25%	-47%
>65	56	34	41	15%	-30%

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



❖ Road type

In 2009, 47% of fatal crashes occurred on country roads, 42% on urban roads and 11% on motorways.

Figure 4. Reported fatalities by road type
2000 and 2009

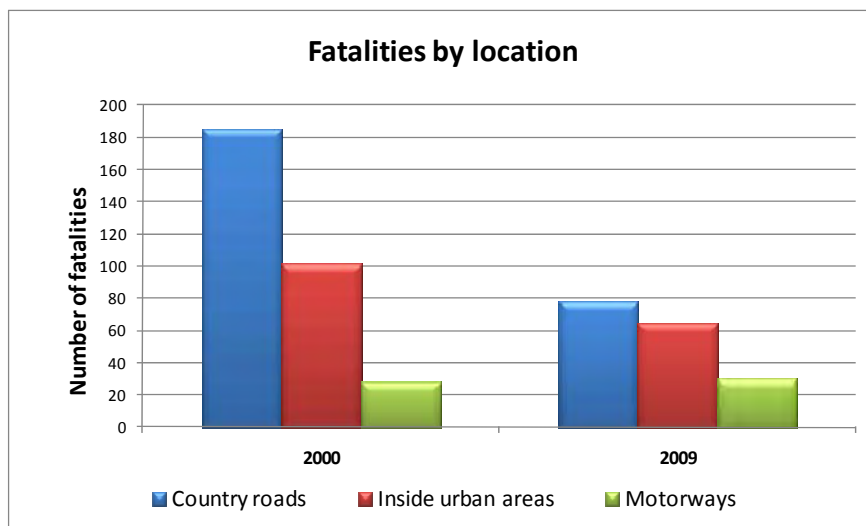


Table 6. **Reported fatalities by road type**

	2000	2008	2009	2009 % changeover	
				2008	2000
Inside urban areas	101	73	71	-3%	-30%
Rural roads	185	131	80	-39%	-57%
Motorways	28	10	20	+100%	-29%

4. Recent trends in road user behaviour

❖ Drink-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 the major cause of traffic accidents in Slovenia. Fatal crashes caused by speeding represented 48% of all fatal traffic accidents in Slovenia in 2008.

❖ 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 5% increase in the seat-belt usage rate on rural roads in 2009 compared to 2008, from 87% to 92%. The increase in the seat-belt usage rate on urban roads and motorways was almost unnoticeable. In 2009, it amounted to 90% for urban roads and 96% for motorways.

Table 7. **Evolution in seat-belt use by car occupants**

	2000	2005	2008	2009
General	-	-	-	
Front seat – driver	-	85,5%	86,8%	92,3%
Front seat – passenger	-	86,6%	88,7%	86,6%
Rear seat	-	28,4%	50,1%	60,1%
Motorway – driver	94%	95%	92%	96%
Rural roads – driver	94%	94%	87%	92%
Urban areas – driver	90%	87%	90%	90%

Source: EURHIRES 2005-2006, EURHIRES 2007-2008, EUCHIRES 2009.

A helmet is not compulsory on bicycles (except for children under 14).

❖ Distracted driving

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 the mobile phone in any circumstances.

Statistical data on the effect on traffic accidents of mobile phone use while driving are not being collected and are therefore unavailable.

5. National road safety strategies and targets

The target of the National Road Safety Programme is 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.

Probably due to the new motorways toll system (vignettes), constant media campaigns promoting road safety, and the Road Safety Act which came into force in the year 2008 (UL RS, No. 56/2008), there has been a noticeable overall declining trend in fatalities from 2007 to 2009. The number of actual fatalities has come close to the national target set in the National Road Safety Programme.

Figure 5. Progress towards road fatality target

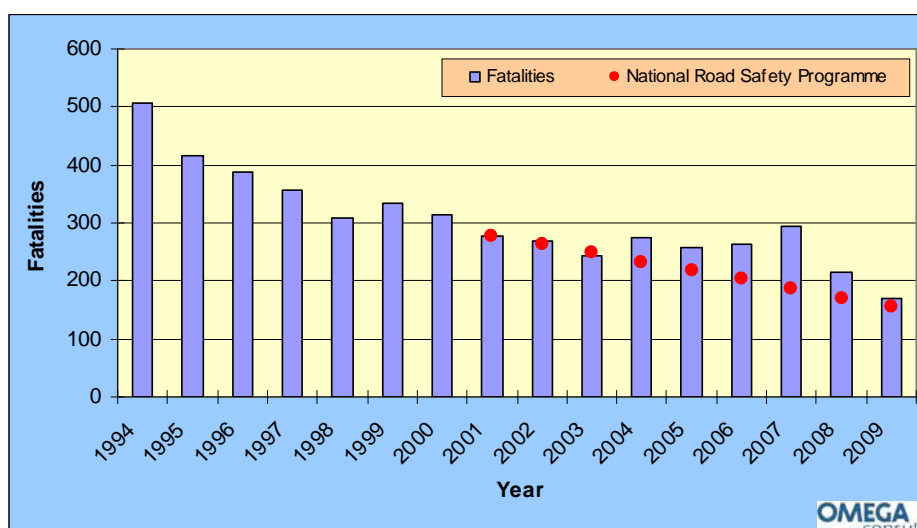
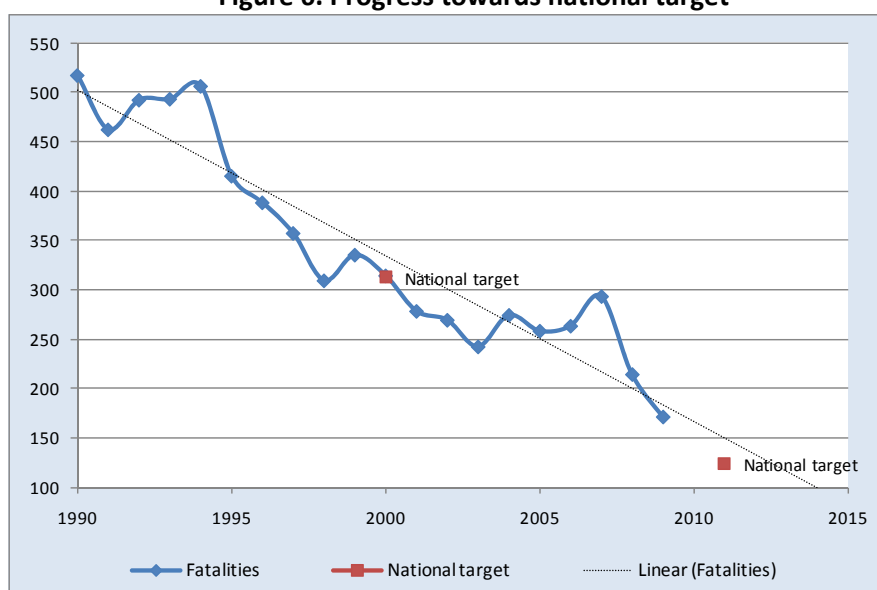


Figure 6. Progress towards national target



6. Recent safety measures (2009-2010)

❖ Road user behaviour enforcement – campaigns

- 8-22 February 2009, 17-30 May 2010: “Fasten your life!” – Activities for the promotion of seat-belt usage. The campaign was launched on radio and TV stations and billboards, and promoted via different events.
- 25 February-11 April 2009: “40 days without alcohol” – Activities for greater awareness about alcohol abuse. It was held in collaboration with the Slovenian Caritas and Med.Over.Net Institute.
- 20-23 August 2009: “Hurry slowly!” – Occasional week-long campaigns intended to increase awareness about the consequences of speeding. They included radio and TV spots and a billboard campaign.
- 8-31 January 2009/2010, 1 October–22 October 2009/2010: “Be careful, be seen” – Activities aiming to increase general pedestrian safety. The campaign included media campaigns and activities in primary schools.
- 26 March-19 April 2009; 22 March-12 April: “Do not overlook – look 3x!” – Activities to increase two-wheeler safety. This preventive campaign included co-operation with government and civil institutions, especially the ones intended for motorcyclists. The campaign included radio and TV spots, billboards, online banners, etc.
- 3-13 March 2009, 15-28 February 2010: “Stop! Life has precedence” – Activities for better road safety on rail and interchange crossings. It included a media campaign with spots on local radio stations and billboard advertising.
- April-August 2009, April-July 2010: “Speed – Thank you for not speeding” – Activities with the purpose of lowering speed, which is the most common cause of accidents on Slovenian roads. The campaign was launched on television, radio stations and in the form of different size posters. It was held by the Slovene Police department in co-operation with other institutions.
- June, November and December 2009: “Alcohol kills – mostly the innocent”; June, November, December 2010 “0.0 Driver” – The campaign’s purpose was to lower the percentage of alcoholised participants in accidents on Slovenian roads and to lower the number of accidents with alcohol as a secondary factor. The campaign’s video was launched on television and Internet. The campaign was co-ordinated by the Ministry of Health in co-operation with other governmental and non-governmental institutions.

7. Major research undertaken in 2009-2010

Road Safety Factors in Slovenia – University of Ljubljana, Faculty of Law.

8. References – Useful websites

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

SPAIN¹

1. Short-term trends

❖ General comments on trends for 2009

In 2009, the number of road fatalities decreased by 12% from 2008. Over the same period, traffic outside urban areas (vehicles-km) fell by 0.1%, freight transport volume (tonnes-km) fell by 13% and GDP fell by 3.7%. These factors most likely contributed to the reduction in fatalities, but further analysis needs to be carried out.

The improvement in 2009 benefited all road user groups, with the exception of cyclists (+4%). The largest reductions in fatalities were found for buses and passenger cars. In 2009, the number of fatalities decreased for all age groups, particularly for young people (15-24 years old), with a reduction of 23%.

Whereas fatalities inside urban areas decreased by 8%, improvements were even more important outside urban areas, with a reduction of 14% in the number of road fatalities.

Concerning the number of seriously injured, a reduction of 16% was observed in 2009 compared to 2008.

❖ Preliminary trends for 2010

Based on provisional data for the 1st semester of 2010, a 16% decrease in the number of people killed can be observed compared to the same period in 2009. A big reduction was observed for motorcyclists, with a 35% fall in the number of fatalities.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities decreased by 50%, while the number of vehicles was multiplied by seven. Between 2000 and 2009, the number of fatalities decreased by 53%, while traffic volumes outside urban areas increased by 21%.

Table 1. Reported road fatalities and injury crashes
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	5 456	6 522	9 032	5 776	4 442	3 100	2 714	-12%	-53%	-50%
Injury crashes	57 968	67 803	101 507	101 729	91 187	93 161	88 251	-5%	-13%	52%

Since 1980, the following periods can be identified:

¹ Source: IRTAD, DGT.

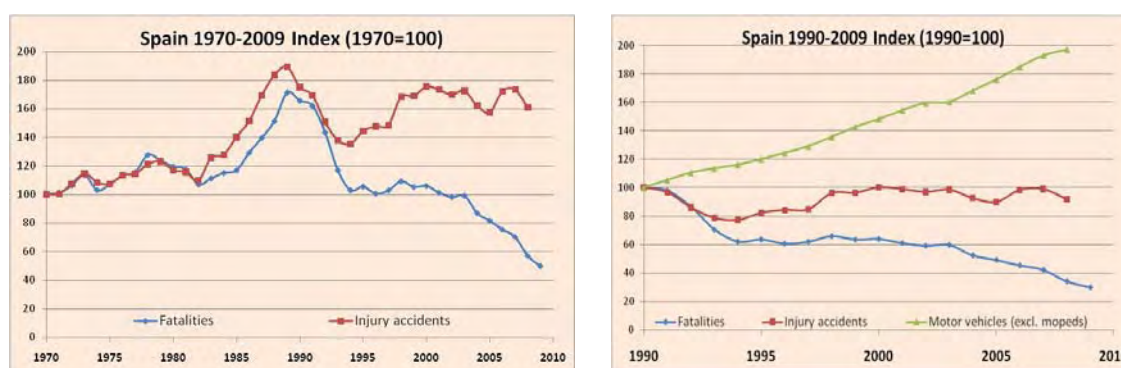
Between 1983 and 1989 (base year 1982): There was an increase in the number of fatalities, with a peak in 1989, when 9 344 persons died on the road. During this period, the vehicle fleet increased by 33% and the traffic volume outside urban areas rose by 41%.

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 volume 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).

Since 2004 (base year 2003): In 2004, the implementation of the 2004-2008 Road Safety Strategic Plan started. Between 2004 and 2009, the number of deaths decreased by 50%. Traffic volumes outside urban areas increased by 7%.

Figure 1. **Reported road fatalities, injury crashes and vehicles 1970-2009**



❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 63%. The number of deaths per 10 000 registered vehicles decreased by 93%.

Table 2. **Rates 1970, 1990, 2000, 2009**

	1970	1990	2000	2009	2009 % changeover	
					2000	1970
Deaths/100 000 population	16.03	23.2	14.5	5.9	-59.2%	-63.1%
Deaths/billion veh-km	-	-	-	-	-	-
Deaths/10 000 registered vehicles	12.4	5.8	2.5	0.9	-64.8%	-92.9%

3. Accident trends

❖ Road users

Since 1980, all user groups, but especially car occupants and moped riders, have benefited from the improvement (Table 3).

Between 2000 and 2009, improvements benefited moped riders the most; over the same period, motorcyclist fatalities – despite significant improvement in 2008 and 2009– increased by 12%.

Figure 2 illustrates the change in fatalities of moped and motorcycle riders in relation to the change in the number of motorised two-wheelers in traffic.

Table 3. Reported fatalities by road user group, 1990, 2000, 2008 and 2009

	1990		2000		2008		2009		2009 % changeover		
	Count	%	Count	%	Count	%	Count	%	2008	2000	1990
Bicycles	160	2%	84	1%	54	2%	56	2%	4%	-33%	-65%
Mopeds	683	8%	474	8%	183	6%	156	6%	-15%	-67%	-77%
Motorcycles and scooters	792	9%	392	7%	495	16%	438	16%	-12%	12%	-45%
Passenger car occupants	5 034	56%	3 289	57%	1 501	48%	1 263	47%	-16%	-62%	-75%
Pedestrians	1 542	17%	898	16%	502	16%	470	17%	-6%	-48%	-70%
Other	823	9%	639	11%	365	12%	331	12%	-9%	-48%	-60%
Total	9 032	100%	5 776	100%	3 100	100%	2 714	100%	-12%	-53%	-70%

Figure 2. Relative change in the number of motorised two-wheelers in traffic and the number of reported moped riders and motorcyclists killed in traffic

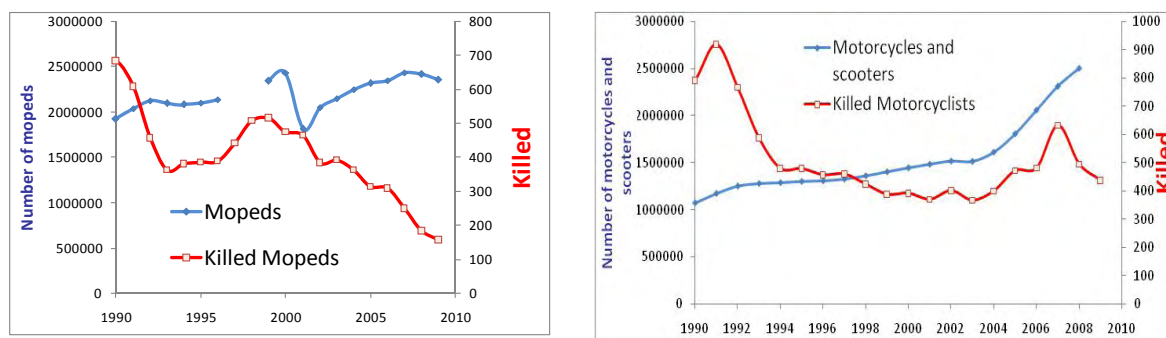


Table 4 illustrates the annual average number of fatalities for the different road user groups. Data on kilometres driven on both urban and non-urban roads are not available in Spain. Therefore, average risks cannot be estimated.

Table 4. Relative fatality risk by road user group

	Reported fatalities (annual average 2005-2009)	Deaths (inside or on the vehicle) per 10 000 vehicles (annual average 2005-2009)	Average kilometrage per vehicle
Pedestrians	571	-	N.A.
Bicycles	71	-	N.A.
Mopeds	242	1	N.A.
Motorcycles	504	2.3	N.A.
Car occupants	1 814	1.1	N.A.
Vans and heavy goods vehicles	322	0.8	N.A.
Buses	25	3.5	N.A.
Other	89	-	N.A.
Total	3 636	-	N.A.

Note: Deaths per 10 000 vehicles per year for 2005-2009.

❖ Age

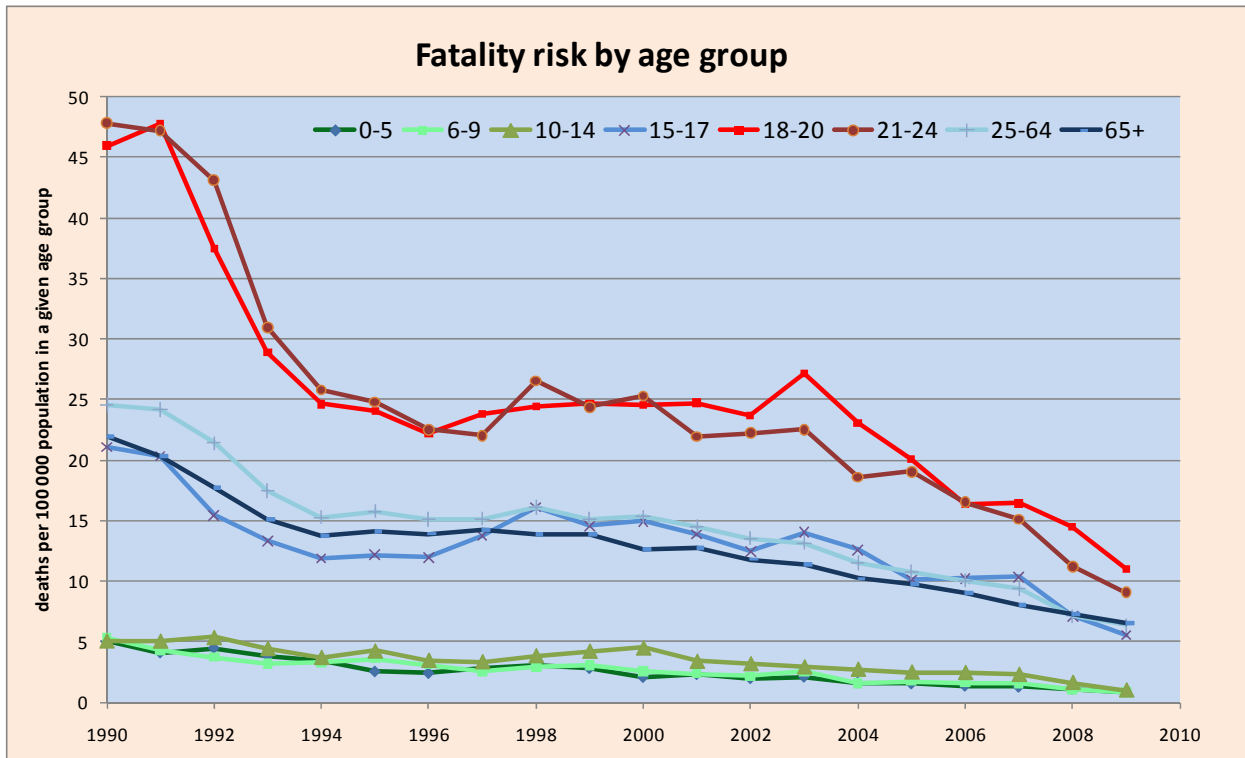
Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned children and young people.

Young people (18-24) still constitute a high-risk group; however, the mortality rate dropped significantly from 45 killed per 100 000 population in 1990 to 11 in 2009 for the 18-20 age group (Figure 3).

Table 5. Reported fatalities by age group

	1990	2000	2008	2009	2009 % changeover		
					2008	2000	1990
0-5	129	46	31	25	-19%	-46%	-81%
6-9	111	40	19	14	-26%	-65%	-87%
10-14	160	95	34	21	-38%	-78%	-87%
15-17	417	223	95	74	-22%	-67%	-82%
18-20	902	422	210	158	-25%	-63%	-82%
21-24	1 266	661	256	202	-21%	-69%	-84%
25-64	4 759	3 267	1 851	1 686	-9%	-41%	-56%
>65	1 134	843	551	501	-12%	-53%	-70%
Total	9 032	5 776	3 100	2 714	-9%	-41%	-56%

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



❖ Road type

In 2009, 75% of fatal crashes occurred on rural roads, 22% on urban roads and 3% on motorways.

Figure 4. Reported fatalities by road type
1980, 1990, 2000 and 2009

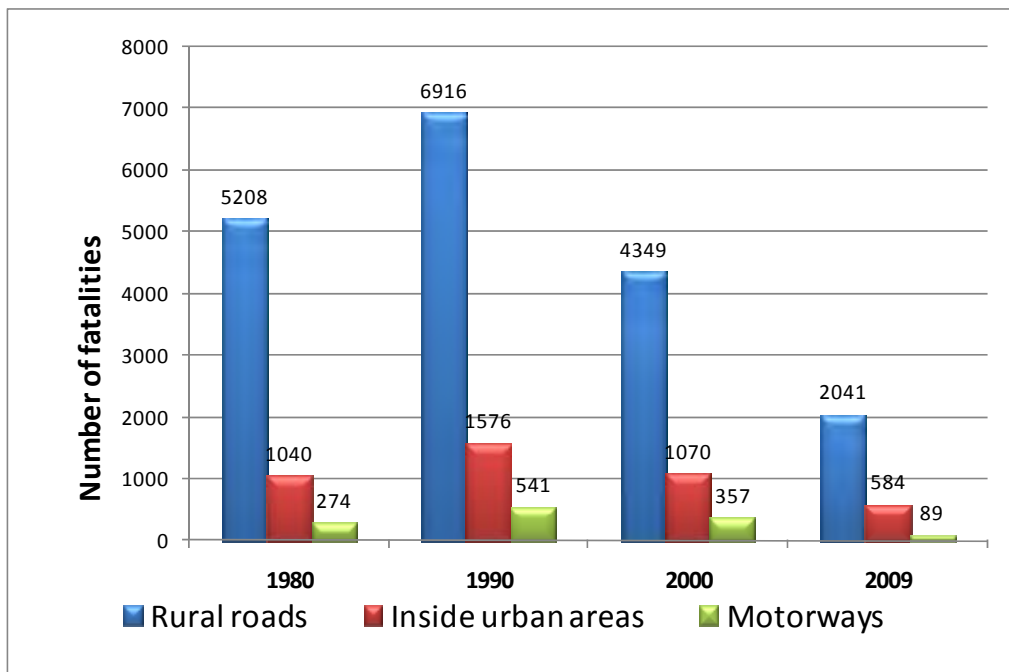


Table 6. Reported fatalities by road type

	1990	2000	2008	2009	2009 % changeover		
					2008	2000	1990
Inside urban areas	1 576	1 070	634	584	-8%	-45%	-63%
Rural roads	6 916	4 349	2 357	2 041	-13%	-53%	-70%
Motorways	541	357	109	89	-18%	-75%	-84%

4. Recent trends in road user behaviour

❖ Drink 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 5.1 million in 2009. 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 from 2003 to 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 and 2009 have remained around 30%.

❖ Speed

Speeding is a major concern in Spain and a contributory factor in about 28% of fatal crashes. Several speed-management measures are being implemented (see Section 6).

The percentage of drivers exceeding the speed limit by 20 km/h or less decreased from 24% in 2007 to 12% in 2009. The percentage of drivers exceeding the speed limit by more than 20 km/h decreased from 2.9% in 2007 to 0.7% in 2009. 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).

Table 7 illustrates the evolution of seat-belt and helmet wearing rates.

Table 7. Seat-belt and helmet-wearing rates

Seat-belt wearing rate	2003	2005	2006	2008	2009
Seat-belt wearing rate: car driver inside urban areas	60%	69%	82%	80%	88%
Seat-belt wearing rate: car driver outside urban areas	86%	81%	92%	95%	97%
Helmet wearing rate	2003	2005	2006	2008	2009
Helmet wearing rate: moped inside urban areas	59%	93%	91%	97%	98%
Helmet wearing rate: moped outside urban areas	70%	88%	94%	97%	99%
Helmet wearing rate: motorcycle inside urban areas	78%	98%	98%	99%	100%
Helmet wearing rate: motorcycle outside urban areas	93%	99%	99%	100%	100%

❖ Distracted driving

From 2002, the use of hand-held mobile phones while driving is forbidden. Only hands-free phones are permitted. As from 1 July 2006, driving using hand-held mobile phones, GPS or other communications devices means the loss of 3 points from the driving licence.

5. National road safety strategies and targets

❖ National road safety strategies

In 2003, Spain adopted a Road Safety Strategic Plan for 2004-2008. The plan has three axes:

- In 2004, the *Dirección General de Tráfico* (DGT) introduced a group of special road safety measures for 2004-2005 in order to achieve quick results. These measures were: implementation of the penalty points driving licence; creation of the National Road Safety Observatory; promotion of the Road Safety Council; a significant increase in the number of traffic agents; and the introduction of speed cameras on highways.
- Development of the 2005-2008 Key Strategic Action Plan, with active involvement of civil societies and other administrations.
- An Urban Road Safety Master Plan was developed to define a methodology for interventions in this specific area.

A Strategic Infrastructure and Transport Plan was also approved in 2004. More information is available on http://www.fomento.es/MFOM/LANG_CASTELLANO/ESPECIALES/PEIT/

❖ Safety targets and subtargets

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 2000 and 2010), Spain has achieved a 44% reduction. If the trend continues, achieving the European target seems feasible.

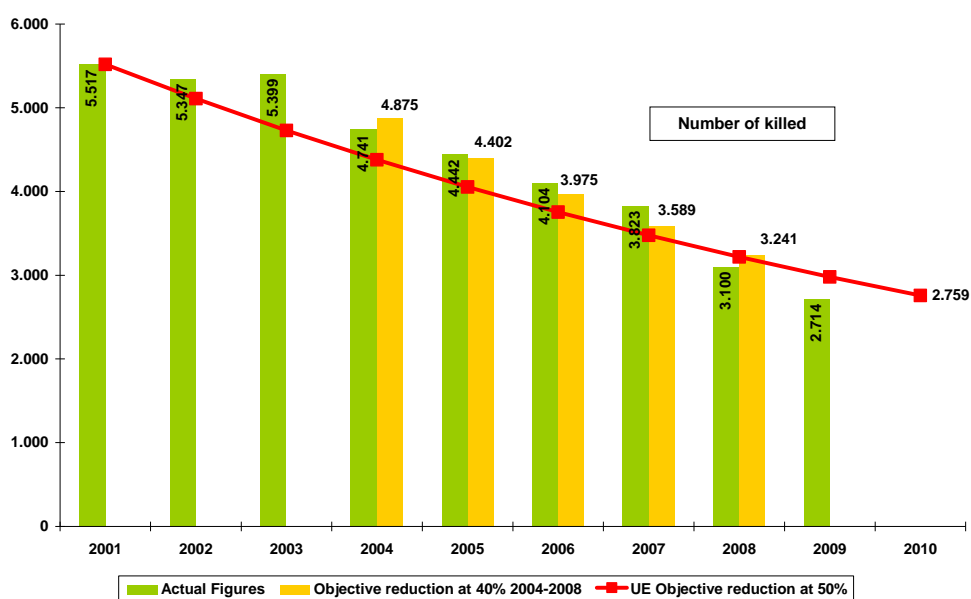
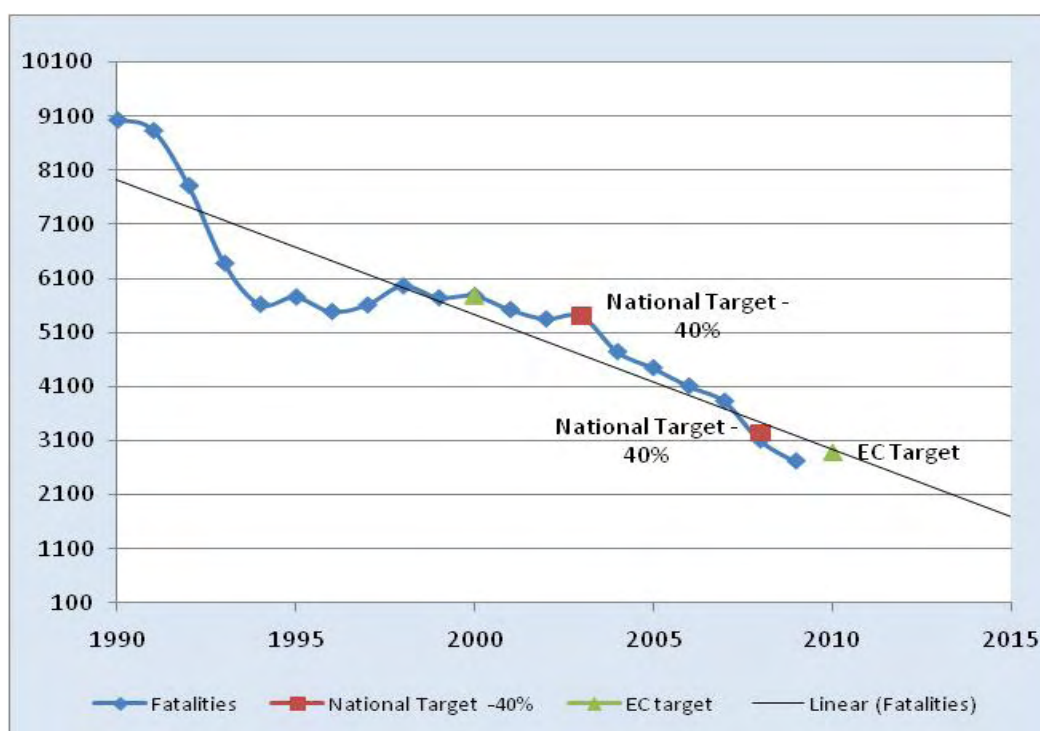
Other targets were established on vulnerable users killed, as well as those seriously injured. More information is available on:

http://www.dgt.es/was6/portal/contenidos/documentos/seguridad_vial/planes_seg_vial/estrategico_seg_vial/estrategico_2005_2008_006.pdf.

❖ Road safety strategies beyond 2010

A new Road Safety Plan 2010-2020, with new targets, is under development and will be ready at the end of 2010.

Figure 5. Trend in progress towards road fatality target



6. Recent safety measures (2009-2010)

❖ Institutions

- In 2009, signature of the Collaboration Agreement between the Spanish Federation for Municipalities and Provinces and the General Directorate for Road Traffic (DGT), for the purpose of developing more effective participation of town/city councils in road safety policy development.
- There will be signed agreements with town/city councils in which DGT will provide speed- and alcohol-measuring devices, and fund the development of urban road safety plans.

❖ **Licensing**

- Implementation of the Driving Licence Directive 2006/126/CE, which came into force in December 2009.

❖ **Road safety plans**

- The Strategic Plan on Road Safety for Motorcycles and Mopeds, launched in November 2007, is being monitored within the Spanish Road Safety Council. The Plan's following actions have been selected as the most relevant so far:
 - A specific mass-media communication campaign on PTW safety in 2008 and 2009;
 - Protection of guardrails with biker-friendly systems, according to a specific regulation issued by the Spanish Central Administration. The Ministry of Public Works has already protected 1 600 kms and plans to additionally protect another 1 600 kms;
 - Ensuring road safety for PTW users in urban areas. DGT is promoting the adoption of PTW-friendly measures by Spanish cities. Barcelona and Madrid have already implemented a PTW Safety Plan;
 - Special multi-agent campaign for the enforcement and promotion of the use of helmets in southern Spain;
 - Research programme on PTWs;
 - Specific Working Group for the development of a voluntary training market for motorcyclists.

❖ **Speed**

- Increase in the number of speed cameras on roads outside urban areas, from 465 in 2008 to 540 in 2009.
- Increase in the number of speed checks by fixed speed cameras, from 305 185 in 2008 to 473 337 in 2009. Refer to Section 4 for information on the evolution of speed violations.

❖ **Drink-driving**

- Increased enforcement for drink-driving. The number of controls has doubled in five years.
- Promotion of non-alcoholic beer: 10% of consumption is now non-alcoholic.
- Promotion of designated drivers.

❖ **Use of safety devices**

- Increased enforcement of safety-belt and helmet use.
- Specific campaigns for the use of helmets in the South of Spain.

❖ **Enforcement (general)**

- Special road surveillance and control campaigns in 2009:
 - Speed controls on secondary roads from 13 to 27 May.
 - Control of safety-belt use from 9 to 22 February.
 - Control of motorcycle and moped crash-helmet use from 4 to 18 June.

- Special campaign on alcohol from 6 to 19 July and from 7 to 20 December.
- Mobile phone use from 9 to 22 November
- School buses from 15 to 28 October.

❖ Infrastructure

- Signposting of blackspots on the central government network, as a temporary measure.
- A road safety master plan for built-up areas has been developed to serve as a guide for local authorities.

More information in English can be found on this link:

http://www.dgt.es/portal/es/seguridad_vial/planes_seg_vial/tipo_seg_vial

❖ Other measures

- The Traffic Law was modified in December 2009. The main measures were related to the punishment and follow-up of traffic offences.
- The Law created a new register for road traffic casualties, which is currently being developed. This register will collect data from coroners, hospitals and the police in order to better classify the types of victim (fatal, seriously and slightly injured) and to know the ICD of victims and the results of alcohol and drugs tests conducted by coroners.

7. Major research undertaken in 2009-2010

- Arenas Ramírez, B.; Aparicio Izquierdo, F.; González Fernández, C. ; Gómez Méndez, A. (2009), The influence of heavy goods vehicle traffic on accidents on different types of Spanish interurban roads. *Accident Analysis and Prevention*, 41, 15-24.
- Arregui-Dalmases, C.; Lopez-Valdes, F.J.; Segui-Gomez, M. (2010), Pedestrian injuries in eight European countries: An analysis of hospital discharge data. *Accident Analysis and Prevention*, 42, 1164-1171.
- Castillo-Manzano, J.I.; Castro-Nuño, M.; Pedregal, D.J. (2010), An econometric analysis of the effects of the penalty points system driver's license in Spain. *Accident Analysis and Prevention*, 42, 1310-1319.
- Donate-López, C.; Espigares-Rodríguez, E.; Jiménez-Moleón, J.J.; Luna-del-Castillo, J.d.D.; Bueno-Cavanillas, A.; Lardelli-Claret, P. (2010), The association of age, sex and helmet use with the risk of death for occupants of two-wheeled motor vehicles involved in traffic crashes in Spain. *Accident Analysis and Prevention*, 42 (2010), 297-306.
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8. References – Useful websites and references

General traffic Directorate	www.dgt.es
Research studies	http://www.dgt.es/portal/es/seguridad_vial/estudios_informes
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

SWEDEN¹

1. Short-term trends

❖ General comments on trends for 2009

In 2009, the number of road fatalities was 358, a 10% decrease from 2008. This decrease in fatalities coincided with a slight increase in mobility.

Fatalities decreased for all road user groups in 2009, compared to 2008. The biggest reduction in fatalities was for cyclists.

❖ Preliminary trends for 2010

Based on provisional data for the first 10 months of 2010, the number of fatalities has dropped about 18% compared to the previous year.

2. Long-term trends

❖ Change in the number of fatalities and injury crashes

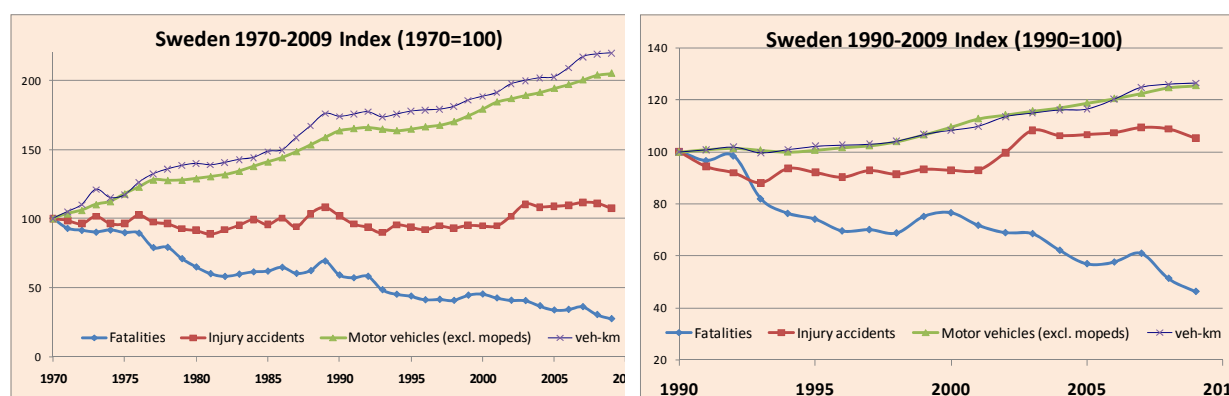
Between 1970 and 2009, the number of fatalities decreased by more than 70%, while the number of vehicles and the distance travelled doubled. The number of injury crashes remained quite constant over the years. This can be explained by the fact that most safety measures have targeted the most severe crashes, and by a much better reporting of injury crashes in recent years.

Table 1. **Reported road fatalities and injury crashes**
1970-2009

	1970	1980	1990	2000	2005	2008	2009	2009 % changeover		
								2008	2000	1970
Fatalities	1 307	848	772	591	440	397	358	-10%	-39%	-73%
Injury crashes	16 636	15 231	16 975	15 770	18 094	18 462	17 858	-3%	13%	7%

¹ Source: IRTAD, Swedish Transport Agency, Swedish Transport Administration, VTI.

Figure 1. Reported road fatalities, injury crashes and vehicles
1970-2009



❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 76%. Preliminary data indicate that the rate will be below 3.5 in 2010.

Table 2. Risk indicators
1970, 1990, 2000, 2008, 2009

Rates (reported)	1970	1990	2000	2008	2009	2009 % changeover	
						2000	1970
Deaths/100 000 population	16.3	9.1	6.7	4.3	3.9	-42.2%	-76.3%
Deaths/10 000 motor vehicles	4.9	1.8	1.2	0.7	0.7	-38.3%	-84.9%
Deaths/billion veh-km	35.3	12.0	8.5	5.1	4.4	-48.2%	-87.5%
Motorisation (number of vehicles/ 1 000 inhabitants)	330.3	506.9	534.4	586.5	585.6	+9.6%	+77.3%

3. Accident trends

❖ Road users

All user groups, but especially vulnerable road users, have benefited from the improvement. Between 1970 and 2009, the number of riders of mopeds killed decreased by 90%. The numbers of cyclists and pedestrians killed fell by more than 80% (although the number of fatalities among motorcyclists decreased only by 11%). Improvements in moped fatalities must, however, be seen in conjunction with the decreasing use of this mode of transport (Figure 2).

In 2000-2009, the number of motorcyclists killed increased by 21% and the number of moped riders killed by 10%. 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.

Table 3. Reported fatalities by road user group
1970, 2000, 2008 and 2009

	1970		2000		2008		2009		2009 % changeover		
	Count	%	Count	%	Count	%	Count	%	2008	2000	1970
Bicyclists	141	11%	47	8%	30	8%	20	6%	-33%	-57%	-86%
Mopeds	108	8%	10	2%	11	3%	11	3%	0%	10%	-90%
Motorcycles and scooters	53	4%	39	7%	51	14%	47	13%	-8%	21%	-11%
Car occupants	634	49%	393	66%	233	65%	219	61%	-2%	-42%	-64%
Pedestrians	308	24%	73	12%	45	13%	44	12%	-2%	-40%	-86%
Others	63	5%	29	5%	27	8%	17	5%	-74%	-76%	-89%
Total	1 307	100%	591	100%	397	100%	358	100%	-10%	-39%	-73%

Figure 2. Relative evolution of the number of motorised two-wheelers in traffic and the number of reported moped riders and motorcyclists killed in traffic

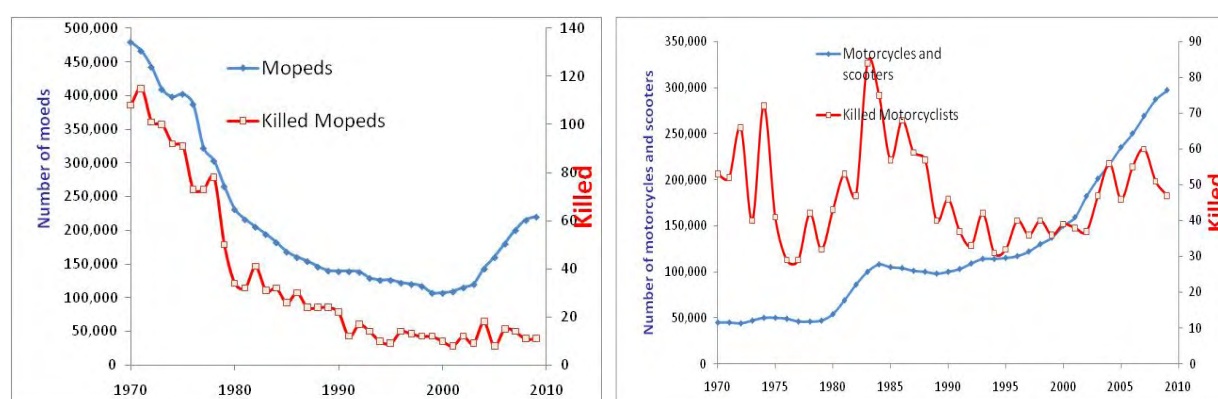


Table 4 illustrates the relative fatality risk for the different road user groups. For a motorcyclist, the risk of dying in a traffic crash is 19 times higher than that for a car occupant.

Table 4. Relative fatality risk by road user group (average 2004-2009)

	Reported fatalities (annual average 2004-2008)	Deaths (inside or on the vehicle) per million vehicles	Deaths (inside or on the vehicle) per billion veh-km
Mopeds	12	58	39.8
Motorcycles	52	185	75.7
Car and van occupants	252	59	3.9
Heavy goods vehicles	16	32	1.3

❖ Age

Since 1980, 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 work to separate traffic modes in urban areas.

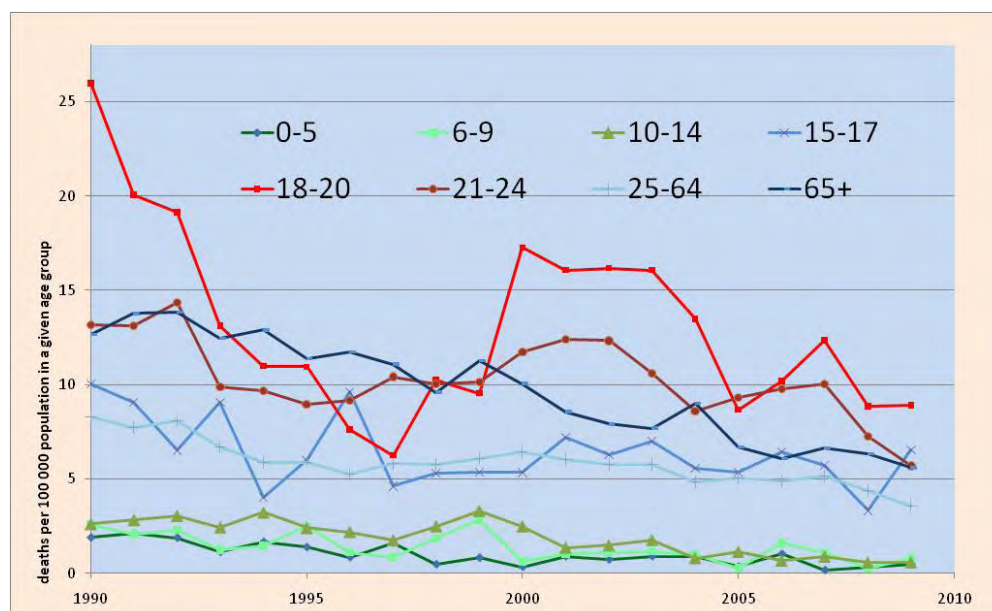
Young people (18-20) constitute a high-risk group, with a mortality rate twice as high as the older age groups. On the other hand, the mortality rate of the 21-24 age group reduced considerably

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**
1980, 1990, 2000, 2008, 2009

	1980	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1980
0-5	22	12	2	2	3	50%	50%	-86%
6-9	19	10	3	1	3	200%	0%	-84%
10-14	30	13	14	3	3	0%	-79%	-90%
15-17	54	34	16	13	25	92%	56%	-54%
18-20	63	88	53	32	34	6%	-36%	-46%
21-24	57	66	49	32	26	-19%	-47%	-54%
25-64	397	357	300	212	172	-19%	-43%	-57%
>65	206	192	154	105	92	-10%	-40%	-55%

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

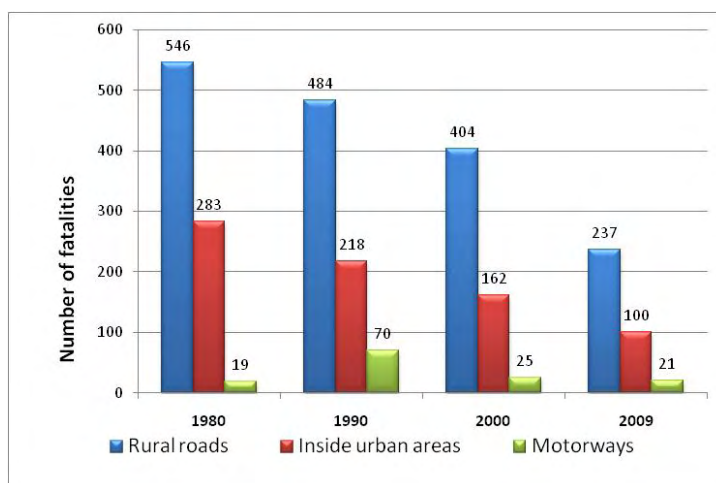


❖ Road type

In 2009, 66% of fatal crashes occurred on rural roads, 28% on urban roads and 6% 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: 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” roads¹, which has been very cost effective in reducing head-on collisions on rural roads.

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.

Figure 4. Reported fatalities by road type
1980, 1990, 2000 and 2009



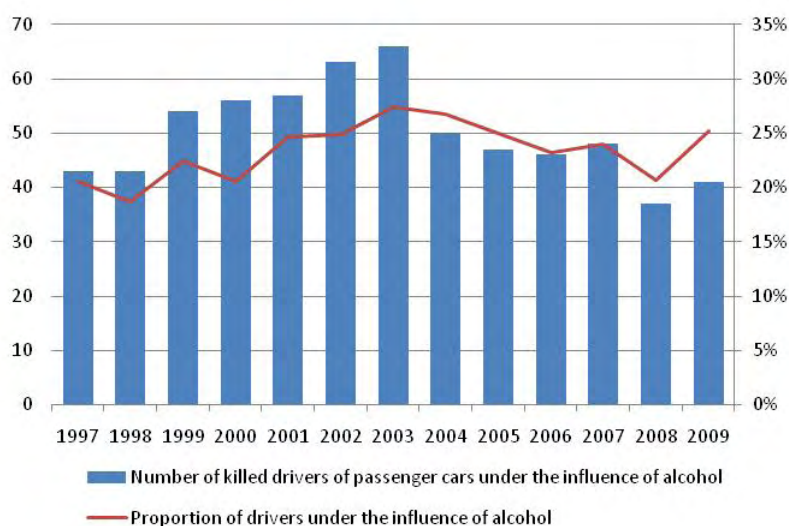
4. Recent trends in road user behaviour

❖ Drink-driving

In Sweden, the legal BAC limit is 0.2 g/l.

Figure 5 shows the evolution in the number of car drivers killed who had a BAC above 0.2 g/l. In 2009, 25% of motor vehicle drivers killed in crashes were under the influence of alcohol.

Figure 5. Evolution in the number of car drivers killed under the influence of alcohol
1997-2008



❖ 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.

The Swedish Government adopted a new speed limit system in 2008. The new speed limit system includes a larger number of speed limits (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 changed as necessary. The speed limits have been changed on 17 000 kilometres of roads and out of this, 15 400 kilometres have lowered speed. In 2010, changes in speed limits are targeting urban areas.

❖ **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 2009, the rate of seat-belt use for car occupants was about 96% in front seats, 95% for children and 80% 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.

Table 7. **Evolution in seat-belt usage rate on urban and arterial roads (%)**

	1990	2000	2003	2008	2009
General	87.3%	89,6%	90,6%	93,9%	95,0%
Front seats, driver	88,8%	90,1%	91,3%	95,2%	96,0%
Front seats, passenger	91,1%	92.3%	92.7%	94,8%	96,2%
Rear seats, adults	64.6%	72.3%	73.6%	74,3%	79,7%
Rear seats, children	78.5%	89.3%	90.1%	94,8%	94,7%

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 2009, the helmet usage rate for motorised two-wheelers was about 90% for mopeds and 95% for motorcycles; the rate was 27% for bicycles.

❖ **Distracted driving/Use of mobile phone**

There is no law in Sweden to ban or restrict the use of mobile phones (whether hand-held or hands-free) while driving.

5. **National road safety strategies and targets**

❖ **National road safety strategies**

The basis of Swedish road safety work is *Vision Zero*, a strategic approach towards a safe system where 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

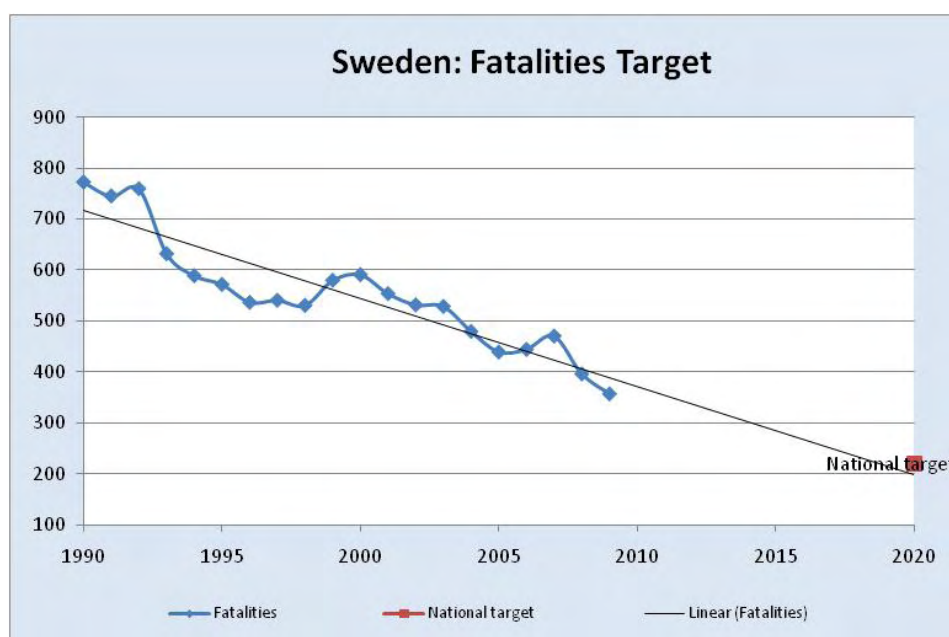
indicators, such as speed compliance and seat-belt usage. These objectives are supposed to guide the road safety work towards the interim target of 2020 and towards Vision Zero.

❖ Safety targets

In May 2009, the Swedish Parliament decided on a new road safety target for 2020 of a 50% reduction in fatalities from the base year 2006-2008, as well as the new management-by-objectives approach to road safety work. The core of the new system is the collaboration of different stakeholders. To reach the target, an annual reduction of about 5 % is required.

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 6. Progress towards road fatality target



6. Recent safety measures (2009-2010)

❖ Infrastructure

Roads with median barrier. At the end of 2009, more than 2 000 kilometres of roads had median barriers, mostly the wire type (2+1, 1+1). Research has shown that the risk of fatal or severe accidents on these roads has dropped by 75-80%, which is higher than expected.

❖ Speed

A new speed limit system was adopted in 2008 and includes a larger number of speed limits (10 steps, ranging from 30 km/h to 120 km/h) (see also Section 4). A review of all Swedish roads began in autumn 2008, and speed limits have been changed on 17 000 kilometres of the road network. By the end of 2009, more than 30 000 km of road had undergone a control of its speed limit due to the new criteria and many speed limit changes were made.

❖ Road user behaviour, enforcement

Installation of road-safety cameras enforcing speed limits continued in 2009, and there were 1 030 cameras by the end of 2010.

❖ Licensing, regulation

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 drivers. Speeding should be reduced for both groups.

The Parliament has decided that Class 1 mopeds will continue to be allowed for 15-year-olds (contrary to an EU directive), but they will be required to have a specific “AM” driving licence and education is compulsory. A driver’s permit is compulsory for Class 2 mopeds. The new rules were introduced on 1 October 2009.

❖ Other issues

The Swedish Transport Agency (*Transportstyrelsen*) was established on 1 January 2009 to gather judicial expertise from the national transport agencies for roads, railways, shipping and aviation. This agency will have the overall responsibility for drawing up regulations and enforcement.

On 1 April 2010, the Swedish Road Administration merged with the Swedish Rail Administration and some other, minor transport agencies, to form a new state authority responsible for traffic planning, including rail and road infrastructure.

7. Major research undertaken in 2009-2010

- **Evaluation of the new speed limit system.** The evaluation contains three parts:
 - Evaluation of changes in travel speeds, environmental effects, accessibility, etc., by measuring and analysing changes in speeds;
 - Roadside interviews and focus groups with certain groups of road users to evaluate their views on the new speed limit system;
 - Interviews with decisionmakers to evaluate their views on the process during the introduction of the new speed limit system.
- **Traffic safety and economic factors.** The aim of the project is to study how changes in economic conditions at the national level influence traffic safety. Both changes in the number of fatal crashes and fatalities and changes in the characteristics of crashes are studied.
- **Drowsy driving:** Researchers estimate that 10-30% of crashes may be related to lack of sleep. In order to learn about the process, from driving alert via sleepiness to sleep, many simulator experiments as well as studies with sleepy drivers on real roads are carried out. The major concerns are to identify changes in driver and driving behaviour during the process, but also to learn what is needed to convince sleepy drivers to take effective countermeasures.
- **Safe vehicle fleet:** Authorities in Sweden support research made by the car industry in order to develop techniques for safer traffic.

8. References – Useful websites and references

In Sweden there are now three authorities responsible for transport. These are:

- 1) Transport Analysis (*Trafikanalys*).
A Swedish agency for transport policy analysis, which analyses and evaluates proposed and implemented measures within the sphere of transport policy. They are also responsible for official statistics in the transport and communication sectors.
- 2) The Swedish Transport Agency (*Transportstyrelsen*).
This Agency has overall responsibility for drawing up regulations, examining and granting permits, as well as exercising supervision and ensuring that authorities, companies, organisations and citizens abide by them.
- 3) The Swedish Transport Administration (*Trafikverket*).
A public authority that takes on responsibility for long-term planning of the transport system. The authority is also responsible for the construction, operation and maintenance of public roads and railways.

All three authorities have responsibilities for road, rail, maritime and air traffic.

Besides these authorities, there exist research institutions such as VTI and Chalmers.

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/

SWITZERLAND¹

1. Short term trends

❖ General comments on trends for 2009

The number of road fatalities fell in 2009 to 349, a 2.2% decrease from 2008, thus reaching its lowest level since fatalities have been recorded. This continued positive trend was however unevenly shared among road users, as the number of cyclists killed doubled between 2008 and 2009 and reached its highest level since 1994. This is partly explained by the growing popularity of cycling as a mean of transport and the explosion of bicycles sales, including e-bikes.

❖ Preliminary trends for the year 2010

The figures for the first six months of 2010 showed the same number of fatalities as in the first half of 2009. More significant changes concern pedestrians (+21%) and cyclists (-21%). However, this positive decrease for cyclists is to be seen in perspective against the very bad results of 2009.

2. Long-term trends

❖ Evolution in numbers of fatalities, seriously injured and injury crashes

Between 1970 and 2009, the number of fatalities decreased by almost 80% and the number of injury crashes by 28%, while the number of vehicles more than tripled. In recent years (2000-2009), the number of fatalities continued to fall (by 41%). Moreover, since 2000 distances travelled have increased by 9%. Recent figures show a clear 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 little changed at around 600 per year. In 2004-2006, the rate of decrease significantly accelerated. In 2009, Switzerland had its lowest level of fatalities since record-keeping began.

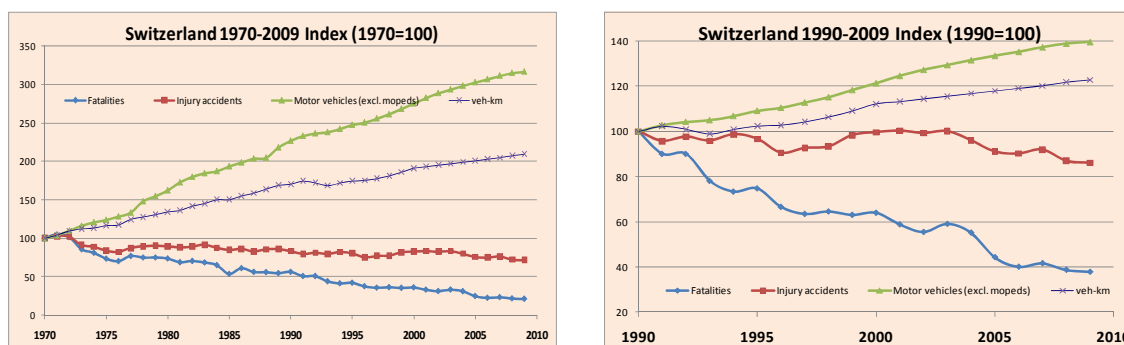
Recently, however, vehicle occupants have benefited more from safety improvements than the most vulnerable road users.

Table 1. Number of road fatalities and injury crashes, 1970-2009

	1970	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2009 % changeover		
													2008	2000	1970
Fatalities	1 643	925	592	544	513	546	510	409	370	384	357	349	-2.2	-41	-79
Injury crashes	28 651	23 834	23 737	23 896	23 647	23 840	22 891	21 706	21 491	21 911	20 736	20 506	-1.1	-13.6	-28

¹ Source: IRTAD; bfu.

Figure 1. Evolution in numbers of road fatalities, injury crashes and vehicles 1970-2009¹



❖ Risks and rates

Between 1970 and 2009, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 83%.

Table 2. Risk indicators
1970, 1980, 1990, 2000, 2009

Rates (reported)	1970	1980	1990	2000	2009	2009 % change over	
						2000	1970
Deaths/100 000 population	26.6	19.2	13.9	8.3	4.5	-46%	-83%
Deaths/10 000 motor vehicles	9.9	4.5	2.4	1.3	0.7	-46%	-93%
Deaths/billion veh-km	56.5	30.9	18.6	10.4	5.7	-45%	-90%
Motorisation (number of vehicles/1 000 inhabitants)	270	4296	567	640			

3. Accident trends

❖ Road users

All user groups, but especially pedestrians (-88%), have benefited from the improvement in road safety since 1970. Very good results were also achieved for mopeds (-94%), mainly due to an important reduction in exposure (Figure 2). The number of fatalities among motorcyclists decreased by almost 50% – far below the overall drop in fatalities.

A recent worrying trend concerns cyclists. In 2009, the number of cyclists killed doubled, compared to 2008, from 27 to 54, the highest level since 1994. One of the reasons could be the growing popularity of the bicycle, especially the e-bike as a means of transport, as reflected in the explosion of e-bike sales.

¹ The methodology to measure kilometrage data changed in 1994.

Table 3. Reported fatalities by road user group
1970, 2000, 2008 and 2009

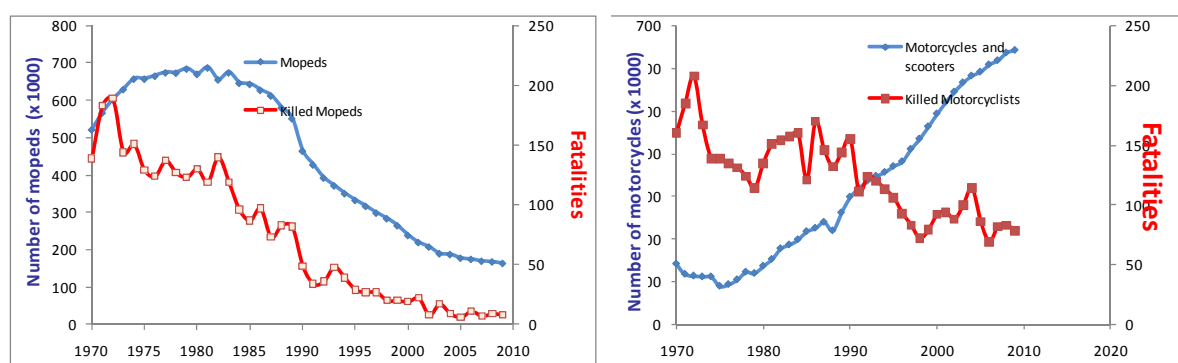
	1970		2000		2008		2009		2009 % changeover		
	Count	%	Count	%	Count	%	Count	%	2008	2000	1970
Bicycles	111	7%	48	8%	27	8%	54	15%	100%	13%	-51%
Mopeds	139	8%	19	3%	9	3%	8	2%	-11%	-58%	-94%
Motorcycles and scooters	160	10%	92	16%	83	23%	78	22%	-6%	-15%	-51%
Passenger car occupants	649	40%	273	46%	156	44%	136	39%	-13%	-50%	-79%
Pedestrians	504	31%	130	22%	59	17%	60	17%	2%	-54%	-88%
Other	81	5%	30	5%	23	6%	13	4%	-43%	-57%	-84%
Total	1 643	100%	592	100%	357	100%	349	100%	-2%	-41%	-79%

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 13 times higher than that for a car occupant.

Table 4. Relative fatality risk by road user group, 2009

	Reported fatalities	Deaths (inside or on the vehicle) per million vehicles	Average kilometrage per vehicle	Deaths (inside or on the vehicle) per billion veh-km
Mopeds	8	48.8	811	60.2
Motorcycles	78	121.3	3 530	34.4
Car and van occupants	136	33.9	13 055	2.6
Heavy goods vehicles	5	15.2	17 485	0.9

Figure 2. Relative evolution of the number of motorised two-wheelers in traffic and the reported number of moped riders and motorcyclists killed in traffic



❖ Age groups

Since 1970, a reduction in fatalities has been observed in all age groups, with the strongest decrease for children aged 0-9.

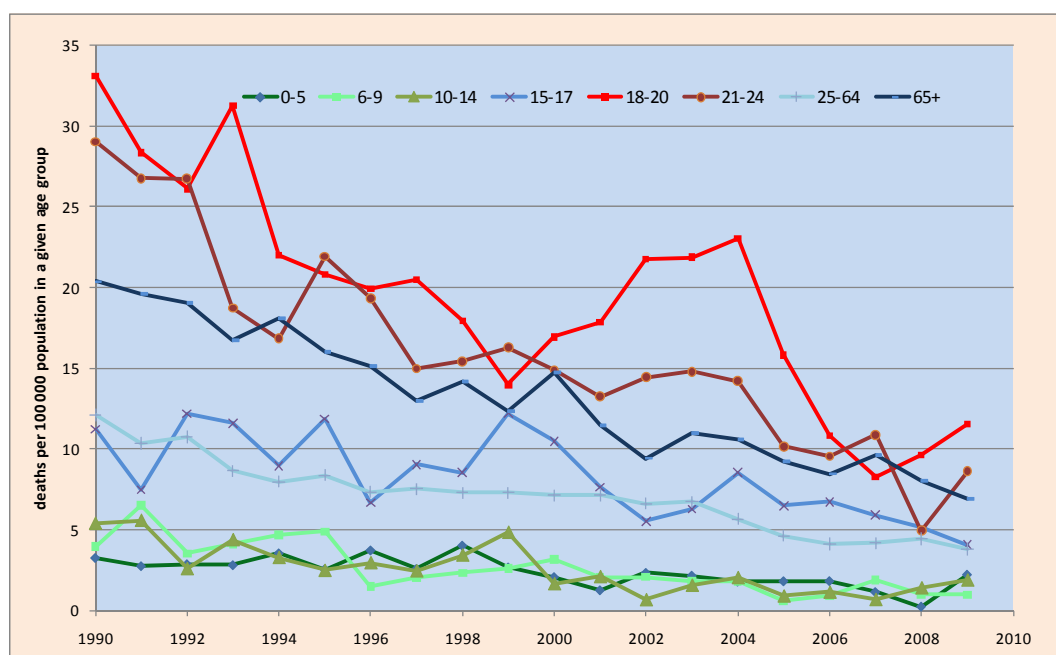
Relative to the number of inhabitants, young people aged 18-24 represent the largest group of casualties (Figure 3), mainly as car occupants and motorcyclists. This age group continues to be over-represented in traffic accidents. Their situation worsened in 2009, with a 78% increase in

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
1970-2009**

	1970	1980	1990	2000	2008	2009	2009 % changeover		
							2008	2000	1970
0-5	66	22	15	10	1	10	900%	0%	-85%
6-9	72	25	12	11	3	3	0%	-73%	-96%
10-14	47	28	20	7	6	8	33%	14%	-83%
15-17	48	46	28	26	14	11	-21%	-58%	-77%
18-20	127	133	93	42	26	32	23%	-24%	-75%
21-24	157	148	121	49	18	32	78%	-35%	-80%
25-64	724	513	438	285	189	165	-13%	-42%	-77%
>65	404	293	198	161	100	88	-12%	-45%	-78%
Total	1 643	1 209	925	592	357	349	-2%	-41%	-79%

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



❖ Road type

In 2009, 51% of fatal crashes occurred on country roads, 39% on urban roads and 10% on motorways. The decrease in fatalities over the last 20 years encompassed all road types.

Figure 4. **Reported fatalities by road type
1980, 1990 and 2009**

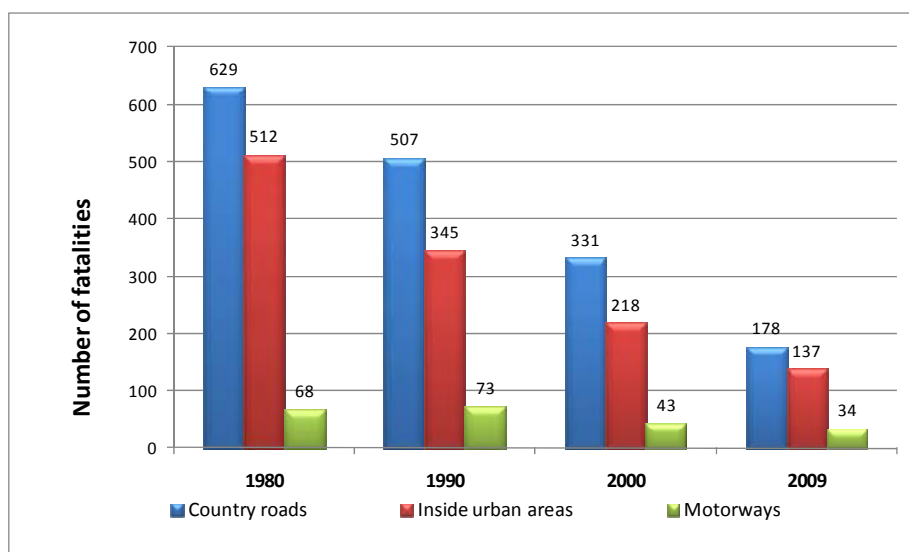


Table 6. **Reported fatalities by type of road**

	1980	1990	2000	2008	2009	2009 % changeover		
						2008	2000	1980
Inside urban areas	512	345	218	135	178	-9%	-46%	-72%
Country roads	629	507	331	195	137	1%	-37%	-73%
Motorways	68	73	43	27	34	26%	-21%	-50%

4. Recent developments in driving behaviour

❖ Drink-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 2009, 13% of fatal crashes involved a driver with a BAC above 0.5 g/l.

❖ Speed

Speeding is a contributing factor in around 40% of fatal accidents. In 2009, the proportion of drivers above the speed limit was 16% on urban roads, 25% on rural roads and 33% on motorways.

In most cases, inappropriate speed is to blame rather than excessive speed. Measures against speed problems included:

- Introduction of a 100 km/h speed limit on rural roads and 130 km/h on motorways (1977).
- Introduction of a 50 km/h speed limit in built-up areas (1984).
- Introduction of an 80 km/h speed limit on rural roads and 120 km/h on motorways (1990).

Purely automatic speed control does not exist in Switzerland. Fines are 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. The fines are also processed manually.

❖ 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 age 7. In 2010, the rate of seat-belt use was around 88% for drivers, 89% for front seat passengers and 74% 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.

Table 7. Evolution in seat-belt use for by occupants

	1980	1990	2000	2005	2010
Drivers	35%	67%	77%	82%	88%
Front seat passengers	-				89%
Rear seat passengers	-		32%	53%	74%
Motorways – driver	51%	80%	89%	90%	93%
Rural roads – driver	34%	71%	74%	82%	88%
Urban areas – driver	23%	53%	66%	74%	83%

❖ Distracted driving

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 2009, the police registered three fatalities (i.e. 1% of 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.

5. National road safety strategies and targets

❖ National road safety strategies

An action plan, “Via Sicura”, has been drawn up and is being discussed by the Swiss Government. Among its measures, all of which have undergone cost-benefit analysis, are:

- 0.0 BAC for young drivers and professional drivers;
- Treatment of black spots;
- Road safety audits;
- Compulsory helmet use for cyclists up to 14 years old;
- Limitation of the validity period of the driving licence (regular checks of ability to drive).

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 2012.

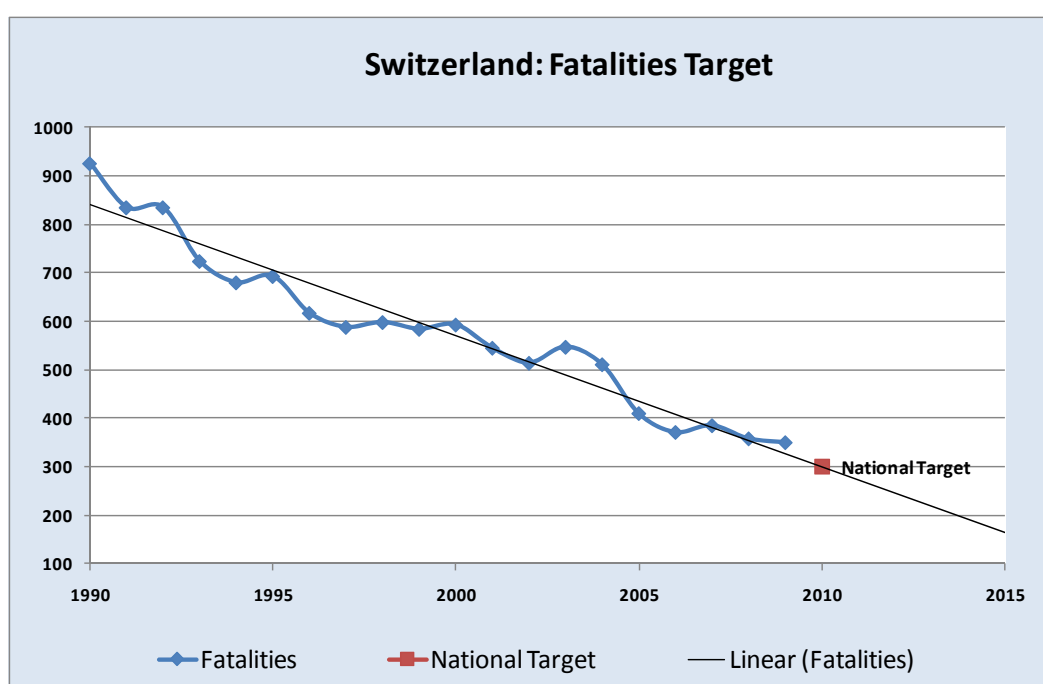
❖ Safety targets and subtargets

The current target in Switzerland is to halve the number of fatalities and seriously injured by 2010 in comparison to 2000. Based on preliminary results for 2010, it seems unlikely that the target will be reached, especially regarding the number of seriously injured. However, overall the last decade has recorded much progress.

Table 8. General road safety targets

Type	Targets (% and absolute figures)	Base year	Target year	Base year figure	Current results (figure in 2009)
Fatalities	-50% (300)	2000	2010	592	-41% (349)
Seriously injured	-50% (3 000)	2000	2010	6 191	-24% (4 708)

Figure 6. Trend in progress towards road fatality target



6. Recent safety measures (2007-2010)

❖ Cars

- Starting from 1 April 2010, new regulations were 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. Until 2010, this only concerned children younger than 7 years.

❖ Speed

- The first two section control systems (control of average speed between two points) were installed in 2010.

❖ Traffic law

- The Swiss Federal Roads Office started a project with the aim of simplifying the regulations concerning road traffic and signal systems.

❖ Education, communication and safety campaigns

- Upcoming (2011-13) campaign on driver fatigue;
- Continuation in 2011-13 of the head-rest campaign (www.kopfstuetzen.ch);
- Third seat-belt campaign, see <http://www.sicherheitsgurt.ch/indexflash.html>;
- Campaign by bfu and insurance companies on driver assistance systems, <http://www.auto-iq.ch/>;
 - Campaign on speeding, see <http://www.slow-n-easy.ch/>.

❖ Collection of safety data

- As of 2011, the responsibility for road accident data will switch from the Swiss Federal Statistical Office to the Swiss Federal Roads Office.
- A new reporting form will be introduced to all cantonal police forces (pilot-tested by some cantons in 2010). A new platform for data entry and analysis is already online.

7. Major recent or ongoing research (2008-2010)

- bfu (2010) STATUS2010 on non-occupational injuries (incl. road traffic), <http://www.bfu.ch/English/statistik/Pages/Statistik.aspx>;
- bfu (2010), SINDUS Report 2010 on safety and road accidents (in German, French and Italian).
- bfu (2010), Safety of car occupants, to be published end of 2010.

8. References – Useful websites and references

Road Safety Agency	www.astra.admin.ch
Swiss Council for Accident Prevention (bfu)	www.bfu.ch

UNITED KINGDOM¹²

1. Short terms trends

❖ General comments on trends for 2009 (United Kingdom)

Key results:

The number of people killed in road accidents **fell by 12 per cent** in 2009 in comparison to 2008.

- There were just under 232 000 road casualties in UK in 2009, 4 per cent less than in 2008.
- All user groups benefited from the improvements in fatalities in 2009 except bus and coach occupants.
- Greatest reductions were achieved for car users (-15% fatalities), pedestrians (-11%) and cyclists (-11%). A more moderate reduction (-4%) was achieved for motorcyclists.

❖ Preliminary trends for 2010

The provisional estimates for the second quarter of 2010 for Great Britain show a continuation of the strong downward trends in road casualties seen in the previous year. The number of fatalities fell by 19 per cent and the reported number of killed and seriously injured (KSI) casualties by 6 per cent compared to the same quarter in 2009. Traffic fell by 1 per cent over the same period. This may to some extent reflect particularly bad weather conditions early in 2010. The estimated number of fatalities in the 12 months ending June 2010 fell 19 per cent (from 2 467 to 1 990).

2. Long term trends

❖ Evolution in numbers of fatalities, seriously injured and injury crashes

United Kingdom:

Between 1970 and 2009, the number of fatalities decreased by 70% and the number of injury crashes reported to the police by 39%, while the number of vehicles increased by 141%. Since 1970, the distance travelled increased in Great Britain by around 149%. In recent years (2000-2009), the number of fatalities continued to fall, by 35%.

In 2009, compared with the 1994-98 average, the current baseline period used in Great Britain to measure progress on road safety:

- The number killed was 38 per cent lower.
- The number of reported killed or seriously injured casualties was 44 per cent lower.
- The number of children killed or seriously injured was 61 per cent lower; and
- The slight casualty rate was 37 per cent lower.
- In contrast traffic rose by an estimated 15 per cent over this period.

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

The number of fatalities changed very little between the mid 1990s and mid 2000s. Figure 2 shows that, in Great Britain, trends in numbers of fatalities and serious injuries were similar until 1998, but between 1998 and 2005, fatalities fell by 6% and serious injuries by 29%. However, between 2005 and 2009, fatalities fell more quickly, by 31% compared to 15% for serious injuries. These differences in trends are mainly for car occupants.

Fatalities fell by 14% between 2007 and 2008, and by a further 12% in 2009. There are many possible reasons which may contribute to these recent large reductions, but the economic downturn and falling traffic levels have played a part. Similar large falls in fatalities were seen in the recession in the early 1990s (Figure 3). Changes in the economy can affect particular groups; for example, fatalities in accidents involving young car drivers (ages 17-24) fell by 31% between 2007 and 2009 in Great Britain. In addition, fatalities involving HGVs in 2009 fell by 27% compared to 2008, over the same period HGV traffic fell by 8 per cent.

Table 1. Number of road fatalities, seriously injured and injury crashes 1970-2009

UK	1970	1980	1990	2000	2005	2008	2009	2009 % change over		
								2008	2000	1970
Fatalities	7 771	6 182	5 402	3 580	3 336	2 645	2 337	-11.6%	-35%	-70%
Injury crashes	272 765	257 282	265 600	242 117	213 043	176 814	169 805	-4%	-30%	-38%

Figure 1. Reported road fatalities, injury crashes and vehicles kilometres 1970-2009

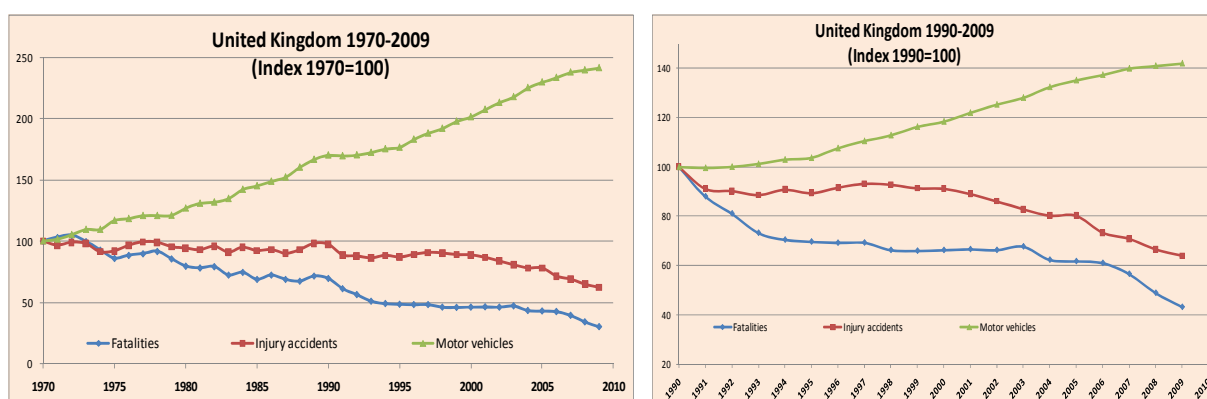


Figure 2. **Casualty trends by severity – Great Britain
1990-2009**

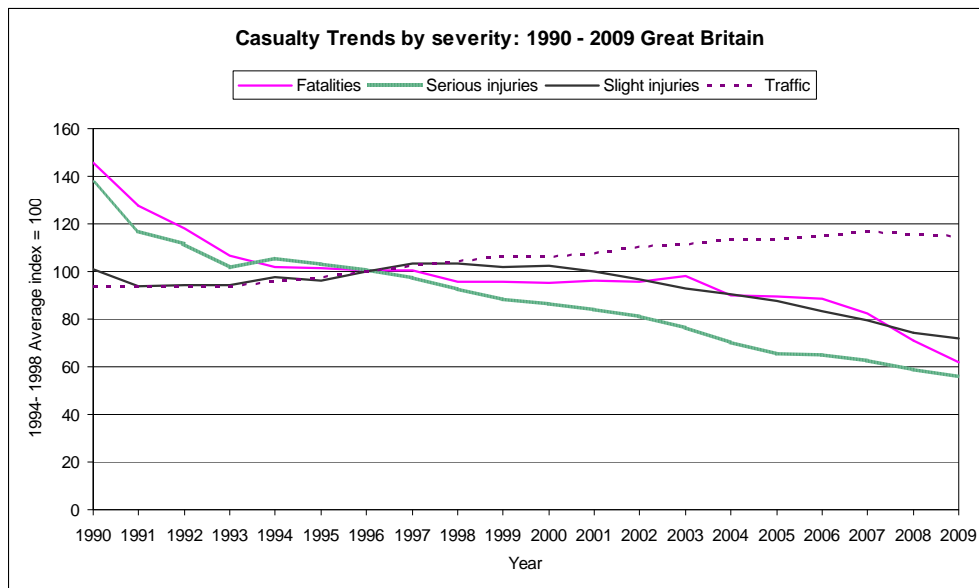
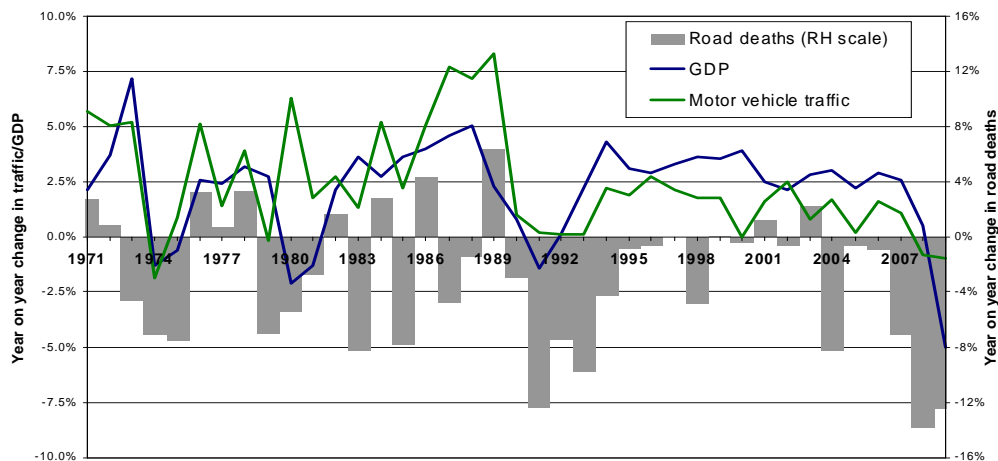


Figure 3. **Year on year change in road deaths, traffic and GDP: Great Britain
1970-2009**



❖ **Risks and rates**

Between 1970 and 2009 the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 73%. In 2009, the UK had a fatality rate of 3.8 killed per 100 000 population, the lowest rate among OECD countries.

Table 2. Risk indicators
1970, 1980, 1990, 2000, 2009

UK Rates (reported)	1970	1980	1990	2000	2009	2009 % change over	
						2000	1970
Deaths/100 000 population	14.0	11.0	9.4	6.1	3.8	-38%	-73%
Deaths/10 000 motor vehicles	5.3	3.3	2.2	1.2	.66	-46%	-88%
Deaths/billion veh-km **(GB)	-	-	-	7.59	4.59	-40%	-
Motorisation (number of vehicles/1 000 inhabitants)	263.6	329.9	435.8	501.4	572.8	14%	117%

3. Accident trends

❖ Road users (UK)

Between 1980 and 2009, the number of pedestrians killed decreased by 74%, the number of bicyclists by 67% and the number of motorized two-wheelers by 59%, and passenger car occupants showed a decrease of 52%.

In 2009, all road user groups benefited from a marked reduction in fatalities. Passenger car occupants who make up around half of fatalities fell by 15%. The next largest group, pedestrians (22%) fell by 11%. The decrease was less marked for motorcycle users, fatalities in 2009 were 4 per cent lower than during 2008. Motor cycle user fatalities make up about 21% of fatalities but only around 1 % of traffic.

Table 3. Reported fatalities in UK by road user group
1980, 2000, 2008 and 2009

UK	1980		2000		2008		2009		2009 % change over		
	No.	% of total	No.	% of total	No.	% of total	No.	% of total	2008	2000	1980
Passenger cars	2 360	38	1 784	50	1 323	50	1 130	48	-15	-37	-52
Bicyclists	316	5	131	4	117	4	104	4	-11	-21	-67
Pedestrians	2 035	33	889	25	591	22	524	22	-11	-41	-74
Motorcycles (all)	1 187	19	612	17	509	19	488	21	-4	-20	-59
Other road users	284	5	164	5	105	4	91	4	-13	-45	-68
Total	6 182	100	3 580	100	2 645	100	2 337	100	-12	-35	-62

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 35 times higher than that for a car occupant.

Table 4. Relative fatality risk by road user group (2009) GB data

GB	Reported fatalities	Deaths (inside or on the vehicle)	Kilometrage per vehicle type – 100 million vkms	Deaths (inside or on the vehicle) per billion vehicle-km
Bicycles	104	2.13	50	2.08
Motorcycles(all)	472	9.4	52	9.07
Car and taxi occupants	1057	0.55	4007	0.26
Heavy goods vehicles	14	1	264	0.05

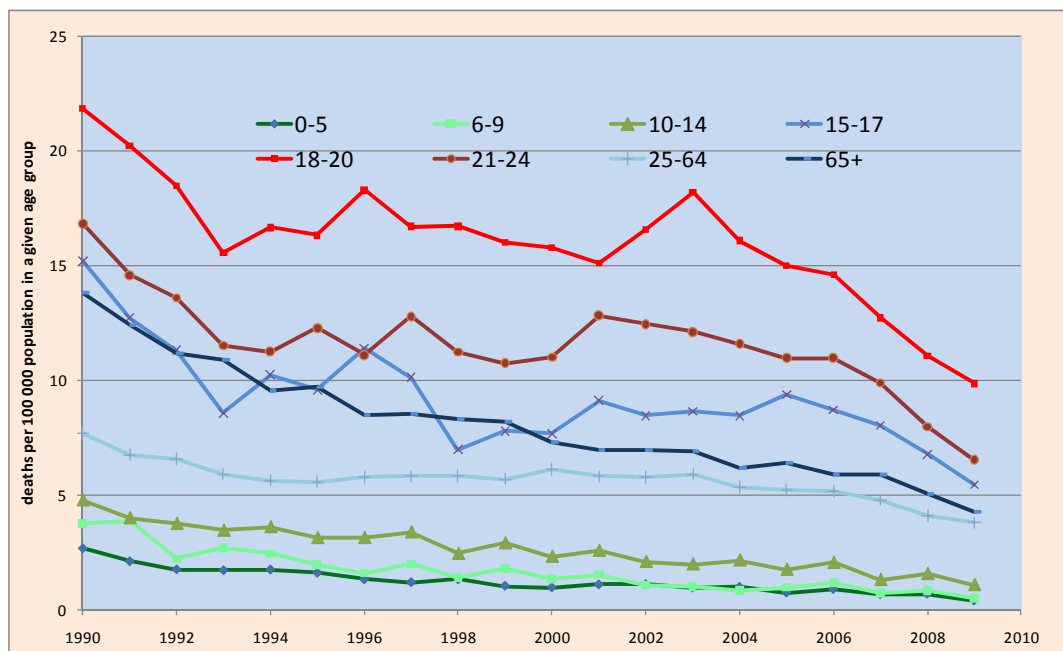
❖ Age groups (United Kingdom)

Since 1970, the reduction in fatalities has benefited all age groups, but the highest reduction concerned the youngest group (0-14), for which fatalities decreased by 88%, from 934 in 1970, to 69 in 2009. In 2009, 69 children (0-14) died on the roads, 41 less than in the previous year, a reduction of 37%.

Table 5. Reported fatalities by age group (UK)

	UK							2009 % change over		
	1970	1980	1990	2000	2007	2008	2009	2008	2000	1970
0-5	388	142	123	41	28	30	17	-43	-59	-96
6-9	285	139	108	41	20	23	13	-43	-68	-95
10-14	261	218	163	89	48	57	39	-32	-56	-85
15-17	513	559	335	169	192	160	126	-21	-25	-75
18-20	706	864	558	342	311	272	243	-11	-29	-66
21-24	673	578	616	304	328	270	224	-17	-26	-67
25-64	3 119	2 270	2 223	1 908	1 549	1 333	1 243	-7	-35	-60
>65	1 824	1 407	1 241	679	575	499	432	-13	-36	-76

Figure 4. Evolution of fatality risks by age group (deaths per 100 000 population in a given group) 1990-2008



❖ Road type

In 2009, 62% of fatal crashes occurred on rural roads, 32% on urban roads and 6% on motorways. A large majority of fatal crashes now occur on country roads. Since 1980, the largest improvement has been made on urban roads.

Figure 5. Reported fatalities by type of road
1980, 1990, 2000, 2007, 2008 and 2009

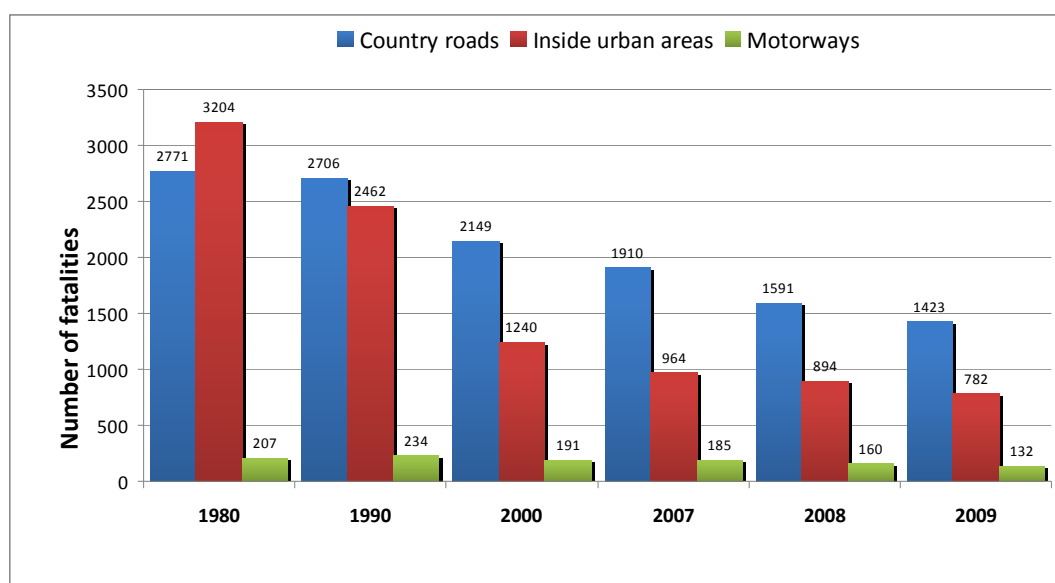


Table 5. Reported fatalities by type of road

	1980	1990	2000	2007	2008	2009	2009 % change over		
							2008	2000	1980
Country roads	2 771	2 706	2 149	1 910	1 591	1 423	-11%	-34%	-49%
Inside urban areas	3 204	2 462	1 240	964	894	782	-13%	-37%	-76%
Motorways	207	234	191	185	160	132	-18%	-31%	-36%

4. Recent trends in road user behaviour

❖ Drink driving

In Great Britain, the maximum authorised blood alcohol content is 0.8 g/l. In 2009, it was estimated that in 17% of fatal crashes one of the drivers had a BAC above 0.8 g/l.

The number of people killed in drink-drive accidents fell from 410 in 2007 to 400 in 2008, with a provisional figure for 2009 of 380 (17 per cent of all road deaths). The reduction in fatalities in drink drive accidents was smaller than the overall reduction in fatalities over this period

❖ Speed

It is estimated that around one third of fatal crashes are due to inappropriate speed.

❖ 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.
- * From 2007 there will be annual surveys only

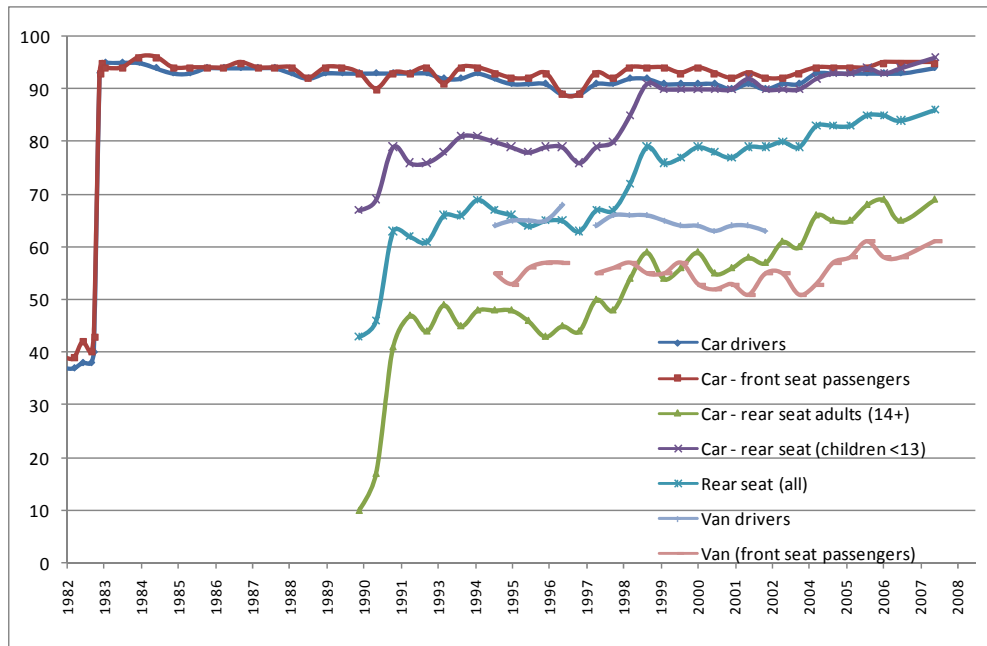
Table 7 illustrates the seat belt wearing rate as of 2009, and figure 5 illustrates the evolution in wearing rate since 1982.

Helmet wearing has been compulsory on motorcycles since 1973-74, and on mopeds (up to 50cc, maximum speed 45 km/h) since 1977. A helmet is not compulsory on bicycles.

Table 6. Car and van seat belt wearing rates in Great Britain 2009

Car drivers	Car Front Seat Passengers	Car Rear Seat Adults (14+)	Car Rear Seat Children (13-)	Car Rear Seat All	Van Drivers	Van Front Seat Passengers
95%	95%	79%	95%	89%	69%	68%

Figure 6. Evolution in seat belt use



❖ Distracted driving / use of mobile phone

Research demonstrates that reaction times for drivers using a handheld phone are 30 per cent 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 penalty is £60 and 3 penalty points. If the case goes to court, it's a maximum fine of £1,000 (£2,500 if driving a bus, coach or heavy goods vehicle), discretionary disqualification and 3 points.

A driver can also be prosecuted for using a handsfree 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.

5. National road safety strategies and targets

❖ National road safety strategies

In 2000, the then government published a safety strategy for Great Britain, "*Tomorrow's roads - safer for everyone*", covering the period up to 2010. The strategy included a number of targets (see table below).

Compared with the 1994-98 average (the baseline period used to measure progress on road safety), in 2009:

- The number of reported killed or seriously injured casualties was 44 per cent lower;
- The number of children killed or seriously injured was 61 per cent lower; and
- The slight casualty rate was 37 per cent lower.
- In addition, the number killed was 38 per cent lower;
- In contrast, traffic rose by an estimated 15 per cent over this period.

❖ Safety targets and sub targets

Table 7. Targets set in 2000 for the year 2010.

Type	Targets (in % or absolute figures)	Base year	Target year	Base year figure (Great Britain)	2009 results (Great Britain)
Fatalities and serious injuries (all)	40% reduction	1994-98 average	2010	47 656	26 912
Fatalities and serious injuries (children)	50% reduction	1994-98 average	2010	6 860	2 671
Slightly injured persons	10% reduction in casualty rate per veh-km	1994-98 average	2010	986 (casualties per bn veh-miles)	617(casualties per bn veh-miles)
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

❖ Road Safety Strategies beyond 2010

The new government, elected in May 2010, is currently working on developing a framework to continue reducing the number of casualties on our roads, which it is intended will be published by the end of April 2011. The overall approach of the framework will reflect the coalition government's principle of localism, and will focus on a more targeted approach to enforcement to tackle the irresponsible few. There will also be a greater emphasis on the role for education, including improving driver standards through driver education and training.

6. Recent safety measures (2007-2010)

❖ Road user behaviour, enforcement

Two new THINK! road safety campaigns have been launched:

- The dangers of texting while driving are highlighted in a new campaign after research showed that 30% of young drivers admitted to texting at the wheel (May 2009).

- The first national TV advertising campaign to tackle drug driving after new research showed that one in 10 young male drivers admit to driving after taking illegal drugs. The campaign highlights the fact that the police can and will detect drug drivers (August 2009).
- The Department for Transport evaluated the safety performance of motorcycle helmets and published ratings under the Safety Helmet Assessment and Ratings Programme - taking the number of ratings published to 150.
- A multiplayer, online computer game for 9-13 year olds, Code of Everand, was launched to promote child road safety.

7. Major research undertaken in 2007-2010

❖ Data and analysis

- The Department for Transport published the “**Reported Road Casualties Great Britain 2009: Annual Report**”, on 23 September 2010. The report provides detailed information about accident circumstances, vehicle involvement and the consequent casualties in 2009, along with some of the key trends in accidents and casualties.

<http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesgbar/>

The report also includes articles and analysis looking at: overview and trends over time, valuation of road accidents and casualties; analysis of road accidents involving drinking and driving; the contributory factors to road accidents; survey data on road traffic accidents, including an overall estimate of total casualties; hospital admissions data on road casualties; and an overview of the wider research programme on road user safety.

- Reported Road Casualties Great Britain: 2009 provisional estimates for accidents involving alcohol, was published on 5th August 2010. Fatalities resulting from drink drive accidents are estimated to have dropped from 400 in 2008 to 380 in 2009. Available from: <http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/rcgb09drinkdrive>
- Reported Road Casualties Great Britain provisional quarterly estimates: Q1 2010 published on, 5th August 2010 available from: <http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/rrcgbq12010>
- The Department for Transport has published new experimental statistics on breath alcohol screening tests in England and Wales in 2009. This report provides results of roadside breath alcohol screening tests, using new digital breath testing devices. The bulletin is available at: <http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/breathalcohol>
- Road Casualties Online (RCOL) is a new website aimed at making reported road casualty statistics more accessible to a wider audience by allowing users to perform their own analysis and download data. Road Casualties Online presently covers the period 2005 to 2009. In addition, a record level accident and casualty dataset for the period 2005-2009 has been released on RCOL. The web address for RCOL is: <http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/roadcasualtiesonline/>

A full list of recent publications can be found at:

<http://www.dft.gov.uk/pgr/statistics/recentpubs/recentpublications>

❖ Road Safety Research

Recently published reports can be found at:

<http://www.dft.gov.uk/pgr/roadsafety/research/>

Recent research publications cover issues including:

- Drinking and driving and drugs and driving such as monitoring speed awareness courses; a review of evidence on the relationship between blood and breath alcohol concentrations; skills and guidance for delivering effective drink drive rehabilitation courses; and a review of the evidence of medication and road safety.
- Speed including a review of the characteristics of speed related road traffic accidents; the relationship between speed of impact and injury severity amongst pedestrians and car occupants; and monitoring speed awareness course.
- On data and monitoring performance including casualty monitoring and forecasting as well as reviewing the classification of seriously injured casualties; and analysing driver licence records (DVLA).
- Other research includes research on cycling safety, the evaluation of road safety interventions in disadvantaged communities and a review of fatigue in relation to road safety.

8. References – Useful websites and references

UK Department of Transport – Road Safety Unit	http://www.dft.gov.uk/pgr/roadsafety/
Reported road casualties Great Britain 2009: Annual report	http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesgbar/
Fact sheets on specific topics	http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesgbar/suppletablefactsheets
Recently published reports	http://www.dft.gov.uk/pgr/roadsafety/research
Quarterly estimates	http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/rrcgbq12010
Department for Regional Development	http://www.drdni.gov.uk/

UNITED STATES¹

1. Short term trends

❖ General comments on trends for 2009

In 2009, 33 808 people were killed and an estimated 2.22 million people injured in motor vehicle traffic crashes in the US. Motor vehicle traffic fatalities declined each year in the past 7 years (with the exception of 2003) and reached its lowest level in six decades.

Fatalities declined among all categories of vehicle occupants and non-occupants. Motorcyclist fatalities broke the continuous 11-year increase with a large decline of 850 fatalities.

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.

The reduction in total fatalities may be due in part to a decrease in miles travelled, yet many additional factors affect the outcome of motor vehicle crashes, including the economy, unemployment, improvements in vehicle design, and highway safety programs.

❖ Preliminary trends for the year 2010

A statistical projection of traffic fatalities for the first three quarters of 2010 shows an estimated decline of about 4.5 percent as compared to the first three quarters of 2009. Preliminary data reported by the FHWA show vehicle miles traveled (VMT) in the first nine months of 2010 increased by 0.5 percent.

2. Long term trends

❖ Evolution in numbers of fatalities and injury crashes

Between 1970 and 2009, the number of fatalities decreased by 36% and the number of injury crashes by only 6.2%. In the same period, the number of vehicles was multiplied by 2.3 and the distance driven by 2.7. During the 1990s, there was little progress in terms of reduction 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 and 2009. As mentioned above, the reduction in fatalities may be partly explained by a reduction in distance travelled, as a consequence of the economic recession; but the overall decline in fatalities have been much greater than the reduction in traffic volume, thus assuming that the recent safety measures promoted by the US DoT have been effective. .

¹ Source: IRTAD; National Highway Traffic Safety Administration.

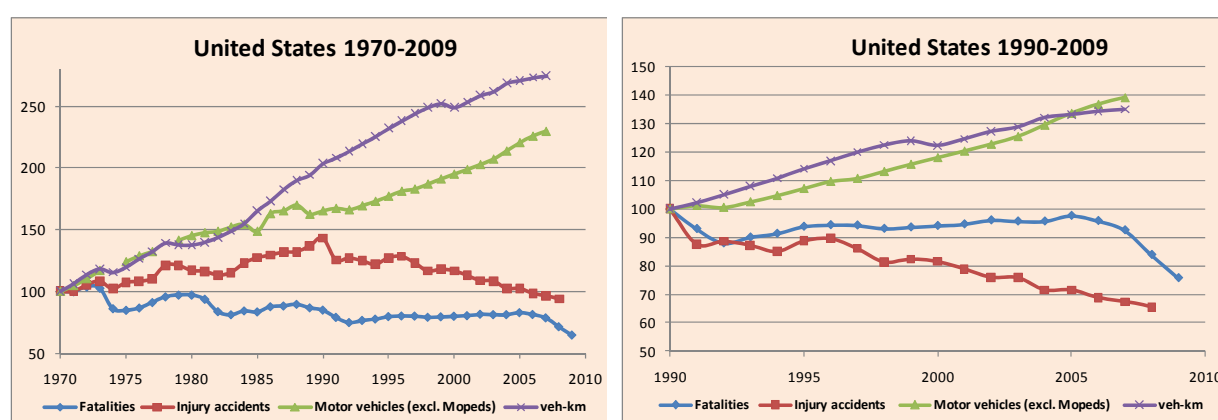
Table 1. Number of road fatalities and injury crashes
1970-2009

	1970	1990	2000	2005	2008	2009	2009 % change over		
							2008	2000	1970
Fatalities	52 627	44 599	41 945	43 510	37 423	33 808	-9.7%	-19.4%	-35.8%
Injury crashes	1 774 612	2 122 000	2 070 000	1 816 000	1 630 000	1 517 000	-6.9%	-27%	-15%

Note: Data cannot be verified prior to 1975 for fatalities, and 1988 for injury crashes.

Source: Fatalities – FARS 1990 to 2009; injury crashes – General Estimates System 1990 to 2009.

Figure 1. Evolution in numbers of road fatalities, injury crashes and vehicles
1970-2009 and 1990-2009



❖ Risks and rates

Between 1970 and 2009, the mortality rate expressed in terms of the number killed per 100 000 population was reduced by 57%, and the risk expressed by the number killed per billion vehicle-kilometres decreased by 76%. The fatality rate per 100 million vehicle-miles travelled (VMT) fell to a historic low of 1.13 in 2009.

Table 2. Risk indicators
1970, 1990, 2000, 2009

	1970	1990	2000	2009	% change over	
					2009-2000	2009-1970
Deaths/100 000 population	25.80	17.88	14.87	11.01	-26%	-57%
Deaths/billion veh-km	29.64	12.92	9.49	7.05	-26%	-76%
Deaths/10 000 vehicles		2.42	1.93			

Source: Fatalities – FARS 1990 to 2009; Population – US Census Bureau 1990 to 2009.

VMT – Federal Highway Administration (FHWA) 1990 to 2009 and Registration – FHWA 1990 to 2000.

3. Accident trends

❖ Road users

Since 1970, all road users except motorcycle riders have benefitted from the improvement in road safety. Motorcycle rider fatalities increased by 132% between 1970 and 2008. Table 3 shows the breakdown of road fatalities by user group.

Table 3. **Fatalities by road user group
1970, 2000, 2008 and 2009**

	1970		2000		2008		2009		2009% change over		
									2008	2000	1970
Bicyclists	760	1%	693	2%	718	2%	630	2%	-12%	-9%	-17%
Motorized 2-wheelers	2 280	4%	2 897	7%	5 312	14%	4 462	13%	-16%	54%	96%
Passenger car occupants	34 480	66%	20 699	49%	14 646	39%	13 095	39%	-11%	-37%	-62%
Pedestrians	8 950	17%	4 763	11%	4 414	12%	4 092	12%	-7%	-14%	-54%
Other	6 157	12%	12 893	31%	12 332	33%	11 529	34%	-7%	-11%	87%
Total	52 627	100%	41 945	100%	37 423	100%	33 808	100%	-10%	-19%	-36%

Source: FARS 2000-2008; IRTAD.

Between 1970 and 2009, the United States experienced a marked reduction of more than 60% in *passenger car fatalities* – from 34 480 to 13 095. A further reduction in passenger car 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 killed in motor vehicle crashes decreased by 54%. There was almost no progress in the reduction of the number of cyclists killed.

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. Per mile travelled in 2008, a motorcyclist was approximately 40 times more likely to die in a crash than someone travelling in a passenger car.

In 2009, motorcyclist fatalities broke the continuous 11-year increase with a large decline of 850 fatalities (24% of the total decline of 3 615). Motorcyclist fatalities now account for 13 percent of total fatalities. Passenger car occupant fatalities declined for the seventh consecutive year, and are at their lowest level since NHTSA began collecting fatality crash data in 1975. Light-truck occupant fatalities dropped for the fourth consecutive year, and are at their lowest level since 1997. The largest percentage reduction of people killed, in comparison with 2008, was among large-truck occupants (26%) compared to any other vehicle category, followed by motorcyclists with a 16-percent reduction.

Table 4 shows the relative risk of being killed in a traffic crash for different road users and indicates that risk for motorcyclists (in relation to distance travelled) is 40 times higher than for other motorised road users.

Figure 2. **Relative evolution in the number of motorised two-wheelers in traffic and the number of motorcyclists killed in traffic 1970-2009**

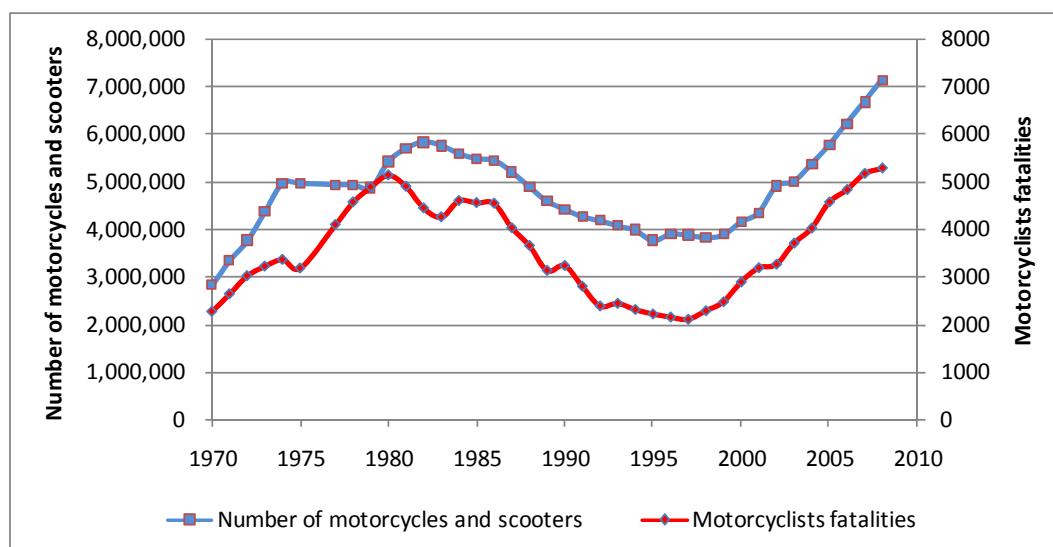


Table 4. **Relative fatality risk for different road users 2008**

Vehicle type	Deaths per million vehicles	Average kilometrage	Deaths per billion veh-km
Motorcycles	685.16	23 309	227.88
*Light vehicles	105.35	2 541 070	5.76
**Heavy vehicles	104.65	2 209 569	5.20

Source: Fatalities – 2008 FARS; VMT – 2008 Federal Highway Administration.

*Passenger Cars **Light trucks (SUVs, pickups, vans, etc.) + large trucks

This worrying trend in motorcycle safety is partly due to increased use, as motorcycles have become more popular (see Figure 2), especially among older riders, but unfortunately it is also due to the weakening of state helmet laws. Two-thirds of fatally injured motorcycle riders were not wearing a helmet in states without universal helmet laws, compared to 14% in states with such laws. Currently only 20 states have universal helmet laws, and every year there are challenges to those laws: universal helmet laws in one or two states may have been overturned in 2009. Alcohol-impaired driving is also a growing concern, 1 230 motorcycle riders were found to be alcohol-impaired (BAC of 0.08 or higher) in motor vehicle traffic crashes in 2009.

❖ Age groups

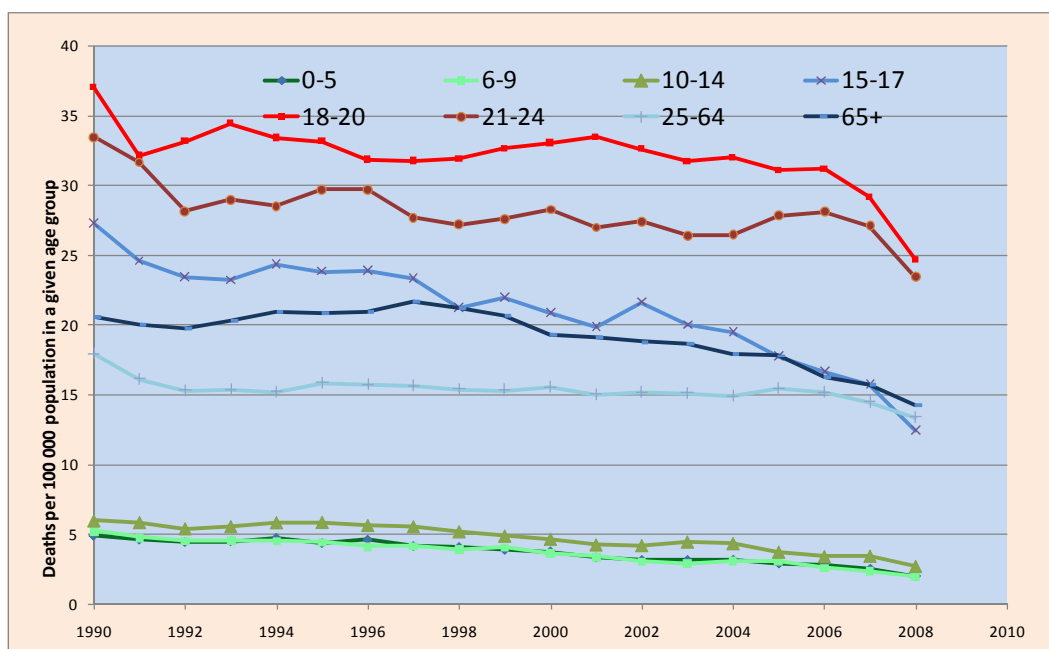
From 1980 to 2008, the United States experienced fatality reductions in all age groups, with the most impressive reduction for the youngest age group (0-14). Young people (15-24) are still a high risk group in road safety, with a fatality risk two times higher than the general population. Fatalities in the 25-64 group have remained high (the group spans 40 years) and relatively stable over the last 20 years (Table 5).

Table 5. Fatalities by age group

	1980	1990	2000	2008	2008	2009 % change over		
						2008	2000	1980
0-5	1 394	1 101	858	497	522	5%	-39%	-63%
6-9	965	752	579	310	288	-8%	-50%	-70%
10-14	1 388	1 025	926	540	504	-7%	-46%	-64%
15-17	4 011	2 744	2 467	1 596	1,295	-19%	-48%	-68%
18-20	6 927	4 564	3 967	3 187	2,861	-10%	-28%	-59%
21-24	7 521	5 049	4 061	3 940	3,287	-17%	-19%	-56%
25-64	23 215	22 812	22 267	21 579	19,693	-9%	-12%	-15%
>65	5 341	6 427	6 701	5 533	5,288	-5%	-21%	-1%

Source: FARS 1980-2009.

Figure 3. Evolution of fatality risks by age group
(deaths per 100 000 population in a given group)
1990-2008



❖ Type of roads

Since 1980, 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 1970 and 2008, which certainly must be analyzed in conjunction with the increase of the motorway.

Figure 4. Fatalities by type of road

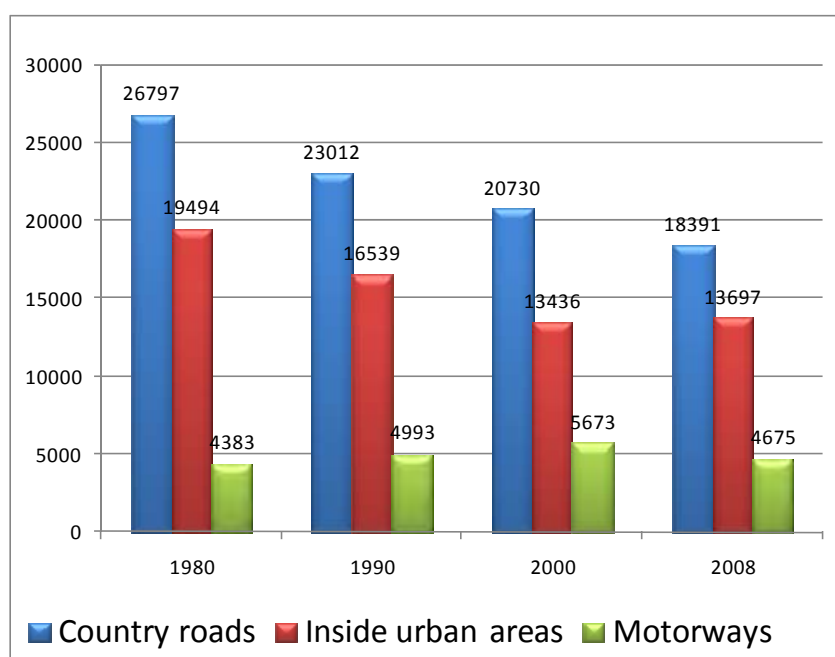


Table 6. Fatalities by type of road

	1980	1990	2000	2008	2009	2009 % change over		
						2008	2000	1980
Country roads	26 797	23 012	20 730	18 467	17 075	-8%	-18%	-36%
Inside urban areas	19 494	16 539	13 436	13 887	12 273	-12%	-9%	-37%
Motorways	4 383	4 993	5 673	4 722	4 075	-14%	-28%	-7%

Source: FARS 1980 to 2009.

4. Driving behaviour

❖ Drink driving and drug driving

Since 1998, the share of fatal crashes involving a driver with a BAC above 0.8 g/l has remained relatively stable. In 2009, 32% of fatal crashes involved drivers with a BAC of 0.08 or above (Table 7).

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.

In fatal crashes in 2008, a higher percentage of motorcycle riders had a BAC of 0.08 or higher than any other type of motor vehicle driver in fatal crashes.

Another area of concern is that more women are drinking and driving. The number of women arrested while driving under the influence increased by nearly 30% over the 10 years from 1998 to 2007. Over that same period, impaired-driving arrests for men decreased by 7.5%, although the total

number of men arrested outstripped women by about four to one. Overall, about 2 000 fatalities a year involve an impaired female driver.

Table 7. **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	10 839	32%	33 808

Source: FARS 1998-2009.

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 percent 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 percent of all fatally injured drivers and 33 percent 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 5-year time period.

Table 7a. 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 2008, 31% in 2009).

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, total fatalities have decreased. However, the proportion related to speeding has remained constant..

Table 8. Numbers killed in motor vehicle traffic crashes, by speeding involvement and year

Speeding involvement	2008	2009	% change
No speeding involved	25 656	23 217	-9.5%
Speeding involved	11 767	10 591	-10.0%
Total	37 243	33 808	-9.7%

Source: FARS 2008 and 2009.

❖ Seat belts and helmets

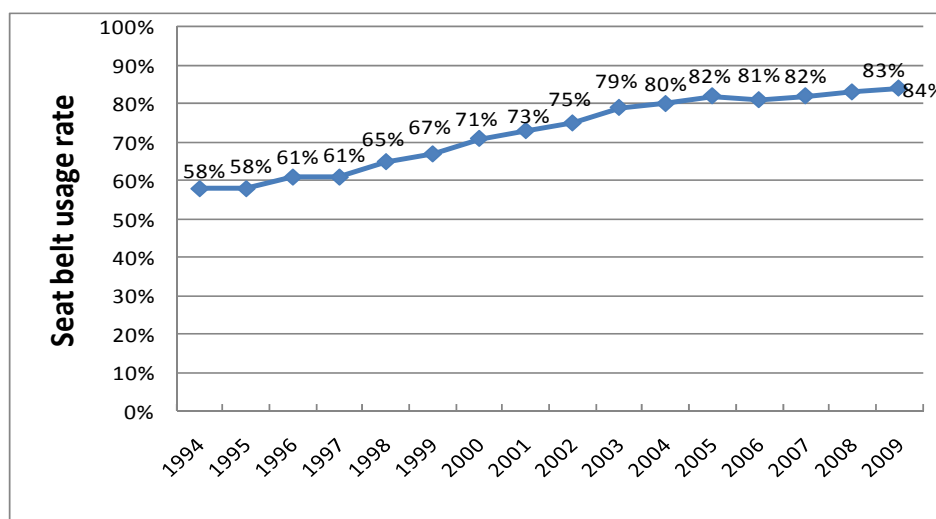
Seat belts

Primary belt laws (PBLs) allow law enforcement to stop a driver solely for not wearing a seat belt. In 2009, four states passed PBLs – more than in any previous year. These additions bring the total to 30 out of 50 states. In the other 20 states, drivers must commit another driving offence before they can be stopped. One state has no belt use law – primary or secondary.

In 2009, among fatally injured passenger vehicle occupants, more than half (53%) of those killed in 2009 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 continues to climb. In 2009, the national rate was 84%, and 15 states and the District of Columbia had rates higher than 90%. Some states, including Hawaii and California, had over 95% usage rates while that of New Hampshire was 69%.

Figure 5. **Observed seat belt usage rates in front seats
1994-2008**



Source: National Occupant Protection Usage Survey.

Table 9. **Seat belt usage rate in front and rear seats
2009**

Rear seat	70%
Front seat	84%

Source: National Occupant Protection Usage Survey.

Helmets¹

Motorcycle helmet laws are issued and enforced by the individual states; there is no national law requiring motorcycle helmet use. Twenty states, 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 20 October 2009, 21 states and the District of Columbia have enacted age-specific bicycle helmet laws, and more than 192 localities have enacted some form of bicycle helmet legislation. Table 8 shows the evolution in motorcycle helmet usage since 1998.

Table 10. **Evolution in motorcycle helmet usage
1998-2008**

	1998	2000	2002	2004	2006	2008	2009
Usage rate	67%	71%	58%	58%	51%	63%	67%

❖ Distracted driving

¹ For more information, see :

Motorcycle Helmet Use in 2009 – Overall Results http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2005/811_254.pdf

Calculating Lives Saved By Motorcycle Helmets <http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2005/809861.pdf>

Distracted Driving 2009 – <http://www-nrd.nhtsa.dot.gov/Pubs/811379.pdf>

In 2009, 5 474 people were killed on U.S. roadways, and an estimated additional 448 000 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, 995 involved reports of a cell phone as a distraction (18% 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 (5% of injured people in distraction-related crashes). Sixteen percent of fatal crashes and 20 percent of the injury crashes in 2009 involved reports of distracted driving.

The age group with the greatest proportion of distracted drivers was the under-20 age group – 16 percent of all drivers younger than 20 involved in fatal crashes were reported to have been distracted while driving. Of those drivers involved in fatal crashes who were reportedly distracted, the 30- to 39-year-olds had the highest proportion of cell phone involvement.

There are inherent limitations in the collection of the distracted driving data available through FARS and GES. Due to variability in the collection of such information on the police accident reports between the states and the reporting requirements of the information, there is variability among the states with respect to the involvement of distraction in the crash. Additionally, there is underreporting of the involvement of distraction because of self-reporting and unavailable data because of death of vehicle occupants.

State Traffic Safety Law Chart June 2010					
State	Distracted Driving	State	Distracted Driving	State	Distracted Driving
AK	X	MA		OR	X; H
AL		MD	X; H/S Δ	PA	
AR	X	ME		RI	X
AZ		MI	X	SC	
CA	X; H	MN	X	SD	
CO	X	MO	$\leq 21X$	TN	X
CT	X; H	MS		TX	
DE		MT		UT	X
FL		NC	X	VA	X/S
GA	X	ND		VT	X
HI		NE	X/S	WA	X; H
IA	X/S	NH	X	WI	X
ID		NJ	X; H	WV	
IL	X	NM		WY	X
IN		NV		Total	29
KS	X	NY	X/S; H	DC	H
KY	X	OH		PR	
LA	X	OK			

X = Texting Ban for All/Primary;
H/S = Handheld ban/Secondary
X/S = Texting ban/Secondary;
 Δ Goes into effect 10/1/2010
H = Handheld cell phone ban for All/Primary;

5. National road safety strategies and targets

❖ National road safety strategies

The number one priority of the Department of Transportation (USDOT) remains safety. Despite

encouraging recent trends showing a decrease in the number of fatalities, there is still considerable work to be accomplished. Even in the country's best year to date, nearly 34 000 lives were lost. USDOT is identifying new strategies and initiatives to pursue more aggressively highway safety. It is continuing to focus on trends that have had detrimental consequences and other external factors that are impeding progress, most notably:

- Alcohol-related fatalities, an area of relatively little progress in the past decade.
- Motorcycle fatalities, although having declined after increasing continuously for 11 straight years to reach 4 462 in 2009, still account for 13% of total fatalities.

USDOT is also preparing for highway reauthorization and planning an agenda for the future.

❖ **Targets**

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 measure and has been re-established to take into account the recent declines in the frequency of fatal motor vehicle crashes. In 2008, there were 1.26 fatalities per 100 million vehicle miles travelled and the projection for 2009 is 1.13 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.

6. Recent safety measures (2007-2010)

❖ **Road user behaviour**

Seat belts

- Four more states enacted primary seat belt laws in 2009, bringing the total to 30 out of 50 states.

Impaired driving

- The most recent national enforcement campaign, “Drunk Driving. Over the Limit. Under Arrest,” took place from 21 August to 7 September 2009, with a focus on reducing impaired driving. This effort was supported by USD 13 million in paid national advertising. A special emphasis was put on motorcyclists.
- A major initiative focuses on alcohol detection devices, called ignition interlock, that prevent an offender from starting a vehicle. Currently 47 states allow the use of these devices and about 10 states require them to be used for first-time offenders. The NHTSA provides training to state prosecutors and judges on implementation of ignition interlock laws. Another successful

countermeasure is the use of drink driving courts overseen by local judges. They hold offenders to a high level of accountability, while offering long-term intensive treatment and compliance monitoring. There are more than 500 such courts.

Mobile phones

- The number of states with laws on use of cell phones or texting while driving continued to increase in 2009. Now, seven states ban the use of hand-held phones and 21 states ban novice drivers from all cell phone use. Text-messaging is banned for all drivers in 18 states. USDOT convened a national summit on distracted driving from 30 September to 1 October 2009, in Washington, DC, to address the issue. Following the summit, President Obama issued an executive order prohibiting federal employees from text-messaging while driving government-owned vehicles; when using government-supplied electronic equipment while driving; or while driving privately owned vehicles when on official government business. In addition USDOT is initiating rulemaking procedures to:
 - codify restrictions on the use of cell phones and other electronic devices in rail operations;
 - consider banning text-messaging and restricting the use of cell phones by truck and interstate bus operators while operating vehicles;
 - disqualify school bus drivers convicted of texting while driving from maintaining their commercial driver's licenses.

❖ Vehicle safety regulation

- In 2009, the United States published final rules and notices of proposed rulemaking (NPRMs) for several key federal motor vehicle safety standards. These include a final rule requiring new school buses with a gross vehicle weight rating of 4 536 kg or less to have lap/shoulder belts in lieu of the lap belts currently required; a proposed upgrade to the US motorcycle helmet standard to reduce misleading labelling of non-compliant helmets and aid state and local law enforcement officials in enforcing state helmet laws; and a final rule upgrading roof crush resistance requirements to include a two-sided test procedure as part of a comprehensive plan to reduce the risk of rollover crashes and the attendant risk of death and serious injury. For light passenger vehicles, this final rule doubled the amount of force the roof structure must withstand, and it extended the applicability of the standard to heavier vehicles.
- In the area of crash avoidance, a final rule improving the stopping distance requirements for heavy trucks will require trucks to enhance their braking systems. It is expected to save 227 lives annually, prevent 300 serious injuries and reduce property damage costs by over \$169 million. Also proposed is an upgrade to the motorcycle braking standard by applying a global technical regulation to replace some existing tests with more effective ones, eliminate outdated tests and requirements, and add clear and objective requirements that reflect best practices around the world. The upgrade would also address new technologies, such as anti-lock brake systems and combined brake systems. Other rulemaking procedures related to power windows and to technology intended to reduce the possibility of a driver accidentally backing over a child. These were among measures required by the Cameron Gulbransen Kids Transportation Safety Act.
- In relation to fuel economy, the United States released a final rule on the Corporate Average Fuel Economy (CAFE) Standards for Passenger Cars and Light Trucks for the 2011 model year (MY). It also published a joint NPRM with the Environmental Protection Agency proposing CAFE standards for MY 2012-2016. It is estimated that the proposed standards would raise the industry-wide combined average to 34.1 miles per gallon, save 62 billion gallons of fuel over the lifetime of the MY 2011-2016 cars and light trucks, and reduce CO₂ emissions by 656 million tonnes during that period.

- In 2009, NHTSA continued to provide consumers with comparative vehicle safety information through the New Car Assessment Program and announced its intention to launch a programme in MY 2011 to help consumers select the child seats that best fit their vehicles. Other key vehicle-related safety accomplishments over the past year include a new rule clarifying designated seating positions in light passenger vehicles, and the alteration or expansion of several federal motor vehicle safety standards to better protect the public. The upgraded standards include those regulating protection of occupants and protection against theft, as well as one updating child restraints to comply with advanced air bag requirements.

❖ **Vehicle safety research**

- Research efforts in 2009 included the development of safety benefit estimates and objective test procedures for newly emerging technologies, including back-over prevention/rear visibility, tire fuel efficiency and advanced technology such as lane departure/keeping systems and pre-crash braking systems. Research related to drink driving included development of several types of non-intrusive, vehicle-based alcohol detection technology, with selection to be based on technical risk and potential effectiveness. Research in biomechanics focused on injury mechanics related to children; the development and release of a rotational brain injury estimator; and dummy development, including the ISO World Side Impact Dummy (WorldSID) and advanced frontal dummy enhancements. The Crash Injury Research Engineering Network (CIREN) programme completed work on combining CIREN and National Automotive Sampling System data, making the BioTAB tool operational, and exploring injuries associated with narrow impacts. Research related to crashworthiness focused on frontal and side impact protection and launched a programme investigating roll-over crashes. Research was also conducted to explore the safety of hydrogen as a motor vehicle fuel.

❖ **Vehicle safety enforcement**

- The United States continued to conduct tests to assure manufacturer compliance with federal motor vehicle safety standards as well as defect investigations to make sure that unsafe vehicles were removed from the nation's highways. It completed critical vehicle crashworthiness and crash avoidance compliance testing in 2009, including testing for compliance with, and/or developing test procedures for, several new or substantially revised standards. Among these were those for light vehicle tires, tire pressure monitoring systems, electronic stability control (ESC), roof crush and side impact. The test subjects included a commercial bus. Safety defect recalls also continued.

❖ **International policy and harmonization**

- Under the 1998 Agreement of the World Forum for Harmonization of Vehicle Regulations (WP.29), the United States is among countries having completed several critical global technical regulations. The harmonized regulations address vehicle glazing, pedestrian safety, vehicle head restraints and ESC for light vehicles. The ones on pedestrian safety and ESC are of particular note, as these are new areas of regulation for the United States.

❖ **Infrastructure**

- The FHWA Safety Program has identified four focus areas that constitute major safety problems based on their levels of involvement in fatalities and serious injuries: roadway departure crashes, involved in 53% of traffic fatalities; intersection-related crashes, accounting for 21% of traffic fatalities; pedestrian crashes, which account for 12% of fatalities; and speed-related crashes, a contributing factor in 31% of fatalities. The FHWA has identified nine countermeasures or strategies that have been determined to be effective in reducing incidences of these crashes. It promotes them to state and local agencies for implementation on roadways under their jurisdiction.

- The strategies include installing rumble strips and stripes, median barriers, safety edge paving, roundabouts, left and right turn lanes and yellow change intervals for signalized intersections; and medians, refuge areas and walkways for pedestrians. The FHWA also promotes roadway safety audits as part of these strategies. The countermeasures are summarised at <http://safety.fhwa.dot.gov/newsletter/safetycompass/2009/fall09/fall09.pdf>.

To implement the strategies, each state has developed a Strategic Highway Safety Plan. No specific national goals have been established thus far for reductions in the focus areas. However, several potential targets are under consideration.

Other FHWA programmes include:

- **Highway Safety Improvement Program.** This program has apportioned funds to the states since FY 2006 with the intention of achieving significant reductions in traffic fatalities and serious injuries on all public roads. It emphasizes a data-driven, strategic approach that focuses on results.
- **Model Minimum Inventory of Roadway Elements.** The FHWA is developing MMIRE as a standardized listing of roadway data elements that can be used to describe the roadway and traffic characteristics of public roads. The roadway elements are considered essential information for safety and asset managers and in other traffic engineering **disciplines**. Data collection for MMIRE allows state and local jurisdictions to use analytic tools such as the forthcoming Highway Safety Manual and the FHWA's Interactive Highway Safety Design Mode and SafetyAnalyst (see below). The FHWA plans to begin piloting efforts to ascertain the ease or difficulty of collecting MMIRE data from a group of lead agencies. The findings from the pilot will provide direction on the type of resources and assistance the FHWA needs to provide to state and local agencies.
- **SafetyAnalyst.** The SafetyAnalyst project provides a set of software tools for use by state and local highway agencies for highway safety management. The tools can be used to improve the programming of site-specific highway safety measures following the process and procedures that will be in the soon-to-be-released Highway Safety **Manual**. Because SafetyAnalyst has a strong basis in cost-effective analysis, it can play an important role in assisting state and local jurisdictions in prioritizing improvements to achieve the maximum safety benefit for the resources allocated.

❖ Commercial motor vehicles

- **Intervention and compliance activities:** The FMCSA and its state partners (through various grants) carried out various intervention and compliance activities whose expected results, in terms of reductions in crashes, injuries and fatalities involving commercial vehicles, could make 2009 the lowest year in history for such incidents.

In addition, the FMCSA is in the final phases of its Comprehensive Safety Analysis 2010, a new business model using a safety measurement system that calculates safety performance in seven Behavior Analysis & Safety Improvement Categories (BASICs): unsafe driving, fatigued driving, driver fitness, controlled substances/alcohol, vehicle maintenance, improper loading/cargo, and crash indicator. The agency is on schedule for full implementation by December 2010.

- **Outreach and education:** Two major FMCSA initiatives encourage a high safety culture. The Safety Is Good Business Tool Kit, posted to the FMCSA public website, includes brochures, advertisements, posters, fingertip cards and newsletters explaining how operating safely is good business. And the "Safety Belts-A Way of Life!" campaign is designed to encourage CMV drivers to wear their seat belts. Historically, CMV drivers have lagged behind the general driving public, with a seat belt usage

rate of around 80%. In 2008, however, 72% of CMV drivers were observed wearing seat belts, a significant improvement.

- **Hazardous materials:** The FMCSA and its state partners carried out various enforcement interventions regarding hazardous materials, such as hazmat shipper and tank facility reviews, package and vehicle inspections, educational activities, stronger regulatory standards and strong compliance initiatives, which contributed in 2008 to a reduction in the number of serious hazmat incidents by 9% over 2007.

❖ Education and training

- **Safe Routes to School Program.** The objective is to enable and encourage children, including those with disabilities, to walk and bicycle to school; to make walking and bicycling to school safe and more appealing; and to facilitate projects that will improve safety and reduce traffic, fuel consumption and air pollution near schools.
- **Young drivers.** Teen driving fatalities have been declining, but teens are still over-represented in crashes. The NHTSA has a three-pronged strategy to address this age group: 1) strengthen and expand the use of state graduated licence laws (GDLs); 2) increase enforcement of laws that limit teenage access to alcohol; 3) improve enforcement of seat belt laws aimed at teen drivers. Education programmes, aimed at parents and teens, complement the enforcement efforts. Of the three prongs, GDLs have proved the most effective so far at reducing teen crashes and fatalities. Among restrictions for states to consider for their GDLs, the NHTSA now recommends prohibiting use of portable electronic communication and entertainment devices during the first two licence stages.

❖ Data

- **Data Driven Approaches to Crime and Traffic Safety.** DDACTS is a new national initiative that relies on integration of location-based crime and traffic data as a basis for effective and efficient methods of deploying law enforcement and other resources. Using geo-mapping to identify areas that have high incidences of crime and crashes, DDACTS emphasises the use of traffic enforcement strategies that both fight crime and reduce crashes and traffic violations. DDACTS draws on the deterrent value of highly visible traffic enforcement and the knowledge that crimes often involve the use of motor vehicles. Its goal is to reduce the incidence of crime, crashes and traffic violations across the country.

7. Major recent or ongoing research

- The NHTSA recently completed a nationally representative roadside survey of drivers to assess the **incidence of alcohol- and other drug-positive drivers in the night-time driving population**. The survey provides data on alcohol use from breath samples and of alcohol and other drug use from saliva samples. Blood samples were also taken from a subset of drivers. The data are essential to more precise estimates of the percentage of night-time drivers who have consumed alcohol and/or other drugs, and for measuring progress in reducing the prevalence of alcohol- and drug-impaired driving.
- In addition to the roadside survey, the NHTSA is preparing to study the crash **risk associated with drugged driving**; data on alcohol crash risk will also be obtained. A “case-control” methodology will be employed: the researchers will obtain breath, saliva and blood samples from drivers involved in crashes, then return to the site a week later at the same time of day/night and randomly select drivers from whom to obtain control samples. Site selection has begun, and data collection will last 12 months.
- The NHTSA Office of Behavioral Safety Research is completing a project to capture **on-road travel speed data** from motor vehicles as a basis for national estimates of speeds on various roadway

classes and, if possible, to provide data on the relationship of travel speeds to crashes on various types of road. Speed data have been acquired for 24-hour periods at some 700 sites across the country. A final report is expected in early 2010.

- The NHTSA recently completed a successful programme to get **older model vehicles off the road** and replace them with safer, cleaner, more fuel-efficient new cars. The Car Allowance Rebate System, better known as “Cash for Clunkers”, resulted in 700 000 old cars being traded in for new ones in less than 10 weeks over the summer of 2009. The USD 3 billion programme raised the average fuel economy of the fleet while getting the most polluting vehicles off the road. Another aim was to boost economic growth and the production of new vehicles.

8. References and useful websites

NHTSA	http://www.nhtsa.gov
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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ACEM – European Motorcycle Manufacturers Association	Ms Veneta VASSILEVA
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DEKRA Automobile	Mr Walter NIEWOHNER
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