International Transport Forum

Road Safety Annual Report 2013

irtad
International Traffic Safety Data and Analysis Group

OECD

DECADE OF ACTION FOR ROAD SAFETY 2011-2020

Road Safety Annual Report 2013

International Traffic Safety Data and Analysis Group

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1. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

IRTAD: An International Expert Network and Database on Road Safety Data

The IRTAD Group

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

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

Currently, more than 70 organisations from 34 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 co-operate with the World Bank's Global Road Safety Facility and the Interamerican Development Bank 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, in relation to factors such as population, motor vehicle fleet, road network length, vehicle-kilometres and seatbelt wearing rates from 32 countries, covering every year since 1970. Key road safety indicators are compiled on a monthly basis. Data on serious injuries based on MAIS3+ definitions are being progressively included.

KEY MESSAGES

- 2012 will mark a record year, with figures showing the lowest fatalities on record for most OECD-IRTAD countries.

- However, there is still a long way to go in order to achieve the 2020 UN Decade of Action target, which is to reduce by 50% the expected number of fatalities worldwide.

- Road safety performance measured in terms of fatalities per 100 000 population varies 3-fold between the best and the worst OECD-IRTAD countries and 9-fold across all IRTAD members and observers. The countries with the lowest fatalities per head of population are also those that perform best under other performance indicators; in relation to vehicle kilometres driven and in relation to the size of the car fleet.

- Much has been achieved over the last decade to improve the safety of car occupants through improvements in vehicle design and equipment, speed management and effective drink driving policies, but simple approaches, such as achieving higher rates of seatbelt use still have major potential to save lives, even in best performing countries.

- The safety of vulnerable road users (pedestrians, cyclists, moped and motorcycle riders) is a critical issue. With the adoption in many countries of strategies to encourage active mobility, improving safety for pedestrians and cyclists is a priority.

- The safety of powered two-wheeler riders is of particular concern in many countries as the number of killed and seriously injured has not been reduced in line with improvements for other categories of road user.

- Reducing serious injuries is a core challenge. These can result in lifelong disabilities with considerable economic as well as emotional costs. The impact is often greatly underestimated, partly because of gaps in the data recording injury crashes. Improving understanding of the full costs of serious injury crashes entails joint analysis of data from police and hospital records.

- Comparable data on serious injuries requires a common benchmark for assessing injuries. IRTAD recommends the use the Maximum Abbreviated Injury Scale for assessing injuries, on the basis of medical diagnosis, and a score of three or more as the common definition for a serious injury.

Summary of Road Safety Performance in 2011

Road safety levels differ widely between IRTAD members. Road safety performance measured in terms of fatalities per 100 000 population varies three fold between the best and the worst OECD-IRTAD countries and nine fold across all IRTAD members and observers (Figures 1 and 5).

The exposure of different classes of road user to crash risks also varies greatly between IRTAD countries (Figure 2). Pedestrians account for more than a third of all fatalities in Korea, Israel, Japan and Poland, whereas this figure is around 10% in New Zealand, the Netherlands and Norway. Cyclists account for a large share of all fatalities in the Netherlands (22%), in Japan (16%) and Hungary (13%)but only 1 to 2% in the USA, Greece and Northern Ireland. Powered two wheeler (PTW) rider fatalities account for a large share of fatalities in Greece (33%), Italy (30%), France (26%) and Switzerland (24%).

The bulk of the substantial **fatality reductions** in IRTAD countries over the last decade has benefited car occupants — a fact that can be largely attributed to the increased passive safety features of cars and also speed management and effective drinking and driving policies — with fatalities reduced by nearly half between 2000 and 2010 (see Figure 3) . Results have been less satisfactory for vulnerable road users, however, there has been a reduction of only a third in pedestrian and cyclist fatalities over the last decade. In terms of killed PTW riders, here, too, results were disappointing, with a reduction of only 14% in fatalities. The safety of vulnerable road users continues to be a core road safety issue, not least in lower income countries.

Figure 1. **Road fatalities per 100 000 population in 2011 in IRTAD member and observer countries**

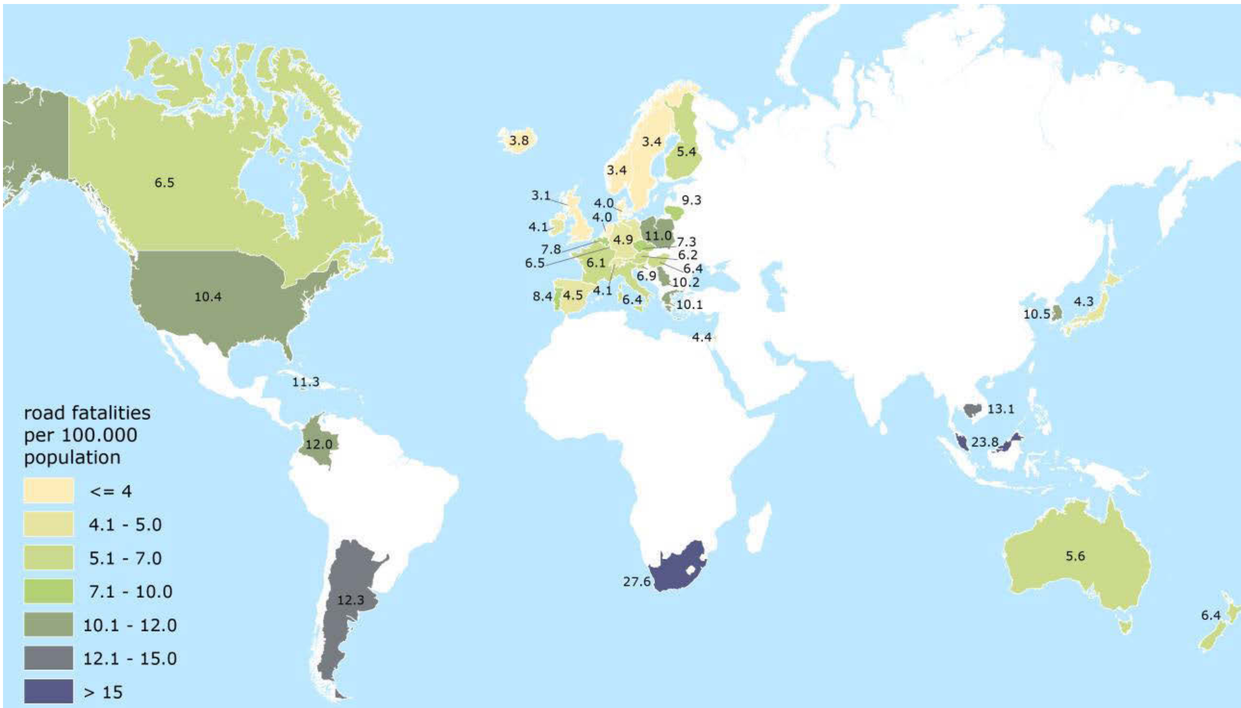
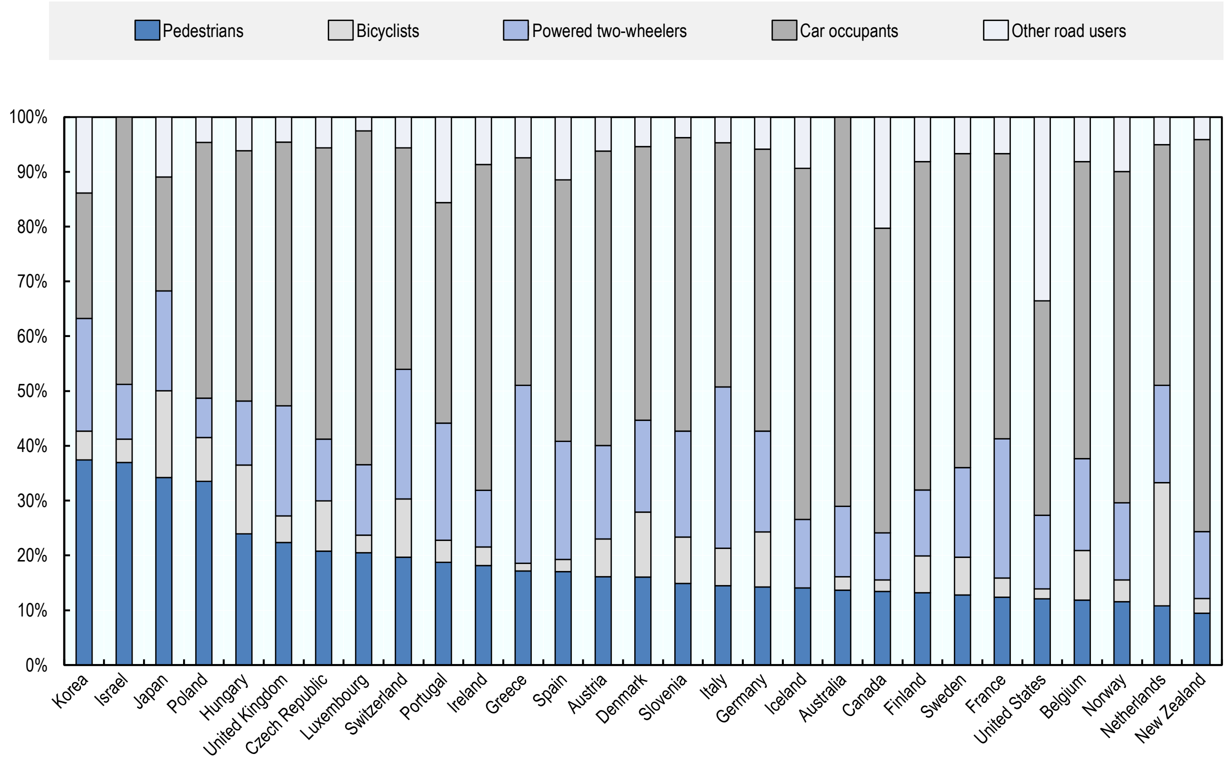


Figure 2. **Fatalities (average 2007-2011)**
Share of different road user classes



Note: In the United States, SUVs are not included in the "car" category

Figure 3. **Evolution in the number of fatalities among user groups 2000-2011**

Country	Bicyclists	Motorcyclists	Car occupants	Pedestrians	TOTAL
Australia	10%	6%	-34%	-36%	-30%
Austria	-32%	-46%	-47%	-38%	-46%
Belgium	-49%	8%	-51%	-22%	-41%
Canada	25%	12%	-23%	-21%	-23%
Czech Republic	-58%	-28%	-49%	-51%	-48%
Denmark	-48%	-48%	-54%	-67%	-56%
Finland	-64%	100%	-23%	-34%	-26%
France	-48%	-20%	-61%	-39%	-51%
Germany	-40%	-25%	-55%	-38%	-47%
Greece	-41%	-25%	-47%	-41%	-44%
Hungary	-53%	0%	-46%	-64%	-47%
Ireland	-10%	-54%	-63%	-45%	-55%
Israel	-20%	10%	-24%	-32%	-25%
Italy	-30%	20%	-57%	-40%	-45%
Japan	-32%	-36%	-63%	-33%	-47%
Korea	-14%	-50%	-58%	-46%	-49%
Netherlands	-14%	-52%	-57%	-35%	-43%
New Zealand	-53%	6%	-44%	-11%	-39%
Norway	-15%	-68%	-56%	-64%	-51%
Poland	-55%	64%	-30%	-38%	-33%
Portugal	-29%	-50%	-59%	-53%	-53%
Slovenia	-46%	-25%	-62%	-65%	-55%
Spain	-42%	-11%	-70%	-58%	-64%
Sweden	-55%	18%	-60%	-27%	-46%
Switzerland	-19%	-34%	-56%	-47%	-46%
United Kingdom	-17%	-40%	-49%	-47%	-46%
United States	-2%	59%	-42%	-7%	-23%

The situation with regard to crashes involving **serious injuries**, which often lead to lifelong disabilities and considerable economic losses, is that only a limited number of countries are able to provide sound road injury data. This data requires joint analysis and input from hospital as well as police records. An internationally accepted definition of a serious injury has only recently been established. A 2012 IRTAD report[2]examines methods for improved data collection and processing and recommended using level 3 on the Maximum Abbreviated Injury Scale (MAIS3+) as the definition for a serious injury. The European Commission has adopted this definition and is expected to issue a reduction target for serious injuries for the year 2020 using this benchmark. The challenge for IRTAD members now is to implement the recommendations, following good practice from countries such as Sweden and the Netherlands.

In 2011, several countries — including best performers such as Germany, United Kingdom, Sweden and Finland — noted an increase in fatalities (Figure 4). In 2012, however, most IRTAD countries seem to be back on track, with preliminary figures pointing to reduced fatalities. **2012** will mark the year with the **lowest ever *overall* fatality figures in many OECD-IRTAD countries**. The exceptions to these positive short term results are Colombia, New Zealand, Switzerland, the United States, Australia, Korea, Lithuania and Luxemburg, on the basis of preliminary data (see Table 1).

The **economic crisis** that began in 2008 may have had a positive short term impact on figures for road casualties through a decrease in overall mobility. The evidence is mixed and debate so far inconclusive. The IRTAD group has invited a number of renowned experts to prepare an explanatory model for the relationship between economic growth and road casualties, with the results to be presented in the second half of 2013. This should result in an improved understanding of short term trends.

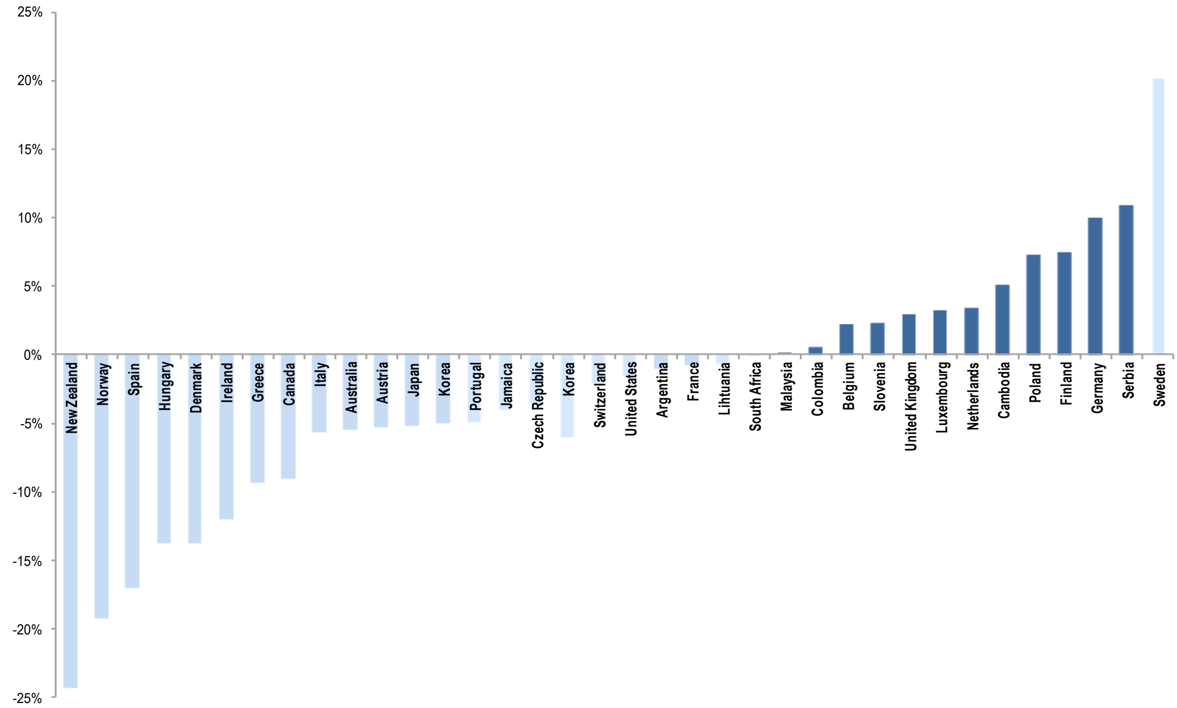
2. Reporting on Serious Road Traffic Casualties. http://internationaltransportforum.org/irtadpublic/pdf/Road-Casualties-Web.pdf

Table 1. **Preliminary trends for 2012, based on provisional fatality data (compared to the same period in 2011)**

Country	Trend	Period	Country	Trend	Period
Argentina	↘	annual estimate	Japan	↘↘	annual estimate
Australia	↗	annual estimate	Korea	↗	annual estimate
Austria	↔	annual estimate	Lithuania	↗	annual estimate
Belgium	↘↘↘	annual estimate	Luxembourg	↗	annual estimate
Canada			Malaysia	↔	annual estimate
Colombia	↗↗	annual estimate	Netherlands (for real data see country report.)	↘	final annual figure
Czech Republic	↘↘	annual estimate	New Zealand	↗↗	annual estimate
Denmark	↘↘↘	annual estimate	Northern Ireland	↘↘↘	annual estimate
Finland	↘↘↘	annual estimate	Norway	↘↘↘	final annual figure
France	↘↘	annual estimate	Poland	↘↘↘	annual estimate
Germany	↘↘↘	annual estimate	Portugal	↘↘↘	January-August
Great Britain	↘↘	January–September	Serbia	↘↘	annual estimate
Greece	↘↘	annual estimate	Slovenia	↘↘	annual estimate
Hungary	↘↘	final annual figure	South Africa	↘↘↘	annual estimate
Iceland	↘↘↘	annual estimate	Spain	↘↘↘	annual estimate
Ireland	↘↘↘	annual estimate	Sweden	↘↘	annual estimate
Israel	↘↘↘	annual estimate	Switzerland	↗↗	final annual figure
Italy			United States	↗↗	annual estimate
Jamaica	↘↘↘	final annual figure			

-1% < change < 1%	↔		
Decrease 1-5%	↘	Increase 1-5%	↗
Decrease 5-10%	↘↘	Increase 5-10%	↗↗
Decrease > 10%	↘↘↘	Increase > 10%	↗↗↗

Figure 4. **Short-term change**
Road fatalities: 2011 in comparison to 2010



Note: data for Colombia, Jamaica, Lithuania, Malaysia, Serbia and South Africa are not yet validated by IRTAD. Iceland not included. Real data for the Netherlands.

Figure 5. **Medium term change**
Road fatalities: 2011 in comparison to 2000

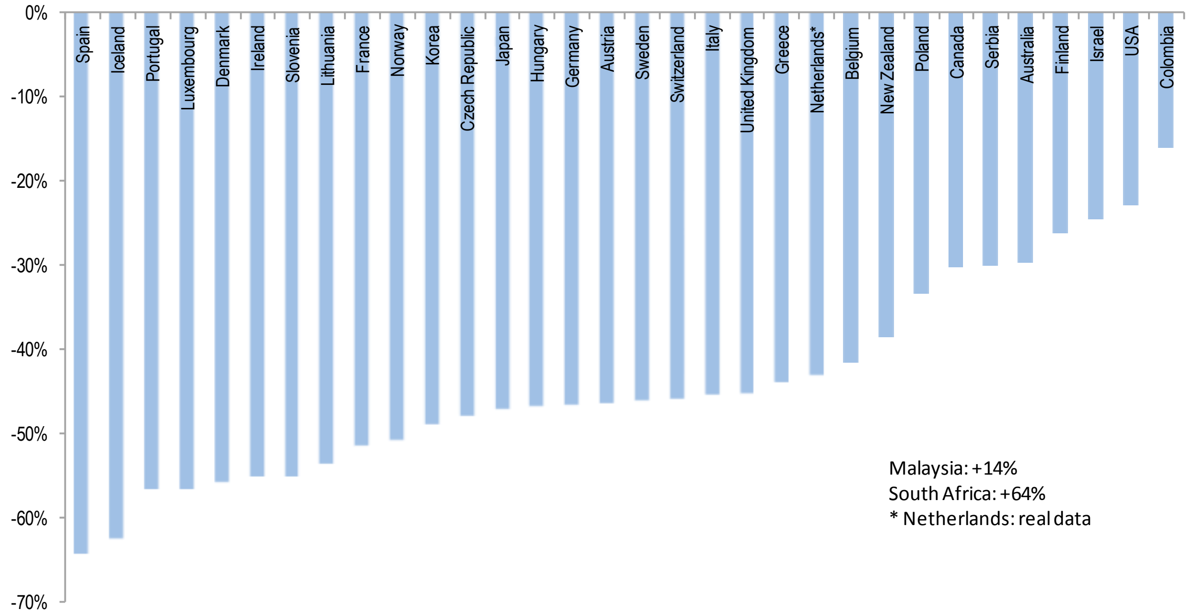


Table 2. **Road safety trends**

Road Fatalities								
Recent data				Long-term trends	Average annual change **			
Country	2011	2010	Change 2011-2010	Change 2011-2000	2010-2001	2000-1991	1990-1981	1980-1971
Argentina	5 040	5 094	-1.1%					
Australia	1 277	1 352	-5.5%	-29.7%	-2.7%	-1.7%	-3.9%	-1.0%
Austria	523	552	-5.3%	-46.4%	-5.9%	-5.0%	-2.5%	-3.9%
Belgium	858	840	2.1%	-41.6%	-6.1%	-2.7%	-1.3%	-2.8%
Cambodia[a]	1 905	1 816	4.9%					
Canada	2 025	2 227	-9.1% [p]	-30.2%	-2.3%	-2.6%	-3.3%	-0.2%
Colombia[ab]	5 528	5 502	0.5%	-15.6%	-1.6%			
Czech Republic	773	802	-3.6%	-48.0%	-5.5%	1.2%	0.8%	-4.9%
Denmark	220	255	-13.7%	-55.8%	-5.7%	-2.2%	-0.5%	-6.1%
Finland	292	272	7.4%	-26.3%	-5.0%	-5.1%	1.8%	-7.8%
France	3 963	3 992	-0.7%	-51.5%	-7.6%	-2.7%	-2.1%	-2.9%
Germany	4 009	3 648	9.9%	-46.6%	-7.0%	-4.4%	-2.3%	-3.7%
Greece	1 114	1 258	-9.3%	-44.0%	-4.4%	-0.4%	2.8%	3.0%
Hungary	638	740	-13.8%	-46.8%	-5.6%	-6.1%	4.7%	-1.3%
Iceland	12	8	n.a.	-62.5%	-11.5%	1.9%	0.0%	2.0%
Ireland	186	212	-12.3%	-55.2%	-7.1%	-0.8%	-2.0%	-0.2%
Israel	341	352	-3.1%	-24.6%	-4.5%	0.4%	-0.2%	-4.0%
Italy	3 860	4 090	-5.6%	-45.3%	-5.9%	-1.5%	-2.2%	-1.9%
Jamaica[d]	307	319	-3.8%	-8.1%	-1.4%	-3.1%	-	
Japan	5 507	5 806	-5.1%	-47.1%	-5.9%	-3.6%	2.8%	-6.7%
Korea	5 229	5 505	-5.0%	-48.9%	-4.2%	-4.5%	8.7%	5.6%
Lithuania[a]	296	300	-1.3%	-53.8%	-9.1%	-6.5%	2.6%	-
Luxembourg	33	32	3.1%	-56.6%	-8.3%	-1.0%	-3.7%	1.5%
Malaysia[a]	6 877	6 872	0.1%	14.0%	1.8%			
Netherlands*	661	640	3.3%	-43.3%	-5.7%	-1.9%	-3.0%	-5.0%
New Zealand	284	375	-24.3%	-38.5%	-2.1%	-3.7%	1.0%	-1.4%
Norway	168	208	-19.2%	-50.7%	-3.1%	0.6%	-0.2%	-4.2%
Poland	4 189	3 908	7.2%	-33.4%	-3.8%	-2.5%	2.1%	
Portugal	891	937	-4.9%	-56.6%	-7.3%	-4.5%	0.3%	3.5%
Serbia[d]	731	660	10.8%	-30.2%	-7.1%	-6.4%	0.9%	-
Slovenia	141	138	2.2%	-55.1%	-7.5%	-4.2%	-1.0%	-1.6%
South Africa[d]	13 954	13 967	-0.1%	64.3%	2.5%	-6.4%	-0.9%	
Spain	2 060	2 478	-16.9%	-64.3%	-8.5%	-4.6%	3.9%	1.9%
Sweden	319	266	19.9%	-46.0%	-7.8%	-2.5%	-0.2%	-3.9%
Switzerland	320	327	-2.1%	-45.9%	-5.5%	-3.7%	-2.2%	-3.8%
United Kingdom	1 960	1 905	2.9%	-45.3%	-6.8%	-3.1%	-1.3%	-2.8%
United States	32 367[p]	32 999	-1.9%	-22.8%	-2.7%	0.1%	-1.1%	-0.3%

Source: IRTAD, see www.irtad.net

Police-recorded fatalities. Death within 30 days (except Lithuania: death within 7 days before 1995).

For recent methodology changes in calculation of the fatality data in Spain and Portugal, see country reports.

a = accession country. Data are under review.

b = information provided by CFPV not validated by the government of Colombia.

d = observer, data have not been reviewed.

p = provisional data for 2011.

* For the Netherlands: real numbers 2000 onwards.

** The average annual change for 2001-2010 is calculated as follow: $1- (fatality_{2010}/fatality_{2001})^{1/9}$

Figure 5 and Table 2 show that, for most IRTAD countries, the average annual reduction in the number of deaths was higher in the last decade than in each of the three preceding decades. More effective road safety policies account for this favourable development and most countries now have comprehensive road safety strategies in place, with well-defined and targeted measures, producing successful results.

In contrast, many emerging economies undergoing rapid motorisation have incomplete road safety strategies and are confronted with an increasing number of traffic casualties. In its Global Status Report on Road Safety 2013, the UN World Health Organisation (WHO) indicates that, *worldwide, the total number of road traffic deaths remains unacceptably high at 1.24 million per year. Only 28 countries, covering 7% of the world's population, have comprehensive road safety laws on the five key risk factors: drinking and driving, speeding, and failing to use motorcycle helmets, seat-belts, and child restraints*.[3] The Status Report serves as a baseline for the Decade of Action for Road Safety 2011-2020 and the 50% fatality reduction target for 2020, declared by the UN General Assembly.

3. http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/index.html

Trends in death rates

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

Measuring mortality rate and fatality risk

Comparison of road safety performance depends somewhat on what indicator is used as a measure of exposure to risk; population, number of registered vehicles or distance travelled by motorised vehicles. There has been considerable debate over which indicator is most appropriate to measure exposure to risk. Those in the health sector prefer the use of population as the denominator, since it permits comparisons with other causes of injury and death, including infectious diseases. As the health and transport sectors increase their level of co-operation, fatalities per 100 000 population is becoming more widely used as the standard indicator. 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 indicator, or fatalities per 10 000 vehicles.

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

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

Fatalities per 10 000 registered (motorised) vehicles. This rate can be seen as an alternative to the previous indicator, although it differs in that the annual distance travelled is unknown. This indicator can therefore only be used to compare the safety performance between countries with similar traffic and car-use characteristics. It requires reliable statistics on the number of vehicles. In some countries, scrapped vehicles are not systematically removed from the registration database, thereby undermining accuracy. This indicator does not take into account non-motorised vehicles (such as bicycles), which can in some countries represent a large part of the vehicle fleet and of the fatalities figures. Most countries report their vehicle fleet without mopeds.

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

Table 3. **Road fatalities per 100 000 population and per billion vehicle-km**

Country	Killed per 100 000 inhabitants					Killed per billion v-km				
	1970	1980	1990	2000	2011	1970	1980	1990	2000	2011
Argentina[a]	-	14.5	-	-	12.3	-	-	-	-	-
Australia	30.4	22.3	13.7	9.5	5.6	49.3	28.2	14.4	9.3	5.6
Austria	34.5	26.5	20.3	12.2	6.2	109	56.3	32.0	15.0	6.8
Belgium	31.8	24.3	19.9	14.4	7.8	104.6	50	28.1	16.3	8.5[b]
Cambodia[a]	-	-	-	-	13.1	-	-	-	-	-
Canada	23.8	22.3	14.3	9.5	6.5[b]	-	-	-	9.3	6.5[b]
Colombia[a*]	-	-	-	16.5	12.0	-	-	-	-	-
Czech Republic	20.2	12.2	12.5	14.5	7.3	-	53.9	48.3	36.7	16.2[b]
Denmark	24.6	13.5	12.4	9.3	4.0	50.5	25	17.3	10.7	4.9
Finland	22.9	11.6	13.1	7.7	5.4	-	20.6	16.3	8.5	5.4
France	32.6	25.4	19.8	13.7	6.1	90.4	44	25.7	15.6	7.0
Germany	27.3	19.3	14.0	9.1	4.9	-	37.3	20.0	11.3	5.6
Greece	12.5	15	20.2	18.7	10.1	-	-	-	-	-
Hungary	15.8	15.2	23.4	11.8	6.4	-	-	-	-	-
Iceland	9.8	11	9.5	11.5	3.8	-	26.5	14.9	13.8	3.8
Ireland	18.3	16.6	13.6	11.0	4.1	44.3	28.4	19.2	12.6	3.9
Israel	17.1	10.8	8.7	7.1	4.4	87.9	38.8	22.4	12.4	6.7
Italy	20.5	16.3	12.4	12.4	6.4	-	-	-	-	-
Jamaica[d]	-	-	-	12.9	11.3	-	-	-	-	-
Japan	21	9.7	11.8	8.2	4.3	96.4	29.3	23.2	13.4	7.8
Korea	11.0	16.9	33.1	21.8	10.5	-	-	-	49.5	17.6
Lithuania[a]	-	-	26.9	17.3	9.3	-	-	-	-	-
Luxembourg	-	27.0	18.8	17.5	6.5	-	-	-	-	-
Malaysia[a]	-	-	22.7	25.9	23.8[b]	-	-	-	26.3	14.7
Netherlands **	24.6	14.2	9.2	7.3	4.0	-	26.7	14.2	10.0	5.0
New Zealand	23	18.8	21.4	12	6.5	-	-	-	13.6	7.1
Norway	14.6	8.9	7.8	7.6	3.4	41.7	19.3	12	10.5	3.9
Poland	10.6	16.8	19.2	16.3	11	-	-	-	-	-
Portugal	20.6	30.6	31.2	20.0	8.4	-	-	-	-	-
Serbia[d]	-	-	20.0	14.0	10.2	-	-	-	-	-
Slovenia	35.8	29.2	25.9	15.8	6.9	166.7	96.1	65.1	26.7	7.8
South Africa[d]	-	-	36.7	19.6	27.6	-	-	-	-	-
Spain	16.2	17.7	23.2	14.5	4.5	-	-	-	-	-
Sweden	16.3	10.2	9.1	6.7	3.4	35.3	16.4	12.0	8.5	3.8
Switzerland	26.6	19.2	13.9	8.3	4.1	56.5	30.9	18.6	10.6	5.1
United Kingdom	14.0	11.0	9.4	6.1	3.1	37.4[c]	21.9[c]	12.7[c]	7.3[c]	3.9[cp]
United States	25.7	22.5	17.9	14.9	10.4	29.6	20.8	12.9	9.5	6.8

Death within 30 days. Police recorded data.
For recent methodology changes in calculation of the fatality data in Spain, Sweden and Portugal, see country reports.

a = accession country. data are under review.
b = 2010.
c = Great Britain;
d = observer. data not reviewed by IRTAD;
p = provisional;

* Information provided by CFPV not validated by the government of Colombia.
** For the Netherlands: real numbers 2000 onwards.

Fatalities per head of population

Table 3 shows the evolution of mortality expressed in terms of deaths per 100 000 population since 1970 and the evolution in risk expressed in terms of deaths per billion vehicle-kilometres.

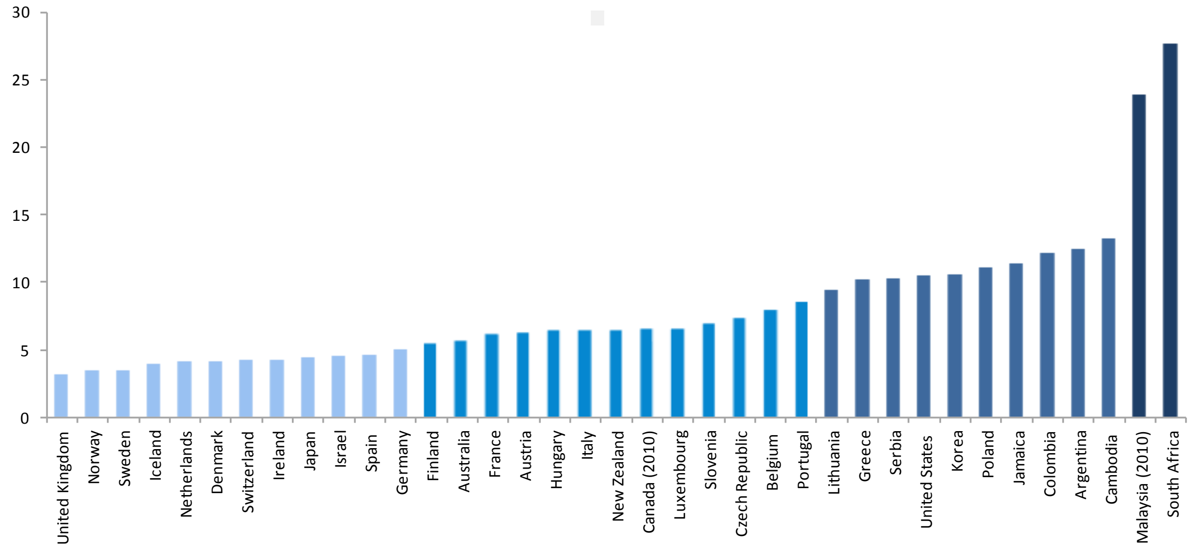
Compared to 2010, in 2011 two additional countries, Norway and Denmark, had a rate at, or below, 4 and joined the league of the top performing countries: United Kingdom, Sweden, Iceland and the Netherlands (see Figure 6).

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

In the last decade (2000-2011), the rate has been reduced by two in about half of the countries. The greatest improvements were seen in Spain (-69%), Iceland (-64%), Luxembourg (-63%) and Ireland (-62%), as well as for Portugal, Denmark Slovenia, France and Norway (reduction greater than 55%; see Table 3).

While this rate is useful for comparing the performance of countries with similar levels of development and motorisation, it should not be used as a universal tool to rank all countries.

Figure 6. **Road fatalities per 100 000 population in 2011**



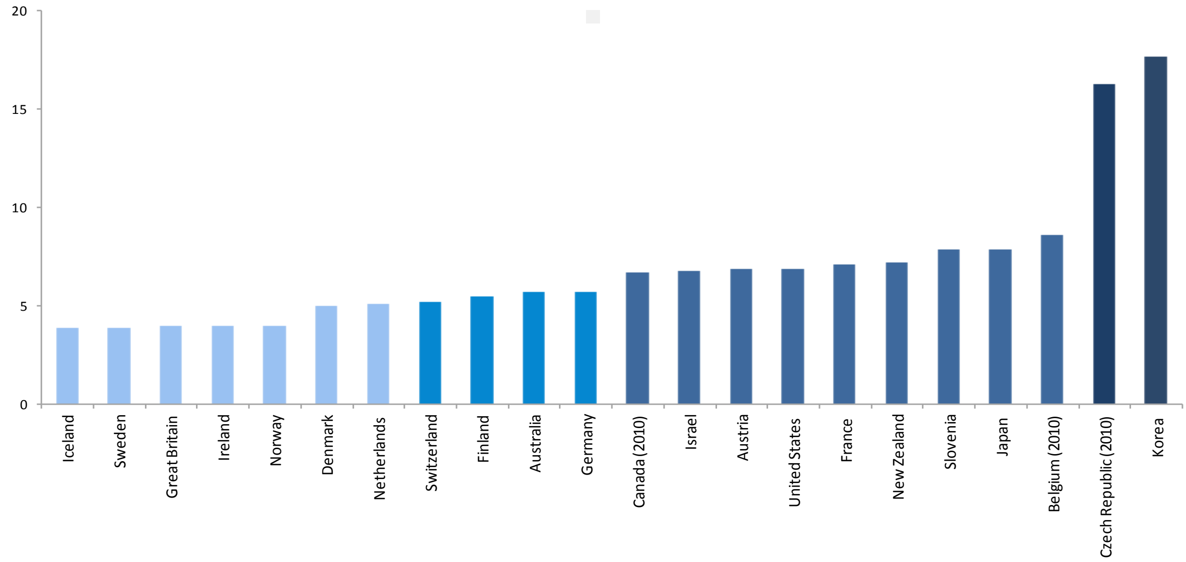
Note: data for Colombia, Jamaica, Lithuania, Malaysia, Serbia and South Africa are not yet validated by IRTAD.

Fatalities per vehicle-kilometre

Data on risks expressed in terms of deaths per billion vehicle-kilometre are summarised in Figure 7. Analysis in terms of fatalities over distance travelled is a very useful indicator for assessing the risk of travelling on the road network. However, only a subset of IRTAD countries collects regular data on vehicle–kilometres.

Based on this indicator, the situation has also improved substantially for all countries for which data are available. In 2011, the best performing countries recorded risk below five deaths per billion vehicle-kilometres.

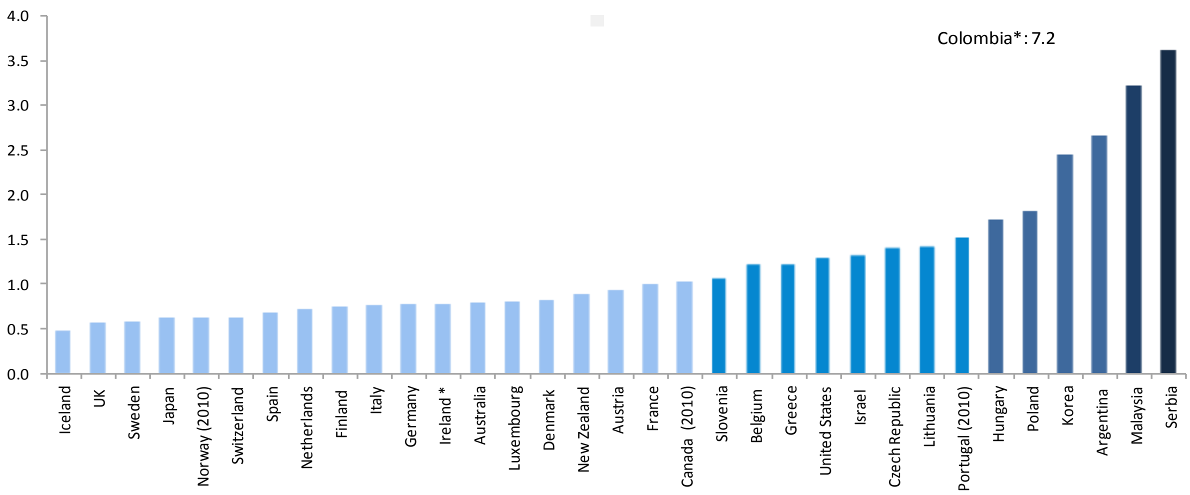
Figure 7. **Road fatalities per billion vehicles-kilometres in 2011**



Fatalities per registered vehicle

Figure 8 illustrates risk exposure expressed as the number of deaths per 10 000 registered vehicles. In the absence of data on vehicle kilometres for many IRTAD countries, the fatality rate per registered vehicles may be used as an approximation of exposure in order to describe risks and make comparisons between countries.

Figure 8. **Road fatalities per 10 000 registered vehicles in 2011**



Note: data for Colombia, Malaysia and Serbia are not yet validated by IRTAD. *: denominator also includes mopeds.

Serious injury data

The preceding sections address fatal crashes. Data on fatalities are usually reasonably complete, although police records miss a certain number of deaths resulting from crashes in all countries, and in all IRTAD member countries based on the same definition (death within 30 days of the crash), and therefore adapted for international comparisons.

Road crashes also result in serious injuries, that have serious impacts on people's lives and also on the economy. Many countries are now deploying efforts to better understand crashes resulting in serious injuries and have initiated target setting to reduce the number of people seriously injured.

It is a challenging task to make international comparisons of serious injuries. Until recently there has been no common, consistent definition of a serious injury and police reports (usually) do not contain complete information on injury crashes. In 2011, the IRTAD Group released a publication *Reporting serious road traffic casualties,* which makes a number of recommendations regarding the analysis of serious injury data. It also proposed a common definition for serious injury, based on medical diagnosis coded in the Maximum Abbreviated Injury Scale (MAIS). The European Commission subsequently adopted the same definition and is expected to set a serious injury reduction target for 2020.

The challenge now is for countries to progressively develop tools allowing accurate data on people seriously injured in a traffic crash to be obtained based on this definition.

The box below summarises the IRTAD recommendations in this regard.

Box 1. **IRTAD report "Reporting Serious Road Traffic Casualties"**

Recommendations

- A complete picture of casualty totals from road crashes is needed to fully assess the consequences of road crashes and monitor progress.
- Injury information should complement the data on fatal crashes to give a fuller picture of road crashes. Information on injuries should become more important for international comparisons.
- Police data should remain the main source for road crash statistics. However, because of under-reporting problems and possible bias (for example with differing rates of reporting by vehicle type), police data should be complemented by hospital data, which are the next most useful source.
- The data from hospital emergency departments, available in some countries, should be monitored regularly and researched to determine if they might shed more light on road casualties.
- The assessment of the severity of injuries should preferably be done by medical professionals, and not by the police officer at the scene of the crash.

- Medical staff should be trained in order to systematically classify (road traffic) injuries using the Abbreviated Injury Scale (AIS) or the ICD International Classification of Diseases from which severities as the Maximum Abbreviated Injury Scale (MAIS3+) can be derived. This information — without personal details — should be made easily available for statistical purposes, policymaking and research.
- Besides police data and hospital data, other data sources are available. These have a limited value on their own, and cannot replace police or hospital data, but can be used to build a more balanced and comprehensive picture, to enrich the main data sources, and as a quality check.
- For linking data, the deterministic method is preferred if a unique personal identifier is available; otherwise the probabilistic method is a good alternative.
- The six assumptions needed to use the capture-recapture method must be considered carefully. Using this method combined with linking police and hospital data may be appropriate to give a fuller picture of road casualties.
- Having an internationally agreed definition of "serious" injuries will help the safety research community to better understand the consequences of road crashes and to monitor progress.
- Given the existing knowledge and practices, IRTAD proposes to define a 'seriously injured road casualty' as a person with injuries assessed at level 3 or more on the Maximum Abbreviated Injury Scale, i.e. "MAIS3+".

What is the Maximum Abbreviated Injury Scale (MAIS)

The Maximum Abbreviated Injury Scale is the maximum of the Abbreviated Injury Scales (AIS) for each region of the body.

The AIS is an internationally agreed tool to describe the severity of injury for each of nine regions of the body (Head, Face, Neck, Thorax, Abdomen, Spine, Upper Extremity, Lower Extremity, External and other). The scale varies from 1 (minor injury) to 6 (unsurvivable).

MAIS3+ corresponds as injury where at least one region of the body has an AIS above 3.

Box 2. **How to determine MAIS**

Real Case Example
(Woman, Pedestrian, 77 years, knocked down by a truck)

Region injury	Injury description	AIS
Chest	Multiple and unspecified intrathoracic organs, without mention of open wound into cavity, Multiple intrathoracic organs	**6**
Abdomen	Multiple pelvic fractures with disruption of pelvic circle	4
Extremity	Fracture of other and unspecified parts of femur, lower end, unspecified part	3
Extremity	Fracture of tibia and fibula	2
Extremity	Open wound of hip and thigh	1
Extremity	Other, multiple, and ill-defined fractures of lower limb, open	2
Extremity	Crushing injury of lower limb , knee and lower leg	2
Chest	Pneumothorax without mention of open wound into thorax	3
	MAIS	**6**

Status of data collection based on MAIS definition in IRTAD countries

Country	Current definition of person seriously injured	Status regarding collection of MAIS data
Argentina	More than 24 hours in hospital	Pilot project underway to link police and health data with the objective to report on MAIS3+
Australia	There are currently substantial differences in the approaches adopted by the Australian states	
Austria	Person suffering an injury which entails an inability to work or personal difficulty for more than 24 days.	Under consideration. It is not possible to link police and hospital data directly on the basis of the current data architecture. There are, however, plans to estimate MAIS 3+ on the basis of data sources such as the hospital discharge register and the EU Injury Database (IDB).
Belgium	More than 24 hours in hospital	
Cambodia	Person hospitalized for at least 8 days	At this moment, is not envisioned to adopt a MAIS based definition
Canada	More than 24 hours in hospital	Work ongoing to link police and health data
Czech Republic	No special definition of the serious injury	Not yet decided.
Denmark	Hospitalisation or serious injury	No systematic linkage between police and hospital data. severity codes AIS and MAIS is not included in the Danish hospital registration system. Denmark is working on a process to convert diagnose codes into AIS and MAIS.
Finland	Data on serious injuries are not collected into the official statistics at the moment.	Actively working on the implementation of tools to collect MAIS data
France	More than 24 hours in hospital	Linking between police and health data is done in one region.
Germany	More than 24 hours in hospital	It is planned to introduce a new category of critically injured persons which will probably be defined as MAIS3+.
Greece	More than 24 hours in hospital	Data on the injury severity of road casualties are not systematically collected by hospitals
Hungary	Serious injury which: • necessitates hospitalisation for more than 48 hours within seven days after occurrence; or • caused fracture, except for finger, toe, nose fractures; or • caused cut wounds, which resulted in serious bleeding or nerve, muscle or tendon injuries; or • caused injury of inner organs; or • caused burn of second or third degree or burn affecting more than 5% of body surface.	Participation in the international IDB project for the development of an international injury database which is the first step in the nationwide collection of MAIS3+ data.
Iceland	Fractures, concussion, internal lesions, crushing, severe cuts and laceration, severe general shock requiring medical treatment and any other serious lesions entailing detention in hospital	Iceland is working towards using the MAIS 3+ definition. Work is in progress for the development of a central accident database (not only traffic accidents) in the healthcare system in which MAIS score for each accident will be recorded.
Ireland	Injury for which the person is detained in hospital as an 'in-patient', or any of the following injuries whether or not detained in hospital: fractures, concussion, internal injuries, crushings, severe cuts and lacerations, severe general shock requiring medical treatment.	The RSA has commissioned a study examining the feasibility of adopting MAIS+3 definition of serious injury and linking Irish Hospital data with the police data.
Israel	More than 24 hours in hospital	Israel currently uses ISS data, and is considering collecting data based on MAIS 3+ in the future.
Italy	No distinction between slight and severe injuries	Italy will adopt MAIS3+ standard for coding the level of injury. A first estimate of the number of seriously injured is expected for 2014.
Jamaica		Linking police and health data is planned.
Japan	Injured person who require more than 30 days to recover	
Korea	Person requiring medical treatment for more than 3 weeks	
Lithuania		MAIS3+ under discussion
Luxembourg	More than 24 hours in hospital	MAIS3+ will be used in the near future
Netherlands	Based on MAIS2+	Data available.
New Zealand	Injury that results in death or admission to hospital associated with at least a six percent chance of death	
Norway		Under consideration
Poland	More than 7 days in hospital	Under discussion. The Ministry of Health supports the introduction of the MAIS 3+ however it will take some time to change the system.
Portugal	More than 24 hours in hospital	Under consideration

Country	Current definition of person seriously injured	Status regarding collection of MAIS data
Serbia	The Republic of Serbia has not yet adopted a definition for serious injury	
Slovenia	Injury that result in temporary or permanent health damage, or in itemporary or permanent inability to work.	In the short term it is not planned to collect data for MAIS3+.
Spain	More than 24 hours in hospital	Data available Since 2011 MAIS3+ is published in official reports. In a near future Spain will add MAIS3+ to the current definition of seriously injured.
Sweden	Health loss following a traffic injury reflecting that a person does not recover the previous health condition within a reasonable amount of time.	Data available
Switzerland	Person with severe visible injuries, disabling normal activities at home for at least 24 hours (loss of consciousness, fractures, hospitalisation lasting more than 1 day).	Linking of health and police data will start in 2013. This will allow to code the recommended maximum AIS score based on ICD-10.
United Kingdom	An injury for which a person is detained in hospital as an "in patient", or any of the following injuries whether or not they are detained in hospital: fractures, concussion, internal injuries, crushings, burns (excluding friction burns), severe cuts, severe general shock requiring medical treatment and injuries causing death 30 or more days after the accident.	Data available MAIS 1 and 2 : minor or moderate injuries MAIS 3+: serious injuries
United States	Serious injuries are defined as incapacitating injuries which are defined as severe lacerations (exposure of muscles or bone), broken or distorted extremities, crush injuries, internal skull/chest/abdominal injuries, significant burns, unconscious, and paralysis	Partly available

National road safety strategies

The year 2011 was marked by the launch of the UN Decade of Action for Road Safety. For this occasion, the UN called on Member states, international agencies, civil society, businesses and community leaders to ensure that the Decade leads to real improvement, and recommended governments to develop national actions plans for the decade 2011-2020. As a response, several countries released or updated in 2011 their national road safety strategies.

This section summarises the strategies and targets adopted by IRTAD countries, or refers to on-going policies. More information can be found in the individual country reports that follow.

Country/Strategy/timeframe	Vision	Targets
Argentina National road safety strategy	Based on the UN Road Safety Plan for the Decade of Action for Road Safety	-50% fatalities by 2014 Base year 2009 Specific targets for 2014 and 2020 are being developed
Australia National road safety strategy 2011-2020	Safe System No-one should be killed or seriously injured on Australia's roads	-30% (at least) fatalities by 2020 -30% (at least) severely injured by 2020 Base year 2008-2010
Austria Austrian road safety programme 2011-2020	Safe system "Become one of the five safest countries in Europe"	-50% fatalities by 2020, based on the average for the years 2008-10 (Interim target: -25% by 2015) -40% serious injuries by 2020, based on the average for the years 2008-10 (Interim target: -20% by 2015) -20% injury accidents by 2020, based on the average for the years 2008-2010 (Interim targets: -10% by 2015)
Belgium Recommendations for 20 priority measures 2011-2020 www.cfsr.be	EU Road Safety Target adopted	-50% fatalities in 2020 in comparison to 2010 (420 road deaths in 2020)
Cambodia Second road safety action plan 2011-2020 (expected to be approved by the Council of Ministers in early 2014)	Based on the UN Road Safety Plan for the Decade of Action for Road Safety	Reduce by 50% the forecasted number of fatalities by 2020 Several sub-targets on helmet wearing rates, speed, drink-driving
Canada Road Safety Strategy (RSS) 2015 2011-2015	"Rethink Road Safety" to make Canada's roads the safest in the world	No hard numerical targets
Colombia National Plan for Road Safety issued by Ministry of Transport in 2012 (consultation of stakeholders ongoing)	Based on the UN Road Safety Plan for the Decade of Action for Road Safety	
Czech Republic Strategic Road Safety Plan 2011-2020	Vision Zero	Reduce fatality rate to EU 27 average. No more than 360 fatalities in 2020 (-60%) No more than 2 100 seriously injured in 2020 (-40%) (This respectively corresponds to an annual decrease by 5.5% and 3.6%)
Denmark Traffic Safety Action Plan 2011-2020 (to be launched in May 2013)	Based on Vision Zero	-50 % fatalities by 2020 (less than 120 killed) (based on EU Road Safety target) -50% serious and slightly injured road users

Country/Strategy/timeframe	Vision	Targets
European Union Road safety policy orientations 2011-2020 2011-2020	Towards Zero	-50% fatalities by 2020 (base year: 2010)
Finland National Road Safety Strategy published in 2012	Vision Zero	Less than 219 fatalities (or 40 fatalities per million inhabitants) by 2014 Less than 137 fatalities (or 24 fatalities per million inhabitants) by 2020 Less than 5750 injuries by 2020 (based on EU Road Safety target) Long term target: less than 100 fatalities by 2025
France		-50% fatalities by 2020 (less than 2000 fatalities) (based on EU Road Safety target)
Germany Road safety programme 2011-2020		-40% fatalities by 2020 (base year: 2010)
Greece National strategic road safety plan 2011 – 2020	Developing a road safety culture	-50 % fatalities by 2020 (based on EU Road Safety target); base year: 2010 interim targets: reduction by 90 road fatalities per year between 2010-2014 and 50 road fatalities per year between 2014-2020
Hungary Road safety programme 2011-2013		-50% fatalities by 2015 -50% injury accidents by 2015: base year: 2001. -50 % fatalities by 2020 (based on EU Road Safety target); base year: 2010
Iceland Traffic Safety Plan 2011-2022		Rate per 100 000 population should not be higher than in the best countries by 2022 Average annual reduction in killed and seriously injured of 5%. 11 sub targets defined
Ireland Road safety strategy 2013-2020		Reduction of road collision fatalities on Irish roads to 25 per million population or less by 2020. Provisional target for the reduction of serious injuries by 30% from 472 (2011), or fewer, to 330 by 2020 or 61 per million population. Specific targets for reducing speed and to increase restraint use.
Israel 5 year plan		Less than 270 fatalities per year by 2015 Reduce the fatality rate to less than 4.0 fatalities per billion km travelled, Rank among the 5 safest countries based on fatalities per km travelled New target (under consideration): less than 240 fatalities by 2020.
Italy *National Road Safety Plan towards 2020* *(in preparation)*		-50% fatalities by 2020 (under consideration) (based on EU Road Safety target)
Jamaica		Less than 240 deaths by 2016.
Japan 9th Traffic Safety Programme 2011-2015	Make Japan the safest country for road traffic	Less than 3 000 deaths by 2015 Less than 700 000 casualties by 2015
Korea 7th National transport safety plan 2012-2016	Reach the average safety level of OECD countries	Less than 1.3 fatalities/10 000 vehicles by 2016 (This represents a 40% reduction in fatalities compared to 2010 level (2010: 5 505 -> 2016: 3 000 fatalities) Less than 0.5 fatalities/10 000 vehicles by 2020 As of May 2013, there has been no decision to review the target (no more than 1 200 fatalities by 2020).
Lithuania Road safety strategy 2011-17		Less than 6 killed per 100 000 population in order to be ranked among the 10 best performing countries in the EU
Luxembourg		-50 % fatalities by 2020 (based on EU Road Safety target); base year: 2010

Country/Strategy/timeframe	Vision	Targets
Malaysia *In preparation*	Based on the UN Road Safety Plan for the Decade of Action for Road Safety	Reduce by 50% the forecasted number of fatalities by 2020
Netherlands Road safety strategic plan 2008–2020	Sustainable safety	No more than 500 fatalities by 2020 No more than 10 600 serious road injuries (MAIS2+) by 2020
New Zealand Safer Journeys: Road safety strategy 2010-2020	Safe System A safe road system increasingly free of death and serious injury	No overall targets Several sub targets
Norway 2010-2019	Vision Zero	-33% people killed and seriously injured by 2019
Poland National Road Safety Programme 2013-2020	Vision Zero	-50% fatalities by 2020 (based on EU Road Safety target) -40% severely injured by 2020 Base year 2010
Portugal ENSR 2008-15 (under review)	The National Authority for Road Safety (ANSR) is at the moment reviewing the 2008-2015 National Road Safety Strategy. This led to a definition of a new Vision and consequently the redefinition of the existing strategic goals, the definition of new ones and related key actions.	ANSR, even though, since 2010 began accounting fatalities within 30 days has maintained the previous objective of 62 fatalities per million inhabitants in 2015, this representing now an ever bigger challenge for the country and particularly for all of those more directly involved in road safety.
Serbia *National Strategy 2013-2020 (in preparation)*		
Slovenia National road safety programme 2013 – 2021	Vision Zero no fatalities and no one seriously injured on Slovenian roads	less than 35 fatalities per million inhabitants less than 235 seriously injured per million inhabitants
South Africa Strategy adopted in 2007 currently under review, adoption expected for 2013		
Spain Road Safety Strategy 2011 – 2020	Safe system/Vision Zero. Citizens have the right to a Safe Mobility System in which everyone, citizens and agents involved, have a responsibility	Less than 3.7 killed per 100 000 population aligned with the European 2020 target -25% seriously injured. Several targets for various performance indicators (seatbelt, speed, drink-driving, etc.)
Sweden No safety plan in a traditional sense Management by Objectives for Road Safety Work, Towards the 2020 Interim targets	Vision Zero	-50% fatalities between 2007 and 2020 (the average for 2006-2008 is used as the base figure), i.e. max. 220 deaths by 2020. -25% severely injured between 2007 and 2020.
Switzerland Via Secura Adopted in June 2012 by Swiss Federal Council		No hard numerical targets Range of targeted measures
United Kingdom (Great Britain) Strategic framework for road safety 2011 – 2020 (2030)	To ensure that Britain remains a world leader on road safety.	No concrete targets, but estimates for 2030 based on 05-09 average
United States		Targets for the USDOT include an overall fatality rate measure as well as the four submeasures to better identify trends within each group The overall fatality rate goal for 2012 has a target of 1.05 and 1.03 for 2013.

Legislation on key safety issues

Drink driving, speeding, non-wearing of seat belts and helmets, and the use of mobile phone while driving represent common safety challenges in all countries. Experience has shown that regulation, enforcement and education to modify behaviour on these fronts brings large benefits.

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

Drink driving

A drink driving crash is typically defined as a crash where at least one of the road users involved in the crash is under the influence of alcohol. Countries define "being under the influence of alcohol" in two different manners: driver with a positive blood alcohol content, even if below the maximum limit allowed; or driver with a blood alcohol content above the maximum limit.

It is therefore delicate to compare the preponderance of alcohol-related crashes in different countries. In addition, in some countries it is not legally permitted to test a corpse or an unconscious person for alcohol or other substances. Nevertheless, nearly all countries indicate that drink driving is one of the major contributing factors in fatal crashes and in many countries it involves around one third of fatal crashes.

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

Table 4. **Maximum blood alcohol content in 2013**

Country	General BAC level	Differentiated BAC for young drivers, professional drivers
Argentina	0.5g/l	0.0 g/l professional drivers
Australia	0.5 g/l	0.0 g/l for novice drivers 0.2 g/l for professional drivers
Austria	0.5 g/l	0.1 g/l moped riders < 20 years old and novice and professional drivers
Belgium	0.5 g/l	As of 1 June 2013, 0.2 g/l for professional drivers
Cambodia	0.5 g/l	No
Canada	0.8 g/l Most provinces have administrative sanctions in place at 0.4 g/l or 0.5 g/l.	Novice or young drivers in most provinces are subject to 0 g/l BAC (administrative) sanctions
Colombia	0.2 g/l (since August 2012)	
Czech Republic	0.0 g/l	-
Denmark	0.5 g/l	-
Finland	0.5 g/l	-
France	0.5 g/l	0.2 g/l for bus/coach drivers
Germany	0.5 g/l Drivers with a BAC above 0.3 g/l can have their licenses suspended if their driving ability is impaired	0.0 g/l (novice drivers)
Greece	0.5 g/l	0.2 g/l, professional drivers, motorcycles and moped operators
Hungary	0.0 g/l (sanctions when BAC > 0.2g/l)	
Iceland		
Ireland	0.5 g/l (implementation in 2011)	0.2g/l young drivers, professional drivers
Israel	0.5 g/l	-
Italy	0.5 g/l	0 g/l for novice and professional drivers since July 2010.
Jamaica	0.8 g/l	
Japan	0.3 g/l	
Korea	0.5 g/l	-
Lithuania	0.4 g/l	0.2 g/l for novice and professional drivers
Luxembourg	0.5 g/l	0.2 g/l for novice and professional drivers
Malaysia	0.0 g/l	
Netherlands	0.5 g/l	0.2 g/l for novice drivers (first 5 years)
New Zealand	0.8 g/l	0.0 g/l for drivers under 20 years old and for repeating offenders (since 2011)
Norway	0.2 g/l	
Poland	0.2 g/l	-
Portugal	0.5g/l	-
Serbia	0.3 g/l	0.0 g/l for novice and professional drivers and for PTW operators
Slovenia	0.5 g/l	-
South Africa	0.5 g/l	0.2 g/l for professional drivers
Spain	0.5 g/l	0.3 g/l novice and professional drivers
Sweden	0.2 g/l	-
Switzerland	0.5 g/l	-
United Kingdom	0.8 g/l	-
United States	0.8 g/l	0.2 g/l for drivers < 21 0.4 g/l for professional drivers

Speed limits in IRTAD countries

Inappropriate or excessive speed is reported in a large proportion of fatal crashes (typically around 30%).

The Table below summarises the general speed limits in IRTAD countries. The reader will find information on actual speeds in the country reports section below.

Table 5. **General speed limits for passenger cars**

Country	Urban areas	Rural roads	Motorways
Argentina	30 – 60 km/k	110 km/h	130 km/h
Australia	50 km/h 60 to 80 km/h (arterial roads)	100 or 110 km/h	110 km/h
Austria	50 km/h	100 km/h	130 km/h
Belgium	30 or 50 km/h	70 or 90 km/h	120 km/h
Cambodia	40 km/h	90 km/h	
Canada	40 – 70 km/h	80 – 90 km/h	100 -110 km/h
Colombia	80 km /h 30 km/h near schools and in residential areas	120 km/h	n.a.
Czech Republic	50 km/h	90 km/h	130 km/h
Denmark	50 km/h	80 km/h	110 or 130 km/h
Finland	50 km/h	80 km/h	120 km/h (summer) 100 km/h (winter)
France	50 km/h	90 km/h	130 km/h
Germany	50 km/h	100 km/h	No limit, but 130 km/h is recommended
Greece	50 km/h	90 km/h	130 km/h
Hungary	50 km/h	90 km/h	130 km/h (110 km/h on semi-motorways)
Iceland	50 km/h	90 km/h paved roads 80 km/h gravel roads	n.a.
Ireland	50 km/h	80 km/h or 100 km/h	
Israel	50 km/h	80, 90, 100 km/h	110 km/h
Italy	50 km/h	90 – 110 km/h	130 km/h
Jamaica	50 km/h	50 km/h	70 km/h or 110 km/h
Japan	40, 50, 60 km/h	50, 60 km/h	100 km/h
Korea	60 km/h	60-80 km/h	110 km/h (100 km/h in urban areas),
Lithuania	50 km/h	90 km/h (70 on gravel roads)	130 km/h (110 km/h in winter)
Luxembourg	50 km/h	90 km/h	130 km/h
Malaysia	50 km/h	90 km/h	110 km/h
Netherlands	50 km/h	80 km/h	130 km/h (was 120 km/h until sep 2012)
New Zealand	50 km/h	100 km/h	100 km/h
Norway	50 km/h	80 km/h	100 km/h
Poland	50 km/h	90 – 120 km/h	140 km/h
Portugal	50 km/h	90 km/h	120 km/h
Serbia	50 km/h	80 km/h	120 km/h
Slovenia	50 km/h	90 km/h	130 km/h
South Africa	60 km/h	100 km/h	120 km/h
Spain	50 km/h	90 or 100 km/h	120 km/h
Sweden	50 km/h	70 or 90 km/h	110 km/h
Switzerland	50 km/h	80 km/h	120 km/h
United Kingdom	30 mph (48 km/h))	60 mph (96 km/h)	70 mph (113 km/h)
United States	35 – 65 mph (56-104 km/h) *Set by each state*	50-65 mph (80-104 km/h) *Set by each state*	55-80 mph (88-129 km/h) *Set by each state*

Seatbelt laws

Table 6 summarizes the situation regarding seatbelt laws in IRTAD countries and provides estimations for seatbelt wearing rates in 2011 or 2012 (see also Figures 8 and 9).

Seatbelt wearing is compulsory in front seats in all IRTAD countries and observer countries, except in some states of the United States. 17 states in the United States do not have a primary seatbelt law (which means that a driver cannot be stopped solely because (s)he is not wearing a seatbelt), and one state does not have any belt use law for adults.

In most IRTAD countries mandatory seatbelt laws for rear seats were introduced 10 to 15 years after the front-seat law, and only very recently in some countries (2003 in Greece; 2008 in Japan). The wearing rate in these countries is much lower than in countries where the law has existed for many years. Some countries do not have general seatbelt laws for rear seats; in Korea for example, this only applies on motorways. Some observer countries still do not have a compulsory seatbelt law for rear seats (Cambodia, Colombia).

In almost all countries, there is a significant difference in wearing rates between front and rear seats. In front seats, the wearing rate varies from 27% to 98%, but a large majority of countries have a wearing rate above 80%. In rear seats, it varies from less than 3% to 98%, and the majority of countries have a wearing rate below 80%. However, the wearing rate is usually higher for children.

Table 6. **Seatbelt wearing rates in front and rear seats, 2011 or 2012**

Country	Front seats		Rear seats	
	Date of application	**Wearing rate**	**Date of application**	**Wearing rate**
Argentina	Yes, 1995	38% (average), 44% (driver)	Yes, 1995	18%, 29% for children
Australia	Yes, 1970s	Around 95%	Yes	Around 90%
Austria	Yes, 1984	89%	Yes, 1990	75%
Belgium	Yes, 1975	86%	Yes, 1991	Unknown
Cambodia	Yes, 2007	27%	No	Unknown
Canada (2009-10)	Yes, 1976-1988	96%	Yes, 1976-1988	Unknown
Colombia	Yes	Around 60%	No	
Czech Republic	Yes, 1966	99% (driver), 98% (passenger)	Yes, 1975	83%
Denmark (2010)	Yes, 1970s	92% (driver)	Yes, 1980s	76%
Finland	Yes, 1975	91%	Yes, 1987	87%
France	Yes, 1973	98%	Yes, 1990	84%, 89% for children
Germany	Yes, 1976	98%	Yes, 1984	98%
Greece (2009)	Yes, 1987	77% (driver), 74% (passengers)	Yes, 2003	23%
Hungary	Yes, 1976	82%	Yes, 1993 (outside built up areas), 2001 (inside built up areas)	58%, 84% for children
Iceland	Yes	85%	Yes	72%
Ireland	Yes, 1979	92%	Yes, 1979	89%, 95% for children
Israel	Yes, 1975	97% (driver), 95% (passengers)	Yes, 1995	74%
Italy	Yes, 1988	63% (urban areas) 75% (outside urban areas)	Yes, 1994	10%
Jamaica	Yes, 1999	Unknown	Yes, 1999	Unknown
Japan	Yes, 1985	98%	Yes, 2008	33% , 57% for children
Korea	Yes, 1990	88% (driver) on motorways 76% (passengers) on motorways	Yes, on motorways, since 2008	9.4% on motorways
Lithuania	Yes	83%	Yes	
Luxembourg	Yes, 1975	80% in 2003	Yes, 1992	Unknown
Malaysia	Yes, 1978	85% (driver), 75% (passengers)	Yes, 2009	10% (it was 40% in 2009)
Netherlands (2010)	Yes, 1975	97%	Yes, 1992	82%
New Zealand	Yes, 1972	96%	Yes, 1979	88%, 92% for children
Norway	Yes, 1975	95%	Yes, 1985	*No monitoring*
Poland	Yes, 1991	86%	Yes, 1991	65%
Portugal	Yes, 1978	Unknown	Yes, 1994	Unknown
Serbia	Yes, 1986	58%	Yes, 2009	3%
Slovenia	Yes, 1977	93%	Yes, 1998	66%
South Africa	Yes	68 % (drivers), 75% (passengers)	Yes (where seatbelts available in the car)	< 2%
Spain	Yes, 1974 outside urban areas, 1992 inside urban areas	89%	Yes, 1992	78%
Sweden	Yes, 1975	98% in 2012	Yes, 1986	84% 96% for children
Switzerland	Yes, 1981	92%	Yes, 1994	77%
United Kingdom (2009)	Yes, 1983	95%	Yes, 1989 (children); 1991 (adults)	89%
United States	Primary law in 32 out of 50 states. No law in 1 state	86%	Varies by State	74%

Figure 9. **Seatbelt wearing rate in front seats (2011 or 2012)**

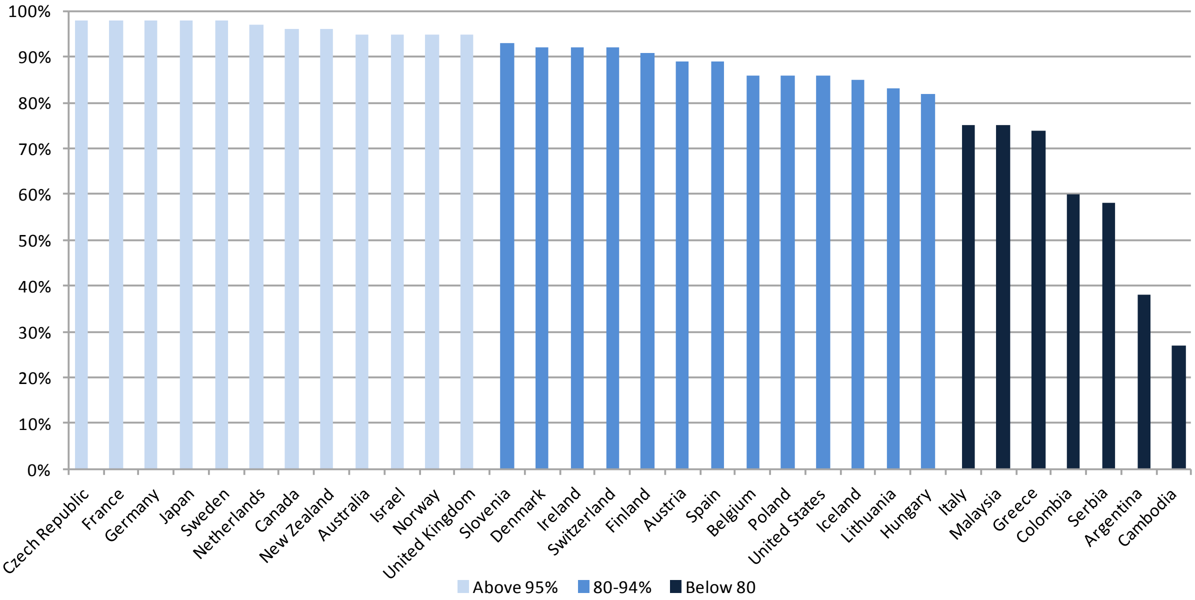
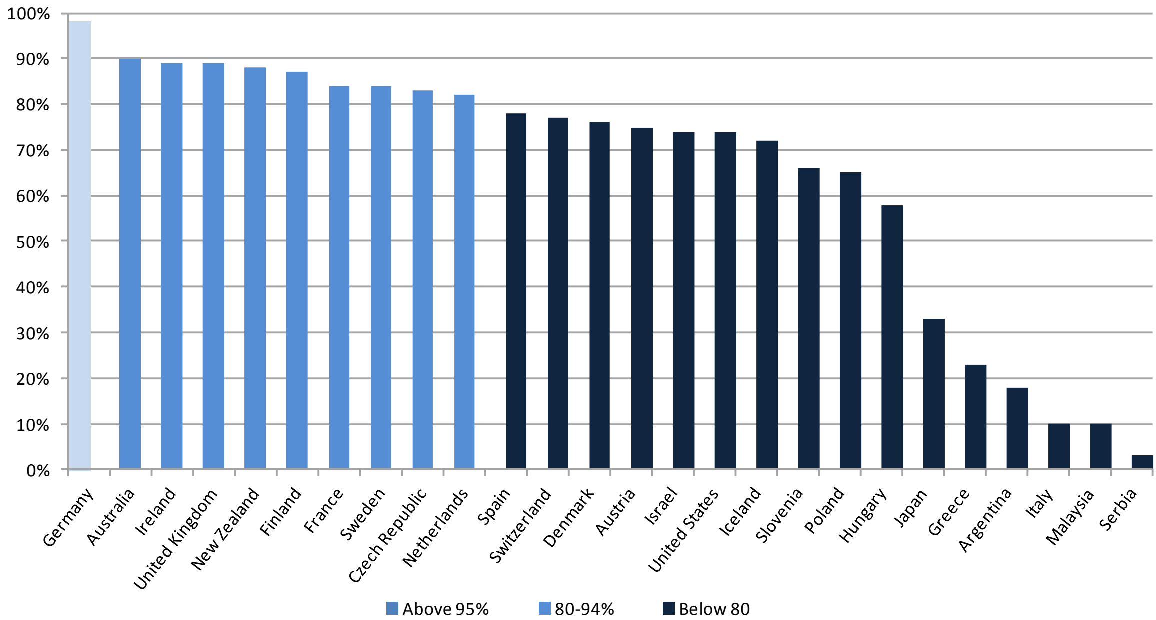


Figure 10. **Seatbelt wearing rate in rear seats (2011 or 2012)**



Over all, there is still scope for progress and a compliance rate of 100% in both front and rear sets should be the goal for all countries. Even in countries with a relatively good wearing rate, it is found that many of the people killed were not wearing a seatbelt at the time of the crash, and that many lives could have been saved if they had been wearing one. As an example, in France, where seatbelt wearing rate is around 98% in front seats and 84% in rear seats, it is estimated that more than 300 lives could have been saved if the victims had worn a seatbelt at the time of the crash (see Table 7). Research also shows, however, that drivers not wearing a seatbelt often belong to high risk groups and are more likely to have other risky driving behaviours, such as speeding or drinking and driving.

Table 7. **Share of unrestrained car occupants killed in a road crash**

Country	Results of research – % of car occupants killed who were unrestrained	General wearing rate
Australia	28% 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.	95%
Austria	39% (did not wear a seatbelt of the use of safety equipment was unknown)	89% (front), 75% (rear),
Canada	36%,	96%
Finland	43%	91% (front)
France	22%. It is estimated that 336 people could have their lives saved in 2011 (8.5% of all people killed) if they had worn their seatbelt.	84% (rear), 98% (front)
Hungary	72%	82% (front), 58% (rear)
Iceland	42% (average 1998-2010)	85% (front), 72% (rear)
Italy	39% (drivers only)	63-75% (front)
Luxembourg	43%	
New Zealand	33% (average 2010-2012). It is estimated that 10% would have been saved if they had been restrained.	96% (front), 88% (rear)
Spain	24% (22% in roads outside urban areas, 41% in roads inside urban areas)	89% (front), 78% (rear)
Sweden	31% in 2011; 45% in 2012. The increase is partly due to more suicides excluded and to the fact that the figures is based on only 85 killed drivers (38 was unrestrained).	98% (front), 84% (rear)
Switzerland	Around 40%	92% (front), 77% (rear)
United States	52%	86% (front), 74% (rear)

Helmet laws

Motorised two-wheelers

Nearly all countries have national helmet laws for the riders and passengers of motorized two wheelers (mopeds and motorcycles). In the United States, only 19 states require helmet use by all riders and passengers of motorized two-wheelers and three states have no helmet law at all. Wearing rate is generally very good (around 99%) in countries with high safety performance. In several countries, one observes a much lower wearing rate for passengers of powered two-wheelers.

Cyclists

A helmet is compulsory for all cyclists in Australia, Finland and New Zealand. Several countries require helmet use for children. There is little information on wearing rate.

Table 8. **Helmet laws and wearing rates, 2011 or 2012**

Country	Powered two wheelers		Cyclists	
	Helmet law	Wearing rate	Helmet law	Wearing rate
Argentina	Yes	42% riders 26% passengers	No	
Australia	Yes		Yes	
Austria	Yes		Yes for children up to 12	
Belgium	Yes	Unknown	No	
Cambodia	Yes, for PTW > 49cc, not yet compulsory for passengers			
Canada (2009-10)	Yes		In some jurisdictions	
Colombia	Yes, since 1998		No	
Czech Republic	Yes	Nearly 100%	Yes for children up to 18	
Denmark (2010)	Yes	96% (in 2006)	No	
Finland	Yes		Yes since 2003 but not enforced	37%
France	Yes, since 1973	93%	No	
Germany	Yes	99%	No	13%
Greece	Yes	75% riders 46% passengers	No	
Hungary	Yes since 1965 for motorcyclists, 1997 for moped riders outside built up areas, 1998 for moped riders in urban areas.	Nearly 100%	No	
Iceland	Yes		Yes for children up to 14	
Ireland	Yes	99.9%	No	49%
Israel	Yes	Nearly 100%	No	
Italy	Yes since 1986 for young people below 20; since 2000 for all	76-99%, varies by region	No	
Jamaica	Yes	Very low		
Japan	Yes	Around 99%		
Korea	Yes	75%	No	
Lithuania	Yes		Yes for children below 18	
Luxembourg	Yes, since 1976	Unknown		
Malaysia	Yes, since 1973	90% in urban areas 50% outside urban areas		
Netherlands	Yes, motorcycles since 1972; mopeds since 1975 Not compulsory on mofas (max. speed 25 km/h)	Riders: 96-100%	No	
New Zealand	Yes, since 1973 (at all speeds)		Yes since 1994	92% for children
Norway	Yes			
Poland	Yes since 1997		No	
Portugal				
Serbia	Yes since 1986		No	
Slovenia	Yes		Yes for children up to 14	
South Africa	Yes		No	
Spain	Yes	98-100%	Yes, except in built up areas	
Sweden	Yes		Yes for children below 15	60-70% children 32% adults
Switzerland	Yes, motorcycles since 1981; mopeds since 1990	Almost 100%	No	40% 70% for children
United Kingdom (2009)	Yes, motorcycles since 1973; mopeds since 1977		No	
United States	No national law 19 states require helmet use by all PTW operators and passengers. 28 states requires helmet use by some segment of population 3 states have no helmet law	60% in 2012	21 states and the District of Columbia have enacted age-specific bicycle helmet laws	

Mobile phone while driving

Table 9 summarizes the information from the country reports on the use of mobile phones while driving and the relevant legislation. It gives an indication of the share of drivers using a mobile phone while driving.

Table 9. **Mobile phone use while driving**

Country	Law prohibiting the use of hand-held phones	Law prohibiting the use of hands-free phones	Estimated % of drivers using a hand held phone while driving [4]
Argentina	Yes	No	-
Australia	Yes	In some jurisdictions, total ban of using a mobile phone for learners and novice drivers	Survey findings suggested that 60% of drivers have used a mobile phone while driving
Austria	Yes Preparation of a ban on the use of mobile phones while cycling (except hands-free devices)started in 2012.	No	
Belgium	Yes	No	
Cambodia	Yes	No	
Canada	Yes, in most jurisdictions	No	3.3%
Colombia	Yes	No	
Czech Republic	Yes	No	2.7%
Denmark	Yes (also applies to cyclists)	No	
Finland	Yes	No	
France	Yes	No	In 2010 it was estimated that at any time, 2% of car drivers and 6.3% of truck drivers were using a hand-held phone while driving.
Germany	Yes (also applies to cyclists)	No	
Greece	Yes	No	9% of cars drivers; 2% of PTWs riders
Hungary	Yes	No	
Iceland	Yes	No	
Ireland	Yes	No	3% of all drivers observed were using mobile phones when driving 22% of drivers observed using mobile phones were not wearing seat belts
Israel	Yes	No	
Italy	Yes	No	Around 9%
Jamaica	Yes	No	
Japan	Yes	No	0.12% of injury crashes are attributed to the use of mobile phone
Korea	Yes	No	8.7%
Lithuania	Yes	No	
Luxembourg	Yes	No	
Malaysia	Yes	No	
Netherlands	Yes	No	50% of all Dutch car drivers use a mobile phone while driving at least once a week
New Zealand	Yes	No	
Norway	Yes	No	
Poland	Yes	No	
Portugal	Yes	No	
Serbia	Yes	No	
Slovenia	Yes	No	
South Africa	Yes	No	4.7%
Spain	Yes	No	3%
Sweden	No	No	
Switzerland	Yes	No, in some cases, using a hands-free phone can be considered as impaired driving.	
United Kingdom	Yes	No	1.4% car drivers 2.6 truck drivers
United States	Various legislations	Various legislations	

4. For information only. Data are not comparable.

IRTAD Activity report

Twinning programmes

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 existing crash data systems.
- Visits of experts from the new countries to the country of their IRTAD partner for training sessions.
- Formulation of recommendations 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 funded by the twinned partners and in most cases with support from:

- The World Bank Global Road Safety Facility;
- The Inter-American Development Bank;
- Other voluntary contributions, including the FIA Foundation.

Argentina and Spain

In April 2010, the first twinning programme between Spain (Dirección General del Trafico of Spain) and The Argentinean Road Safety Agency (ANSV) was launched with funding from the World Bank Global Road Safety Facility.

The twinning ended in 2012. Major achievements include: the development and implementation of the unique data collection form (Orange Form) to be used in all provinces; the design, development and implementation of the software to manage the information collected; the development of a Statistical Indicators Manual, which introduces the main indicators; and the development of new methodology to adjust mortality rates.

The safety data of Argentina are currently being reviewed by the IRTAD Group, and it is expected to include them in the core IRTAD database in 2013.

Cambodia and the Netherlands

The twinning of the National Road Safety Committee of Cambodia with SWOV and Road Safety for All in the Netherlands was initiated in May 2010, with financial support from the FIA Foundation.

It focuses on the further development of the current crash data system (RCVIS) that was initially established by Handicap International Belgium. Thus far, achievements include a pilot project to link police and health data in order to better assess the real number of casualties; assistance in the development of performance indicators and safety targets to monitor progress of the road safety strategy for 2011-2020; training on data analysis to support decision-making.

A second phase started in 2013 over a 3-year period, which will focus on continuation of the work on linking police and health data, the design of a speed survey in order to follow speeding behaviour and the effects of speed management measures.

Jamaica and the United Kingdom

Twinning between the Ministry of Transport of Jamaica and the Department for Transport (DfT) and TRL Transport Research Laboratory in the United Kingdom was launched in February 2013, with the support of the Inter-American Development Bank (IDB). The goal is to help Jamaica align its road safety data to international standards as a step towards more effective road safety policies.

The first phase of the twinning initiative is being carried out by TRL. It involves a comprehensive review of how data relevant for road safety analyses are collected, stored, analysed in Jamaica, and how they are then used to inform road safety strategies and interventions. As part of the review, the TRL team interviewed representatives from the Jamaican Police Force, Ministry of Health, Ministry of Education, Ministry of National Security, universities and the Maritime Training Institute.

The project will continue in 2013 and 2014, and focus in particular on the analysis of current usage of data to support development and implementation of road safety strategies.

South Africa and Sweden

Twinning between the Road Traffic Management Corporation and the Swedish Transport Agency, the Swedish Transport Administration and VTI will start in 2013. Experts from both countries are currently developing the scope of the project for the next three years. The FIA Foundation is contributing financial support for this twinning project.

IRTAD in Latin America and the Carribean "IRTAD LAC"

The successful IRTAD twinning between Argentina and Spain initiated the desire for a broader cooperation on road safety data collection and analysis in Ibero-America. Following the Ibero-American meeting of Heads of Road Safety and Traffic Agencies, held in May 2010 in Montevideo and in May 2011 in Mexico city, 18 countries agreed to create the Ibero-American Road Safety Observatory (OISEVI), supported by a regional road safety database, designed on the basis of the IRTAD model.

The development of this database is financed by the World Bank Global Road Safety Facility. Data are progressively being fed into the IRTAD LAC database by the road safety agencies of South and Central America and the Caribbean. The first meeting of the IRTAD LAC network was held in Colombia in November 2012.

The IRTAD LAC database has been developed as a learning tool to encourage countries in gradually enhancing their crash data system and conducting joint analysis. As data collection processes are validated data will be transferred into the main IRTAD database.

Speed and crash risk

Excessive or inappropriate speed is known to be one of the main contributing factors in traffic crashes. Many countries report speeding as the principal cause of fatal crashes, being responsible for up to 40% of road fatalities.

The relationship between serious injury accidents, fatal crashes and mean speed has been studied by many researchers, for example Nilsson (1982, 2004), Elvik, Christensen and Amundsen (2004), Elvik (2009)n, Maycock et al. (1998), Aarts and van Schagen (2005). All these studies confirm that when speed increases, so too does the risk as well as the severity of the crash. The relationship is not linear but exponential.

Several IRTAD countries have recently adopted measures that have had an impact on actual speeds (mean speeds, speed variation). The IRTAD group has begun a study to analyse, based on actual data, how these recent measures have effected (1) actual speeds; and (2) the occurrence of crashes, and whether the Power Model is supported by the most recent crash data.

A final report is expected in early 2014. The chair in the sub group preparing the report is Tove Hels (Technical University of Denmark).

Safety infrastructure indicators

A safer road network can prevent crashes and reduce the severity of crashes considerably. The management of safety through road infrastructure design and maintenance standards differs between countries. IRTAD is working at identifying good practice in this area and indicators to help monitor safety performance in relation to road infrastructure quality.

This sub group will review how safety programmes for road infrastructure are implemented. These include Road Safety Impact Assessment, Road Safety Audit, Network Safety Ranking, Road Safety Inspection, In-Depth Analysis, Road Accident Data Management, Road Assessment Programmes, and Road Infrastructure Safety Performance Indicators. A pilot survey of the safety management of road infrastructure shows that some programmes are common to all countries that responded to the survey, while others are implemented in only in a limited number of countries. The study will analyse why these differences have arisen. Some evaluation criteria for road infrastructure safety will be developed and policy recommendations will be suggested in relation to good practice from national and local perspectives.

A final report is expected in Autumn 2013. This activity is chaired by Luca Persia, Universty La Sapienza, Rome.

IRTAD and the cities

The IRTAD Group initiated a pilot project in 2012 to assess the interest and feasibility for a safety database and network at city level. The objectives of this pilot project are to:

- Establish relevant indicators for benchmarking cities;
- Exchange information on methodological issues in collecting exposure data;
- Exchange information on road safety interventions in these pilot cities;
- Adapt the IRTAD survey methodology to the needs of cities and collect safety data from the pilot cities.

Nine cities (Barcelona, Bogota, Chicago, Copenhagen, Lisbon, London, Lyon, Paris and New York) are taking part in the pilot and have provided safety data for analysis. A decision on further development of the activity will be taken later in 2013.

This activity is chaired by George Yannis, National Technical University of Athens.

Safety and Economic performance

In 2010, 2011 and 2012, several OECD countries showed a remarkable decrease in the number of road fatalities. While, this decrease is in part explained by the fruits of the road safety policies implemented in the last decade, it is also suggested that the observed decrease is linked to the economic downturn which has hit most OECD countries since 2008 and which has had an impact on the mobility of persons and goods.

The IRTAD Group is interested to better understand the relationships between economic performance and road safety and is currently working with two renowned economists on:

- Identification of economic factors influencing road safety performance. Economic performance has a direct impact on a number of factors, including unemployment, the consumption of goods, freight flows, etc. which then impact the demand for driving and perhaps also driving habits and behaviours, which finally impact road safety performance.
- Development and econometric estimation of a model to describe the relationship between economic and safety performance.

A report is expected in 2014.

Country reports

Argentina

Source: ANSV

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities/100 000 inhabitants in 2011
Buenos Aires	**40.9 million**	**467.4**	**5 040**	**12.3**

Argentina joined the IRTAD Group in 2010. It benefited in 2010-2012 from a twinning programme with the General Traffic Directorate (DGT) of Spain to review and audit its crash data collection and analysis system. This Programme ended in 2012 and concluded successfully. The ANSV has substantially improved the data collection process, conforming to international standards and indicators.

1. Comments about road safety data collection

The Argentine Road Safety statistical form (Orange Form) was implemented in 2010, together with a specifically designed software. This Road Safety statistical form is being used by 16 of the 24 Argentinean provinces to report on road crashes; another four provinces have adapted their tools to report data through a digital process; the rest are still using aggregated tools.

The forms are sent to the ANSV, where all the statistical data is consolidated and processed. The ANSV also prepares all the statistical reports on a national basis. All the statistical information is published on the Observatory website[1].

Data prior to 2008 were reconstructed with the collaboration of the Ministry of Health. Whereas data on fatalities are available from 2005 onward, data on injuries are only available as from 2008.

The National Road Safety Observatory has also encouraged all provinces to continue sending the information in an aggregated way, until the implementation process concludes. This information has been crucial for the Observatory and is relevant for comparing both collection data processes. (Unique Data Collection Form – Aggregated Data).

The Observatory randomly selects one province and performs an audit, in order to verify that the collection data process has been undertaken in the correct way.

The severity of an injury is defined based on the length of hospitalisation. A stay of more than 24 hours is considered as a serious injury, and less is considered a minor injury. However, since 2010, the ANSV is working with the National Health Ministry to link hospital records and the Orange Form data. This linking project was started as a pilot in two of the most populated provinces of Argentina, in order to collect data based on MAIS 3.

1. http://observatoriovial.seguridadvial.gov.ar

2. Short-term trends

General comments and trends for 2011

In 2011, there was a 1.1% decrease in the number of fatalities; however, the number of injury crashes increased by 11%.

Provisional data for 2012

According to provisional data, there were 4 923 road fatalities in 2012, a 2.3% decrease in comparison with 2011.

3. Long-term trends (2008-2011)

Fleet and mobility

Motorisation is growing very fast in Argentina. The car fleet rose by 860 347 units in 2011, i.e. a 6% increase in new vehicles compared to 2010. The motorcycle fleet grew by 541 017 units, i.e. by 15% compared to 2010. The motorcycle fleet is growing twice as fast as the car fleet.

Change in the number of fatalities and injury crashes

In recent years there have been significant changes in relation to road crashes in Argentina. The data shown below reveal a downward trend in total road fatalities between 2008 and 2011. There was a 12.5% decrease in total road deaths and an 11.8% decrease in the number of people killed at the scene of the crash.

Risk and rates

Between 2008 and 2011, the mortality rate, expressed in terms of deaths per 100 000 inhabitants, decreased by 15% and the fatality rate, expressed in terms of the number of fatalities per 100 000 registered vehicles, decreased by 29%.

Table 1. **Reported safety data, 2008-2011**

						2011 % change over		
	2005	2008	2009	2010	2011	2010	2008	2005
Fatalities	4 391	5 759	5 219	5 094	5 040	-1.1%	-12.5%	+14.8
Injury crashes		97 474	90 851	89 403	99 466	+11.3%	+2.0%	
Deaths/100 000 population		14.5	13.0	12.6	12.3	-1.98%	-14.96%	
Deaths/10 000 registered vehicles		3.7	3.2	2.9	2.6	-8.3%	-29.4%	

Economic costs of traffic crashes

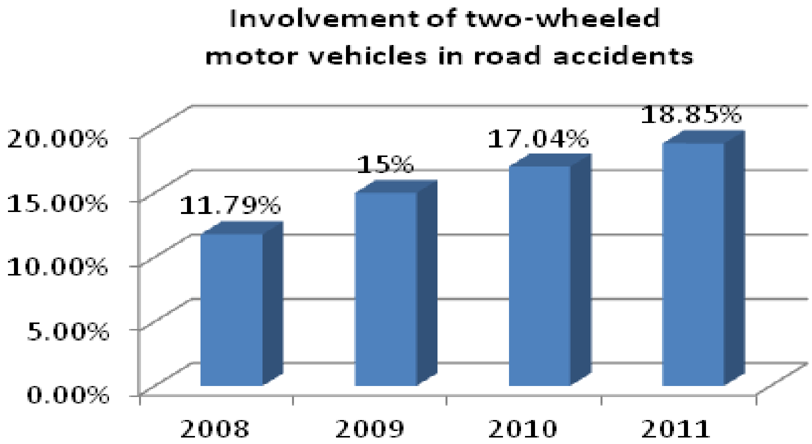
Road crashes represent huge costs for society. In 2010, they were estimated at 1.23% of GDP: 0.31% of GDP was allocated to health care system costs.

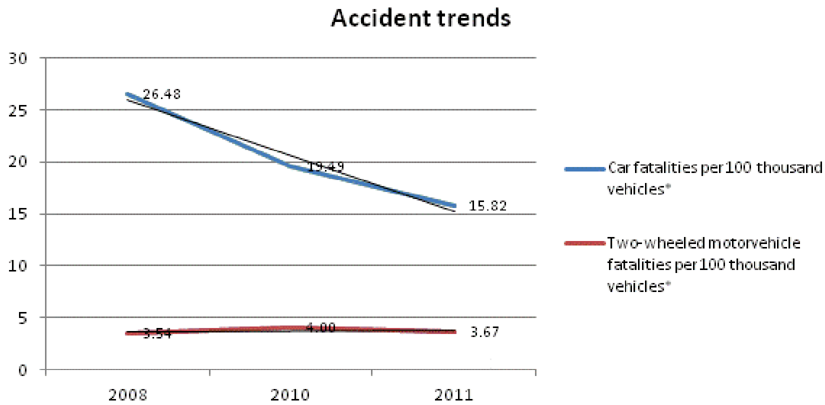
Road users

While the total vehicle fleet has experienced a steady increase, between 2010 and 2011, the two-wheeled motor vehicle fleet increased the most (15%) while the car vehicle fleet increased by only 6%. These changes have a direct impact on road crash patterns.

The safety of motorcyclists is a major concern in Argentina. Between 2008 and 2011, the number of crashes involving motorcyclists increased by 44.5%.

Figure 1. **Involvement of two-wheeled motor vehicles in road accidents and accident trends**





Age

The figure below shows each age group's share of all traffic fatalities. Most traffic fatalities involve road users between 15 and 34 years old. This age group represented the highest concentration of road fatalities and, in 2011, these two age groups accounted for almost half of all fatalities.

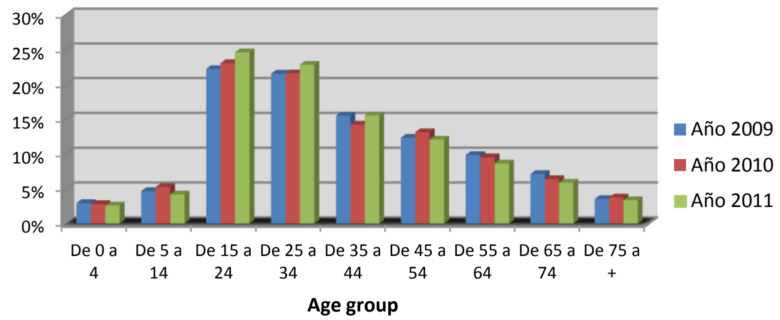
Young people have a higher risk than the general population, and they are followed closely by road users aged 35 to 54.

Compared to 2009, the share of fatal victims aged 15 to 34 rose in 2011, while other age-group fatalities, such as 0-4, 5-14, 55-64 and 65-74 decreased. The number of victims from other age groups remained almost unchanged between 2009 and 2011.

Table 2. **Reported fatalities by age group 1990-2011**

				2011 % change over	
	2009	2010	2011	2010	2009
0-4	150	166	136	-18%	-9%
5-9	114	108	95	-12%	-17%
10-14	135	139	117	-16%	-13%
15-19	700	712	748	5%	7%
20-24	461	463	487	5%	6%
25-34	1 126	1 102	1 159	5%	3%
35-44	811	726	781	8%	-4%
45-54	645	671	610	-9%	-5%
55-64	516	487	439	-10%	-15%
65 and over	560	519	468	-10%	-16%
Unknown	1	1	0	-100%	-100%
Total	5 219	5 094	5 040	-1%	-3%

Figure 2. **Fatalities by age group**

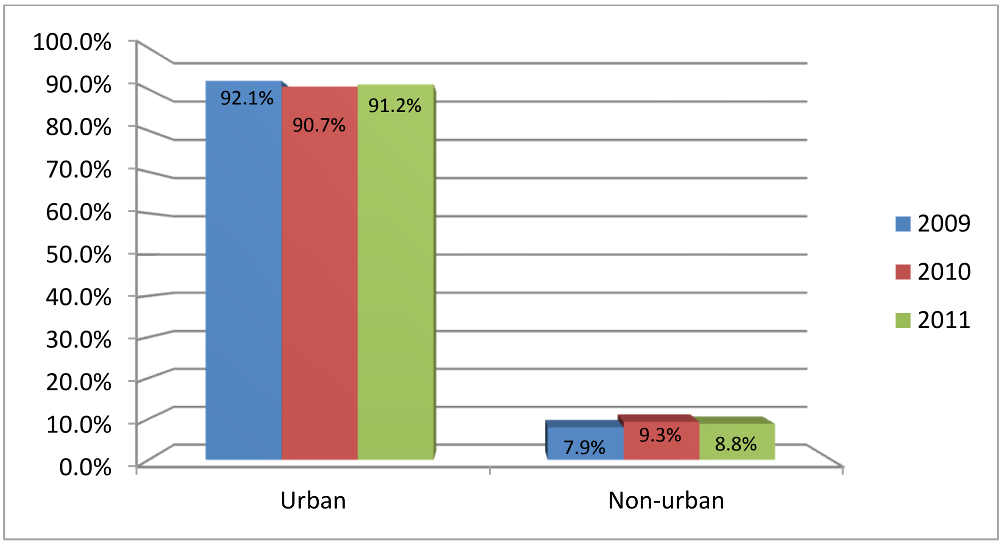


Road Type

In 2011, 91.2% of road crashes occurred in urban and suburban areas, accounting for 86% of injured persons and 56% of fatalities. Non-urban areas accounted for 8.8% of road crashes but 44% of fatalities.

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

Figure 3. **Reported fatalities by road type**
1990, 2000, 2010 and 2011

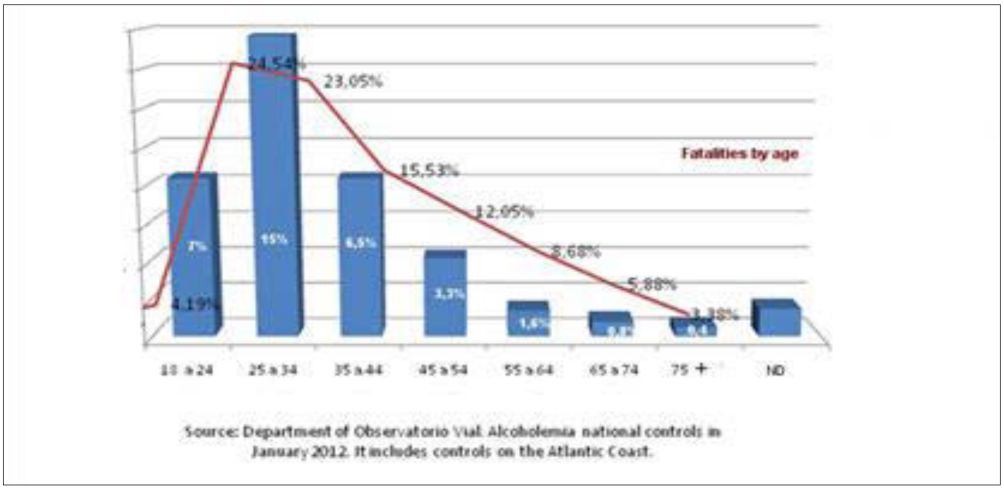


4. Recent trends in road user behaviour

Impaired driving

A maximum BAC (Blood Alcohol Content) 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 figure below shows the results of a research study conducted by the Road Safety Observatory. The youngest road users show most frequently a positive blood alcohol level. The distribution of fatalities by age shows a similar trend to the distribution of observed drivers with a positive blood alcohol level.

Figure 4. **Drivers with a positive blood alcohol level**



Speed

The table below summarizes the main speed limits in Argentina.

Table 3. **Summary of speed limits in Argentina in 2013**

	General speed limit	Comments
Urban roads	30-60 km/h	Buenos Aires City has a range of 20-70 km/h, in 5 categories
Rural and national roads	110 km/h for cars 90 km/h for coaches 80 km/h for trucks	
Motorways	130 km/h for cars 90 km/h for coaches 80 km/h for trucks	

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

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

Seatbelts and helmets

Seatbelt wearing is compulsory in front and rear seats since February 1995. Dedicated child restraint systems are mandatory for children under four years old.

Table 6 summarizes the evolution in the seatbelt wearing rate. While there is some improvement, the wearing rate is very low in comparison to most OECD countries.

Table 4. **Seatbelt wearing rate by car occupants**

	2011	2012
Front seat (general)	33.3%	37.8%
Driver	39.3%	44.2%
Front-seat passengers	29.1%	34.3%
Rear Seats	10.8%	18.2%
Child-restraint systems	26.2%	29.0%

All riders of two-wheeled motor vehicles are required to wear helmets. In 2011, it was estimated that 42.2% of motorcycle drivers wore a helmet, and 26.4% (on average) of passengers wore one.

Distracted driving, use of mobile phones and fatigue

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

5. National road safety strategies and targets

Organisation of road safety in Argentina

The National Road Safety Agency, created by law in 2008, is the leading road safety agency in Argentina. It has been created within the scope of the Ministry of Transport and the Interior. The

Agency has three important councils/committees: a Federal Council, represented by one member of each province; a Scientific Committee, composed of expert members, engineers, doctors, etc.; and a Consultative Committee, represented mainly by relatives of road safety victims.

All road safety policies are decided inside the National Road Safety Agency. Since its inception, the focus has been on the creation of a National Drivers' Licence, a National Education Plan, a National Control Plan and the creation of the National Road Safety Observatory.

Road safety strategy for 2011-2020

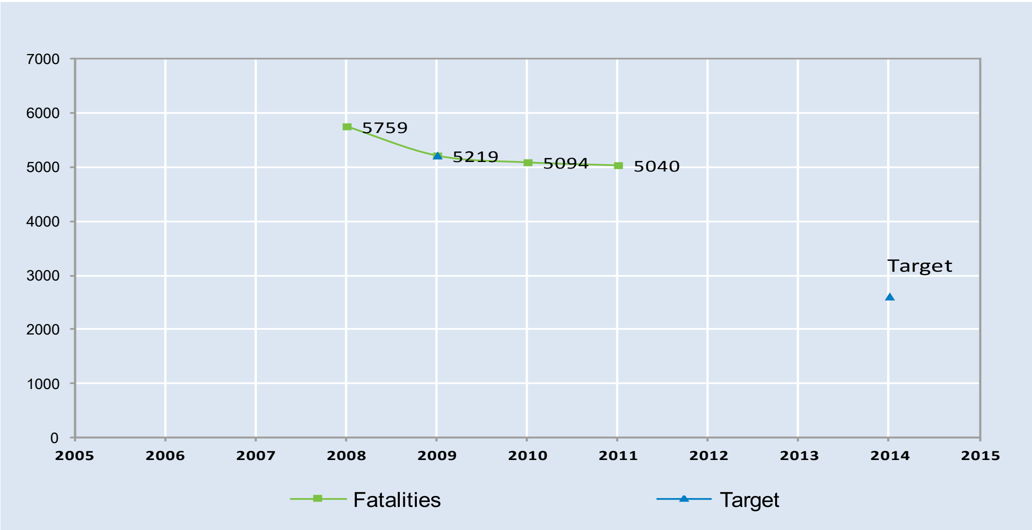
Argentina's Road Safety Plan is based on the pillars recommended by the UN Road Safety Plan for the Decade of Action for Road Safety.

Target setting

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

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

Figure 4. **Trends towards national target**



6. Recent safety measures (2011-2012)

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

Pillar 1: Road safety management

Activity 1

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

Activity 2

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

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

Pillar 2: Safer roads and mobility

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

Pillar 3: Safer vehicles

The main activities implemented were as follows:

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

- Anti-lock braking system, airbag, head restraints on seats next to doors;
- Visual and audible seatbelt wearing warning, automatic lighting, central seat head restraint;
- Frontal impact test, rear impact test. Child restraint system. Regarding the latter equipment, as from 1 January 2013, all car models should be equipped with a rigid anchoring system or with a 3-point seatbelt in all rear seats next to doors. As of 1 January 2018, all car models should incorporate a rigid anchoring system.

Equipment of motorcycles

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

- Automatic lights on motorcycles (all engines).

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

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

Pillar 4: Safer road users

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

- In 2011, 19 out of the 24 Argentinean provinces adopted a new National Driving Licence system. The national licensing system is a centralised process for enabling the provision of documentation to drive. This mechanism allows criminal background checks, traffic violation checks, judicial disqualifications and the scoring of the person seeking the licence.
- The licence, as a document, includes technology that prevents counterfeiting and facilitates control with electronic devices.
- The Argentinean road safety agency developed educational kits which were diffused to 6 million children and students and 350 000 teachers.

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

Pillar 5: Post-crash response

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

The following measures have been implemented:

- A regional emergency network has been developed by the Health Ministry, with a unique emergency medical number;
- In conjunction with the Health Emergencies National Directorate, training in emergency care during the initial assessment of trauma patients;
- Training and technical strengthening of vehicles' incident response on public roads, with integrated drills to co-ordinate rescue efforts, removal and medical care;
- Development of a data collection structure to provide information useful to decision makers;
- Compliance with Law No. 22.431 on disability;
- Simulation with rescue services, the police, fire departments, local governments, etc., to test local, provincial and national contingency plans.

Other recent measures

Impaired driving

The Road Safety Observatory proposed an amendment to the law on drink-driving and evaluated the possibility of incorporating the "0 Tolerance Vision" on drinking and driving within the actual law.

Regional observatories

The creation of regional observatories has been one of the most relevant initiatives that has been implemented by the National Road Safety Agency to improve the quality of the information sent to the Road Safety Observatory.

Safety campaigns

During 2013, the National Road Safety Agency has developed a joint road safety campaign together with the most important oil company in Argentina (YPF): http://www.asesalvolante.com.ar/

Motorcyclists safety

The National Road Safety Agency, in co-operation with the Ministry of Health, motorcyclists' associations and other stakeholders, launched in 2012 a National Motorcycle Plan:

http://observatoriovial.seguridadvial.gov.ar/documentos/plan-motos-2012_.pdf

7. Useful websites and references

Recent and on-going research

2nd survey of car drivers' behaviour. Source: ANSV.

1st Survey of pedestrians and cyclists' behaviour. Source: ANSV.

Useful websites

National road safety agency ANSV	http://www.seguridadvial.gov.ar
Road Safety Observatory	http://observatoriovial.seguridadvial.gov.ar

Contact

For more information, please contact: cpuppo@seguridadvial.gov.ar

Australia

Source: IRTAD, Department of Infrastructure and Transport

Capital	Inhabitants	Vehicles	Road fatalities in 2011	Fatalities/ 100 000 inhabitants in 2011
Canberra	**22.3 million**	**16.4 million**	**1 277**	**5.6**

1. Comments about road safety data collection

In Australia, crash data are collected and validated by the police and transport agencies in each of the eight states and territories.

Common protocols for the collection of fatality data have enabled the establishment of a reliable national road fatality database, which is managed by the federal Department of Infrastructure and Transport (the Department). This database is the source of the fatality data included in this report. Fatality data refer to deaths within 30 days.

With respect to the collection of serious injury road crash data, there are currently substantial differences in the approaches adopted by the Australian states and territories. As a consequence, there is no national data set on serious injury crashes. The federal Department is working with state and territory agencies on options to develop a national serious injury database, however there are significant issues to be resolved before this can occur.

2. Short term trends

Safety performance in 2011

Road deaths in Australia decreased by 5.5% in 2011 in comparison with 2010, which already saw an important improvement (-9.1%). The number of deaths in 2011 was the lowest annual total since 1948.

Total estimated vehicle-kilometres travelled in 2011 increased by 2.3%.

Provisional data for 2012

Provisional data for 2012 show a 2.6% increase in the number of fatalities in comparison to 2011. This includes increases among drivers (+8.2%), motorcyclists (+10.9%) and people aged 60+ years (+14.5%).

3. Long term trends (1990-2011)

Change in the number of fatalities and injury crashes

Between 1990 and 2011, the annual number of fatalities decreased by 45%.

Over the last decade (2001-2011), national annual fatalities decreased by 26 per cent, fatalities per population decreased by 37 per cent, and counts of fatal crashes decreased by 27 per cent. The decline was weaker during the middle of the decade but has accelerated significantly over the last four years.

The 17–25 age group has the largest rate of fatalities per population. It accounts for 13 per cent of the population but 22 per cent of deaths. Over the decade however, the rate for this group has declined faster than the total.

Across jurisdictions, the strongest downward trends were achieved in New South Wales, Victoria and South Australia. For the other jurisdictions, the trends are weaker. Over the decade Western Australia showed a marginal increase.

All types of fatal crash are decreasing. Single vehicle crashes (no pedestrian involved) currently account for 44 per cent of the total. Ten years ago the proportion was the same.

Risk and rates

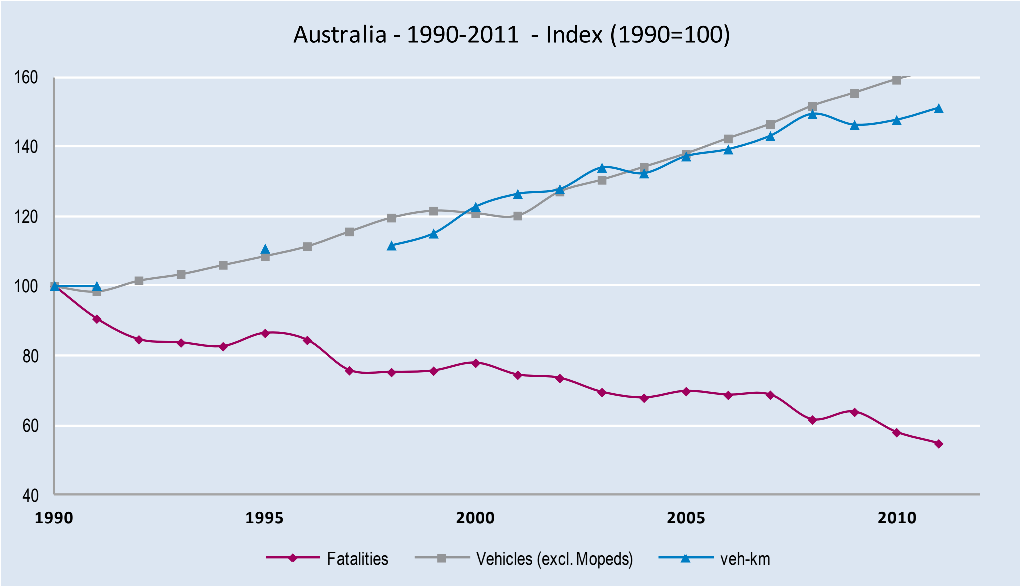
In the last 20 years, the mortality rate (in terms of deaths per 100 000 population) has decreased by 54%.

Over the last decade (2002-2011), the rate of annual deaths per population decreased by 35.3 per cent. The estimated trend over the decade is an average annual fall of 2.8 per cent.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Reported safety data							
Fatalities	2 331	1 817	1 352	1 277	-5.5%	-29.7%	-45.2%
Deaths/100 000 population	13.7	9.5	6.1	5.6	-6.9%	-40.5%	-58.7%
Deaths/10 000 registered vehicles	2.3	1.5	0.84	0.78	-7.3%	-48.0%	-66.1%
Deaths/billion vehicle-kms	14.4	9.3	6.1	5.6	-7.7%	-42.9%	-60.9%
Fleet and mobility data							
Vehicles (exc. mopeds) (in thousands)	10 081	12 373	16 062	16 368	1.9%	32.3%	62.4%
Vehicle- kilometres (in million)	161.5	196.0	222.1	227.2	2.3%	15.9%	40.6%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	591	646	719	723	0.6%	11.9%	22.3%

Figure 1. **Reported road fatalities, motorised vehicles and vehicle-kilometres 1990-2011**



Economic costs of traffic crashes

The annual economic cost of road crashes in Australia is enormous—estimated in 2006 at AUD27 billion per annum, i.e. 2.6% of GDP. This is based on a willingness-to-pay approach to value fatality, injury and disability costs.

Table 2. **Costs of road crashes in Australia 2006**

Cost (AUD Billion)	**2006**
Fatalities	9.9
Injury and disability	10.3
Property damage and other costs	6.9
Total	27.1
Total as % of GDP	2.6%

Source: BITRE (2010) Cost of Road Crashes in Australia 2006, Research Report 118.

Road users

Passenger and pedestrian deaths have decreased at the fastest rates, with driver deaths also falling. In contrast, motorcyclist deaths show a flat trend.

Crash types are classified into single-vehicle crash (no pedestrian killed), multiple vehicle crash (no pedestrian killed) and pedestrian crash. All three types have declined over the decade, however the falls in pedestrian fatal crashes have been strongest.

Since 1990, the percentage reduction in pedestrian fatalities (-59%) has been considerably larger than that for vehicle occupant fatalities (-46%). 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 58% since 1990. Reduced urban travel speeds and introduction of compulsory helmet laws for cyclists have contributed to this improvement. However, in 2010 there was a 23% increase in the number of cyclist fatalities.

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

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		*2010*	*2000*	*1990*
Bicyclists	80	3%	31	2%	38	3%	34	3%	*-10.5%*	*9.7%*	*-57.5%*
Motorcycles	262	11%	191	11%	224	17%	202	16%	*-9.8%*	*5.8%*	*-22.9%*
Vehicle occupants	1 569	67%	1 302	72%	919	68%	855	67%	*-7.0%*	*-34.3%*	*-45.5%*
Pedestrians	420	18%	287	16%	170	13%	185	14%	*8.8%*	*-35.5%*	*-56.0%*
Others	0	0%	6	0%	1	0%	1	0%			
Total	***2 331***	***100%***	***1 817***	***100%***	***1352***	***100%***	***1 277***	***100%***	***-5.5%***	***-29.7%***	***-45.2%***

Age

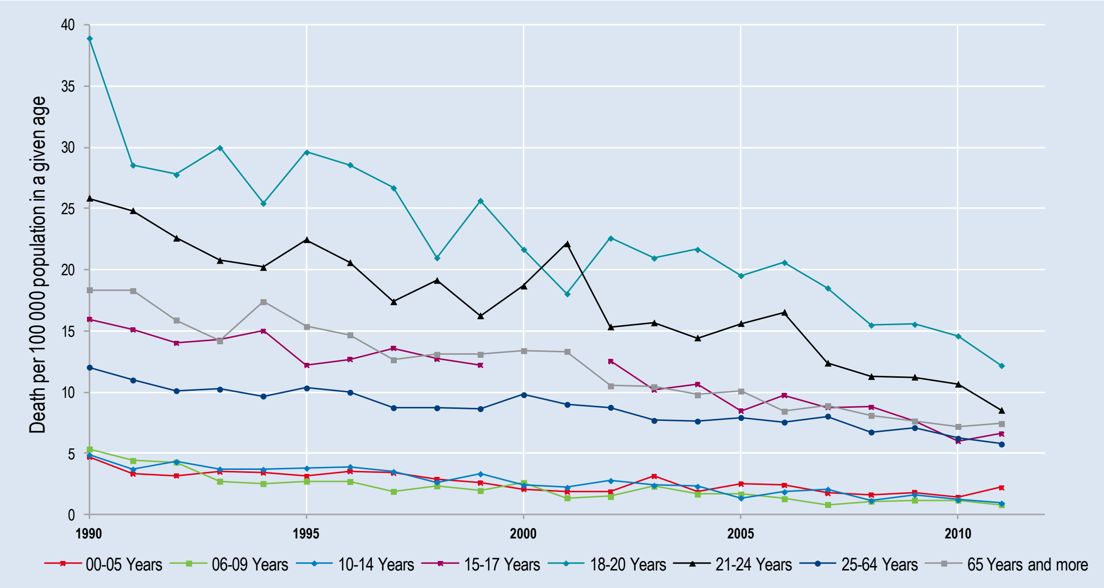
The 17–25 age group has the largest rate of fatalities per population. It accounts for 13% of the population but 22% of deaths. Over the decade however, the rate for this group has declined faster than the total.

Road users aged 16 years or under currently account for around 7% of all deaths. This proportion is similar to that at the start of the decade. This group has had the highest rate of decline over the last ten years, however deaths in the 17–25 years, 26–39 years and 70+ groups are also falling. The 40–69 groups show relatively flat trends.

Table 4. **Reported fatalities by age group 1990-2011**

	1990	2000	2010	2011	2011% change over 2010	2011% change over 2000	2011% change over 1990
0-5	70	51	26	39	*50.0%*	*-23.5%*	*-44.3%*
6-9	55	17	13	9	*-30.8%*	*-47.1%*	*-83.6%*
10-14	59	46	17	13	*-23.5%*	*-71.7%*	*-78.0%*
15-17	129	104	53	58	*9.4%*	*-44.2%*	*-55.0%*
18-20	340	204	138	114	*-17.4%*	*-44.1%*	*-66.5%*
21-24	278	178	141	114	*-19.1%*	*-36.0%*	*-59.0%*
25-64	1 046	923	746	699	*-6.3%*	*-24.3%*	*-33.2%*
>65	351	294	217	231	*6.5%*	*-21.4%*	*-34.2%*
Total	***2 331***	***1 817***	***1 352***	***1 277***	***-5.5%***	***-29.7%***	***-45.2%***

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2010)**



Road Type

Road fatality rates are higher for people who live in rural areas (particularly remote 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. National road safety strategies and targets

Organisation of road safety in Australia

In Australia's federal system, government responsibilities for road safety vary across jurisdictions. The Australian Government is responsible for regulating safety standards for new vehicles, and for allocating infrastructure resources, including for safety, across the national highway and local road networks.

State and territory governments are responsible for funding, planning, designing and operating the road network; managing vehicle registration and driver licensing systems; and regulating and enforcing road user behaviour.

Local governments have responsibilities for funding, planning, designing and operating the road networks in their local areas.

The Department has a range of functions that support the Australian Government's role in road safety. These include: administering vehicle safety standards for new vehicles, administering a national black spot road funding programme, producing national road safety statistics, and coordinating the National Road Safety Strategy 2011–2020.

Evaluation of the past road safety programme

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

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

- Australia experienced conditions of relatively high economic growth over the decade, with a greater than expected increase in vehicle numbers and traffic volumes.
- An unforeseen expansion in motorcycling activity contributed to a 17% increase in rider fatalities between 2000 and 2010.

A review of Australia's road safety performance and strategic priorities noted that the nation had historically benefited greatly from strong enforcement and education programmes targeting high-risk behaviours such as speeding, drink-driving and non-usage of seatbelts. It concluded that these measures continue to be important, but that greater emphasis is required on non-behavioural means of improving the safety of the road transport system. This includes:

- investing in safer road infrastructure
- accelerating safety improvements in the nation's vehicle fleet
- making greater use of technologies that can support behaviour-change objectives (such as alcohol interlocks and speed adaptation systems), and facilitating the development of emerging technologies.

- identifying and addressing systemic safety deficiencies in rural and remote areas of Australia.

Road safety strategy for 2011-2020

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

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

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

Further information is available from:
http://www.infrastructure.gov.au/roads/safety/national_road_safety_strategy/index.aspx

Target setting

As a step towards this long-term vision, the strategy presents a 10-year plan to reduce the annual numbers of both deaths and serious injuries on Australian roads by at least 30% by 2020, in comparison to 2010 level. These reductions are relative to the average numbers of fatalities and serious injuries in the baseline period 2008–2010.

In developing these targets, data modelling was carried out to calculate the level of serious casualty reduction that could realistically be achieved over the life of the strategy. The modelling employed evidence-based estimates of the effectiveness of various road safety interventions.

Monitoring

To help monitor the implementation of the national strategy, a range of high-level outcome indicators and more specific Safety Performance Indicators (SPIs) were adopted as empirical measures of progress. The indicators are mainly based on crash data and have necessitated the development of a new national compilation of state and territory data, which is managed by the Department's Bureau of Infrastructure, Transport and Regional Economics (BITRE).

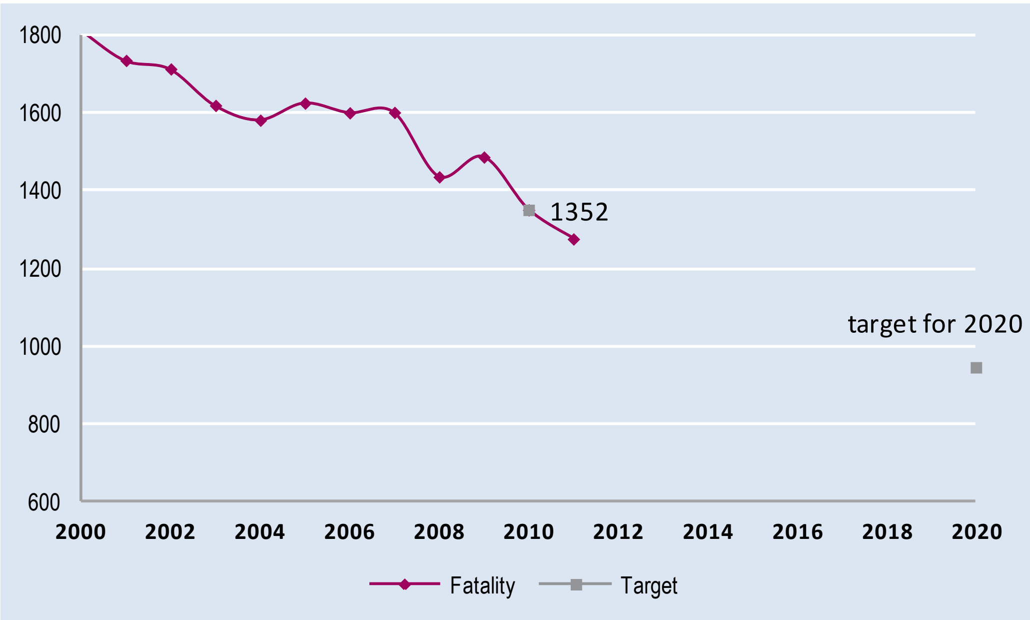
In addition to data monitoring, the Department works with state and territory transport agencies to periodically gather and compile information on actions taken to deliver the strategy's initiatives.

A comprehensive summary of progress is published in the National Road Safety Strategy Implementation Status Report, available from: http://www.scoti.gov.au/publications/index.aspx. The latest Status Report shows that in 2011, the number of road deaths was 1 280, which was 10.2% lower than the baseline average of 1 425 used for the strategy (average of years 2008-2010).

A full review of the national strategy is scheduled to be undertaken in 2014. This will include an analysis of progress in the first three years and a re-assessment of implementation priorities for the next three years.

Transport Ministers agreed to hold an annual National Road Safety Forum to bring together key stakeholders to discuss key issues in the National Road Safety Strategy 2011-2020. The first of these was hosted by the Australian Government on 24 August 2012 and information about this event is available at: http://www.infrastructure.gov.au/roads/safety/nrsf_2012/index.aspx

Figure 3. **Trends towards national target**



5. Recent safety measures (2011-2012)

Speed management

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

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

Some jurisdictions have introduced point-to-point camera systems and most have plans to do so.

Work is being undertaken through Austroads to develop and trial new speed limit guidelines for roads identified as high-risk.

Impaired driving

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

A national project is underway to review BAC limits for different driver licence categories.

Some jurisdictions have taken steps to strengthen and expand the use of alcohol interlocks for drink-driving offences.

Driver education

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

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

Licensing

States and territories have taken various steps to strengthen their graduated licensing systems (GLS) for novice drivers:

- Victoria released a preliminary evaluation report showing very promising results from its current GLS (http://www.vicroads.vic.gov.au/Home/SafetyAndRules/SaferDrivers/YoungAndNewDrivers/VictoriasNewGraduatedLicensingSystem.htm)
- South Australia released a public discussion paper on proposed changes to its GLS
- NSW developed a safer driver course for integration into its GLS
- Tasmania commenced a review of its GLS against recognised best practice.

Indigenous road safety

Several jurisdictions have developed programmes addressing the particular road safety needs of Indigenous communities, particularly in rural and remote areas. These programmes have largely focused on measures to assist Indigenous people to obtain driver licences.

Seatbelt laws

Over the last two years, states and territories progressively implemented nationally agreed changes to seatbelt 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.

The Federal Government introduced a requirement in 2012 for all new cars to be fitted with drivers' seatbelt reminder systems.

General vehicle safety

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

In 2011, the Federal Government adopted a fleet purchasing policy requiring all new government vehicles to have a 5-star safety rating. Some states have since adopted similar provisions.

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

Jurisdictions are working with the Australasian New Car Assessment Programme to expand the coverage and promotion of vehicle safety ratings.

Heavy vehicle safety

National work is in train to support the implementation of competency-based standards for heavy vehicle driver licensing.

An operational pilot of electronic work diaries is being conducted to improve the management of driver work and rest requirements. This is a national project being led by NSW.

The creation of a single National Heavy Vehicle Regulator in 2012 will support the effective implementation of heavy vehicle fatigue management reforms.

The Federal Government has established the Road Safety Remuneration Tribunal, which is empowered to set appropriate pay and conditions for truck drivers in the interests of improved safety.

Infrastructure

National work is being undertaken to incorporate Safe System principles into the road design guidelines used by government authorities in road construction and improvement.

Austroads has developed a national risk assessment tool that will be used to systematically identify and treat high-risk sections of the road network.

All states and territories have infrastructure treatment programs in place targeting the major crash types and vulnerable road user groups.

The Federal Government has expanded the National Black Spot program. A recent evaluation[1] of the program found a 30% reduction in fatal and casualty crashes at treated sites.

6. Recent trends in road user behaviour

Impaired driving[2]

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

All jurisdictions have had considerable success in reducing the contribution of alcohol to road trauma, but about 28% of driver and rider fatalities still 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, methamphetamines and ecstasy.

Speed

The table below summarises typical speed limits in Australia.

Table 5. **Summary of speed limits in Australia 2013**

	Typical speed limits (*Passenger cars)*
Urban roads (non-arterial)	50 km/h
Urban roads (arterial)	60 km/h to 80 km/h
Rural roads (undivided)	100 km/h
Rural roads (divided)	100 km/h or 110 km/h
Motorways	110 km/h

Inappropriate speed is estimated to be a factor in 34% of fatal accidents and about 13% of serious injury crashes.

1. Evaluation of the National Black Spot Program, BITRE Research Report 126, released in May 2012. http://www.bitre.gov.au/publications/2012/report_126.aspx.
2. The involvement figures in this section are estimates based on various data and are not particularly recent.

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[3]. National data on speed distributions are not available. Improvement of speed monitoring systems has been identified as a priority to support effective progress monitoring of the National Road Safety Strategy.

Seatbelts and helmets

Seatbelt 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 90%.

Despite high general usage rates, the rates of non-use among fatally injured vehicle occupants are still estimated at 28%. Analysis indicates that this 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.

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, use of mobile phone and fatigue

Distracted driving is recognised as a major and potentially growing problem in Australia. Mobile phone use is a particular concern, with survey findings (Community Attitudes Survey, 2011) suggesting that 60% of drivers have used a mobile phone while driving.

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

7. Useful websites and references

Recent and on-going research

- Community Attitudes Survey (2011) released February 2012 http://www.infrastructure.gov.au/roads/safety/publications/2011/community_att_11.aspx
- Child pedestrian safety: "driveway deaths" and "low-speed vehicle run-overs", Australia, 2001–10 released in August 2012 http://www.bitre.gov.au/publications/2012/is_043.aspx
- Evaluation of the National Black Spot Program, BITRE Research Report 126, released in May 2012. http://www.bitre.gov.au/publications/2012/report_126.aspx

3. For example, an authoritative evaluation of a package of Victorian speed management initiatives in the early 2000s found a 10% reduction in all casualty crashes and a 27% reduction in fatal crashes.

Useful websites

Department of Infrastructure and Transport National road safety strategy 2011-2020	http://www.infrastructure.gov.au/roads/safety http://www.infrastructure.gov.au/roads/safety/national_road_safety_strategy/files/NRSS_2011_2020_15Aug11.pdf
Bureau of Infrastructure, Transport and Regional Economics Road deaths Australia – 2011 Statistical Summary	http://www.bitre.gov.au/ http://www.bitre.gov.au/publications/2012/RDA_Summary_2011.aspx
Austroads	http://www.austroads.com.au/
ARRB, Australian Road Research Board	www.arrb.com.au
Monash University Accident Research Centre	http://www.monash.edu.au/miri/research/research-areas/transport-safety/
Centre for Automotive Safety Research	http://casr.adelaide.edu.au/
Centre for Accident Research & Road Safety - Queensland	http://www.carrsq.qut.edu.au/
Transport and Road Safety (TARS) Research	http://www.tars.unsw.edu.au/research/index.html
The George Institute for Global Health	http://www.georgeinstitute.org.au/our-work/our-divisions/injury

Contact

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Austria

Source: IRTAD, KFV (Kuratorium für Verkehrssicherheit)

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Vienna	**8.4 million**	**738**	**523**	**6.2**

1. Comments on road safety data collection

In Austria, crash data are collected by the police. The accident data acquisition process has been completely transformed since January 2012, when the transition was made from paper form to integrated data input (incl. GIS support), at the police post, in their general computer system. The Austrian Statistics Bureau (STATISTIK AUSTRIA) is still in the migration process and plans to deliver disaggregated accident data for 2012 by mid-2013.

It is not possible to link police and hospital data directly on the basis of the current data architecture. There are, however, plans to devise a strategy to estimate the number of serious injuries (MAIS 3+) on the basis of data sources such as the hospital discharge register and the EU Injury Database (IDB).

2. Short term trends

Safety performance in 2011

In 2011, Austria observed a 5.3% reduction in fatalities, while injury crashes fell by less than 1%. It reached its lowest number of fatalities (523) since systematic recording began.

Provisional data for 2012

The provisional figure for 2012 is 522 road deaths, a decrease of one fatality compared to the 2011 final figure (http://www.bmi.gv.at/cms/BMI_Verkehr/statistik/Jahr_2012.aspx).

3. Long terms trends in mobility and safety (1990-2011)

Fleet and mobility

Since 1990, the number of vehicles and the number of kilometres driven increased by almost 60%. The economic downturn commencing in 2008 had a moderate impact on Austria, which currently boasts one of the lowest unemployment rates in the EU. Kilometres driven temporally dropped, however, especially for HGVs. No reductions were observed for motorcycles, but there was a moderate one-year drop of 0.5% for passenger cars in 2009.

Table 1. **Changes in vehicle kilometres driven 1991-2011**

	Road total	Passenger cars	Light goods vehicles	Heavy goods vehicles	Buses	Mopeds	Motorbikes
1991	4,2%	4,1%	3,1%	9,1%	0,3%	-6,1%	6,6%
1992	3,7%	3,8%	3,0%	3,6%	1,6%	-3,6%	11,2%
1993	2,4%	2,4%	1,5%	3,0%	2,1%	-3,8%	10,4%
1994	4,4%	4,5%	4,0%	4,0%	-0,4%	-2,6%	11,7%
1995	1,8%	1,6%	1,5%	3,7%	2,7%	-1,9%	13,2%
1996	2,6%	2,6%	1,6%	3,0%	2,2%	-1,5%	10,7%
1997	2,4%	2,3%	2,8%	3,3%	-0,8%	-1,2%	9,8%
1998	2,8%	2,7%	3,3%	3,1%	1,6%	-0,2%	11,6%
1999	3,1%	3,1%	3,6%	2,3%	0,6%	-1,1%	10,6%
2000	2,2%	2,0%	3,2%	3,6%	2,8%	-2,0%	6,2%
2001	1,8%	1,8%	1,9%	1,0%	2,0%	-2,0%	5,3%
2002	2,3%	2,4%	0,8%	2,5%	4,3%	-1,8%	5,4%
2003	1,9%	1,7%	2,2%	4,0%	3,7%	-1,0%	4,4%
2004	1,4%	1,3%	2,5%	1,5%	-0,1%	-1,6%	3,3%
2005	1,9%	1,7%	4,9%	1,7%	-0,1%	1,7%	3,4%
2006	1,5%	0,8%	5,8%	4,6%	-1,1%	1,7%	3,8%
2007	2,3%	1,9%	4,3%	2,7%	6,1%	2,0%	4,8%
2008	1,5%	2,0%	-0,8%	-3,1%	-2,5%	2,0%	4,8%
2009	-0,7%	-0,5%	-0,5%	-4,4%	-7,6%	1,1%	4,7%
2010	1,6%	1,4%	1,4%	3,4%	8,6%	-0,5%	4,4%
2011	1,7%	1,6%	1,6%	3,2%	-0,6%	-0,8%	4,5%

Change in the number of fatalities and injury crashes (1990-2011)

In recent years (2000-2011), the number of fatalities declined by 46%. 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.

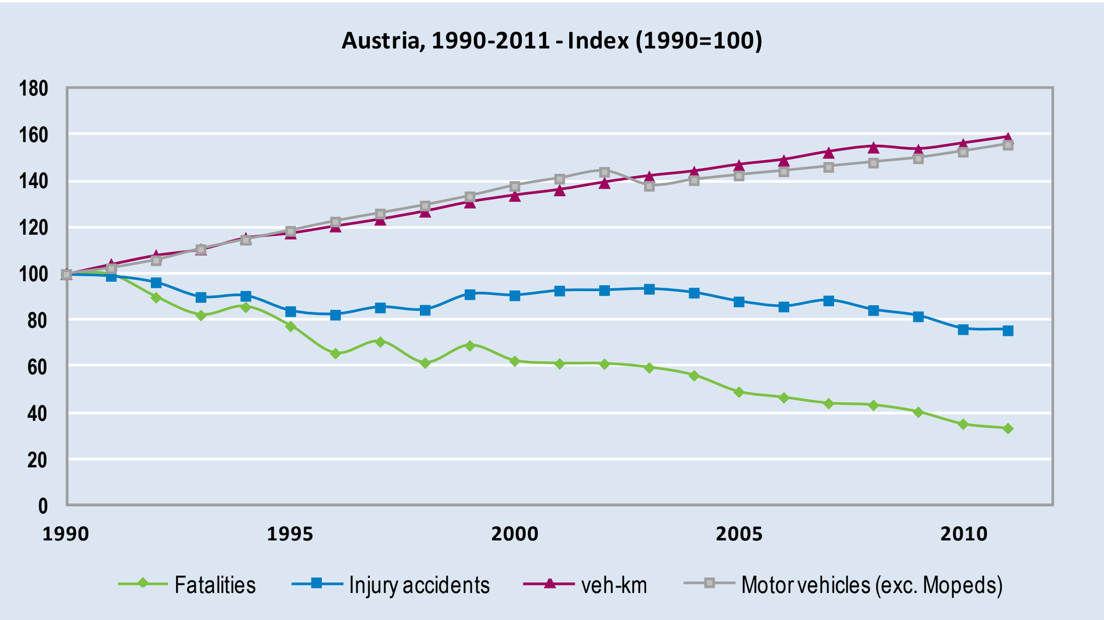
Risks and Rates

Between 1990 and 2011, the death rate (expressed in terms of deaths per 100 000 population) diminished by 69%.

Table 2. **Safety and mobility data 1990-2011**

	1990	2000	2010	2011	2011% change over 2010	2011% change over 2000	2011% change over 1990
Reported safety data							
Fatalities	1 558	976	552	523	-5.3%	-46.4%	-66.4%
Injury crashes	46 338	42 126	35 348	35 129	-0.6%	-16.6%	-24.2%
Deaths/100 000 population	20.26	12.20	6.59	6.22	-5.6%	-49%	-69%
Deaths/10 000 registered vehicles	4.21	1.91	0.98	0.91	-7.1%	-52%	-78%
Deaths/billion vehicle-kms	32.00	14.98	7.27	6.77	-6.8%	-55%	-79%
Fleet and mobility data							
Vehicles (excl. mopeds; in thousand)	3 701	5 111	5 659	5 771	2.0%	12.9%	55.9%
Vehicle-kilometres (in million)	48 687	65 144	75 957	77 258	1.7%	18.6%	58.7%
Motorisation (number of motorised vehicles excl. mopeds/1 000 inhabitants)	484	639	676	687	1.6%	8%	42%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for the Austrian society, estimated at around EUR 10 billion (i.e. around 3.4% of GDP).

According to a recent study[1], the costs of human suffering make up almost half of the accident costs (48%; "willingness to pay" approach), while the most important other costs are material damage (25%), loss in achievement potential (15%; human capital approach), insurance administration (7%) and legal costs (2%).

Table 3. **Costs of road crashes (including property damage accidents)**

	Cost (EUR Billion, 2011)	Unit costs (EUR)
Fatalities	1.58	3.016.194
Serious Injuries	4.01	381.480
Slight injuries	0.93	26.894
Property damage	3.58	8.245
Total	10.09	
Total as a % of GDP	3,4%	

Road users

Since 1990, all road users have benefited from the improvements in road safety. Fatality reductions were highest among car occupants, but with only minor reductions for vulnerable road users, including motorcyclists. Car occupant fatalities account for more than half of all road deaths.

In 2011 cyclists fatalities increased by 31% (over 2010).

Table 4. **Reported fatalities by road user group 1990-2011**

	1990		2000		2010		2011		2011% change over 2010	2000	1990
Bicyclists	106	7%	62	6%	32	6%	42	8%	*31%*	*-32%*	*-60%*
Motorised two-wheelers	200	12%	156	17%	86	15%	85	16%	*-1%*	*-46%*	*-58%*
Passenger car occupants	913	59%	549	56%	292	53%	290	55%	*-0.68%*	*-47.2%*	*-68.2%*
Pedestrians	260	17%	140	14%	98	18%	87	17%	*-11.2%*	*-37.9%*	*-66.5%*
Others	79	5%	69	7%	44	8%	19	4%	*-56.82%*	*-72.5%*	*-79.5%*
Total	***1 558***	***100%***	***976***	***100%***	***552***	***100%***	***523***	***100%***	***-5.3%***	***-46.4%***	***-66.4%***

Age

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

Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerns the youngest age group (0-14), for which fatalities decreased by 80%.

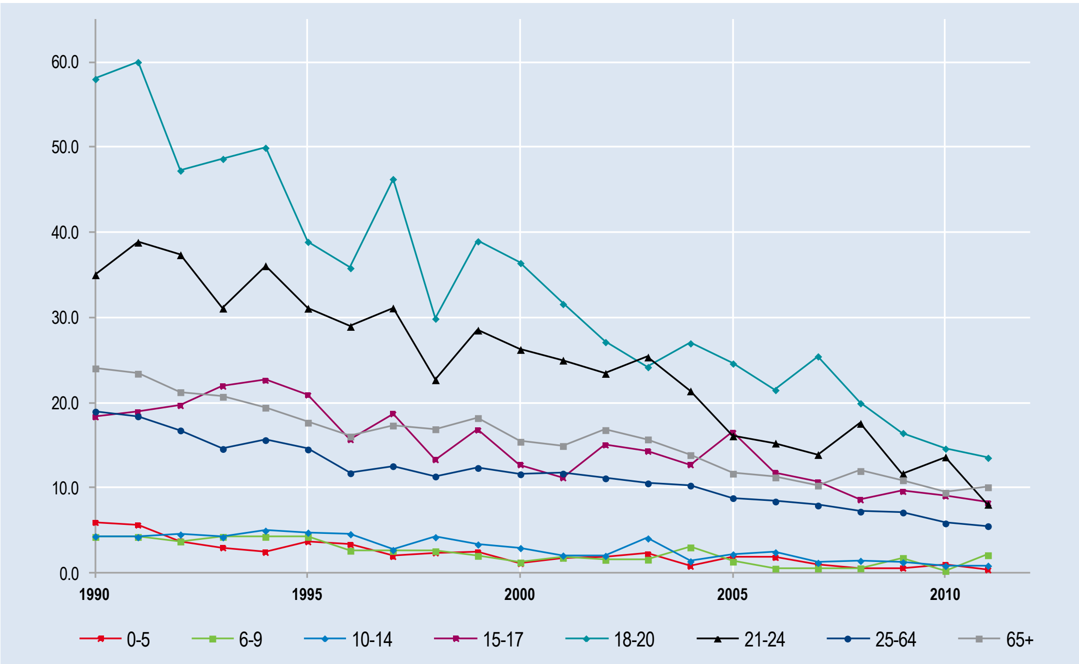
1. *Herry, M. et al*, (2013) im Auftrag des VSF/bmvit: Unfallkostenrechnung Straße 2012 unter Berücksichtigung des menschlichen Leids

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

Table 5. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
0-5	32	8	5	2	*-60%*	*-75%*	*-93.7%*
6-9	12	5	1	7	*600%*	*40%*	*-65.2%*
10-14	19	14	4	4	*0%*	*-71.4%*	*-78.9%*
15-17	55	37	27	24	*-11.1%*	*-35.1%*	*-56.3%*
18-20	205	105	45	42	*-6.7%*	*-60%*	*-79.5%*
21-24	186	99	57	34	*-40%*	*-65.6%*	*-81.7%*
25-64	764	518	273	260	*-4.7%*	*-49.8%*	*-65.9%*
>65	278	190	140	150	*7.1%*	*-21%*	*-46%*
Total	***1 558***	***976***	***552***	***523***	***-5.2%***	***-46.4%***	***-66.4%***

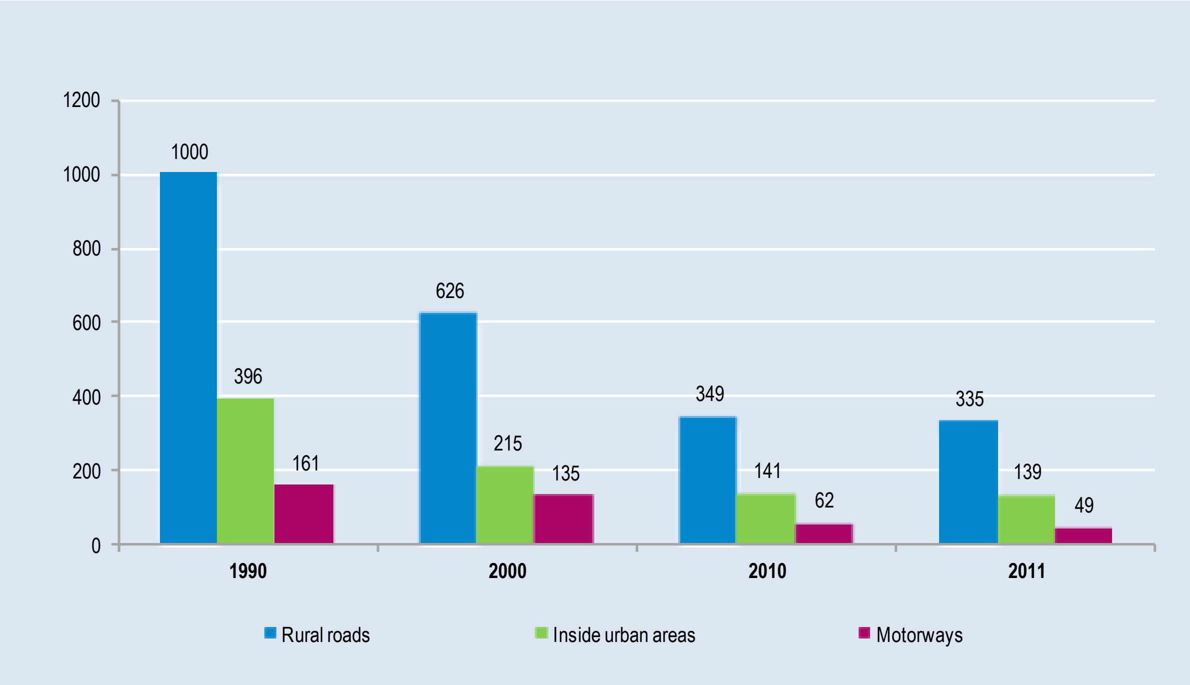
Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**



Road Type

In 2011, 64% of fatalities occurred on rural roads, 27% in urban areas and 9% on motorways. In 2011, the greatest reduction was achieved on motorways. However, figures have stagnated recently regarding secondary roads (mostly outside urban areas) where most fatality reductions have been achieved over the past years, and on municipal roads.

Figure 3. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

The maximum permissible blood ***alcohol*** content (BAC) level is generally 0.5 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 the corresponding level is 0.1 g/l.

Since 2002, every driver involved in an injury accident is tested for alcohol. However, it is not permitted in Austria to test a corpse or an unconscious person, so the number of unreported cases is believed to be substantial.

Although drink-driving remains a predominantly male problem, the percentage of female drunk car drivers has increased, and at present is around 13%. In 2011 the share of fatalities in accidents involving an alcohol-intoxicated driver or pedestrian increased substantially to 9.8% from 5.8% in 2010. The corresponding figure for the five preceding years was between 7.3% and 7.8%.

Little is currently known about the prevalence of ***drugs*** as a causal factor in accidents. The new accident data acquisition process as of 2012, however, introduces the collection of a wide range of impairments, including alcohol, drugs, medicines and fatigue.

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 restrictions in manpower, increases in speed surveillance by traffic police cannot be expected in future, but automatic speed enforcement (including section controls) will be further developed, as well as private surveillance at the municipal level.

The table below summarises the main speed limits in Austria.

Table 6. Summary of speed limits in 2012[2]

	General speed limit *Passenger cars*	Actual speeds	Comments
Urban roads	50 km/h	55 km/h	85th percentile speed[3]
Rural roads	100 km/h	106 km/h	85th percentile speed
Motorways	130 km/h	136 km/h	85th percentile speed

Seatbelts and helmets

Seatbelt wearing has been compulsory in Austria since 1984 in front seats and 1990 in rear seats. The seatbelt wearing rate is, however, around 10% lower than that of other European countries.

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

Table 7. **Seatbelt wearing rate by car occupants**[4]

	1980	1990	2000	2011	2012
Front seat					
General			76%	89%	89%
Urban roads (driver)	26%	63%	70%	87%	89%
Rural roads (driver)	29%	74%	75%	89%	88%
Motorways (driver)	37%	75%	78%	92%	90%
Rear seats					
General			72%	64%	75%

2. *Source:* Annual speed survey of the KFV
3. The speed at or below which 85% of passenger cars are travelling
4. Source: Annual seatbelt surveys of the KFV

Distracted driving, use of mobile phone and fatigue

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

5. National road safety strategies and targets

Organisation of road safety

Primary responsibility for road safety in Austria lies with the **Federal Ministry for Transport, Innovation and Technology** (bmvit). Bmvit cooperates with the Federal Ministry of the Interior (BM.I) and other government ministries, regional and local authorities, interest groups, chambers of commerce and industry, trade and labour associations and road safety organisations through the Road Safety Programme.

The **Road Safety Advisory Council** established at bmvit serves as the institutional platform for the cooperation partners in the Road Safety Programme. In 2006, the Road Safety Advisory Council was established as the forum for decision makers in matters relating to road safety and, in particular, for the preparation, on-going evaluation and development of road safety programmes for all modes of transport. Its members are made up of the transport spokespersons for the parliamentary political parties, representatives of government ministries, local and regional authorities, automobile clubs, chambers of commerce and industry, trade and labour associations, interest groups and research institutions.

The **Austrian Road Safety Fund**, also established at bmvit, was set up with the aim of promoting and furthering road safety in the country. The Road Safety Fund draws its funding from the revenues of personalised vehicle number plates. The Road Safety Fund plays a key role in funding road safety related research and in financing activities relating to the Road Safety Programme. Its funding priorities are likewise aligned to Road Safety Programme targets.

Evaluation of the past road safety programme

The first Austrian Road Safety Programme was published in 2002. The programme set several quantitative targets, including a reduction by 50% in the number of fatalities between 1999 and 2010 and a reduction by 20% in the number of injury crashes.

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

Road safety strategy for 2011-2020

Despite significant progress in the last decade, Austrian road safety figures are still only average compared to the EU as whole — and even below average for the EU 15 countries. The new Road Safety Programme 2011-2020 aims at “making Austria one of the five safest countries in Europe”. It is based on the Safe System approach and has an increased focus on reducing the number of serious injuries on Austrian roads. The Programme features 17 main fields of action.

Target setting

The programme set ambitious targets:

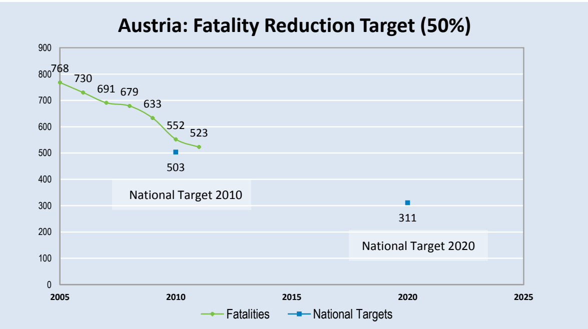
- -50% fatalities by 2020, based on the average for the years 2008-10
  (Interim target: -25% by 2015)
- -40% serious injuries by 2020, based on the average for the years 2008-10
  (Interim target: -20% by 2015)
- -20% injury accidents by 2020, based on the average for the years 2008-2010
  (Interim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

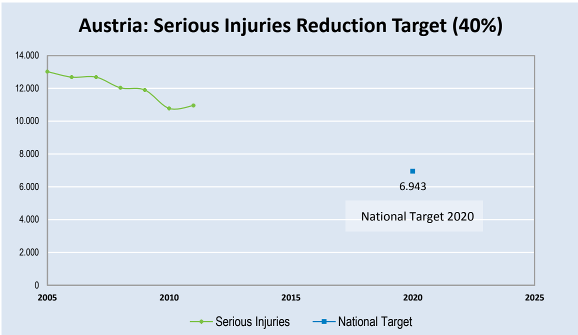
The numerical targets implement the EU fatality reduction target as well as the ETSC's proposal for a serious injury reduction target.

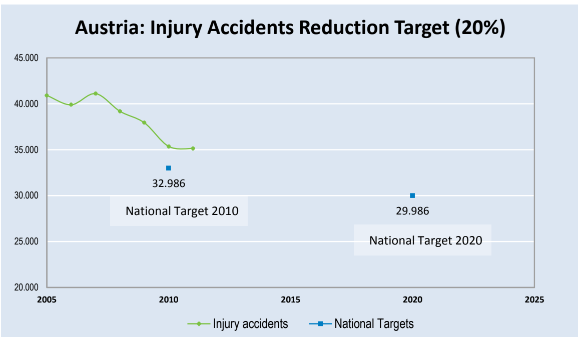
Monitoring

To ensure the Road Safety Programme is successfully implemented, the Roads Task Force will provide support in all 17 fields of action throughout the entire duration of the programme. It will also gather and discuss the available annual accident statistics, behaviour parameters and safety indicators. Based on this information, measures can be modified as required to accommodate changes in road behaviour and accidents.

Figure 4. **Trends towards national targets**







6. Recent safety measures (2011-2012) and effectiveness of past measures

Cyclist safety

Since June 2011, cycle helmets are compulsory for children up to 12 years of age (without penalties). A preliminary evaluation carried out in 2012 shows positive tendencies in wearing rates.

Preparation of a ban on the use of mobile phones while cycling (except hands-free devices) started in 2012.

Motorcycle safety

EU driving license directive: preparation of graduated access to motorcycles of different engine powers started in 2012, together with a special training module for improved risk perception of drivers of motorcycles with 125cm^3 engines.

Motorcycle safety: 1 Mio. EUR for special safety projects were made available through the Austrian Road Safety Fund.

Vehicle safety

A law on Risk Assessment System for transport companies entered the consultation phase in 2012 (implementation of Directive 2006/22/EC).

Infrastructure

Introduction of the "Rettungsgasse" (**virtual emergency lane**) was prepared and accompanied by a massive communications initiative (mandatory as of January 2012): drivers in congested traffic are obliged to open up a virtual lane for emergency vehicles. First evaluations have shown encouraging results (http://www.asfinag.at/en/was-ist-die-rettungsgasse).

A completely revised by-law for safeguarding of **level crossings** was implemented. Due to this regulation, the number of level crossings without technical safeguarding is expected to decrease significantly in the mid-term.

The consultation phase on a new type of road design in the Highway Code: "Begegnungszone" (encounter zone), a roadway for "… the joint use of vehicles and pedestrians", started in 2012.

Road safety initiatives and campaigns

"Drive & Help" — a mobile phone app for better safety — has been developed by the KFV (see Figure 5). It features advice and games, such as on post-crash measures and emergency phone numbers, as well as an emergency flashlight and a calculator for the braking path (http://www.kfv.at/verkehr-mobilitaet/drive-help-die-neue-gratis-app-fuer-mehr-sicherheit/back_id/8/).

Figure 5. **Mobile Phone App for Drivers**

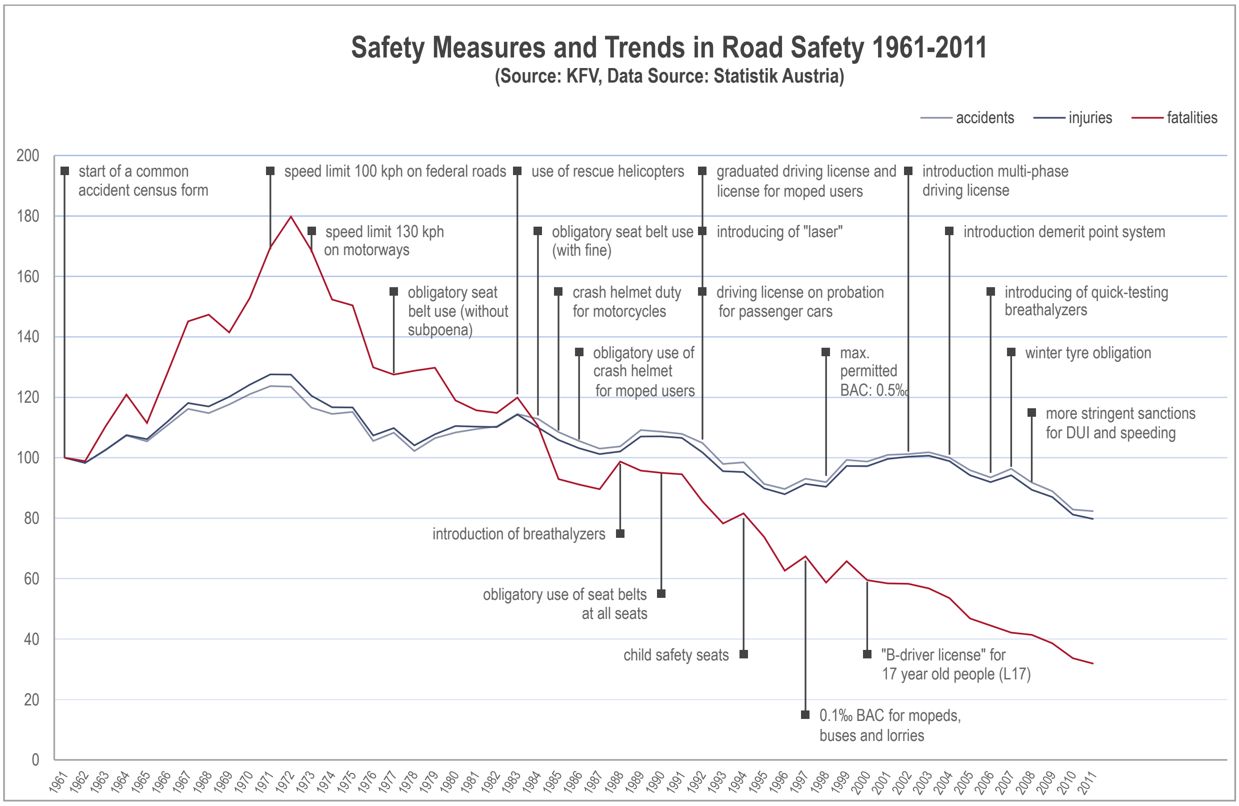
The annual **Austrian Road Safety Award "Aquila"** for outstanding achievements in road safety is awarded by the KFV to individuals and institutions in four categories:

- Education (childcare and schools)
- Towns and municipalities
- Enterprises, associations and other institutions
- Media

Evaluation of past measures (2005-2010)

Between 1970 and 2010, the number of fatalities decreased by 78% and the number of injury crashes by 31.5%. Yet, in the same time period, the number of vehicles and distances driven tripled. This progress is directly related to the various safety measures implemented since 1970, and illustrated in the figure below. These include the adoption of general speed limits on federal roads and on motorways (1973-74); the mandatory use of seatbelts (1984); the introduction of driving-licence probation (1992); speed surveillance with lasers (1992); compulsory child-restraint systems (1994); and multi-phase driving licences (2003).

Figure 6. **Safety Measures and Trends in Road Safety**



7. Useful websites and references

Recent and on-going research

The EU project BestPoint was to establish a set of recommended practices that would result in a more effective and sustainable contribution of Demerit Points Systems to road safety. The BestPoint Handbook (http://www.bestpoint-project.eu/) provides a concise overview for experts and decision makers. The project was coordinated by the Austrian Road Safety Board (KFV) in collaboration with 11 European research institutes and transport authorities: BASt (Germany), CDV (Czech Republic), CERTH (Greece), DTU (Denmark), ETSC (EU), IFSTTAR (France), ITS (Poland), Malta Transport Authority, RSA (Ireland), SWOV (The Netherlands), VTT (Finland).

Useful websites

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

Contact

For more information, please contact: klaus.machata@kfv.at

Belgium

Source: IRTAD, Belgian Road Safety Institute

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Brussels	**10.9 million**	**622**	**858**	**7.8**

1. Comments about road safety data collection

Road safety data are electronically collected and centralised by the police force. After some validation procedures, the data are transferred to the National Statistics Office. The National Statistics Office carries out some corrections and adds the fatalities (30 days) to the database. This latter operation is done through linking the death certificate (still in paper form) obtained from the justice department. The number of road safety fatalities is therefore very reliable.

The numbers of slight and serious injuries (>24h in hospital) are the most likely to be underreported, as these are not counter-checked.

2. Short term trends

Safety performance in 2011

Road deaths in Belgium in 2011 increased by 2% as compared with 2010. This increase followed a large decrease in 2010 (-11%).

Provisional data for 2012

Provisional data for 2012 show a large decrease (-14%) of road deaths as compared to 2011.

3. Long-term trends in mobility and safety (1990- 2011)

Fleet and mobility

Since 1990, the distance travelled increased by more than 40%. In the same period, the number of vehicles almost doubled. The total number of vehicle-kilometers travelled in 2011 is not yet known but, up to 2010, a stagnation in vehicle-kilometers since 2007 was noted.

For heavy good vehicles, the distance travelled increased by more than 85% since the 1990s, but the economic crisis caused a diminution of 3% between 2009 and 2010.

The distance travelled by light good vehicles has multiplied by 3 between 1990 and 2010. But since 2008 the increase has stopped and, for the first time, a diminution by 1% of LGV traffic was observed in 2010.

Change in the number of fatalities and injury crashes

Between 1990 and 2010, the number of fatalities decreased by some 25%, and the number of injury crashes by more than 20%. In recent years (2010-2011), the decrease in the number of fatalities was such that the total change since 2000 amounts to -42%.

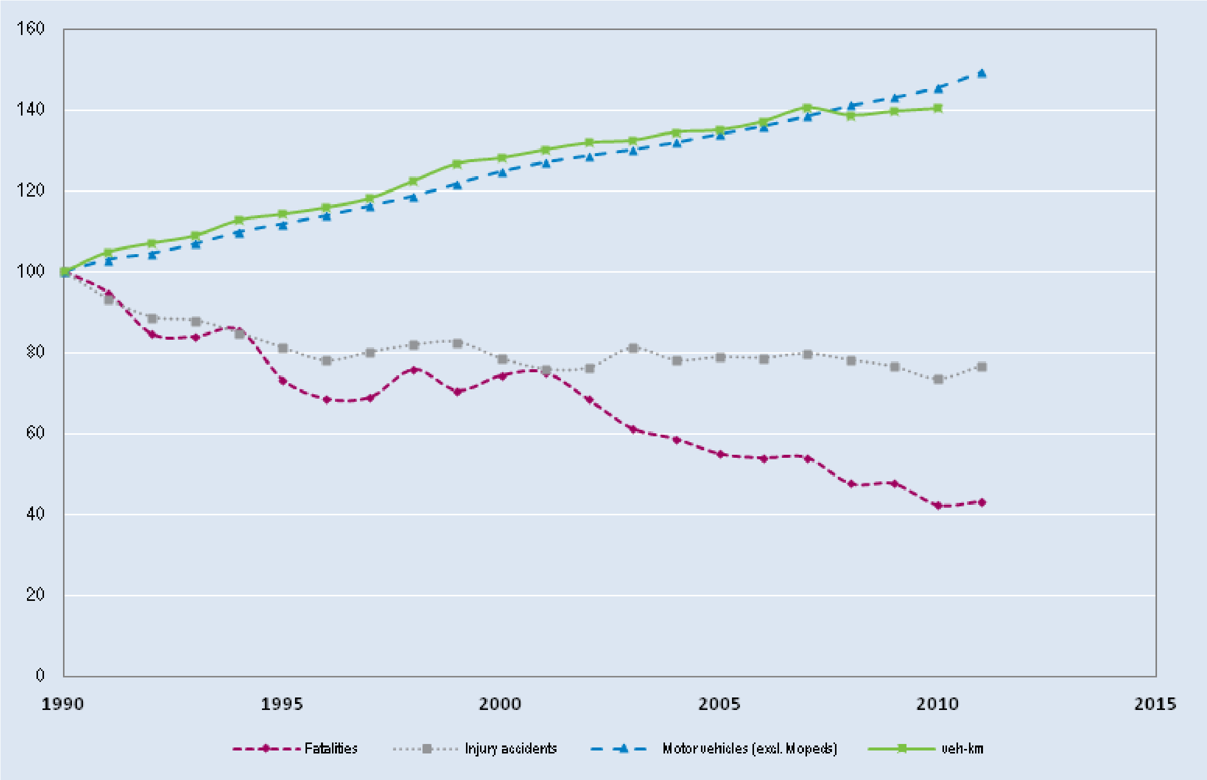
Risk and rates

Between 1990 and 2011, the road traffic mortality rate, expressed in terms of deaths per 100 000 population, and risks (expressed in deaths per number of vehicles), both decreased by more than 60%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
Reported safety data							
Fatalities	1 976	1 470	840	858	2.1%	-41.6%	-56.6%
Injury crashes	62 446	49 065	45 927	47 924	4.3%	-2.3%	-23.33%
Hospitalised	17 479	9 847	5 984	6 164	3.0%	-37.4%	-64.7%
Deaths/100 000 population	19.9	14.36	7.75	7.83	1.0%	-45.5%	-60.6%
Deaths/10 000 registered vehicles	4.3	2.56	1.26	1.22	-3.2%	-52%	-73%
Deaths/billion vehicle-kms	28.12	16.33	8.51	NA	NA	NA	NA
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	4 594	5 735	6 689	6 862	2.6%	19.7%	49.4%
Vehicle- kilometres (in millions)	70 276	90 036	98 678	NA			
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	461.8	560.1	617.1	622.6	1.5%	12%	36%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011 (Index 100 =1990)**



Economic costs of traffic crashes

The most recently published estimation of road accident costs in Belgium is based on 2002 accident data (Brabander, B. de.; Vereeck, L. (2007), *Valuing the prevention of road accidents in Belgium*, Transport reviews, 27(6). p. 715-732). Taking willingness-to-pay into account, the authors state "the total costs of road accidents in 2002 are valued at EUR 7.2 billion (2004 prices)".

Table 2. **Costs of road crashes**

Cost (EUR Billion)	2002
Total	7.2

Road users

All user groups, but especially pedestrians, bicyclists and passenger car occupants, benefited from safety improvements between 1990 and 2011. For cyclists and pedestrians, these positive evolutions have come to an end since 2005. In addition, the number of deceased car passengers has stagnated since 2006.

The decrease in fatalities for powered-two wheelers masks a big reduction in killed moped riders (-82%) and the increase in killed motorcyclists (+20%). This rise is due to increased exposure in terms of veh-km, while the fatality risk per kilometre driven for a motorcyclist has been reduced.

More detailed data reveal that the motorcyclists most at risk are those with engines larger than 400 cc. In 2011, motorcyclists represented 1.3% of vehicle-kilometres, but 15% of road fatalities. Most riders killed are between the ages of 20 and 50, and more than 95% are male.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		*2010*	*2000*	*1990*
Bicyclists	196	10%	134	9%	70	8%	68	8%	-3%	-49%	-65%
Mopeds	110	6%	64	4%	22	3%	20	2%	-9%	-69%	-82%
Motorcycles and scooters	106	5%	118	8%	102	12%	127	15%	25%	8%	20%
Passenger car occupants	1 181	60%	922	63%	444	53%	456	53%	3%	-51%	-61%
Pedestrians	301	15%	142	10%	106	13%	111	13%	5%	-22%	-63%
Others	82	4%	90	6%	96	11%	76	9%	*-21%*	*-16%*	*-7%*
Total	1 976	100%	1 470	100%	840	100%	858	100%	*2%*	*-42%*	*-57%*

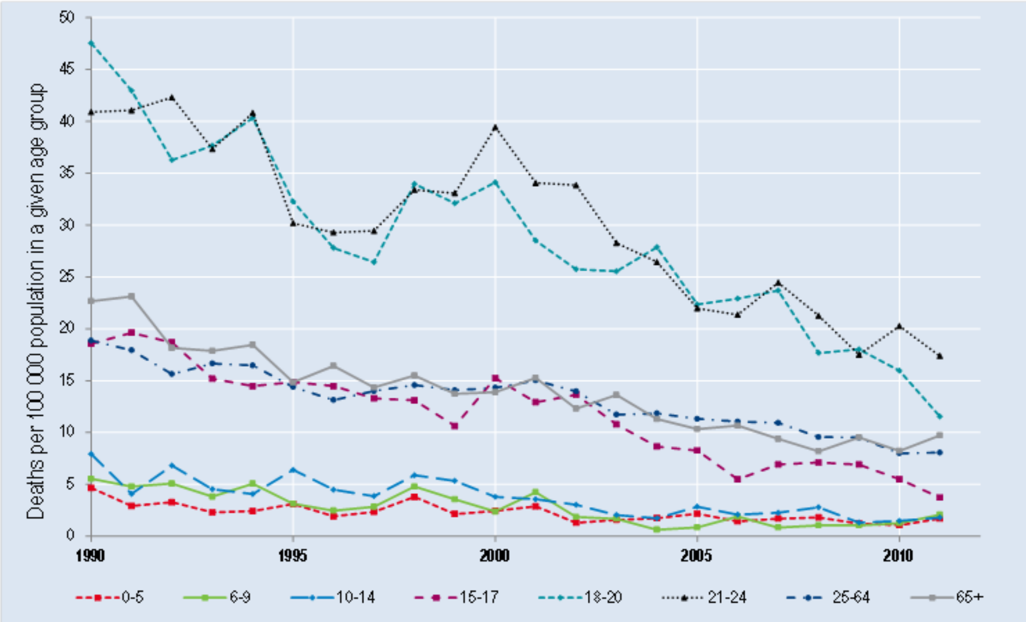
Age

Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerns children aged 0 to 14 years(-71%). Despite substantial reductions, young people (18-24) are still a high-risk group for road safety, with a fatality rate twice as high as that of the general population.

Table 4. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
0-5	33	17	8	10	*25%*	*-41%*	*-70%*
6-9	27	12	6	10	*67%*	*-17%*	*-63%*
10-14	48	23	9	11	*22%*	*-52%*	*-77%*
15-17	72	55	21	14	*-33%*	*-75%*	*-81%*
18-20	202	130	64	47	*-27%*	*-64%*	*-77%*
21-24	245	198	107	94	*-12%*	*-53%*	*-62%*
25-64	992	784	467	475	*2%*	*-39%*	*-52%*
>65	334	238	153	183	*20%*	*-23%*	*-45%*
Total	1953	1257	835	844	*1%*	*-42%*	*-57%*

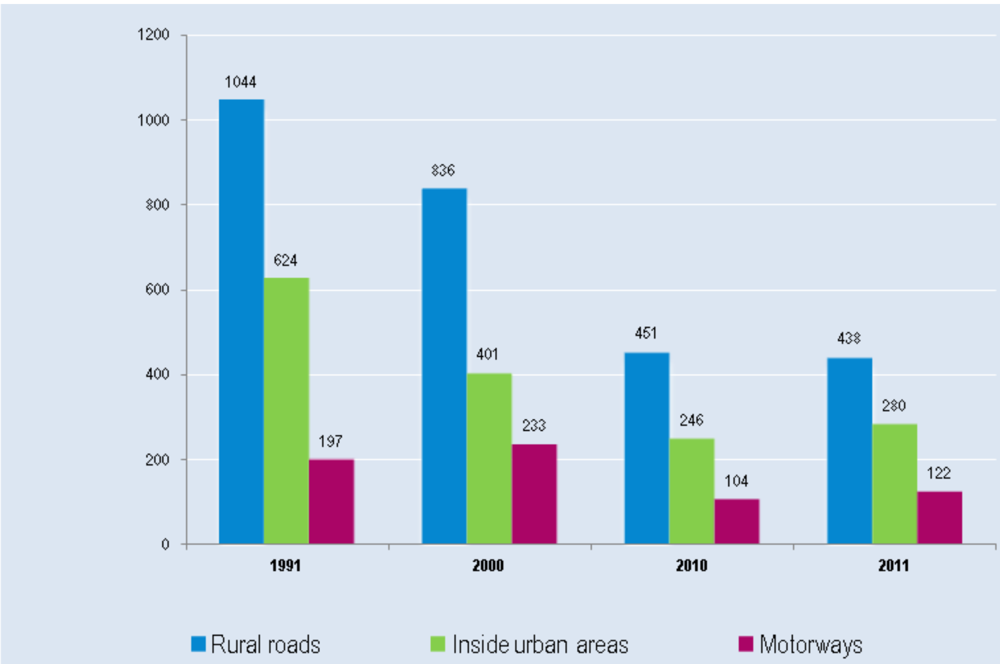
Figure 2. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road Type

In 2011, around 51% of fatal crashes occurred on rural roads, 33% in urban areas and 14% on motorways (2% are unknown). Since 1991, the greatest reduction in fatalities has occurred on rural roads (-58%).

Figure 3. **Reported fatalities by road type**
1991 2000, 2010 and 2011

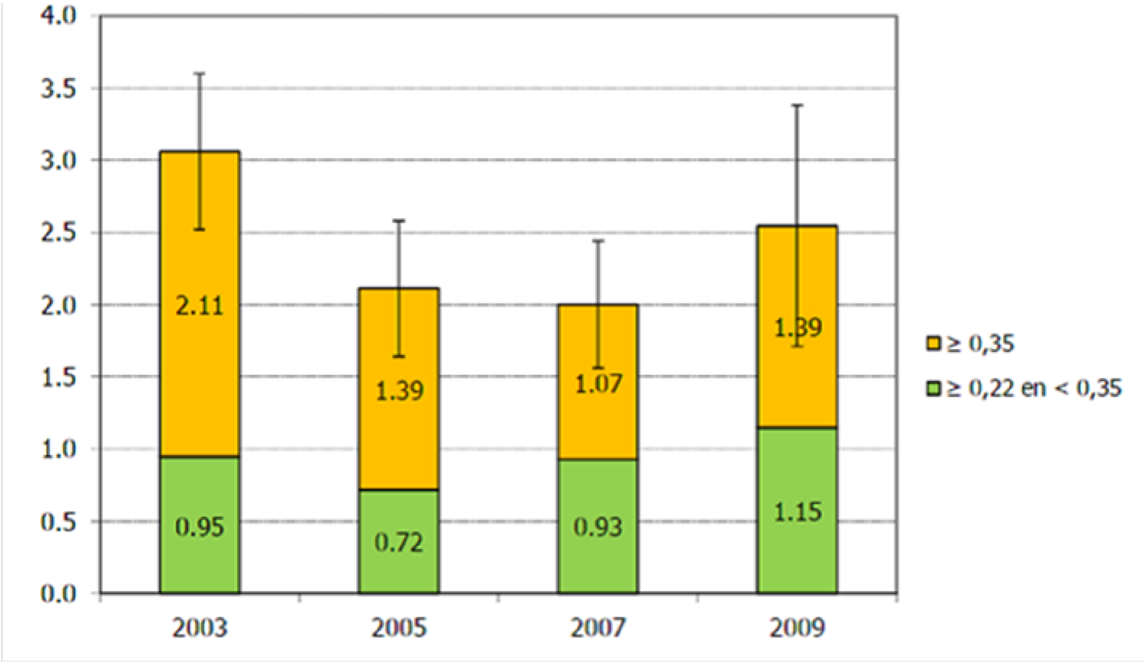


4. Recent trends in road user behaviour

Impaired driving

In Belgium, the maximum authorised blood alcohol content is 0.5 g/l.

Figure 4. **Prevalence of driving under influence of alcohol in Belgium 2003-2009**

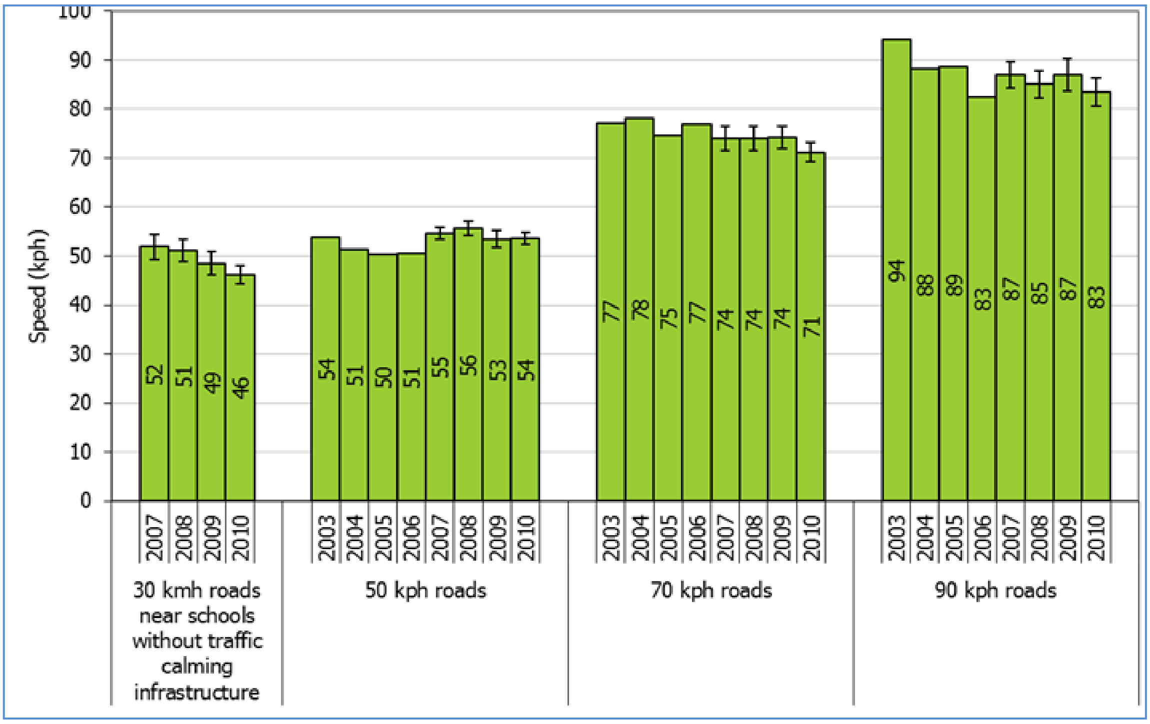


The results of the European research project "Driving Under the Influence of Drugs, alcohol and medicines" (DRUID), showed for Belgium — based on a sample— that 0.5% of all drivers drove under the influence of cannabis, 0.4% under the influence of cocaine and 0.2% under the influence of heroin. We found no trace of amphetamines ("speed" and / or "ecstasy") among the population of examined Belgian drivers.

Speed

The figure below presents the evolution of the average speed (free speed on road without specific infrastructure). The average speed has diminished on all road categories, except for 50 kph roads. Still the average speed exceeds the legally defined maximum speed on all road categories, except for 90 kph roads.

Figure 5. **Average speed of passenger cars per road categories 2010**



Source: BRSI

The table below summarises the main speed limits in Belgium.

Table 5. **Summary of speed limits in 2010**

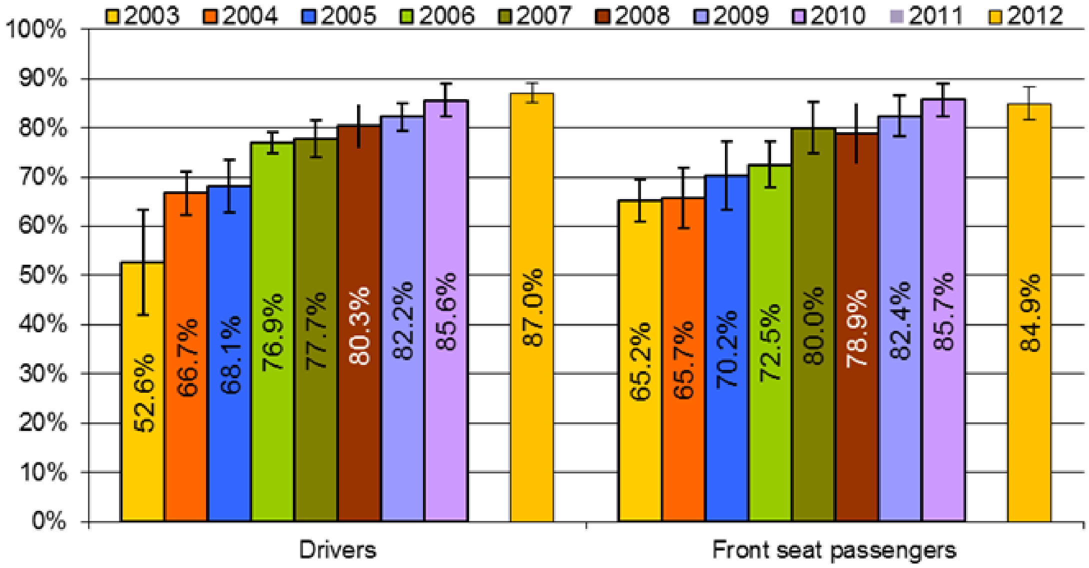
	General speed limit ***Passenger cars***	**Actual speeds**
Urban roads	30/50 km/h	46/54 km/h
Rural roads	70/90 km/h	71/83 km/h
Motorways	120 km/h	118 km/h

Seatbelts and helmets

Seatbelt

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 86% in front seats in passenger cars. The figure below shows a clear progress in seat belt usage rate between 2003 and 2012. The target of 95% seat belt usage in 2010 has not been met though.

Figure 6. **Seatbelt usage rate**
2003-2012



Source: IBSR

Table 6. **Seatbelt wearing rate by car occupants**

	2003	*2010*	*2012*
Front seat			
General	56.6	85.6	86.4
Urban roads (driver)	50%	84%	86%
Rural roads (driver)	57%	87%	86%
Motorways (driver)	66%	90%	90%

Helmet

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

Distracted driving, use of mobile phone and fatigue

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

Organisation of road safety in Belgium

The body responsible for formulating Road Safety policy priorities in Belgium is the Inter-Ministerial Committee (IMC) for Road Safety. Both national and regional ministers are members of the committee which reports to the Federal Minister for Mobility. Although the members are decision makers, it is up to the ministers responsible to implement decisions in their area and there is no legal impetus for this.

There is no officially defined lead agency. Recommendations on road safety policy are formulated by the Federal Commission for Road Safety. This is an inter-sectoral institution which was established as a forum for all stakeholders involved in road safety. The Commission includes national and regional government representatives, representatives of the different groups of road users and other NGOs, police and justice representatives. The Belgium Road Safety Institute (BRSI) is a research institute that collects data and conducts research on road safety. Research results are then fed into the policy making process. The managing director is the chair of the Federal Commission for Road Safety and the secretariat of this commission is also dedicated to the BRSI. Thus research and practice are structurally linked.

The road safety programme "Staten Generaal van de Verkeersveiligheid 2011-2020" (general state of road safety) follows the European Commission targets and timescales. It includes both targets and recommendations for action, and monitoring of progress is planned to be performed half-way through and at the end of the programme.

There is no specific road safety budget from the federal Treasury. However taxes on vehicle inspections and driving license examinations are used to finance BRSI, and fines generated from road safety interventions are passed to the police to be used for further road safety work.

Evaluation of the past road safety programme

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

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

- Less than 1 000 fatalities by 2006 (target achieved in 2008);
- Less than 750 fatalities by 2010 (with 840 fatalities, the target was not achieved in 2010);
- A decrease by 50% in the number of road fatalities by 2020 compared to 2010 (less than 420 fatalities).

Road safety strategy for 2011-2020

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

Target setting

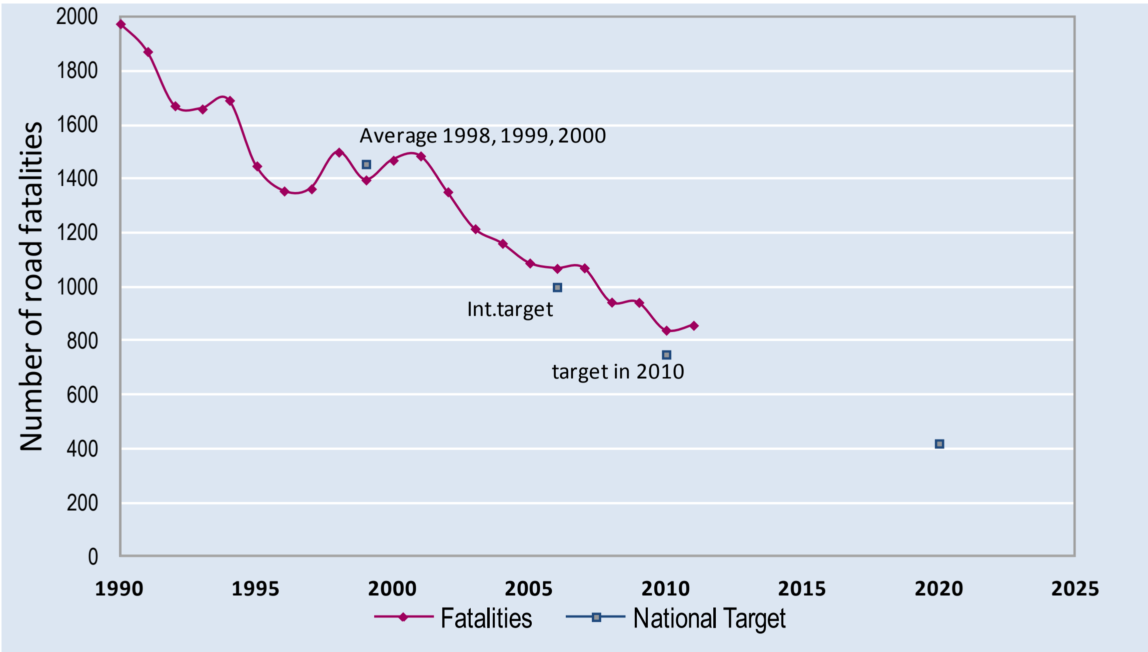
The European target of reducing the fatalities at 30 days by 50% till 2020 was adopted.

No scenarios and estimations of the effect of the strategies were applied.

Monitoring

Each year, a statistical report on road safety is published identifying the main issues to be tackled. Each month, the road safety barometer, based on fatalities on the spot, gives the key indicators (per region, per moment of the week, per road users type, etc.) for the short-term development in fatal accidents. Since 2003, the Belgian Road Safety Institute carries out regular road side surveys on several issues (speeding, driving under influence, safety belt, child restraint seat, etc.) and a study on road-safety attitudes of car drivers based on face-to-face interviews.

Figure 4. **Trends towards national target**



6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

The first speed camera system that controls the average speed of road users is in operation in Belgium since June 2012.

Impaired driving

1 June 2013:

For professional drivers, the legal alcohol limit will be set from BAC 0.5 to 0.2 g/l as from the 1st June 2013. For other drivers, the fines for BAC 0.5 to 0.8 g/l have been increased from 135 Euro to 150 Euro.

Motorcyclist safety

1 September 2011:

Overtaking between files authorized (maximum 50 km/h, no more than 20 km/h faster than the speed of vehicles in the queue, only highway between the two left lanes).

Driver education – motorcyclists

1 May 2013:

New regulation motorcyclists' driver's license:

Number of obligatory lessons raised from 6 to 9. Staged access:

A1<= 0.1 kW per kg (or <= 125 cc). From 18 years on. Obligatory lessons: 9

A2 <= 0.2 kW per kg. From 20 years on. Obligatory lessons: 9 (or 4, if 2 years experience A1)

A > >0.2kW per kg. From 24 (22, if 2 years experience with A2). Obligatory lessons: 9 (or 4, if 2 years experience with A2).

Infrastructure / cyclists

14 February 2012

Two new signs are added to the Code, namely:

- Sign B22, which allows cyclists to cross the traffic lights for turning right when the traffic lights are red or yellow-orange.
- Sign B23, that allows cyclists to cross the traffic lights to go straight when the traffic lights are red or orange-yellow.

Both signs can be used only if the bicyclist gives way to any other user traveling on the road. The sign can be used only if the cyclist will not interrupt the traffic flow.

3 February 2012

Creation of the "rues cyclables" (street where bicyclists have the priority).

In the "rues cyclables", the bicyclist can use the full width of the street when it is open in one direction and half the width on the right side when it is open to two-way traffic. Motor vehicles can circulate in the cycling-roads but cannot pass cyclists, and speed can never be greater than 30 km / h.

Road safety campaigns

"Go for zero" in 2012

- Alcohol: BOB (June & December)
- Speeding: Social disapproval targeting young male drivers (July).
- Child safety seats: targeting children and young parents.
- Motorcyclists: targeting motorcyclists and other road users (May).
- Sensibilisation actions for young drivers throughout the year (especially weekend nights).
- Cooperation with companies to reach professional drivers.
- Online actions (facebook, twitter) to engage road users for "Go for zero".

Enforcement

- 02/04/13: increase of the traffic fines.
- From 1 February 2012, the period for "recidivism" goes from 1 to 3 years.

7. Useful websites and references

Recent and on-going research

All reports are downloadable on the website of the Belgian Road Safety Institute (in French or Dutch, www.ibsr.be).

- National measurement of speed on expressways (2012)
- National measurement of safety belt (2012)
- Risks for young drivers in traffic - A literature review (2012)
- Risks for young drivers in traffic - Statistical analysis of road accidents involving young drivers (18-31 years old) (2012)

Useful websites

IBSR (Belgian Road Safety Institute)	www.bivv.be
IBSR research reports	http://ibsr.be/fr/presse/etudes-et-statistiques
Statistical report, 2010	http://ibsr.be/fr/presse/etudes-et-statistiques/statistiques-d-accidents
Road Safety barometer	http://ibsr.be/fr/presse/baromètre-de-la-sécurité-routière
Commission Fédérale pour la Sécurité Routière	www.cfsr.be

Contact

For more information, please contact: yvan.casteels@ibsr.be

Cambodia

Source: National Road Safety Committee

Capital	Inhabitants	Vehicles/1 000 inhabitants in 2011	Road fatalities in 2011	Fatalities/ 100 000 inhabitants in 2011
Phnom Penh	**14.3 million**	**131**	**1 905**	**13.1**

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

For analysis purposes, only data from 2006 onwards should be used.

Data presented in this report have not yet been validated by IRTAD.

1. Comments on road safety data collection

The Road Crash and Victim Information System (RCVIS) was initiated and developed by Handicap International (HI), in close collaboration with the Ministry of Health (MoH), the Ministry of the Interior (MoI), and the Ministry of Public Works and Transport (MPWT). The RCVIS data are reported by traffic police and health facilities nationwide. Currently, the MoH and the MoI are in charge of data collection from provincial level and provide soft copy to the National Road Safety Committee (NRSC). The NRSC combines data from MoH and MoI, using a data linkage system developed with support from SWOV (road safety research centre of the Netherlands), in the framework of IRTAD twinning. This allows duplicate entries to be automatically identified.

In 2011, almost all (97%) road fatalities were reported by the police. Traffic police reported 62% of injuries, and 43% of injuries were reported by hospital or health centre staff. Only 43 hospitals and 37 health centres provided data in 2011. Therefore, data on serious injuries are not fully reported.

A seriously injured person is defined as a person hospitalized for at least 8 days due to injuries sustained in a crash. At this stage, it is not envisioned to adopt a MAIS-based definition.

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

- Data source in 2000 and 2001: national traffic police only.
- Data source in 2005: Number of fatalities: based on national traffic police only.
- Number of serious and slight injuries: based on RCVIS.
- Data source from 2006 – 2011: RCVIS (road crash and victim information system), which combines data from traffic police and hospitals.

2. Short term trends

Safety performance in 2011

In 2011, the RCVIS reported 1 905 road fatalities, a 5% increase compared to 2010. This is partly due to the economic boom, the increase in registered vehicles and the young population, as well as the reconstruction of paved roads over the last five years. Road crashes disproportionately affect the most vulnerable road users (motorcyclists, pedestrians and cyclists), who represented almost 90% of all road traffic casualties in 2011.

Even though the number of fatalities among 10 000 vehicles decreased when compared to 2010, the total number of fatalities continues to increase. Traffic crashes have major impacts on both the social economy and welfare of Cambodia and are one of the major causes of mortality in Cambodia.

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

3. Long term trends in mobility and safety (2006-2011)

Change in the number of fatalities and injury crashes

Within the last six years, the number of fatalities increased by 47%.

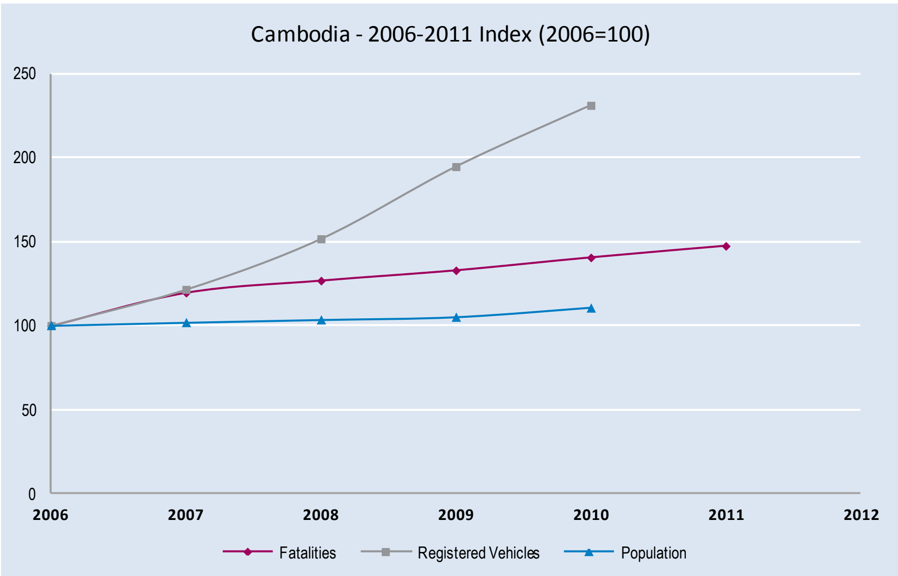
Risks and Rates

Since 2006, the fatality rate for 100 000 inhabitants increased by 36%. The fatality rate per 10 000 registered vehicles decreased, mainly because of the huge increase in motorisation.

Table 1. **Safety and mobility data, 2006-2011**

				2011 % change over	
	2006	**2010**	**2011**	***2010***	***2006***
Reported safety data					
Fatalities	1 292	1 816	1 905	4.9%	+47%
Deaths/100 000 population		12.7	13.1	3.1%	
Deaths/10 000 registered vehicles		11.0	10.0	-9.1%	
Fleet and mobility data					
Registered vehicles (x 1000)	714.9	1652.5			
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)		110	131	19.1%	

Figure 1. **Reported road fatalities, motorised vehicles and population 2006-2011**



Economic costs of traffic crashes

It is estimated that in 2011 the annual economic cost of road crashes equalled approximately USD 310 million, a 11% increase compared to 2010. This represents 2.4% of the GDP of Cambodia.

Capital approach (human capital method) was used to calculate the cost of road crashes in Cambodia.

Table 2. **Costs of road crashes**

Cost (USD million)	2011
Fatalities	79
Injury and disability	223
Property damage and other costs	8
Total	***310***
Total as a % of GDP	2.4%

Road users

Vulnerable road users (motorcyclists, pedestrians and cyclists) represent almost 90% of traffic casualties in Cambodia. Riders of motorised two-wheelers are the most vulnerable road users; in 2011, they represented 83% of the motorised vehicle fleet and 66% 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 14, accounting for 33% of total pedestrian fatalities, and elderly people (55+) who account for 17% of pedestrian fatalities.

Compared to 2010, the number of motorised two-wheeler riders killed slightly increased, while the number of car occupants killed in a crash rose dramatically.

Table 3. **Reported fatalities by road user group 2005-2011**

							2011 % change over		
	2009		2010		2011		*2010*	*2009*	*2005*
Bicyclists	71	4%	72	4%	51	3%	*-29%*	*28%*	*6%*
Motorised two-wheelers	1218	71%	1209	67%	1262	66%	*4%*	*4%*	*136%*
Passenger car occupants	79	5%	140	8%	144	8%	*3%*	*82%*	*80%*
Pedestrians	215	13%	217	12%	254	13%	*17%*	*18%*	*100%*
Others	140	8%	178	10%	194	10%	*9%*	*39%*	*70%*
Total	1717	100%	1816	100%	1905	100%	*5%*	*11%*	*111%*

Age

The 20-24 age group accounted for 21% of total fatalities, while they represented only 11% of the total population. Almost 50% of total fatalities are between 15 and 29 years old.

The 20-24 age group also has the highest fatality rate for 100 000 inhabitants (25.1%).

Table 4. **Reported fatalities by age group 2005-2011**

	2009	2010	2011	2011 % change over 2010	2011 % change over 2009
0-5	48	49	47	-4%	-2%
6-9	49	50	60	20%	22%
10-14	36	49	51	4%	42%
15-17	51	68	73	7%	43%
18-20	232	228	250	10%	8%
21-24	281	271	302	11%	7%
25-64	921	1 000	1 020	2%	11%
>65	75	84	90	7%	20%
Total	1 717	1 816	1 905	5%	11%

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 2005-2011)**

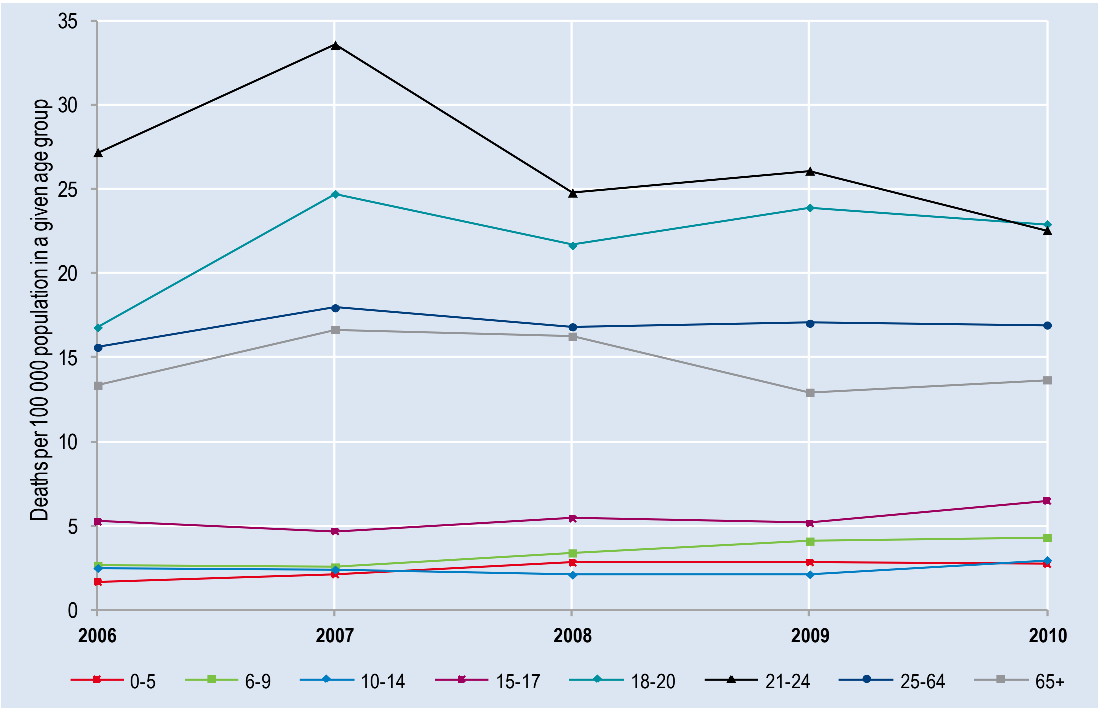
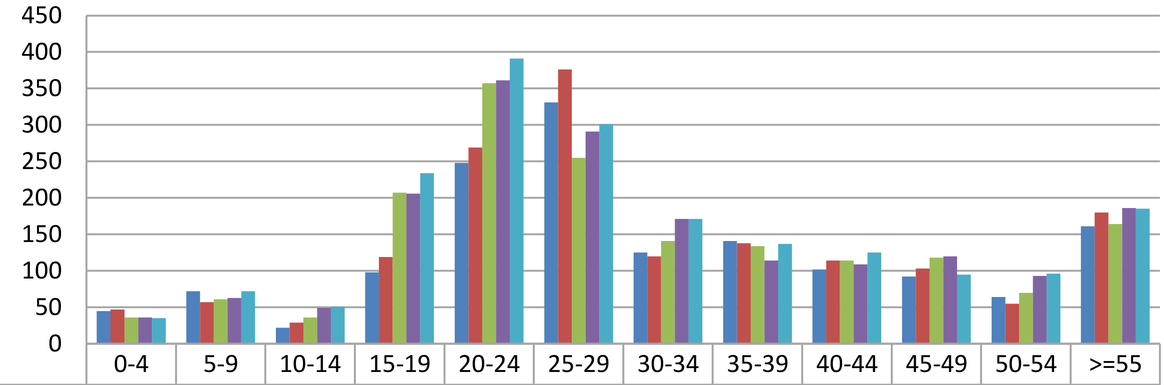


Figure 3. **Reported road fatalities by age group 2007-2011**



	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	>=55
2007	45	72	22	98	248	331	125	141	102	92	64	161
2008	47	57	29	119	269	376	120	138	114	103	55	180
2009	36	61	36	207	357	255	141	134	114	118	70	164
2010	36	63	49	206	361	291	171	114	109	120	93	186
2011	35	72	51	234	391	301	171	137	125	95	96	185

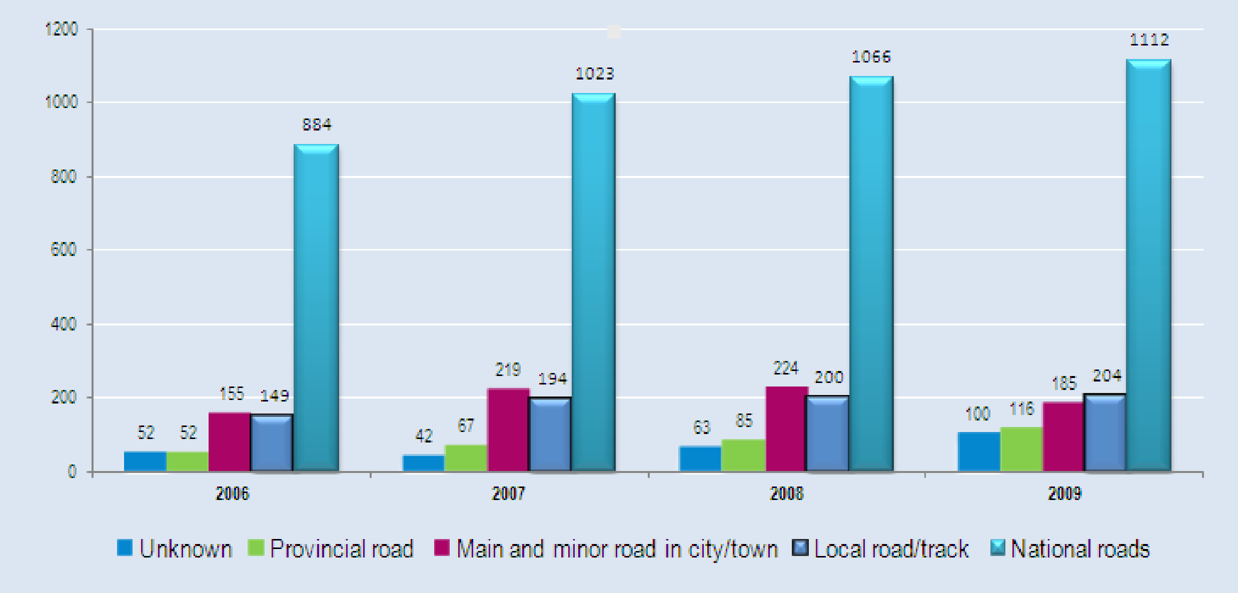
Road Type

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 roads in cities/towns: small/short roads in a city or town;
- Local road/track: small roads in villages.

There is as yet no motorway network in Cambodia. The large majority of fatalities (74%) occur on national roads.

Figure 4. **Reported fatalities by road type 2005-2011**



4. Recent trends in road user behaviour

Impaired driving

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

Drink driving is the second major cause of road crashes and casualties in Cambodia. In 2011, 14% of fatalities were due to drunk driving. Compared to 2010, the number of fatalities increased by 3%. 81% of at-fault drivers in drink-driving crashes were motorbike drivers, followed by family vehicle drivers (12%).

A peak in drink-driving fatalities was observed between 7 and 8 pm (19%). Saturdays and Thursdays shared high percentages of fatalities (22% and 18%, respectively).

Cambodia has neither a legal framework nor facilities to enforce drugs-and-driving penalties.

Speed

Excessive speed is the leading cause of traffic crashes in Cambodia, being responsible for more than 50% of fatalities in 2011.

The table below summarises the main speed limits in Cambodia.

Table 5. **Summary of speed limits in 2013**

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

Seatbelts and helmets

Seatbelt wearing has been compulsory on front seats since 2007. It is not compulsory for rear-seat passengers. The rate of use is rather low.

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

Table 6**. Seatbelt wearing rate by car occupants**

	2009	*2010*	*2011*
General	23%	30%	27%
Urban roads (driver)	52%	41%	44%
Rural roads (driver)	42%	35%	41%

According to the recent land traffic law, helmet wearing is compulsory since 2007 for riders of motorcycles (over 49 cc), for motorcycles with trailers and for motorised tricycles. It is not compulsory for mopeds below 49 cc and is not yet compulsory for the passengers: however it is expected that a legal amendment will be passed in 2014.

69% of motorcycle rider fatalities in 2011 suffered head injuries: none were wearing a helmet when the crash occurred.

Distracted driving, use of mobile phone and fatigue

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

Organisation of road safety

The National Road Safety Committee (NRSC) was established in 2005 as the lead agency for road safety, under the responsibility of the Ministry of Transport. Its role is to manage and coordinate all road safety activities in Cambodia.

Road safety strategy for 2011-2020

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

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

The Action Plan consists of seven "Pillars":

- Road Safety Management,
- Infrastructure,
- Safe Vehicles,
- Safe Road User Behaviour,
- Post-Crash Care,
- Traffic Law Legislation and Enforcement,
- Driver Licensing.
- Measures are chiefly focused on the main risk factors, which are the absence of helmets, speeding and drink-driving.

Targets 2011-2020 and safety performance indicators

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

To reduce the forecasted number of fatalities by 50% by 2020; as recommended by the UN report for the Decade of Action.

A number of safety performance indicators have been agreed:

– reduce the forecasted number of fatalities caused by head injuries by a minimum level in 2020;
– increase the helmet-wearing rate to 100%.

Speeding:

– reduce the forecasted number of speed-related fatalities by a minimum level in 2020;
– reduce the prevalence of the excess-speeding rate.

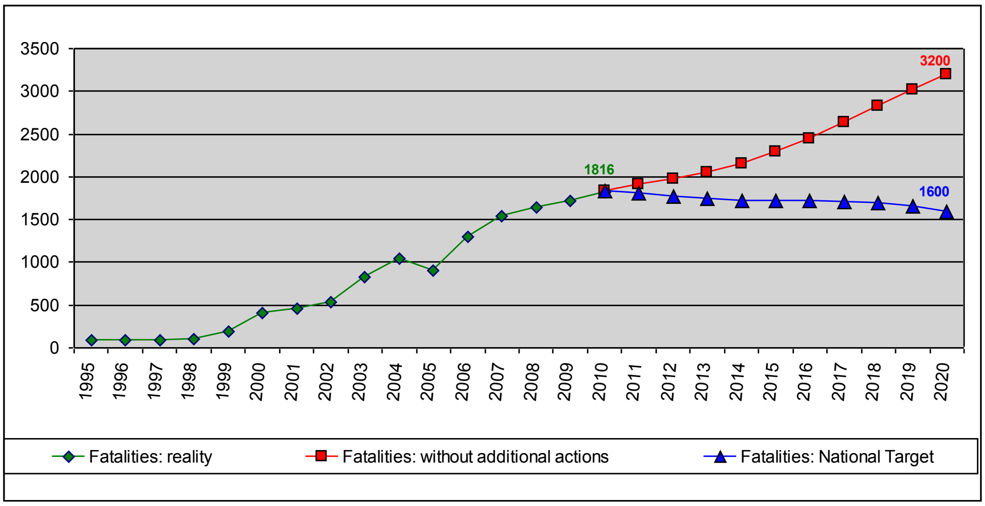
Drink-driving:

– reduce the forecasted number of alcohol-related fatalities by a minimum level in 2020;
– reduce the prevalence of drunk drivers with a BrAC/BAC above the legal limit in 2020.

Implementation

The plan was submitted to the Prime Minister and is expected to be approved by the Council of Ministers in early 2014.

Figure 4. **Estimated number of fatalities 2010-2020**



6. Recent safety measures (2011-2012) and effectiveness of past measures

Monitoring tool

With the support of the IRTAD twinning programme, monitoring tools for the safety performance indicators in the 10-year Road Safety Action Plan were developed in early 2011.

The monitoring tools include:

1. Road Crash and Victim Information System (RCVIS):
   - Number of fatalities and trends (by age groups, road users, provinces,…);
   - Fatalities through head injuries, speeding and drink-driving.
2. Roadside observations:
   - Helmet-wearing rate monitoring;
   - Speed measurement: average speed, % of drivers exceeding the limit, etc.;
   - Drink driving measurement: rate of drink driving.
3. Roadside surveys/interviews: knowledge, opinions, attitudes relating to law, police enforcement, publicity on:
   - Helmets
   - Speeding
   - Drink-driving

Impaired driving

Measures against drink-driving started on 1 October 2010. Proper equipment and training have been provided to the traffic police in Phnom Penh, Kandal and Kampong Speu. Since September of this year, all road-safety stakeholders have also been organising campaigns against drink-driving and encouraging helmet-wearing, in order to inform the public about the importance of wearing a helmet, the consequences of drink-driving, and the coming enforcement measures. Handicap International and Johns Hopkins University are working on monitoring and evaluating helmet use and drink-driving as part of the RS10 project in Cambodia.

Speed management

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

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

Education and campaign

The majority of road traffic injuries are primarily caused by the specific risk factors of speeding, drinking and driving, and not wearing a helmet. To reduce these injuries, significant education and public awareness campaigns have been organised by many road safety stakeholders in the country.

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

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

Infrastructure

In the 2011-2020 National Road Safety Action Plan, actions for infraction improvements have been included as “Pillar 2”. This pillar has focused on engineering solutions which reduce speed through “traffic calming” measures and speed management, particularly in zones with a high volume of vulnerable road users, such as schools and residential zones, and in built-up areas. Black-spot improvement programmes along the national road network, as well as road safety audits, have also been included in the pillar. Engineers will be trained in road safety audits and priority will be placed on incorporating audits into road design and infrastructure projects.

7. Useful websites and references

Recent and on-going research

- Bachani *et al.* (2012). Helmet use among motorcyclists in Cambodia: a survey of use, knowledge, attitudes, and practices. http://www.tandfonline.com/doi/full/10.1080/15389588.2011.630763

Useful websites

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

Contact

For more information, please contact: voun.chhoun@gmail.com

Canada

Source: IRTAD, Transport Canada

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2010	Fatalities / 100 000 inhabitants in 2010
Ottawa	**34.1 million**	**640**	**2 227**	**6.5**

1. Comments about road safety data collection

Data for the year 2011 were not available when this report was prepared, therefore this report is based on 2010 data.

Transport Canada has a well-established road safety data programme, and has been reporting on motor vehicle collision statistics since the 1970s. Data based on police-reported road traffic collision information is collected and processed in each jurisdiction (provinces and territories), and then sent to Transport Canada for final processing and compilation of national collision statistics.

As with any data collection programme there are challenges with respect to data timeliness and accuracy. Transport Canada considers the motor vehicle collision data to be of good quality overall and very relevant and reliable for most analytical purposes. However, there are areas for improvement as some specific data variables are not provided by certain jurisdictions or consistently reported by all of them. The lack of availability with respect to some variables can limit the scope and degree of analysis in some instances.

One area in which Transport Canada is trying to make progress is the ability to associate or link motor vehicle collision data with hospital data. Fatality data is extremely accurately reported, whereas injury data, while of good quality, is not as detailed as might be found using a MAIS 3+ reporting method.

The National Collision Data Base On-Line Web application, launched in April 2012, is a data query tool that contains national level statistics on vehicle collisions occurring on public roads in Canada. Approximately 23 data elements contained in the National Collision database are available to users, so that they can select and extract data of interest to them.

2. Short term trends

Safety performance in 2010

The year 2010 saw fewer motor vehicle casualty collisions in Canada than in previous years. In fact, both the number of road fatalities and serious injuries were the lowest on record since Transport Canada first collected these data in the early 1970s.

In comparing 2010 to 2009, the number of:

- motor vehicle fatalities was 2 227; down slightly from 2 230 in 2009.
- serious injuries dropped to 11 226; down 5.1% from 2009 (11 829).
- fatalities per 100 000 population was 6.5, slightly lower than 6.6 in 2009.

Provisional data for 2011

Preliminary fatality data for 2011 from selected provinces and territories suggest that annual traffic fatalities are approximately 9% lower than those seen in 2010.

3. Long term trends (1990-2010)

Fleet and mobility

Motor vehicle registrations in Canada have been steadily increasing over the last two decades; the number of registrations for all motor vehicles increased approximately 30% in that time-frame. More specifically, between 1999 and 2010, both light-duty vehicle and commercial vehicle registrations rose by approximately 23% each. Over the comparable period of 2000 to 2010, driver exposure as measured by vehicle-kilometres travelled (VKTs) for light-duty vehicles increased by approximately 10.2%.

While there is not a *direct* correlation between the number of vehicles registered and the number of vehicle-kilometres travelled, it is believed that the challenging economic climate dampened the level of driver exposure in recent years; in particular in 2007 and 2008. Canada's Gross Domestic Product – one of the key indicators of economic activity in a nation – grew by 5.1% between 2007 and 2008, subsequently declining by 4.9% in 2009, before growing by 6.4% in 2010. During this same three-year period, vehicle travel remained fairly constant: first declining by almost 2% in 2008 over 2007, then increasing by 2.4% in 2009, followed by an estimated 1.5% increase in 2010.

Change in the number of fatalities and injury crashes

The 2010 fatality count was similar to 2009, whereas 2008 and 2009 had experienced substantial decreases (compared to their respective preceding year) in the number of road fatalities and serious injuries. Nevertheless, the number of road fatalities in 2010 was the lowest on record in Canada since these data were first collected. This record low was achieved despite on-going growth over the last three years (2008 to 2010) in the Canadian population (+2.4%), the number of licensed drivers (+2.5%), registered vehicles (+3.6%) and vehicle-kilometres travelled (estimated at +3.95%).

During the last decade (2000-2010), the number of fatalities decreased by 23.3%, although most of this reduction occurred in the 2007-2009 time-frame. The improvement was in part attributed to a combination of focused intervention efforts by many jurisdictions that addressed Canada's principal road safety concerns as well as a challenging economic climate.

Between 1990 and 2010, the number of fatalities decreased by 43.8%, while the number of motor vehicles registered and the number of licensed drivers each increased approximately 30%.

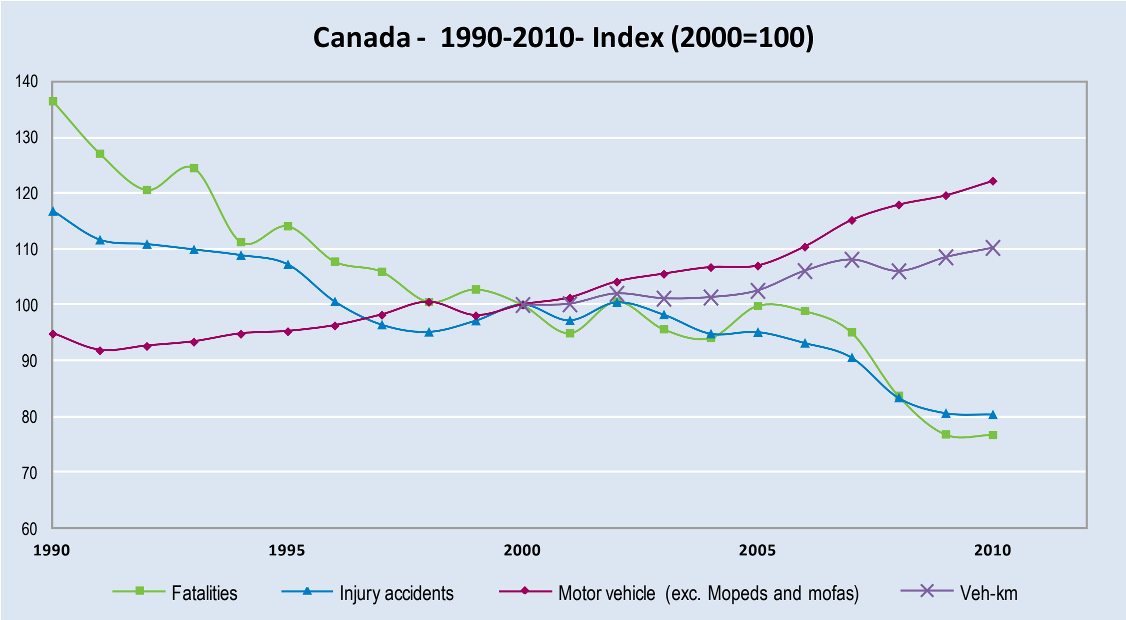
Risk and rates

Between 1990 and 2010, the mortality (deaths/100 000 population) decreased by more than half (54.4%).

Table 1. **Safety and mobility data 1990-2010**

					2010 % change over		
	1990	**2000**	**2009**	**2010**	***2009***	***2000***	***1990***
Reported safety data							
Fatalities	3 963	2 903	2 230	2 227	-0.1%	-23%	-44%
Injury crashes	181 960	155 847	125 527	125 141	-0.3%	-20%	-31%
Hospitalised	25 020	13 441	12 032	11 767	-2.2%	-14%	-53%
Deaths/100 000 population	14.31	9.46	6.61	6.53	-1.2%	-31%	-54%
Deaths/10 000 registered vehicles	2.33	1.62	1.04	1.02	-2.2%	-37%	-56%
Deaths/billion vehicle-kms	-	9.32	6.60	6.49	-1.7%	-30%	-
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	16 953	17 882	21 387	21 850	2.2%	22%	29%
Vehicle- kilometres (in millions)	-	311 334	337 949	343 185	1.5%	10.2%	-
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	612	583	634	640	0.9%	10%	5%

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



Economic costs of traffic crashes

For the purposes of this report, the costs have been calculated using the willingness-to-pay approach. The values noted below are still preliminary and may be subject to change.

Traffic crashes represent a very significant cost for society, estimated at around EUR 23.5 billion, i.e. 2.0% of GDP.

Table 2. **Costs of road crashes**

Cost (EUR Billion)	2010
Fatalities	12.0
Injury and disability	5.8
Property damage and other costs	5.7
Total	23.5
Total as a % of GDP	2.0

Note: Figures represent the average exchange rate from CAD to EUR for 2010.

Road users

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

Pedestrian and motorcyclist fatalities decreased by 7% and 4%, respectively, from 2009 to 2010, while cyclist fatalities increased by 14% during the same period.

Table 3. **Reported fatalities by road user group 1990-2010**

	1990		2000		2009		2010		2010 % change over 2009	2010 % change over 2000	2010 % change over 1990
Bicyclists	106	3%	40	1%	44	2%	50	2%	*14%*	*25%*	*-53%*
Motorised two-wheelers	260	7%	170	6%	198	9%	190	9%	*-4%*	*12%*	*-27%*
Passenger car occupants	2 244	57%	1 669	57%	1 198	54%	1 280	57%	*7%*	*-23%*	*-47%*
Pedestrians	584	15%	372	13%	315	14%	294	13%	*-7%*	*-21%*	*-50%*
Others	769	19%	652	22%	475	21%	413	19%	*-13%*	*-37%*	*-46%*
Total	3 963	100%	2 903	100%	2 230	100%	2 227	100%	*-0.1%*	*-23%*	*-44%*

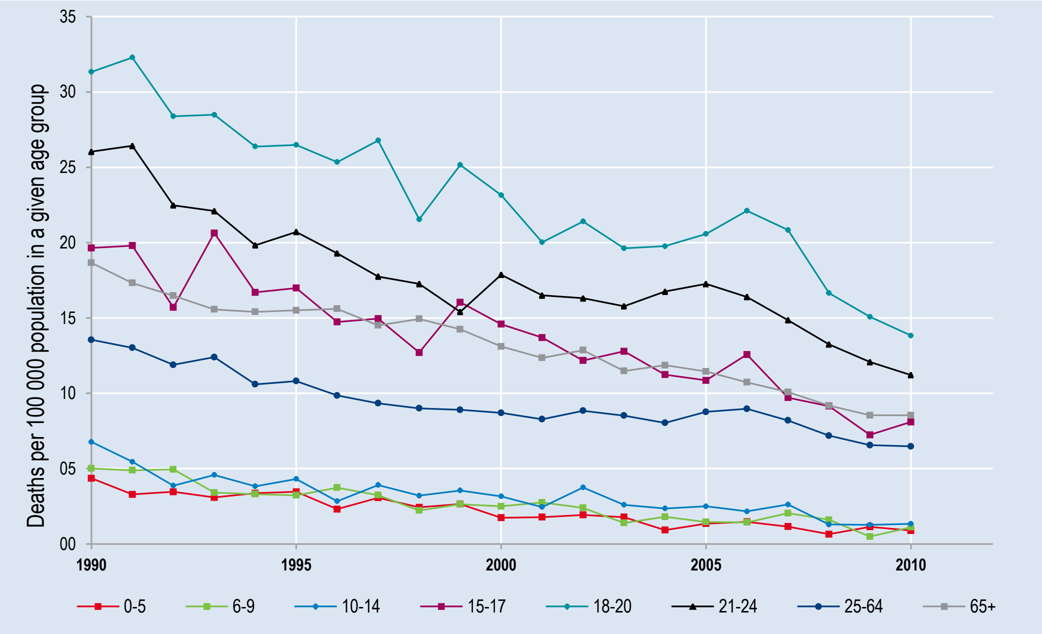
Age

Young driver and passenger fatalities continued to be an issue. Nearly 23% of motor vehicle fatalities were 15-24 year olds in 2010, while this age group makes up only 13% of the Canadian population.

Table 4. **Reported fatalities by age group 1990-2010**

	1990	2000	2009	2010	2010 % change over 2009	2010 % change over 2000	2010 % change over 1990
0-5	101	38	25	20	-20%	-47%	-80%
6-9	77	41	7	15	114%	-63%	-81%
10-14	127	65	25	26	4%	-60%	-80%
15-17	223	183	95	105	11%	-43%	-53%
18-20	382	293	212	196	-8%	-33%	-49%
21-24	444	294	224	211	-6%	-28%	-52%
25-64	2 004	1 460	1 237	1 235	0%	-15%	-38%
>65	583	505	400	412	3%	-18%	-29%
Total	3 963	2 903	2 230	2 227	-0.1%	-23%	-44%

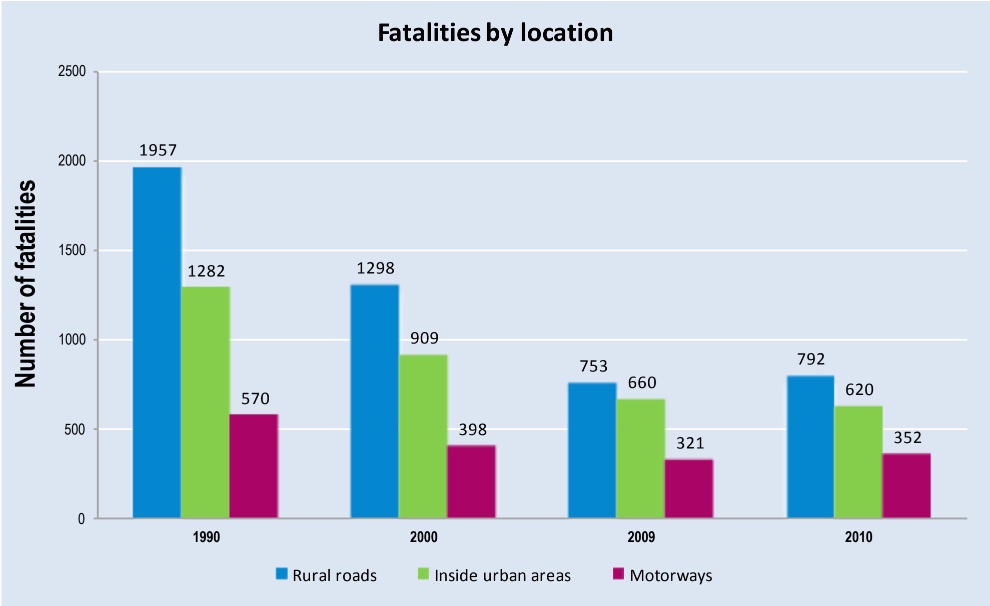
Figure 2. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2010)



Road Type

In 2010, while about 57% of fatal collisions took place on rural roads, 74% of recorded injury collisions took place in urban areas.

Figure 3. **Reported fatalities by road type**
1990, 2000, 2009 and 2010

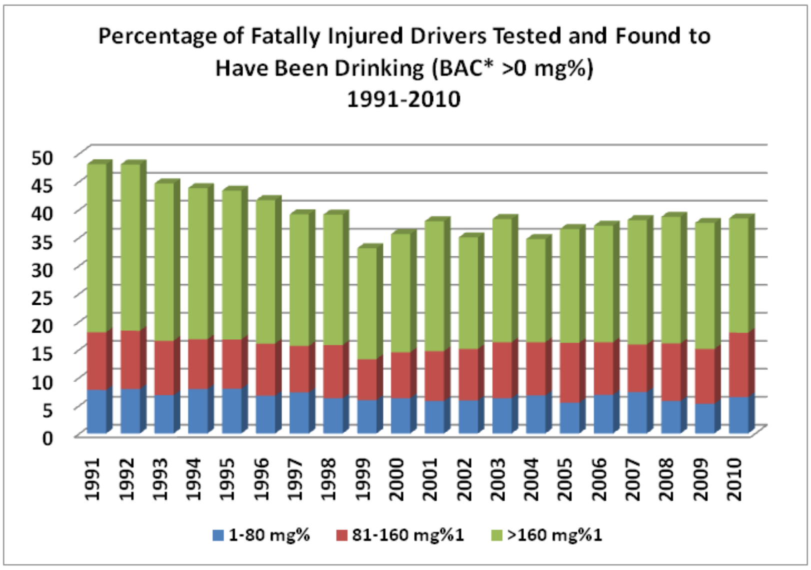


4. Recent trends in road user behaviour

Impaired driving

Preliminary 2010 data indicate that 38.4% of drivers who were fatally injured in motor vehicle collisions had some level of alcohol in their blood. Of all fatally injured drivers tested, 31.9% were found to have Blood Alcohol Concentration levels over the 80 mg% threshold.

Figure 4. **Fatally injured drivers found to have been drinking**



BAC: Blood Alcohol Concentration
mg%: Weight of alcohol in the bloodstream stated as milligrams in 100 millilitres of blood.

Speed

Table 5. **Summary of speed limits in 2013**

	General speed limit *Passenger cars*
Urban roads	40 km/h – 70 km/h
Rural roads	80 km/h – 90 km/h
Motorways	100 km/h – 110 km/h

Seatbelts and helmets

Seatbelt

The national usage rate among light-duty vehicle occupants was 95% during 2009-10. Despite the high seatbelt usage rates overall, approximately one-third (36%) of motor vehicle occupants killed during 2010 were unbelted at the time of the collision (http://www.tc.gc.ca/eng/roadsafety/tp-tp2436-rs201101-1149.htm).

Table 6. **Percentage of driver and passenger fatalities and serious injuries where victims were not using seatbelts (2006-2010)**

	2006	2007	2008	2009	2010
Drivers					
Fatalities	36.9	35.3	34.9	33.6	34.0
Serious Injuries	16.2	16.0	15.6	14.5	12.9
Passengers					
Fatalities	38.7	39.1	38.3	36.3	40.4
Serious Injuries	24.6	24.8	21.6	23.3	20.5

Table 7**. Seatbelt wearing rate by car occupants (drivers)**

	1980	1990	2000	2010	2011
Urban roads (driver)	36.4	81.9	92.2	95.6	n/a

Helmets

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 applies only to children and young adults up to 18 years of age. In general, police services do not rigorously enforce helmet-use laws among cyclists.

Distracted driving, use of mobile phones and fatigue

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

5. National road safety strategies and targets

Organisation of road safety in Canada

In Canada, the responsibility for road safety is divided amongst and shared between different levels of government and other road safety and private sector partners.

Federal, provincial and territorial departments responsible for transportation and highway safety work together through various committees and associations, which report to the Council of Ministers Responsible for Transportation and Highway Safety. This council is assisted by the Council of Deputy Ministers Responsible for Transportation and Highway Safety. Within this structure, three committees coordinate multi-jurisdictional views and efforts (Canadian Council of Motor Transport Administrators, Engineering and Research Support Committee and the Policy and

Planning Support Committee). In addition, the Transportation Association of Canada, which also includes a number of municipal partners, also addresses infrastructure issues.

This structure is designed to promote national consistency, provide a platform to share information and assist jurisdictions in addressing the issues within their specific mandate; but ultimately the responsibility for implementation remains with the appropriate jurisdiction.

The Federal Government is responsible for regulations and standards related to the manufacture and importation of motor vehicles, tyres and child restraints. Provincial and Territorial governments are responsible for licensing drivers, registering vehicles and administering justice and jurisdictional road safety programmes. They are also responsible for policy and regulations regarding the roadways. In many cases, the road authority responsible for the operations of the road may be regional or municipal governments, which must operate within the provincial guidelines.

Evaluation of the past road safety programme

Canada's second-generation national road safety plan, Road Safety Vision 2010 (RSV 2010), expired at the end of 2010. It sought to improve Canada's level of road safety through the implementation of initiatives consistent with the four strategic objectives of: raising public awareness of road safety issues; improving communication, cooperation and collaboration among road safety agencies; enhancing enforcement measures; and improving national road safety data quality and collection.

RSV 2010 had an overall target of a 30% decrease in fatalities and serious injuries by 2010. This overall national target was supported by eight sub-targets that focused on Canada's most critical road safety challenges: increasing occupant restraint use; reducing impaired driving; improving commercial vehicle safety; reducing casualties on rural roadways; reducing casualties among young drivers; reducing casualties among vulnerable road users; improving speed and intersection safety.

While the complete data set for 2010 is still being finalised, the following two charts provide a preliminary illustration of the significant progress made towards the reduction in traffic fatalities and traffic injuries between 1996 and 2010, using annual data for each year in the series.

Figure 5. **Improvement in the number of traffic fatalities through two National Road Safety Plans Canada – 1996 to 2010 (Annual) - Preliminary**

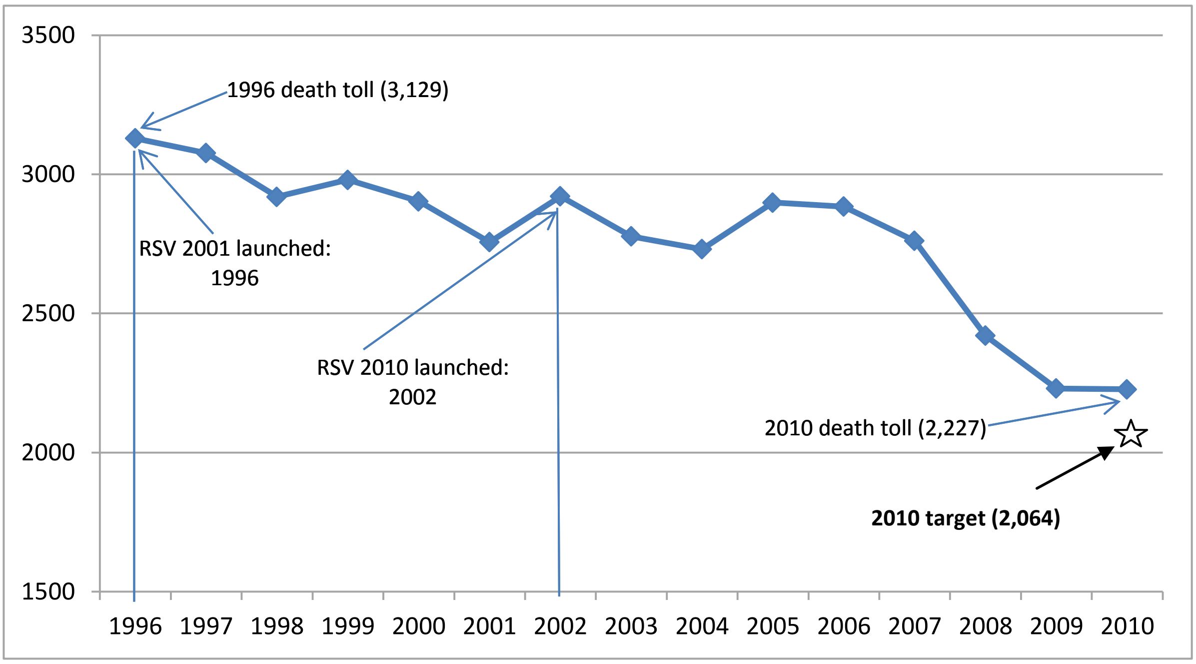
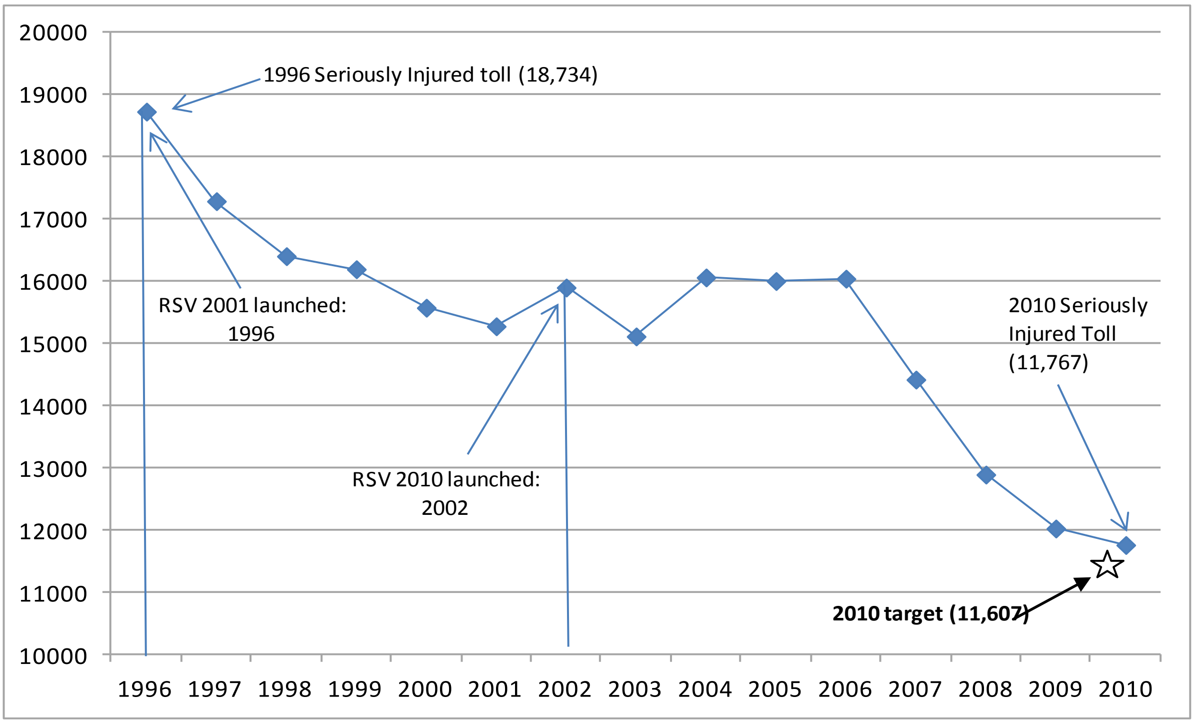


Figure 6. **Improvement in the number of seriously injured victims of traffic collisions through two National Road Safety Plans Canada – 1996 to 2010 (Annual) - Preliminary**



A comparison of preliminary victim data for the 2008-2010 period with comparable figures during the 1996-2001 period indicated that the largest reductions in fatalities occurred among victims involved in crashes on rural roads (-35.7%), followed by those who were unrestrained (-34.4%) and those who died in intersection crashes (-27.2%). The number of victims fatally injured in crashes involving vulnerable road users (-9.7%) and drinking drivers (0.3%) experienced the least progress among targets considered.

The most notable progress among victims seriously injured in areas targeted under Road Safety Vision 2010 involved motor vehicle occupants who were unrestrained (-46.7%), those that sustained their injuries in crashes on rural roads (-44.4%), followed by young drivers (-37.9%). As was the case for fatalities, the number of victims seriously injured in crashes involving drinking drivers (-7.4%) and vulnerable road users (0.3%) experienced the least progress.

Road safety strategy for 2011-2015

The successor plan to RSV 2010 is the Road Safety Strategy (RSS) 2015, which was announced in January 2011. The goal of the renewed and revised programme, is to achieve directional downward trends in fatalities and serious injuries throughout its five-year duration. Downward trending will be measured using rate-based measures and rolling, multi-year averages.

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

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

Target setting

With respect to target setting, a joint decision was made to keep the national level direction as a downward trend which will be measured using rate-based measures and rolling, multi-year averages rather than a hard percentage target. Each jurisdiction (provincial, territorial and federal) will create its own plan to address the objectives of the Road Safety Strategy. Within these plans, each jurisdiction has the flexibility to determine its own targets if deemed appropriate.

Monitoring

Trending will be measured using rolling averages to smooth out short-term fluctuations. Two rate-based indicators are used: fatalities (or serious injuries) per million population; and fatalities (or serious injuries) per billion kilometres travelled. Individual jurisdictions will monitor and report on the progress against their respective plans.

6. Recent safety measures (2011-2012) and effectiveness of past measures (2005-2010)

Road user behaviour is addressed by many organizations and levels of government in Canada. Based on the RSS 2015, the focus of road user activities is on: impaired driving, speed and aggressive driving, occupant protection and environmental factors. It includes target groups of young drivers, medically at-risk drivers, vulnerable road users, motor carriers, high-risk drivers and the general population. The following items are a sampling of some of the efforts that have recently taken place.

Significant progress was achieved in recent years (2008 to 2010) as a result of renewed efforts by key stakeholders in developing and implementing action plans and strategies that focused primarily on curbing the incidence of drinking and driving, inappropriate or excessive speeding and non-use of seatbelts and child restraints. Other contributors to the overall achievement included the introduction of safer vehicles (equipped with such safety features as electronic stability control, side-impact and rollover protection) and road infrastructure improvements such as roundabouts.

Speed management

A number of provincial jurisdictions have implemented higher fines and vehicle impoundment for excessive speeding, often 50 kph over the limit. In addition, municipalities have begun examining the lowering of some urban residential speed limits to 30 kph.

Impaired driving

Many Canadian jurisdictions have a zero blood alcohol concentration requirement for drivers under age 21, independent of licensing class.

British Columbia has modified impaired driving administrative roadside penalties. Drivers found with a blood alcohol content in the warning range (50-80 mg/dl) are suspended for three days, have their vehicle impounded for three days and face fees of approximately CAD 600. These sanctions increase for a third or subsequent offence. Drivers found with a blood alcohol content over the legal limit (80 mg/dl) are suspended for seven days, have their vehicle impounded for seven days, complete a responsible driving programme and face fees of approximately CAD 4 000. They may also face a criminal code charge which carries additional penalties if convicted. Early evidence indicates charges, convictions and general impaired driving have been quite significantly reduced in this jurisdiction over the past two years (http://www.pssg.gov.bc.ca/osmv/road-safety/impaired-driving.htm). Early evaluation results (first two years) indicate a 46% reduction in alcohol-related fatalities and a 34% decline in drinking and driving in the 2012 roadside survey.

On 1 September 2012, Alberta introduced new legislation, which gives drivers with a BAC of over 50 mg/dl but under the criminal limit of 80 mg/dl, a three-day licence suspension and vehicle impoundment. A second offence generates a 15-day suspension and a requirement to complete a course. Subsequent offences carry a 30-day suspension and continuing education. Drivers over the criminal limit of 80 mg/dl are suspended until the case is heard in court, have a three-day vehicle impoundment and an educational course. Subsequent suspensions have a seven-day vehicle impoundment and further education. In all cases, mandatory use of a breath ignition interlock is required, with varying length depending on a previous record. To date, no evaluations have been completed.

Distraction

Quebec is launching a smart-phone application which will allow the driver to block phone calls and text messages when the vehicle is in motion (http://www.saaq.gouv.qc.ca/prevention/cellulaire/).

The “Leave the Phone Alone” campaign has been expanded as several municipalities have promoted the campaign and pledge (www.leavethephonealone.ca) as part of their individual distraction campaigns. It is also being promoted at the end of blog posts on www.DropItAndDrive.com, with approximately 20 000 hits per month.

Occupant protection

Materials to aid in the use of child seats have been translated into other languages to assist persons who do not have English or French as their first language. In partnership with a road safety stakeholder, the Ministry of Transportation Ontario's online child car-seat demonstration videos were translated into seven ethnic languages (http://safetydrivesus.org/) and Transport Canada's Keep Kids Safe Factsheets have been translated into Arabic, Chinese, Punjabi, Somali and Spanish.

On 1 January 2012, new federal child-restraint system and booster-seat safety requirements became mandatory. The new regulations improved the testing requirements, reflected the changing sizes and weights of children in Canada and allowed for the use of harnesses in school buses with special-needs children.

Vehicle safety

Canada has updated the motor vehicle standards and test requirements for frontal protection for vehicles weighing less than 4 536 kilos. All seats will require a three-point harness. In addition, injury criteria are being added for a female anthropometric test dummy, a frontal offset crash test at 40 kph is being added and the full frontal crash-test speed is being increased to 56 kph.

Transport Canada updated its website to include information on vehicle safety technologies (http://www.tc.gc.ca/eng/roadsafety/safevehicles-vehicle-safety-related-technologies-1068.htm).

Alberta has revised its airbrake certification programme; this includes re-certification of trainers and providing new materials for trainers and drivers requiring a "Q" endorsement on their licence (http://www.transportation.alberta.ca/4474.htm).

Road safety campaigns

Rethink Road Safety – Youth Video Challenge. Manitoba Public Insurance launched a Youth Video Challenge in which youths (age 16-25) were encouraged to get behind the camera and use their imagination in creating 1-3 minute videos focused on one of three major road safety issues: impaired driving; speed and aggressive driving; and distracted driving. Winning videos in each category can be found at (http://www.mpi.mb.ca/videocontest/index.html).

7. Useful websites and references

Recent and on-going research

- Work is underway in examining methods for assessing the distracting potential of various in-vehicle technologies. Such a measure would allow for the safer design and assessment of the distracting potential for these devices.
- Crashworthiness research is being undertaken to assess occupant protection in the rear-seating positions of light-duty vehicles. In addition, the performance of child restraints in frontal- and side-impact crashes is being examined. New anthropometric crash test dummies and instrumentation are being developed to assess the protection of all vehicle occupants in a variety of side-impact crash configurations.

- A day- and night-time alcohol and drug roadside survey was undertaken in British Columbia to assess new impaired driving legislation. Results can be found at http://www.pssg.gov.bc.ca/osmv/shareddocs/bc-roadside-report2012.pdf.
- Autonomous Emergency Braking (AEB) systems automatically apply the brakes when it is determined that a collision is imminent. These systems have the potential for reducing the number and severity of rear-end collisions. The systems are currently not regulated or subject to standardized assessment. Transport Canada has a test programme to evaluate the performance of AEB systems. Several vehicles with different systems and different targets have been tested to date. Additional work will assess additional vehicles and further develop test targets.
- The Canadian Council of Deputy Ministers Responsible for Transportation and Highway Safety is sponsoring a study of driving behaviour. The Canadian Naturalistic Driving Study (CNDS) will study driver behaviour in normal day-to-day vehicle operations. Similar studies are being conducted in the United States and abroad. The data collected will include detailed data on driving behaviour and the interaction of driver, vehicle and environment over an extended period of time. One hundred and twenty-five private vehicles will be outfitted with cameras and sensors to collect data on every trip made by the vehicle under normal operation. Study data are expected to provide insight on driver behaviour, what causes crashes and how to prevent them. The data could be used to design safer roads and vehicles, develop more effective driver education, and enact sensible, evidence-based laws and regulations that will result in safer cars and roadways. Preparatory work has been completed and the first vehicles are expected to be on the streets in 2013.
- Transport Canada partnered a publication entitled *Road Safety in Canada*. This product was aimed at providing road safety practitioners and other professionals with information on key road safety issues in Canada (www.tc.gc.ca/eng/roadsafety/tp-tp15145-1201.htm).

A public version of the document was prepared which highlighted what the travelling public could do to protect themselves while travelling on the roads.

- The Public Health Agency of Canada has released a report entitled *Injury in Review: Spotlight on Road and Transport Safety*, 2012. (http://www.safekidscanada.ca/Professionals/Newsroom/News/Injury-in-review.aspx)
- Ontario established the Interagency Road Safety Marketing Committee to enhance coordination and collaboration in the delivery and promotion of road safety marketing initiatives in Ontario, Canada.

Useful websites

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

Contact

For more information, please contact: kim.benjamin@tc.gc.ca

Colombia

Source: Corporación Fondo de Prevención Vial

Capital	Inhabitants in 2011	Vehicles/1 000 inhabitants in 2011	Road fatalities in 2011	Fatalities /100 000 inhabitants in 2011
Bogota	**46 million**	**166**	**5 528**	**12.0**

The Corporación Fondo de Prevención Vial (Road Safety Fund, CFPV) is a private, non-profit organization, established by law and administered by insurers involved in the mandatory traffic accident insurance line, whose main objective is to ensure the reduction of road accidents and their severity and mortality levels, through a thorough understanding and development of prevention, control, educational and awareness-raising campaigns. CFPV joined the IRTAD Group in 2012. Colombia is not represented by a governmental agency in the IRTAD Group.

Data and information included in this report are provided by the CFPV and have not yet been reviewed by the IRTAD Group.

Data for 2012 is preliminary.

1. Comments on road safety data collection

The primary source of road fatalities data is the Instituto Nacional de Medicina Legal y Ciencias Forenses (National Institute of Legal Medicine and Forensic Sciences, NILMFS), which publishes a report each March on the previous year. The NILMFS also reports data on road injuries, but this information is incomplete, since it only includes events involving legal proceedings. These series are available from January 2004.

NILMFS provides preliminary data on direct fatalities and injuries every month. Direct fatalities/injuries are reported by NILMFS´s attention units at the sub-national level, and account for approximately 90% of total annual fatalities; indirect fatalities are reported by hospitals in those municipalities where NILMFS does not have attention units. Indirect road fatalities/injuries are reported once a year, by April, together with the final report for the previous year. The NILMFS data is accurate regarding the victims' profile (name, gender, age, etc.), but event information (city, address of the event, vehicles involved, context information, etc.) is not so precise.

The Departamento Administrativo Nacional de Estadísticas (National Administrative Department of Statistics) provides information on all death certificates, including a break-down according to the ICD-10 classification of PAHO/WHO. This series is available since 1998, but has an 18-month lag in reporting.

Accident data are collected by the traffic control authority at the sub-national level and by the traffic police at the inter-municipal roads, and is entered into a national system administered by the Ministry of Transportation. This source of data is based on detailed forms that allow tracking the severity of the events, the circumstances in which they occurred, characteristics of the vehicles and the victims involved, and road safety aspects (e.g. alcohol testing of drivers; seatbelt use). However, this database has a lag of up to seven months, is not linked to hospital data, and often some variables are not filled out or are filled loosely by the traffic authority. To date, the quality of this source of data has not been audited.

In Colombia there is a mandatory accident insurance policy (SOAT) and the Colombian Federation of Insurers (FASECOLDA) consolidates claims made by victims. This source has personal information on the victim, on the hospital entity that provided the service, and the value of the claim recognized. For reasons of *habeas* data, Fasecolda only provides data on the aggregate number of claimants (proxy of the upper limit of victims injured) and the amount of the claims recognized in the aggregate, by municipality. This information has a lag of about one year.

Finally, hospital data can provide information about the severity of injuries, but to date this source has not been analyzed systematically with that purpose.

2. Short term trends

Safety performance in 2012

In 2012, 5 922 fatalities were recorded on Colombian roads, a 7.1% increase in comparison with 2011. Although the number of deaths on Colombian roads is unacceptably high, the rate of deaths per 10 000 vehicles has maintained a falling trend, in the context of a 17.3% annual increase in the number of registered vehicles during 2012.

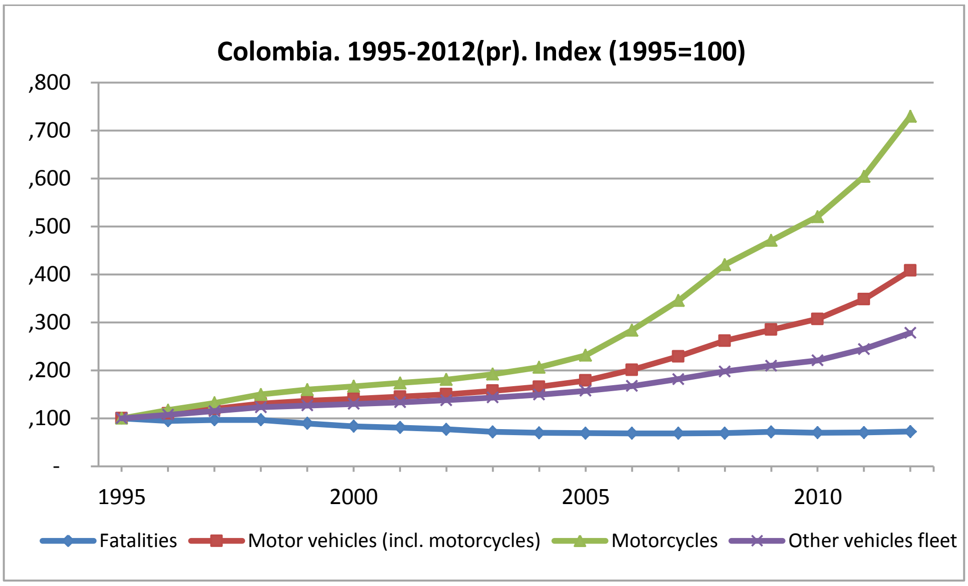
3. Long term trends in mobility and safety (1995-2012 prel.)

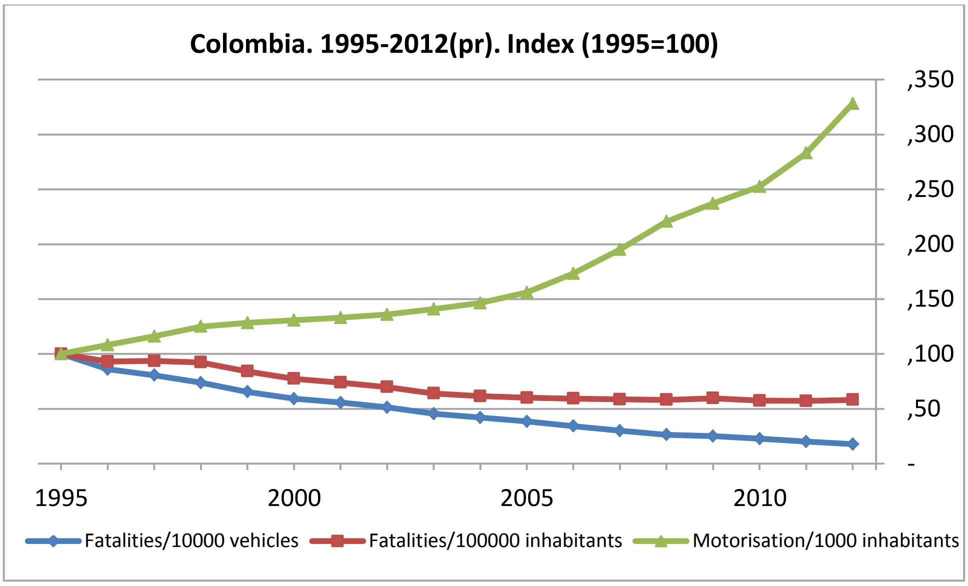
Fleet, mobility, risks and rates

Over the last 18 years, despite the continuous growth of the car fleet in Colombia (the fleet was multiplied by four between 1995 to 2012, i.e. a 8.9% average annual growth rate), the number of fatalities decreased by 24.8%, from 7 874 in 1995 to 5 922 in 2012, according to NILMFS figures. The death rate per 10 000 vehicles dropped from 35.9 in 1995 to 6.6 in 2012.

Between 1995 and 2004, the number of deaths decreased by 30.4%, and the rate of deaths per 10 000 vehicles was more than halved (35.9 in 1995 to 15.1 in 2004). This positive result can be explained by the mandatory use of seatbelts by drivers, the development of a mass transport system in the city of Bogotá, and also by the serious economic crisis felt throughout the national territory which produced a slowdown in the growth of the number of cars, which decreasing from an average annual growth of 9% in 1990-1998 to 4% in 1999-2004.

Figure 1. **Reported road fatalities, risk and rates. Colombia 1995-2012**





Starting in 2005, renewed economic growth spurred demand for automobiles, and registered vehicles increased by 119.6% between 2005 and 2012 (average annual rate of 12%). This substantial increase in risk exposure was addressed by the national government through additional measures to prevent road accidents, such as issuing a technical standard on helmets and the implementation of mass transport systems in the main cities of the country. Though much remains to be done, the results in terms of the long-term reduction in road accidents are noteworthy – the death rate per 10 000 vehicles was nearly halved, from 15.1 in 2004, to 6.6 in 2012.

Table 1. **Safety and mobility data 1990-2012**

	1990	2000	2011	2012*	2012 % change over 2011	2012 % change over 2000	2012 % change over 1990
Reported safety data							
Fatalities	N/A	6 651	5 528	5 922	7.1%	-11.9%	N/A
Injury crashes	N/A	N/A	75 091	N/A	-16.2%	N/A	N/A
Deaths/100 000 population	N/A	16.5	12.0	12.7	5.9%	-23%	N/A
Deaths/10 000 registered vehicles incl. motorcycles and mopeds	N/A	22.9	7.2	6.6	-8.3%	-71.2%	N/A
Fleet and mobility data							
Vehicles (in thousands, incl. motorcycles and mopeds)	1 423.2	3 084.6	7 633.6	8 951.4	17.3%	190%	529%
Motorization (number of motorized vehicles incl. motorcycles and mopeds/1 000 inhabitants)	41.7	76.5	165.8	192.2	15.9%	151%	361%

**Preliminary data*

Economic costs of traffic crashes

CFPV and Universidad de Los Andes performed the study "Development of a Methodology to Assess the Economic Cost of Road Accidents in Colombia and Calculations for the 2008-2010 Period" (2012). The costs were calculated using the capital approach. The following costs were estimated: human costs, damages to property, medical costs and administrative costs, for three types of accidents based on the reported seriousness of the event: fatal crashes, injury crashes and property damage crashes. Traffic crashes represent a very significant cost for society, estimated at around 1% of GDP.

Table 2. **Costs of road crashes**

Cost (US Million, 2012=100)	2008	2009	2010
Fatalities	634	422	368
Injury and disability	941	889	784
Property damage and other costs	1 250	1 263	1 233
Total	**2 826**	**2 573**	**2 386**
Total as a % of GDP	**0.9%**	**0.8%**	**0.7%**

Road users

The most vulnerable road users have increased their participation in road accident mortality in the last six years from 81% to 85%. Even though death rates for most types of users had decreased from 2007 to 2011 (with the exception of motorcycle drivers and truck users), initial figures for 2012 indicate that in addition to these two latter groups, death rates have increased among pedestrians and passenger transport users.

Figure 2. **Fatalities by road user, Colombia 2007-2012 (Preliminary)**

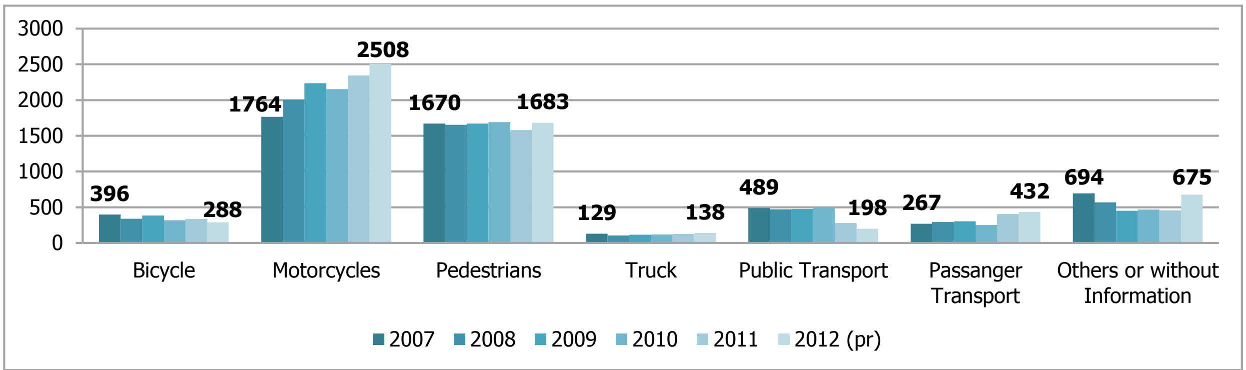


Table 3. **Reported fatalities by road user group 2000-2012 (preliminary)**

						2012 (pr) % change over		
	2000	2011		2012*		*2011*	*2000*	*1990*
Bicyclists	N/A	336	6%	288	5%	-14%	N/A	N/A
Motorcyclists	N/A	2345	42%	2508	42%	7%	N/A	N/A
Passenger car occupants	N/A	406	7%	432	7%	6%	N/A	N/A
Pedestrians	N/A	1581	28%	1683	28%	6%	N/A	N/A
Others	N/A	860	16%	1011	17%	18%	N/A	N/A
Total	6651	5528	100%	5922	100%	7.1%	-11%	N/A

*Preliminary data

Age

In the last year there was a 4% increase in deaths of children and teenagers (less than 18 years old); the situation deteriorated most for the 18-24 age group (+22% fatalities).

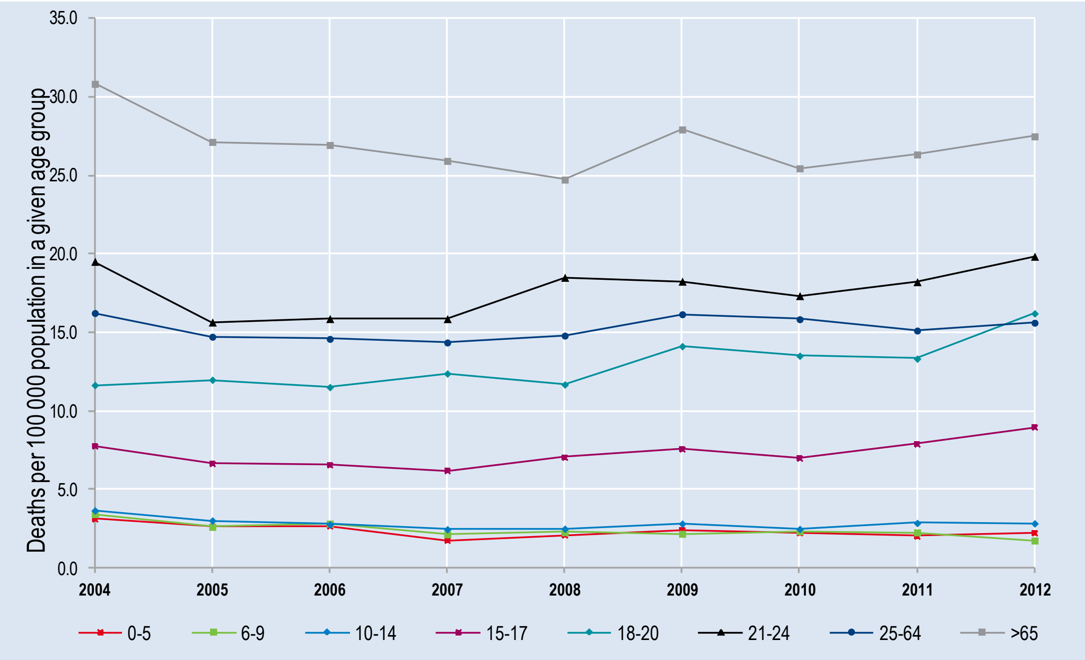
Table 4. **Reported fatalities by age group 1990-2012 (preliminary)**

				2012 % change over		
	2000	**2011**	**2012***	***2011***	***2000***	***1990***
0-5	N/A	106	115	8.5%	N/A	N/A
6-9	N/A	78	60	-23.1%	N/A	N/A
10-14	N/A	126	124	-1.6%	N/A	N/A
15-17	N/A	210	238	13.3%	N/A	N/A
18-20	N/A	346	423	22.3%	N/A	N/A
21-24	N/A	593	656	10.6%	N/A	N/A
25-64	N/A	3238	3410	5.3%	N/A	N/A
>65	N/A	831	896	7.8%	N/A	N/A
Total	6651	5528	5922	7.1%	-11%	N/A

*Preliminary data

The 65+ age group has the highest death rates in road accidents, followed by the 21 to 24 age group.

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 2005-2012 preliminary)

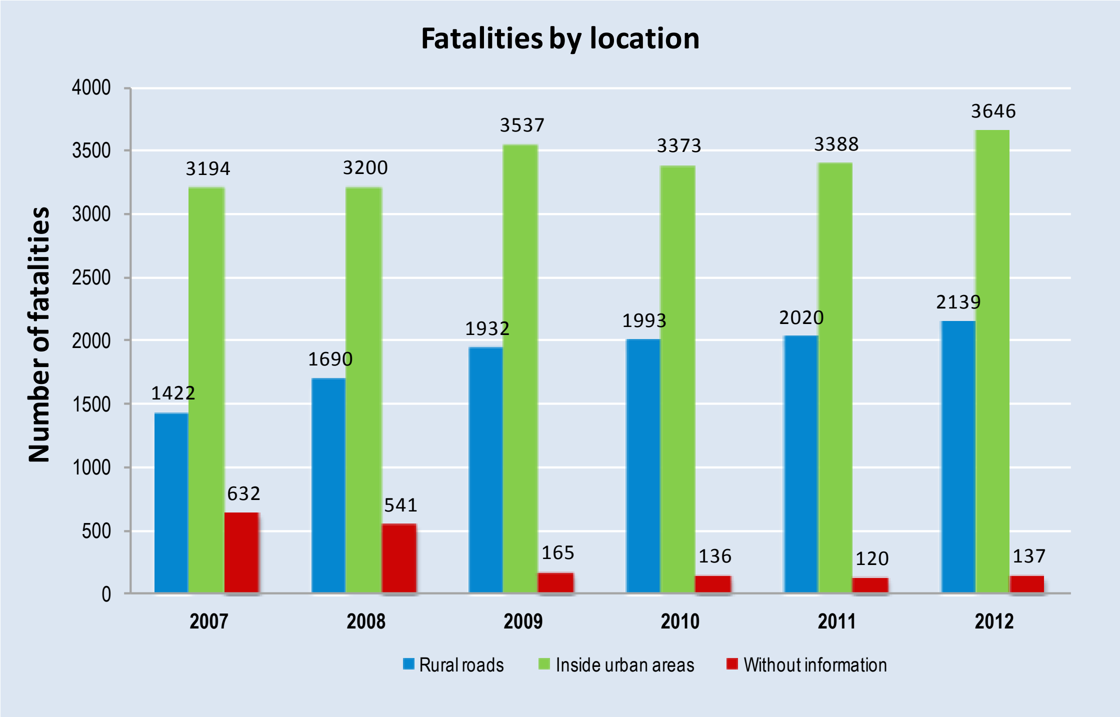


Road Type

Since 2007, the number of fatalities in urban areas has increased by 10%, and by 48% in the rural network.

In Colombia, the road network is divided into urban and rural networks. In 2012, 63% of fatalities occurred on the urban network.

Figure 4. **Reported fatalities by road type 2007-2012 (preliminary)**



4. Recent trends in road user behaviour

Impaired driving

In Colombia, since August 2012, the maximum authorized blood alcohol content is 0.2 g/l.

To date, there is no information available on the prevalence of alcohol use among drivers.

Speed

The paragraphs below summarize the speed limit system in Colombia:

1. **Urban and municipal roads**: A maximum speed of 80 km/h is established, which may be modified by competent traffic authorities. The speed limit for public service, cargo and school transport vehicles is 60 km/h. The speed limit in school and residential areas is 30 km/h.

2. **National and departmental roads**: A maximum speed limit of 120 km/h is established, which may be modified by the competent traffic authorities. The speed limit for public service, cargo and school transportation is 80 km/h.

There is no information on the share of fatal crashes due to excessive or inappropriate speed. In addition, there are no estimates on average speed on urban and rural roads.

Table 5. **Summary of speed limits in 2012**

	General speed limit Passenger cars	Actual speeds	Comments
Urban and municipal roads	80 km/h	N/A	May be modified by competent traffic authorities
Urban and municipal roads	60 km/h	N/A	For public service, cargo and school transport vehicles
Urban and municipal roads	30 km/h	N/A	In school and residential areas
National and departmental roads	120 km/h	N/A	May be modified by competent traffic authorities
National and departmental roads	80 km/h	N/A	For public service, cargo and school transport vehicles

Seatbelts and helmets

Seatbelt usage is compulsory on front seats. While the use of seatbelts in rear seats is not mandatory, it has been mandatory, since 2004, for all automobiles manufactured, assembled or imported in the country to have seatbelts installed in the back seats. This is important, because in the past it was not possible to require their use as most automobiles were not equipped with rear seatbelts.

Helmet wearing is compulsory for motorcycle and moped riders and their passengers throughout Colombia since 1998.

In 2011, CFPV commissioned a study to evaluate the use of seatbelts by car drivers and helmets by motorcycle drivers. The survey was done in 13 cities (5 big cities, 4 medium-sized cities, and 5 small cities). The results, which were not statistically representative of the group of cities, showed that on average, 99.6% of motorcyclists wore a helmet and 59.8% of car drivers wore a seatbelt. It is important to emphasize that the study did not evaluate whether drivers wore seatbelts and helmets correctly, or whether the quality of the helmets used was appropriate.

Distracted driving, use of mobile phone and fatigue

It is illegal to use a hand-held mobile phone or similar device while driving. The penalty is a fine to the amount of four days' legal minimum wage.

Distracted driving is recognized as a major, and potentially growing, problem in the country; however no estimations are available on the prevalence of this behavior.

5. National road safety strategies and targets

Organization of road safety

In Colombia, the main entity responsible for road safety is the Ministry of Transportation. However, the Political Constitution of 1991 establishes the foundations for a decentralization strategy by reallocating power between the central government and the territorial entities. Consequently, the local governments are responsible for strengthening road safety efforts in their jurisdictions. This responsibility acquires even greater relevance considering that high accident rates are primarily an urban phenomenon. Consequently, municipalities are responsible for defining local road safety action plans, for setting out strategies to control and promote compliance with traffic laws, and for adopting a zoning plan that provides for an urban arrangement that is compatible with road safety.

Road safety strategy for 2011-2020

The National Government has adopted the recommendation of the United Nations to develop an action plan for the period 2011-2020 with a target. In February 2012, the Ministry of Transportation issued a Safety Plan harmonized with the strategies of the UN Global Plan for the Decade of Action for Road Safety 2011-2020. This plan is under consultation with public and private stakeholders.

6. Recent safety measures (2011-2012)

Drink-driving

Law 1548 was issued in August 2012. It reduces the acceptable blood alcohol levels for drivers (to 0.2 g/l). Penalties were increased, including, among others, suspension of the driver's licence and fines.

Legislation

There is currently a bill in Congress to create the National Road Safety Agency as a decentralized entity of the national order; part of the executive branch of government reporting to the Ministry of Transportation. The National Road Safety Agency (Agencia Nacional de Seguridad Vial – ANSV) would be the lead agency for road safety policy.

Deliberations in Congress on this bill have not yet commenced.

Infrastructure

In 2012, the "IRAP Project" started. This project will foster road safety evaluation on 11 500 km of roads throughout the country using a 5-star rating system, depending on the type of road user. It will be possible to develop an investment plan according to the road risk found.

Vehicles

In Colombia, a technical-mechanical vehicle check-up is required for vehicles 6+ years old (2 years or more for motorcycles).

Currently, requirements regarding new vehicle safety features are minimal (no safety devices such as airbags and anti-lock brakes are required).

7. Useful websites and references

Recent and ongoing research

Human Behavior

Study of road user behavior and road safety in Colombia. CFPV & Ipsos Napoleón Franco & CIA SAS (2012).

Description of pedestrian behavior in 7 Colombian cities. CFPV & Conecta SAS (2012).

Impact of roadside parking in road accident risk. CFPV & Universidad de los Andes (2012).

Motorcyclists

Colombian motorcyclists description. CFPV & Ciudad Humana (2012)

Economic analysis of motorcycle use in Colombia and consequences in the formulation of road safety policies. CFPV & Econometria (2012).

Estimation of the motorcycle road in Cali: baseline CFPV & CISALVA (2013).

Infrastructure

Basic guidelines for road safety audits in Colombia. CFPV & Oportunidad Estratégica Ltda.

Risk maps on accidents for urban roads. CFPV & Universidad de los Andes (2012).

Safety devices

Motorcycle helmets supply in Colombia. CFPV & CESVI Colombia S.A. (2012).

Useful websites

CFPV	https://www.fpv.org.co/
Vice-Ministry of Transport	https://www.mintransporte.go.co/ https://www.mintransporte.gov.co/publicaciones.php?id=184
Instituto Nacional de Medicina Legal y Ciencias Forenses (National Institute of Legal Medicine and Forensic Sciences)	http://www.medicinalegal.gov.co/ http://www.medicinalegal.gov.co/index.php/estadisticas/forensis

Contact

For more information, please contact: snaranjo@fpv.org.co

Czech Republic

Source: IRTAD, CDV

Capital	Inhabitants	Vehicles/ 1 000 inhabitants	Road fatalities in 2011	Fatalities/ 100 000 inhabitants in 2011
Prague	**10.5 million**	**534**	**773**	**7.3**

1. Comments about road safety data collection

The crash data in the Czech Republic are collected by the traffic police in 86 districts and transferred to the Police headquarters. Data are checked both at district and central levels.

In the past previous decades, the reporting rates were quite good (due to a strict control regime) even for accidents with only material damage in the police database. The lower damage limit for police accident registration was 1 000 CZK till 2000, and was gradually increased to 100 000 CZK till 2009. All injury accidents must be legally registered by the police. Reporting rate for deaths is probably very near to 100%, for injuries it may be slightly lower (depending on the crash type).

There is no special definition of serious injury in the Czech Republic but, in practice, the injury level is determined only through the opinion of the physician at the scene of the crash, or later in the hospital (within 24 hours after accident). At present, the severity value based on MAIS 3+ is not yet in general use, and its future utilisation is yet to be decided.

2. Short term trends

Safety performance in 2011

In 2011, road fatalities decreased by 4%, pursuing the marked downward trend since 2008. Injury crashes increased by 3% after the decreasing trend since 2007.

Provisional data for 2012

Based on provisional data for the year 2012, the positive trend in traffic safety continued, with an estimated 5% reduction in the number of fatalities in comparison with 2011.

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

HGV fleet and traffic increased gradually after 1990 with the new market economic system development. But in the last years (from 2007-2008) a stagnation was observed due to the economic recession. A strong decrease in vehicle–kilometres was observed in 2010.

Change in the number of fatalities and injury crashes

Between 1970 and 2011, the number of fatalities decreased by 61% and the number of injury crashes by around 22%. In the same period, the number of vehicles more than doubled. In recent years (2000-2011) the number of fatalities decreased by 48%.

The number of seriously injured has been reduced in the last years at a similar rate to the number of deaths. In 2010, the reduction in injuries was 20%, followed in 2011 by an increase of 9.5%.

Four periods can be observed:

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

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

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

2004-2011: The positive trend accelerated after 2003. In connection with the implementation of the National Road Safety Strategy, the work of the police was intensified and greater initiatives were carried out to improve the road infrastructure at local level. The most positive results were achieved in 2006, the best since 1990, after the implementation of the penalty point system in

July 2006. Although 2007 was not a very good year, results in 2008, 2009, 2010 and 2011 are again encouraging.

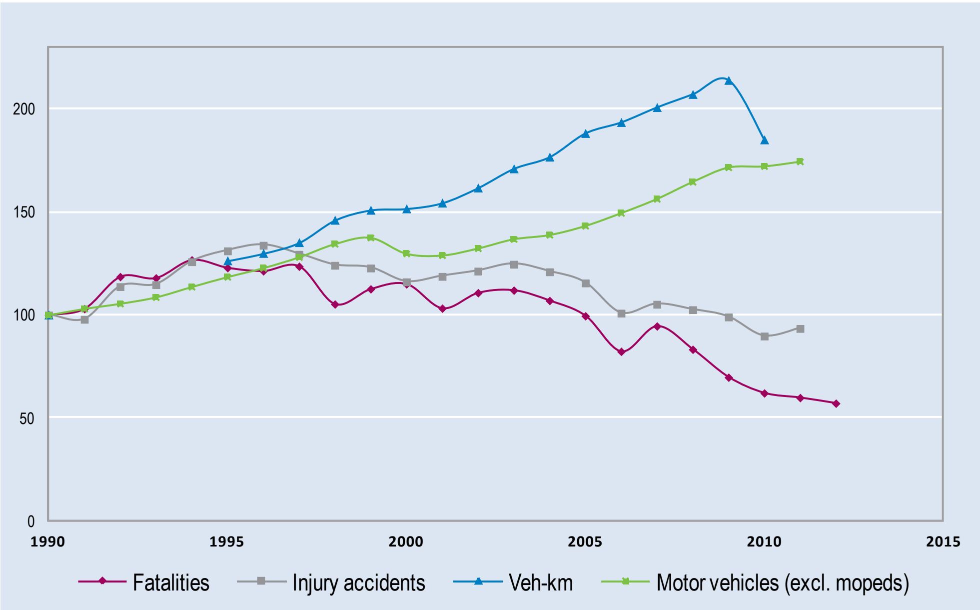
Risk and rates

Between 2000 and 2011, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 49%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
Reported safety data							
Fatalities	1 291	1 486	802	773	-3.6%	-48%	-40%
Injury crashes	21 910	25 445	19 676	20 486	4.1%	-20%	-7%
Deaths/100 000 population	12.5	14.5	7.6	7.3	-3.8%	-49%	-41%
Deaths/10 000 registered vehicles	3.3	3.2	1.3	1.3	-4.5%	-60%	-61%
Deaths/billion vehicle-kms	48.3	36.7	16.2				
Fleet and mobility data							
Vehicles (in 1000, excl. mopeds)	3 219	4 182	5 548	5 621	1.3%	34%	74%
Vehicle- kilometres (in millions)	26 710	40 482	49 434				
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	322	407	528	534	1.1%	31%	66%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2012, Index 100 = 1990**



* There was a big decrease in vehicle-km in 2010. In addition, the figures for previous years were probably overestimated.

Economic costs of traffic crashes

Economic costs caused by accidents are evaluated by the human capital approach. They are composed from direct costs (chiefly medical care, rescue service, police and justice) and indirect costs (lost value of economic productivity due to ill health, disability, or premature mortality, and social expenses).

The value of economic costs of accident for the Czech Republic is published every year. For 2011, the following unit costs were estimated:

- Fatality: CKR 18.6 million (EUR760 000)
- Serious injury: CKR 4.8 million (EUR 200 000)
- Slight injury: CKR 500 000 (EUR 21 000).
- Total economic loss for 2011 (including material damages) is CKR 52 billion (EUR 2.1 billion), i.e. 1.4 % of the Czech GDP.

Table 2. **Costs of road crashes**

Cost (EUR Billion)	2011
Fatalities	0.584
Injury and disability	1.055
Property damage and other costs	0.504
Total	2.1
Total as a % of GDP	1.4%

Road users

All user groups have benefited from important safety improvements since the end of the 1990s.

Between 2000 and 2011, motorcyclist fatalities and moped riders decreased by 28%, while passenger car fatalities decreased by 48% during the same period.

In 2011, there was a marked decrease in the number of cyclists and motorcyclists killed.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		*2010*	*2000*	*1990*
Bicyclists	135	10%	151	10%	80	10%	63	8%	-21.3%	-58.3%	-53.3%
Motorised two-wheelers	113	9%	116	8%	99	12%	84	11%	-15.2%	-27.6%	-25.7%
Passenger car occupants	597	46%	784	53%	403	50%	404	52%	0.2%	-48.5%	-32.3%
Pedestrians	359	28%	362	24%	168	21%	176	23%	4.8%	-51.4%	-51.0%
Others	87	7%	73	5%	52	6%	46	6%	-11.5%	-37.0%	-47.1%
Total	1 291	100%	1 486	100%	802	100%	773	100%	-3.6%	-48.0%	-40.1%

Age

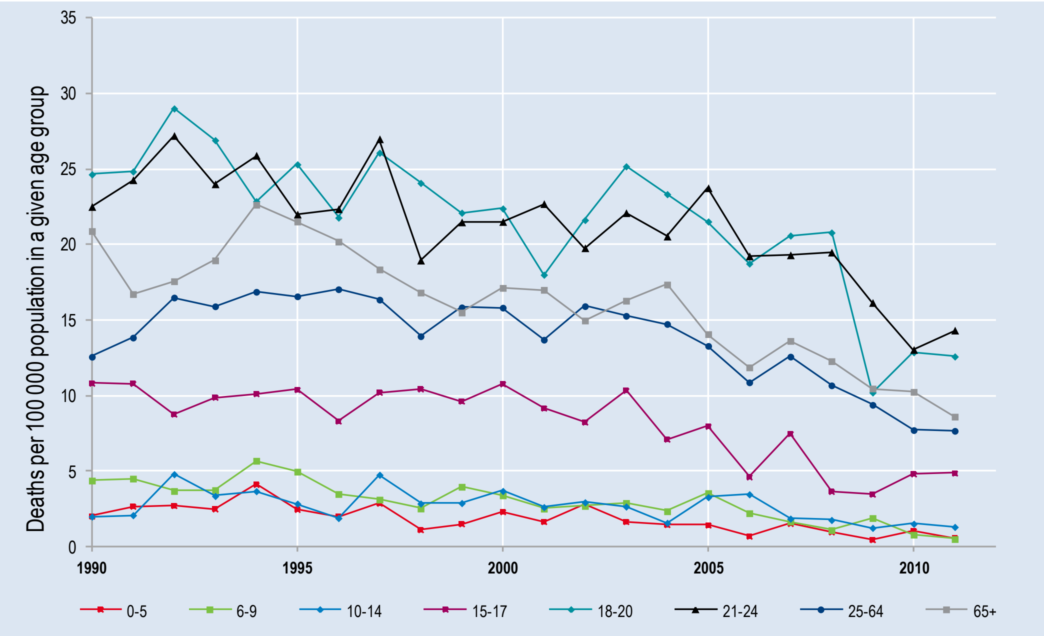
Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned children and young people.

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.

Table 4. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
0-5	16	13	7	4	-42.9%	-69.2%	-75.0%
6-9	25	17	3	2	-33.3%	-88.2%	-92.0%
10-14	18	24	7	6	-14.3%	-75.0%	-66.7%
15-17	57	44	17	16	-5.9%	-63.6%	-71.9%
18-20	107	103	51	49	-3.9%	-52.4%	-54.2%
21-24	123	155	74	80	8.1%	-48.4%	-35.0%
25-64	668	881	471	469	-0.4%	-46.8%	-29.8%
>65	270	243	164	141	-14.5%	-42.0%	-47.8%
Total	1 284	1 480	794	773	-3.6%	-48.0%	-40.1%

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**

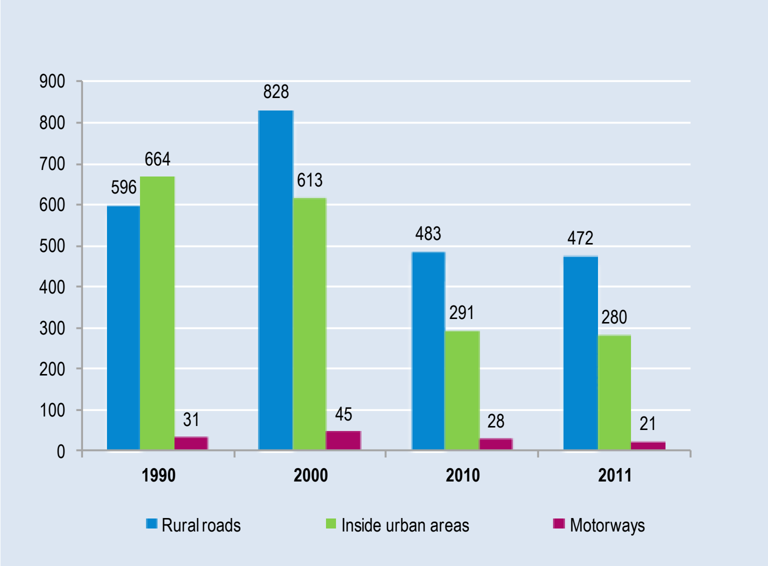


Road Type

Since 1990, the greatest reduction in fatalities occurred on urban roads (-58%), while there has been less improvement on rural roads (-21%).

In 2011, around 61% of fatalities occurred on rural roads, 36% in urban areas and 3% on motorways. The number of fatalities on motorways significantly increased until 2000, due to the enlargement of the motorway network. Improvements on urban roads are related to the introduction of the 50 km/h speed limit, the extension of 30 km/h zones, and the wide introduction of traffic-calming measures.

Figure 3. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

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

In 2011, 11.5% of fatal crashes involved a driver with a positive blood-alcohol content. This share was only 3.4% in 2007.

The share of fatal crashes due to a driver under the influence of drug was estimated at was 1.4% in 2010 and 1.1% in 2011.

Speed

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

The share of injury crashes due to excessive speed was 25% in 1980, 24% in 2000 and 26% in 2011. The share of fatal crashes due to excessive speed was 33% in 1980, 40% in 2000 and 40% in 2011.

Table 5. **Summary of speed limits: 2013**

	General speed limit ***Passenger cars***	**Actual speeds**
Urban roads	50 km/h	no data
Rural roads	90 km/h	no data
Motorways	130 km/h	no data

Seatbelts and helmets

Seatbelt 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.

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

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

Table 6. **Seatbelt wearing rate by car occupants**

	2000	2010	2011
Front seat			
General	63.0	96.0	98.0
Urban roads (driver)	46.0	89.0	99.0
Rural roads (driver)	62.0	97.0	99.0
Motorways (driver)	81.0		
Rear seats			
General	7.0	58%	83%

Distracted driving, use of mobile phone and fatigue

In the Czech Republic, drivers are not allowed to drive while using a hand-held phone or PDA, although hands-free devices are tolerated. In 2011, it was estimated that 2.7% of drivers were using a mobile phone while driving.

5. National road safety strategies and targets

Organisation of road safety

BESIP (Bezpečnost silničního provozu), an independent department of the Ministry of Transport, is the main coordination body for road traffic in the Czech Republic. BESIP is responsible for the National Safety Strategy for 2011-2020. The other key player is the Government Council of the Road Traffic Safety (composed from representatives of parliament, ministries, civil associations, professional organizations and private sector). There are also 14 regional BESIP coordinators on the regional level.

Evaluation of the past road safety programme 2002-2010

The national Strategic Safety Plan 2002-2010 set a target to reduce fatalities by 50%. This fatality target was not reached, although good progress was achieved, especially in the last part of the decade.

The Highway Code was reviewed in 2006, and new measures such as the demerit point system were introduced. The results immediately in 2006 were quite promising, but in 2007 they were not as satisfactory (although the road safety situation in most European countries has also worsened in 2007). The next development, in 2008–2010, was more positive, but the planned target has not been fulfilled. The acquired experiences have been reflected into the new National Strategic Safety Plan (see below), which is targeted more specifically to individual measures and regions with systematic monitoring.

Road safety strategy for 2011-2020

The National Strategic Safety Plan for years 2011-2020, approved by the Government of the Czech Republic in August 2011, has as a target to decrease the fatalities rate to the average rate for Europe, with the following priorities:

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

This new Strategy started in 2012. The revised and actualised version of the preceding Strategy was still in force in 2011.

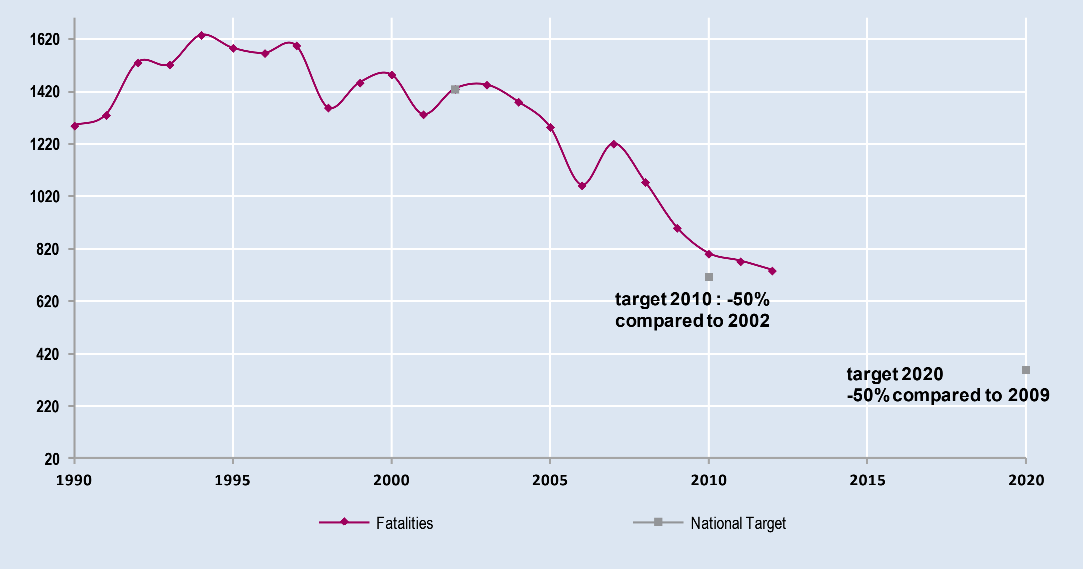
Target setting

The main target is to decrease the fatality rate (deaths/ 100 000 population) to the European average. This corresponds to a 60% reduction in fatalities by 2020 in relation to 2009. The second target is a serious injury reduction by 40%.

Monitoring

The results monitoring is realised yearly by the national Strategy evaluation by BESIP (main road safety managing body) for the Government Council of the Road Traffic Safety (at national as well as regional level).

Figure 4. **Trends towards national target**



6. Recent safety measures (2011-2012) and effectiveness of past measures

Driver education

More safety campaigns oriented to young drivers, schoolchildren and youth.

Vehicle safety

Gradually enhanced technical checks of vehicles.

Infrastructure

Continuous improvement of the road infrastructure (black spots audit, inspection).

Road safety campaigns

Several campaigns were initiated in 2011, including "If you don't think, you will pay", targeting the most dangerous behavioural problems: aggressive driving, drinking and driving, speeding and the non-wearing of seatbelts.

A multimedia project, "The Action", aimed at secondary school students, was continued and extended in 2011.

The Designated Driver Campaign, "Let's agree", targeting young drivers, was successfully continued.

Permanent attention is devoted to children's safety education: the "Safe road to school" programme is widely accepted.

7. Useful websites and references

Useful websites

CDV, Transport Research Centre	www.cdv.cz
Ministry of Transport	www.mdcr.cz
Police of the Czech Republic	www.policie.cz
Road safety observatory	http://www.czrso.cz
Socio-economic costs of accidents	http://www.czrso.cz/kategorie/ztraty-z-dopravni-nehodovosti
In-depth accidents analysis	http://hadn.cdvinfo.cz
Road traffic infrastructure improvement	http://veobez.cdvinfo.cz
Cyclostrategy (cycle transport development)	http://www.cyklostrategie.cz

Contact

For more information, please contact: jan.tecl@cdv.cz

Denmark

Source: IRTAD, Danish Road Directorate

Capital	Inhabitants	Vehicles /1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Copenhagen	**5.5 million**	**522**	**220**	**3.96**

1. Comments about road safety data collection

Traffic crash data are collected by the Police in a common national system. Data are transferred to the Road Directorate every week. These data contain preliminary and final information. Final information about a crash should be sent within 6 weeks following the incident. This, however, is not always the case. In particular, information about alcohol level might delay the process as analyses are expected from laboratories.

In the Danish registration system, there are more than 90 different parameters. Some may be subjective; for example, "speed driven before the crash" is filled by the police officer on the basis of statements by witnesses. More accurate speed information is found in the fatal accident investigation and in-depth investigation.

The severity of injuries is based upon the judgement of the police officer. The hospital may be contacted to obtain additional information, but there is no systematic linkage with hospital data. For the time being, a linking procedure would not be optimal, because the severity codes AIS and MAIS are not included in the Danish hospital registration system. Only diagnose codes are included. Denmark is working on a process to convert diagnose codes into AIS and MAIS.

2. Short term trends

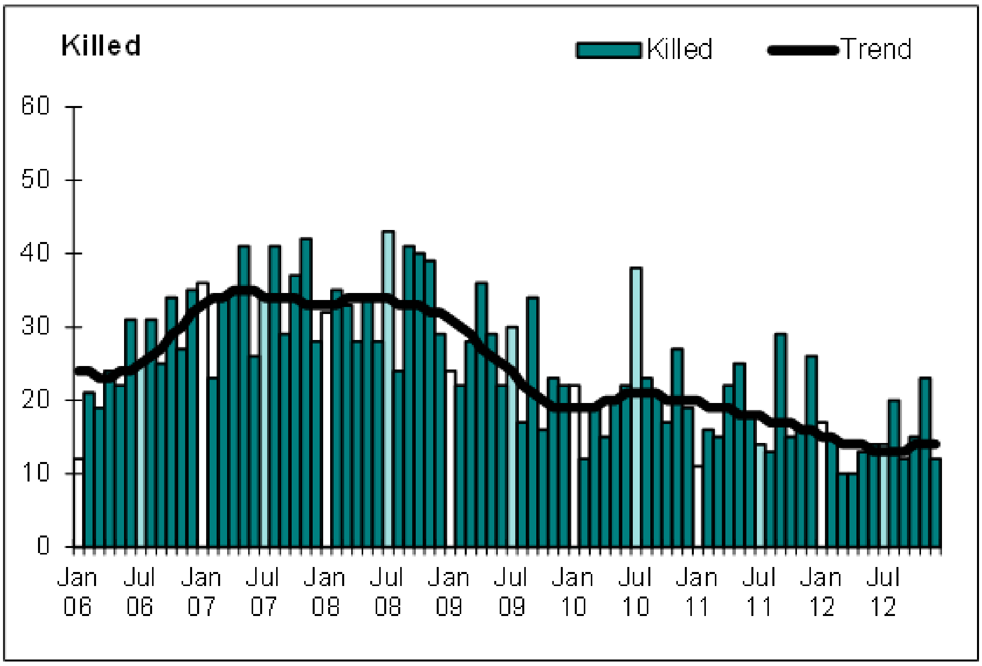
Safety performance in 2011

Data for 2011 shows a continuing downward trend in fatal road crashes, with total number of killed down by 14% compared to 2011. The number of road fatalities (220) was the lowest recorded in Denmark since the beginning of the 1930s. As in the year 2010, the heavy snowfalls in early 2011 might partly explain this decline. Relatively good results were also achieved during the summer of 2011. There is some indication of fewer young people killed, reduced speed, less fatal crashes during the night and less fatal crashes outside urban areas over the summer.

Provisional data for 2012

The provisional figure for 2012 is 175 road deaths, a decrease of 20% compared to the 2011 final figure.

Figure 1. **Road death figures**



3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

Between 1990 and 2011, the number of fatalities decreased by 65%, while the number of vehicles increased by 40% and the distance travelled by 24%.

Change in the number of fatalities and injury crashes

In recent years (2000-2011), the number of fatalities decreased by 56%.

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

Also, a possible change in speed habits may have had some influence. There is some indication that although mean speeds only slightly decreased, the top speeds have reduced more significantly. This may be more to do with saving fuel than saving lives in traffic. Fuel has become expensive.

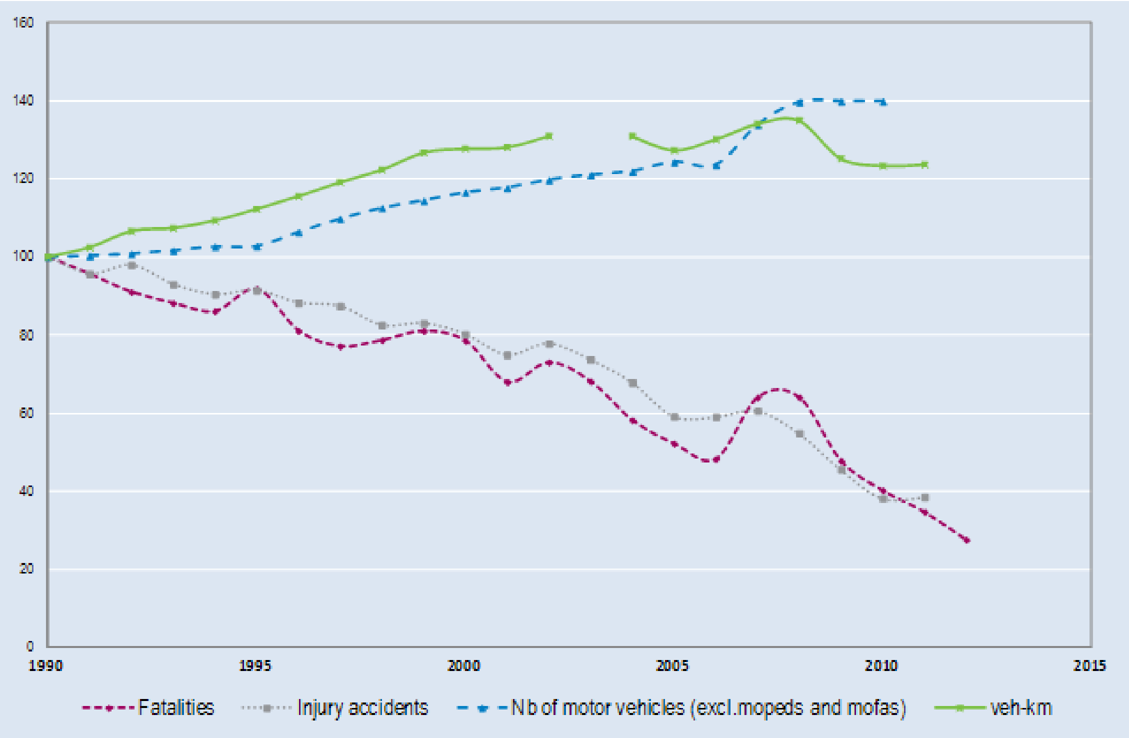
Risk and rates

Since 2000, the mortality rate (expressed in deaths per 100 000 population) and the fatality risk (expressed in deaths per billion v-km) respectively decreased by 58% and 54%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
Reported safety data							
Fatalities	634	498	255	220	-13.7%	-56%	-65%
Injury crashes	9 155	7 346	3 498	3 525	+0.8%	-52%	-61%
Hospitalised	5 347	4 366	2 068	2 094	1%	-52%	-61%
Deaths/100 000 population	12.35	9.34	4.61	3.96	-14.1%	-58%	-68%
Deaths/10 000 registered vehicles	3.1	2.1	0.9	0.8	-11.1%	-62%	-74%
Deaths/billion vehicle-kms	17.32	10.65	5.6	4.9	-12.7%	-54%	-72%
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	2 068	2 409	2 891	2 911	+0.7%	21%	41%
Vehicle- kilometres (in millions)	36 600	46 753	45 153	45 265	0.25%	-3%	24%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	402.7	452	522.3				

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011 (Index 100=1990)**



Economic costs of traffic crashes

Traffic crashes are estimated on the basis of unit costs for deaths, severely injured and slightly injured. These costs include police and rescuing expenses, expenses in the health sector, production loss, material damage and loss of welfare[1].

Traffic crashes represent a very significant cost for society, estimated at around EUR 1.5 billion, i.e. 7‰ of GDP in 2010.

Table 2. **Costs of police recorded road crashes**

Cost (EUR Billion)	2010
Fatalities	0.6
Severely injured	0.8
Slightly injured	0.1
Total	1.5
Total as a ‰ of GDP	7‰

Road users

All user groups have benefited from the important safety improvements introduced since 1990.

Since 2000, the user group benefiting most from safety progress are moped riders, mainly due to the declining popularity of this transport mode. On the other hand, motorcycle riders had the smallest decrease in fatalities (-4%).

Motorcyclists are the user group the most at risk — 44 times higher than for a car occupant (see table 3b).

Table 3a. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		*2010*	*2000*	*1990*
Bicyclists	110	18%	58	12%	26	10%	30	14%	*15%*	*-48%*	*-73%*
Motorised two-wheelers	83	13%	71	14%	33	13%	37	17%	*12%*	*-48%*	*-55%*
Passenger car occupants	284	46%	239	48%	137	54%	110	50%	*-20%*	*-54%*	*-61%*
Pedestrians	118	19%	99	20%	44	17%	33	15%	*-25%*	*-67%*	*-72%*
Others	29	5%	31	6%	15	6%	10	5%	*-33%*	*-68%*	*-66%*
Total	624	100%	498	100%	255	100%	220	100%	-14%	-56%	-65%

1. COWI, 2010: Værdisætning af transportens eksterne omkostninger (in Danish). Transportministeriet. 95 pp.

Table 3b. **Relative risk of fatality or severe injury by road user group 2010**

	Deaths and severe injuries per billion veh-km
Passenger car driver	14
Bicyclists	144
Motorcycles	617
Pedestrians	159

Age

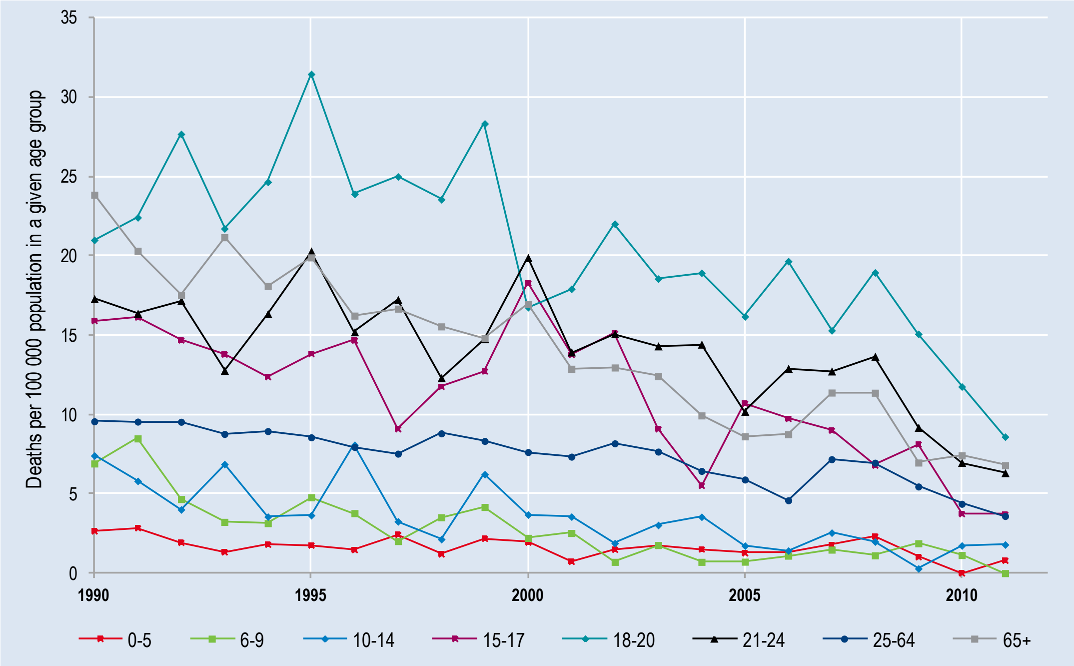
Since 1990, all age groups have shared the reduction in fatalities, but the most impressive decrease concerned the youngest group (0-14), for which fatalities fell by 81%, from 48 in 1990 to 9 in 2011.

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

Table 4. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
0-5	9	8	0	3	-	*-63%*	*-67%*
6-9	15	6	3	0	*-100%*	*-100%*	*-100%*
10-14	24	11	6	6	*0%*	*-45%*	*-75%*
15-17	35	30	8	8	*0%*	*-73%*	*-77%*
18-20	46	30	24	18	*-25%*	*-40%*	*-61%*
21-24	57	55	18	17	*-6%*	*-69%*	*-70%*
25-64	257	224	129	105	*-19%*	*-53%*	*-59%*
>65	191	134	67	63	*-6%*	*-53%*	*-67%*
Total	634	498	255	220	*-14%*	*-56%*	*-65%*

Figure 2. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2011)

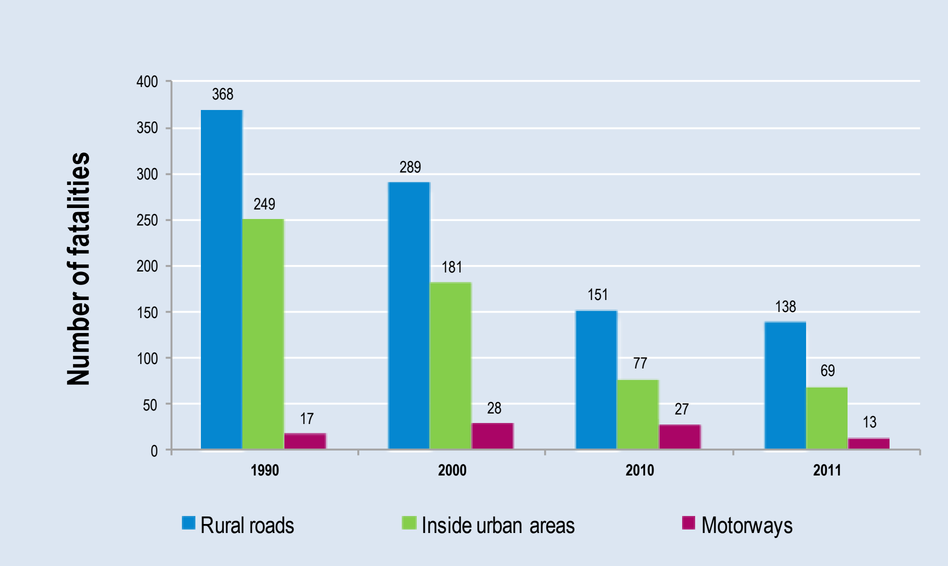


Road Type

In 2011, 63% of fatal crashes occurred on rural roads, 31% in urban areas and 6% on motorways.

Since 2000, the greatest reduction in fatalities occurred on urban roads (-62%), which can be partly explained by a change in traffic patterns. Another explanation is the use of automatic speed controls, which were first introduced in urban areas.

Figure 3. **Reported fatalities by road type 1990, 2000, 2010 and 2011**



4. Recent trends in road user behaviour

Impaired driving

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

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

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

Speed

The table below summarises the main speed limits in Denmark.

Table 5. **Summary of speed limits in Denmark in 2013**

	General speed limit *Passenger cars*	Actual mean speeds [2])
Urban roads	50 km/h	51 km/h
Rural roads	80 km/h	83 km/h
Motorways[1)]	110 km/h or 130 km/h	Copenhagen area : 110 km/h Motorways 110 km/h: 117 km/h Motorways 130 km/h : 120 km/h

1) About half of the motorway network has a signed speed limit of 110 km/h. In the Copenhagen area there are even road parts with 90 km/h or lower.
2) Actual speed concerns information about February 2013

Seatbelts and helmets

Seatbelt

Seatbelt use has been compulsory in front seats since the early 1970s, and in rear seats since the late 1980s. Rear seatbelts 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.

Helmets

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

Table 6. **Seat-belt wearing rate by car occupants**

	2010
Front seat	
General	92%
Urban roads (driver)	90%
Rural roads (driver)	95%
Motorways (driver)	95%
Rear Seats	76%

Distracted driving, use of mobile phone and fatigue

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

Distraction is becoming a big issue in explaining circumstances following accidents. Our fatal accident investigation and in-depth investigation has shown that distraction is often an issue — both inside and outside the vehicle. Therefore external distraction has become a special issue in the next Danish Traffic Action Plan.

5. National road safety strategies and targets

Organisation of road safety

In Denmark, the Traffic Safety Commission defines targets and areas for interaction. This is at an advisory level. They do not manage a budget, therefore it is for the single stakeholder to take up the recommendations.

There is no leading agency as such concerning traffic safety in Denmark. The responsibility is in four different Ministries, associated agencies and in the municipalities. Overall, this organisation works well because stakeholders share the same goal and work in close co-oeration with each other. The Traffic Safety Commission works closely with the Danish Road Safety Council on road safety campaigns.

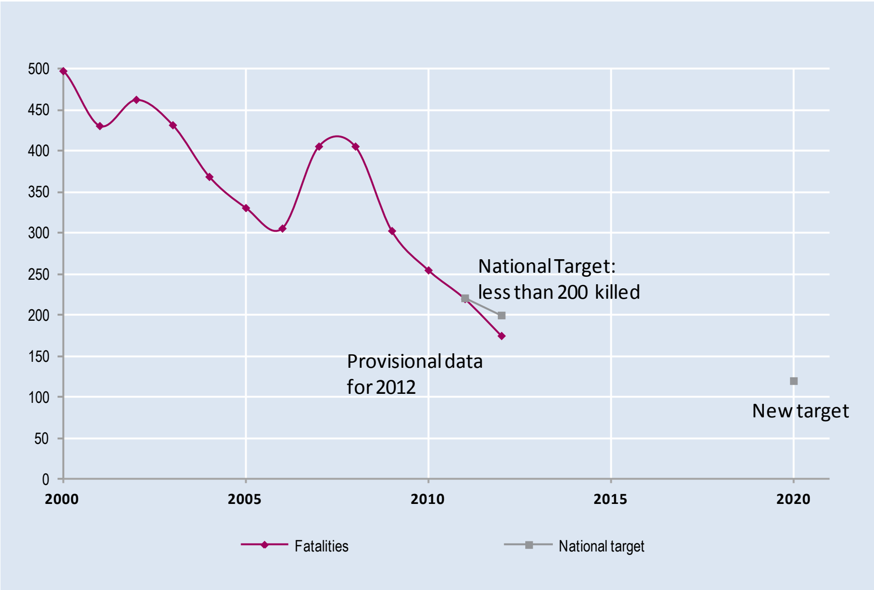
Traffic safety work in Denmark is very locally based.

Evaluation of the past road safety programme

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.

As fatalities in 2006 were very close to the target for 2012 (300), the Traffic Safety Commission revised the target in 2007 to 200 fatalities by 2012. Based on preliminary figures for 2012, the target was reached by the end of 2012 with 175 killed.

Figure 4. **Trends towards national target**



Road safety strategy for 2011-2020

In May 2013, the new Traffic Safety Action Plan will be launched. Basically, it follows the EU recommendation to reduce by 50% the number of fatalities by 2020 in comparison with 2011. This means that there should be no more than 120 killed by end of 2020. The same reduction has been adopted for serious and slightly injured.

In the Action Plan, in addition to the general targets, several specific activities to fulfil the targets are described. 10 main issues are mentioned and, for each issue, benefits/costs of intervention has been assessed where possible. Some activities are related to getting better knowledge which, indirectly, will influence the numbers of accidents (but in the actions taken afterwards). Better knowledge will, hopefully, lead to fewer accidents.

It is intended to follow the development of accidents and injuries within the main group aforementioned where possible. The follow up will be mainly yearly.

6. Useful websites and references

Useful websites

Danish Road Directorate	www.vejdirektoratet.dk
Technical University of Denmark	www.transport.dtu.dk
National statistics	Annual accident information is available in English on the Danish Road Directorate website: http://vejdirektoratet.dk/DA/viden_og_data/statistik/ulykkestal/%c3%85rsstatistik/Sider/Interaktiv-%c3%85rsstatistik.aspx Information is also available in English on Statistics Denmark's website looking at Traffic accidents: http://www.statistikbanken.dk/statbank5a/SelectTable/omrade0.asp?SubjectCode=05&PLanguage=1&ShowNews=OFF

Contact

For more information, please contact: Stig R. Hemdorff, Danish Road Directorate, Traffic Safety Department: srh@vd.dk

Finland

Source: IRTAD, Finnish Transport Safety Agency

Capital	Inhabitants	Vehicles/ 1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Helsinki	**5.3 million**	**696**	**292**	**5.4**

1. Comments about road safety data collection

Data on traffic accidents in Finland are collected through two different channels: those reported to the police and those reported to insurance companies.

Statistics Finland receives data on road traffic crashes from the police. They are entered into the PATJA information system of police affairs. Local police districts transfer the data to a central register, from which new data are processed and transferred to Statistics Finland three times a month. The data for each month are further updated three months after the end of the month concerned. The data for a given month become available to Statistics Finland at the beginning of the following month. Statistics Finland checks them, makes further inquiries to the police districts and supplements the data, where necessary, with data from other registers.

Statistics Finland supplements its annual data with data on deaths from statistics on causes of death. The data are also supplemented with information on accident locations from the Finnish Transport Agency's Digiroad information system, data from the Rescue Services' PRONTO statistics on resources and accidents, data on coercive measures from Justice Statistics, and with data on fatal drunk-driving accidents from the Road Accident Investigation Teams. The data on road traffic accidents are also supplemented annually with the Finnish Transport Safety Agency's data on driving licences and motor vehicles.

The coverage of the statistics on fatal accidents is 100%. The reporting is controlled using death certificates. Due to the comprehensive coverage and severity, the number of traffic fatalities is a more reliable indicator of the trend in road safety than the figure for accidents. The coverage of the accidents having caused personal injuries is around 20%. There are differences in the reporting of different types of accidents. The coverage is worst for cyclists injured in single accidents. These deficiencies are mainly due to the fact that many of these accidents are not reported to the police because, in a number of cases, the injuries are slight and compensations are settled between the parties involved. The majority of the missing accidents that have caused injuries are minor, since the Road Traffic Act obliges reporting to the police only those incidents where someone is seriously injured. The data can be considered quite reliable. Deficiencies in the information mainly concern data that cannot be later verified.

Suicides and presumed suicides are not removed from the statistics.

In addition to these statistics, another set of statistics on road accidents is published in Finland. The Traffic Safety Committee of Insurance Companies (VALT) compiles statistics on accidents for which compensation has been paid from traffic insurance. The data are primarily based on information reported by insured policyholders. In the case of damage-only accidents the VALT statistics are the most useful, as they include many of the minor accidents the parties involved settle between themselves and report to the insurance company but not to the police. The Road Accident Investigation Teams investigate all fatal road traffic accidents in Finland. The findings of the teams are assembled into annually published reports, and the data are also used for special studies.

Hospitals and health centres also compile statistics on cases of traffic accidents, but the data collected are mainly intended for health care services and cannot properly be used for traffic safety purposes. However, these data can be used as supplementary material, as they contain information excluded from other statistics, such as injuries caused in pedestrian and bicycle traffic.

Data on serious injuries are not collected into the official statistics at the moment. Unofficial numbers are, however, followed up from the rescue services PRONTO-database. The evaluation of the type of injury is in this case made by the rescue officials on the accident spot, based on the rescue services internal guidelines.

Finland is working actively on how to implement the European strategy on serious injuries using the MAIS 3+ definition.

2. Short term trends

Safety performance in 2011

Road deaths in Finland increased by 7% in 2011 compared with 2010. This was preceded by several years when there was a decreasing trend in the number of deaths.

Provisional data for 2012

The provisional figure for 2012 is 255 road deaths, a decrease of 38 fatalities (-13%) compared to the 2011 final figure.

3. Long terms trends in mobility and safety (1990-2011)

Fleet and mobility

Since 2000, total vehicle travel increased by 17% — a moderate evolution in comparison to other countries — but the vehicle fleet increased by 50%.

Change in the number of fatalities and injury crashes

Between 1990 and 2011, the number of fatalities decreased by 55%. In recent years (2000-2011), fatalities decreased by 26%, while the number of vehicles increased by 50%.

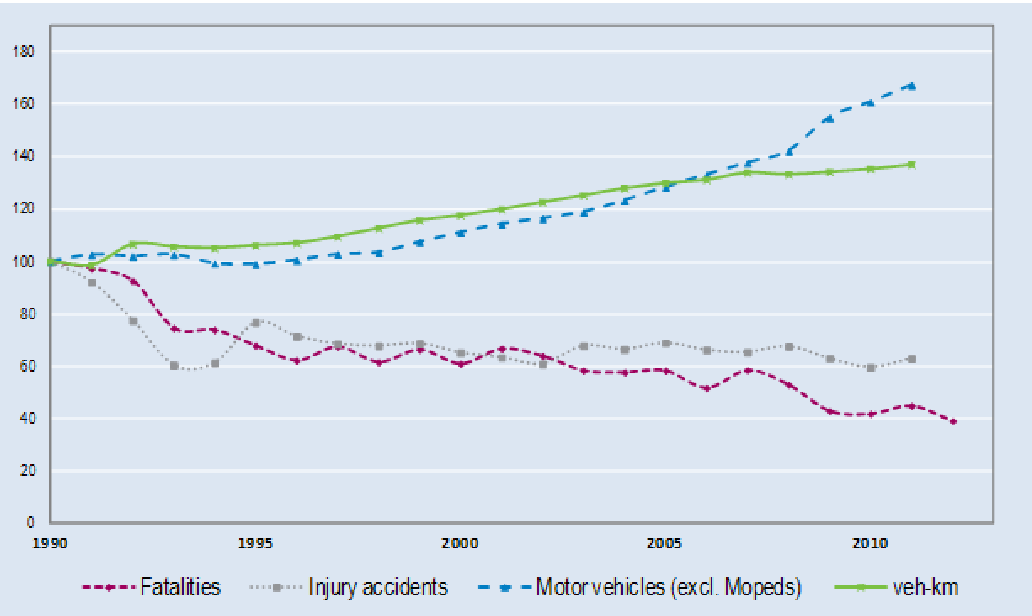
Risk and rates

Between 1990 and 2011, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by almost 30% and fatality risk (in terms of deaths per billion vehicle-kilometres) declined by 37%%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
Reported safety data							
Fatalities	649	396	272	292	7.4%	-26%	-55%
Injury crashes	10 175	6 633	6 072	6 408	5.5%	-3%	-37%
Deaths/100 000 population	13.1	7.6	5.1	5.4	6.9%	-29%	-58%
Deaths/10 000 registered vehicles	2.8	1.5	0.7	0.7	2.8%	-52%	-74%
Deaths/billion vehicle-kms	16.3	8.5	5.1	5.4	6.1%	-37%	-67%
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	2 235	2 483	3 595	3 741	4.1%	51%	67%
Vehicle- kilometres (in millions)	39 750	46 710	53 815	54 460	1.2%	17%	37%
Motorisation (number of motorised vehicles exc.l mopeds/1 000 inhabitants)	450	476	670	696	3.7%	46%	55%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2012* (Index 100 = 1990)**



* provisional data for 2012

Road users

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

However, the number of motorcyclists killed has doubled since 2000, and just in 2011 increased by 50%

Table 2. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		*2010*	*2000*	*1990*
Bicyclists	101	16%	53	13%	26	10%	19	7%	-27%	-64%	-81%
Motorised two wheelers	55	8%	19	4%	25	9%	38	12%	52%	100%	-31%
Passenger car occupants	343	53%	224	57%	159	58%	172	59%	8%	-23%	-50%
Pedestrians	105	16%	62	16%	35	13%	41	14%	17%	-34%	-61%
Others	45	7%	38	10%	27	10%	22	8%	-19%	-42%	-51%
Total	**649**	**100%**	**396**	**100%**	**272**	**100%**	**292**	**100%**	**7%**	**-26%**	**-55%**

Age

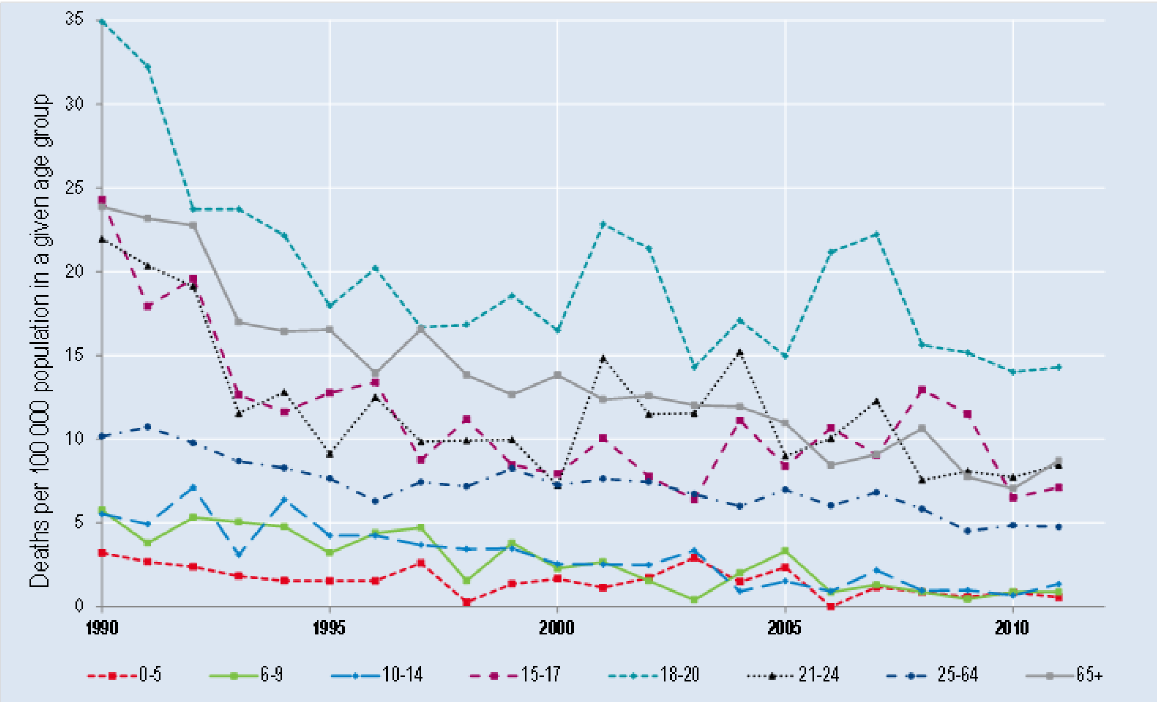
Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned the youngest groups (0-14), for which fatalities decreased by more than 80%, from 45 in 1990 to 8 in 2011.

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

Table 3. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	2000	2010	2011	2010	2000	1990
0-5	12	6	3	2	-33.3%	-66.6%	-83.3%
6-9	15	6	2	2	0%	-66.6%	-86.6%
10-14	18	8	2	4	100%	-50%	-77.7%
15-17	43	16	13	14	7.6%	12.5%	-67.4%
18-20	66	32	28	29	3.57%	-9.3%	-56%
21-24	63	19	20	22	10%	15.7%	-65%
25-64	274	203	140	137	-2.1%	-32.5%	-50%
>65	158	106	64	82	28.1%	-22.6%	-48%
Total	649	396	272	292	7.3%	-26.2%	-55%

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**

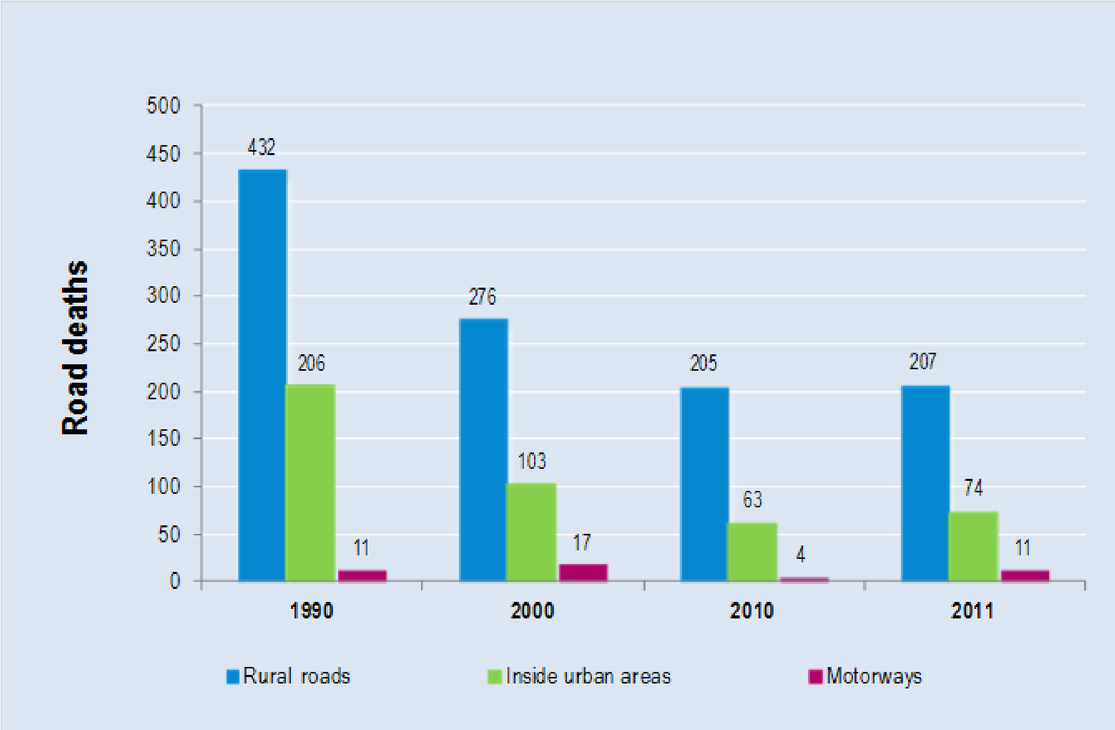


Road Type

In 2011, 71% of fatal crashes occurred on rural roads, 25% in urban areas and 4% on motorways. Since 1990, the reduction in fatalities has been greater on urban roads.

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

Figure 3. **Reported fatalities by road type**
1990, 2000 and 2011



4. Recent trends in road user behaviour

Impaired driving

The maximum authorised BAC is 0.5 g/l for all drivers. In 2012, it was estimated that 16% of fatal crashes involved a driver with a BAC above the 0.5 g/l limit (this share was 24% in 2009, 22% in 2010 and 2011).

The percentage of drivers under the influence of alcohol in traffic has decreased, since peaking at 1.02% in 1999, and has since steadily decreased. In 2012, 0.11% of drivers had a BAC above the legal limit.

Speed

While a high proportion of drivers exceed the speed limit, the percentage of drivers speeding 10 km/h above the limit is relatively small: in 2003, it was 17% on 80 km/h rural roads and 6% on 100 km/h rural roads. In 2012, 10% of drivers exceeded the speed limits in summer time and 12% in wintertime.

Speed cameras, implemented during the past decade, covered around 3 000 km of the main roads in 2010. In 2011, the first sites were equipped with a section control (to measure average speed).

The table below summarises the main speed limits in Finland.

Table 4. **Summary of speed limits in 2013**

	General speed limit Passenger cars	Actual speeds	Comments
Urban roads	50 km/h	n.a.	
Rural roads	80 km/h	82.1 km/h	Light and heavy vehicles, summer 2012
Motorways	120 km/h (summer) 100 km/h (winter)	113.6 km/h	Light vehicles, summer 2012

Seatbelts and helmets

Seatbelt use is compulsory for front seats since 1975 and for rear seats since 1987. There is a significant increase in seatbelt use by car drivers since 1980. For many years, the seatbelt wearing rate on rural roads has been 90% or higher, whereas the rate on urban roads approaches 90%.

Table 5. **Seatbelt wearing rate by car occupants**

	1980	*1990*	*2000*	*2010*	*2011*
Front seat					
General				82%	91%
Urban roads (driver)	22%		80%	91%	87%
Rural roads (driver)			89%	94%	95%
Rear seats					
General				84%	87%

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, and reached 37% in 2011. 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.

Table 6. **Helmet wearing rate by cyclists**

	2005	*2009*	*2010*	*2011*
Helmet wearing	29%	32%	33%	37%

Distracted driving, use of mobile phone and fatigue

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

5. National road safety strategies and targets

Organisation of road safety in Finland

The Ministry of Transport and Communications is responsible for drafting legislation concerning road safety. The national road safety programme is drafted and monitored by the Consultative Committee on road safety with representatives from ministries and expert organisations. The key players in the field of road safety within the Ministry's administrative branch are the Finnish Transport Agency, the Finnish Transport Safety Agency and Liikenneturva (the central organisation for Finnish traffic safety work).

The Finnish Transport Agency is responsible for road design, construction and maintenance, and for road and traffic signs. The responsibilities of the Finnish Transport Safety Agency include vehicle registration, supervision of driving schools and driving licence operations, and organisation of matters related to vehicle inspection. The agency's responsibilities also include campaigning for road and traffic safety.

Liikenneturva campaigns for road and traffic safety, disseminates information, contributes to road safety education for various age groups and provides further training for drivers.

Evaluation of the past road safety programme

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

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

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

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

Road safety strategy for 2011-2020

A new National Road Safety Strategy was published on 17 Feb 2012.[1]

Targets

The strategies set the following targets:

1. Less than 219 fatalities (or 40 fatalities per million inhabitants) by 2014.
2. Less than 137 fatalities (or 24 fatalities per million inhabitants) by 2020.
3. Less than 5 750 injuries by 2020.
4. Long term target: less than 100 fatalities by 2025.

1. Available in Finnish at: http://www.lvm.fi/c/document_library/get_file?folderId=1986563&name=DLFE-14137.pdf&title=OS0112_Liikenneturvallisuussuunnitelma_moniste

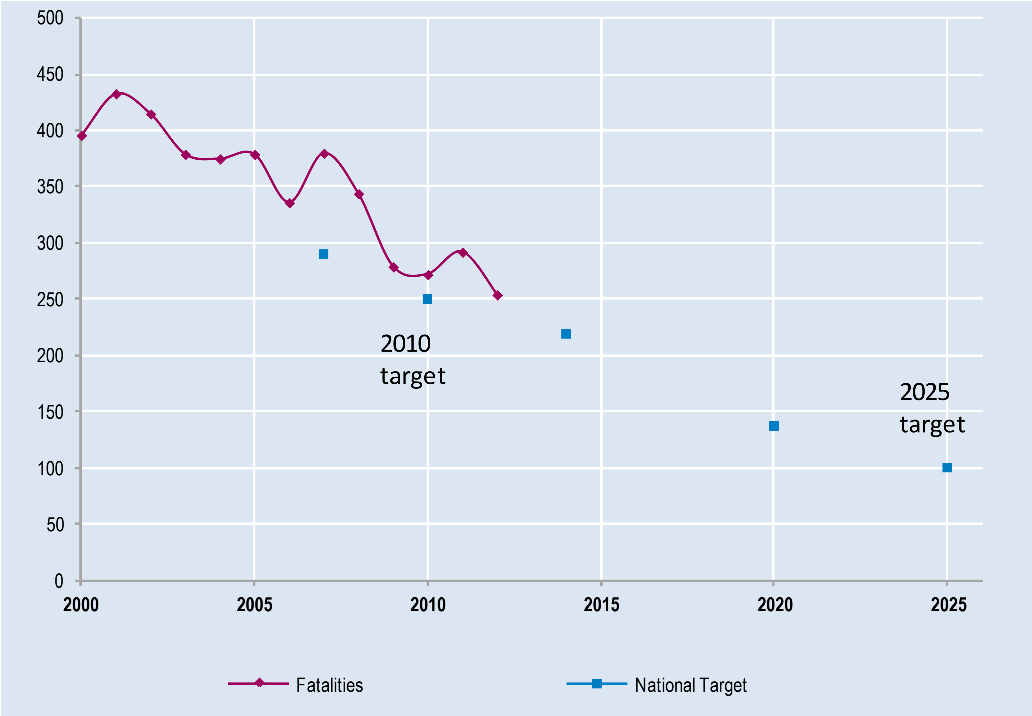
Target setting

The target for 2020 is defined based on the EU Commission safety programme target.

Monitoring

The development of safety performance indicators for the complete transport system was completed in 2012 by the Finnish Transport Safety Agency. For road traffic there are about twenty core indicators. These indicators concern, among other things, number of fatalities and injuries, driving speed at the main roads, proportion of drink-drivers in traffic, median age of the vehicle fleet and utilization rate of different safety devices.

Figure 4. **Trends towards national target**



6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

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

Impaired driving

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

Driver education

- The new law on driving licenses came into force on 19 January 2013, stating some changes in drivers' licenses and education.
- The light four-wheel vehicle (moped car) and the moped licenses were also modified on 19 January 2013: an ordinary moped license is no longer sufficient to operate a light four-wheel vehicle.
- The licence for mopeds changed on 1 June 2011. Education is mandatory and the theory exam is complemented with a driving test.

Road safety campaigns

- A large campaign on getting people involved and interested in improving road safety is ongoing (www.elakoon.fi)
- Liikenneturva launched a campaign on pedestrian crossings in 2012, inspired by Angry birds

7. Useful websites and references

Recent and on-going research

- Long-term research and development programme for road safety (LINTU)
- LINTU was a long-term (2002-2012) research and development programme for road safety financed by the Ministry of Transport and Communications, Finnish Transport Agency and Finnish Transport Safety Agency.
- The programme was based on a road safety vision adopted by the Government: "The road transport system must be designed so that nobody should die or be seriously injured on the roads". More information at: http://www.lintu.info/english.htm
- As research-based information for decision-making is still required, a new long-term research programme will start in 2013.
- TransEco: The TransEco research programme (2009-2013) develops, demonstrates and commercialises technology for improved energy efficiency and reduced emissions in road transport. The programme, which was initiated by VTT Technical Research Centre of Finland, serves as a framework for integrated evaluation and development of new technology and policies for the road transport sector. The programme will continue in the coming years. http://www.transeco.fi/en/transeco
- Alcohol interlocks: Effectiveness and impact of alcohol interlock-controlled driving rights (Trafi Publications 06-2013): http://www.trafi.fi/filebank/a/1364296057/07ec5f80fc5103a8c0f05b84e2ff89ab/11854-Trafi_Publications_6-2013.pdf

Useful websites

Finnish Transport Safety Agency TraFi	www.trafi.fi
Ministry of Transport and Communications	http://www.lvm.fi/web/en/home
Road Safety Plan 2006-2010	http://www.lvm.fi/web/en/21
Finnish Transport Agency	http://portal.liikennevirasto.fi/sivu/www/e
Liikenneturva (Central Organisation of Road Safety)	http://www.liikenneturva.fi/www/en/index.php

Contact

For more information, please contact: Anders.Granfelt@trafi.fi

France

Source: IRTAD, ONISR

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Paris	**65 million**	**662**	**3 963**	**6.09**

1. Comments about road safety data collection

All road traffic accidents (RTA) leading to injury is recorded by the police using a dedicated template (BAAC). These files are then gathered centrally into a Web-based software and constitute the National RTA file. This process is managed by the National Interministerial Road Safety Observatory and its network of local Observatories that complement the information as necessary. French official road safety information comes from the National RTA file.

Monitoring on the quality of data is ensured partially by comparing information gathered from hospitals in the Rhone county. Information on the number of killed is thought to be very accurate. Serious injury accidents (in terms of MAIS3+ or equivalent) are usually recorded as well. However there are some variations across the country about the way slight injury accidents are recorded or not.

2. Short term trends

General comments and trends for 2011

Compared to 2010, there was near stagnation in the number of fatalities, with a 0.7% decrease. The year 2011 was marked by a strong deterioration in the first semester, and a significant reduction on all safety indicators in the second semester.

Provisional data for 2012

Provisional data for 2012 show a 8% decrease in the number of fatalities compared to 2011.

3. Long term trends (1990-2011)

Fleet and mobility

In 2011, the motorised vehicle fleet and the distance travelled increased by 0.8%. The trend is quite different for the various vehicle types: there was an important increase (+3.4%) for light duty vehicles. Following a decrease in 2010, heavy traffic increased by 2.8%. Passenger car traffic observed a very moderate increase (+0.2%), while motorised two-wheeler traffic was stable.

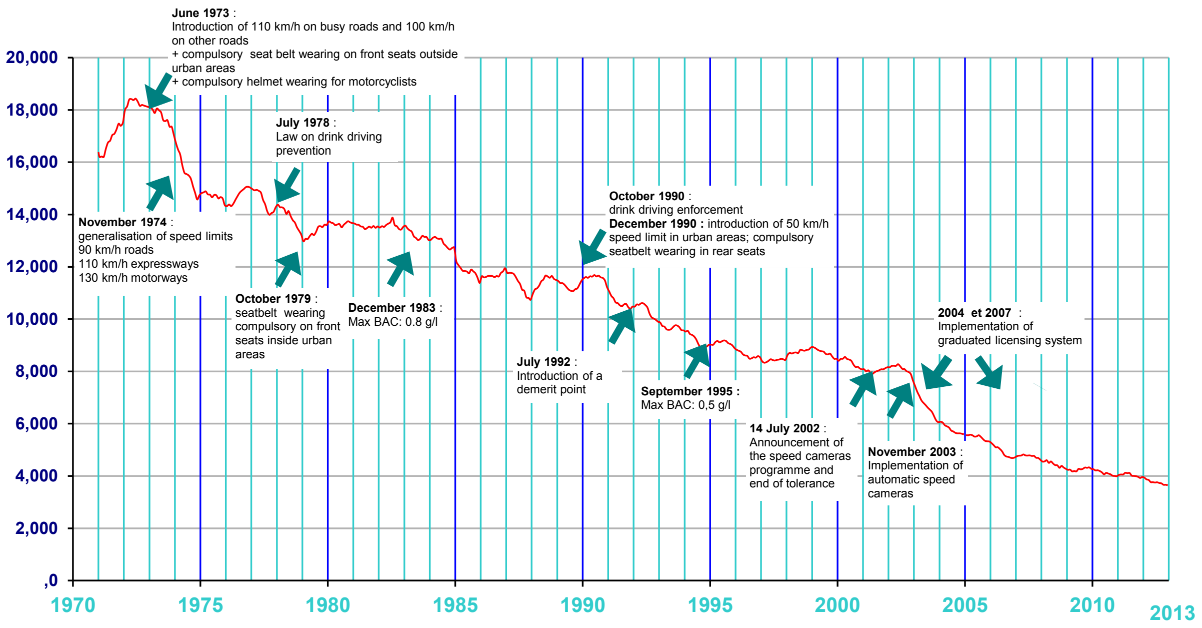
Change in the number of fatalities and injury crashes

Since 1990, the number of road fatalities decreased by 64%.

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 seatbelt use, the strengthening of the demerit point system, etc.

In 2011, France reached its lowest fatality level since crash data records began.

Figure 1. **Road safety 1970 2011**
mortality and main safety measures



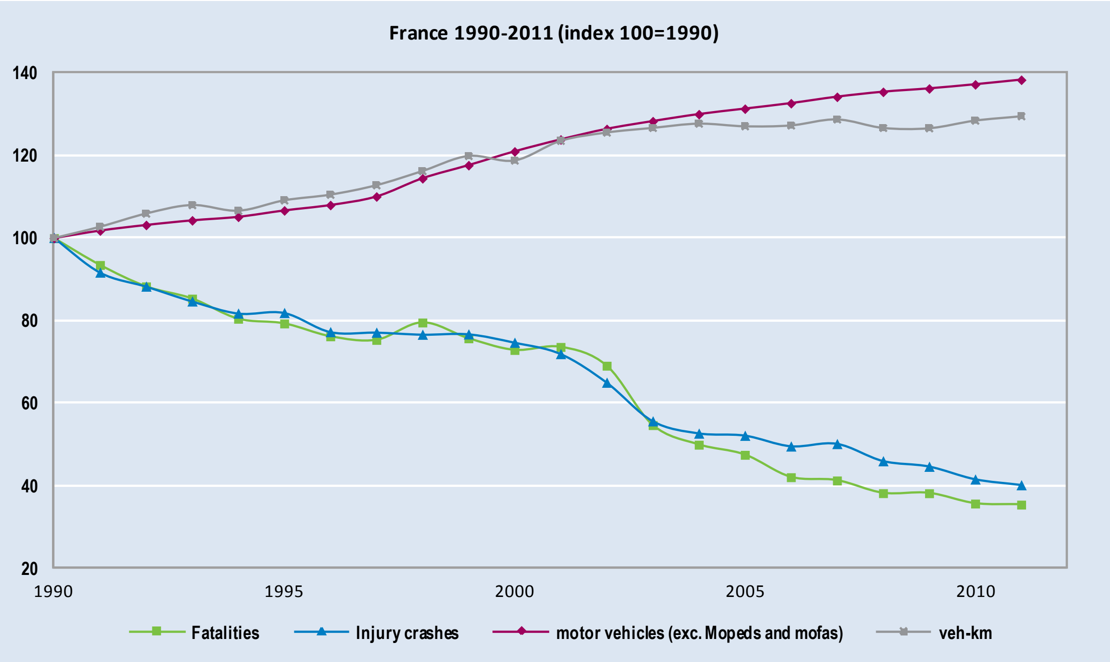
Risk and rates

In 2011, the fatality rate expressed in terms of deaths per 100 000 population was 6.1 and the fatality risks, expressed in terms of deaths per billion veh-km, was 7.0; respectively a 69% and 73% reduction compared to 1990 levels.

Table 1. **Safety and mobility data 1990-2011**

	1990	2000	2010	2011	2011% change over 2010	2000	1990
Reported safety data							
Fatalities	10 999	8 170	3 992	3 963	-0.7%	-51%	-65%
Injury crashes	162 573	121 223	67 288	65 024	-3.4%	-46%	-60%
Deaths/100 000 population	19.82	13.73	6.36	6.09	-4.2%	-56%	-69%
Deaths/10 000 registered vehicles	3.85	2.26	0.99				
Deaths/billion vehicle-kms	25.72	15.59	7.12	7.01	-1.5%	-55%	-73%
Fleet and mobility data							
Vehicles (exc. mopeds) (in thousands)	28 454	34 432	39 060	39 379	0.8%	14%	38%
Vehicle- kilometres (in million)	436 000	518 200	560 400	565 000	0.8%	9%	30%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	514.2	607.1		662			

Figure 2. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011**



Economic costs of traffic crashes

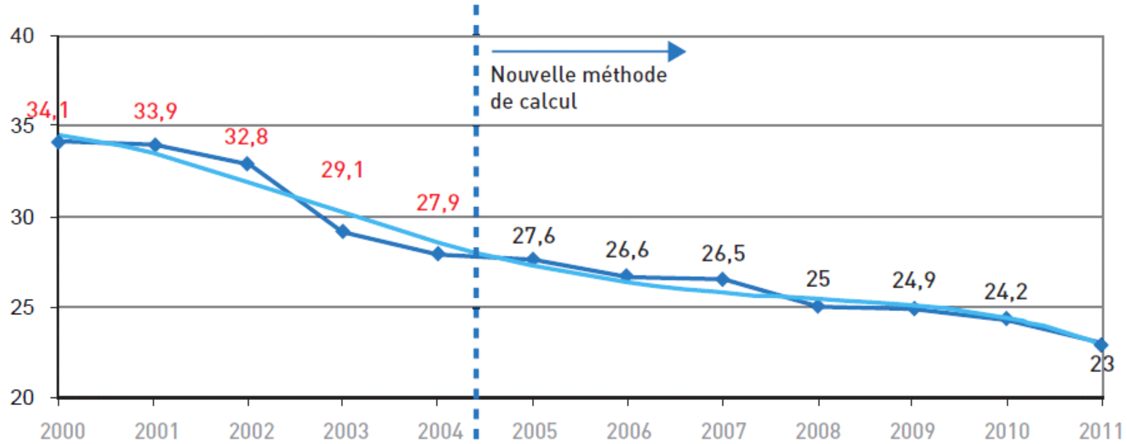
Traffic crashes represent a very significant cost for society, estimated in 2011 around EUR 23 billion, i.e. 1.3% of GDP. These costs have been steadily decreasing since 2005, due to the continuous improvement in safety levels

Since 2003, the National Interministerial Road Safety Observatory uses the same methodology to estimate the economic costs for traffic crashes (based on work by the Commissariat général au Plan), indexed on reference values and updated each year.

Table 2. **Costs of road crashes in France**

Cost (EUR Billion)	2005	2011	% change
Fatalities - Unit cost: EUR 1 264 448		5.01	
Hospitalised - Unit cost: EUR 132 367		3.93	
Slight injury - Unit cost: EUR 5 295		0.27	
Property damage of injury crashes - Unit cost: 6 783		0.44	
Property damage of non injury crashes		10	
Cost of road crashes	25.1	23	-8.4%
Total as a % of GDP		1.3%	

Figure 3. **Evolution in road crash costs (based on constant value 2011)**



Source: ONISR

Road users

The moderate decrease in fatalities in 2011 had very different patterns for the various road users. Fatalities decreased for cyclists, moped riders and car occupants, but increased quite substantially for pedestrians (+7%) and motorcyclists (+8%). It should however be noted that the number of motorcyclists killed significantly decreased, from 888 deaths to 704, between 2009 and 2010.

Since 2000, there has been an important decrease in road mortality for all road users, but motorcyclists saw a more moderate decrease. In 2011, motorised two-wheelers (mopeds , motorcycles and scooters) represented 25% of all road deaths, but only 2.5% of the traffic.

Table 3. **Reported fatalities by road user group 1990-2011**

	1990		2000		2010		2011		2011% change over		
									2010	*2000*	*1990*
Bicyclists	437	4%	273	3%	147	4%	141	4%	-4%	-48%	-68%
Mopeds	716	6%	461	6%	248	6%	220	6%	-11%	-52%	-69%
Motorcycles and scooters	1 031	9%	947	12%	704	18%	760	19%	8.0%	-20%	-26%
Passenger car occupants	6 862	61%	5 351	65%	2 117	53%	2 062	52%	-2.6%	-61%	-70%
Pedestrians	1 534	14%	848	10%	485	12%	519	13%	7%	-39%	-66%
Others	635	6%	290	4%	291	7%	261	7%	-10%	-10%	-59%
Total	**11 215**	**100%**	**8 170**	**100%**	**3 992**	**100%**	**3 963**	**100%**	**-0.7%**	**-51%**	**-65%**

The relative risk of being killed in a traffic crash varies greatly among road users. Motorised two-wheelers continue to be the group most at risk. In 2010, they represented around 2.5% of motorised traffic but 25% of fatalities. The risk of being killed is 14 times higher for motorcyclists than for car occupants.

Table 4. **Relative fatality risk by road user group 2011**

	Reported fatalities	Billion veh-km	Deaths per billion veh-km
Passenger car	2 062	420.1	4.9
Mopeds	220	3.4	64.7
Motorcycles	760	10.5	72.4
Heavy vehicles	67	29.2	2.3
Public transport	0	3.5	0

Age

Since 1990, all age groups benefited from the improvement of safety levels, with the greatest reduction in mortality for children.

In 2011, the greatest reduction in fatalities were observed for the 10-14 (-12%) and the 15-17 age group (-11%). Conversely, there was a 9% increase for children below 10 years old.

Road crashes is the first cause of mortality for young people between 15 and 24. In 2011, the 18-24 age group represented 8.8% of the population but 21 % of road fatalities.

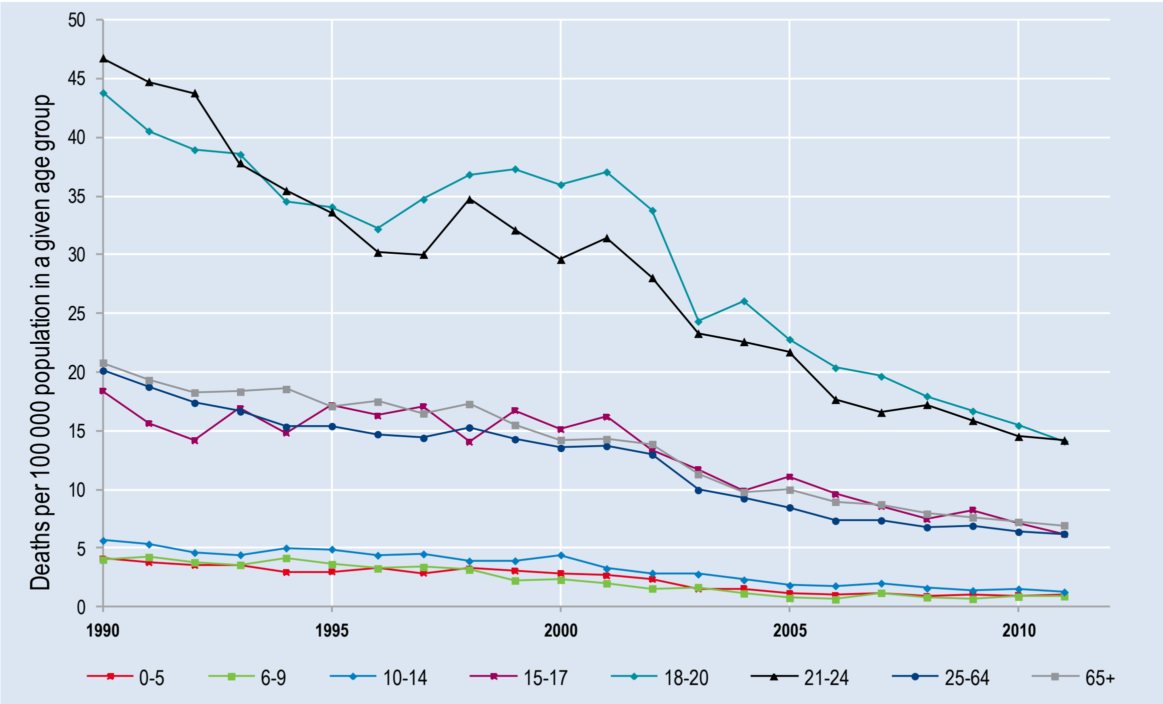
More than half of motorcyclists killed belong to the 25-44 age group; while one third of cyclists killed are aged 65 and older.

Table 5. **Reported fatalities by road age group 1990-2011**

	1990	2000	2010	2011	2011% change over 2010	2011% change over 2000	2011% change over 1990
0-5	208	125	45	48	6.7%	-62%	-77%
6-9	126	68	27	29	7%	-57%	-77%
10-14	211	173	58	51	-12%	-71%	-76%
15-17	472	354	161	144	-11%	-59%	-69%
18-20	1153	867	370	346	-6%	-60%	-70%
21-24	1594	879	461	467	1%	-47%	-71%
25-64	5784	4204	2105	2119	1%	-50%	-63%
>65	1638	1500	765	759	-1%	-49%	-57%
Total	11215	8170	3992	3963	-1%	-51%	-65%

Road crashes are the first mortality cause for young people between 15 and 24 years. In 2011, the 18-24 age group represented 8.8% of the population, but 21 % of road fatalities. This group had a mortality risk twice as high as the general population.

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

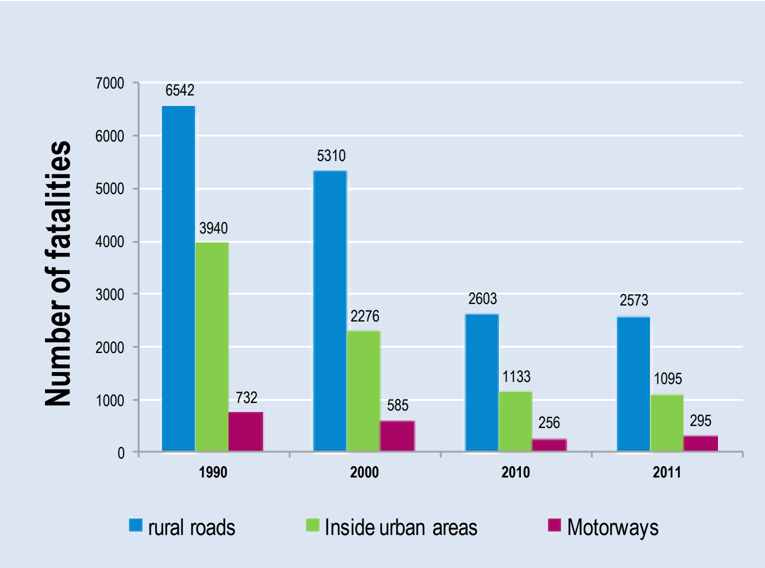


Road Type

France has a very large road network (1 million kilometres), of which 80% is rural (not including interurban motorways). When fatalities per billion vehicle-km travelled are broken down by type of road, the risk on country roads is shown to be very high. Motorways are the safest network, since they absorb 26% of the traffic and account for 7% of fatalities. However, in 2011 the number of people killed on motorways increased by 15%, while on the other road networks there was a decrease in fatalities.

In 2011, 65% of fatalities occurred on rural roads, 28% on urban roads and 7% on motorways.

Figure 5. **Reported fatalities by road type 1990, 2000, 2010 and 2011**



4. Recent trends in road user behaviour

Impaired driving and fatigue

Alcohol

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

For the 6th consecutive year, drink-driving is the primary cause of death in France (mainly due to the fact that speed-related crashes have diminished). Alcohol is involved in 30% injury road traffic accidents. This percentage has remained stable over the past 10 years. In 2011, 30.8% of fatal crashes (in which 964 persons were killed), involved drivers whose blood alcohol content was above the maximum permissible level.

Drugs

In 2011, 499 fatalities (13% of all road deaths) involved a driver with a positive control of an illegal drug.

A study estimated that 3% of crashes could be attributed to the consumption of medical drugs.

Speed

In 2011, it is estimated inappropriate or excessive speed is responsible for 26% of fatal crashes.

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

The table below summarises the main speed limits in France.

Table 6. **Summary of speed limits for passenger cars in France in 2013**

	General speed limit Passenger cars	Comments
Urban roads	50 km/h	
Rural roads	90 km/h	
Motorways	130 km/h	Young drivers are limited to 110 km/h

Seatbelts and helmet

Seatbelt

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

In 2011, the wearing rate on front seats was 97.8%. Wearing rate on the rear seats is lower at 84%, with an important variation for children (90%) and adults (78%). In 2011, 22% of vehicle occupants killed were not wearing a seatbelt (or the seatbelt was not properly fastened) when the crash occurred. It is estimated that 336 lives could have been saved in 2011 (8.5% of all people killed) if the victims had worn their seatbelts.

Table 7. **Seatbelt wearing rate by car occupants**

	2005	2010	2011
Front seat			
General	97.1%	97.8%	97.8%
Urban roads	94.2%	95.5%	95.7%
Rural roads	98.3%	98.9%	98.8%
Rear seats			84%
Adults	69.8%	78.1%	79.7%
Children	83%	91.9%	88.9%

Helmet

Helmet use is mandatory for motorcyclists (including mopeds) since 1973. It is not compulsory for cyclists. The wearing rate for motorcyclists is estimated at 93%. In 2011, 2% of killed motorcycle drivers and 6% of killed passengers were not wearing a helmet.

Distracted driving, use of mobile phone and fatigue

Mobile phone:

It is forbidden to drive with a hand-held mobile phone. The use of hands-free mobile phones is tolerated. In 2010, it was estimated that at any time, 2% of car drivers and 6.3% of truck drivers were using a hand-held phone while driving.

A study undertaken in 2010 estimated that 10% of injury crashes could be attributed to the use of phones while driving.

Fatigue

Fatigue is estimated to be a contributing factor in 8% of fatal crashes.

5. National road safety strategies and targets

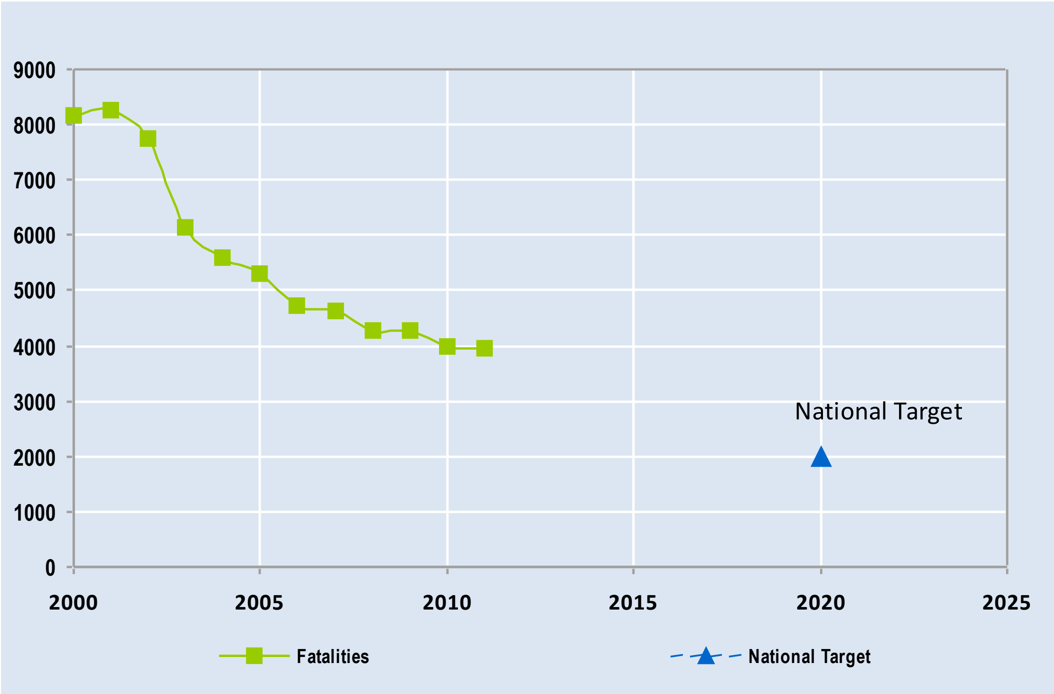
Organisation of road safety

Since the recent change of government in 2012, the Ministry of Interior is the Lead Agency for Road Safety. The Road Safety Directorate (which includes the National Road Safety Observatory) advises and prepares the works. The National Road Safety Council, composed of 50 members from the public service, enterprises, victims and road users representatives, establishes proposals to the government in terms of Road Safety actions. The Minister chairs the Interministerial Road Safety Committee, an Assembly of ministries' representatives, where decisions are taken.

Road safety strategy for 2011-2020

A new national Road Safety target was set in 2012, in line with the EU target to halve the number of fatalities during the new decade: France is working towards fewer than 2 000 fatalities by 2020.

Figure 6. **Trends towards national target**



6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

At the end of 2012, 2 345 fixed speed cameras and 929 mobile speed radars were in place throughout the road network. The decrease in average speed between 2002 and 2010 is estimated at 10%. A study shows that 75% of the decline in mortality recorded during this period was due to the presence of the speed cameras.

Road safety campaigns

Road safety campaigns are produced all-year-round on drink driving, motorcyclists and speed, with messages focused particularly on young drivers.

7. Useful websites and references

Recent and on-going research

Medicinal drugs that increase the risk of road traffic crashes (Emmanuel Lagarde, 2011, INSERM). This study showed that slightly more than 3% of road accidents in France were due to consumption of medicinal drugs, corresponding to 120 deaths and 2 500 injuries each year. Drugs carrying a risk are classified in several major therapeutic classes.

Mobile phones and road safety (Collective expertise, 2011, IFSTTAR-INSERM)

Useful websites

Road safety Website	http://www.securite-routiere.gouv.fr
SETRA: The Technical Department for Transport, Roads and Bridges Engineering and Road Safety	http://www.setra.equipement.gouv.fr/English-presentation.html
IFSTTAR - The French institute of science and technology for transport, development and networks	http://www.ifsttar.fr/
CERTU: The Centre for the Study of Urban Planning, Transport and Public Facilities	http://www.certu.fr/

Contact:

For more information, please contact: onisr.dscr@interieur.gouv.fr

Germany

Source: IRTAD, BASt

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities /100 000 inhabitants in 2011
Berlin	**81.8 million**	**614**	**4 009**	**4.9**

1. Comments on road safety data collection

In Germany, crash data are collected by the police agencies of the different federal states (Bundesländer) and then consolidated at federal level.

Data included in this report correspond to the consolidated set of police data. Fatality data refer to deaths within 30 days. Injury crashes are defined as crashes resulting in at least one injured or killed person.

Injured persons are subdivided into seriously injured and slightly injured. Seriously injured are persons who were immediately taken to hospital for inpatient treatment (of at least 24 hours). Slightly injured are all other injured persons. There are plans to introduce a new category of critically injured persons which will probably be defined as MAIS3+.

As the crash data is collected by the police, only accidents which are known to the police are registered. For fatalities, the reporting rate is suspected to be nearly 100%. For hospitalised, no information is available on the percentage of reported injuries.

2. Short term trends

Safety performance in 2011

For the first time in 20 years there was an increase (+9.9%) in the number of road deaths in 2011. The number of injury crashes and the number of injuries also increased.

The increase in road fatalities affected nearly all road users, with the biggest increase for pedestrians (+29%) and motorcyclists (+11%). There were unusual increases in January (+30%) and in May (+21%).

This short-term increase results mainly from extreme weather conditions in 2010 and 2011. While January 2010 was characterised by very wintry conditions with heavy snowfalls, springtime in 2011 was unusually warm and sunny, resulting in an increase in mostly leisure traffic. As a result, fatality figures are extraordinarily high for most of the months of spring 2011.

Provisional data for 2012

Provisional data for 2012 show that after the strong increase in 2011, the number of fatalities decreased again in 2012 by more than 10%. The number of fatalities is even lower than in the year 2010. The number of injuries decreased by 2%.

While other factors play an important role for the long-term development of fatality and crash figures, this short-term development results mainly from different and extreme weather conditions. Spring time in 2011 was unusually warm and dry, resulting in an increase of traffic — mainly recreational. The strong decrease achieved in spring 2012 in comparison to spring 2011 is due to "normal average" weather conditions in 2012 which is reflected by the decrease in motorcycle and pedestrian fatalities.

Table 1. **Provisional Data for 2012 compared to 2011**

Fatalities		January - October		
		2011*	2012*	Change
Road User Type	Motorcycles	708	587	-17%
	Passenger Cars	1 986	1 791	-10%
	Cyclists	399	406	2%
	Pedestrians	614	520	-15%
Location	Urban Roads	1 115	1 062	-5%
	Rural Roads	2 441	2 152	-12%
	Motorways	453	387	-15%
Age Group	<15	86	73	-15%
	15-17	116	113	-3%
	18-24	737	611	-17%
	25-64	2 025	1 810	-11%
	65+	1 044	994	-5%
Groups of Special Interest	Novice drivers (18-21)	343	262	-24%
	Drink driving	325	277	-15%

* Provisional figures

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

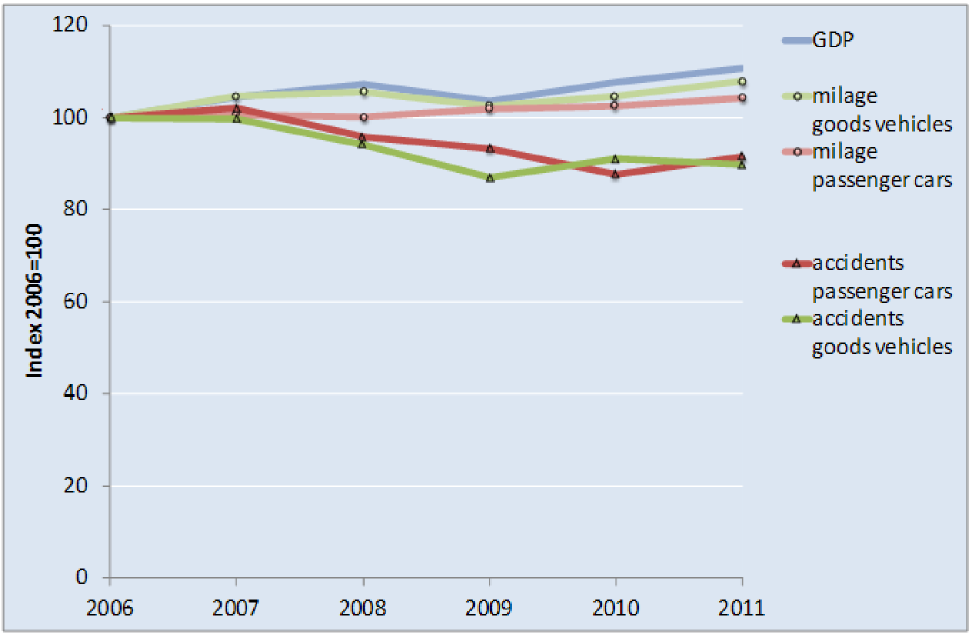
Between 1991[1] and 2011, the number of motorised vehicles increased by 17.5% and the overall vehicle kilometres driven by 25%.

Provisional figures indicate that the overall kilometrage slightly decreased to 709 billion vehicle km in 2012 compared to 2011.

The impact of the economic situation on the development of road traffic and on the number of accidents in Germany is not as high as in other countries. Merely the kilometrage of goods vehicles and the number of accidents with goods vehicles involved is slightly influenced by the economic development.

1. 1991 is the first year following German reunification

Figure 1. **GDP and involved road users in injury accidents 2006-2011**



Change in the number of fatalities and injury crashes (1990-2011)

Between 1991 and 2011, the number of fatalities decreased by 65%, whereas the number of injury crashes fell by only 21%. In recent years (2000-2011), the number of fatalities decreased by 47%.

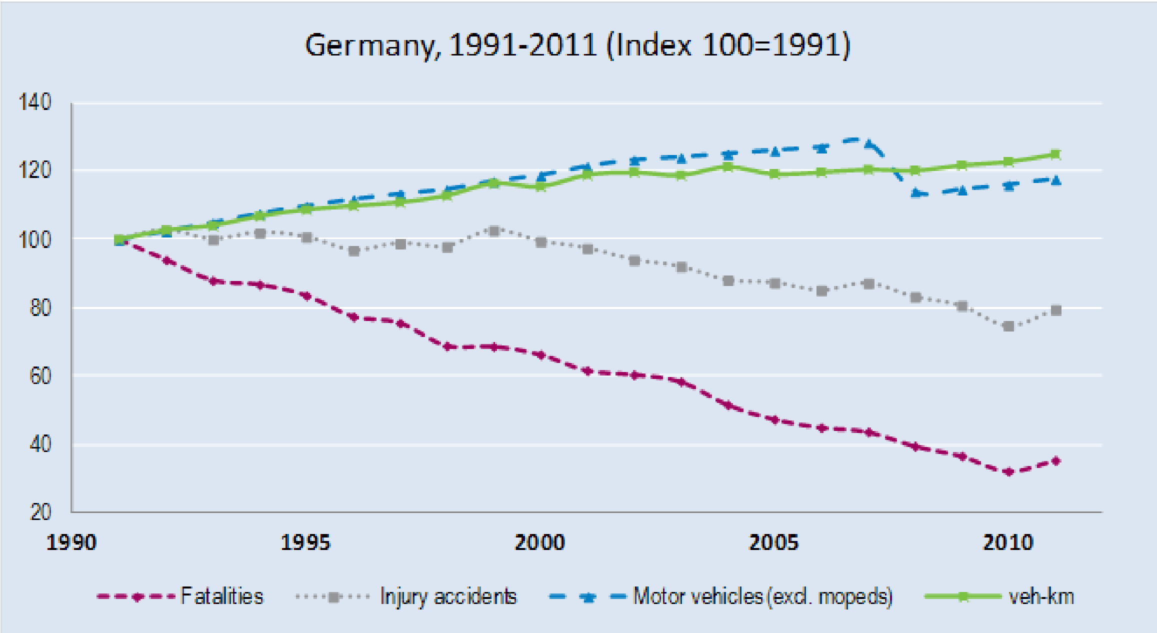
Risk and rates

In the last 20 years, the mortality rate (in terms of deaths per 100 000 population) has decreased by 65%, while motorisation has increased by 15%.

Table 2. **Safety and mobility data 1991-2011**

	1991	2000	2010	2011	2011 % change from 2010	2011 % change from 2000	2011 % change from 1991
Reported safety data							
Fatalities	11 300	7 503	3 648	4 009	+9.9%	-46.6%	-64.5%
Injury crashes	385 147	382 949	288 297	306 266	+6.2%	-20.0%	-20.5%
Hospitalised	131 093	102 416	62 620	68 985	+10.2%	-32.6%	-47.4%
Deaths/100 000 population	14.1	9.1	4.5	4.9	+9.9%	-46.3%	-65.2%
Deaths/10 000 registered vehicles[1]	2.9	1.5	0.7	0.8	+8.6%	-46.1%	-70.8%
Deaths/billion vehicle-kms	19.7	11.3	5.2	5.6	+7.9%	-50.6%	-71.6%
Fleet and mobility data							
Motorised vehicles (excl. mopeds) (in 1 000)	43 313	51 365	50 184	50 902	1.4%	-0.9%	17.5%
Vehicle-kilometres (in million)	574 100	663 302	704 800	717 600	+1.8%	+8.2%	+24.9%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	543.1	625.2	613.5	622.6	+1.5%	-0.4%	+14.6%

Figure 2. **Reported road fatalities, injury crashes, motorised vehicles[2] and vehicle-kilometres - 1991-2011**



Economic costs of traffic crashes

The Federal Highway Research Institute (BASt) calculates the costs of road accidents on an annual basis. The costs of road traffic accidents to Germany's national economy are based on the capital approach encompassing costs for personal injuries and damage to goods.

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

The calculated costs include:

1. direct costs (e.g. for medical treatment, vehicle repair/replacement),
2. indirect costs (for police services, the legal system, insurance administration, replacement of employees),
3. lost potential growth (including the shadow economy),
4. lost added value of housework and voluntary work,
5. humanitarian costs,
6. costs of monetised travel time losses due to accidents on motorways.

The most recent information on costs for road accidents in Germany can be downloaded from the website of the Federal Highway Research Institute. Traffic crashes represent a very significant cost for society, estimated in 2010 at around EUR 30 billion, i.e. 1.2% of GDP.

Table 3. **Costs of road crashes in Germany**

Costs (EUR billion)	2008	2009	2010
Fatalities	4.64	4.14	3.73
Hospitalised people	7.83	7.61	7.17
Slight injuries	1.57	1.54	1.46
Property / damage costs	16.96	17.23	18.07
Total (EUR)	31.00	30.52	30.44
Total as % of GDP			1.2%

Road users

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

The short term increase in the number of fatalities in 2011 can be seen in nearly all groups of road users, with the biggest increase for pedestrians (+29%) and motorcyclists (+11.5%). Provisional data for the year 2012 show that after the strong increase in 2011 the numbers are decreasing again in 2012, especially for motorcycle users (-15 %) and pedestrians (-10 %).

Compared to 1991, the share of motorcyclist fatalities has increased, reflecting the increase in the number of motorised two-wheelers registered. On the contrary, the share of pedestrians and car fatalities has decreased since 1991.

Table 4. **Reported fatalities by road user group 1991-2011**

	1991	2000	2010	2011	2011 % change from 2010	2000	1991
Bicyclists	925	659	381	399	4.7%	-39.5%	-56.9%
Mopeds	243	157	74	70	-5.4%	-55.4%	-71.2%
Motorcycles	992	945	635	708	11.5%	-25.1%	-28.6%
Passenger car occupants	6 801	4 396	1 840	1 986	7.9%	-54.8%	-70.8%
Pedestrians	1 918	993	476	614	29.0%	-38.2%	-68.0%
Others	421	353	242	232	-4.1%	-34.3%	-45.2%
Total	***11 300***	***7 503***	***3 648***	***4 009***	***9.9%***	***-46.6%***	***-64.5%***

Age

In 2011, there was an increase in fatalities for all age groups except the youngest age group (up to 14). The largest increase (+15%) was recorded in the 65+ age group, followed by the 24-65 year olds, with an increase of 10%. After the heterogeneous development in 2011, all age groups show decreasing fatality figures in 2012. But, after the strongest increase for the 65+ year olds in 2011, this age group shows the weakest decrease in 2012.

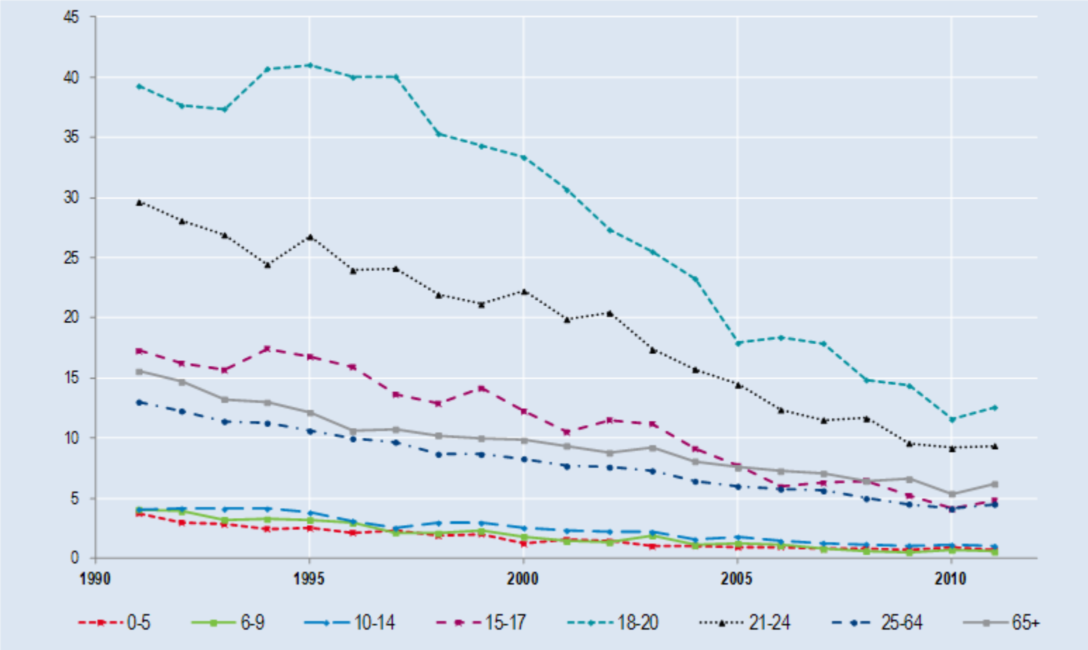
The 18-20 age group is the most at risk in Germany, followed by the 21-24 group. The 18-20 year-olds have a mortality rate almost triple that of the general population. (See Figure 5.)

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 remains a concern, particularly among those aged 18 to 20 years, judged by their high mortality rate.

Table 5. **Reported fatalities by age group 1991-2011**

Age	1991	2000	2010	2011	2011 % change from... 2010	2000	1990
0-5	201	58	39	29	-25.6%	-50.0%	-85.6%
6-9	140	63	21	16	-23.8%	-74.6%	-88.6%
10-14	170	119	44	41	-6.8%	-65.5%	-75.9%
15-17	415	336	101	116	14.9%	-65.5%	-72.0%
18-20	1 204	933	327	343	4.9%	-63.2%	-71.5%
21-24	1 545	803	363	394	8.5%	-50.9%	-74.5%
25-64	5 754	3 876	1 842	2025	9.9%	-47.8%	-64.8%
>65	1 853	1 311	910	1044	14.7%	-20.4%	-43.7%
Total	***11 300***	***7 503***	***3 648***	***4 009***	***9.9%***	***-46.6%***	***-64.5%***

Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given age group: 1991-2011)

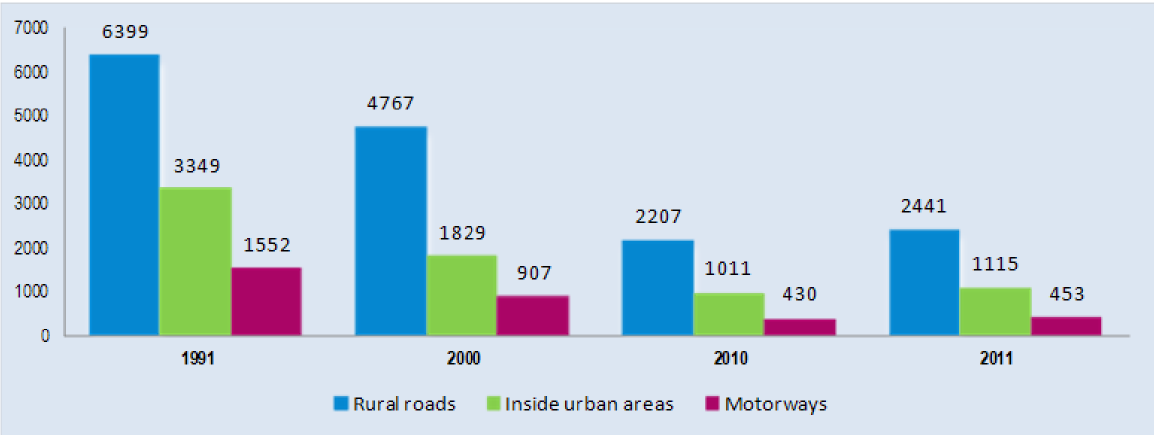


Road Type

In 2011, there was an increase in fatalities on all road types, with the highest increase in urban areas and on rural roads (+10% and +11%). Following this increase in 2011, there was a decrease on all road types again for 2012, with the smallest magnitude of decrease occurring on urban roads (approximately 1 %).

Rural roads are the most dangerous for road users, as 61% of fatalities occur on this network. However, many improvements have been realised since the 1990s, e.g. the construction of roundabouts to manage intersections.

Figure 4. **Reported fatalities by road type**
1991, 2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

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

In 2011, alcohol use was cited as a contributing factor in 9.5% of all car driver fatalities (car driver fatalities with any amount of alcohol in their blood, including those below the 50 mg% threshold), rising to almost 16% of all car driver fatalities in the 25-44 age group.

See below the effect of the zero tolerance law on alcohol for novice drivers

Speed

The table below summarises the main speed limits in Germany.

Table 6. **Summary of speed limits in 2013 for passenger cars**

	General speed limit *Passenger cars*
Urban roads	50 km/h
Rural roads	100 km/h
Motorways	130 km/h (recommended)

Inappropriate speed was a factor in more than 37% of fatal accidents and about 23% of serious injury accidents in 2011. Speed is often cited as a factor in combination with other high-risk behaviour, such as drink-driving.

Seatbelts and helmets

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

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

The helmet wearing rate by riders of motorised two-wheelers is high at 99%.

Table 7. **Seat-belt wearing rate by car occupants**

	1980 West Germany	1990 West Germany	2000	2010	2012
Front seat (adults)					
General*	56%	96%	94%	98%	98%
Urban roads	42%	95%	90%	97%	97%

Rural roads	63%	96%	95%	98%	99%
Motorways					99%
Rear seats					
General*		45%	82%	97%	98%
Urban areas		43%	74%	94%	96%
Rural areas**		43%	83%	97%	99%
Motorways					99%

* includes motorways; ** without motorways

Distracted driving, use of mobile phone and fatigue

The use of handheld mobile phones is prohibited when driving a motor vehicle or riding a bicycle. The violation of the law results in a fine of EUR 40 and 1 demerit point for drivers of motor vehicles and a fine of EUR 25 for cyclists. In 2011, the registered number of vehicle users violating the law totalled 450 000, of which 27% were female violators and 73% male.

A major research study[3] was completed in 2012 on distraction by non-driving activities. It was based on interviews with drivers on their perception of secondary tasks while driving. It showed that drivers are aware that secondary tasks can be dangerous while driving, but that they also believe that these tasks they have executed have not been distracting or dangerous.

5. National road safety strategies and targets

Organisation of road safety

The Federal Ministry of Transport, Building and Urban Affairs is responsible for transport policy and road safety at the national level. It develops the national road safety strategy, including the national road safety action programme, and sets national targets. The monitoring of the targets is also carried out at national level.

Nevertheless, each of the 16 federal states has its own Ministry of Transport. These Ministries can also formulate road safety programmes on their own, and are usually responsible for improvements in road infrastructure on their territories. The police forces also are organized at the level of the 16 federal states, which means that the enforcement of traffic laws is the responsibility of each federal state.

Evaluation of past programme

The previous Federal Road Safety Action Plan was launched in 2001 and expired in 2010. The programme did not set any quantitative targets. As a result, no explicit evaluation of the development of any target is done. Nevertheless, road safety measures and the development of the level of road safety are documented biennially in the Road Accident Prevention report.

3. Huemer, A. K. et al.: "Ablenkung durch fahrfremde Tätigkeiten – Machbarkeitsstudie", Bergisch Gladbach, Bundesanstalt für Straßenwesen, 2012 (Berichte der Bundesanstalt für Straßenwesen, Unterreihe "Mensch und Sicherheit", Heft M 225, März 2012)

Road safety strategy for 2011-2020

The 2011-2020 road safety programme (http://www.bmvbs.de/SharedDocs/EN/Artikel/STB-LA/road-safety-programme-2011.html) was launched in autumn 2011. The principal aim of the programme is to enable safe, ecologically sensitive and sustainable mobility for all road users in Germany.

It comprises a wide range of road safety measures addressing road users, vehicles and the road infrastructure.

The programme addresses new challenges (e.g. demographic change and mobility of elderly) and aims at safeguarding the efficiency of the road network. At the same time, it reflects recent technological developments in vehicles such as driver assistance systems, cooperative vehicle systems or new engine concepts. In these latter areas, the main focus lies on ensuring that the development of vehicle technology does not induce safety risks. Activities also focus on rural roads and on reducing not only the number of fatalities, but also the number of serious injuries.

Target setting

For the first time, a quantitative target of -40% for fatalities by the year 2020 was set. The target was defined on the basis of scientific research regarding the expected development of road safety until the year 2020 (R. Maier et al., 2012 a)[4]:

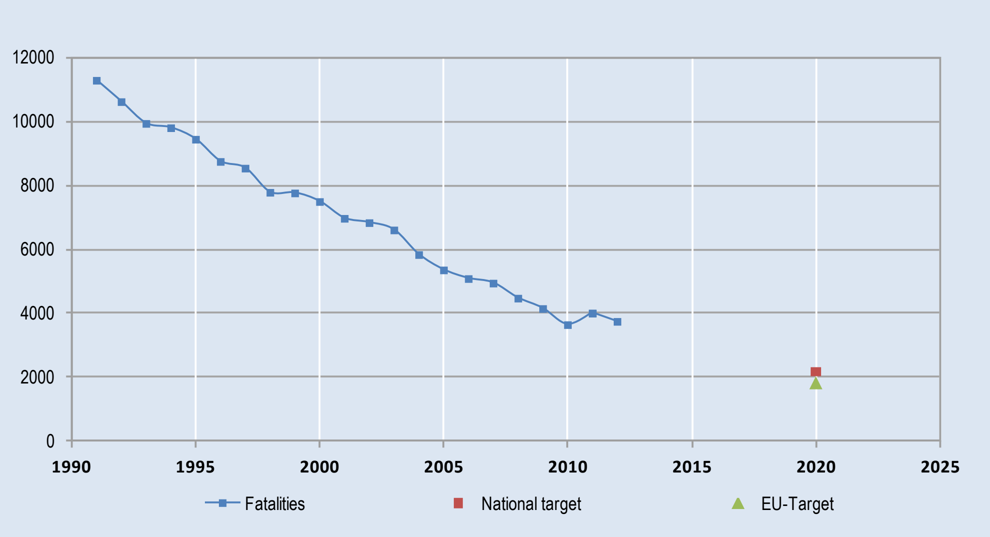
A model was developed to predict the number of crashes and casualties in Germany in the years 2015-2020 for the different road types (motorways, rural and urban roads). The risks of crashes and injuries were subdivided for each mode of traffic and age of road user. The time series model bases on the assumption that the efforts to improve road safety are continued as they have been in the past. The forecast, based on the model and an estimation of future traffic conditions in Germany, shows a considerable decrease (-30%) in the number of casualties.

Monitoring

The monitoring and assessment of road safety measures and the development towards the target is done by the Road Accident Prevention Report, which is prepared every two years and submitted to the German Bundestag.

4. R. Maier et al., 2012, *The development of traffic safety and its general conditions up to the year 2015/2020,* BASt; Bergisch Gladbach

Figure 5. **Trends towards national and EU[5] targets**



6. Recent safety measures (2011-2012) and effectiveness of past measures (2005-2010)

Speed management

In Germany, there is no structured speed management system. Nevertheless, speed management on motorways is realised by the installation of active traffic management systems. These systems determine and indicate variable speed limits depending on the amount of traffic and the actual environmental conditions. The Project Plan for Road Traffic Telematics 2015 encompasses a diversity of projects regarding the installation of those systems. Currently, about 1 225 kilometres of federal motorways are equipped with active traffic management systems. It is expected that, at the end of the programme period, a further 1 000 carriageway kilometres of federal motorways will have been newly equipped with active traffic management systems.

(http://www.bast.de/cln_033/nn_82230/EN/e-Aufgaben/e-abteilung-v/e-referat-v5/e-projektplan-telematik/e-projektplan.html)

Impaired driving

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 following the introduction of the law compared to the 12 months before. While the number of novice drivers with a BAC level of 0.03% or over was reduced by 15% in that period, the reductions have been less for all other groups of car drivers. It still remains to be shown if this positive effect will stand the test of time.

5. In 2010, the European Commission adopted the target to reduce by 50% the number of road fatalities in comparison to 2010 level.

Cyclist safety

In September 2012, the German cabinet agreed on a National Cycling Plan 2020. The National Cycling Plan 2020 represents the Federal Government's commitment towards the promotion of cycling as part of its sustainable transport framework. It sets out the principles for the promotion of cycling over the coming years. The key pillars of the Plan are:

1. promotional activities to support cycling;
2. a raised awareness of cycling as a mode of transport in rural areas;
3. the improvement of traffic safety.

The National Cycling Plan 2020 constitutes the basis for the promotion of cycling in Germany. It addresses governments at the federal, land (state) and local level. Previous National Cycling Plans successfully advanced the profile of cycling as a mode of transport. Initiatives based on previous plans contributed to the increased share of cycling as a mode of transport. The new Plan seeks to continue these positive developments, and sets out proposals to increase bicycle use even further.

Infrastructure

The HGV toll for goods vehicles with a permissible gross weight of 12 tons or over has been in force on German motorways since 2005. Since 1st of August 2012, the HGV toll was expanded to selected national roads. Additional annual revenues of EUR 100 million are expected and will be dedicated to the maintenance, improvement and extension of the road infrastructure in Germany.

Road safety campaigns

In 2012, several safety campaigns were launched.

Different modules of the longstanding campaign "Runter vom Gas" (Stop speeding!) were released, such as a brochure for motorcyclists, a campaign regarding agricultural tractors on rural roads and a prize competition for YouTube videos.

A communication campaign to enhance the traffic culture (with the focus on cyclists) started in May 2012.

7. Useful websites and references

Recent and on-going research

- **The German In-Depth Accident Study (GIDAS)** www.gidas.org. The German In-Depth Accident Study (GIDAS) is a joint venture between BASt and the Automotive Research Association (FAT). GIDAS is the largest in-depth accident study project in Germany and it was initiated in July 1999. GIDAS is based on the many years of successful work of the BASt- founded investigation team of the Medical University of Hannover, in cooperation with a new investigation team of the Technical University Dresden.

Approximately 2 000 accidents involving personal injury are recorded and analysed every year. The investigation team documents all relevant information on vehicle equipment, vehicle damage, injuries of persons involved, the rescue chain, as well as the accident conditions, at the scene.

Each documented accident is reconstructed in a simulation programme. The documentation scope obtained in GIDAS reaches up to 3 000 encoded parameters per accident.

- **The development of traffic safety and its general conditions up to the year 2015/2020**. Maier, R. et al.: "Entwicklung der Verkehrssicherheit und ihrer Rahmenbedingungen bis 2015/2020", Bergisch Gladbach, Bundesanstalt für Straßenwesen, 2012 (Berichte der Bundesanstalt für Straßenwesen, Unterreihe "Mensch und Sicherheit", Heft M 224, März 2012)

The objective of this research project was to predict the number of accidents and casualties in Germany in the years 2015 and 2020.

- **Alternative drive technologies: Market penetration and consequences**. [Assing, K. et Al.: "Alternative Antriebstechnologien: Marktdurchdringung und Konsequenzen", Bericht zum Forschungsprojekt 4111009, Bundesanstalt für Straßenwesen, December 2011].

The Federal Highway Research Institute (BAST) initiated a long-term study on the impact of vehicles with alternative power train technologies (for example hybrids, electric and fuel cell). Based on the previous market development, the analysis of the accident occurrence currently does not show any irregularities.

- **Distraction by non-driving activities – feasibility study** - [Huemer, A. K. et al.: "Ablenkung durch fahrfremde Tätigkeiten – Machbarkeitsstudie", Bergisch Gladbach, Bundesanstalt für Straßenwesen, 2012 (Berichte der Bundesanstalt für Straßenwesen, Unterreihe „Mensch und Sicherheit", Heft M 225, März 2012)]

The study was based on interviews with 300 drivers. 80% of drivers reported to have executed one to three secondary tasks within the last 30 minutes of driving. Looking at secondary task duration, results showed that interaction with passengers and operating non-driving related technical devices lasted longest. Subjective reports can be summarised by showing that drivers are aware that secondary tasks can be dangerous while driving, but that they also believe that these tasks they have executed have not been distracting or dangerous. These beliefs show why drivers are so often and so long occupied with secondary tasks; they seem to be confident that secondary tasks may become dangerous but, in their particular situation, this is not the case.

Useful websites

Federal Ministry of Transport, Building and Urban Affairs Road safety program	http://www.bmvbs.de http://www.bmvbs.de/SharedDocs/EN/Artikel/STB-LA/road-safety-programme-2011.html
Federal Highway Research Institute (BASt) Research reports Electronic BASt-archive	http://www.bast.de/ http://www.bast.de/cln_033/nn_43710/EN/e-publikationen/e-publikationen__node.html?__nnn=true http://bast.opus.hbz-nrw.de/
German Federal Statistical Office Accident statistic reports	http://www.destatis.de/ https://www.destatis.de/DE/ZahlenFakten/Wirtschaftsbereiche/TransportVerkehr/Verkehrsunfaelle/Verkehrsunfaelle.html
Federal Motor Transport Authority	http://www.kba.de
German Road Safety Council e.V.	http://www.dvr.de/
Road safety programme 2011-2020	http://www.bmvbs.de/SharedDocs/EN/Artikel/STB-LA/road-safety-programme-2011.html
National cycling plan	http://www.nationaler-radverkehrsplan.de/
German In-Depth Accident Study (GIDAS)	www.gidas.org

Contact

For more information, please contact: schoenebeck@bast.de

Greece

Source: IRTAD, NTUA, EL.STAT.

Capital	Inhabitants	Vehicles/ 1 000 inhabitants	Road fatalities in 2011	Fatalities /100 000 inhabitants in 2011
Athens	**11.3 million**	**715**	**1 141**	**10.1**

1. Comments about road safety data collection

The Hellenic Statistical Authority (EL.STAT) holds the official road accident database of Greece, which includes disaggregated road accident data, as well as detailed information concerning drivers, road accident casualties and vehicles involved, since the early sixties. The data is coded on the basis of the Road Accident Data Collection Form, which is filled in by the Traffic Police for every road accident with casualties.

The Traffic Police is the authority which is first called to the road accident site in all accidents with casualties. They are responsible for filling-in the road accident Data Collection Form and for finalising the information concerning the casualties within 30 days from the day of the accident. The data collected is forwarded to the Hellenic Statistical Authority (EL.STAT) and stored also in the database of the Traffic Police. The EL.STAT database includes quite reliable and detailed information on the road accident, as well as persons and vehicles characteristics, and including a few additional data elements, such as the cause of the road accident and the condition of the vehicles.

The Ministry of Infrastructure, Transport and Networks is responsible for vehicle registration and driver licensing. It holds a database of the registered vehicles, as well as a database of licensed drivers, in Greece. The registered vehicles database includes disaggregate information on vehicle characteristics, such as vehicle type and use, year of 1st registration length, weight, engine size, fuel type, manufacturer etc. This database does not include mopeds, and scrapped vehicles are systematically removed from the database only in recent years. The driver license database includes disaggregate information on driver characteristics, such as license type and year, the related vehicle type, the license renewal or modification, person age, gender etc. However, deceased drivers are not systematically removed from the database.

Data on the injury severity of road casualties are not systematically collected by hospitals. Only road fatalities are properly reported by the hospitals.

2. Short-term trends

Safety performance in 2011

As in the two previous years, the decrease in fatalities (-9%) in 2011 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 and speed. Driver behaviour (speeding, etc.) may have also been altered but no studies to support this are available yet.

Provisional data for 2012

In 2012, a further decrease (-10.0%) in the number of fatalities is expected, as the impact of the economic crisis persists with less kilometres travelled and potentially a less aggressive driving behaviour.

3. Long-term trends in mobility and safety (1990- 2011)

Fleet and mobility

Since 1990, the number of motor vehicles nearly tripled in Greece. During the decade 2000-2009 an annual increase of about 5% was observed, however since 2009 the annual increase of vehicle fleet is less than 1%. The annual increase of motorcycle fleet is steadily higher (about 2%) than the annual increase of passenger cars fleet in Greece for the same period.

Change in the number of fatalities and injury crashes

Between 2000 and 2011 there was a decrease of 896 fatalities (-44%). An important **decrease in road fatalities for young people** was observed during the last decade, as well as a remarkable decrease in fatalities outside urban areas and in the number of people killed in accidents involving HGVs. On the contrary, there was less improvement regarding people killed on motorways, elderly road users, motorcycle fatalities, foreign drivers and female drivers.

In recent years (2008-2011), the number of fatalities decreased by almost 30%. Since mid-2008, some road safety related developments (new Highway Code, new motorways etc.) came into force, but it is most importantly the economic crisis which has brought a further significant decrease in road fatalities in Greece.

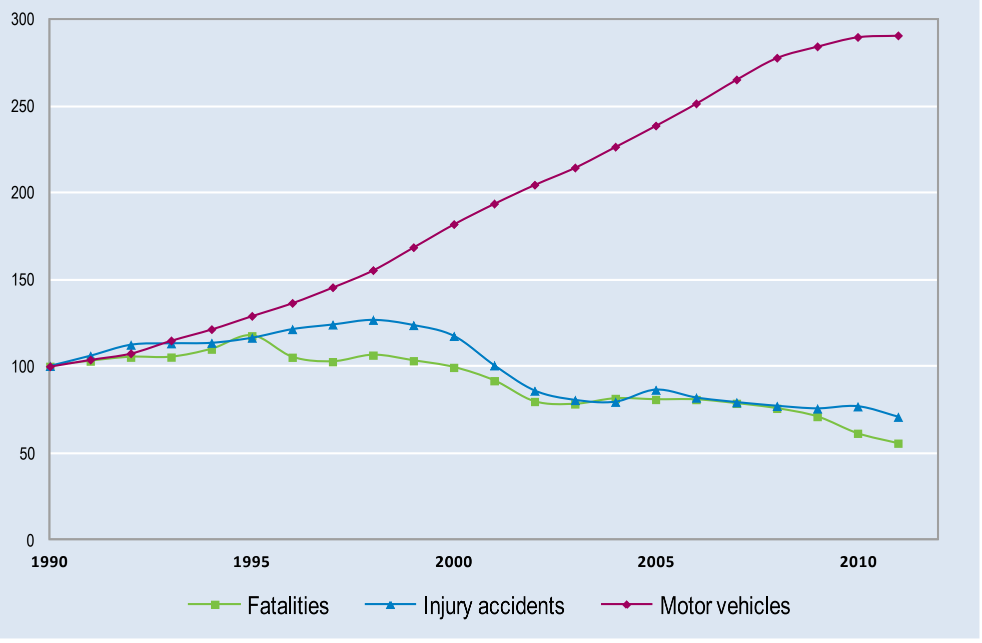
Risk and rates

In 2011, Greece had a mortality rate expressed in terms of deaths per 100 000 population of 10.1

Table 1. **Safety and mobility data 1990-2011**

	1990	2000	2010	2011	2011% change over 2010	2011% change over 2000	2011% change over 1990
Reported safety data							
Fatalities	2 050	2 037	1 258	1 141	-9.3%	-44%	-44%
Injury crashes	19 609	23 001	15 032	13 849	-7.9%	-40%	-30%
Deaths/100 000 population	20.2	18.7	11.1	10.1	-9.3%	-46%	-50%
Deaths/10 000 registered vehicles	7.4	3.1	1.3	1.2	-9.8%	-61%	-84%
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	2 780	5 061	8 062	8 087	0.3%	60%	191%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	274	464	713	715	0.3%	54%	161%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011 (Index 100 = 1990)**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 3.41 billion (2011)[1], representing almost 1.5% of GDP.

1. Yannis,G., E. Papadimitriou, P. Evgenikos (2005), *"Cost benefit assessment of selected road safety measures in Greece"*, Proceedings of the 13th International Conference on Road Safety on Four Continents, Swedish National Road Administration and Transport Research Institute, Warsaw, October, pp. 792-806.

The cost is almost tripled if the real number of injuries and of 'material damage only' accidents are taken into account (more than 4% of GDP).

This calculation comprises a combination of the lost production methodology and the willingness to pay methodology.

Table 2. **Costs of road crashes**

Cost (EUR Billion)	2011
Fatalities	2.32
Injury and disability	1.09
Property damage and other costs	-
Total	3.41
Total as a % of GDP	1.45%

Road users

Since the peak in fatalities in 1995, all road users, with the exception of motorcyclists, have benefited from the overall improvement in road safety.

Between 1990 and 2011, the number of moped riders killed decreased by 82%, whereas the number of motorcyclists killed increased by 11%. Pedestrian fatalities decreased by 57%.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011 % change over		
	1990		2000		2010		2011		2010	2000	1990
Bicyclists	26	1%	22	1%	23	2%	13	1%	-43.5%	-41%	-50%
Mopeds	192	9%	90	4%	36	3%	34	3%	-5.6%	-62%	-82%
Motorcycles	274	13%	406	20%	367	29%	305	27%	-16.9%	-25%	11%
Passenger car occupants	712	35%	891	44%	542	43%	474	42%	-12.5%	-47%	-33%
Pedestrians	524	26%	375	18%	179	14%	223	20%	24.6%	-41%	-57%
Others	322	16%	247	12%	106	8%	92	8%	-17.1%	-64%	-71%
Total	**2 050**	**100%**	**2 037**	**100%**	**1 258**	**100%**	**1 141**	**100%**	**-9.3%**	**-44%**	**-44%**

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.

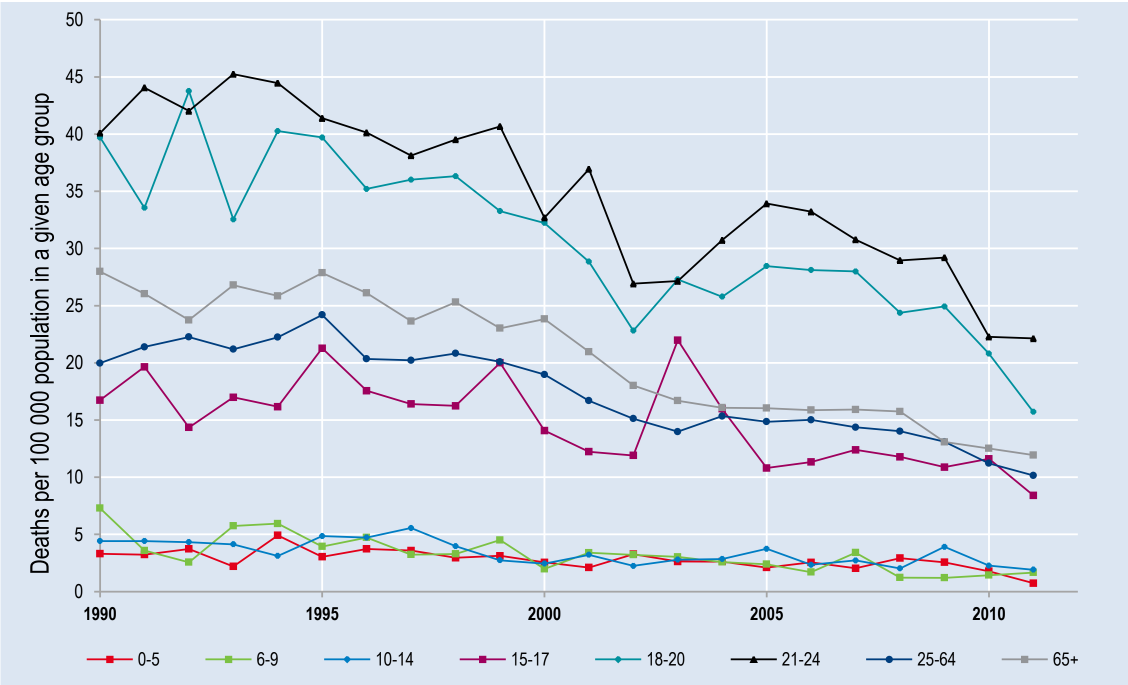
Between 2000 and 2011, the 18-20 age group showed the highest decrease in the number of fatalities (-65%). This higher decrease may be attributed to the economic crisis, which might affect more intensively the mileages driven by younger drivers.

Table 4. **Reported fatalities by age group 1990-2011**

	1990	2000	2010	2011	2011 % change over 2010	2011 % change over 2000	2011 % change over 1990
0-5	22	16	12	5	-58.3%	-69%	-77%
6-9	40	9	6	7	16.7%	-22%	-83%
10-14	33	15	12	10	-16.7%	-33%	-70%
15-17	76	60	39	28	-28.2%	-53%	-63%
18-20	183	156	73	55	-24.7%	-65%	-70%
21-24	249	219	113	108	-4.4%	-51%	-57%
25-64	1 051	1 107	711	643	-9.6%	-42%	-39%
>65	392	428	268	260	-3.0%	-39%	-34%
Total	2 050	2 037	1 258	1 141	-9.3%	-44%	-44%

The 21-24 age group is the most at risk in Greece, with a fatality rate more than twice that of the general population.

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**

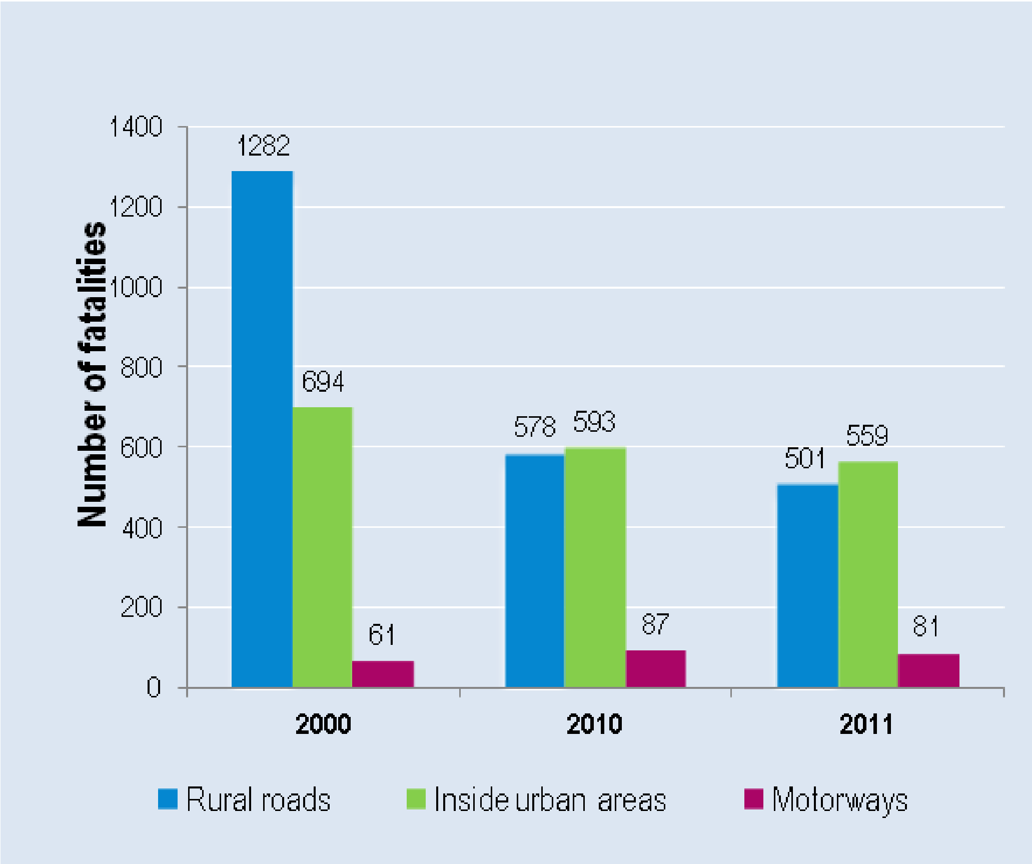


Road type

In 2011, 49% of fatal crashes occurred in urban areas (mainly due to the increased motorcycle and pedestrian traffic), 44% on rural roads and 7% on motorways.

Since 2000, most improvements occurred on the rural network, with almost 1 200 km of the national interurban network upgraded to motorways. The significant increase in fatalities on the motorway network since 2000 can be explained mainly by the significant expansion of the motorway network.

Figure 3. **Reported fatalities by road type 2000, 2010 and 2011**



4. Recent trends in road user behaviour

Impaired driving

According to the Greek Road Code, the maximum permissible BAC is 0.5 g/l, when it is measured by blood sample, and 0.25 mg/l when measured by breath testing.

Since 2007, a lower limit (0.2 g/ l) applies to professional drivers (heavy goods vehicles, school buses and coaches), motorcycles and moped riders.

The percentage of fatal crashes involving a driver with a BAC above the limit is not accurately recorded. However, studies using the induced exposure technique demonstrate that drivers in Greece over the legal limit (BAC > 0.5 g/l) present a seven times higher probability of being involved in a road crash.

Speed

Speeding is perhaps the most critical factor for road accidents. 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. The recent important decline of road fatalities there might be correlated to less speeding as a result of the economic crisis (steep fuel price increase, more ecological driving, etc.).

The table below summarizes the main speed limits in Greece.

Table 5. **Summary of speed limits in 2013**

	General speed limit - *Passenger cars*
Urban roads	50 km/h
Rural roads	90 km/h
Motorways	130 km/h

Seatbelts and helmets

The use of seatbelts has been compulsory since 1987 in front seats and since 2003 in rear seats.

According to 2009 data, the rate of seatbelt use is 77% for the driver, 74% for the other front seat passenger, and only 23% for rear-seat passengers. The percentage of seatbelt use by the driver is 72% in urban areas, 78% on rural roads and 95% on motorways.

The helmet-wearing rate is 75% for drivers and 46% for passengers. The respective percentage of helmet use by the driver is 73% in urban areas, 85% on rural roads and 98% on motorways.

Distracted driving, use of mobile phones and fatigue

In Greece, it is forbidden to drive with a hand-held phone or using headphones. Only wireless, hands-free, devices are allowed during driving.

According to an observational study carried out by NTUA in 2009, 9% of passenger-car drivers use mobile phones during driving, whereas 2% of powered two-wheeler riders use mobile phones while driving.

The mobile phone use rate increases inside built-up areas and for young drivers (16-24), especially for young female passenger-car drivers (16%) and young female PTW riders (12%).

5. National road safety strategies and targets

Organisation of road safety

The co-ordination of all the ministries involved in road safety management is ensured by the Inter-Ministry Committee on Road Safety, chaired by the Minister of Citizen Protection. However his role remains limited, as the corresponding co-ordination secretariat has never been properly operational. Some stakeholder consultation takes place at the National Road Safety Council. Regional and local authorities implement road safety activities, mainly on road infrastructure and vehicle control; however, there is no process to integrate national and regional activities and there is no reporting from the regional to the national level.

Despite the three Strategic Plans adopted during the last decade, mobilisation of the authorities and of society remained limited and road safety is still not a recognised policy area. There is no identifiable budget for road safety, and no systematic road safety training is taking place at any level in Greece.

Quite a few NGOs are strongly advocating road safety. Road safety problems and solutions are well known in Greece through quite a few research studies; however, implementation of measures is limited. Furthermore, there is no official monitoring of road safety actions, no benchmarking, and no evaluation of the road safety interventions.

Evaluation of the past road safety programme

The target of the 2nd National Road Safety Strategic Plan 2006-2010 was a -50% fatality reduction (in relation to 2000), aligned to the respective European target. A road fatalities decrease of only 32% was achieved during this period as its implementation was insufficient. Assessing in total the implementation of the two five-year Strategic Plans, it is noted that this was the first organised attempt to deal with the problem of road accidents in Greece. The first step for the improvement of road safety was taken and the basis for facing the problem efficiently was set. However, some important barriers remained, such as the lack of systematic implementation of the measures and a lack of co-ordination and monitoring. The co-ordination instruments to support the Inter-Ministry Committee were never put in place and the necessary resources never allocated to the related road safety actions. Therefore, any efforts made by public and private stakeholders had limited impact.

Road safety strategy for 2011-2020

The third National Road Safety Strategic Plan, developed by the National Technical University of Athens, was approved by the Ministry of Infrastructure, Transport and Networks in September 2011.

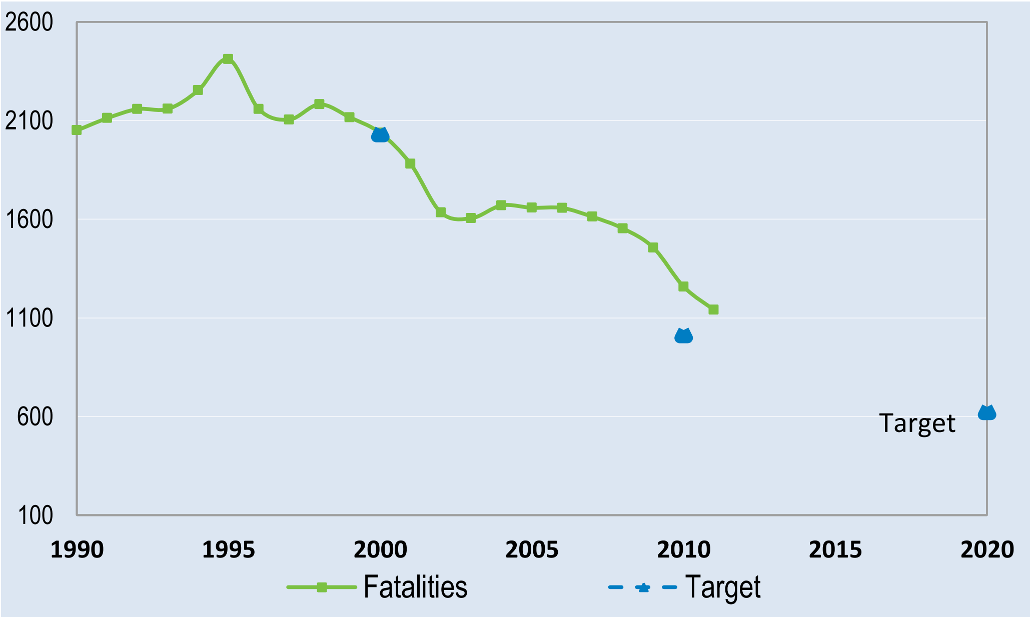
The strategic plan adopts the European target of reducing the number of road fatalities by 50% between 2010 and 2020, together with specific intermediate targets: i.e. reduction by 90 road fatalities per year between 2010-2014, and 50 road fatalities per year between 2014-2020.

With that target set, a series of specific actions within targeted programmes of the central and regional governments have been identified as necessary to reach the target without, however, a detailed specification of the effects of each action. A prerequisite for their success is a strong political will and support at the highest political level in order to activate the necessary mechanisms for efficient implementation of the strategic planning. The Inter-Ministry Committee, re-established in 2010, is expected to play a critical role in the efficient implementation of the actions and programmes set out in this strategic plan, supported by the re-operating National Road Safety Council. The current challenge for road safety is to benefit from the current major structural changes taking place in the public administration due to the economic crisis.

Monitoring

In 2011, a significant road fatalities reduction of 9.3% was achieved, attributed also to the deep economic crisis in Greece.

Figure 4. **Trends towards national target**



6. Recent safety measures (2011-2012) and effectiveness of past measures

The unprecedented economic crisis during the last three years has resulted in very limited budgets for road safety actions in Greece.

Some road safety measures of national, regional and local dimensions are being implemented with the focus on road safety enforcement (mainly speeding, drinking and driving and use of seatbelts and helmets) by the police, or through road safety education and information campaigns conducted mainly by private companies (e.g. motorway concessionaires, etc.) and NGOs (Road Safety Institute Panos Mylonas, etc.). Greek universities and research institutes carry out many road safety research projects (accident analysis, monitoring, etc.), thus supporting road safety actions in Greece.

No systematic inventory is kept and evaluations of these measures are rarely carried out.

7. Useful websites and references

Recent and on-going research

The National Technical University of Athens (NTUA) and the Hellenic Institute of Transport (HIT/CERTh) are the two main research organisations in Greece. Current research involved road accident analysis, road safety management and driver distraction (NTUA) as well as vehicle safety and driver behaviour (HIT).

Useful websites

Hellenic Statistical Authority	www.statistics.gr
Ministry of Infrastructure, Transport and Networks	www.yme.gr
NTUA Road Safety Observatory	www.nrso.ntua.gr
Road Safety Institute Panos Mylonas	www.ioas.gr
Road Safety Resources in Greece	www.nrso.ntua.gr/links

Contact

For more information, please contact: George Yannis (geyannis@central.ntua.gr)

Hungary

Source: IRTAD, KTI

Capital	Inhabitants	Vehicles/ 1 000 inhabitants	Road fatalities in 2011	Fatalities/ 100 000 inhabitants in 2011
Budapest	**9.9 million**	**361**	**638**	**6.4**

1. Comments about road safety data collection

In Hungary, the provision of road traffic accident data is governed by the government decree on the National Statistical Data Collection Programme, in line with the Act on Statistics, taking into account Council Decision 93/704/ EC., which stipulates that the Member States provide their safety data to the Commission for the elaboration of a Community database ("CARE"). The Hungarian national data collection system has been adjusted to the Common Accident Data Set (CADaS) structure. Variables are divided into four categories: Accident, Road, Traffic Unit, and Person.

Seriously injured is defined as any person who, due to the accident, sustained serious injury which:

- necessitates hospitalisation for more than 48 hours within seven days after occurrence; or
- caused fracture, except for finger, toe, nose fractures; or
- caused cut wounds, which resulted in serious bleeding or nerve, muscle or tendon injuries; or
- caused injury of inner organs; or
- caused burn of second or third degree, or burn affecting more than 5% of body surface.

Hungary does not have an appropriate national injury database in the health sector. Experts from the health sector have taken part in the IDB project and are now involved in the JAMIE project. This project aims at the development of an international injury database — which is the first step in the nationwide collection of MAIS3+ data.

2. Short term changes

Safety performance in 2011

The year 2011 saw a remarkable decrease in the number of fatalities (-14%) and seriously injured (-9%). This continues the good progress made in 2008-2010. These positive results are the fruit of the implementation of stringent safety measures, including the increased number of speed cameras, a “zero tolerance” approach to drink-driving, and further development of the demerit point system.

Provisional data for 2012

The final figure for 2012 is 605 road deaths, a decrease of 5.2 % compared to the 2011 final figure.

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

According to the traffic data, the yearly number of vehicle kilometres has decreased significantly on the state road network over the past few years. The decrease concerned both light and heavy vehicles.

Change in the number of fatalities and injury crashes

Between 1990 and 2011, the number of fatalities fell by 74% and the number of injury crashes by 43%. In the same period, the number of motor vehicles was multiplied by four.

According to Prof. Dr. Péter Holló, the history of Hungarian road safety can be divided into the following periods:

- 1976-1986: Relatively stable period. The 30-day definition of road accident victims was introduced in 1976.
- 1987-1990: Rapid deterioration, similar to all countries where the political, social and economic systems changed following the collapse of the soviet bloc. This political change was accompanied by negative side effects for road safety, due to weak police control, less political attention to road safety, a false interpretation of freedom, explosion in the size and changes in the structure of the vehicle fleet, etc.). 1990 was the worst year for Hungarian road safety, with nearly 2 500 people killed.
- 1991-2000: Important improvements and major initiatives:
    - 1993: Adoption of the first Hungarian National Road Safety Programme with a quantitative target. Consistent road safety measures were implemented: speed limit reduction inside built-up areas, use of daytime running lights outside built-up areas, intensified police control and road safety campaigns, more severe sanctions, etc.
    - 2000 was the most positive year until 2008, with a more than 50% reduction in the number of people killed (1 200) compared to 1990. Some demographic and economic factors contributed to the positive trend: a decrease in the number of young novice drivers and an increase in vehicle operating costs.
- 2001-2006: Deterioration, mainly outside built-up areas. In 2001, the speed limits outside built-up areas were raised. The level of police enforcement was insufficient, as was the organisation and funding of road safety activities.
- 2007-2012: 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 2012 the number of road accident fatalities was as low as that of 50 years ago. The improvement in the passive safety of vehicles is considered to be an important factor contributing to these positive results.

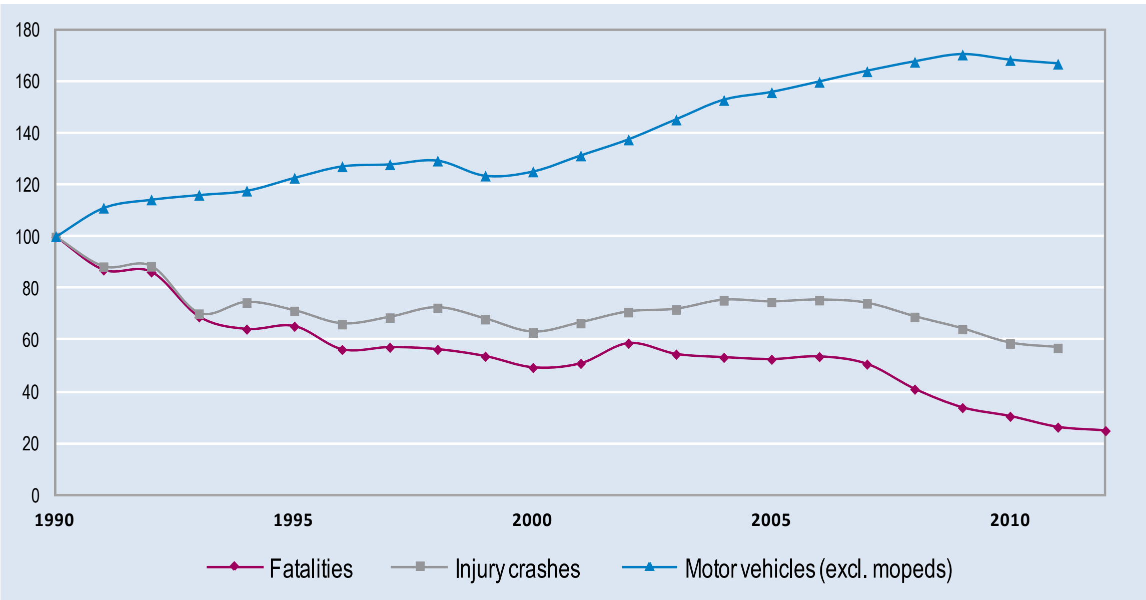
Risk and rates

In 2011, Hungary reached its lowest level in fatalities per 100 000 population, with a rate of 6.4 — nearly four times lower than its maximum in the 1990s.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1 990	2000	2010	2011	*2010*	*2000*	*1990*
Reported safety data							
Fatalities	2 432	1 200	740	638	-13.7%	-47%	-74%
Injury crashes	27 801	17 493	16 308	15 827	-2.9%	-10%	-43%
Deaths/100 000 population	23.4	11.8	7.4	6.4	-13.5%	-46%	-73%
Deaths/10 000 registered vehicles	10.13	4.31	1.98	1.68	-15.2%	-61%	-83%
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	2 163	2 706	3 640	3 609	-0.9%	33%	67%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	209	269	363	361	-1%	34%	73%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011 (Index 100 = 1990)**



2012 data are provisional

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around HUF 650-700 billion (around EUR 2.15-2.30 billion)[1], i.e. 2.5% of GDP. These costs are calculated using both a willingness to pay and "human capital" approaches (Hollo, 2013)[2].

Table 2. **Costs of road crashes**
2010

Cost (HUF))	Unit Cost	Total
Fatalities	330 million	
Serious injuries	77 million	
Slight injuries	850 000	
Property damage only	880 000	
Total		650 – 750 billion
Total as a % of GDP		2.5%

Road users

All user groups have benefited from important safety improvements since 1990 (when fatalities peaked), with large benefits for motorcyclists and moped riders (-65%), pedestrians (-85%) and bicyclists (-73%).

Since 2000, substantial reductions have been recorded in all road user categories except motorcyclists.

Moped fatalities increased by 63% during 2011 when compared with 2010 death figures, while motorcycle fatalities increased slightly by 6% during the same period.

Table 3. **Reported fatalities by road user group**
1990-2011

									2011% change over		
	1990		2000		2010		2011		*2010*	*2000*	*1990*
Bicyclists	313	13%	182	15%	92	12%	85	13%	-8%	-53%	-73%
Mopeds	95	4%	33	3%	19	3%	31	5%	63%	-6%	-67%
Motorcycles and scooters	143	6%	52	4%	49	7%	52	8%	6%	0%	-64%
Passenger car occupants	974	40%	500	42%	330	45%	268	42%	-19%	-46%	-72%
Pedestrians	803	33%	346	29%	192	26%	124	19%	-35%	-64%	-85%
Others	104	4%	87	7%	58	8%	78	12%	34%	-10%	-25%
Total	**2 432**	**100%**	**1 200**	**100%**	**740**	**100%**	**638**	**100%**	**-14%**	**-47%**	**-74%**

1. Source: KTI.
2. Holló, P., I. Hermann, *Updated costs of road traffic crashes in Hungary*. (in Hungarian) Közlekedéstudományi Szemle (Scientific Review of Transport). Under publication.

Age

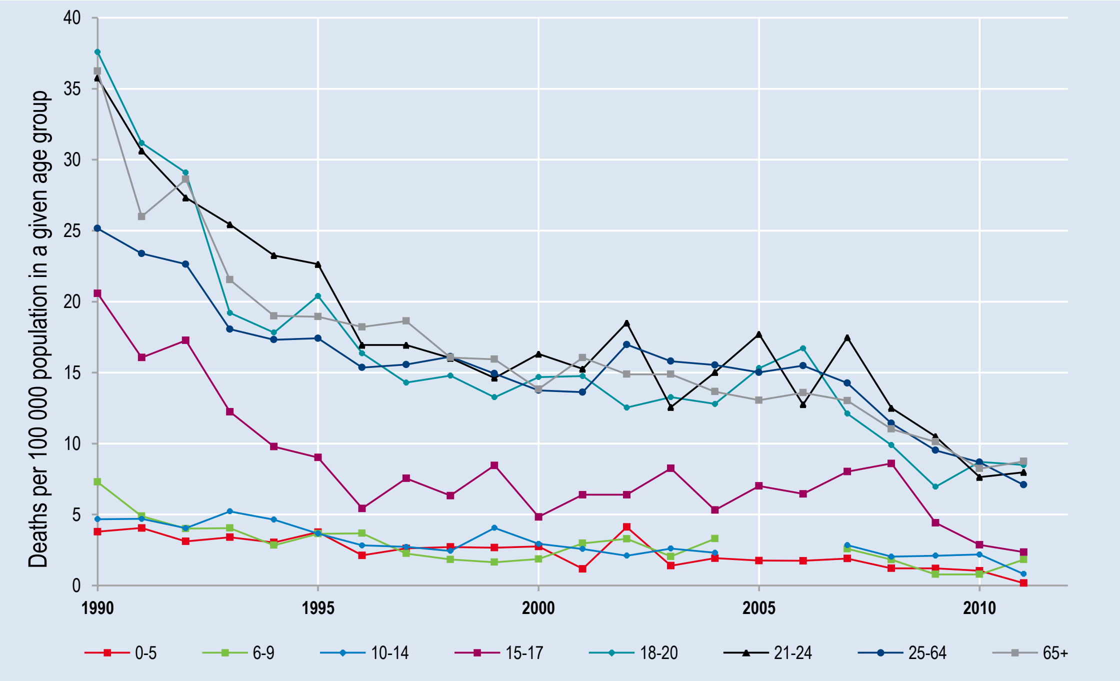
Since 1990, the reduction in fatalities has benefitted all age groups, but the most impressive reduction concerned the children (0-14), for whom fatalities decreased by 89%.

When examining traffic-related deaths on the basis of population, the age group most at risk is the 18-20 year olds, followed by 65 years and older.

Table 4. **Reported fatalities by road age group 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
0-5	28	17	6	1	-83%	-94%	-96%
6-9	39	9	3	7	133%	-22%	-82%
10-14	40	18	11	4	-64%	-78%	-90%
15-17	99	18	10	8	-20%	-56%	-92%
18-20	162	64	33	32	-3%	-50%	-80%
21-24	191	114	40	41	3%	-64%	-79%
25-64	1 365	736	488	399	-18%	-46%	-71%
>65	498	203	137	146	7%	-28%	-71%
Total	***2 422***	***1 179***	***740***	***638***	***-14%***	***-47%***	***-74%***

Figure 3. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**

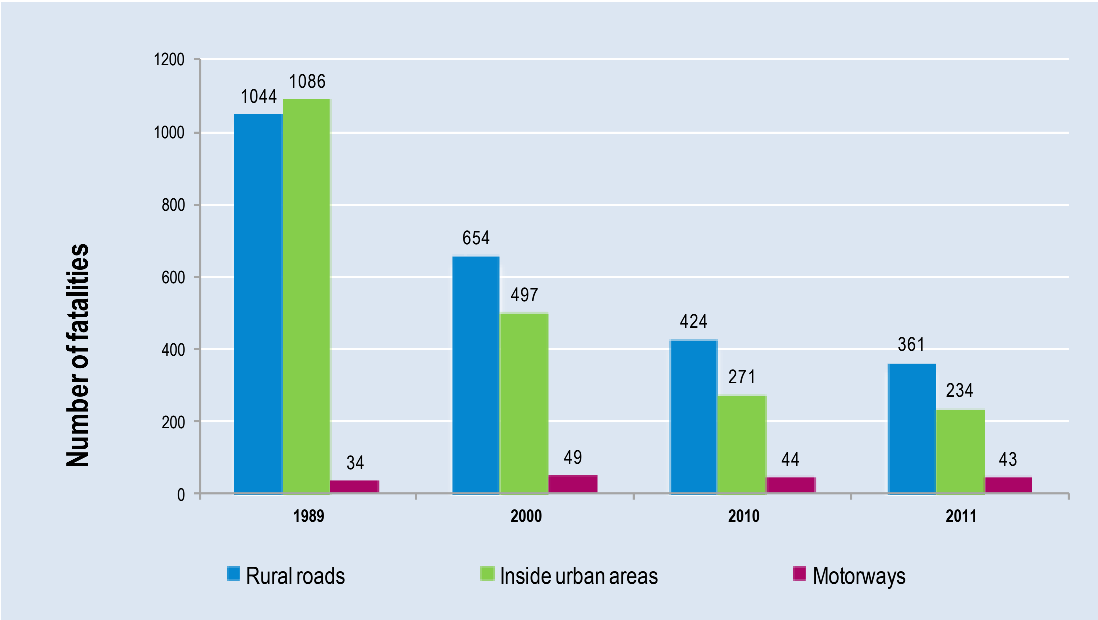


Road Type

In 2011, 57% of fatalities occurred on rural roads, 37% in urban areas and 7% on motorways.

Since 1989, the greatest reduction in fatalities has occurred in urban areas.

Figure 4. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

In Hungary, drivers must not drive under the influence of alcohol. The theoretical maximum BAC is 0.0 g/l. In practice, drivers are convicted if their BAC is above 0.2 g/l. However, the law was softened in July 2011, and the driving licence can be withdrawn on the spot only when the driver is "seriously" under the influence of alcohol.

In 2011, the number of personal injury crashes caused by driving under the influence of alcohol decreased by 13% in comparison with 2010. Still, 10.4% of all personal injury crashes were 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.

The table below summarises the main speed limits in Hungary.

Table 5. **Summary of speed limits in 2012**

	General speed limit *Passenger cars*
Urban roads	50 km/h
Rural roads	90 km/h
Motorways	130 km/h 110 km/h on motor roads

Seatbelts and helmets

Seatbelt 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.

The table and the figure below show the development in seatbelt usage rates between 1992 and 2012. In 2012, the rate was 82% for front-seat occupants and 58% for rear-seat occupants, which is low in comparison to other countries.

The use of child restraints also shows a great improvement: the rate of unprotected children decreased from 65% (1994) to 28% (2010). It means, however, that almost one-third of children still travel unprotected.

Helmet wearing has been compulsory since 1965 for motorcyclists, since 1997 for moped riders outside built-up areas, and since 1998 for moped riders inside built-up areas. The compliance rate by motorcyclists is nearly 100%.

Table 6. **Seatbelt wearing rate by car occupants**

	1992	2000	2011	2012
Front seats				
General	34.3	49%	79%	82%
Urban roads (driver)	30.4	35%	79%	77%
Rural roads (driver)	42.1	48%		83%
Motorways (driver)		62%		87%
Rear seats				
General	5.7	8%		58%
Children		15.0	85.9	84.3

Distracted driving, use of mobile phone and fatigue

Hungary identifies distracted driving in fatal and injury crashes. Mobile/cell-phone use, or texting/SMS, are not identified specifically in the categorization of distracted behaviour.

The use of hand-held mobile phones while driving is not authorised. The penalty for using a hand-held mobile phone while driving is HUF 10 000 inside built-up areas, HUF 15 000 outside built-up areas, and HUF 20 000 on motorways.

5. National road safety strategies and targets

Organisation of road safety

In Hungary, two Ministries are responsible for road safety: The Ministry of the Interior and the Ministry of National Development. The person in charge of road safety in the government is the Deputy State Secretary of the Ministry of National Development. There is also an interministerial Road Safety Committee.

Evaluation of the past road safety programme

The Road Safety Action Programme for 2008-2010 was a three-year project for road safety improvement. On the basis of the Action Programme, a yearly action plan was elaborated to define the content and schedule of road safety work in each specific year. The programme was prepared in accordance with relevant EU directives and strategic documents, as well as with national concepts and sector strategies (approved or under implementation). In 2002, Hungary adopted the following targets in the framework of the Hungarian Transport Policy (base year 2001):

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

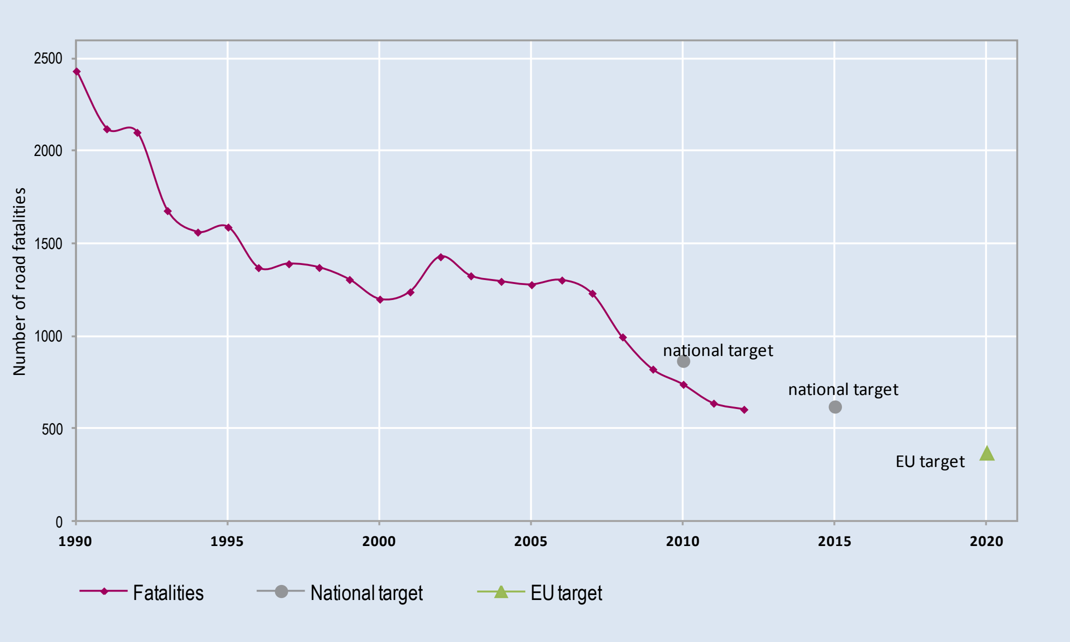
Road safety strategy for 2011-2020

A new road safety programme for the years 2011-2013 was adopted. The previous targets for 2015 are in theory still valid (but they were already reached in 2012). In addition, Hungary adopted the EC target to reduce by 50% the number of road fatalities by 2020, in comparison with 2010 level. This is equivalent to an average 5% annually, and to a 15% decrease for the period 2011–2013.

Monitoring

KTI is continuously monitoring the development of the road safety situation. It prepares detailed evaluation yearly, and conducts regular surveillance. The methodology of the evaluation contains not only absolute and relative numbers, but safety performance indicators as well; for example: safety belt wearing rates, child safety seat usage rates, DRL usage rates, etc. It is necessary to develop the system of performance indicators further, for example in the field of speed measurements.

Figure 5. **Trends towards national target**



6. Recent safety measures (2011-2012) and effectiveness of past measures (2005-2010)

The law on road traffic changed on 1 January 2011, and the legal framework changed significantly from 1 July 2011. The most important change is the possibility to enforce offences by motor vehicles holding foreign number plates. The demerit point system also evolved and became more stringent.

Speed management

The number of automatic speed cameras is increasing progressively.

The most important legal prerequisite for their use was the introduction of the owner's liability (i.e. the owner of a vehicle is responsible for the offences "committed" by the vehicle). This rule was introduced on 1 January 2008 and entered into force on 1 May 2008.

Impaired driving

Following the revised law on road traffic, implemented on 1 July 2011, the legal background for impaired driving is more stringent. Drivers under the influence of alcohol now have to pay a much higher financial penalty.

Cyclist safety

The "Szuperbringa" campaign, which is a bicycle education programme for students in the primary schools, started in 2012.

Driver education

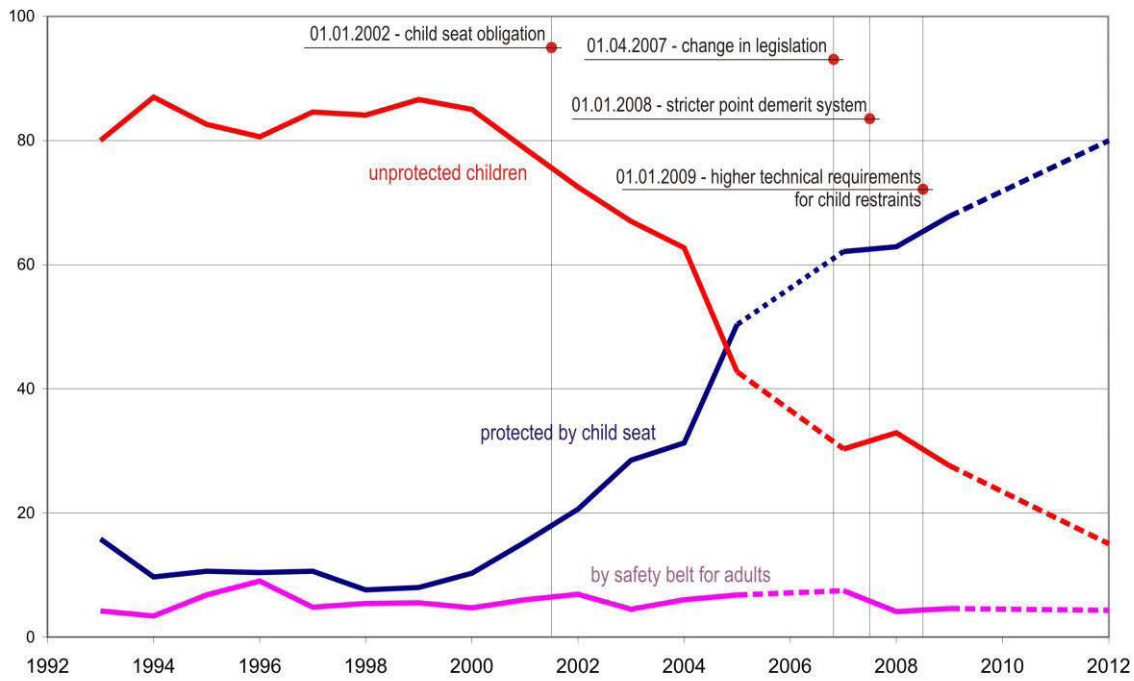
Since 1 July 2011, there is a new curriculum for driver education. Changes concern the theoretical education, which now includes e-learning, the accreditation of curriculum, and the possible increase of hours in practical education.

In 2011, the Road Safety Secretariat launched the "Lifelong on the Road Programme", aimed at providing a collective and unified education system from childhood so as to prepare responsible road users.

Seatbelt laws

Since July 2011, non-usage of child-restraint systems and the non-use of helmets have been included in the demerit point system. The international campaign to increase the usage rate of child safety restraints began also in 2012.

Figure 6. **Use of child safety devices in Hungary**



Infrastructure

In order to improve the safety at railway crossings, the police, in close co-operation with the MÁV (Hungarian Railway Company), organised enforcement actions to prevent road users from performing dangerous manoeuvres.

7. Useful websites and references

Useful websites

KTI- Institute for Transport Science	www.kti.hu

Contact

For more information, please contact: Prof. Dr. Péter Holló (hollo.peter@kti.hu)

Iceland

Source: IRTAD, Icelandic Road Administration

Capital	Inhabitants	Vehicles/ 1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Reykjavik	**319 000**	**808**	**12**	**3.8**

1. Comments about road safety data collection

Accident data in Iceland is based on police reports. Reports are made by police on scene and sent to the Icelandic Road Traffic Directorate. Information on the cause and type of accident is added to the files along with detailed information on location, vehicles as well as other fields.

100% of all fatal accidents are recorded in the database. In depth-study is undertaken for each fatal crash. By law, every injury accident should be reported to the police and therefore included in the database. In practice, some injury crashes are not reported to the police and others may be misreported.

Since 1999, crash forms are transferred electronically, which led to a much better reporting rate. It is not recommended to compare injury crash data for the years before 2000.

On average, for the last ten years, the number of seriously injured persons has been 9.5 times higher than those killed, while the number of people having minor injuries is 66 times higher.

Serious injuries are defined by an old European definition: "*Fractures, concussion, internal lesions, crushing, severe cuts and laceration, severe general shock requiring medical treatment and any other serious lesions entailing detention in hospital.*"

Iceland is working towards using the MAIS 3+ definition. Work is being done towards a central accident database (not just traffic accidents) in the healthcare system, in which MAIS score for each accident will be found.

As the number of fatalities in Iceland is low, fatality data is not compared between single years, but between five consecutive years series.

2. Short term trends

Safety performance in 2011

In 2011, 12 people were killed in road traffic. The 5-year average for 2007-2011 was 12.8 killed per year, but the previous 5-year (2002-2006) average was 25. This would suggest that, for the last few years, the number of killed has been decreasing substantially.

Provisional data for 2012

Final number for 2012 is 9 persons killed in road traffic, which is a decrease of 3 fatalities compared to 2011.

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

It is estimated that traffic volume (in veh-km) decreased by approximately 6% between 2007 and 2011.

Change in the number of fatalities and injury crashes

Iceland reached its highest number of persons killed in road traffic in 1977, with 37 fatalities. Since then the trend has been towards an important decline, while at the same time motorisation has significantly increased.

Between 1990 and 2011, the number of fatalities decreased by 50%, but the number of injury crashes increased by almost 50%. The reason for this apparent increase in injury accidents is largely explained by a better reporting of crashes. Up until 1998-1999, crash reports were sent by paper; since then reports have been sent electronically, leading to a much better reporting rate. It is not recommended to compare injury data for the years prior to 2000.

In recent years (2000-2011), the decrease in the number of fatalities was 62.5% and in the number of injury crashes, 14.5%.

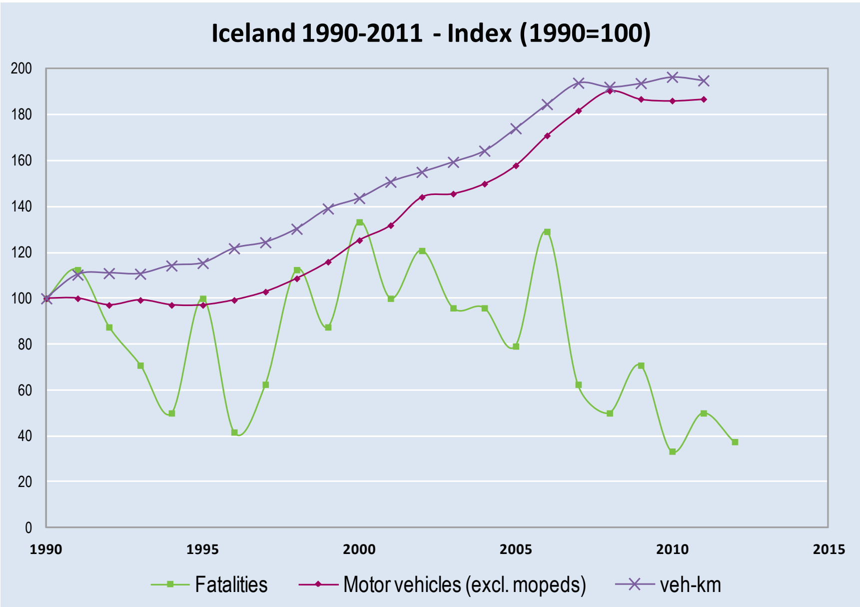
Risk and rates

In 2011, the mortality rate (expressed in terms of deaths per 100 000 population) was 3.8, among the lowest of all OECD countries.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
Reported safety data							
Fatalities	24	32	8	12	Figures too small for meaningful comparison		
Injury crashes	564	979	876	837	-4.5%	-15%	48%
Deaths/100 000 population	9.5	11.5	2.5	3.8			
Deaths/10 000 registered vehicles	1.7	1.8	0.3	0.5			
Deaths/billion vehicle-kms	14.9	13.8	2.5	3.8			
Fleet and mobility data							
Vehicles (x 1000, excl. mopeds)	138	173	258	257	-0.4%	49%	87%
Vehicle- kilometres (in million)	1 612	2 316	3 168	3 143	-0.8%	36%	95%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	539	611	811	808	-0.4%	32%	50%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2012**



Economic costs of traffic crashes

Costs of traffic crashes have been calculated based on the Cost of Illness (COI) approach. This method calculates the actual cost of a single accident and therefore how much money would have been saved had the accident not occurred. This method does not take into account psychological effects of those close to victims nor some expenses from the public insurance system and from the pension funds.

The latest study[1] was done in 2012 on the basis of 2009 crash data and estimated that traffic crashes cost around EUR 185 million, i.e. 1.2% of GDP.

Table 2. **Costs of road crashes**

Cost (EUR Billion)	2011
Fatalities	0.012
Injury and disability	0.097
Property damage and other costs	0.076
Total	0.185
Total as a % of GDP	1.2%

Road users

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

Table 3a. **Reported fatalities by road user group 1990-2011**

	1990		2000		2010		2011		2011% change over		
									2010	*2000*	*1990*
Bicyclists	0	0%	0	0%	0	0%	0	0%			
Motorised two-wheelers	3	13%	1	3%	1	13%	1	8%			
Passenger car occupants	15	63%	25	78%	4	50%	7	58%	Figure too small for meaningful comparison		
Pedestrians	6	25%	1	3%	2	25%	4	33%			
Others	0	0%	5	16%	1	13%	0	0%			
Total	**24**	**100%**	**32**	**100%**	**8**	**100%**	**12**	**100%**	**50%**	**-63%**	**-50%**

1. Hagfræðistofnun Háskóla Íslands (2012*), Kostnaður við umferðarslys á Íslandi árið 2009*
http://us.is/files/C12_04_Umferdarslys_2.pdf

Age

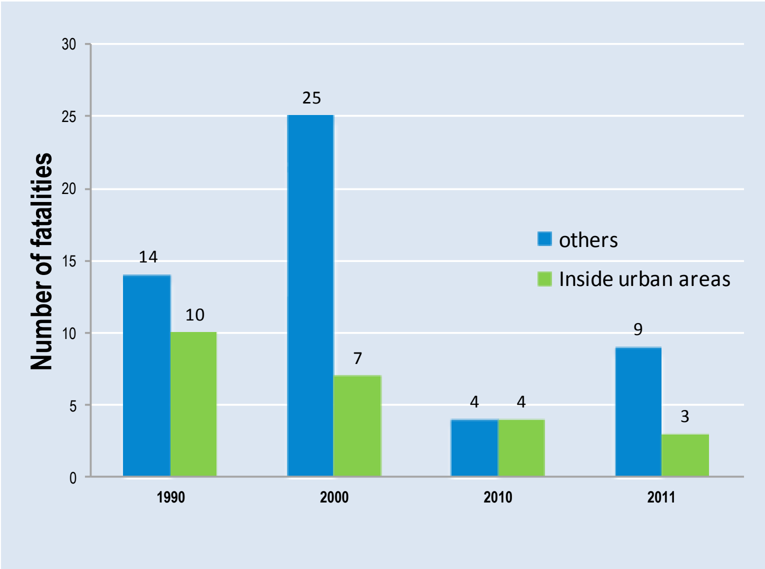
The table below shows a breakdown of fatalities by age group.

Table 4. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	2000	2010	2011	2010	2000	1990
0-5	1	0	0	1			
6-9	1	0	0	0			
10-14	1	0	0	1			
15-17	2	5	0	4			
18-20	4	4	2	0	Figure too small for meaningful comparison		
21-24	3	1	1	0			
25-64	9	13	3	4			
>65	3	6	2	2			
Total	*24*	*32*	*8*	*12*			

Road Type

Figure 3. **Reported fatalities by road type 1990, 2000, 2010 and 2011**



4. Recent trends in road user behaviour

Impaired driving

The maximum authorised blood alcohol content is 0.5 g/l. In Iceland during 2007-2011, on average, 23% of those killed and 8% of those seriously injured were involved in road accidents where one of the drivers had been drinking alcohol or using drugs.

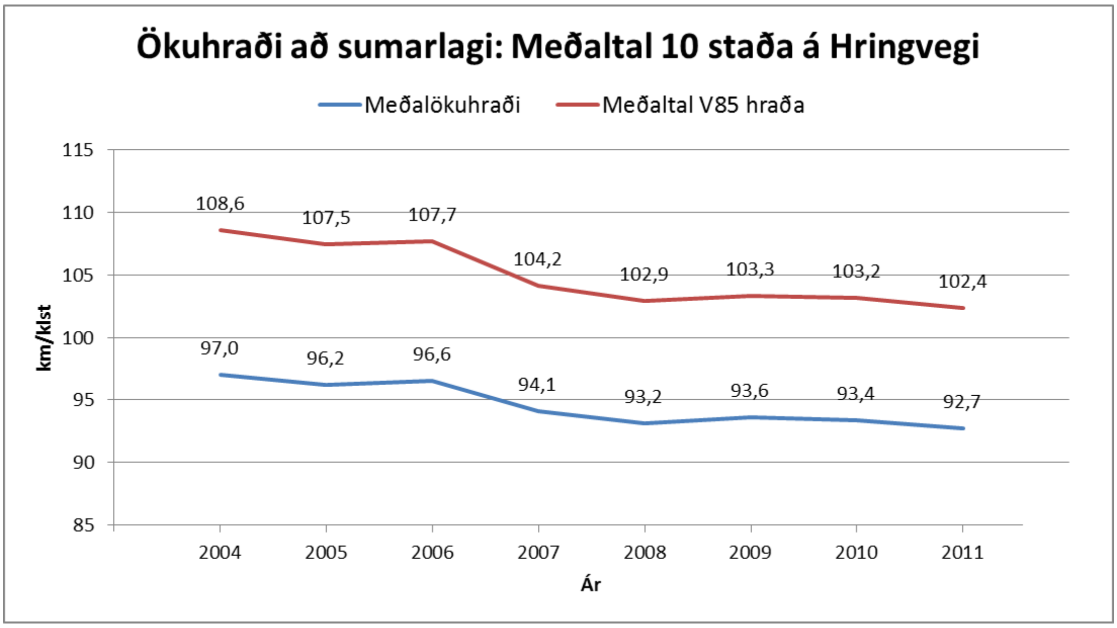
Speed

Speed has been a major problem on Icelandic roads. However, since 2004 Iceland has recorded a positive trend. This is mainly due to increased enforcement (both traditional enforcement and automatic speed controls).

Table 5. **Summary of speed limits in 2013**

	General speed limit - *Passenger cars*
Urban roads	50 km/h
Rural roads	90km/h paved roads 80 km/h gravel roads
Motorways	N/A

Figure 4. **The development of average speed (Medalökuhradi) and v85% speed (in summertime) on the Ring Road in Iceland (rural road with speed limit 90 km/hour) 2004-2011**



Seatbelts and helmets

In Iceland, it is compulsory to wear seatbelts in both front and rear seats if they are available. During the period 1998-2010, on average 42% of victims in fatal accidents (i.e. car occupants) were not wearing seatbelts. The figure was 40% in 2010 and 29% in 2011.

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

Table 6. **Seat-belt wearing rate by car occupants**

	2010	2011
Front seat		
General	88%	85%
Urban roads (driver)	77%	76%
Rural roads (driver)	95%	91%
Rear seats		
General	73%	72%

Distracted driving, use of mobile phone and fatigue

Drivers of vehicles are not allowed to use mobile phones when they are driving, with the exception of hands-free devices. This law was enacted on 1 November 2001.

5. National road safety strategies and targets

Organisation of road safety

Two organisations manage road safety in Iceland. The Icelandic Road Administration (Vegagerðin) handles the infrastructure; the actual road improvements, and the Icelandic Road Traffic Directorate (Umferðarstofa) handles the human behaviour elements; campaigns, education etc.

In addition to the two organisations mentioned above, there are several stakeholders who take part in road safety work: the police, the Road Accident Analysis Group, municipalities, insurance companies, the automobile owners association, the national motorcycle association, the directorate of health, as well as the ministry of interior and the ministry of health.

Road safety strategy for 2011-2022

In 2011, the Icelandic Parliament agreed upon a new Traffic Safety Plan for the period 2011-2022.

Target setting

The Plan has the following targets:

- In 2022, the number of traffic fatalities per 100 000 inhabitants in Iceland must not exceed the rate of countries with outstanding traffic safety records (e.g. Great Britain, Sweden and the Netherlands now have the lowest numbers).

- The number of killed and seriously injured must decrease by 5% per year on average until 2022.

The target setting process for the first indicator is self-explanatory. The second target (average annual decrease of 5% of killed and seriously injured) was selected because it is believed to be achievable with strategies and funds attached. This is equivalent to a 40% decrease over a decade and 46% decrease over the twelve year period the target is set for (2011-2022). The baseline for the second target is the average of the years 2006-2010, which was 201.

To assist in achieving this target, 11 sub targets have been set to guide the strategy and monitor progress. These sub-targets include:

- 5% decrease of accidents involving young drivers (17-20 y.o.)
- elimination of fatalities due to lack of seatbelt wearing
- 5% decrease in injured foreigners.

Monitoring

Effects of traffic safety projects and measures are regularly monitored. For example, the effectiveness of infrastructure improvements is measured on the basis of the number of crashes on the road which was upgraded. The impact of safety campaigns are measured through surveys among road users and also on the basis of data regarding specific type of accidents

Accident data are monitored throughout the year. Information is being processed and analysed one-and-a-half month after the end of that month, and the focus of safety measures is influenced by this short term analysis. Annual reviews are also undertaken, focusing in particular on the sub targets.

With a fatality rate per 100 000 population of 2.8 in 2012, the first target has actually been achieved; Iceland is among the best performing countries in terms of persons killed per capita. The challenge is to stay in that group.

Figure 4. **Trends towards national target**

Type	Targets (in % or absolute figures)	Base years*	Target year	Base year figure	Current results (2012 figure)
Fatalities per 100 000 population	Not higher than the best performing countries	2006-2010	2022	5.2	2.8
Killed and seriously injured	-5% per year	2006-2010	2022	201	145

* I.e. the average of the sum of killed and seriously injured, 2006-2010.
When the Traffic Safety Plan was prepared, the figures for 2010 were the most recent.

6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

Speed enforcement (both traditional and automatic speed control) will continue. In addition it has been decided to look into automatic section speed control in the coming years. This has proved more effective than automatic speed control at a specific spot. Automatic speed control was introduced in Iceland in 2007. The downward trend in speed (see section above) is partly related to this new enforcement technique.

Impaired driving

The Road Traffic Directorate started working with the Health Directorate on trying to get doctors to identify people with health conditions not compatible with driving. If appropriate, this group would then have their driving licence suspended. In practice, however, this is difficult — especially in rural areas and small towns, where the doctor is often a personal friend of the patient; there is a certain stigma in losing one's license because of one's health (not to mention the loss of freedom).

This project is still ongoing, so there is no data to report on as yet.

Driver education

A lot has been done in driver education in the past years. A new type of driving school has been added to the classic academic and vocational ones. This third school focuses on attitudes towards risk taking, and handles safety issues regarding driver behaviour. The students are put in a rollover car (in which they are turned upside down wearing a seatbelt) they then experience the forces the seatbelt actually takes on in these situations. They also experience the force of hitting a wall at about 7 km/h. The new school has been a great success and has had very positive effects on road safety. It has also been very well received by students, who find it is both useful and fun (albeit expensive).

Another novelty is the "special seminar". In Iceland, the driving licence is provisional until twelve consecutive months without a penalty point. A novice driver who loses four points (for instance, by running a red light or a stop sign) while holding a provisional licence, or a driver caught driving much too fast or under the influence of alcohol or drugs, must attend a "special seminar" to get the licence back.

This new approach of using the provisional licence as an extended educational process has seen a dramatic drop both in accidents involving young drivers and in the number of young people committing these offences. The number of accidents involving 17-20 year-old drivers was, on average, 308 per year during the period 2006-2010, and this figure dropped to 146 in 2012.

Vehicle safety

There is no vehicle manufacturing in Iceland, so vehicle safety is handled mainly through regular inspections and regulations regarding equipment. Every car in Iceland is inspected each year (except for new cars, which are inspected every second year). Failing to have one's car inspected is now sanctioned by a fine, and this has contributed to a much better compliance with the rule.

In regard to regulations on equipment, Iceland is in the process of increasing the minimum pattern depth of tyres and is also considering the possibility of making ESC (and perhaps other safety features) mandatory for new cars.

Infrastructure

Following the crisis in 2008, the number of new roads built each year decreased dramatically.

The EU Directive on Road Infrastructure Safety Management was implemented in Iceland in the autumn of 2011 with a regulation. Previously, Road Safety Impact Assessment, Road Safety Audit and Black Spot Management were already performed to a certain extent. With the implementation of the Directive, there has been more emphasis on Road Safety Inspection.

In the current Road Safety Plan there is huge emphasis on improving roadsides, i.e. making them more forgiving. In the period 2007-2011, almost two thirds of all accidents on state roads in rural surroundings, in which people got injured or killed, were run-off-road accidents. The first option is always to try to provide sufficient safety zones along the road (e.g. make the slope more flat and free of obstacles), but if this is not possible a safety barrier is installed.

Since 2010, the Icelandic Road Administration has focused on installing safety barriers in the median of roads within the capital area, where the speed limit is 70 km/hour or more.

Rumble strips (both shoulder and median) were introduced in 2007. These have been very well received, but the effectiveness remains to be proved.

Road safety campaigns

Road safety campaigns are regularly conducted. The focus is mainly on speeding, seatbelt wearing and drink driving. Other emerging safety issues are also addressed to the extent possible, including fatigue and the use of mobile phone. A recent campaign focused on motorcycle side-impacts, which occur when the car driver does not see the motorcycles or misjudges their speed. that is that drivers often don’t see motorcycles or they miscalculate their speed. After this campaign the drop in side-impacts involving motorcycles dropped by more than 50% in one year.

7. Useful websites and references

Useful websites

Safe Travel	http://www.safetravel.is
Road Traffic Directorate	www.us.is
Iceland Road Administration	www.vegagerdin.is
Road Accident Analysis Group	www.rnu.is

Contact

For more information, please contact: audur.th.arnadottir@vegagerdin.is

Ireland

Source: IRTAD, Road Safety Authority

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Dublin	**4.5 million**	**541**	**186**	**4.1**

1. Comments about road safety data collection

In Ireland the official road collision data is generated by two agencies. Members of An Garda Siochana complete detailed road collision reports that are subsequently forwarded to the Road Safety Authority for analysis and publication. The reporting of fatalities is comprehensive in Ireland, but the serious injury collisions are under-reported. The RSA has commissioned a study examining the feasibility of adopting MAIS+3 definition of serious injury and linking Irish Hospital data with the police data.

2. Short term trends

Safety performance in 2011

In 2011 there were 186 road fatalities, an average of 16 deaths per month, which is the lowest recorded number of fatalities since 1959, when the safety record began.

Total fatalities reduced by 12% in 2011 compared with 2010. Substantial reductions were recorded in car occupant casualties (27% reduction). The number of drivers killed in 2011 showed a reduction of 14 % compared to 2010. Fatalities among motorcyclists increased by one on the 2010 level of 17 fatalities and there was increase in fatalities for pedestrians (3 fatalities increase), pedal cyclists (4 fatalities increase) and goods vehicles users (7 fatalities increase). Fatalities among passengers in 2011 were 40% less than 2010 figures.

Provisional data for 2012

The provisional figure for 2012 is 162 road deaths, a decrease of 12.9% compared to the 2011 final figure.

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

Since 2000, the population has increased by 21%, registered motor vehicles (total fleet) by 44%, the number of driver licence holders (both full and learner permit) by 32% and fuel consumption for all road transport (i.e. road freight, private car and public passenger services) has increased by 10%. Contributing to the increase in exposure is an increase in the proportion of individual license holders to adult population (17 years and over). This was 71% in 2000, but by 2011 this proportion had increased to 76%. However the number of fatalities has decreased by 55% since 2000.

Since the economic downturn in 2008 the number of goods vehicles (light and heavy) on the road has decreased by 9%. Likewise, the fuel consumption for all road transport has decreased by 19% since 2008. However the number of goods vehicles on the road in 2011 has increased by 60% on 2000 level.

Change in the number of fatalities and injury crashes

Fatalities for all user groups decreased significantly since 2000. Total fatalities reduced by 55%

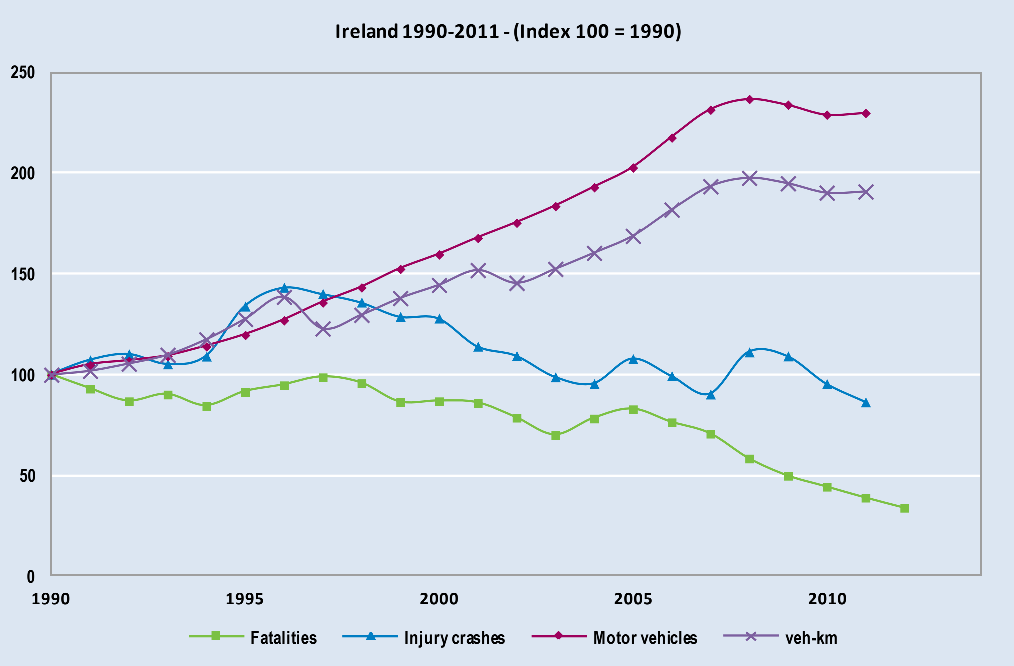
Risk and rates

Since 2000, the risk has been more than halved for three risk indicators.

Table1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Reported safety data							
Fatalities	478	415	212	186	-12.3%	-55%	-61%
Injury crashes	6 067	7757	5 780	5 230	-9.5%	-33%	-14%
Deaths/100 000 population	13.6	11.0	4.7	4.1	-12.4%	-62%	-70%
Deaths/10 000 registered vehicles	4.5	2.5	0.9	0.8	-12.5%	-69%	-83%
Deaths/billion vehicle-kms	19.2	12.6	4.5	3.9	-13.3%	-69%	-80%
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	1 054	1 684	2 416	2 425	0.4%	44%	130%
Vehicle- kilometres (in millions)	24 896	36 001	47 414	47 561	0.3%	32%	91%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	301	444	541	541	0.1%	22%	80%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2012***



** Provisional data for 2012*

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2011 at around EUR 792 million, i.e. 0.5% of GDP.

The cost of collisions was based on those as outlined in the 2004 Goodbody Economic Consultants' report entitled *Cost Benefit Parameters and Application Rules for Transport Project Appraisal,* which was commissioned by the Department of Transport[1]. An updating mechanism was used in order to inflate the year 2002 cost values to 2011 values, using the growth in Gross National Product (GNP) per person employed.

Table 2. **Costs of road crashes**

Cost (EUR Billion)	2010	2011
Fatal	0.478	0.449
Serious Injury	0.141	0.121
Minor Injury	0.176	0.162
Property damage and other costs	0.058	0.060
Total	0.853	0.792
Total as a % of GDP	0.55%	0.50%

1. http://www.transport.ie/upload/general/5830-1.pdf

Road users

Fatality figures for all user groups have improved over the period 2000 and 2011. Substantial reductions have been recorded in all road user categories, with the highest reduction for car occupants (-63%) and motorcyclists (-54%).

In 2011, the number of car occupants killed showed a reduction of 27% compared to 2010.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		2010	2000	1990
Bicyclists	46	10%	10	3%	5	2%	9	5%	80%	-10%	-80%
Motorised two-wheelers	41	9%	39	10%	17	8%	18	10%	6%	-54%	-56%
Passenger car occupants	206	43%	260	66%	130	61%	95	51%	-27%	-63%	-54%
Pedestrians	150	31%	85	22%	44	21%	47	25%	7%	-45%	-69%
Others	35	7%	21	5%	16	8%	17	9%	6%	-19%	-51%
Total	**478**	**100%**	**415**	**100%**	**212**	**100%**	**186**	**100%**	**-12%**	**-55%**	**-61%**

Table 4. **Relative fatality risk by road user group 2011**

	Reported fatalities	Deaths per billion veh-km
Passenger car occupants	95	2.5
Bicyclists	9	-
Motorcycles	18	60.8
Pedestrians	47	-
Goods vehicles	17	1.9
Public service vehicles	0	0
Rail transport	7	-
Air transport	6	-

Age

All age groups have benefited from the improvement in safety level, with the largest reduction in fatality levels for the 0-14 age group. For example, there is a reduction of 75% for the 0-5 age group since 2000.

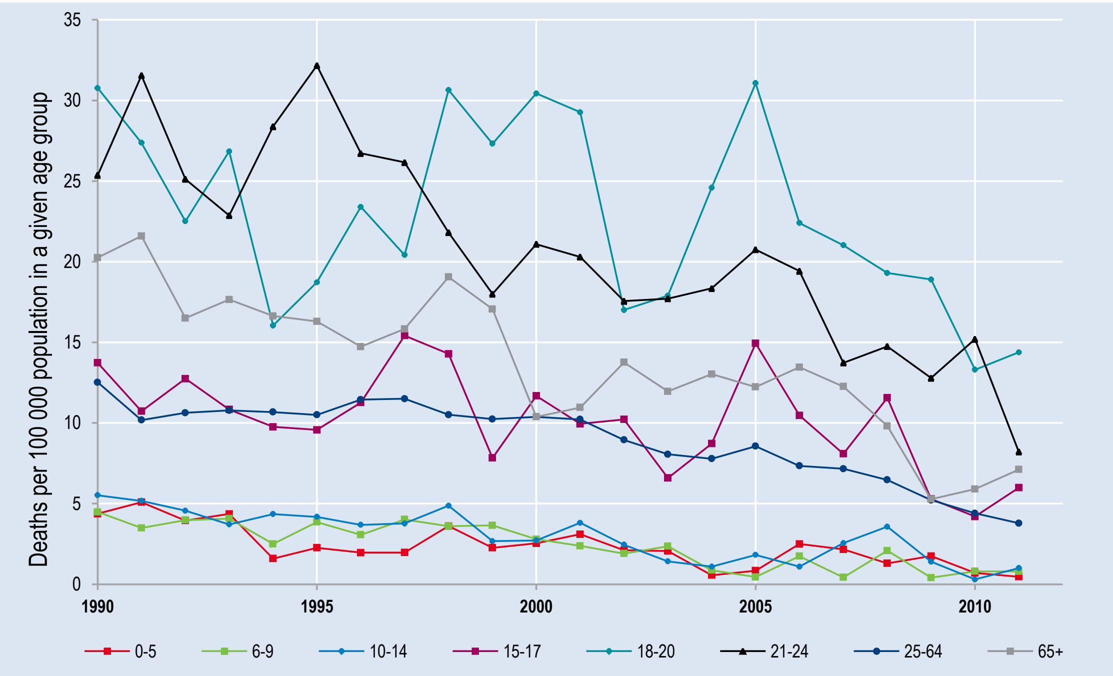
In 2011, 25.8% of all the people killed were aged 17-24. Thirty-five percent of car drivers killed were aged 17-24. Nearly twenty percent of people killed were aged 65 and over.

In 2011, the 18-24 year olds represented the age group the most at risk, with a fatality rate of 14.4, i.e. more than double that for the general population, which is 4.1.

Table 5. **Reported fatalities by age group 1990-2011**

	1990	2000	2010	2011	2011% change over 2010	2000	1990
0-5	15	8	3	2	-33%	-75%	-87%
6-9	12	6	2	2	0%	-67%	-83%
10-14	19	8	1	3	200%	-63%	-84%
15-17	28	23	7	10	43%	-57%	-64%
18-20	56	63	21	22	5%	-65%	-61%
21-24	53	54	35	17	-51%	-69%	-68%
25-64	193	195	109	93	-15%	-52%	-52%
>65	81	44	30	37	23%	-16%	-54%
Total	***478***	***415***	***212***	***186***	***-12%***	***-55%***	***-61%***

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**

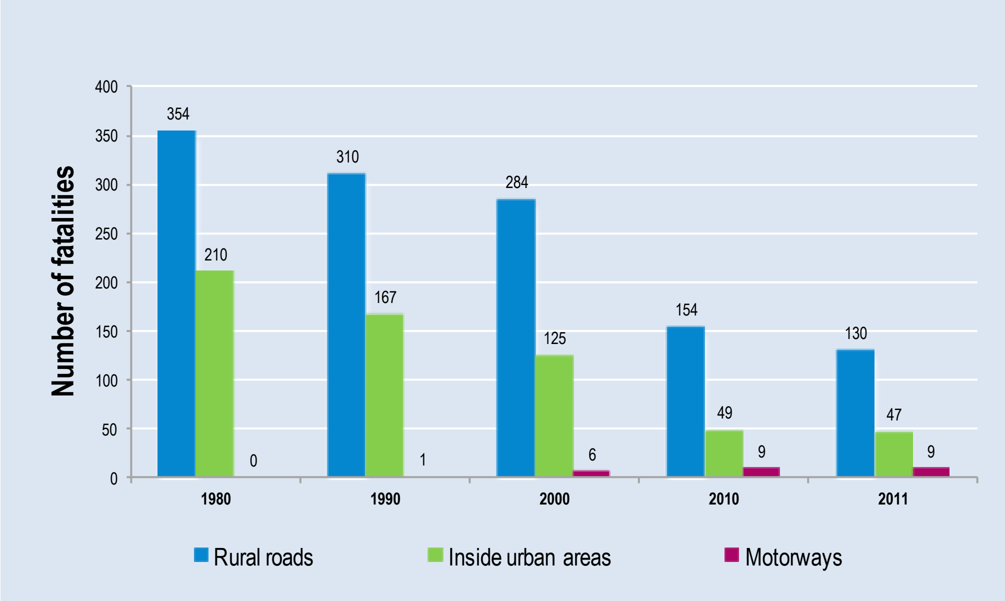


Road Type

A large majority of fatal crashes occur on rural roads. In 2011, 70% of fatal crashes occurred on rural roads, 25% in urban areas and 5% on motorways. Since 1990, the greatest reduction in fatalities has occurred on urban roads (-72%).

The small number of fatalities on motorways is mostly due to the relatively low collision rates on this type of carriageway.

Figure 3. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

Since 2010, the maximum authorised BAC level is 0.5 g/l (0.2 g/l for young drivers and professional drivers). It was 0.8 g/l until 2009.

It is estimated that in 2007, drink-driving (driver with a BAC > 0.2 g/l) was a factor in 15.53% of fatal crashes.

It is estimated that 1.5% of drivers and motorcyclists involved in fatal collisions over the period 2005-2007 had taken illicit drugs. Illicit drug use was prevalent among male and young drivers (17-34 year olds) in Ireland. Three out of five illicit drugs-related fatal crashes did not involve any other vehicle (Review of Forensic investigation files for fatal road traffic collisions 2005-2007 to be published).

Speed

In 2012, a total of 12 557 cars were surveyed on the road network in Ireland. 41% (5 207) of these were travelling on urban roads and 59% were travelling on rural roads.

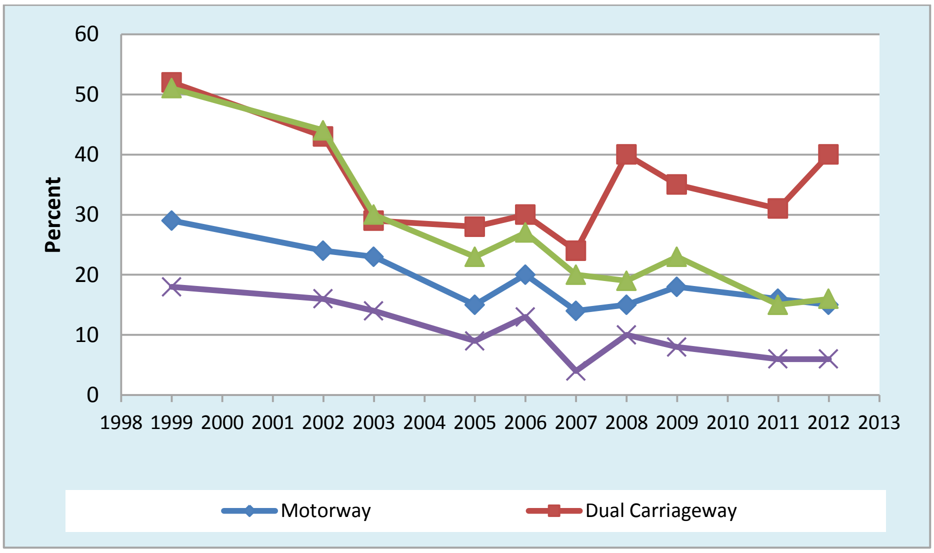
The table below summarises the main speed limits in Ireland.

Table 6. **Summary of speed limits in 2012**

	General speed limit *Passenger cars*	Actual speeds	Comments
Urban roads	50km/h	56% of cars above the speed limit	Improvement on 2011 rate of 59%
Rural roads (excluding Motorway)	80km/h or 100km/h	21% of cars above the speed limit	Improvement on 2011 rate of 22%
Motorways	120km/h	15% of cars above the speed limit	Improvement on 2011 rate of 16%

- 21% of all cars observed on rural roads (excluding motorway) were speeding (i.e. driving at a speed greater than posted speed limit).
- 56% of all cars observed on urban roads were speeding.
- On motorway, national primary and national secondary, the proportion of cars complying with speed limits has increased compared with 2009 survey results.

Figure 4. **Percentage of cars exceeding speed limit on rural roads 1999-2012**



Seatbelts and helmets

The 2012 survey on Irish roads showed that the seatbelt wearing rate for front occupants of cars and light goods vehicles was 92%.

- Overall seatbelt wearing rate for adults (drivers, front and rear passengers) was 92%.
- In 2012, 93% of drivers were observed wearing a seatbelt, an improvement on 2009 wearing rates.
- Front seatbelt wearing rates have marginally decreased compared to the 2011 level; the rear seatbelt wearing rate for adults has also decreased marginally, from 90% in 2011 to 89% in 2012.
- The results also suggest that both male and female drivers are more likely to wear a seatbelt if the front seat passenger is belted up.

- Female drivers were 1.9 times more likely to be wearing their seatbelt compared to male drivers.
- Women are more likely than men to belt up in rear seats, with wearing rates of 90% and 88% respectively.

Table 7. **Seatbelt wearing rate by car occupants**

	2005	2008	2011	2012
Front seat				
General (Adult)	72%	90%	94%	92%
Urban roads (driver)		93%	95%	93%
Rural roads (driver)		88%	92%	92%
Rear seats				
General (Adult)	46%	78%	90%	89%
Children	57%	73%	94%	95%

A roadside observation survey of pedal cyclist and motorcyclist usage of helmet and high visibility clothing was carried out in 2011. The survey was undertaken at 150 urban sites across Ireland. As expected, there were a very high percentage of motorcyclists wearing helmets (99.9%), as it is a legal requirement. The percentage of pedal cyclists wearing helmets is similar across gender, with the wearing rates slightly higher for females (51.5%) than males (48.1%).

Table 8. **Helmet wearing rates 2011**

		Wearing Helmet		
Type	**Gender**	**Yes**	**No**	**Helmet Wearing Rates**
Motorcycles	Male	4 522	4	99.9%
	Female	133	0	100%
	Total	**4 655**	**4**	**99.9%**
Pedal Cycles	Male	6 744	7 283	48.1%
	Female	1 805	1 702	51.5%
	Total	**8 549**	**8 985**	**48.8%**

Distracted driving, use of mobile phone and fatigue

It is illegal to drive while using a hand-held mobile phone.

In 2011, the Road Safety Authority research department conducted a national observational survey on mobile usage on Irish roads. The results are summarised below:

- 10% of drivers observed not wearing seatbelts were also using mobile phones when driving.
- 22% of drivers observed using mobile phones were not wearing seatbelts.

- 3% of all drivers observed were using mobile phones when driving.
- Unbelted drivers are four times more likely than belted drivers to use mobile phones when driving.

5. National road safety strategies and targets

Organisation of road safety in Ireland

The Road Safety Authority (RSA) is a State Body under the aegis of the Department of Transport, Tourism and Sport tasked with improving safety on our roads in order to reduce road death and injury resulting from road collision.

Co-operation and co-ordination will be developed and enhanced among all key stakeholders together and by these stakeholders with the road using public.

The main stakeholders are:

- Department of Transport, Tourism and Sport
- An Garda Síochána
- The National Roads Authority
- Medical Bureau of Road Safety
- The Department of Justice and Equality; the Department of Education and Skills; the Department of Environment, Community and Local Government; the Department of Health; the Department of Children and Youth Affairs, etc.

Evaluation of the past road safety programme

A strategic approach to road safety was first adopted in 1998, the third such strategy was published in 2007 (the Road Safety Strategy 2007-2012). The strategy set out comprehensive targets and identifies 126 actions to be completed within its lifetime. The main targets were to:

- Reduce collisions, deaths and injuries on Irish roads by 30%.
- Reduce the rate of road fatalities to 60 per million population by 2012, and 50 or fewer in the subsequent years, with a demonstrable reduction in each year of the strategy.
- Reduce injuries by 25%.
- Set specific targets for reducing speed.
- Set a specific target to increase restraint use.

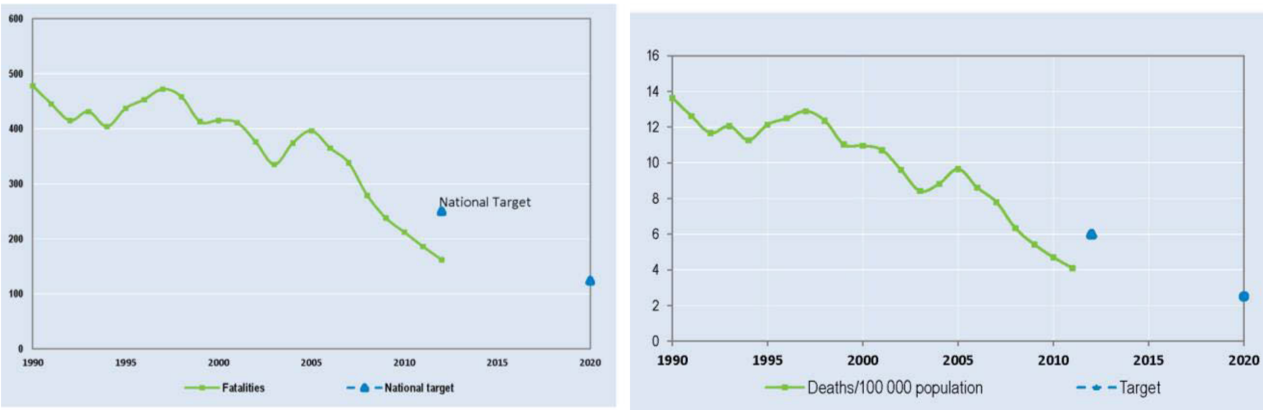
Between 2007 and 2012, the number of fatalities decreased by 52% and the fatality rate in 2012 was 35 per million inhabitants. The evaluation of 2007-2012 Road Safety Strategy has been conducted[2]. The conclusions of the review are outlined below:

2. Evaluation of the Road Safety Strategy 2007-2012 (Draft Report), December 2012, RPS Consulting.

- The number of fatal vehicle-on-vehicle collisions has more than halved over the period of the strategy.
- The number of other fatal collisions has reduced by around a third.
- The reported rate of serious collisions in 2011 was less than half that at the start of the Strategy period.
- The impact of the Strategy equates to the prevention of 686 fatal collisions, 1 312 serious injuries and 649 minor collisions.
- A road safety culture firmly embedded in the road-using public.

The review also found that the vast majority of the actions that were committed to as part of the Strategy were implemented in full. Measures that required cross-agency co-ordination proved more difficult to implement. The report is yet to be published.

Figure 5. **Trends towards national target**



Road safety strategy for 2013-2020

The Road Safety Authority has published a new Road Safety Strategy to cover the period 2013 to 2020.

Target setting

The strategy set out comprehensive targets and identifies 144 actions to be completed within its lifetime. The main targets are:

- A reduction of road collision fatalities on Irish roads to 25 per million population or less by 2020.
- A provisional target for the reduction of serious injuries by 30% from 472 (2011) or fewer, to 330 by 2020 or 61 per million population, has also been set.
- Set specific targets for reducing speed.
- Set a specific target to increase restraint use.

Monitoring

The broad monitoring arrangements that were instrumental in the success of the previous Strategy will be maintained. There will be an annual review of the Strategy involving the lead Departments and Agencies. Progress in implementing the Strategy will be reported in the context of the Annual Road Safety Strategy Report to the Minister for Transport, Tourism and Sport. This report will be informed by consultation with the major stakeholders. A mid-term evaluation of the Strategy will be implemented in 2016 and this will provide an opportunity to recalibrate targets and to implement adjustments to the education, engineering and enforcement measures as required.

The Ministerial Committee on Road Safety will continue to oversee the implementation of the Strategy. Ongoing monitoring and outcome measurement will be augmented by the mid-term review. The review will include an analysis of all socio-economic costs and burdens in relation to road safety as well as congestion/disruption costs.

6. Recent safety measures (2011-2012)

Enforcement

In 2012 there was high visibility enforcement of the law targeting speed, mandatory alcohol testing, seatbelt wearing, licensing, and vehicle roadworthiness and driver rest regulations. An important principle of the enforcement activity was the recognition that success in enforcement achieves increased levels of compliance with road traffic law.

The following table provides data from a number of sources regarding detection of non compliance with the law in relation to speeding, seatbelt wearing and driving whilst intoxicated.

Table 9. **Detection of non-compliance regarding speeding, seatbelt wearing and driving whilst intox**icated

	2005	2006	2007	2008	2009	2010	2011	2012
Speeding	143 661	181 335	194 620	178 171	180 345	158 123	262 799	224 937
Seatbelts	18 084	26 687	30 002	28 725	20 493	17 383	15 723	13 802
DWI* Arrests	13 370	17 868	19 838	18 013	15 121	12 606	10 878	9 363

* Driving While Intoxicated

Speed management

An Garda Síochána has contracted GoSafe to operate a safety camera network on behalf of the Gardaí to reduce deaths and injuries as a result of speeding. The safety cameras are located in areas that have been identified as having a history of speed-related death and injury. The operation of the Safety Camera Network produces 6 000 hours of enforcement per month.

Impaired driving

The National Programme Office for Traffic Medicine was established by the Road Safety Authority and the Royal College of Physicians of Ireland in 2011 to take the lead on the development and implementation of a national framework on standards in traffic medicine.

The discipline of traffic medicine is aimed at understanding and mitigating the road safety risks to which disability or illness give rise, and reducing the harm traffic crashes inflict on fragile human beings. There is also an enabling/rehabilitative element which tries to ensure that transport mobility is not hampered, or rendered unsafe, by remediable illness or functional loss.

7. Useful websites and references

Recent and on-going research

- **2011 The Psychology of Risky Driving[3]**

In a national survey of drivers in the Republic of Ireland that sought to examine psychological predictors of specific driving behaviours, 1 638 respondents attending National Car Testing (NCT) centres nationwide completed a questionnaire battery that included personality, attitudinal, locus of control and social influence measures. The driving behaviours examined were drawn from a driving behaviour scale (Iversen, 2004) and included Speeding and Rule Violation, Reckless Driving, Wearing of Seatbelts, Cautious Driving and Drink Driving. Cross-group comparisons suggested that males engaged in more risky and less cautious driving behaviours than females, and participants under the age of 25 were more risky and less cautious than those 25 years or older. Statistically significant models of each driving outcome emerged. The best model fit was for Speeding and Rule Violation, which was predicted by a model including positive attitudes towards speeding, greater normative influences of friends and higher perceived behavioural control, extraversion and driving anger. These findings offer important insights into the correlates of different driving behaviours and can help inform the work of road safety practitioners.

- **2011 Sharing the Road Barometer Survey**

This survey of Drivers, Motorcyclists, Cyclists and Pedestrian experiences of sharing the road in Ireland seeks to help address the above Priority Action. There is considerable consistency in the way road user groups see each other. Only in relation to cyclists are there significant differences in perceptions on a demographic basis, with urban respondents much more likely to be critical of cyclists' behaviour (to be published on the RSA website).

- **2011 Evaluation of Road Safety Educational Resources Material**

This research was commissioned by the Road Safety Authority to evaluate the road safety resource material developed for primary and post-primary schools. The survey result suggests that around 70% of all teachers in primary schools are aware of the availability of the road safety resource material. Only 37% of primary school principals claim that they have an active road safety policy for their school. Among those that have such a policy, 4 in 10 claimed that it is used at least occasionally. There are many, however, who claim that they don't know whether it is used or not. Among users, satisfaction is high for information relevance, tone and appropriateness for teachers, quality of the materials, and ease of use (to be published on the RSA website).

- **2011 Evaluation of effectiveness and quality of the Driver CPC training**

Research was carried out in 2012 to evaluate the effectiveness and quality of the Driver CPC training in Ireland. The results suggest high levels of satisfaction across the board with all

3. Accident Analysis and Prevention Vol. 50, No. (2013).

elements of the Driver CPC training programme. Overall satisfaction with class tutor exceeds 9 in 10, and overall satisfaction with the programme stands at 82%. Almost 1 in 2 (44%) feel that the modules are too long. 3 in 4 of professional drivers said the CPC training programme helped their driving abilities, and 7 in 10 changed their behaviour (RSA website).

Useful websites

Irish Road Safety Authority	www.rsa.ie
2013-2020 Road Safety Strategy	http://www.rsa.ie/Documents/About%20Us/RSA_STRATEGY_2013-2020%20.pdf
2007-2012 Road Safety Strategy	http://www.rsa.ie/Documents/Road%20Safety/RSA_Strategy_ENG_s.pdf
Penalty points	www.penaltypoints.ie
Rules of the Road online	www.rulesoftheroad.ie

Contact

For more information, please contact: YawBimpeh@rsa.ie

Israel[1]

Source: IRTAD, Israel National Road Safety Authority

Inhabitants	Vehicles/ 1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
7.7 million	**344**	**341**	**4.4**

1. Comments about road safety data collection

Crash data are collected on the scene of the crash by the Police using checklist and sketch, and are subsequently sent to and stored electronically by the central bureau of statistics. The Road Safety Authority funds both traffic police and transportation unit at the Central Bureau of Statistics in order to manage and maintain the data system.

Police data are regularly linked with other data sources, such as hospital databases (fatalities at 30 days / injuries), Trauma registry, Ministry of Transport (driver and vehicle registries), Ministry of Interior (population registry). Crash data covers the whole population/geographical area (jurisdiction).

By linking hospital and police data, it is estimated that 50% of the seriously injured were recorded by the police as slightly injured, or were not recorded at all. Israel currently uses ISS data, and is considering collecting data based on MAIS 3+ in the future.

2. Short term trends

Safety performance in 2011

There were 341 road fatalities in 2011 in Israel, a 3.1% decrease in comparison with 2010. Injury crashes decreased by 4%.

Provisional data for 2012

The preliminary road fatality count for Israel in 2012 currently stands at 263; a 22% decrease in comparison with 2011 is expected. The overall decrease is especially important on interurban roads (-29%) and urban roads (-13%).

1. The statistical data for Israel are supplied by (and under) the responsibility of the relevant Israeli authorities. The use of such data by the ITF/OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

3. Long terms trends in mobility and safety (1990-2011)

Fleet and mobility

Between 1990 and 2011, the number of vehicles grew by a factor of 2.6 and distances travelled (vehicle-kilometres) grew by a factor of 2.7. The number of private cars grew by a factor of 2.7 and the number of light and heavy goods vehicles grew by a factor of 2.3.

Despite the sharp increase in the number of motor vehicles and vehicle-kilometres, the absolute number of fatalities has fallen over this period.

Change in the number of fatalities and injury crashes

Between 1990 and 2011, the number of fatalities decreased by 18% and the number of injury crashes decreased by 19%.

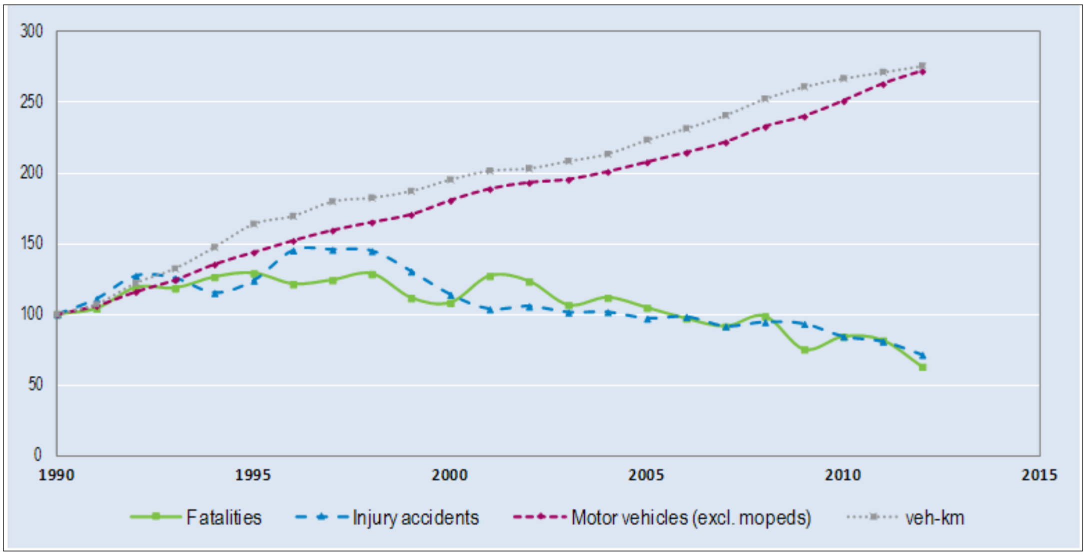
Risk and rates

With the growth of the population, constant efforts at improving safety have yielded significant annual reductions in fatality and injury rates. By the end of 2011, Israel had 4.4 fatalities per 100 000 inhabitants and 6.7 fatalities per billion vehicle-kilometres. Between 1990 and 2011, the mortality rate (expressed in terms of deaths per 100 000 population) decreased by 49% and the fatality risk (expressed in terms of deaths per distance travelled) decreased by 70%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Reported safety data							
Fatalities	418	452	352	341	-3.1%	-25%	-18%
Injury crashes	17 496	19 925	14 724	14 127	-4.1%	-29%	-19%
Hospitalised	3 965	2 896	1 683	1 340	-20%	-54%	-66%
Deaths/100 000 population	8.7	7.1	4.6	4.4	-5.0%	-38%	-49%
Deaths/10 000 registered vehicles	4.1	2.4	1.4	1.3	-7.3%	-48%	-69%
Deaths/billion vehicle-kms	22.0	12.4	7.1	6.7	-4.7%	-46%	-70%
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	1 015	1 832	2 547	2 669	4.8%	46%	163%
Vehicle- kilometres (in millions)	18 668	36 482	49 870	50 693	1.7%	39%	172%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	211	288	334	344	2.9%	20%	63%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011 (Index 100 = 1990)**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2011 at around EUR 2.05 billion, i.e. 1.2% of GDP.

Table 2. **Costs of road crashes**

Cost (EUR Billion)	2010	2011
Total	2.15	2.05
Total as a % of GDP	**1.3%**	**1.2%**

Road users

One-third of all road user fatalities in Israel are pedestrians.

Since 2000, the situation has improved for all road users except for motorcyclists.

Table 3. **Reported fatalities by road user group**
1990-2011

	1990		2000		2010		2011		2011% change over 2010	2000	1990
Bicyclists			20	4%	18	5%	16	5%	-11.1%	-20.0%	
Moped			7	2%	3	1%	3	1%	0.0%	-57.1%	
Motorcycles and scooters			38	8%	40	11%	42	12%	5.0%	10.5%	
Car and coach occupants			219	48%	172	49%	165	48%	-4.1%	-24.3%	
Pedestrians			169	37%	119	34%	115	34%	-3.4%	-32.0%	
Others			0	0%	0	0%	0	0%			
Total	418	100%	452	100%	352	100%	341	100%	-3.1%	-24.6%	-18.4%

Age

There was a sharp decline in the number of children aged 0-14 killed between 2010 and 2011 (between 33-60%, depending on the specific age group). At the same time, there was an increase by 80% in young adults aged 18-20, from 20 to 36 deaths. The percentage of elderly killed in road accidents in Israel in 2011 (19%) is almost twice their percentage in population (10%). In the last year, however, the number of elderly killed in road accidents decreased by about 11%.

Until 2010, the senior population was the most at risk road traffic, but with the worrying increase of young people fatalities in 2011, the 18-20 is now the age group with the higher risk (twice as much as the general population).

Table 4. **Reported fatalities by age group**
1990-2011

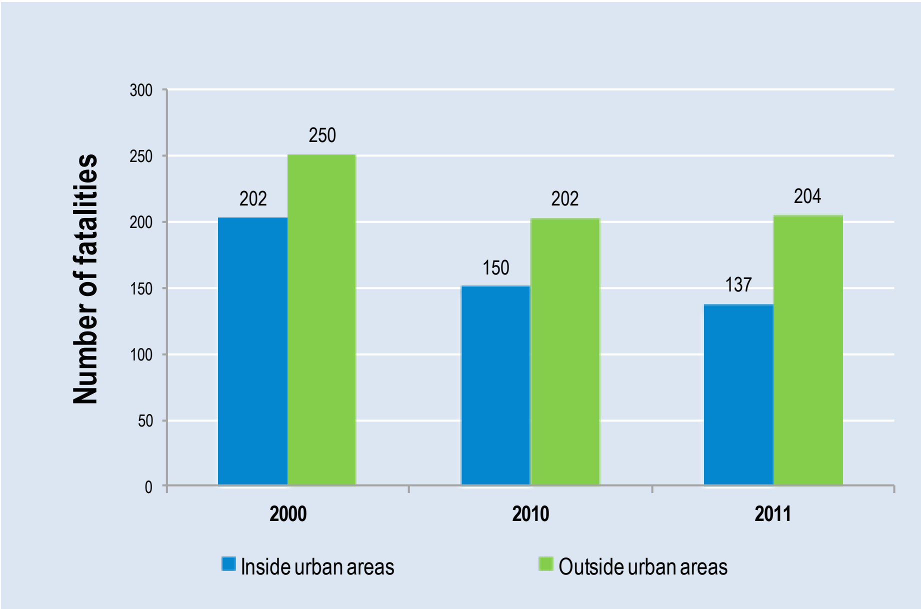
	1990	2000	2010	2011	2011% change over *2010*	*2000*	*1990*
0-5		20	21	12	-43%	-39%	-
6-9		16	9	6	-33%	-62%	-
10-14		10	10	4	-60%	-59%	-
15-17		23	13	21	62%	-7%	-
18-20		51	20	36	80%	-29%	-
21-24		43	40	30	-25%	-30%	-
25-64		201	154	154	0%	-23%	-
>65		89	73	65	-11%	-27%	-
Total	418	452	352	341	-3%	-25%	-18%

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group) 1999-2011**

Road Type

In 2011, there was a decrease in the number of road accident fatalities on urban roads (-9%), as compared to 2010. There was only a slight change in the number of road fatalities on interurban roads.

Figure 3. **Reported fatalities by road type 2000, 2010 and 2011**



4. Recent trends in road user behaviour

Impaired driving

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

The extent of drink-driving had long been 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).

The first national roadside survey of driving under the influence of alcohol was conducted in November 2011 by the Israel National Road Safety Authority and the traffic police. The survey was conducted on three weekends (in November-December 2011) in 38 sites. The Transportation Research Institute at the Technion concluded that about 3% of drivers were impaired by alcohol (i.e. a BAC above 0.5 g/l).

Speed

All rural road types are associated with a significant share of non-compliance with speed limits. According to the 2011 survey's findings, the 85th percentile of speed on rural roads is higher than the speed limits on all road types (by 12-16 km/h on motorways, 13-20 km/h on dual carriageway roads, by 18-23 km/h on single carriageway roads, and by 10-12 km/h on local roads. The share of vehicles travelling at speeds over the permitted limits, in free-flow hours, was between 30 and 70%.

On urban roads, the same surveys revealed that the 85th percentile of speeds was higher than the speed limits: by 5 km/h on the right lanes (night hours only) and by 8-14 kph on the left lanes of arterial roads; by 15-19 kph on central collector streets (dual-carriageway) and by 5-12 kph on residential collector streets (single carriageway). The share of vehicles travelling over the speed limits in free flow hours was: 20-40% on arterial roads; about 60% during day hours, and 70% during night hours on central collector streets and 30-40% on residential collector streets.

There was no major change in speeding behaviours between 2011 and 2010.

Table 5. **Summary of speed limits in 2013**

Road type:	Speed limit (kmh)
Freeways	110
Two-lane roads with interchanges	100
Other two-lane roads	90
Single-lane roads	80
Urban collector roads	50

Seatbelts and helmets

Seatbelt use has been compulsory in front seats since 1975 and in rear seats since 1995.

The use of seatbelts, child safety seats and booster seats are required of all relevant occupants at all times. Daytime use of seatbelts 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 2012, the seatbelt wearing rate among all car users was slightly higher than in 2011. The wearing rate among front seat passengers is 93%, while only 73% of rear seat passengers buckle up.

Table 6. **Seatbelt wearing rate by car occupants**

	2003	2005	2008	2009	2010	2011	2012
Driver	89%	90%	93%	95%	96%	96%	97%
Front seat passenger	85%	84%	87%	92%	92%	92%	95%
Rear seat passengers	23%	25%	56%	63%	70%	68%	74%

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 bicyclists.

Table 7. **Use of bicycle helmets in 2012**

Residential areas	20%
City centres	13%
Near the entrances of bicycle parking areas	24%
Public parks, riding areas	30%

Among adults, the level of use of cycle helmets is affected by riding conditions (alone/in group), the age group of the rider, type of site, geographic area, place of riding, size of town, population group of the rider (non-religious, religious, foreign worker) and whether the rider carries a passenger.

Among children up to the age of 17, the level of use is affected by geographical area, age group, place of riding, riding conditions (alone or accompanied by an adult), population group (non-religious, religious) and size of town.

Distracted driving, use of mobile phone and fatigue

In Israel, it is authorised to drive while operating a hands-free mobile phone, but not with a hand-held phone.

5. National road safety strategies and targets

Organisation of road safety in Israel

The lead agency for traffic safety management is the National Road Safety Authority, which was created in 2007. The agency is charged with two main tasks:

1. Financing and coordinating the traffic-safety related activities of other government agencies such as the Public Roads Company, the National Traffic Police, the Ministry of Education, and the Ministry of Transport. In addition the NRSA also works directly on public information campaigns, and various municipal traffic safety projects.

2. Funding the analysis national accident statistics and providing the primary resource for crash data and traffic safety knowledge and research.

Evaluation of the past road safety programme

In 2005, the Government of Israel adopted the goal of reaching, within 10 years, similar road safety levels to those of the leading countries in road safety.

Achieving this goal meant reducing the number of traffic fatalities to less than 330 per year by 2010, and less than 270 fatalities per year by 2015 (not including Judea and Samaria).

Figure 4. **Trends towards national target**

Road safety strategy for 2011-2020

A new five-year plan was recently released. It includes the objective to reduce the fatality rate to less than 4.0 fatalities per billion km travelled, and position itself among the top 5 countries in traffic safety based on fatalities per km travelled.

Target setting

The National Road Safety Authority recommends setting a target of no more than 240 fatalities per year by 2020. In addition, it set up objectives for a series of indicators.

Goals for 2020:

- Increasing the use of seatbelts: Seatbelts to be worn by 98% of drivers, 95% of passengers in the front seat and 85% of passengers in the rear of the vehicle.
- Increasing the use of restraints for children (ages 0-15) in vehicles: 70% to be properly seatbelted, with only 5% not restrained at all.
- Adoption of a "zero tolerance" policy towards drivers in general, and at-risk populations in particular (new and/or young drivers, drivers of public and/or heavy vehicles, drivers of vehicles carrying hazardous goods).
- Increasing the number of alcohol tests performed by the police relative to the total number of drivers, from 26% in 2010 to 40% in 2020.
- Reducing the 85th percentile speed as well as the percentage of vehicles exceeding the speed limit on all types of road, as set out in the table below:

Table 8. **Reducing 85th percentile speed and vehicles exceeding speed limit**

Road type:	Speed limit (kmh)	Goal: maximum 85th percentile speed	Goal: maximum percentage of vehicles exceeding the speed limit
Freeways	110	115 km/h	30%
Two-lane roads with interchanges	100	110 km/h	30%
Other two-lane roads	90	100 km/h	40%
Single-lane roads	80	90 km/h	40%
Urban collector roads	50	60 km/h	30%

6. Recent safety measures (2011-2012) and effectiveness of past measures (2005-2010)

Speed management

The National Road Safety Authority and the Ministry of Public Security is in the process of implementing 40 speed enforcement cameras and 20 red-light cameras. Enforcement of speed and red light running began in February 2012. The speed enforcement cameras incorporate automatic number plate recognition and can be used for the detection of local and average speeds. The project is accompanied by a 3-year evaluation study.

In September 2012, an official standard for handheld radar devices (laser speed gun) was approved. This standard will help uphold tickets and fines issued by the police in traffic courts.

Impaired driving

In 2012, the Israel traffic police issued 7 542 citations for driving under the influence of alcohol. Combating drink driving is a priority in Israel, especially on weekends and around pubs where young people congregate. Recent surveys in Israel have shown that young drivers are especially wary of being stopped while driving after drinking alcohol.

Cyclist safety

In recent years, many Israeli cities have developed master plans for a network of bicycle paths connecting workplaces, recreational areas and transportation hubs.

Driver education

A new law for graduated driving licences came into force on 1 January 2013. This law requires all new drivers (up to the age of 24), for the first three months, to drive at all times, day and night, accompanied by an adult driver with at least five years driving experience. The next three months after that will require accompaniment during the evening and night hours.

Seatbelt laws

A new law was passed in March 2012 that significantly increased the fines for non-compliance with safety belt and restraint laws for children.

Infrastructure and ITS

Israel updated its Technology Road Map, which can estimate the decrease in road deaths and casualties for the coming years. Various projects and studies have examined ITS & e-safety applications and compared some of them.

The five selected applications, which were more relevant to Israel, are: Speed alert (SA), Emergency call (eCall), Lane Departure Warning (LDW), Forward Collision Warning (FCW), and In-Vehicle Data Recorder (IVDR).

7. Useful websites and references

Recent and on-going research

- "Driving differently" in organizations – A project evaluation. Technion – Israel Institute of Technology.
- "Driving differently" in schools – A project evaluation. Technion – Israel Institute of Technology.
- A controlled field-study for examination of safety impact of advanced stop-line near pedestrian crossings. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- A controlled field-study for the examination of the safety impact of raised pedestrian crossings. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.

- Alcohol-impaired driving: the 2011 national observational survey. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- An examination of the safety impact of an earlier appearance of pedestrian signal in shared pedestrians' and right-turning vehicles' green. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Background music as a risk factor for distraction among young drivers: An IVDR study. Ben-Gurion University of the Negev.
- Bicycle riders on rural roads: the 2011 national observational survey. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Constructing and validating a questionnaire to identify candidates for professional driving license who suffer from Sleep Apnea Syndrome. Technion – Israel Institute of Technology.
- Effectiveness Evaluation of Simulative Workshops for Novice Drivers. The Research Institute of Human Factors in Road Safety, Department of Management, Bar Ilan University
- Effects of safety climate and passenger disruptions on driving safety among school-bus drivers. Technion – Israel Institute of Technology.
- Evaluation of the contribution potential of the driving simulator to the safe driving of the professional driver. Department of Occupational Therapy, Tel Aviv University
- Examination of characteristics and factors for bicycle riders' injury in road accidents in Israel. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Identification of factors that account for young drivers' crash involvement and involvement prediction using machine learning. Ben-Gurion University of the Negev.
- Identifying information to promote safety of children in and around cars in the Ultra-Orthodox Jewish population in Israel. Beterem – The National Center for Children's Safety & Health.
- National Survey of Motorcycle Riders in Israel. Amy Metom Engineers & Consultants Ltd.
- National survey of travel speeds in Israel: 2011 speed survey. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- On-duty alcohol use and impairment among transport operators: Prevalence and risk factors. Tel Aviv University.
- Overview of e-safety systems and their safety implications. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Pedestrian behavior at crosswalks: the 2011 national observational survey. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Punishment severity and judicial discretion in the sentencing of traffic offenders in Israel. The Hebrew University of Jerusalem.

- The contribution of the Israeli health care system to the survival of motor vehicle crash victims. The Gertner Institute for Epidemiology and Health Policy Research.
- The relationship between recidivist road offenders and involvement in traffic accidents. University of Haifa.
- Towards developing a hazard perception training program for enhancing young-inexperienced drivers' abilities. Ben-Gurion University of the Negev.
- Use of child safety restraints in cars: the 2011 national observation survey. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Use of safety belts in cars: the 2012 national observational survey. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Video based methods for monitoring motorcycles in traffic. Amy Metom Engineers & Consultants Ltd.

Research in progress

- An examination of speed perception by Israeli drivers on urban Israeli roads. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- A prediction model for pedestrian movement in urban space. Tel Aviv University.
- Development of infrastructure measures to improve elderly pedestrian safety in towns. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Driving hazard perceptions in people who had an Acquired Brain Injury (ABI) as compared to healthy: The relationships between laboratory, driving simulator and on-road test performance. University of Haifa.
- Effectiveness evaluation of automatic enforcement systems. Ben-Gurion University of the Negev.
- Examination of influence of shoulder characteristics on safety level of two-lane rural roads in Israel. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Examination of influence on pedestrian safety of removing marked crosswalks on multilane urban roads. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Examination of the safety potential of selected e-safety systems. Transportation Research Institute, Ran Naor Road Safety Center, Technion – Israel Institute of Technology.
- Exploring the factors behind alcohol-impaired driving among Arab young adults in Israel by applying a socio-ecological model. University of Haifa.
- In Israel, is air evacuation more effective than ALS ambulance evacuation for road traffic casualty outcomes? The Gertner Institute for Epidemiology and Health Policy Research.

- Mapping high risk locations using green boxes devices as a mean to efficient treatment. Technion – Israel Institute of Technology.
- The efficacy of an integrative intervention to minimize risk factors of professional drivers. Department of Occupational Therapy, Tel Aviv University
- The factors for non-compliance with traffic regulations in the Arab sector. Technion – Israel Institute of Technology.
- Using incentives for reducing the frequency of deviant driving speeds: The interaction between drivers on the road. University of Haifa.

Useful websites

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
Or Yarok Association for Safer Driving in Israel	http://www.oryarok.org.il/?p=320

Contact

For more information, please contact: saritl@rsa.org.il, research@rsa.org.il

Italy

Source: IRTAD, ISTAT, ACI, University La Sapienza

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Rome	**60.6 million**	**846**	**3 860**	**6.4**

1. Comments about road safety data collection

In Italy, road accident data are collected by three police forces: National Road Police, Carabinieri and Local Police. Data collection is centrally organized for National Road Police and Carabinieri, but not for Local Police, that may have different accident investigation procedures among them.

The Italian National Statistical Institute (Istat) is responsible for collecting and validating road safety statistics on all injury accidents occurring in Italy. All Police forces are obliged to send Istat a standard accident form for each injury accident collected. Istat checks data consistency, both quantitatively and qualitatively, reviews any deficiencies and proceeds with data correction by applying deterministic or probabilistic methods.

Starting from 2007, some Regions signed a Memorandum of Understanding with Istat for being in charge of collecting accident data on their regional territory. This helped to improve the collection and completeness of data. The system is now working in 11 out of 20 regions.

A group of representatives from Istat, ACI, Ministry of Infrastructure and Transport, National Road Police, Carabinieri, Local Police, Regions, Provinces and Municipalities is working on a new accident data collection form, more comprehensive and in accordance with the requirements of the European accident database CARE/CADAS. The new form is expected to be introduced as of 2014.

Positive aspects from the process are: a unique data collection process and a good set of information gathered for each road accident.

The data collection process is currently under review, both in terms of data record and workflow. The weakness of the current system (no linkage with health data, no distinction between serious and slight injuries, and no systematic geolocalisaton of crashes) is expected to be overcome in the coming years.

Statistics about property damage road accidents are disseminated by the National Association of Insurance Companies. In this case the expected level of underreporting is higher.

In Italy, injured persons reported by accident statistics are not differentiated by degree of severity. In this field the current process will be adapted to EU decisions. In particular, Italy will adopt MAIS3+ standard for coding the level of injury (procedures are still to be defined). A first estimate of the number of serious injury is expected for 2014.

2. Short term trends

Safety performance in 2011

In 2011, 205 638 injury crashes occurred and 3 860 persons were killed on Italian roads. Compared with 2010, this represents a 2.7% decrease in crashes and a 5.6% decrease in fatalities.

Provisional data for 2012

According to provisional data collected by National Police (National Police data represent about 18% of all injury accident collected), comparing fatalities for year 2011 and 2012, fatalities on motorways seem to be unchanged, while a decrease of fatalities (-10%) has been observed on rural roads (National Police data are mainly from motorways and rural roads).

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

Passenger and freight transport demand in Italy is mainly served by road transport, with a preponderance of cars. During the last decade (2001-2010), against a limited population increase (+6%) and limited economic growth (GDP increased annually by some 2.6%), the number of vehicles has risen by 13%. About the same rise (+14%) has been observed in the total vehicle-kilometres travelled on motorways.

Change in the number of fatalities and injury crashes

In recent years (2000-2011), the number of fatalities declined by 45%, while the number of injury crashes started declining in 2003 when the penalty points system was introduced (-20% since 2000). The difference between the reductions in fatalities and injury crashes is mainly due to measures being oriented toward fatality risk (e.g. reduction in average motorway speed and driving-under-influence enforcement) and to the development of vehicles’ resistance to crash damage.

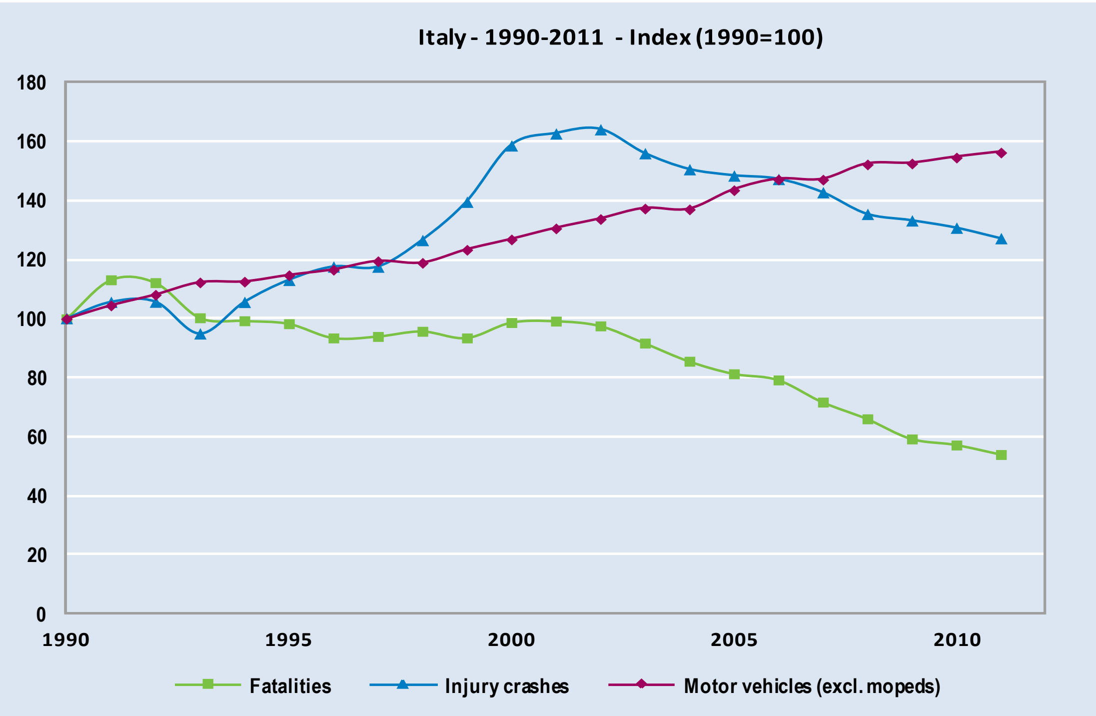
Risk and rates

In the last eleven years, the mortality rate (in terms of deaths per 100 000 population) has declined by 49% and the death rate (expressed in deaths per 10 000 vehicles) by 53%, while motorisation has risen by 9%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	2010	2000	1990
Reported safety data							
Fatalities	7 151	7 061	4 090	3 860	-5.6%	-45%	-46%
Injury crashes	161 782	256 546	211 404	205 638	-2.7%	-20%	27%
Deaths/100 000 population	12.4	12.4	6.8	6.4	-6.0%	-49%	-49%
Deaths/10 000 registered vehicles	2.1	1.6	0.8	0.8	-6.3%	-53%	-64%
Fleet and mobility data							
Vehicles (in thousands , excl. mopeds)	31 461	39 931	48 668	49 209	1.1%	23%	56%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	603	778	849	846	-0.4%	9%	40%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011)**



Economic costs of traffic crashes

A study on the assessment of costs to society of road accidents in Italy has been published by the Ministry of Infrastructure and Transport in September 2012[1]. On the basis of available data a

1. Italian Ministry of Infrastructure and Transport (2012).” Studio di valutazione dei Costi Sociali dell’incidentalità stradale”

Human Capital approach has been considered. Average cost per road accident has been estimated by degree of severity: for fatal, serious, slight, and property damage-only accidents. Since in Italy injured persons reported by accident statistics are not differentiated by degree of severity, in order to estimate the human costs referred to a severe or slightly injured person, the definitions of "slightly" and "seriously injured" used in the European road accident database CARE/CADAS has been adopted (i.e. Hospitalised at least 24 hours for seriously injured and Hospitalised less than 24 hours for slightly injured).

The table below shows the main results in term of average casualty costs and the overall average accident cost per severity in Italy in 2010. Based on these values, it is estimated that in 2010 road crashes cost Italian society 28.5 billion Euros.

Table 2. **Costs of road crashes by severity 2010**

Severity	Value per casualty million euros)	Value per road crash million euros)
Fatal	1 503	1 642
Severe	0.197	0.309
Slight	0.017	0.032

Road users

Since 2000, substantial reductions have been recorded in all road user categories, except motorcyclists (+20%). The most important decrease concerned moped riders (-74%). This has to be seen in the context of the introduction of the compulsory use of helmets for moped riders of all ages (from 2000) and the decreasing popularity of this means of transportation.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		2010	2000	1990
Bicyclists	477	7%	401	6%	263	6%	282	7%	7.2%	-29.7%	-40.9%
Mopeds	620	9%	637	9%	203	5%	165	4%	-18.7%	-74.1%	-73.4%
Motorcycles and scooters	713	10%	770	11%	943	23%	923	24%	-2.1%	19.9%	29.5%
Passenger car occupants	3 797	53%	3 850	55%	1 817	44%	1 661	43%	-8.6%	-56.9%	-56.3%
Pedestrians	1 069	15%	982	14%	614	15%	589	15%	-4.1%	-40.0%	-44.9%
Others	474	7%	421	6%	247	6%	224	6%	-10.4%	-46.8%	-52.7%
Total	7 151	100%	7 061	100%	4 090	100%	3 844	100%	-5.6%	-45.3%	-46.0%

Age

Since 1990, the reduction in fatalities benefited all age groups, and in particular young people.

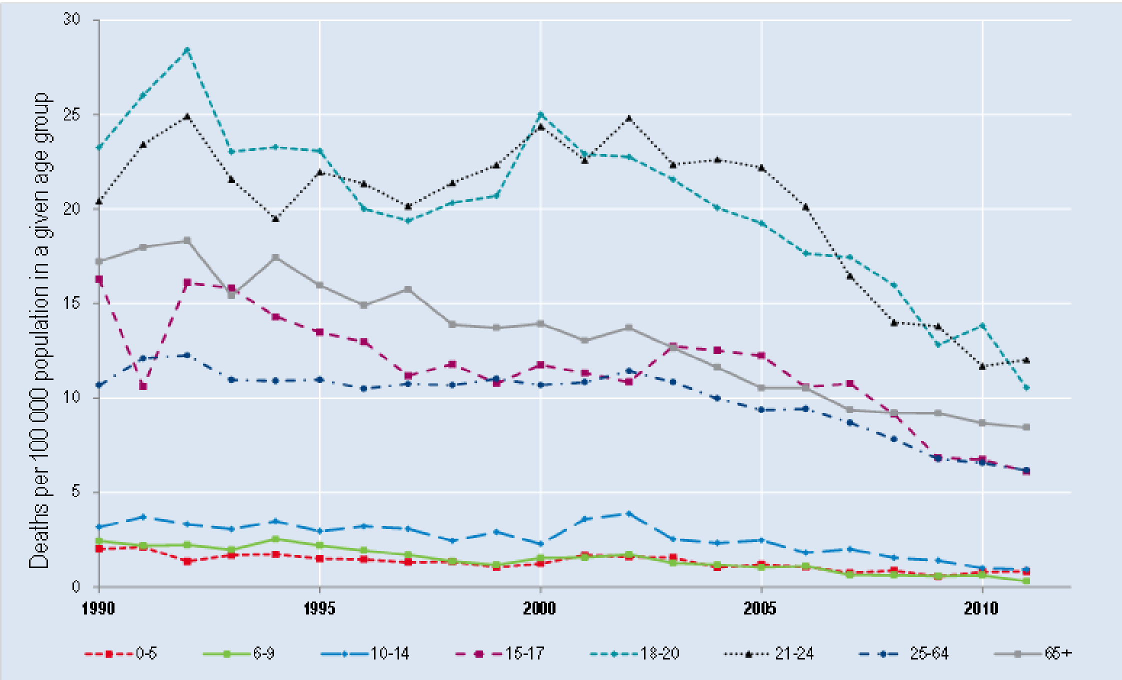
In 2011, the number of young adults (18-20 years) killed in road crashes decreased by 23%.

The 18-20 and 21-24 year olds constitute nevertheless the age group the most at risk in road traffic, with a mortality rate twice those of the general population.

Table 4. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	2000	2010	2011	2010	2000	1990
0-5	69	39	27	28	4%	-28%	-59%
6-9	60	34	14	7	-50%	-79%	-88%
10-14	118	63	28	26	-7%	-59%	-78%
15-17	429	211	118	105	-11%	-50%	-76%
18-20	640	485	253	194	-23%	-60%	-70%
21-24	786	740	293	302	3%	-59%	-62%
25-64	3 245	3 637	2 205	2 084	-6%	-43%	-36%
>65	1 436	1 437	1 059	1 038	-2%	-28%	-28%
Total	7 151	7 061	4 090	3 860	-6%	-45%	-46%

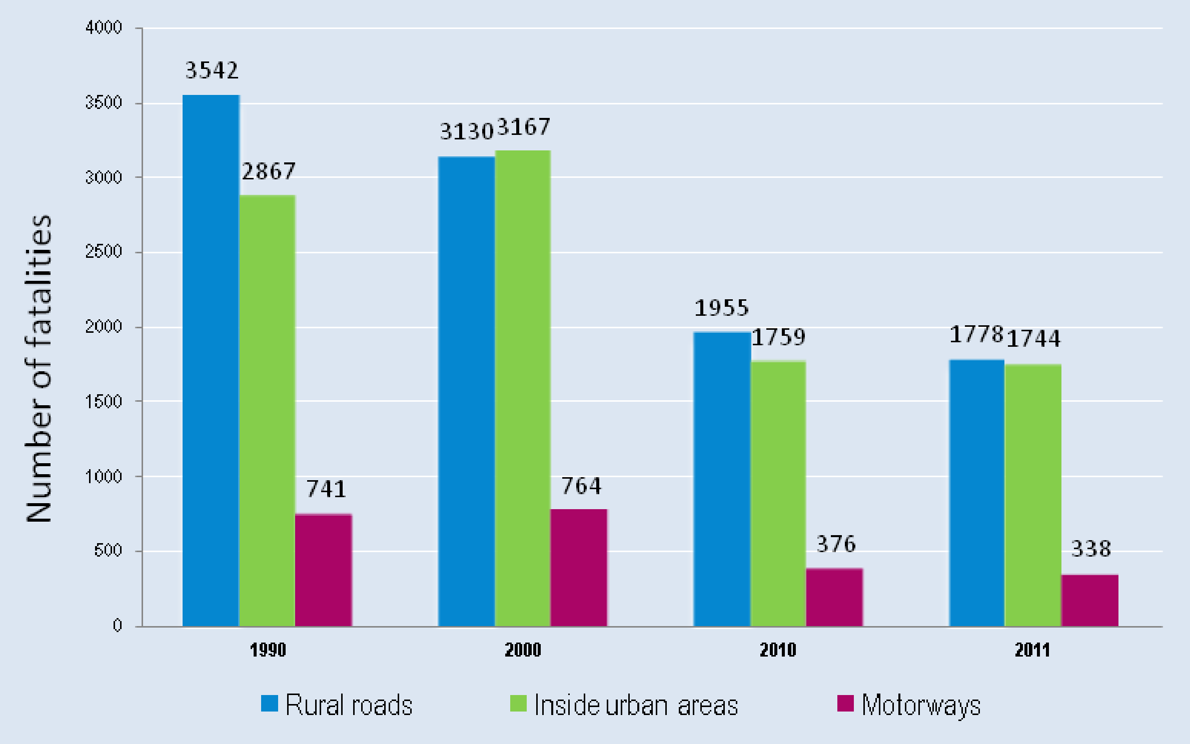
Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1999-2011)**



Road Type

In 2011, 46% of fatalities occurred on rural roads, 45% inside urban areas and 9% on motorways.

Figure 3. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

The current BAC limit in Italy, which came into force in 2001, is 0.5 g/l.

Since July 2010, there is zero tolerance for young drivers, novice drivers and professional drivers, for whom the BAC limit is equal to 0.0 g/l.

For BAC levels between 0.5 g/l and 0.8 g/l, the sanctions are a fine of EUR 500-2 000 and withdrawal of the driving licence for a period varying from between 6 to 12 months; the sanctions are doubled when an accident has been caused.

For BAC levels between 0.8 g/l and 1.5 g/l the sanctions are: imprisonment for a period of up to a maximum of six months, with the alternative of a probation period with social services, a fine of EUR 800-3 200 and withdrawal of the driving licence for a period of up to two years. Sanctions become more severe in the case of an accident.

For BAC levels higher than 1.5g/l the sanctions are: imprisonment for a period varying from six months to one year, a fine of EUR 1 500 to 6 000 and withdrawal of the driving licence for a period varying from one to two years.

A driver found to be under the influence of drugs can be imprisoned for a period varying from six months to one year, fined EUR 1 500 to 6 000 and can have his driving licence withdrawn for between one and two years (two to four years if the vehicle does not belong to the driver).

Alcohol and drugs are still considered to be a main risk factor in Italy. In 2010, out of 100 controlled drivers, there were more than 2 drivers found impaired by alcohol or drugs.

Speed

In 2011, inappropriate speeds were reported in about 14% of injury crashes and about 27% of fatal accidents.

Table 5. **Summary of speed limits in 2013**

	General speed limit - *Passenger cars*
Urban roads	50 km/h
Rural roads	90-110 km/h
Motorways	130 km/h

Seatbelts and helmets

Seatbelt usage is compulsory in front seats since 1988, and rear seats since 1994. It has also been compulsory on micro cars since 2011.

From 2000, an Italian observatory on the use of safety devices (e.g. use of helmets and safety belts), called the "Ulisse System", has been set up. The system is based on direct observation of driving behaviours (i.e. it is not a questionnaire-based survey). The monitoring network is based on monthly observations of over 800 sites all over the country. The survey is carried out mainly on suburban and urban roads; at present no data are available for motorways.

Observation period 2009 – 2011:

- Seatbelt wearing in urban areas: 63.8%, with regional differences: North 77.5%, Centre 66.5% South 44.9%
- Seatbelt wearing in extra-urban areas: 75.5%.
- Data on seatbelt use refer to front seats. On rear seats the use of seatbelt is very low, about 10%.

Table 6. **Seatbelt wearing rate by car occupants**

	1980	*1990*	*2000*	*2010*	*2011*
Front seat					
General	Not available	Not available	Not available	Not available	Not available
Urban roads (driver)	Not available	Not available	29.4% (average 2000-2002)	64.3%	63.3%
Rural roads (driver)	Not available	Not available	43.1% (average 2000-2002)	75.5% (average 2009-2011)	75.5% (average 2009-2011)
Motorways (driver)	Not available	Not available	Not available	Not available	Not available
Rear seats					
General	Not available	Not available	Not available	Not available	10% (average 2009-2011)

Since 1986, ***helmet*** use is compulsory for all motorcyclists and for moped riders under 19 years of age. Helmet use for all powered two-wheelers and for all ages is compulsory since 2000. During 2009-2011, the average percentage of helmet use in urban areas has been near to 90%. The percentage is higher on rural roads.

Observation period 2009 – 2011:

- Helmet wearing in urban areas: 89.8%, with regional differences: North 99.9%, Centre 93.1%, South 76.6%
- Helmet use in extra-urban areas: North 99.9%, Centre 98%, South n.a.

Distracted driving, use of mobile phone and fatigue

Since 2002, the use of hand-held mobile phones while driving is not permitted.

During 2009-2011, observed cases of car drivers using mobile phones while driving represented around 9%. The observation was limited to selected cities.

5. National road safety strategies and targets

Organisation of road safety in Italy

Road safety policy making is centralised in Italy. The Ministry of Infrastructure and Transport (Directorate for Road Safety) is responsible for the formulation of national road safety plans and the development of the road safety programme. National and local road authorities are responsible for improvement of road infrastructure.

Police forces (National Police, Carabinieri and Local police) are responsible for enforcement of traffic law. The Italian National Statistical Institute (Istat) is responsible for collecting road safety statistics on injury accidents at national level.

A national structure has been created for stakeholder consultation.

Evaluation of the past road safety programme

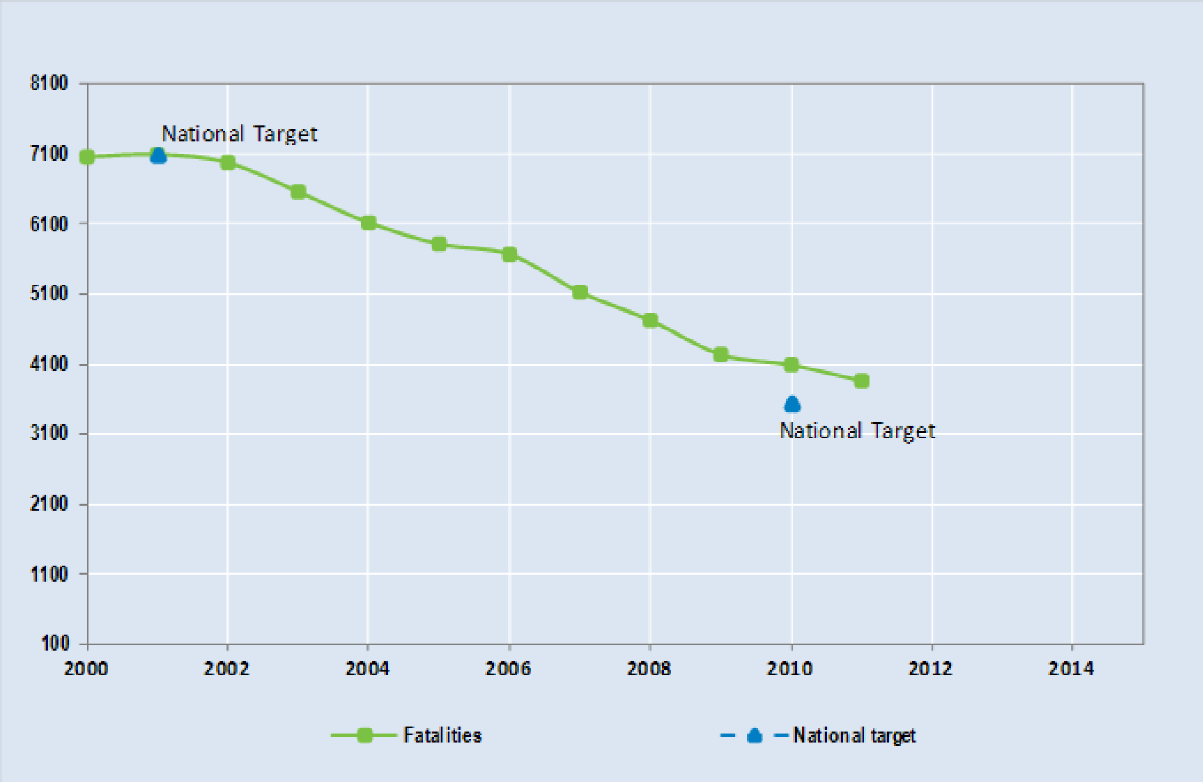
In Italy, the Road Safety National Plan covered the period 2001-2010. The Plan set a target to reduce the number of road fatalities by 50% between 2001 and 2010 (in line with the EU target), and to reduce the number of injuries by 20%. The Plan was structured according to a two-tier action strategy:

At the end of 2010 the fatality target had not been reached, but nevertheless significant progress had been made during the last decade.

At local level, the implementation of the Plan through five annual implementation Programmes allowed the realisation of more than 1 600 local projects, co-funded by the Ministry of Transport. Through a co-financing mechanism about 419 million euros allocated by the Plan activated a volume of investments of about 920 million euros.

In general, all the categories of road safety measures financed by the Plan 2001-2010 can be considered, on average, effective or fairly effective.

Figure 4. **Trends towards national target**



Road safety strategy for 2011-2020

A new National Road Safety Plan towards 2020 is being developed in accordance with the actions and targets (–50% fatalities) suggested by the European Commission.

The Plan will propose a hierarchical system of two-level objectives, allowing to monitor both the general road safety trend as well as specific targets related to identified risk components (e.g. motorcyclists, cyclists, pedestrians).

6. Recent safety measures and effectiveness of past measures

In the last ten years the central government has put much effort into road safety. Many of the measures implemented are related to new and stricter regulations and to better enforcement.

Speed management

Since 2010, lower speed limits have been set for young drivers.

In 2009, specific regulations for the requirements and localization of automatic speed control devices have been issued from the Ministry of Interior[2].

2. Directive Maroni, 2009

In 2006, a section control system was introduced to measure average speeds on sections of motorway with high crash rates. Drivers are informed by a road-sign of the presence of a speed monitoring system. The system is currently operational on about 2 900 km of motorways.

Impaired driving

Since 2010, a zero blood alcohol content limit has been set for young drivers, novice drivers and professional drivers (the current BAC limit in Italy is 0.5 g/l).

Since 2009-2010, alcohol cannot be sold between 02:00 and 07:00, and between 22:00 and 06:00 on motorways.

The number of tests for impaired driving performed by National Police and Carabinieri (not including Local Police forces) more than doubled in the period 2006-2010, from 13 to 27 tests/1 000 inhabitants, while the percentage of tested over the limit decreased from 5.9% to 2.5%.

Cyclist safety

Since 2010, cyclists must wear a reflecting jacket at night outside built-up areas.

Driver education

A regulation for accompanied driving for young people aged 17 has been adopted and came into force in 2012.

Since April 2011, people aged 80 years and over must pass a medical test for the renewal of their driving licence, which is issued for a maximum of two years.

Since 2011, a practical exam is required to obtain a moped licence.

Vehicle safety

Since 2010, position lights and seatbelt wearing are compulsory on micro cars.

Infrastructure

According to EU Directive 2008/96/CE, Italian Guidelines on Road Infrastructure Safety Management were published by the Ministry of Transport in September 2012.

7. Useful websites and references

Recent and on-going research

- 2011: "Ulisse System", Italian observatory on the use of safety devices (e.g. use of helmets and safety belts). The report is available (Italian only) at the following address: http://www.mit.gov.it/mit/mop_all.php?p_id=11959

Useful websites

Ministry of Infrastructure and Transport	www.infrastrutturetrasporti.it/
National Institute of Statistics	www.istat.it
Automobile Club of Italy	www.aci.it
Centre for Transport Logistics of the University La Sapienza	www.ctl.uniroma1.it
Austostrade per l'Italia	http://www.autostrade.it
AISCAT	www.aiscat.it
ISS National Health Institute	ww.iss.it

Contact

For more information, please contact: davideshingo.usami@uniroma1.it or l.pennisi@aci.it

JAMAICA

Source: Ministry of Transport of Jamaica

Capital	Inhabitants	Motorised vehicles / 1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2011
Kingston	**2.8 million**		**260**	**11.4**

Jamaica joined the IRTAD Group in 2012 as an observer country. It benefits from a twinning programme with the Transport Research Laboratory in the UK which has been organised through IRTAD. The aim of the twinning is to review the current crash data collection and analysis system and to provide advice in areas of road safety which are data related.

The data presented in this report have not yet been validated by IRTAD.

1. Road safety data collection

In Jamaica, traffic crash data are collected by Police Officers across nineteen Police Divisions. For the most part, the crash data are collected by specialist Police Officers at the station level. After collecting the data, completed forms are forwarded to the Divisional Level where they are vetted to ensure good quality of information is collected and that fields are filled. After passing this process, the crash reports are sent to the Police Traffic Headquarters who also vet the records to ensure standards of accuracy are maintained. The Police Traffic Headquarters then forward the reports to the Ministry of Transport, Works and Housing's (MTWH) Road Safety Unit (RSU) where the individual Crash Records are entered in the Micro-Computer Accident Analysis Package (MAAP) Database system. It is from this database system that the analysis of traffic crashes and casualties is executed. It should be noted that this database is made available to the Police Traffic headquarters so that they can target their Road Safety Operations, using the crash data. Police and MTWH also have access to a separate, less detailed system specifically to report on road fatalities which is more up-to-the-minute than the MAAP database.

Crash coordinates have been back-coded from the location information supplied on the reporting booklet. This has been done by a local University Unit, supported with funding from the insurance sector. This is necessary since coordinates have not been captured systematically to date for crashes. Efforts will be made to ensure that by the end of 2013, Traffic Officers are provided with Global Positioning System (GPS) handsets, thus ensuring that they are able to collect the coordinates of these crashes both easily and accurately.

Data included in this report correspond to the consolidated set of police data. Fatality data refer to deaths which occurred within 30 days of the incident. Injury crashes are defined as crashes resulting in at least one injured or killed person.

Strengths and weaknesses of collision data

The Ministry of Transport indicates that most of the road fatalities are captured in the police-based reporting system. Comparisons of the fatality numbers with Health Ministry (MOH) and Vital register data sources will help to support this assumption and for any issue with the reporting level to be identified more objectively. However, there is still some more work to do to improve our ability to capture the less serious injury collisions and casualty information. Measures are currently being planned and developed to improve this aspect of the data system.

2. Short term trends

General comments and trends for 2011

Road deaths in Jamaica decreased by 3.8% in 2011, in comparison to the 2010 figure.

Provisional data for 2012

In 2012, 260 persons were killed in 234 traffic crashes. This means fatal crashes and fatalities decreased by 10% and 16% respectively when compared with the same recorded figures for 2011. There were reductions in the following categories of casualties and incidents in 2012 when compared with 2011:

- Pedestrians;
- Pedal cyclists;
- Pillion Passengers;
- Private Motor Vehicle Passengers;
- Public Motor Vehicle Passengers; and
- Commercial Motor Vehicles.

3. Long term trends (1990-2011)

Fleet and mobility

Detailed figures for vehicle-kilometres travelled by vehicle type are not yet routinely estimated in Jamaica. However, since 1990, total vehicle–kilometres driven have increased significantly to date. It is apparent that total vehicle-kilometres travelled in 2011 increased, which can be seen as a return to the normal upward trend after a period of stagnation in 2010, due to the economic recession. Some of the reduction in fatalities experienced recently may be attributable to the recent reduction in traffic and the economic climate.

Currently, it is difficult to get consistent and accurate figures for the size of the registered vehicle fleet in Jamaica, which means that it is not possible to calculate fatality risk per 10 000 registered vehicles. MTWH is working with other ministries to improve access to figures for the registered vehicle fleet.

Change in the number of fatalities and injury crashes

Between 1991 and 2011, the number of fatalities decreased by 31%.

Over the last decade (2001-2011), national annual fatalities decreased by 10%.

Risk and rates

In 2012, the rate of annual deaths per 100 000 population was 11.3, a 39% decrease compared to the value for 1991.

Figure 1 shows some of the main road safety measures carried out in Jamaica in relation to the trend in the fatality rate over time.

Figure 1. **Evolution in road safety 1991-2011**

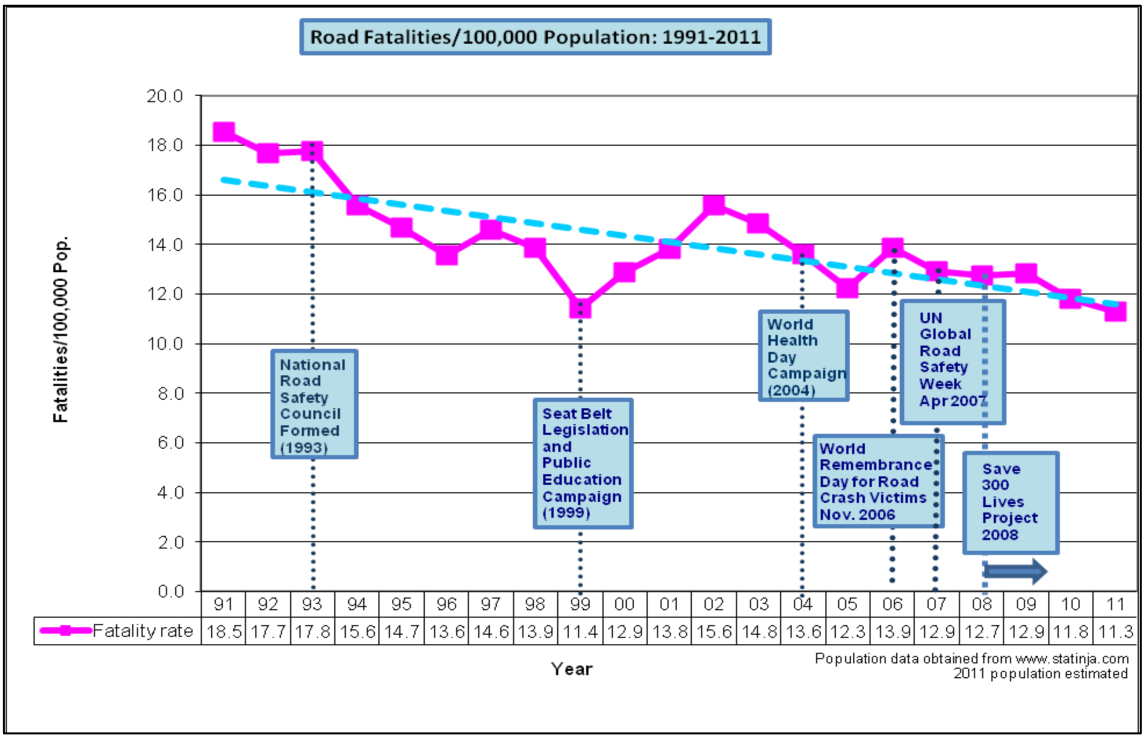


Table 2. **Safety and mobility data 1990-2011**

					2011 % change over		
	1991	2000	2010	2011	*2010*	*2000*	*1991*
Reported safety data							
Fatalities	444	334	319	307	-3.8%	-8.1%	-30.9%
Deaths/100 000 population	18.5	12.9	11.8	11.3	-4.2%	-12.4%	-39%

Economic costs of traffic crashes

A study has been undertaken to estimate the impact of road traffic crashes on the health and insurance sectors. In 2005 it was estimated that road crashes cost the health and insurance sectors around JMD 7.5 billion to the Jamaican economy, i.e. 0.5% of GDP: 60% are direct and indirect costs borne by the health sector; and 40% represent costs borne by the Insurance Association of Jamaica.

This estimate is stated to be based on just a subset of the total costs as they apply to the health and insurance sectors; as such they do not include loss of earnings, pain, grief and suffering nor costs to the police and other government departments. Calculation of the Value of a Statistical Life (VSOL) by the Human Capital Approach or, better, Willingness to Pay would undoubtedly give much higher estimates of the costs. Thus the true impact of crashes and road injuries in Jamaica will in reality be significantly higher than 0.5% GDP.

Road users

Pedestrians are particularly at risk, as they represent 35% of the road fatalities which typically occur in the country each year. The safety level of public transport vehicles is also a high priority and concern in Jamaica. Buses are a major pillar of transport, as many persons rely on these for necessary journeys such as commuting.

Over the last decade, the situation has deteriorated for motorcyclists, with a 29% increase recorded in these fatalities. However, there are indications that use of motorcycles has increased markedly in Jamaica over recent years. Pedestrian fatalities have increased by 7%, which is particularly concerning.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011 % change over		
		1991		2000		2010		2011	*2010*	*2000*	*1991*
Bicyclists	56	*13%*	44	*13%*	26	*8%*	32	*10%*	23.1%	-27.3%	-43%
Motorcycles	70	*16%*	38	*11%*	44	*14%*	49	*16%*	11.4%	28.9%	-30%
Passenger car occupants	21	*5%*	23	*7%*	12	*4%*	19	*6%*	58.3%	-17.4%	-10%
Pedestrians	170	*38%*	100	*30%*	115	*36%*	107	*35%*	-7.0%	7.0%	-37%
Public transport	81	*18%*	101	*30%*	107	*34%*	93	*30%*	-13.1%	-7.9%	15%
Others	46	*10%*	28	*8%*	15	*5%*	7	*2%*	-53.3%	-75.0%	-85%
Total	**444**	***100%***	**334**	***100%***	**319**	***100%***	**307**	***100%***	**-3.8%**	**-8.1%**	**-31%**

4. Recent trends in road user behaviour

Impaired driving

In Jamaica, the Road Traffic Act states that the legal alcohol limit is 35 micrograms of alcohol in 100 millilitres of breath, or a blood-alcohol level of 80 milligrams of alcohol in 100 millilitres of blood. There is no difference in the permitted levels for novice drivers, truck, bus and taxi drivers.

Speed

The table below summarises the main speed limits in Jamaica. A speed limit rationalisation study is underway. Actual speed surveys are undertaken in response to particular project requirements (e.g. where road upgrades are planned), but not routinely and systematically across the network.

Table 5. **Summary of speed limits in Jamaica in 2013**

	General speed limit Passenger cars	Actual speeds	Comments
Urban roads	50 km/h		A few of the roads in the urban areas are 80 kph
Rural roads	50 km/h		A few of the roads in the rural areas are 80 kph
Motorways	70 or 110 km/h		

Inappropriate speed is typically a factor in more than 23% of fatal accidents and about 11% of serious injury crashes over the last decade.

Seatbelts and helmets

All drivers of motorcars, trucks and buses are required to wear their seatbelts. The Protective Devices Legislation of 1999 makes it mandatory for all passengers, whether front-seat or rear-seat passengers in motor-cars to wear seat belts. However, only passengers travelling on the front seat of buses and trucks are mandated to wear seatbelts. In addition, all motorcyclists and their pillion passengers are required to wear an approved helmet.

There is no regular survey on the use of protective devices. Mechanisms are being put in place to ensure that the data are collected in 2013. Information reported for the World Health Organisation Global Status Report (2013) indicated that seatbelt wearing rates over the period 2007 to 2008 were low, at 44% in the front seat and only 4% in the back seat. The same source indicated that just 6% of motorcyclists and 5% of pillion passengers wear helmets.

Distracted driving, use of mobile phones and fatigue

It is not illegal to use a hand-held phone while driving.

It is not clear that any fatal crashes were due to the use of mobile phone while driving. However it is extremely hard for police to tell if a victim was using such a device when a crash occurred.

Age

Young people are the most at risk. The 5-24 age group accounts for 17% of the population, but 23% of road deaths (2011).

Table 6. **Reported fatalities by age group 1990-2011**

Age group	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Unknown	2	26	21	27	41	60	44	49	59	39	24	36
00-04	6	13	9	6	7	3	5	3	7	2	5	5
05-09	21	16	14	11	9	14	11	12	11	5	9	6
10-14	13	19	22	12	12	13	13	6	15	10	14	1
15-19	24	35	21	13	25	36	14	17	26	32	25	19
20-24	37	36	39	35	35	35	35	40	27	33	47	31
25-29	48	43	42	28	35	36	33	28	42	38	29	26
30-34	52	41	33	46	26	30	34	34	22	30	13	15
35-39	32	35	37	27	31	20	31	31	24	11	20	15
40-44	28	33	31	30	18	34	29	22	22	20	18	18
45-49	13	26	22	26	12	21	16	20	14	16	18	9
50-54	17	13	24	22	12	24	16	17	17	16	23	13
55-59	10	16	18	9	9	10	12	18	17	9	16	10
60 and over	58	56	58	68	54	45	57	46	44	58	47	56
Total	**361**	**408**	**391**	**360**	**326**	**381**	**350**	**343**	**347**	**319**	**308**	**260**

5. National road safety strategies and targets

Organisation of road safety in Jamaica

In Jamaica, the National Road Safety Council (NRSC) is the lead agency for road safety. It was established in 1993 as a non-profit organization by public and private sector interest groups. It depends on the Office of the Prime Minister (OPM) for its main funding. The Ministry sets the Policy and ensures it is implemented through partnership with the NRSC. The NRSC has a central role of co-ordinating activities with, and between, local administration stakeholders, such as the police, insurance, the medical sector and others.

The National Road Safety Council is responsible primarily for safety legislation, education and communication campaigns.

Road Safety in Jamaica is guided by three main policies:

- National Road Safety Policy;
- Vision 2030 – Transport Sector;
- National Transport Policy.

Road safety strategy for 2012-2015

Jamaica's National Road Safety policy is based on five main tenets:

- Education and Information
- Enforcement and Legislation
- Emergency Response

- Evaluation
- Engineering and Traffic Environment.

During the period 2012-2015, the Ministry of Transport, Works and Housing will be focusing on improving Jamaica's road safety architecture in the following manner:

- Modernisation of Crash Data Systems, which will ensure all road safety stakeholders have seamless access to crash data, hence ensuring they are able to make crucial decisions in a timely manner.
- Vulnerable Road Users will be specially targeted to ensure that their fatality rates are reduced. The present 50% will not be allowed to continue. Engineering, Enforcement and Education methodologies will be deployed to ensure that there is significant reduction in these fatalities.
- Public Education Campaigns will be data-led. Specific issues from the data will be highlighted and campaigns will be developed to create behavioural changes. We intend to leverage our Crash Investigation software to create in 3D, e.g. Crash Zone and Quick Scenes.
- Road Safety Audits and In-depth Investigation and analysis of collisions will become standard operations in Jamaica. The personnel will be fully trained by 2013, and with the support of the Twinning with the United Kingdom's Department of Transport through the Transport Research Laboratory, Jamaica will develop the architecture to sustainably counter the road safety problem.

Target setting

All road safety stakeholders in Jamaica are working assiduously to ensure that road fatalities are sustainably reduced below 300. This target was achieved in 2012, and stakeholders are committed to further reducing it below 240 by 2016.

Monitoring

The main monitoring activity that is done currently is to assess fatality totals against the reduction targets set by the NRSC, such as the "Target 300".

6. Legislation

The MTWH is working assiduously to ensure that, by the end of the 2013/14 financial year, there will be a modernized Road Traffic Act that operates in accordance with contemporary road safety standards and best practices. The present Road Traffic Act was established in 1938. All the essential road safety issues are being addressed in the proposed new Act, including:

- Tyre Safety;
- Graduated Driving Licence System;
- Mobile Phone Usage; and
- Driver Training and Driving Institution Standards.

It should be noted that all the road safety stakeholders have contributed to this modernized Road Traffic Act. Jamaica's road safety apparatus is led by the National Road Safety Council, chaired by the Most Honourable Prime Minister, Mrs. Portia Simpson-Miller. All the major Ministries, Departments and Agencies which have road safety responsibilities are members. They all play their roles actively to ensure that Jamaica reduces road traffic injuries and fatalities sustainably.

Institutional Settings/Strengthening

Since 2011, when the United Nations Decade of Action for Road Safety (DOA) commenced, the Government of Jamaica began serious steps to strengthen various road safety institutions, particularly in the following specific areas:

- Road Safety Audit;
- Crash Investigation, Analysis and Reconstruction; and
- Geographic Information Systems.

Capacity in these areas is crucial if we are to seriously reduce our traffic crashes and casualties. It should be noted that the necessary institutional framework is being set up to ensure the National Traffic Safety Working Group is fully operational; it will be responsible for the execution of the following road safety deliverables:

- In-depth Investigation and Analysis of Traffic Collisions; and
- Road Safety Audits and Assessments.

Under the Inter–American Development Bank's (IDB) Road Improvement Programme, 79 persons were trained in Road Safety Audit Management and, by July 2013, over 70 persons will receive additional training in Collision Investigation, Analysis and Reconstruction.

Efforts will be made to ensure that the Island Traffic Authority, National Works Agency, Caribbean Maritime Institute and Driver Training Institutions are equipped with the "Defensive Driving Technique" by March 2014. This technique has significant road safety benefits, thus all potential drivers will be required to undertake defensive driving training, as it will be incorporated in the "Driver Training and Instruction Curriculum".

It should be noted that Jamaica strongly desires that by 2020, all the Pillars of the United Nations General Assembly Resolution A/RES 64/255 are fully effective and operating in equilibrium. Jamaica is fully committed to the task, thus we are appreciative of the IDB/IRTAD/DfT/TRL assistance which will contribute significantly to enhancing our Crash Data System in a holistic manner.

Evaluation of Road Safety Measures

The Ministry is keen on developing the necessary technical expertise and capacity needed in order to evaluate smoothly the road safety measures that are being developed annually. The International Road Traffic and Database (IRTAD) and Inter–American Development Bank (IDB) initiated Twinning Programme with the Transport Research Laboratory (over the next three years) will allow this expertise to be developed, with specific emphasis on the "Monitoring and Evaluation of Road Safety Measures". It is our intention that by 2016, Jamaica will have developed the capacity and capability to seamlessly become a full member of IRTAD, contributing annually to the

Database — this being an important road safety deliverable and a means to develop capacity and exposure to best practice.

Speed management

This is being executed by the Jamaica Constabulary Force Traffic and Highway Division. In 2012, they carried out many speed checks across the Island, especially in areas designated as "High Risk Sites" based on crashes and injuries. Early indications suggest that this may have been beneficial; however, formal statistical evaluation has not been undertaken.

Traffic Crash and Offenses databases are being used to ensure that speed management targeting is in accordance with patterns in available data, rather than being based on less objective approaches. Speed management is a crucial part of the Police Force's operations, as most of our fatal collisions have a strong contributory element of excessive speeding, thus they are equipped with speed radars to conduct this important enforcement operation.

The Ministry, through the National Works Agency, ensures that the necessary speed limit signs are strategically placed so that road safety enforcement operations can be smoothly implemented.

Driver education

The Ministry of Transport, Works and Housing, National Road Safety Council and other Road Safety Stakeholders continue to ensure that drivers are provided with contemporary information needed in order to operate in the traffic environment. However, the Driver Education Programme is in need of overhaul. This will be dealt with via the new Modernized Road Traffic Act, which will ensure that Driving Schools are registered and they adhere to a curriculum. Presently, the Ministry is putting the necessary measures in place to ensure it is fully prepared for this paradigm. Any form of technical assistance/advice would be appreciated as we seek to ensure the development of a Comprehensive Driver Education Programme.

Vehicle safety

The Road Traffic Act requires motor vehicles to be in a safe condition whenever they are operating on the road network. If the vehicles are defective, they will be removed from the traffic environment and the driver will be required to remedy the defects before being allowed to traverse the road network. For the most part, in light of the fact that we do not manufacture motor vehicles, we seek to ensure that motor vehicles imported into Jamaica adhere to up-to-date safety standards.

7. Useful websites and references

Useful websites

Ministry of Transport, Works and Housing	http:// www.mtv.gov.jm
National Road Safety Council (NRSC)	http://www.nationalroadsafetycouncil.org.jm/

Contact

For more information, please contact: Khare@mtw.gov.jm

Japan

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

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Tokyo	**127.7 million**	**707**	**5507**	**4.3**

1. Comments about road safety data collection

In Japan, road crash data are collected by the police.

The National Police Agency has been collecting crash data since 1948. In 1966, an online database system was created.

2. Short term trends

General comments and trends for 2011

In 2011, the number of road fatalities decreased by 5.1%, reaching its lowest level since record-keeping began. The number of injury crashes fell by 4.7%.

Provisional data for 2012

Based on provisional data for January to December 2012, fatalities dropped by about 4.9%, and injury crashes by 4.0%.

3. Long term trends in safety and mobility (1990-2011)

Fleet and mobility

In 2011, as a consequence of the economic downturn, there was stagnation in the motorised vehicle fleet.

Since 1990, the vehicle fleet increased by 34% and the distance travelled by 13%.

Change in the number of fatalities and injury crashes

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.

Since 1990, the number of fatalities decreased by 62%, however the number of injury crashes increased by 8%; this discrepancy is due to the important increase in the number of vehicles and the number of licensed drivers, which led to more crashes but, fortunately, not too many fatalities.

In recent years, the number of fatalities has continued to decrease at a sustained level (nearly 50% fewer fatalities compared to 2000).

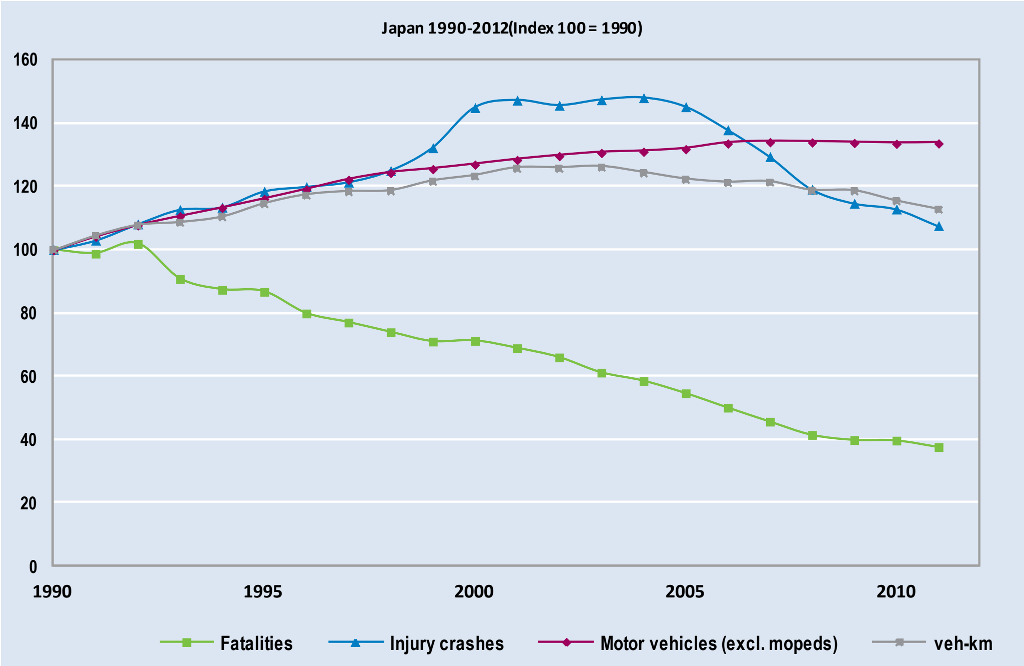
Risk and rates

Between 1990 and 2011, the road traffic mortality rate, expressed in terms of deaths per 100 000 population, fell by 64% and the fatality risk (expressed in deaths per distance travelled) fell by 67%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Reported safety data							
Fatalities	14 595	10 410	5 806	5 507	-5.1%	-47%	-62%
Injury crashes	643 097	931 934	725 773	691 937	-4.7%	-26%	8%
Deaths/100 000 population	11.8	8.2	4.5	4.3	-5.0%	-47%	-64%
Deaths/10 000 registered vehicles	2.1	1.3	0.7	0.7	0.0%	-47%	-67%
Deaths/billion vehicle-kms	23.2	13.4	8	7.8	-2.9%	-42%	-67%
Fleet and mobility data							
Vehicles (exc. mopeds) (x 1000)	61 927	78 682	82 770	82 839	0.1%	5%	34%
Vehicle- kilometres (in million)	628 581	775 723	726 256	709 836	-2.3%	-8%	13%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	615	698	706	707	0%	1%	15%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres (1990-2011)**



Economic costs of traffic crashes

There is no estimation of the economic costs of traffic crashes.

Road users

In 2011, the decrease in road fatalities benefited all road users, with the exception of motorcyclists (+2.1%). The biggest increase was for car occupants (-11%). Pedestrian fatalities decreased by -1.1%, but in 2011 they represented 36% of all road fatalities, a very high share in comparison with other OECD countries.

The high proportion of pedestrian fatalities is partly explained by the fact that only about 40% of people older than 65 have a driving licence and, as pedestrians, they are therefore more exposed to crashes. Pedestrian fatalities account for about half of the road users killed in this age group.

Table 2. **Reported fatalities by road user group 1990-2011**

	1990		2000		2010		2011		2011% change over		
									2010	*2000*	*1990*
Bicyclists	1 509	10%	1 278	12%	936	16%	864	16%	-7.7%	-32%	-43%
Mopeds	1 320	9%	944	9%	458	8%	417	8%	-9.0%	-56%	-68%
Motorcycles and scooters	1 920	13%	903	9%	568	10%	580	11%	2.1%	-36%	-70%
Passenger car occupants	3 887	27%	2 903	28%	1 197	21%	1 070	19%	-10.6%	-63%	-72%
Pedestrians	3 955	27%	2 955	28%	2 009	35%	1 987	36%	-1.1%	-33%	-50%
Others	2 004	14%	1 427	14%	638	11%	589	11%	-7.7%	-59%	-71%
Total	14 595	100%	10 410	100%	5 806	100%	5 507	100%	-5.1%	-47%	-62%

Age

In 2011, the largest decrease was observed for the 10-14 age group.

Since 1990, impressive reductions in fatalities have benefited all age groups, with a more modest reduction for the elderly (65+). This is due to the ageing of Japanese society. In 2011, victims aged over 65 accounted for more than half of all fatalities.

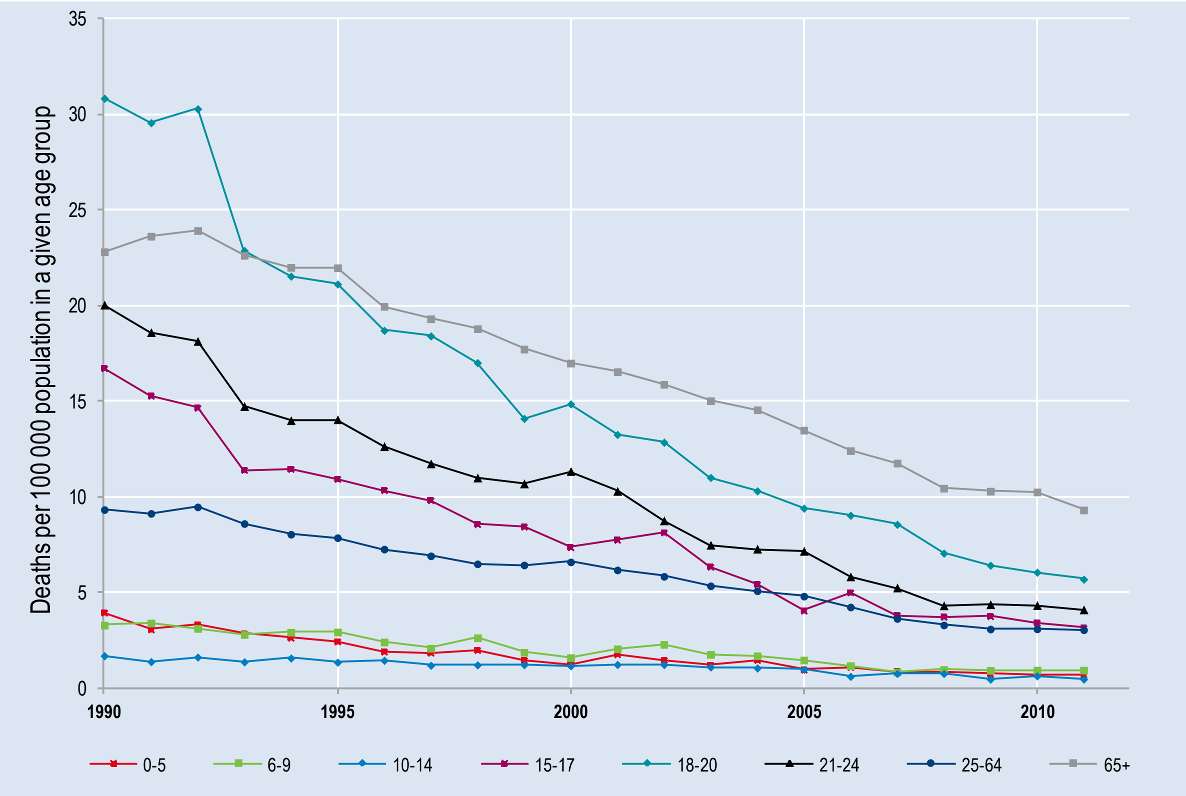
Unlike in other countries, the oldest age group is also the one most at risk in traffic. Young people (18-20) have a slightly higher risk than the general population, but the difference is much less marked than in other countries.

The national goal of making Japan’s roads the “safest in the world” can be realised only if greater effort is made to improve the safety of its senior citizens. The Government is now implementing a diverse array of strategies to improve the safety of those at the upper end of an ageing society.

Table 3. **Reported fatalities by age group 1990-2011**

	1990	2000	2010	2011	2011% change over 2010	2000	1990
0-5	**312**	**88**	**45**	**43**	**-4%**	**-51%**	**-86%**
6-9	**198**	**76**	**42**	**41**	**-2%**	**-46%**	**-79%**
10-14	**143**	**75**	**37**	**27**	**-27%**	**-64%**	**-81%**
15-17	**1 006**	**327**	**124**	**114**	**-8%**	**-65%**	**-89%**
18-20	**1 820**	**690**	**220**	**208**	**-6%**	**-70%**	**-89%**
21-24	**1 381**	**772**	**224**	**210**	**-6%**	**-73%**	**-85%**
25-64	**6 261**	**4 641**	**2 115**	**2 094**	**-1%**	**-55%**	**-67%**
>65	**3 475**	**3 741**	**2 999**	**2 770**	**-8%**	**-26%**	**-20%**
Total	14 595	10 410	5 806	5 507	-5%	-47%	-62%

Figure 3. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**



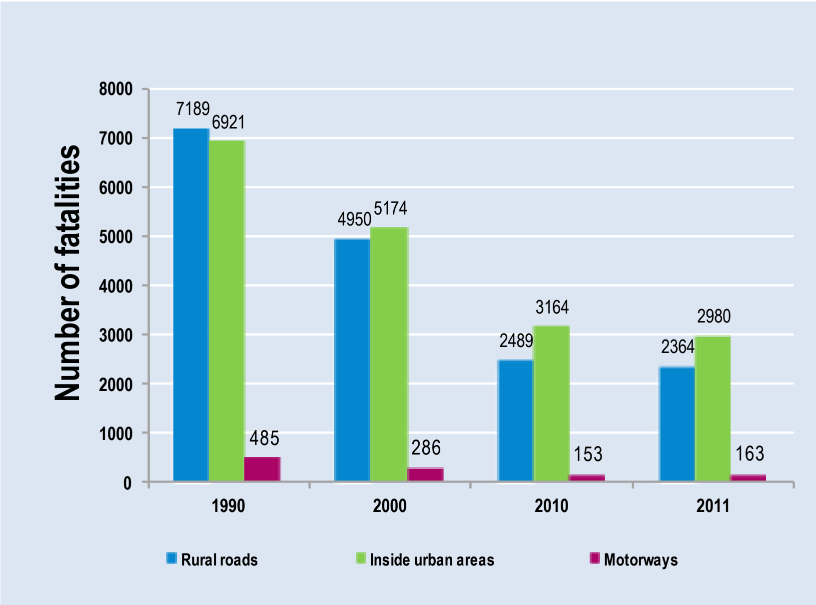
Road Type

In 2011, there was an increase by 6.5% in the fatalities on motorways, while the mortality rate decreased on the other road networks.

In 2011, 43% of fatal crashes occurred on rural roads, 54% in urban areas and 3% on motorways. Since 1990, the greatest reduction in fatalities occurred on rural roads (-67%).

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, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

In 2002, the maximum BAC was lowered from 0.5 g/l to 0.3 g/l. Since then, the number of fatal crashes caused by alcohol has been divided by nearly 4.

In 2011, road crashes caused by drink-driving were reduced by 4.6% compared to the previous year.

Speed

The number of fatal crashes in the high-speed range has been decreasing. The decrease in crashes involving very excessive speeds has contributed to the decrease in the number of fatal crashes.

The table below summarises the main speed limits in Japan.

Table 5. **Summary of speed limits in Japan in 2013**

	General speed limit Passenger cars
Urban roads	**40,50,60 km/h**
Rural roads	**50,60 km/h**
Motorways	**100km/h**

Seatbelts and helmets

Seatbelt wearing has been compulsory in front seats since 1985, and in rear seats only since 2008. Seatbelt wearing in front seats has risen from 88% in 2002 to 98% in 2011, while the use of seatbelts in rear seats is still very low (33% on general roads and 64% on expressways). The use of child restraints remains at 57% in 2011.

Helmet wearing is compulsory for all motorcycle and moped riders. The usage rate is around 99%.

Table 6. **Seatbelt wearing rate by car occupants**

	2002	*2010*	*2011*
Front seat			
General	88%	97%	98%
Motorways (driver)		99%	
Rear seats			
Adults			33% (64% on motorways)
Children (child restraint system)		57%	57%

Distracted driving, use of mobile phone and fatigue

Since 1999, using hand-held phones or gazing at any electronic display unit while driving is prohibited. Causing a crash due to the use of these devices is subject to punishment; and since 2004, even if no crash is caused, the offence is still punishable.

In 2011, there were 836 injury crashes due to the use of mobile phones (including crashes involving cyclists), representing 0.12% of all injury crashes.

5. National road safety strategies and targets

Organisation of road safety in Japan

During the period from the first half of the 1950s to around 1970, Japan suffered from significant increase in the number of road traffic accident casualties.

As a result, traffic safety emerged as a highly important social issue. In June 1970, the government of Japan responded to this by enacting the Traffic Safety Policies Act (Act No.110 of

1970), with the aim of promoting traffic safety measures nationwide in a total and systematical manner.

Under this act, the government has been working together with local governments and relevant private organizations to vigorously implement traffic safety measures.

Since 1971, the Government sets up a National Traffic Safety Programme every five years.

Road safety strategy for 2011-2020

The 9th Programme was launched in April 2011 and covers the period 2011-2015. The 9th Fundamental Traffic Safety Programme has three strategic objectives and eight pillars. The three strategic objectives are:

1. Safety for the elderly and children,
2. Pedestrian and bicycle safety,
3. Ensuring safety on roads serving the community and on main roads.

The eight pillars are:

1. Improvement of the road traffic environment,
2. Dissemination and reinforcement of traffic safety messages,
3. Safe driving,
4. Vehicle safety,
5. Enforcement,
6. An improved rescue and emergency medical system,
7. Better victim support, including an appropriate damage compensation system,
8. More Research & Development.

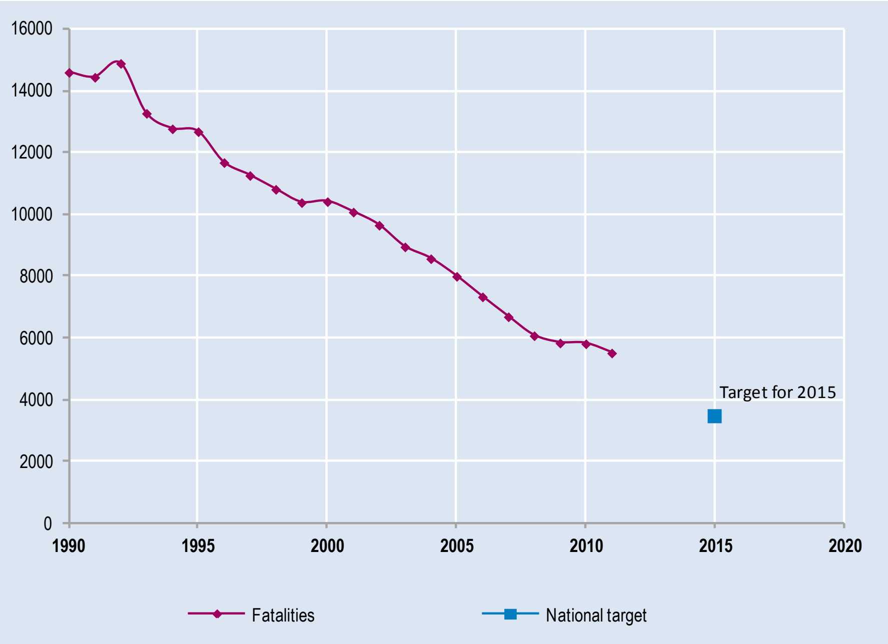
Target setting

The Plan includes the target to have less than 3 000 deaths[1] (within 24 hours) and less than 700 000 casualties, by 2015. The vision is to make Japan the safest country for road traffic.

1. Equivalent to 3 450 deaths within 30 days: K(30d)=K(24h)*1.15.

Monitoring

Figure 4. **Trends towards national target**



6. Recent safety measures (2011-2012) and effectiveness of past measures

Cyclist safety

The bicycle is a popular means of transport for many people in Japan. This is even more the case since the terrible earthquake which hit the eastern part of Japan in 2011, as bicycles have become a real alternative to cars for commuting.

In 2010, 20% of all traffic crashes involved a bicycle. This share could rise, given the increasing popularity of riding. Improving the safety of cyclists has become a priority and is essential in order to reach the goal set within the 9th Fundamental Traffic Safety Programme adopted in 2011. The main measures focus on:

- Developing a safe traffic environment for cyclists;
- Increasing knowledge of traffic rules;
- Developing safety education for cyclists;
- Strengthening enforcement aimed at cyclists.

7. Useful websites and references

Useful websites

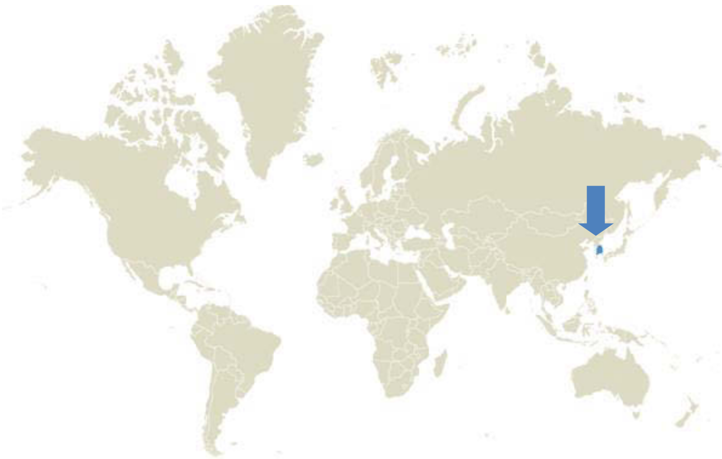
National Police Agency	www.npa.jp
Institute for Traffic Accident Research and Analysis (ITARDA)	www.itarda.or.jp

Contact

For more information, please contact: Ms Satoko Ito: Satoko_i@itarda.or.jp

Korea

Source: IRTAD, KOTSA, KoRoad



Capital	Inhabitants in 2011	Vehicles/1 000 inhabitants in 2011	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Seoul	**49.8 million**	**430**	**5 229**	**10.5**

1. Comments about road safety data collection

In Korea, crash data are collected by the National Police Agency. Data included in this report correspond to the consolidated set of police data. Fatality data refer to deaths within 30 days. Injury crashes are defined as crashes resulting in at least one injured or killed person.

A person seriously injured is defined as a person requiring medical treatment for more than 3 weeks

2. Short term trends

General comments and trends for 2011

The number of road fatalities, which has shown a decreasing trend since the early 1990s, fell further in 2011 to 5 229, a 5% decrease compared to 2010. The number of injury crashes also fell by 2.3%. In 2011, total vehicle-kilometres increased by 0.48% compared with 2010.

Provisional data for 2012

Estimations on the basis of provisional data predict a total of approximately 5 392 road fatalities for the year 2012 (i.e. approximately a 3.1% increase).

3. Long term trends (1990-2011)

Fleet and mobility

In 2011, passenger cars accounted for about 68% of traffic volumes on Korean roads. Buses and lorries accounted for just over 31% (buses 3.4%, lorries 28.5%).

Also in 2011, the total traffic volume increased by 1.2%. For passenger cars the change was + 1.6%, for buses + 1.4 %, and for lorries + 0.4% compared with 2010[1].

1. http://www.road.re.kr

Change in the number of fatalities and injury crashes

Between 1990 and 2011, the number of road fatalities decreased by nearly 63%, while the number of injury crashes decreased by only 13%.

Fatalities peaked in 1991 at 13 429. Since then, road deaths have decreased (with some fluctuations), and were halved in 2004. This important decrease is due to the following factors:

- The compulsory wear of front seatbelt (1990);
- Enforcement against drunk driving (1998);
- Nation-wide implementation of speed enforcement cameras (since 1997);
- Installation of median barriers on the national roads;
- Speed enforcement by the police, including automatic speed enforcement, since 2008.

In 2008, the Government adopted a national implementation plan for road safety, "Cutting road fatalities by half by 2012" (compared with 2007). The project had a strong focus on pedestrian safety to reduce the very high death rates for that group.

As a result of these enforcements, the fatalities related to drink driving decreased by 40%, and speeding decreased by 50%. The rate of decrease in injuries has not been as fast as for fatalities. This means that the severity of crashes has reduced quicker than their occurrence.

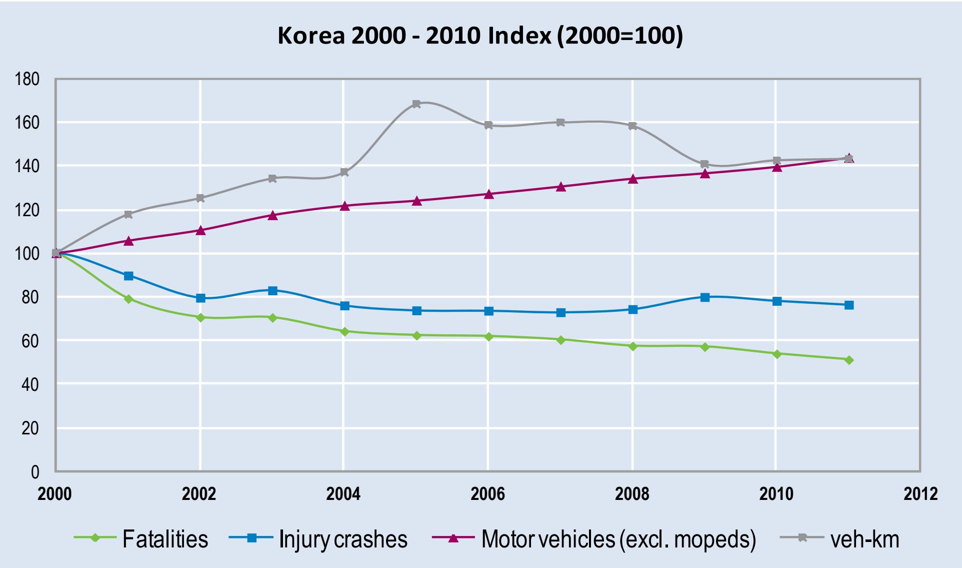
Risk and rates

Between 2000 and 2011, the mortality rate, expressed in terms of deaths per 100 000 population, fell by 49%, from 21.8 to 10.5. The number of deaths per 10 000 vehicles showed a more favourable reduction, from 6.9 to 2.4 (i.e. 65%). Conversely, the number of vehicles per 1 000 inhabitants, which is representative of the national level of motorisation, increased during 1990-2010, by 273%.

Table 1. **Safety and mobility data**
1990-2011

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
Safety data							
Fatalities	14 174	10 236	5 505	5 229	-5.0%	-48.9%	-63.1%
Injury crashes	255 303	290 481	226 878	221 711	-2.3%	-23.7%	-13.2%
Deaths/100 000 population	33.1	21.8	11.3	10.5	-6.7%	-52%	-68%
Deaths/10 000 registered vehicles	28.9	6.9	2.6	2.4	-7.7%	-65%	-92%
Deaths/billion vehicle-kms		49.5	18.7	17.6	-5.5%	-64%	
Mobility data							
Vehicles (exc. mopeds)(in 1,000)	4 897	14 927	20 832	21 449	3.0%	40%	325%
Vehicle- kilometres (in millions)			295 055	296 478	0.48%		
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	114.2	317.6	426.2	430.9	1.1%	34%	273%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres : 2000-2011**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around USD 11.60 billion for all road fatalities (2011), representing around 1.0% of the GDP of Korea.

The mean cost of road traffic crashes by casualty type is as follows:

- Fatality: KRW 418 910 000
- Injured person: KRW 4 700 000
- Property damage only crash: KRW 1 420 000

Table 2. **Costs of road crashes in Korea**

Cost (USD Billion)	2006	2010	2011	% change (10~11)
Fatalities	2.71	2.02	1.98	-2.0
Injury and disability	1.34	1.02	1.05	2.9
Property damage and other costs	6.01	7.75	8.57	10.6
Total	10.06	10.80	11.60	7.4
Total as a % of GDP	1.1%	1.1%	1.0%	-

Road users

All user groups, with the exception of moped riders, have benefited from the road safety improvement. Between 1990 and 2011, number of pedestrians and bicyclists killed fell by 71.1% and 57.8%, respectively.

In 2000-2011, most of all user groups, with the exception of moped riders and bicyclists, benefited from a sharp decrease in the number of fatalities. The greatest decrease was observed for passenger car occupants (-58%). The number of motorcyclists killed rose by 50%. The sharp increase in number of moped riders killed (28.9% from 2000 to 2011) is to be connected with the increasing number of registered mopeds.

In 2011, the number of cyclists killed was reduced by 7.5% in 2011. It seems that the series of measures to improve the safety of cyclists (e.g. helmet wear mandatory, bicycle safety facility expansion, and bicycle path maintenance) has yielded results.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		*2010*	*2000*	*1990*
Bicyclists	644	5%	317	3%	294	5%	272	5%	-7.5%	-14%	-58%
Mopeds	0	0%	343	3%	450	8%	442	8%	-1.8%	29%	-
Motorcycles	1 674	12%	1 221	12%	633	11%	608	12%	-3.9%	-50%	-64%
Passenger car occupants	2 100	15%	2 792	27%	1 228	22%	1 176	22%	-4.2%	-58%	-44%
Pedestrians	7 063	50%	3 764	37%	2 082	38%	2 044	39%	-1.8%	-46%	-71%
Others	2 692	19%	1 799	18%	818	15%	687	13%	-16.0%	-62%	-74%
Total	**14 174**	**100%**	**10 236**	**100%**	**5 505**	**100%**	**5 229**	**100%**	**-5.0%**	**-49%**	**-63%**

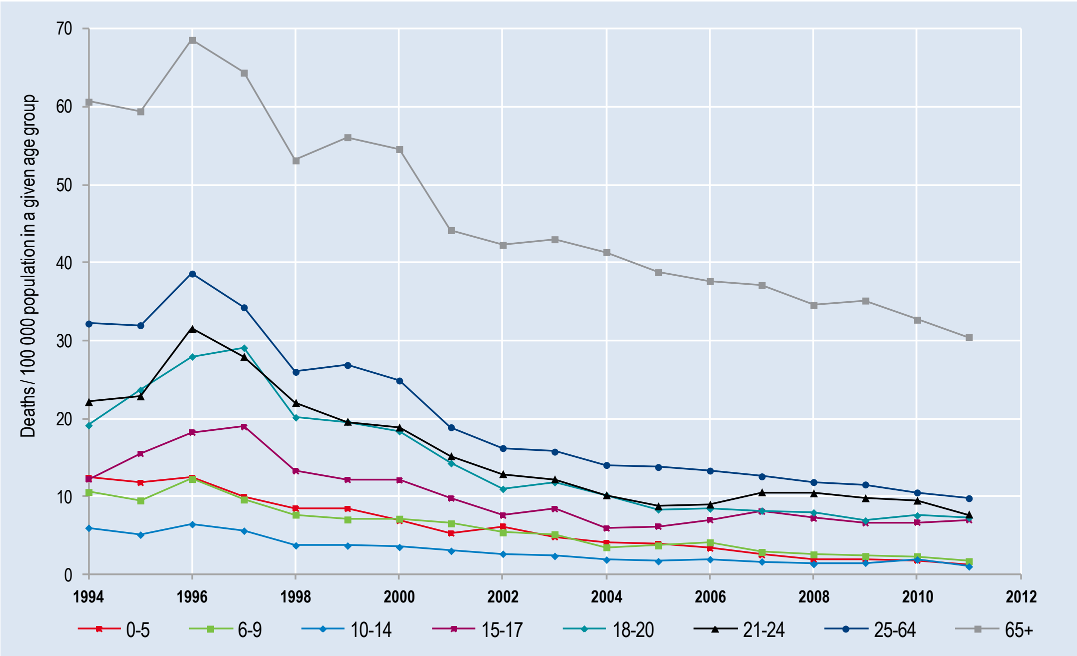
Age

Since 2000, the reduction in road fatalities has benefited all age groups. The most impressive reduction concerned the youngest group (0-14), for which fatalities decreased by 73%, from 588 in 2000 to 101 in 2011. The number of road fatalities for 15-24 year olds also decreased by 61.5%. The fatalities in the 15-20 age group, however, increased by 7.5% in the same period. This is partly explained by the increasing number of teenagers driving. Road crash fatalities involving the elderly (+65) reduced by 8% between 2000 and 2011 (1 878 to 1 724), which is relatively lower than other age groups. Furthermore, this age group has a much higher risk than the general population, with more than 30 deaths for 100 000 population in this age group. This is twice the overall risk in Korea

Table 4. **Reported fatalities by age 2000-2011**

				2011% change over	
	2000	**2010**	**2011**	***2010***	***2000***
0-5	275	49	35	-29%	-87%
6-9	202	49	33	-33%	-84%
10-14	111	62	33	-47%	-70%
15-17	263	139	145	4%	-45%
18-20	459	149	153	3%	-67%
21-24	573	236	200	-15%	-65%
25-64	6 474	3 068	2 906	-5%	-55%
>65	1 879	1 752	1 724	-2%	-8%
Total	10 236	5 505	5 229	-5%	-49%

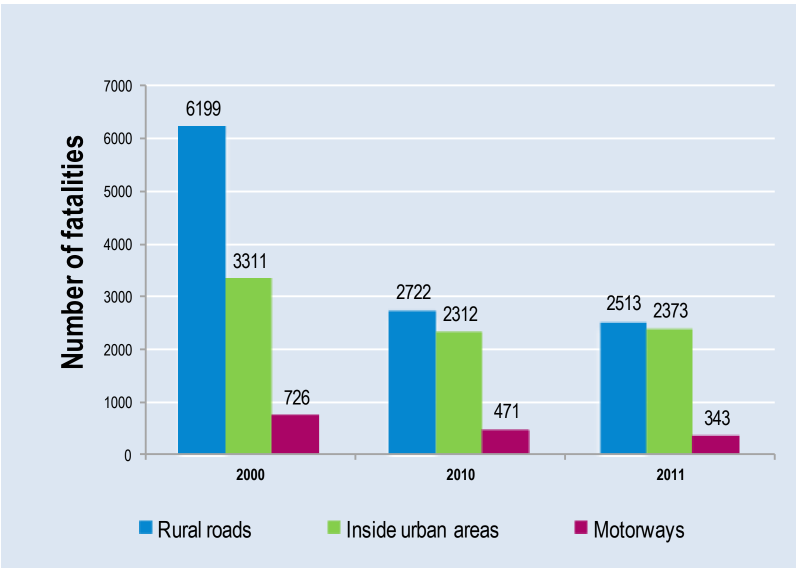
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1994-2011)



Road Type

In 2011, 49% of fatal crashes occurred on rural roads, 45% in urban areas and about 7% on motorways. Since 2000, the greatest reduction (-59%) has been achieved on rural roads and motorways (-53%). In 2011, there was a reduction by 27% in the number of fatalities on motorways. This good performance on motorways is explained by stronger police enforcement, treatment of black spots, construction of rumble strips, prevention campaigns on fatigue, etc.

Figure 4. **Reported fatalities by road type**
2000, 2010 and 2011



4. National road safety strategies and targets

Organisation of road safety in Korea

There are several agencies in Korea supporting the Government in the field of road safety.

- The Ministry of Land, Infrastructure and Transport(MOLIT) is responsible for long-term planning of the transport system for all types of traffic, as well as for building, operating and maintaining public roads and strengthening road safety in terms of the expansion of road safety facilities, improvement of hazardous roads and construction of sidewalks.
- The Korea Transportation Safety Authority (KOTSA) conducts guidance and promotion activities to prevent traffic crashes, and assists transport companies with traffic safety management. KOTSA provides the annual report of Korea to IRTAD.
- The Road Traffic Authority (KoROAD) is in charge of the operation and maintenance of traffic safety facilities and traffic light infrastructure, as key components for maximizing traffic efficiency and for preventing traffic crashes. KoROAD also provides traffic crash statistics to IRTAD.

Evaluation of the past road safety programme

The last national road safety plan covered the period 2007-2011. The main objective was to halve the number of fatalities by 2012 (in comparison to 2007) to less than 3 000 road deaths. The target was not reached.

Road safety strategy for 2011-2016

In September 2011, the Ministry of Land, Transport and Maritime Affairs (MLTM) announced 'The 7th National Transport Safety Plan' for the period (2012-2016). The plan includes major safety issues for road, railway, aviation and marine transport.

In the field of road safety, the plan aims at reducing fatalities to less than 3 000 by 2016 (almost a 40% reduction in comparison to 2010) in order to be ranked in the middle among OECD member countries.

The plan comprises five strategies, and a series of measures.

Table 5. **Strategies and main measures of national road safety plan**

Strategies	Main Measures
User behaviour improvement	• Reinforce school road children traffic safety • Grope for change to children based traffic safety training • Reinforce aged drivers traffic safety measures • Reinforce punishment of important regulations violator such as drink and drive. • Advancement of automobile insurance system • Introduce operation hour limit for business use vehicle • Diversify traffic safety public relations and training
Build safer infrastructure	• Secure safe and fresh passing area • Expand safety aimed traffic safety facilities • Promote traffic safety improvement business of local unit • Prepare bicycle traffic safety measures • Revitalization of traffic safety information sharing
Operate smarter modes	• Expand automobile high technology safety device dissemination • Expand business use automobiles safety device dissemination
Reinforce safety management system	• Speed management based on human system change • Advancement of traffic accident cause investigation with high technology
Advanced emergency response system	• Build synthetic post disaster response system • Build weather information providing system

Target setting and Monitoring

Two main targets have been set for 2016:

- Reducing by 40% the number of fatalities by 2016 in comparison to 2010 level.
- Reducing the risk (calculated as the number of deaths / 10 000 vehicles) to 0.5, in order to reach the average level of OECD countries.

Table 6. **National road fatality reduction target for 2016 and 2020**

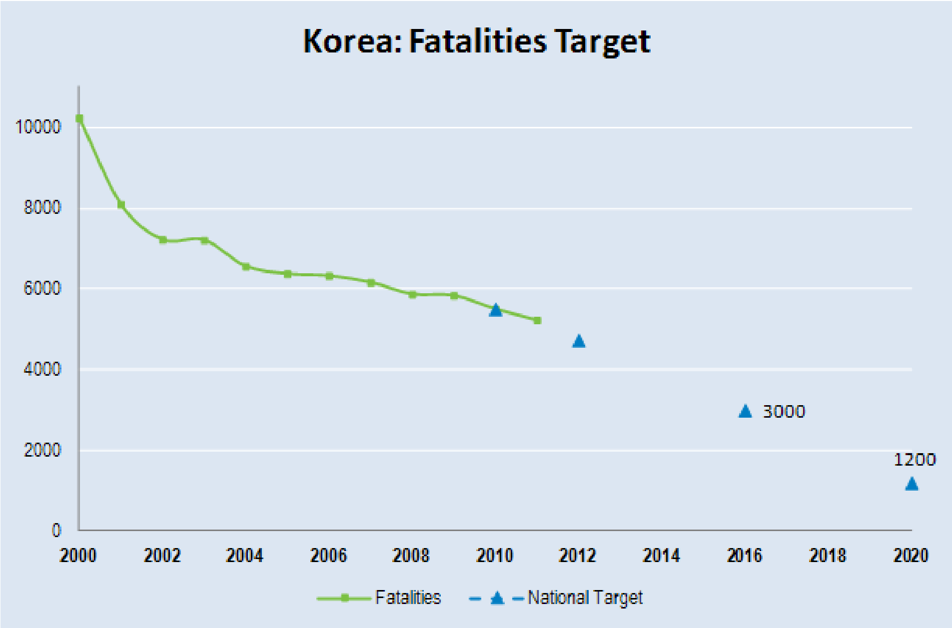
Category	2010	2016	2020
Annual traffic crash death	5 505	3000	1 200
Number of death per 10 000 vehicles	2.6	1.3	0.5

The plan also includes interim targets. For 2012:

- Reduction by 14% of the number of fatalities (in comparison to 2010).
- Less than 1 514 pedestrians killed (compared to 2012, in 2010).

As of May 2013, there has been no decision to review the current target (no more than 1 200 fatalities by 2020).

Figure 4. **Trends towards national target**



5. Recent safety measures (2011-2012) and effectiveness of past measures [2]

Data collection

The legislation regarding crash data collection is being reviewed. When police investigate road traffic crashes, information can be provided to the road safety agency.

Institutional organisation

- Increased responsibility of local police agencies: The responsibility of developing road safety measures is being progressively transferred from the National Police Agency to local governments, with the creation of local autonomous police agencies. Local governments manage and promote their traffic crash-reducing measures through creating autonomy police organisations as their local agencies.

Speed management

- Speed limits have been reduced to 60 km/h on local distribution roads.
- Speed limits have been reduced to 30 km/h in several residential areas.
- Higher fines for speeding 60 km/h above the limit (2011);
- Lower maximum speed on rural roads (60 km/h → 50 km/h) and higher maximum speed (+10 km/h) on motorways (January 2010).

2. The 5th National Transportation Safety Master Plan(2012-2016), Ministry of Land, Infrastructure and Transport.

Impaired driving

- Penalties for drink-driving now depend on the BAC level (9 Dec 2011).
- Employers (and potential employers) may be informed of drink-driving offences (2011).

Enforcement campaigns

Watching Digital Media Broadcasting prohibited while driving (May 2011).

A number of targeted enforcement campaigns were implemented in 2012, in particular focusing on:

- Traffic violations around school zones.
- Motorised two-wheelers.
- Heavy trucks, especially during the holiday season.
- Traffic violations towards the end of the year.
- Drink-driving offenses during the New Year period.

Vehicle safety

- Trucks: The use of standardised digital tachograph devices was expanded in 2012. As a result, tachograph records of transport companies can be analysed by companies using the eTAS system[3] to identify drivers with poor records.
- Installation of new, large vehicle side and rear camera has been introduced.
- Attachment of safety evaluation label, to provide safety information on manufactured vehicle on systemic basis, will be obligatory by 2014 (legislating 'automobile safety law').
- National Police Agency utilises video recording device (black-box) usage for vehicles.

Infrastructure

- Construction of additional roundabouts (2011);
- Expansion of Zone 30 in residential areas (2011);
- Designation of "silver zone" near facilities for the elderly (2011);
- Additional designation of Pedestrian Priority Zone (2011);
- Further installation of crash impact absorption facilities (498 sites as of 2010);
- National highway safety improvement project: more median rumble strips, sign updates and maintenance of road safety facilities (2010);
- Nationwide installation of automatic crash recording systems at main intersections (December 2010).

3. eTAS(Digital Tachograph Analysis System) is a scientific and empirical analysis system for drivers' safety management that stores the vehicle driving information in order to understand the driver's driving habits, such as speeding and abrupt braking. Its tachograph records the driving conditions, which can often change from moment to moment.

6. Recent trends in road user behaviour

Impaired driving

The maximum authorised BAC is 0.5 g/l. In 2011, the number of alcohol-related crashes decreased by 0.6% in comparison with 2010, and the number of fatalities due to alcohol-related crashes dropped by 6.1 %

Speed

The table below summarises the main speed limits in Korea.

In urban areas, the speed limit was reduced in 2012 from 80 km/h to 60 km/h for two-lane roads.

Table 7. **Summary of speed limits in Korea**

	General speed limit ***Passenger cars***
Urban roads	60 km/h
Rural roads	One-lane roads: 60 km/h Two-lane roads: 80 km/h
Motorways	Urban areas: 100 km/h Outside urban areas: 110 km/h

Seatbelts and helmets

Seatbelt use in front seats has been compulsory since 1990 on all roads. The use of rear seatbelts on motorways was made compulsory in 2008.

The nationwide 2012 observation survey[4] showed that 88.3% of drivers, 76.3% of front passengers and only 9.4% of rear seat passengers wear seatbelts on the motorways.

In 2012 the ***overall helmet use*** increased from 72.02% to 75.48%. The wearing rate varies much by cities.

Table 8. **Seatbelt wearing rate by car occupants on motorways 2010, 2011 and 2012**

	2010	***2011***	***2012***
Front seats			
Driver	88.5%	84.1%	88.3%
Passenger	78.2%	72.1%	76.3%
Rear seat passengers	6.3%	4.5%	9.4%

Distracted driving, use of mobile phone and fatigue

The use of hand-held mobile phones is not permitted while driving.

4. Transport Culture Index(2012, Korea Transportation Safety Authority).

7. Useful websites and references

Recent and on-going research

- Automobile insurance premium & discount system improvement review and study (~ 2013).
- A study on the connection between automobile insurance and road traffic safety (2012 ~).
- A study on the rationalization of regional auto insurance (2012 ~).

Useful websites

Ministry of Land, Infrastructure and Transport	http://english.molit.go.kr/intro.do
Road Traffic Authority	http://www.koroad.or.kr/en_web/index.do
Korea Transportation Safety Authority	http://eng.ts2020.kr/
Korea Transport Institute (KOTI)	http://english.koti.re.kr/

Contact

For more information, please contact: Dr Jee, jeeys1@ts2020.kr

Lithuania

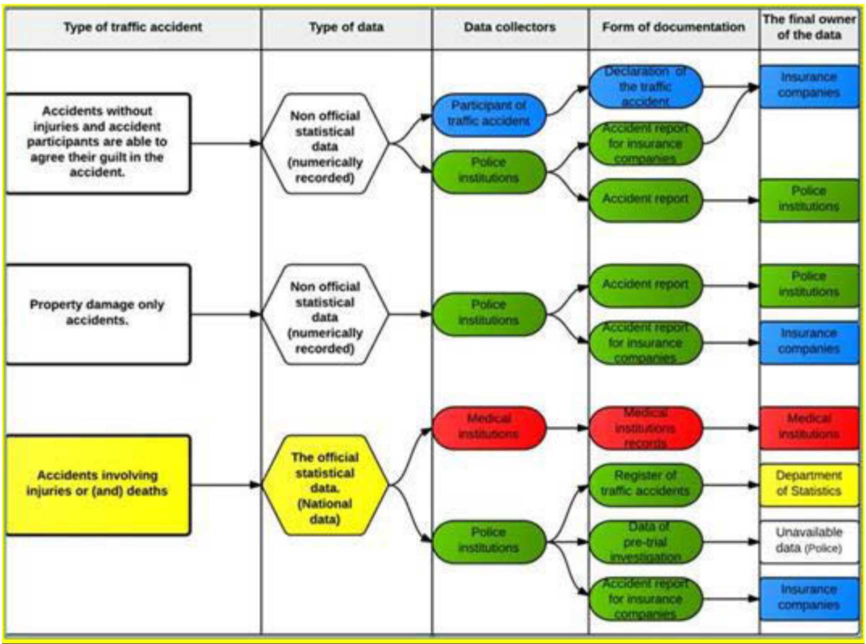
Source: Transport and Road Research Institute[1]

Capital	Inhabitants	Vehicles/ 1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Vilnius	**3.2 million**	**656**	**296**	**9.3**

1. Comments about road safety data collection

The main crash data collector and manager in Lithuania is the traffic police. In addition, hospitals and insurance companies also have data on some crashes. The crash data collection model is described in the figure below.

Figure 1. **Crash data collection model**



There is no estimation of under-reporting; road safety experts lack information identifying crash causes. Information on road user behaviour is also limited, and information on injury type is not systematically recorded.

1. Lithuania is an Observer country. Data have not yet been validated by IRTAD.

According to the police, nearly 100% of injury crashes are collected and reported in the police database. This data is available to road safety experts for research.

There is no official definition as yet of slight and serious injuries. The concept of MAIS3+ is under discussion among Lithuanian stakeholders.

Safety performance in 2011

In 2011, the number of road fatalities and injury crashes on the roads of Lithuania was the lowest since 1980. In 2011, 3 312 fatal and injury crashes occurred in Lithuania, whereby 296 people were killed. These figures represent a 1% reduction in comparison to 2010.

Provisional data for 2012

In comparison with year 2011, the number of fatalities has increased by 1%.

2. Long term trends in mobility and safety (1990- 2011)

Fleet and mobility

Since 1990, the number of motor vehicles has multiplied by 2.6. However there are some differences between vehicles: the number of passenger cars has multiplied by 3.3, the number of trucks by 1.7 and the number of motorcycles has divided by 2.7.

Change in the number of fatalities and injury crashes

The number of road fatalities peaked in 1991. Since then it has decreased by more 70%.

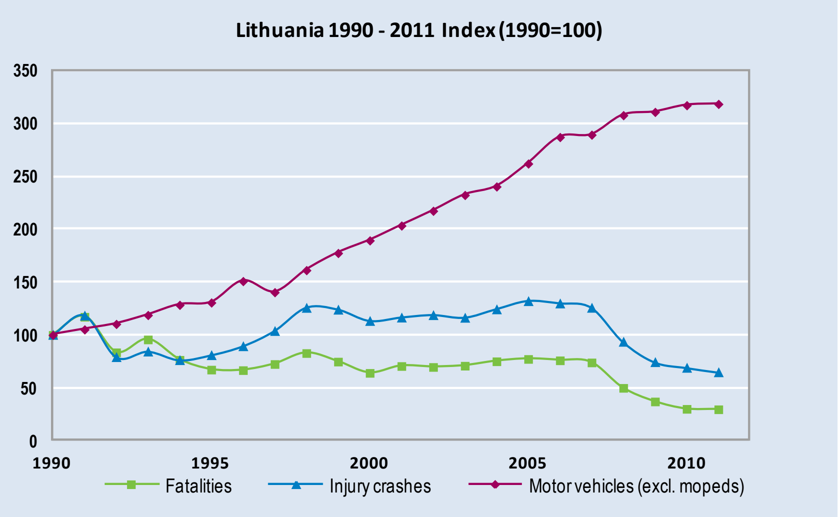
Risk and rates

Between 1990 and 2011, the death rate (in terms of deaths per 100 000 population) decreased by more than 65%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
Reported safety data							
Fatalities	1 001	641	300	296	-1.3%	-54%	-70%
Injury crashes	5 135	5 972	3 625	3 312	-8.6%	-43%	-36%
Deaths/100 000 population	26.9	17.3	9.2	9.3	1.1%	-46%	-65%
Deaths/10 000 registered vehicles	12.4	5	1.4	1.4	0%	-72%	-89%
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	667	1 265	2 119	2 127	0.4%	68%	219%
Motorisation (number of motorised vehicles excl. mopeds/1 000 inhabitants)			645	656	1.7%		

Figure 2. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around 346 EUR million, i.e. 1.1 % of GDP.

Costs are estimated using a "capital approach" method.

Table 2. **Costs of road crashes**

Cost (EUR Billion)	**2010**	**2011**
Fatalities	0.153	0.156
Injured people (slight and serious)	0.200	0.190
Property damage and other costs	-	-
Total		0.346
Total as a % of GDP		1.1

Road users

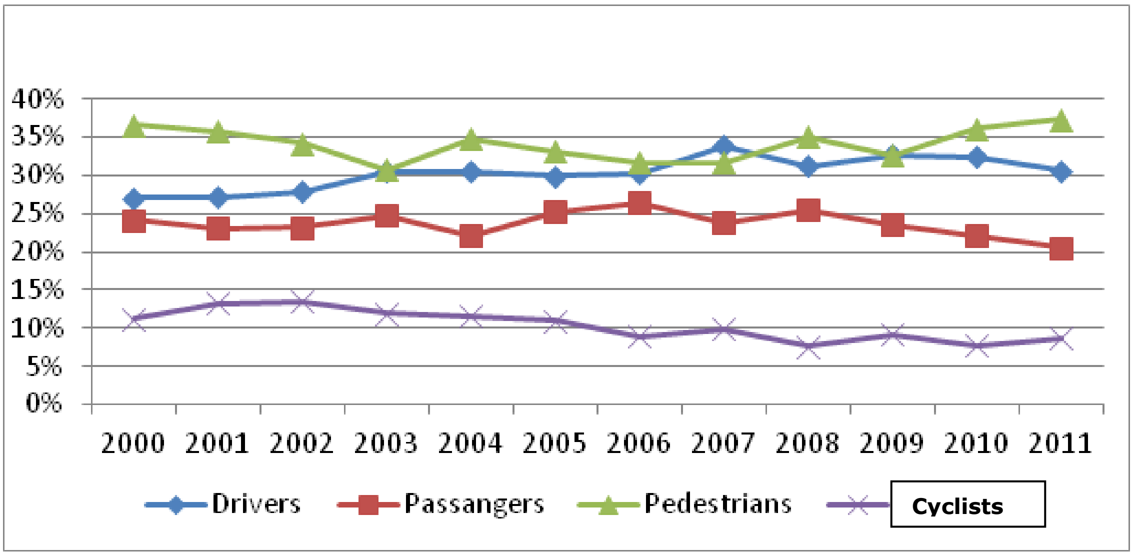
In 2011, the number of car occupants and drivers killed decreased, but there was an increase in the number of pedestrians and cyclists killed.

Car drivers and pedestrians are the main victims of traffic crashes. Pedestrians in particular represent around one-third of casualties, a high share in comparison with other IRTAD countries.

Table 3. **Reported fatalities by road user group 1990-2011**

	2010		2011		2011% change over 2010
Bicyclists	24	8%	26	9%	+8.3%
Mopeds	3	1	4	1%	+33,3%
Motorcycles and scooters	14	5%	9	3%	-35,7%
Passenger car occupants	136	45%	61		
Pedestrians	106	35%	111	38%	+4.7%
Others	3	1%	85	29%	-2.3%
Total	**300**	**100%**	**296**	**100%**	**-1.3%**

Figure 3. **Road fatalities by road user group year 2000-2011**



Age

In 2011, the 15-24 age group represented 18% of all road deaths.

In 2011, young and novice drivers (with less than one year's experience) were responsible for 16% of the total number of road crashes.

Table 4. **Reported fatalities by age group 1990-2011**

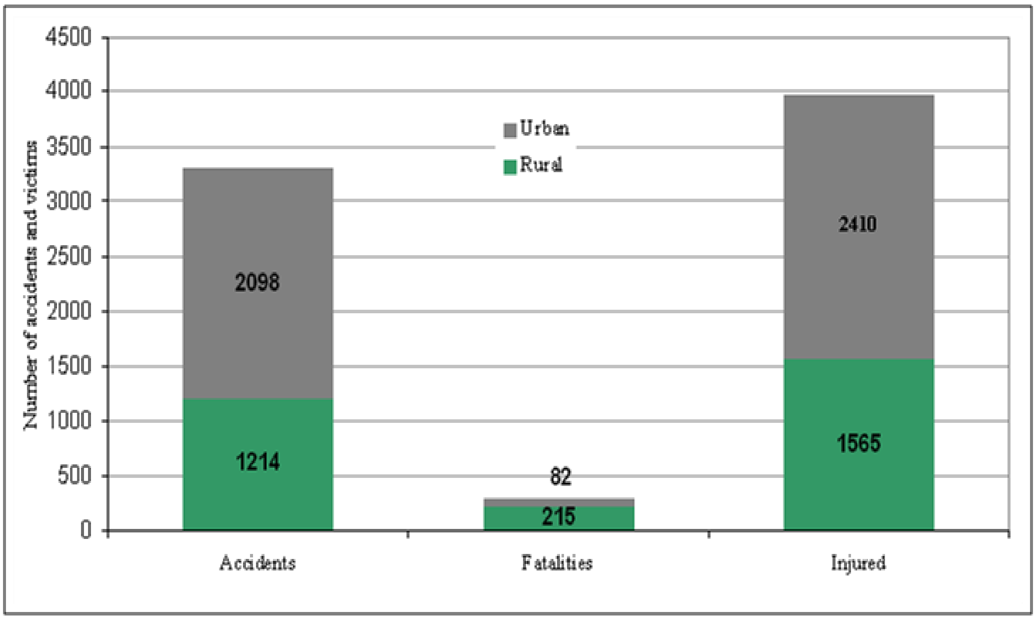
	2010	2011
0-5	1	3
6-9	0	4
10-14	4	6
15-17	6	6
18-20	22	21
21-24	26	27
25-64	173	162
>65	63	65
Total	300	296

Road Type

In 2011, most road crashes occurred in built-up areas. However, crashes are more severe on rural roads, where speeds are higher, cyclist and pedestrian infrastructure less developed and lighting only present on a small part of the network.

The improvement in 2011 benefited both the rural and urban networks, whereas fatalities on motorways increased by 11%.

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



4. Recent trends in road user behaviour

Impaired driving

The general maximum blood alcohol content authorised in Lithuania is 0.4 g/l and 0.2 g/l for novice drivers (driving experience of less than 24 months) and professional drivers.

If a driver is caught driving under the influence of alcohol (BAC above 0.4 g/l), their licence is withdrawn for 12-36 months and they must pay a fine (150-900 EUR). The most dangerous violations (and repeat drink-driving offences) can be punished by an administrative arrest for 10-30 days.

In 2011, drink driving contributed to 11% of road crashes.

Drivers caught driving under the influence of drugs will be fined (300-900 EUR) and their driving license is withdrawn for 12-36 months. They, too, can be subject to 10-30 days administrative arrest.

Speed

Excessive and inappropriate speed is the main cause of traffic crashes in Lithuania. Speeding by 30 km/h above the limit is considered a very serious violation with severe sanctions, including immediate licence withdrawal for novice drivers.

In 2011, 16.7 % of the drivers exceeded the speed limit by more than 10 km/h. The table below summarises the main speed limits and average speeds.

Table 5. **Summary of speed limits in 2013**

	General speed limit - *Passenger cars*
Urban roads	50 km/h
Rural roads	90 km/h (70 km/h on gravel roads)
Motorways	130 km/h (110 km/h in winter time)

Table 6. **Average speed on main and national roads, 2008-2011**

Road type	2008		2009		2010		2011	
	Speed limit	Average speed	Speed limit	Average speed	Speed limit	Average speed	Speed limit	Average speed
Main	50	65.4	50	60.6	50	50.3	50	53.1
National	50	52.8	50	52.6	50	62.1	50	59.6
Main	70	71.0	70	71.1	70	70.5	70	73.6
National	70	73.4	70	72.3	70	69.9	70	79.9
Main	90	86.1	90	84.8	90	85.0	90	85.3
National	90	84.1	90	84.5	90	83.0	90	84.0
Main	100	98.0	100	101.3	100	100.8	100	97.0
National	100	-	100	-	100	-	100	-
Main	110	105.0	110	105.2	110	103.1	110	104.0
Main	130	110.6	130	111.9	130	110.9	130	111.5

Seatbelts and helmets

Seatbelt wearing is compulsory in all seats. In statistics, there is no distinction between rear and front seats. In 2011, 83% of drivers and car occupants were wearing seatbelts.

All riders of two-wheeled motor vehicles are required to wear helmets. The Police data offers very poor information about helmet wearing rates.

Cyclists less than 18 years old must wear a helmet.

Distracted driving, use of mobile phone and fatigue

It is not permitted to drive using a hand-held mobile phone. Hands-free mobile phones may be operated.

5. National road safety strategies and targets

Organisation of road safety in Lithuania

The main stakeholder is the Ministry of Transport and Communications of the Republic of Lithuania, supported by the Lithuanian Road Administration, Police and municipalities.

In order to implement this programme, the Ministry of Transport and Communications of the Republic of Lithuania works with the Ministry of Interior, the Ministry of Education and Science, and the Ministry of Health.

State policy implementation is controlled by the State Traffic Safety Commission. This Commission, approved by the Government, comprises governmental/state administration and municipal administration bodies and representatives of NGOs.

Evaluation of the past road safety programme

Lithuania successfully implemented the target set in the EU White Paper of reducing, by 50%, the number of traffic deaths in the period 2001-2010. The number of fatalities was reduced from 706 to 299 – i.e. a 58% reduction.

Road safety strategy for 2011-2020

Following the encouraging results in the past decade, Lithuania developed a new National Traffic Safety Development Programme for 2011-2017. The main goal is to reach a mortality rate of less than 6 killed per 100 000 population, in order to be ranked among the 10 best performing countries in the EU.

To achieve this objective, it is planned to:

- further improve road users' education in the field of traffic safety;
- increase road users' and vehicle enforcement;
- improve the rescue service quality;
- improve the crash data collection system.

6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

- Social advertisements to raise awareness among speeding drivers and aggressive drivers.
- National speed camera programme: 154 automatic speed cameras (141 radar speed cameras and 13 laser speed cameras) on important national roads were implemented. Lithuania also has 11 mobile speed cameras. The first speed cameras were installed in 2005.
- Penalties for speed violations were considerably increased.

Impaired driving

- Social advertisements to prevent drink driving.

Seatbelt

Seatbelt wearing: social advertisements to promote seatbelt use, including popular TV commercial about rear seat child safety devices, as well as wide live campaigns demonstrating crash simulation mechanisms.

Infrastructure

In the Safety Plan for 2011-17, a wide range of measures to improve the infrastructure are envisaged on roads of national significance, as well as roads managed by municipalities. These include: sustainable development of national road network; classification of the road network by function, with adequate road design; safe intersection design; speed calming measures in residential areas; safe roadside design; separate tracks for pedestrians and/or cyclists, ITS (speed cameras and other).

Road safety campaigns

In 2012, the Lithuanian Road Administration carried out the following educational traffic safety campaigns:

- Project “Take Care of Each Other on the Road” (Saugokime vieni kitus kelyje).
- Safety belt efficiency and vehicle turnover simulation equipment, as well as children’s safety facilities, are demonstrated in municipalities (more information on the equipment demonstration at: www.lra.lt).
- Competition for communities “Traffic Safety in Communities” (more information about the competition at: www.lra.lt);
- Lithuanian schoolchildren’s competition ”Save Young Lives on the Roads” (organised and financed).

7. Useful websites and references

Useful websites

Ministry of Transport and Communications of the Republic of Lithuania	http://www.transp.lt
Transport and Road Research Institute	http://www.tkti.lt/en
Lithuanian Road Administration	http://www.lra.lt

Contact

For more information, please contact: Mindaugas Katkus, m.katkus@tkti.lt

Luxembourg

Source: IRTAD, STATEC

Capital	Inhabitants	Vehicles/ 1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Luxembourg	**0.5 million**	**837**	**33**	**6.5**

1. Comments about road safety data collection

Crash data are collected by the National Police called to the scene of crashes. The reports are transmitted to the national statistical institute (Statec) responsible for compiling the data.

The number of fatalities is checked twice by police reports and media.

A seriously injured person is defined as a person hospitalised for at least 24 hours. Luxembourg is not using MAIS 3+ for the time being, but plans to use this way of reporting in the near future.

2. Short term trends

Safety performance in 2011

The annual figure for 2011 is 33 road deaths, an increase of one fatality compared with 2010. This slight increase followed a large decrease in 2010 (-33%).

Fatalities in 2012

Data for 2012 show an increase of one road death compared to 2011.

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

As Luxembourg is a bordering country, there is much circulation in transit (including heavy goods vehicles) as well as many workers who cross the border every day to go to work. This is why traffic on the roads increases every year.

Since 1990, the number of vehicles has almost doubled.

The use of vehicle fleet as a reflection of road mobility in Luxembourg should be considered with caution. The numbers of cars circulating and the number of kilometers driven in Luxembourg does not only depend on the national vehicle fleet, but also, to a large extent, on foreign vehicles (international road transport, transit, passenger car traffic, etc.). Luxembourg has 0.5 million inhabitants, but also counts more than 150 000 workers living in the surrounding countries (Belgium, France, and Germany). A large part of these foreign workers travel daily by car. Moreover, fuel is cheaper than in neighbouring countries, which attracts many car drivers from neighbouring countries and transit to refuel in Luxembourg.

There are consequently some *a-priori* reasons to question the fact that vehicle fleet is an adequate exposure indicator in the case of Luxembourg.

Change in the number of fatalities and injury crashes

Between 1990 and 2011, the number of fatalities decreased by more than 50%, and the number of injury crashes by more than 20%. In recent years (2000-2011), the decrease in the number of fatalities was sustained (-57%).

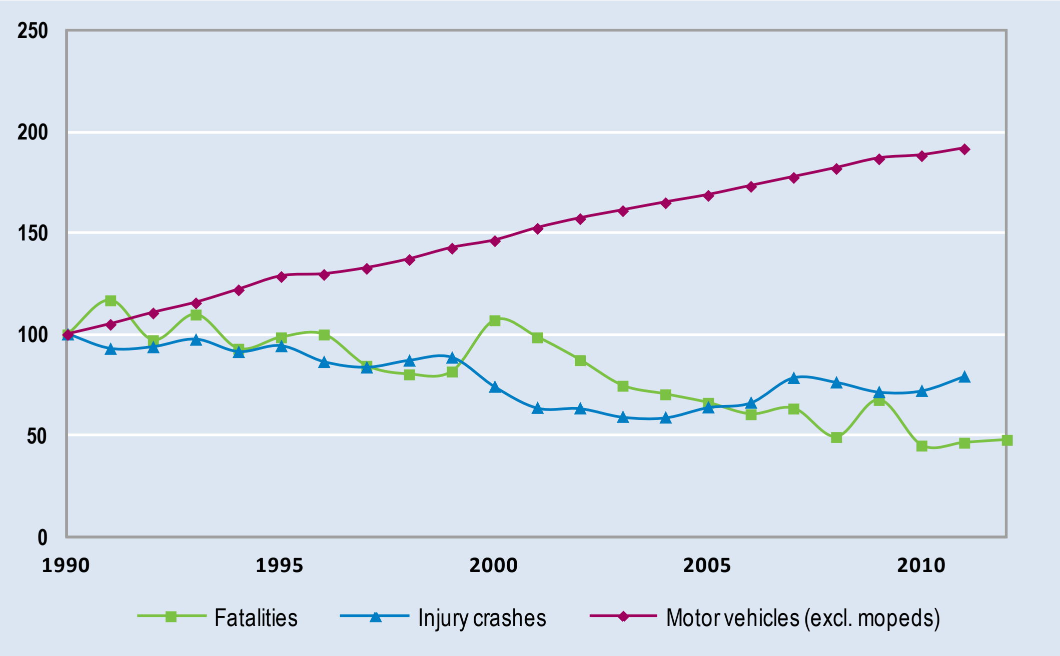
Risk and rates

Between 1990 and 2011, the road traffic mortality rate, expressed in terms of deaths per 100 000 population decreased by more than 60%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Reported safety data							
Fatalities	71	76	32	33	3.1%	-57%	-53%
Injury crashes	1 216	901	876	962	9.8%	7%	-21%
Hospitalised	556	400	266	317	19.2%	-21%	-43%
Deaths/100 000 population	18.8	17.5	6.4	6.5	1.1%	-63%	-66%
Deaths/10 000 registered vehicles	3.5	2.5	0.8	0.8	0.02%	-67%	-76%
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	205	300	386	393	1.8%	31%	91.7%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	540	688	769	767	1.8%	11.5%	42%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011 (Index 100 = 1990)**



Economic costs of traffic crashes

Table 2. **Economic Costs per injury type 2002**

Injury Type	Cost per injury type in million euros Value (2002)
Fatalities	2.33
Hospitalised	0.36
Slightly injured	0.02

Source: Dacota

Road users

Table 3. **Reported fatalities by road user group 1990-2011**

	1990		2000		2010		2011	
Bicyclists	1	1%	1	1%	1	3%	2	6%
Motorised two-wheelers	8	11%	8	11%	1	3%	3	9%
Passenger car occupants	51	72%	56	74%	27	84%	21	64%
Pedestrians	10	14%	11	14%	1	3%	6	18%
Others	1	1%	0	0%	2	6%	1	3%
Total	71	100%	76	100%	32	100%	33	100%

Age

Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned children aged 0 to 14 years (-71%). 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.

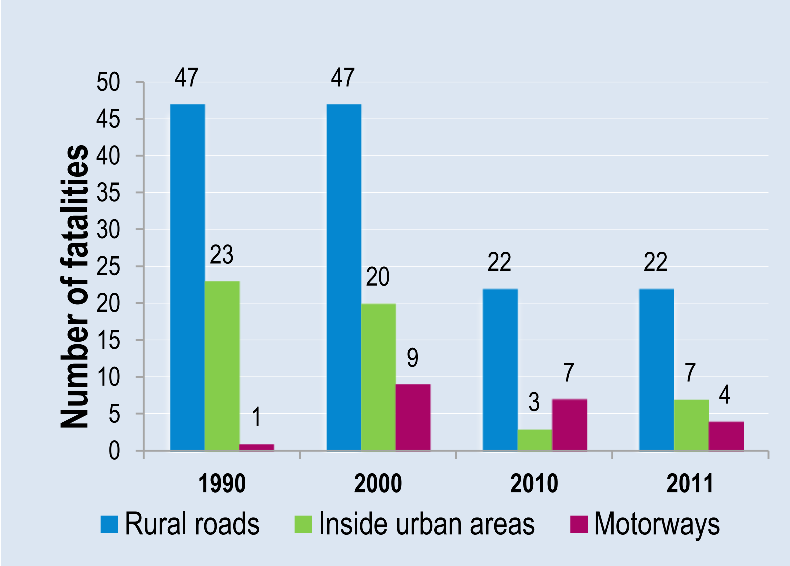
Table 4. **Reported fatalities by age group 1990-2011**

	1990	2000	2010	2011
0-5	*1*	*1*	*0*	*1*
6-9	*2*	*1*	*0*	*0*
10-14	*1*	*1*	*0*	*0*
15-17	*2*	*1*	*0*	*2*
18-20	*11*	*5*	*6*	*2*
21-24	*8*	*11*	*4*	*6*
25-64	*33*	*45*	*19*	*19*
>65	*10*	*10*	*3*	*3*
Total	*71*	*76*	*32*	*33*

Road Type

In 2011, around 67% of fatal crashes occurred on rural roads

Figure 3. **Reported fatalities by road type 1990, 2000, 2010 and 2011**



4. Recent trends in road user behaviour

Impaired driving

In Luxembourg, the maximum authorised blood alcohol content is 0.5 g/l. and 0.2 g/l for novice and professional drivers.

In 2012, an influence of alcohol was reported in 26% of the fatal crashes.

There is no data available on the use of drugs and driving for the time being.

Speed

The table below summarises the main speed limits in Luxembourg.

Table 5. **Summary of speed limits in 2013**

	General speed limit *Passenger cars*	Comments
Urban roads	50km/h	
Rural roads	90km/h	
Motorways	130km/h	110km/h (when it rains)

Seatbelts and helmets

Seatbelt

Seatbelt use has been compulsory in front seats since 1975 and in rear seats since 1992. The use of child restraints is compulsory since 1992. The rate of seatbelt use is around 80% (2003) in front seats in passenger cars.

In 2012, 43% of drivers or passengers killed in road accidents did not wear seatbelts.

Helmet

The wearing of helmets is compulsory for all motorcycle and moped riders since 1976. The compliance rate is unknown.

Distracted driving, use of mobile phone and fatigue

The use of hand-held phones while driving is forbidden. The use of hands-free devices while driving is authorised since 2009.

5. National road safety strategies and targets

The Ministry of Sustainable Development and Infrastructure (Department of Transport) is in charge of road safety

Road safety strategy for 2011-2020

Luxembourg adopted the EU target to half the number of fatalities by 2020. The target was defined by analysing the reasons and circumstances under which fatal crashes, or crashes with serious injured people, have occurred during the last years.

The priority issues are: vulnerable road users, traffic laws, driving licence – demerit point system, campaigns, accidentology, installing radar systems.

6. Recent safety measures (2011-2012)

- Speed management: creation of areas with 20 or 30km/h limits in order to calm the traffic and protect vulnerable road users, public campaigns like "levez le pied" in May 2012 and the progressive implementation of speed cameras.
- Impaired driving: new law punishing more severely impaired driving (demerit point system).
- Cyclist safety: campaigns like "Gitt sichtbar".
- Driver education: The "Centre de Formation pour Conducteurs" provides training for novice drivers, as well as drivers who have lost points through the demerit points system, in order to make them change behaviour.
- Seatbelt laws: the same law mentioned for impaired driving also punishes more severely the non-wearing of seatbelts.

- Vehicle safety special tyres for driving in winter conditions have to be used.
- Infrastructure: new guidelines for protection barriers, improve intersections, “audits de sécurité”, improvement of level crossings (railroad crossing).

7. Useful websites and references

Recent and on-going research

All reports are downloadable on the website of the Ministry of Sustainable Development and Infrastructure (www.mt.public.lu) . Data is available on the website www.statistiques.publiques.lu

Useful websites

Road safety, Luxembourg	www.securite-routiere.lu

Contact

For more information, please contact: Marie-Jo.Airoldi@statec.etat.lu

Malaysia

Source: MIROS[1]

Capital	Inhabitants	Vehicles / 1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Kuala Lumpur	**28.8 million**		**6 877**	**23.8 (2010)**

1. Comments on road safety data collection

The Royal Malaysian Police (RMP) is the agency responsible for collecting crash data in Malaysia.

There is a standardised form (POL27), used to collect all relevant information for each crash occurrence in Malaysia. The form covers the information on vehicle, environment, injury, location and background of the crash occurrence, as well as the victim involved.

In Malaysia, all road crashes must be reported to the police. Therefore police data covers all types of crash: fatal, serious, slight, or damage only.

2. Short term trends

Safety performance in 2011

There were 6 877 road deaths in 2011, a decrease of 5 fatalities compared to the 2010 figure.

Provisional data for 2012

Provisional estimates show that road traffic deaths increased by 0.6% to 6917 in 2012

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

Since 2000, fatalities increased by 14%, while the number of seriously injured road users decreased by 20.5%. The increase in the number of fatalities and crashes can be associated with the rapid rise of motorisation in the country. Since 2000, the number of registered vehicles has increased each year by around 6%. The high number of registered vehicles also increased the number of vehicle-kilometres travelled in the country.

1. Data have not yet been validated by IRTAD.

Change in the number of fatalities and injury crashes (1990-2011)

Between 1990 and 2011, the number of fatalities increased by 70%. In recent years (2000-2011), the number of fatalities increased by 14%

Risks and Rates

The mortality rate is rather high (23.8 deaths/100 000 population in 2010). However, the risk (in terms of deaths per distance travelled) decreased significantly since 2000, due to the large rise in motorisation in Malaysia.

Between 2000 and 2010, the death rate (in terms of deaths per 100 000 population) declined by 8%, and risks, expressed in deaths per billion v-km and in deaths per 10 000 registered vehicles, both decreased by 44%, mainly because of the very high increase in motorisation (+90.5%).

Table 1. **Safety and mobility data 2000-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Fatalities	4 048	6 035	6 872	6 877	0.1%	14%	70%
Hospitalised		9 790	7 781	6 328	-18.7%	-35.4%	
Deaths/100 000 population		25.9	23.8	n.a.		-8%	
Deaths/10 000 registered vehicles		5.7	3.4	3.2	-6%	-44%	
Deaths/billion vehicle-kms		26.3	16.2	14.7	-9%	-44%	

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for Malaysian society. based on a willingness–to-pay estimation, traffic crashes costs each year around 1.6 % of the national GDP (the statistical value of life in Malaysia is RM 1.3 million, around EUR 330 000)[2].

Road users

Generally, powered two-wheelers contribute to the highest number of road deaths in Malaysia. In 2011, they accounted for 61% of the road deaths. Bus occupant road deaths can be considered low, with 29 cases only.

Over the past eight years (2003-2011) the fatalities among motorcyclists and car occupants respectively increased by 18% and 17%. The situation improved for pedestrians (-22%) and cyclists (-33%).

2. Nor Ghani MD. NOR, Mohd Faudzi MOHD YUSOFF, (2003), Value Of Life Of Malaysian Motorists: Estimates From A Nationwide Survey, Journal of the Eastern Asia Society for Transportation Studies, Vol.5, October, 2003.

   Mohd Faudzi MOHD YUSOFF et al (2011) Malaysian Value of Fatal and Non-Fatal Injury due to Road Accident: The Willingness to Pay Using Conjoint Analysis Study. Proceedings of the Eastern Asia Society for Transportation Studies, Vol.8, 2011

Table 2. **Reported fatalities by road user group 2003-2011**

	2003		2010		2011		2011% change over 2010	2011% change over 2003
Bicyclists	256	4%	192	3%	172	3%	-10%	-33%
Motorised two-wheelers	3 548	56%	4 036	60%	4169	61%	3%	18%
Passenger car occupants	1 187	19%	1 421	21%	1389	20%	-2%	17%
Pedestrians	683	11%	626	9%	530	8%	-15%	-22%
Others incl. unknown	612	10%	597	7%	617	9%	3%	1%
Total	**6 286**	**100%**	**6 872**	**100%**	**6 877**	**100%**	**0.1%**	**9%**

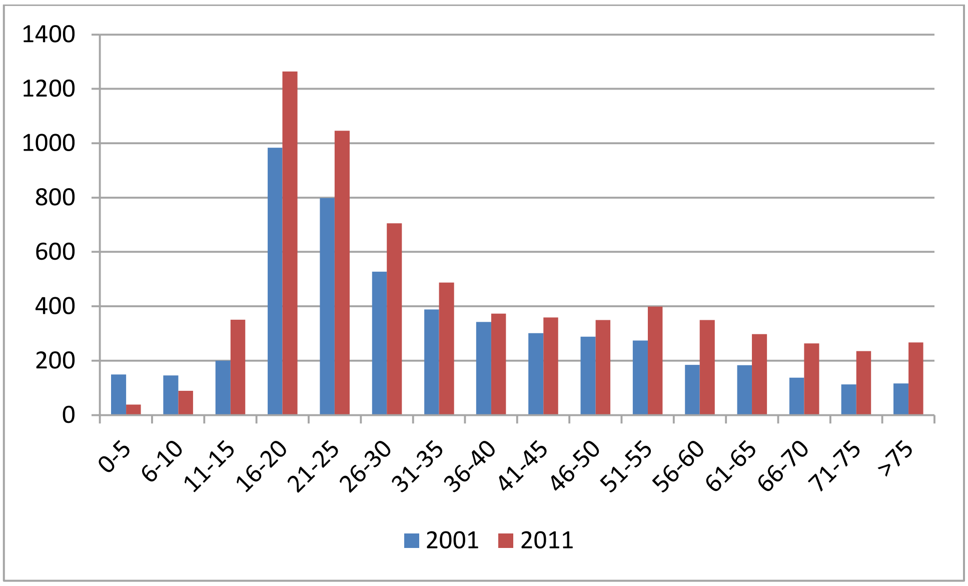
Age

Young people pay a very heavy price on the roads. In 2011, 35% of persons killed in road traffic were in the 16-25 age group.

Table 3. **Reported fatalities by age group 2010-2011**

Age of Driver	2010	2011	% change
0 - 5	33	39	18.2%
6 - 10	99	89	-10.1%
11 - 15	346	351	1.4%
16 - 20	1 258	1 264	0.5%
21 - 25	1 043	1 046	0.3%
26 - 30	675	706	4.6%
31 - 35	498	487	-2.2%
36 - 40	401	373	-7.0%
41 - 45	356	359	0.8%
46 - 50	360	350	-2.8%
51 - 55	392	399	1.8%
56 - 60	364	350	-3.8%
61 - 65	283	298	5.3%
66 - 70	277	264	-4.7%
71 - 75	223	235	5.4%
>75	264	267	1.1%
Total	6 872	6 877	0.1%

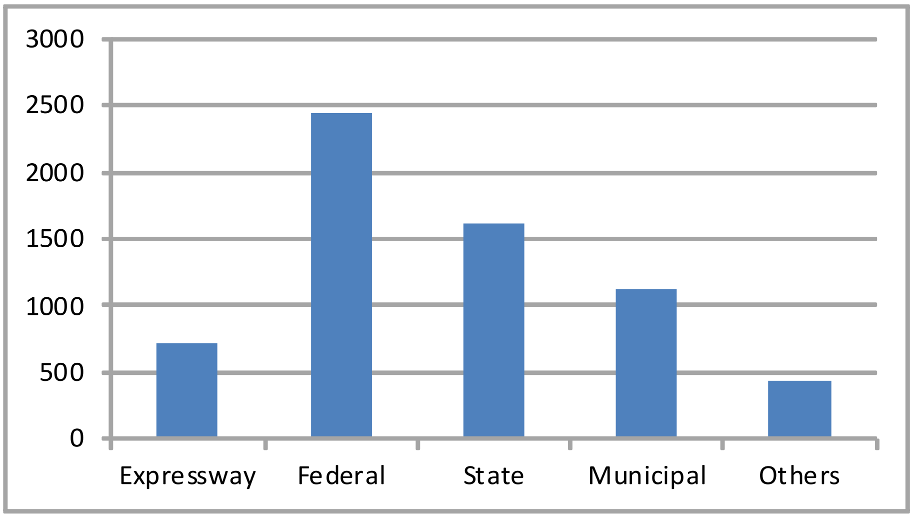
Figure 1. **Reported death by age band (2001 and 2011)**



Road Type

In 2011, 39% of fatal crashes occurred on federal roads and 26% on state roads.

Figure 2. **Reported fatalities by road type 2011**



4. Recent trends in road user behaviour

Impaired driving

Islam is the state religion in Malaysia and around 60% of the population is Muslim. Alcohol is available at licensed outlets for the consumption of non-Muslim citizens.

Drink-driving is not an issue in Malaysia. Based on the reported figure produced by the Royal Malaysian Police (RMP), less than 0.5% of drivers in fatal crashes are tested positive for blood-alcohol content.

Speed

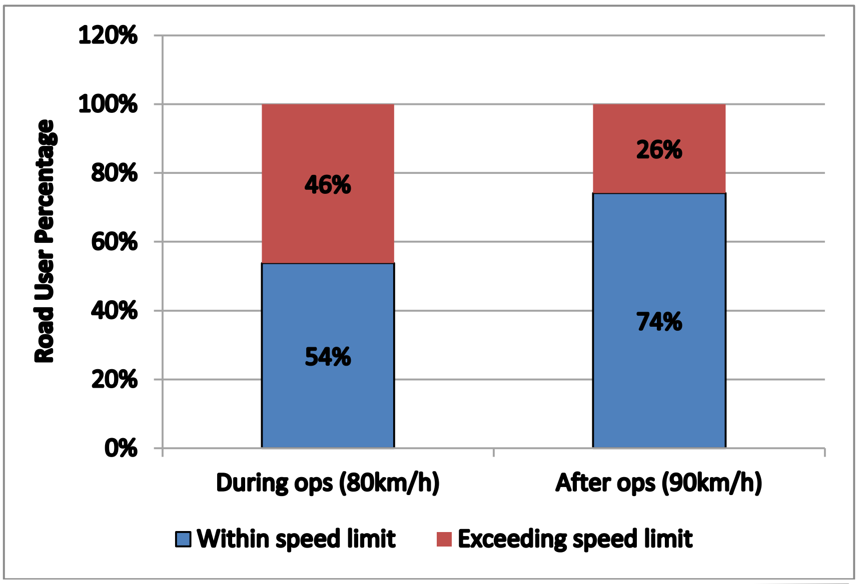
The table below summarises the main speed limits in Malaysia.

Table 4. **Summary of speed limits in 2013**

	General speed limit *Passenger cars*
Urban roads	50 km/h
Rural roads	90 km/h
Motorways	110 km/h

A recent study (Jamilah MM et al, MRR03/2012: Evaluation of the Effectiveness of Ops Bersepadu Hari Raya, 2011) shows that the compliance to 90km/h posted speed limit is about 74% among Malaysian drivers.

Figure 3. **Share of road users above the speed limit**



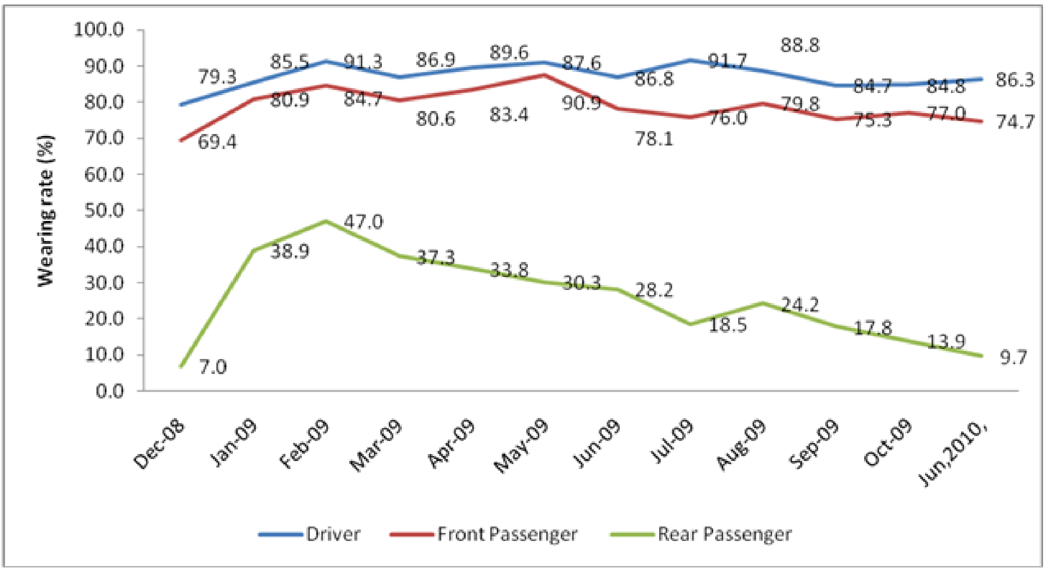
Seatbelts and helmets

Seatbelt use has been compulsory in front seats since 1978, and in rear seats since 1 January 2009.

The compliance rates among drivers and front passengers are, respectively, about 85% and 75%, due to high awareness of the regulation. The compliance rate for rear seats was 40% shortly after the law came into force in 2009, but is now declining. The current rear seatbelt wearing rate is only 10%.

Helmet wearing has been compulsory for motorcycles since 1973. However, there is still an alarmingly high rate of motorcyclist fatalities due to head injuries. In general, the helmet-wearing rates are higher in urban areas compared to rural areas. The average helmet-wearing rate in the urban areas is about 90% while the average compliance rate in rural areas is about 50%. The overall national helmet-wearing compliance rate is about 70%.

Figure 4. **Seatbelt wearing rate by car occupants**



Distracted driving, use of mobile phone and fatigue

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

Organisation of road safety

The Road Safety Department (RSD) is the lead agency for road safety in Malaysia and the Malaysian Institute of Road Safety Research (MIROS) is providing support by conducting road safety research to assist in elaborating strategies to reduce road traffic deaths.

The main stakeholders involved in road safety in Malaysia are principally the Royal Malaysian Police (RMP), the Public Work Department (PWD), the Road Transport Department (RTD), the Malaysian Highway Authority (MHA), the Ministry of Transport, the Ministry of Health, the Ministry of Education, the Land Public Transport Commission and other road related agencies. In addition, several NGOs are actively involved in road safety in Malaysia.

Road safety strategy for 2011-2020

A new road safety strategy is under preparation. The plan is to be launched in 2013 and is aligned with the Global Decade of Action for Road Safety 2011-2020.

Target setting and monitoring

A report by MIROS shows that in the absence of a comprehensive road safety programme, there will be 8 760 road fatalities in 2015 and 10 716 in the year 2020. The plan will adopt the target set by the Global Decade of Action for Road Safety 2011-2020 by reducing the predicted road deaths in 2020 by 50%.

Figure 4. **Trends towards national target**

6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

Speed enforcement by municipalities: consultation process of amendment to highway code is on-going.

Vehicle safety

- All new car models are to be equipped with ABS brakes, 2 frontal airbags and rear seatbelts as a standard feature.
- Introduction of rear underrun guidelines for lorries and trailers – R58
- Malaysian Vehicle Assessment Programme (MyVAP)

During 2009 to 2011, MIROS established the Malaysian Vehicle Assessment Programme (MyVAP) to elevate the degree of vehicle safety in Malaysia. This is done by escalating awareness among local car users, together with acquiring roadworthy and crashworthy vehicles via non-destructive techniques. The Proton Exora was the first car to be evaluated and managed to obtain the MIROS Safety Companion Status, equivalent to 4-star status. This programme is later superseded by the New Car Assessment Program (NCAP)

- New Car Assessment Programme (NCAP)

MIROS is the lead agency for the ASEAN New Car Assessment Programme. The programme aims to develop a vehicle safety database to rank the make and type of vehicle in terms of safety. MIROS is in the process of developing a full-scale crash laboratory facility and began its operation in May 2012. This New Car Assessment Programme (NCAP) will award safety star ratings to new cars based on their safety performance in a crash test. This consumer-based programme will assist consumers in choosing a better car based on safety grading.

Motorcycle safety

The National Helmet Initiative is a community-based programme conducted by the Road Safety Department, especially in the rural areas. The department will exchange old, or low quality safety helmets with a helmet that meets the SIRIM compliance. Road users, especially motorcyclists, will be taught the importance of wearing helmets properly

- Helmet manufacturers must comply with SIRIM or a higher standard.

Infrastructure

- Road Safety Audit

Road safety audit on new projects has been implemented in Malaysia since 1994, and is compulsory for all Public Works Departments. 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. Road safety audit is also carried out on existing roads.

- Motorcycle lane programme.

Segregation of motorcycles from the mainstream traffic. There are two types of motorcycle lane, exclusive and non-exclusive. Exclusive motorcycle lanes fully segregate motorcycles from mainstream traffic with a guardrail, while non-exclusive motorcycle lanes separate motorcycles from mainstream traffic using chevron markings only. With the implementation of the exclusive lanes, there is approximately 30% reduction in motorcyclist crashes (Radin Umar et al, *Preliminary Analysis of Exclusive Motorcycle Lanes along federal highway*).

Enforcement

- ***Strengthened enforcement activities during festival periods***. There are two major festivals in Malaysia: Hari Raya and Chinese New Year (CNY). During these periods, people usually travel to their home-towns and the traffic volume on the roads increases. In order to reduce fatality during this period, a concentrated effort on enforcement, named Ops Sikap, has been carried out for several years. For the year 2012, the integrated enforcement approach, called Ops Selamat 1, was conducted for 15 days. During this period the police have announced that this approach has successfully achieved its objectives and targets, which is to lower the road deaths despite the increase in traffic volume.

MIROS has published an evaluation of the enforcement programme during the festive season (Jamilah MM et al, MRR03/2012: Evaluation of the Effectiveness of Ops Bersepadu Hari Raya 2011), which concluded that the programme was effective when strategic enforcement was implemented. It was found that general enforcement does not change the attitude or perception of being caught in road users. However strategic enforcement was effective, as can be seen with regard to motorcyclists and helmet wearing.

Road safety campaigns

- Media campaigns via television, radio, cinema and newspapers;
- Community-based programmes;
- "Love Life – Advocating Road Safety via Music" – venturing into social marketing as opposed to traditional means of campaigning. Twelve popular Malaysian artists work on the first Malaysian music album dedicated to road safety.
- Safety helmet programme at one of the districts in each state, including an advocacy programme each week and replacement of sub-standard safety helmets.

7. Useful websites and references

Recent and on-going research

- Road Traffic Injury Prevention & Analysis Study (R-TRIPS).
- Evidence Based Research on Exclusive (EMCL), and Non-exclusive Motorcycle Lane (NEMCl) Design.
- Safety Effects of Traffic Signal Optimization on Red-light Running and Potential Vehicle Conflict at Signalized Intersection.
- Establishing MyROSI (Malaysian Road Safety Risk Index): Phase 1 Modelling the Parameters towards MyROSI.
- Day Time Road Accidents among Motorcyclists.
- A Study on Risk and Exposure of Motorcycle Activity.
- The Analysis of Road Users Preference in Selecting Transport Mode.
- Comparing Overtaking Behaviour during Festive and Non-festive Season.
- Refinement of Non-Destructive Approach for Vehicle Safety Assessment (MyVAP).
- Cost of Managing Oral and Maxillofacial Injuries among Patients Who Were Involved in Motor Vehicle Crash in Teaching Hospitals in Malaysia.
- Prevalence of Peritrauma Substance Abuse Among Road Trauma Patients (Motorcycle & Drivers) Presenting in Emergency Department in Developed Urban Cities in Malaysia: Multicentre Study.

- Post Crash Management: Emergency Assistance and Rehabilitation Services from Experience of Road Traffic Injury Survivors in Klang Valley.
- Quality of Life and Return to Work Pattern among Road Traffic Injury Survivors in Urban Areas.
- Development of Methodology for Conducting Virtual Coach Rollover Simulation According to UNECE R66.
- Small Car Crashes in Malaysia.
- Seatbelt Wearing in Passenger Vehicle Fatal Crashes in Malaysia.
- Evaluation on selected elements of SHE COP Practices among express bus operators and drivers—A comparative study.
- Prevention of Sleepy Driving: Common versus Recommended Practice.
- Emergency Assistance for Road Trauma by Road Users in Klang Valley: Prevalence and Determinants of Action.
- To Evaluate the Effects of Social Marketing on Road User Behaviour In Malaysia.
- The Effectiveness of Road Safety Interventions through Community Based Programmes in Precinct 8, Putrajaya.
- Simulator Sickness Measurement in Malaysia.
- Young Drivers and Riders in Malaysia: An Examination of Risk Factors and Benefits of Education/Training Programmes.
- Instrumented Car System Enhancement (ICSE).
- Assessment on the Implementation of Malaysia Driving Curriculum in Driving Institutes: A Study in Klang Valley.

Useful website

MIROS – Malaysian Institute of Road Safety Research	www.miros.gov.my

Contact

For more information, please contact: allyana@miros.gov.my

Netherlands

Source: IRTAD, SWOV, Ministry of Infrastructure and Environment

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities /100 000 inhabitants in 2011
Amsterdam	**16.7 million**	**567**	**661**	**4.0**

1. Comments about road safety data collection

Important note: Statistics in the Netherlands distinguish between reported and real numbers of casualties. The former category covers casualties reported by the police, while real numbers are higher, as they take into account data from sources such as hospitals and death certificates. Any number given in this report concerns the real number, unless "reported" is specified.

In the Netherlands, Statistics Netherlands works together with Rijkswaterstaat in matching police-reported fatalities with other records to arrive at the formal number of road traffic fatalities. This comprises information from the Police, court files and death certificate records. Both the police-reported number and the real number are published annually since 1996. In 2011, it was observed that the registration rate dropped to 84%[1].

The reporting of road crashes by the police does not meet the requirements set out by SWOV and the Ministry of Infrastructure and Environment. The implementation, in 2009, of one overall national information system (Basic Enforcement Facility, or BVH) for the police led to lower data quality and a smaller number of reported crashes. Renewed agreements with the police and the Ministry of Safety and Justice will lead to a gradual improvement in the reporting rate and data quality once implemented during 2013. The police have announced a new information system for which full implementation is expected during 2013.

The Police are currently (in 2013) being reorganised, from 25 regional units into 10 national units. Positioning road traffic as a task within their entire package might lead to shifts in terms of staff, budgets and focus. Processes and procedures on registration of road traffic accidents are under (renewed) development.

Recent research on serious traffic injuries shows that the number of police-reported hospitalised casualties is not a good indicator of serious injury. In the Dutch linking studies, the police data are matched with the hospital records and compared with the ICD-derived MAIS. The estimated real number of serious injuries is now based on the MAIS and no longer on police severity.

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1. For further information, see the SWOV report available at http://www.swov.nl/rapport/R-2011-10.pdf

The Netherlands have recently adopted the new indicator of serious injuries using medical information (MAIS2+, complete estimate) and is also able to report on MAIS3+.

2. Short term trends

Safety performance in 2011

In 2011, there were 661 fatalities, i.e. a 3% increase in comparison with 2010. The reported number of fatalities was 546 (an increase of 2%).

The overall trend in the number of road fatalities is still downward, although the number of road fatalities in 2011 (N = 661) is higher than in 2010.

The increase in the number of serious road injuries in recent years continued in 2011.

Elderly road users, and cyclists in particular, have increasingly been involved in road crashes, both fatal and resulting in serious road injury.

The quality of a wide range of road safety data is deteriorating. The Minister responsible for the Police has promised to undertake action to improve the accident reporting of fatal and injury accidents.

Provisional data for 2012

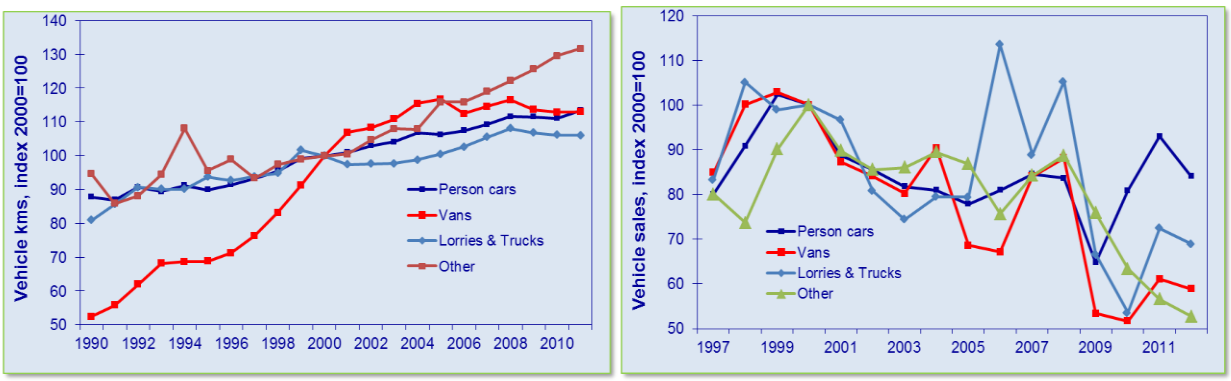
In 2012, the number of fatalities was 650, 1% lower than in 2011. The reported number of fatalities was 562 (an increase of 2%), leading to a reporting rate of 87%.

3. Long term trends in mobility and safety (1990-2011)

Fleet and mobility

Mobility seems to have decreased during recent years, or at least the rate of growth has slowed down. Vehicle sales are a little up since 2009-2010 and traffic queues have decreased. A clear relation between traffic safety and these indicators has not been found.

Figure 1. **Development of mobility (motor-vehicle kilometres) and vehicle sales numbers by vehicle type**



Change in the number of fatalities and injury crashes

Between 1990[2] and 2011, the number of fatalities decreased by 57% (in reported numbers the decrease is 60%), while the number of vehicles increased by 60%.

In recent years (2000-2011), the number of fatalities continued to fall, by 46%.

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 reported fatalities in single-vehicle accidents decreased only by 51%, much less than the general rate of 60%). One of the Netherlands' 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.

Risk and rates

In 2011, there were 4.0 road fatalities per 100 000 population. Between 1990 and 2011, the mortality rate, expressed in terms of deaths per 100 000 population, fell by 62%.

Table 1a. **Safety and mobility data 1990-2011**

					2011 % change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
***Reported* safety data**							
Fatalities[3]	1 376	1 082	537	546	+1.7%	-50%	-60%
Injury crashes[4]	44 915	37 947	-	-			
Hospitalised[2]	13 657	11 507	-	-			
Deaths/100 000 population	9.24	6.82	3.24	3.28	1.2%	-52%	-65%
Deaths/10 000 registered vehicles	2.37	1.42	0.57	0.58	+0.5%	-59%	-76%
Deaths/billion motor vehicle-kms	14.2	9.2	4.1	4.1	-0%	-56%	-71%
Fleet and mobility data							
Vehicles (exc. mopeds)	5 911	7 640	9 340	9 452	1.2%	24%	63%
Vehicle-kilometres (in millions)	97 180	117 140	130 740	132 980	+1.7%	+14%	+37%
Motorisation (number of motorised vehicles exc. mopeds/1 000 inhabitants)	390	482	563	567	1%	18%	46%

2. The real numbers in 1990-1995 are not known. For comparison, a factor of 1.074 is used to compensate for underreporting in these years.

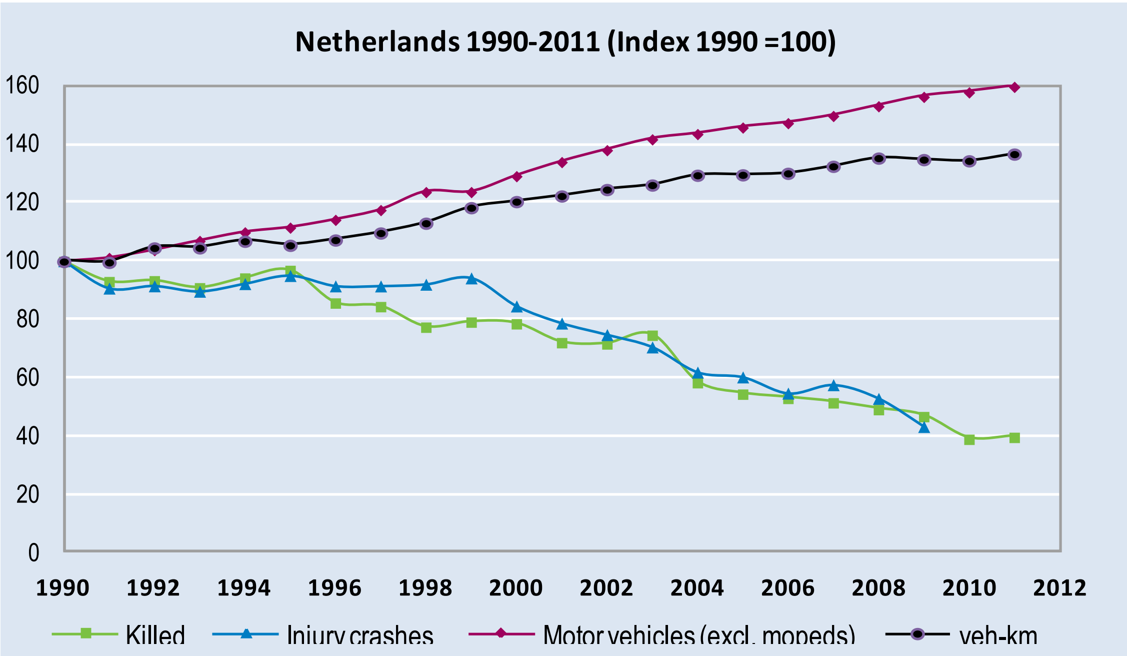
3. Due to changes in the registration software and internal police procedures, the numbers of injuries have dropped in 2010 and 2011. This does not reflect an actual improvement in road safety.

4. Because of under-reporting and changes in the reporting rate of slight injury crashes, the use of this indicator is not recommended.

Table 1b. ***Real* number of road fatalities and related rates 2000-2011**

				2011 % change over	
Real safety data	2000	2010	2011	2010	2000
Fatalities	1 166	640	661	+3.3%	-43%
MAIS3+	5 220	5 700	6 100	+7,0%	+17%
MAIS2+	16 500	19 100	20 100	+5,2%	+21%
Deaths/100 000 population	7.3	3.9	4.0	+2.8%	-46%
Deaths/10 000 registered vehicles	1.5	0.70	0.70	+2,1%	-54%
Deaths/billion motor vehicle-kms	10.0	4.9	5.0	+1,5%	-50%

Figure 2. **Road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 13 billion in 2009, i.e. 2.3% of GDP. This includes immaterial costs[5].

The following six categories have been included to estimate this amount: Medical costs, production loss, loss of quality of life (willingness-to-pay method), property damage, settlement costs and congestion costs.

5. See more information at : http://www.swov.nl/rapport/Factsheets/UK/FS_Costs.pdf

Table 2. **Costs of road crashes in Netherlands**

Cost (EUR Billion)	2009
Fatalities	1.9
Injury and disability	6.9
Property damage and other costs	4.3
Total	13.1
Total as a % of GDP	2.3%

Road users

In 2011, the number of bicyclists killed increased by more than 20%, while the number of fatalities among car occupants and motorised two-wheelers decreased by 6% and 10%, respectively.

Over the long term, all user groups, but especially car occupants and moped riders, have benefited from the safety improvement (both have seen a 69% reduction in fatalities). Between 1990 and 2011 an annual average reduction of 3.8% was realised. The number of pedestrians killed decreased by 52%. The number of cyclists killed fell by 39%. The only user group which has seen a moderate reduction is motorcyclists (24%). The number of fatalities among motorcyclists fluctuates with the use of the motorbike.

In the shorter period 2000-2011, an annual reduction of 5.0% was achieved (compared to 2.3% per year in 1990-2000). All user groups benefited from a sharp drop in the number of fatalities. The decrease was more marked for car occupants and moped riders, but only 1% for cyclists. The number of motorcyclists killed was reduced by 45%, while there had been an increase of 23% during the years 1990-2000.

Regarding injuries, it is remarkable that so many persons are injured in crashes without the involvement of a motor vehicle. While in some countries these victims are not even considered as being road traffic victims, their number exceeds the number of seriously injured in crashes with the involvement of motor vehicles.

From the 19 100 persons seriously injured (MAIS2+) in the Netherlands, about 50% resulted from bicycle accidents (bicycle alone, bicycle-bicycle, bicycle-pedestrian and pedestrian–bicycle). Special attention is now given to this growing group of injured persons.

Table 3a. **Fatalities by road user group 1990-2011**

	1990 (reported)		2000		2010		2011		2011 % change over 2010	2000	1990
Bicyclists	304	22%	233	20%	162	25%	200	31%	+23%	-14%	-39%
Motorised two-wheelers	167	12%	199	17%	106	17%	95	15%	-10%	-52%	-47%
Passenger car occupants	702	51%	543	47%	231	35%	232	36%	-6%	-57%	-69%
Pedestrians	144	10%	114	10%	72	11%	74	10%	+3%	-35%	-52%
Others	59	4%	77	7%	61	9%	61	8%	+13%	-21%	-4%
Total	**1 376**	**100%**	**1 166**	**100%**	**640**	**100%**	**661**	**100%**	**+3%**	**-43%**	**-55%**

Table 3b illustrates the relative fatality risk for the different road user groups. For a motorcyclist, the risk of dying in a traffic crash is higher than for a car occupant. Because of inaccuracy in the mobility figures, a quantitative estimate of the difference cannot be given.

Table 3b. **Relative fatality risk by road user group average 2009-2011**

	Fatalities	Deaths per billion person-km
Passenger car occupants	258	1.9
Bicyclists	182	13
Motorcycles	62	59
Pedestrians	71	16

Age

The number of fatalities varies with age. Inexperienced riders and drivers are killed more often in traffic, as are vulnerable road users. Most cyclists who are killed are between the ages of 12 and 20 or above 65 years, and the largest group for car driver fatalities is 18 to 25.

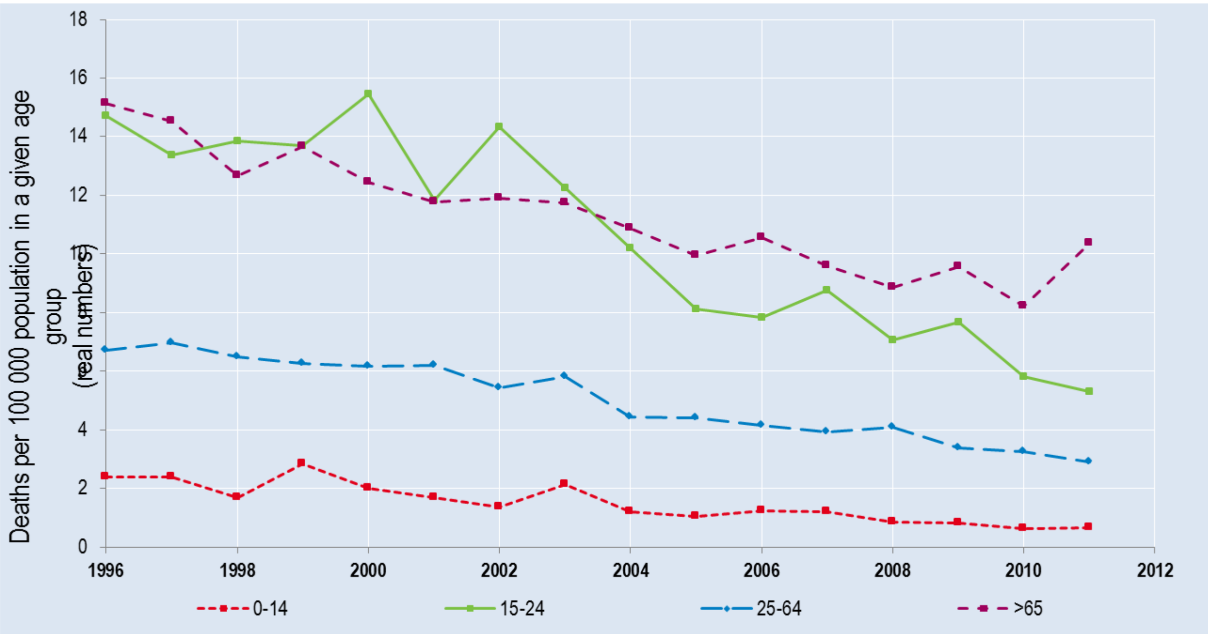
Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerned the youngest group (0-14), for which fatalities decreased by more than two-thirds, from 68 in 1996 to 18 in 2011.

The distribution of casualties across different age groups does not match the composition of the population in the Netherlands. Children aged 0-14 constitute 17% of the total population, but account for only 3% of the total number of fatalities. This is probably due to the group’s limited mobility. For the elderly, the opposite applies: the percentage of those aged 65 and above among fatalities is approximately three times as high as the group’s share in the population (41% and 16%, respectively). A similar picture emerges with respect to the 18-24 age group (13% of fatalities, 9% of population). For the elderly, this is probably linked to greater physical vulnerability. For the group of young drivers, it is due to the higher probability of being involved in a crash during the initial phase of participation in motorised traffic.

Table 4. **Fatalities by age group**
1990-2011

					2011 % change over		
	1990 (reported)	2000	2010	2011	2010	2000	1990
0-14	100	59	18	19	-25%	-69%	
15-24	362	291	118	108	-23%	-59%	
25-64	607	548	295	265	/4%	-46%	
>65	307	268	209	269	-11%	-22%	
Total	1 376	1 166	640	661	-11%	-45%	

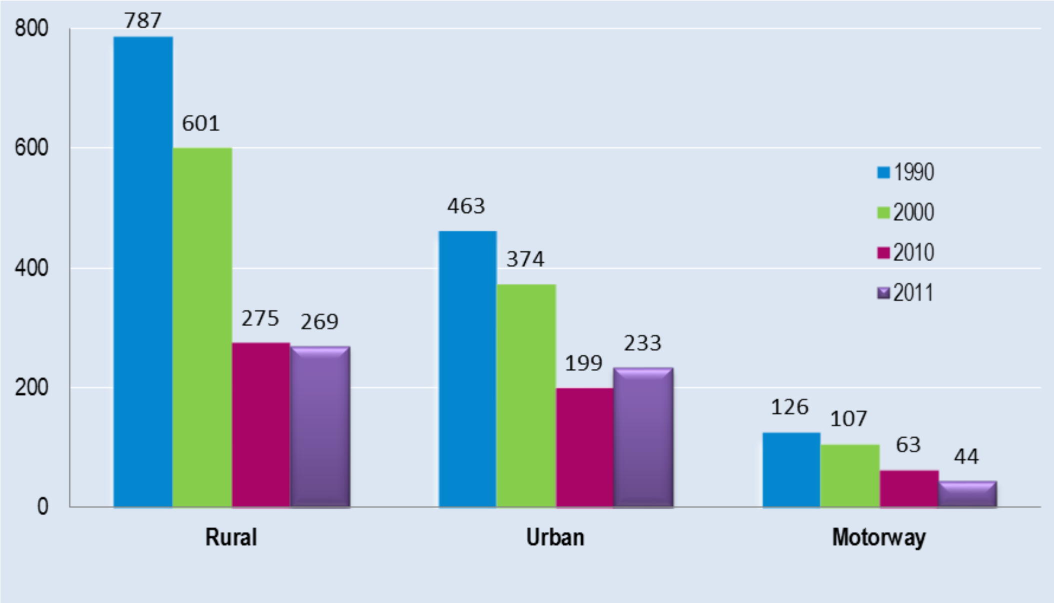
Figure 4. **Death rate by age band**
(Fatalities per 100 000 population in a given group, 1996-2011)



Road type

In 2011, 49% of the reported fatalities occurred on rural roads, 43% in urban areas and 8% on motorways. A motorway is defined here as a state road with a speed limit of 90 km/h or higher, outside urban areas. The decrease in fatalities over the last 20 years has been achieved mainly through the improvement of rural roads. Traffic has been significantly increasing on motorways.

Figure 5. **Reported fatalities by road type 1990, 2000, 2010 and 2011**



4. Recent trends in road user behaviour

Impaired driving

Until 2006, the BAC limit in the Netherlands was 0.5 g/l for all drivers. Since 2006, a lower limit of 0.2 g/l has applied for novice drivers (first five years). Driving under the influence of alcohol and/or drugs was a contributing factor in an estimated 30% of fatal crashes in 2008. The prevalence of driving under the influence of alcohol on weekend nights is stable at 3%. Among novice drivers, the prevalence is higher at 5%, and in about half of these cases the BAC is between 0.2‰ and 0.5‰.

Speed

The development of driving speeds on different road types is mixed. On roads with speed limits of 50 km/h and 80 km/h, the number of violations is rising. On motorways (120 and, recently, 130 km/h), the tendency since 2005 has been an increasing V90 speed[6]. 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.

6. Speed below which 90% of motorists are driving.

On motorways, environmental measures to reduce emissions and noise were introduced in 2006 on about 3% of the network, which entailed decreasing speed limits from 120 km/h or 100 km/h to 80 km/h.

As of 1 September 2012, speed limits have been raised to 130 km/h on motorways (except on motorways with lower limits due to environmental concerns). There is as yet no data on the effects of this measure.

Table 5. **Summary of speed limits in the Netherlands in 2013**

	General speed limit Passenger cars	Comments
Urban roads	50	
Rural roads	80	
Motorways	130	In September 2012, the general speed limit on motorways was increased from 120 to 130 km/h

Seatbelts and helmets

Seatbelt use has been compulsory in front seats since 1975 and in rear seats since 1992. The rate of seatbelt use is above 95% in front and in rear seats in passenger cars. For vans (87%) and trucks, the rate of use is lower.

Table 6. **Seatbelt-wearing rate by car occupants**

	1990	***2000***	***2010***
Front seats			
General		79%	97%
Urban roads (driver)	59%	74%	96%
Rural roads (driver)	78%[7]	86%	97%
Motorways (driver)			
Rear seats			
General	19%	32%	82%

Helmet wearing has been compulsory on motorcycles since 1972 and on mopeds (up to 50 cc, maximum speed 45 km/h) since 1975. A helmet is not compulsory on mofas (up to 50 cc, maximum speed 25 km/h) and bicycles.

The percentage of riders wearing a helmet depends on the vehicle type: nearly all motorcycle riders wear helmets. In 2008, 96% of moped riders, but very few mofa riders, wore helmets. The use of moped helmets by passengers increased; in 2008, 86% wore them.

7. 1991.

Distracted driving, use of mobile phones and fatigue

Since April 2002, holding a phone while driving is illegal in the Netherlands. Additional legislation relevant to distracted driving is applicable in cases where behaviour that explicitly endangers road safety is directly observed.

In the Netherlands, it is not standard practice to collect data about the use of mobile phones in cars and their use prior to a crash, which makes it impossible to reliably determine the number of crashes due to phone use while driving. However, the following data might provide an indication of the extent of distracted driving in the Netherlands. Data for 2008 indicate that about 50% of all Dutch car drivers use a mobile phone while driving at least once a week. Around 30% of these drivers were reported to use a hand-held phone occasionally. In 2009, about 135 000 fines were issued for using a phone while driving. Fines are set at EUR 160 for car drivers and EUR 110 for moped riders.

Phone use in the Netherlands is estimated to have contributed to 3-4% of bicycle crashes involving injuries. This excludes listening to music.

5. National road safety strategies and targets

Organisation of road safety in the Netherlands

In the Netherlands, the Ministry of Infrastructure and the Environment (Directorate General Mobility – Roads and Traffic Safety section) is the lead agency for road safety and takes responsibility for overseeing and co-ordinating all road safety activities.

In particular, it is responsible for:

- Co-ordination of intergovernmental working processes at the central government level; co-ordination of road safety decision making across central government; co-ordination across different levels of government (central, regional, local); co-ordination of national mass media campaigns.
- Legislation: Periodic review of legislation, rules and standards against best practice, and recommendations for improvement; Development and/or revision of legislation; Monitoring and evaluation; Establishing and supporting data systems that are used to monitor road safety outcomes.
- Compilation and dissemination of national statistics (in a joint role with Rijkswaterstaat DVS as a department of the lead agency), Statistics Netherlands CBS and SWOV Institute for Road Safety Research.

Funds are allocated in the Government's budget to carry out the functions listed above.

Road safety strategy for 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.

In 2008, the Road Safety Strategic Plan 2008-2020 (the Dutch "SPV") was developed by the then Ministry of Transport and received support in Parliament. Road safety policy 2008-2020 is based on three cornerstones: co-operation, an integral approach and 'sustainable safety'. Continuation of generic measures that have proven successful is ensured. Measures to reduce the risk of vulnerable road users and a tough approach on traffic offenders are among the measures targeting 12 areas of emphasis. Mobility demands and the social context of road users are taken into account.

In 2012, the current Road Safety Strategy 2008-2020 was adapted, in accordance with its four-yearly evaluation. The evaluation was based on SWOVs Road Safety Outlook 2020 R-2012-14 and the complementary policy impulse[8] (in Dutch).

The situation of an increasing number of serious injuries among bicyclists led to the creation of the NOaF (National Research agenda for Bicyclists), which organized an international conference[9] in November 2012.

Target setting

The targets presently set in the SPV for 2020 are a maximum of 500 road fatalities and a maximum of 10 600 serious road injuries (MAIS2+).

If current developments and efforts continue, the target for 2020 with respect to fatalities seems feasible. It will be much more difficult to achieve the target for seriously injured traffic victims.

Monitoring

The plan is assessed every four years for topicality and adapted if necessary. As an aid in this four-yearly assessment, SWOV has recently made prognoses about the numbers of fatalities and serious road injuries that are to be expected in 2020. While making the prognoses, SWOV checked whether the starting points for the SPV were still applicable and how the implementation of intended SPV measures is being carried out. Updating the strategy is a collective process, see http://www.strategiedagverkeersveiligheid.nl/.

8. http://www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2012/09/21/beleidsimpuls-verkeersveiligheid.html

9. http://www.noaf.nl/?page=Nieuws&view=detail&item=International+Cycling+Safety+Conference+ 2012

Figure 6a. **Trends towards national fatality target**

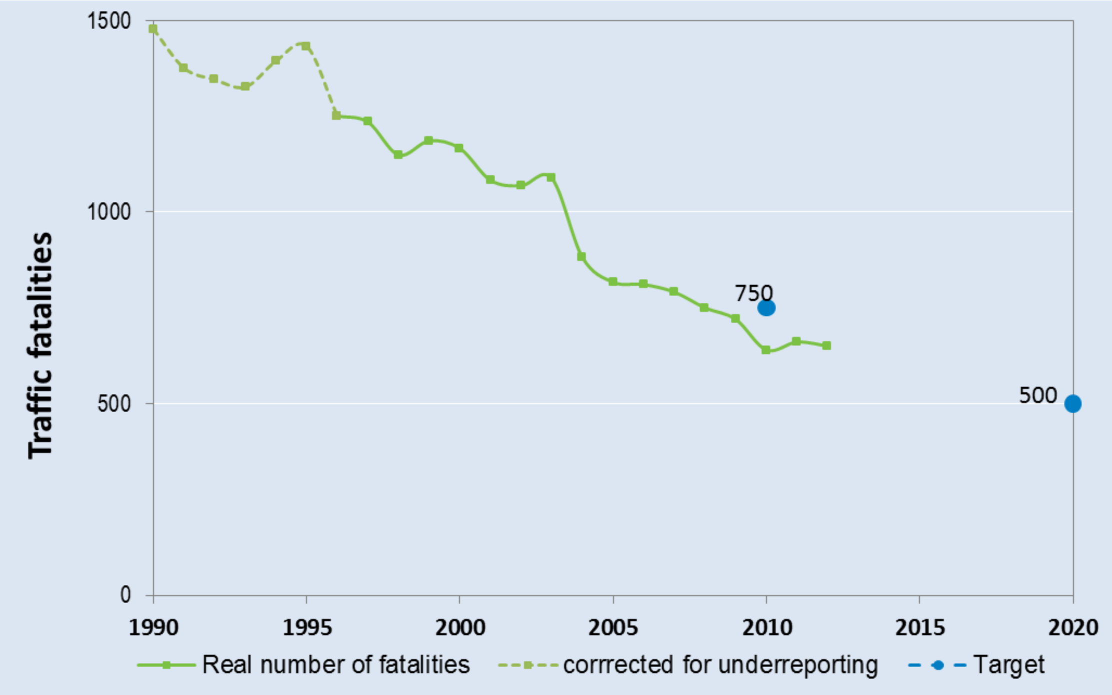
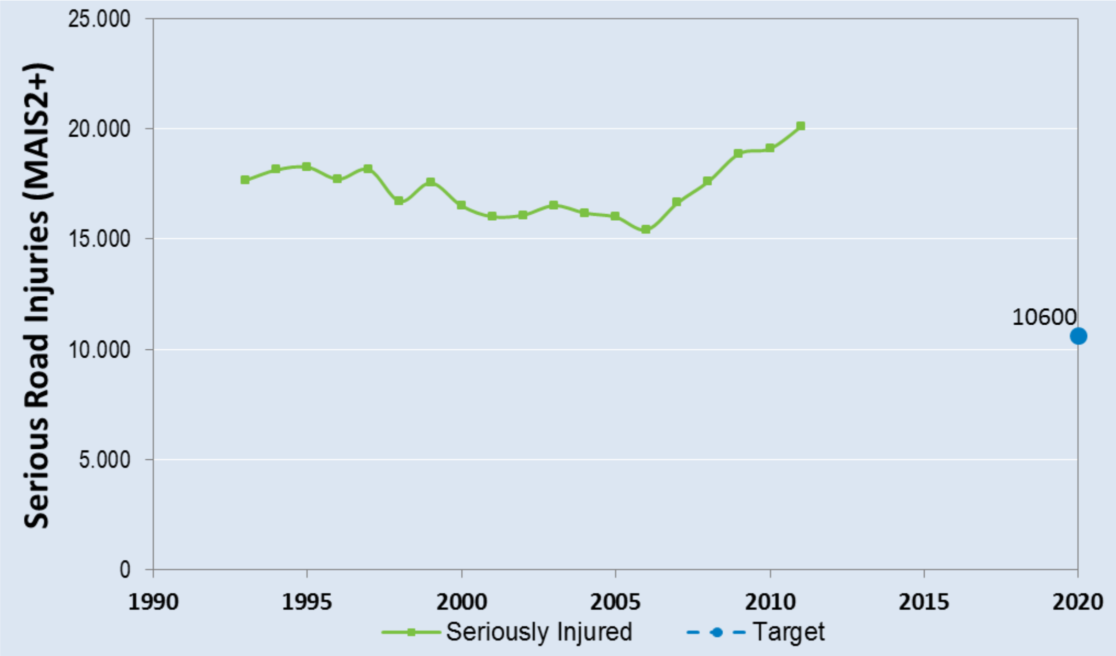


Figure 6b. **Trends towards national injury target**



6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

As of 1 September 2012, the Transport Minister increased the general speed limit on motorways in the Netherlands from 120 km/h to 130 km/h. On roads where the environment and/or safety do not allow an increase of the limit, the previous limit was maintained. In practice, this means that about 60% of Dutch motorways have a speed limit of 130 km/h. On 1/3 of this length the limit will be dynamic, i.e. 130 during evening/night only. Eight experimental stretches preceded this general increase, where monitoring was done on Flow, Environment and Safety indicators. See
http://www.rws.nl/actueel/verhoging_maximumsnelheid/
http://www.rws.nl/wegen/innovatie_en_onderzoek/maximumsnelheden

Impaired driving

It is prohibited to drive a vehicle whilst under the influence of a substance (alcohol, medication or drugs) that affects the driving ability in such a way that one is unfit to drive. This is stated in Section 8 of the 1994 Road Traffic Act.

A stricter version of the law is being prepared regarding drugs and driving. Legal blood concentration limits have been established for a number of illegal drugs. This list was made up by an international commission of experts from the Netherlands, Belgium and Germany, chaired by the Netherlands' Forensic Institute (NFI). The list includes amphetamines, methamphetamines, XTC, THC, cocaine, morphine and GHB. Since 2012, a saliva test will indicate the presence of any of these substances, except GHB. After a positive saliva test, a blood test will be used as supporting evidence. For some illegal drugs a tester is not yet available. In these cases, the police still have to determine fitness to drive by examining speech, eyes and balance.

As of 1st December 2011, **an alcohol lock** has been introduced for car drivers caught with a 1.3% BAC or more. The system prevents the car from starting in cases where the driver exhales more than 0.2% of alcohol. The driver has to exhale at irregular intervals whilst driving to prevent the car from stopping.

Driver education

Accompanied driving effective as per 1 November 2011. This allows young people to start driving lessons at age 16.5 and obtain their driving licence at 17 upon passing a standard driving test. Then, until they are 18, they will be able to drive only when accompanied by an experienced driver who meets certain requirements in terms of driving experience and behaviour. From the age of 18 it will remain possible to pass the driving test and drive unaccompanied immediately afterwards.

The licensing for driving tractors will be adapted. This category T will possibly be introduced in 2014, replacing the T-certificate. This includes agricultural and forestry tractors and motor vehicles with a limited speed. Anticipating the licence, the theoretical and practical examinations to obtain the T-certificate already pay more attention to driving on public roads and to road safety.

7. Useful websites and references

Recent and on-going research

- Road safety research programmes of SWOV can be found at: http://www.swov.nl/UK/Research/Programme2012.htm
- For its 50th anniversary, SWOV organised a Congress *Greater Emphasis on Road Traffic Injuries*. Presentations can be found at http://www.swov.nl/50years/program_okt_2.html
- PhD study: risk determinations of drugs and medicines vary. SWOV researcher, Sjoerd Houwing, was awarded his PhD for his thesis entitled *Estimating the risk of driving under the influence of psychoactive substances*. Houwing compared the different methods which are used to determine the risk caused by the use of psychoactive substances (drugs and medicines) in traffic. He concluded that the findings of the methods which were applied differ considerably due to methodological imperfections in the practical part of the study.

  A large share of the study was carried out within the DRUID Project.

In 2011, Rijkswaterstaat conducted research on two themes using the most detailed 2009 crash information that the police have available:

- Crashes with young novice drivers
  The main conclusion is that there are two different clusters of incident characteristics. The first half show incidents that are known under more experienced drivers as well. The difference is that these incidents happen less often to experienced drivers. The other half show extreme behaviour: speeding, drink-driving, red-light running, etc. Together with this extreme behaviour, we see other characteristics: they happen at weekends, with young passengers, while going to see friends or going out. See in Dutch.
- Motorway crashes
  On motorways, motorcycles and lorries are more often involved in fatal crashes than would have been expected based on the amount of vehicle kilometres. Like other crashes, they result from a combination of human, vehicle- and infrastructure-related factors. For instance, speeding plays a role in many crashes. Vehicle defects, such as a flat tyre, are rarely an important crash factor. An infrastructure factor that plays a major role in the severity of many crashes is the lack of forgiving roadsides, for instance, obstacles or ditches too near to the roadway.
  This report was made in an on-going evaluation of motorways as part of the EC direction on Road Infrastructure Safety Management (2008/96/EG). The most recent publication cited above is not yet available.

Useful websites

Key Figures Road Safety in the Netherlands	English () Dutch (http://www.rijksoverheid.nl/bestanden/documenten-en-publicaties/kamerstukken/2010/07/31/kerncijfers-verkeersveiligheid-uitgave-2010/kerncijfers-verkeersveiligheid-uitgave-2010.pdf)
Road Safety Strategic Plan 2008-2020	Road Safety Strategy 2008-2020: http://english.verkeerenwaterstaat.nl/english/Images/strategischplan-E_tcm249-249506.pdf Action progam for Road Safety 2011-2012. http://www.rijksoverheid.nl/bestanden/documenten-en-publicaties/brochures/2011/05/20/actieprogramma-verkeersveiligheid-2011-2012-met-foto-s/62pd2011g016.pdf
SWOV fact sheets	New and recent major updates: http://www.swov.nl/UK/Research/factsheets.htm Attention problems behind the wheel Cost-benefit analysis of road safety measures Road crash costs The valuation of human losses of road deaths The elderly in traffic Bicycle helmets Roadside advertising and information Fear-based information campaigns Measuring (un)safety of roads Roundabouts Speed choice: the influence of man, vehicle, and road The relation between speed and crashes Vulnerable road users Cars submerged in water The influence of weather on road safety Risky traffic behaviour among young adolescents Risk in traffic Demerit points systems Mobility management and road safety Towards credible speed limits Fatigue in traffic, causes and effects The Road Safety Audit and Road Safety Inspection Measures for speed management Seatbelts, airbags, and child protection devices Periodic Vehicle Inspection (MOT)
SWOV publications	Sustainable Safety, also for serious road injuries. R-2013-04 Road safety monitor 2012; Developments in road fatalities, serious road injuries, measures, and behaviour in 2011. R-2012-20 In-depth research into the influence factors of road crashes; Summary and evaluation of the results of the pilot study in-depth research 2008-2011. R2012-19 Road Safety Outlook 2020. R-2012-14 From bicycle crashes to measures: knowledge and knowledge gaps. R-2012-08 Why do the development of the number of serious road injuries and the development of the number of road fatalities differ? R-2012-09

Contact

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New Zealand

Source: IRTAD, Ministry of Transport

Capital	Inhabitants	Vehicles/ 1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Wellington	**4.4 million**	**734**	**284**	**6.5**

1. Comments about road safety data collection

In New Zealand, road crashes are usually attended by police officers. The officers complete traffic crash reports which are forwarded to the New Zealand Transport Agency to be coded and the information entered into the Crash Analysis System.

Fatal crashes are all reported. When a traffic crash results in someone being injured, the law requires that the crash be reported. However, comparisons with hospital data indicate that only about two thirds of such crashes are reported to the New Zealand Transport Agency.

Under the New Zealand Injury Prevention Strategy, official serious injury outcome indicators have been developed for each of the priority areas. Motor vehicle traffic crashes is one of six priority areas identified in the strategy. The definition of a serious injury adopted for these official indicators is an injury that results in death or admission to hospital associated with at least a 6% chance of death[1].

2. Short term trends

General comments and trends for 2011

The number of road fatalities decreased by 24% and the number of injury crashes decreased by 10% in 2011. There was a drop of 91 road deaths from 2010 to 2011. The short-term model (petrol prices, wage levels and motorcycle registrations) explained 21 of these deaths, the long-run trend explained 20 deaths. The remaining 50 deaths cannot yet be explained by trends and models, and could be random variation, but with the passage of time and further work, contributing factors may become more apparent[2].

1. http://www.stats.govt.nz/browse_for_stats/health/injuries/serious-injury-outcome-tech-report.aspx
2. http://www.transport.govt.nz/research/Pages/analysisofthe2011roadtoll.aspx

Provisional data for 2012

The provisional road toll for 2012 is 308 fatalities, an 8% increase compared to 2011.

3. Long term trends in mobility and safety (1990-2011)

Fleet and mobility

Since 1970, the number of vehicles more than doubled. Since 2000, the distance travelled has increased by 18%. However, since 2007 there has been a marked slowdown in the development of road traffic.

Change in the number of fatalities and injury crashes

Since 1990, the number of fatalities decreased by 61%.

In recent years (2000-2011) the number of fatalities continued to fall by 39%. 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.

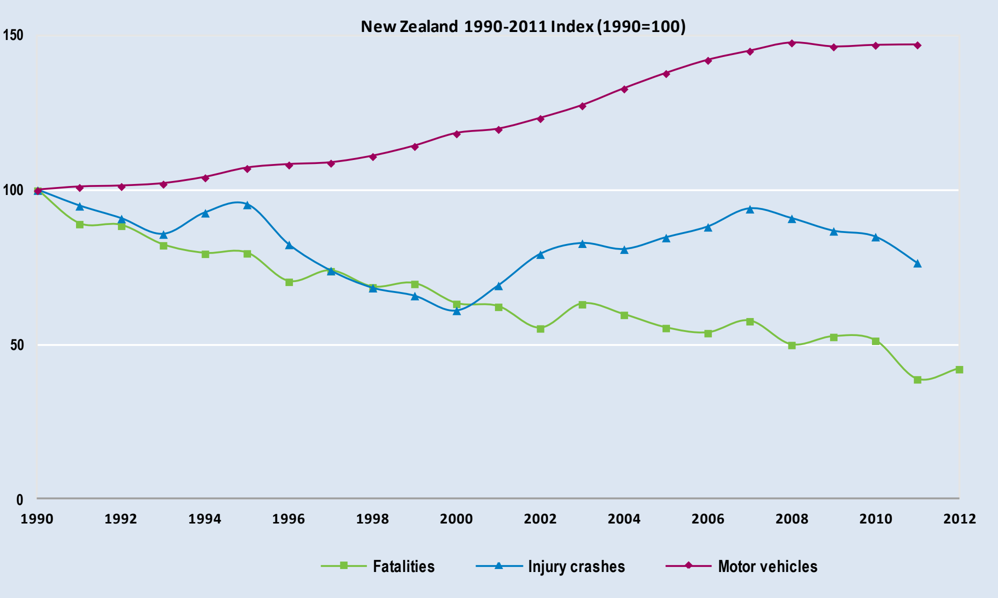
Risk and rates

Between 1990 and 2011, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 70%.

Table 1. **Safety and mobility data 1990-2011**

					2011 % change over		
	1990	2000	2010	2011	2010	2000	1990
Reported safety data							
Fatalities	729	462	375	284	-24.3%	-39%	-61%
Injury crashes	12 818	7 830	10 886	9 804	-9.9%	25%	-24%
Deaths/100 000 population	21.4	11.9	8.6	6.5	-24.9%	-46%	-70%
Deaths/10 000 registered vehicles	3.3	1.8	1.2	0.9	-24.1%	-51%	-73%
Deaths/billion vehicle-kms	-	13.6	9.4	7.1	-23.9%	-48%	-
Fleet and mobility data							
Vehicles (in thousands, excl. mopeds)	2 198	2 602	3 231	3 234	0.1%	24%	47%
Vehicle-kilometres (in millions)	-	33 856	39 980	39 765	-0.5%	18%	-
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	645	674	734	734.2	0.1%	9%	14%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres, 1990-2011**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society. The social cost of injury crashes is estimated at around NZD 3.1 billion (i.e. around 2% of GDP).

The social cost includes both monetary and intangible costs. A willingness-to-pay technique is used to express pain and suffering from loss of life or life quality in monetary terms[3]. Monetary costs include loss of productivity, medical, legal and property damage costs. The social cost includes an allowance for non-reported crashes.

The table below summarizes the social costs of road crashes. The costs for fatal and injury crashes include all the cost components associated with these crashes – including property damage costs.

Table 2. **Costs of injury road crashes June 2012 prices**

Cost ($NZ billion, June 2012 prices)	2010	2011
Fatal crashes	1.50	1.15
Injury crashes	2.17	1.99
Total	3.67	3.14
Total as a % of GDP	2.0%	

3. Ministry of Transport (2012), *The social cost of road crashes and injuries,* http://www.transport.govt.nz/ourwork/Land/landsafety/Pages/TheSocialCostofRoadCrashesandInjuries.aspx

Road users

All user groups, but especially vulnerable road users, have benefited from the improvement. Between 1990 and 2011, the number of pedestrians killed decreased by 70%, although most of the gains were achieved between 1990 and 2000.

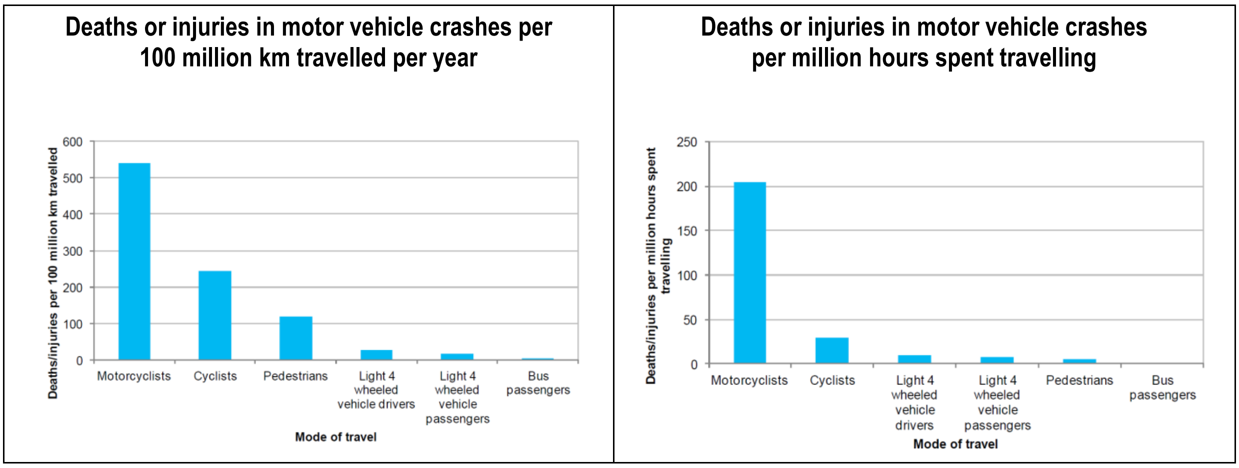
In 2000-2011, all user groups – except motorcyclists – benefited from a decrease in the number of fatalities. The number of motorcyclists killed increased by 6% compared to 2000.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		2010	2000	1990
Bicyclists	27	4%	19	4%	10	3%	9	3%	-10%	-53%	-67%
Motorised two-wheelers	114	16%	31	7%	50	13%	33	12%	-34%	6%	-71%
Passenger car occupants	465	64%	358	77%	259	69%	199	70%	-23%	-44%	-57%
Pedestrians	104	14%	35	8%	35	9%	31	11%	-11%	-11%	-70%
Others	19	3%	19	4%	21	6%	12	4%	-43%	-37%	-37%
Total	**729**	**100%**	**462**	**100%**	**375**	**100%**	**284**	**100%**	**-24%**	**-39%**	**-61%**

When comparing the relative risk of different travel modes it appears that, by km driven or by hours spent in traffic, riding a motorbike is the riskiest mode[4].

Figure 2. **Deaths or injuries in moto vehicle crashes per million km / hours spent travelling**



Source: Ministry of Transport (2012).

4. Ministry of Transport (2012), Risk: introduction and mode comparison http://www.transport.govt.nz/research/Documents/Risk-introduction-and-mode-comparison-September-2012.pdf

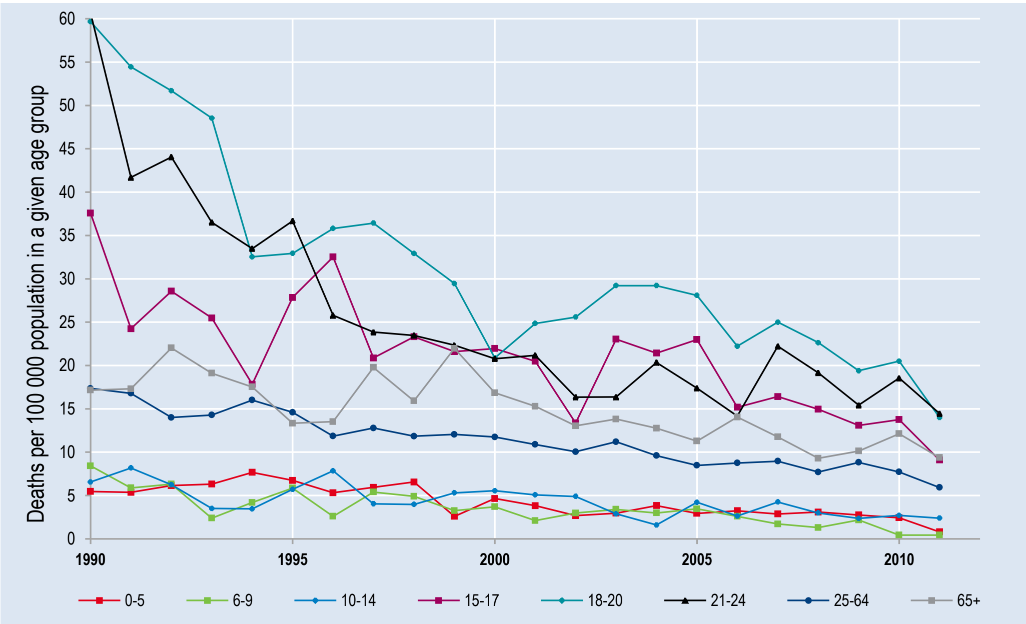
Age

Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned the youngest group (0-14), for which fatalities decreased by 78%, from 52 in 1990 to 11 in 2011.

Table 4. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	2000	2010	2011	2010	2000	1990
0-5	18	16	9	3	-67%	-81%	-83%
6-9	17	3	1	1	0%	-89%	-94%
10-14	17	16	8	7	-13%	-56%	-59%
15-17	65	36	26	17	-35%	-53%	-74%
18-20	108	34	41	28	-32%	-18%	-74%
21-24	130	42	46	37	-20%	-12%	-72%
25-64	290	232	175	135	-23%	-42%	-53%
>65	66	76	69	55	-20%	-28%	-17%
Total	**729**	**462**	**375**	**284**	**-24%**	**-39%**	**-61%**

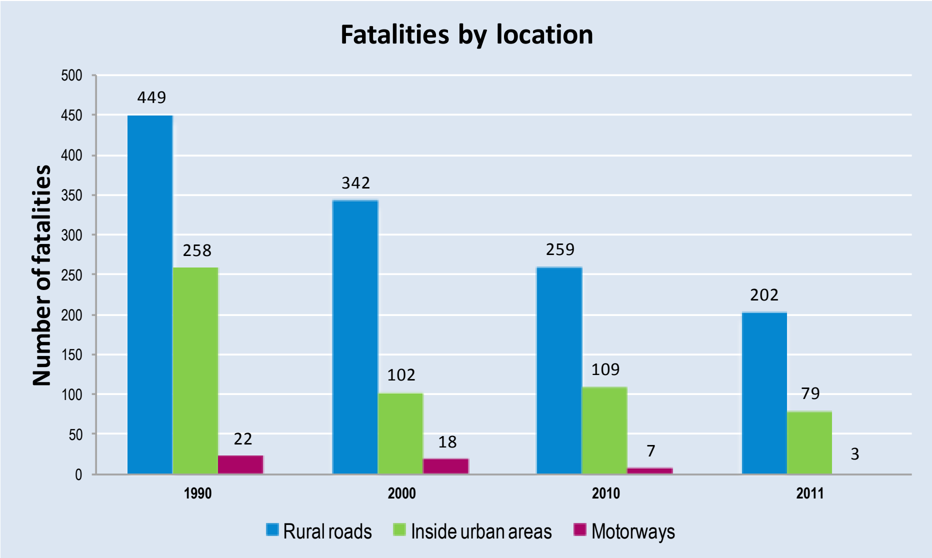
Figure 3. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**



Road type

In 2011, the large majority (71%) of fatal crashes occurred on rural roads. The decrease in fatalities over the last 30 years has been achieved mainly through the improvement of urban roads, while in absolute numbers, significant progress was also made on rural roads. Urban deaths have been largely stable from 2000 to 2010, but show a 28% decrease in 2011. Rural deaths dropped by approximately 24% in the period 2000 to 2010 and show a 22% decrease in 2011.

Figure 3. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

The maximum authorised BAC is 0.8 g/l. In 2011, a zero drink-drive limit for drivers under 20 (before 0.3 g/l) was introduced. The table below indicates the number and percentage of drivers killed with excess alcohol.

Table 5. **Drivers killed with excess alcohol**

Drivers killed with excess alcohol	2005	2010	2011
Number	58	68	48
Percentage	25%	30%	26%

The Land Transport Act 1998 was also amended in 2009 to create a specific offence of driving while impaired by drugs, and creating penalties for these offences.

Speed

Table 6 below 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 58%), which is worrying for ensuring the safety of vulnerable road users in these areas. The tables below illustrate the main speed limits in New Zealand and the percentage of drivers above the speed limit.

Table 6. **Summary of speed limits in 2013**

	General speed limit *Passenger cars*	Comments
Urban roads	50 km/h	The general urban limit is 50 km/h but specific sections may have higher or lower limits
Rural roads	100 km/h	The general open road speed limit is 100 km/h but specific rural roads may have lower limits.
Motorways	100 km/h	

Table 7. **Percentage of drivers above the posted speed limit**

Speed (survey unimpeded speeds)	2005	2010	2011	2012
% exceeding open road 100 km/h limit	36%	29%	31%	25%
% exceeding urban 50 km/h limit	63%	58%	59%	53%

Seatbelts and helmets

Seatbelt use has been compulsory in front seats since 1972 and in rear seats since 1979. The rate of seatbelt use is around 96% in front seats and 88% in rear seats.

Helmet wearing has been compulsory on motorcycles since 1956 if travelling over 50 km/h, and since 1973 at all speeds. Helmet wearing has been compulsory on mopeds (up to 50 cc, maximum speed 45 km/h) since 1973.

A helmet has been compulsory on bicycles since 1994.

Table 8. **Seat-belt and helmet usage rate**

	2005	2010	2011	2012
Seat belts used/Helmets worn				
Adult front seat	95%	96%	95%	96%
Adult rear seat	86%	88%	87%	-
Child restraint – under 5 years	89%	93%	-	92%
Bicycle helmets	91%	93%	93%	92%

Distracted driving, use of mobile phones and fatigue

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.

5. National road safety strategies and targets

Organisation of road safety in New Zealand

Road safety in New Zealand is managed through five transport partners. The Ministry of Transport is the government's principal transport policy adviser and has a dedicated team for road safety policy. The Ministry is the lead agency for road safety.

The New Zealand Transport Agency is a Crown agency responsible for the planning and funding of land transport. It produces road safety campaigns and implements road safety policy, integrating road safety aspects into road design and maintenance.

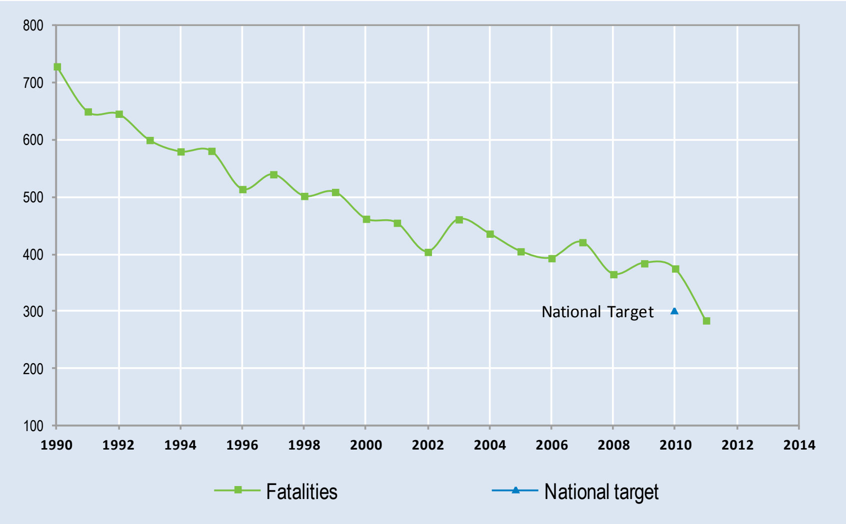
The New Zealand Police is responsible for road policing and enforcement. The Accident Compensation Corporation provides "no fault" cover for anyone in New Zealand who is injured in or by a motor vehicle on a public road. It has a major role in accident prevention activities.

Local government is responsible for developing, maintaining and operating the network of local roads, including setting of speed limits and for delivering public transport infrastructure and services. They are required to integrate road safety into their planning processes. Decisions about construction, maintenance and management of the road networks must consider safety.

Evaluation of the past road safety programme

Road Safety to 2010 was adopted in 2002 and expired in 2011. It provided a direction for road safety in New Zealand and described the results the Government wanted to achieve by 2010. New Zealand set overall road safety goals in relation to social costs, deaths and hospitalisations to the end of year 2010.

Figure 4. **Trends towards national target**



Road safety strategy for 2011-2020

"Safer Journeys" is New Zealand's Road Safety Strategy 2010–2020, which was released in March 2010. The strategy's vision is a safe road system increasingly free of death and serious injury, and introduces the Safe System approach to New Zealand. It does not include a general fatality target, but several sub-targets and performance indicators.

The Government released a 2011–12 Action Plan outlining the actions for safe roads and roadsides, safe speeds, safe vehicles and safe road use that will be advanced over the next two years to help achieve the Safer Journeys' objectives. The action plan assigns responsibility for actions to specific agencies, and progress against these will be monitored by the National Road Safety Committee.

Since the release of the Safer Journeys strategy, the Government has progressed actions for improving the safety of young drivers and motorcyclists, and to target drink-drivers as well as other high-risk drivers (see section on recent measures). Progress has also been made on improving the safety of roads and roadsides.

6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

- A number of initiatives are, or have already been introduced, for speed management. There has been an increase in the adoption of safer speed limits (30 km/h and 40 km/h) in urban areas, including around schools and busy shopping areas. A number of open road speed zone trials are also underway, particularly on roads where the 100 km/h default speed limit is inappropriately high for the standard of the road.
- Police have strengthened speed enforcement by updating speed cameras with digital technology and applying a reduced tolerance of speeding during busy holiday weekends and outside schools.
- Further proposals are being considered, including increasing the number of speed cameras, rebalancing fines and demerits for speeding and applying demerit points to offences detected by a speed camera. Trials are also underway testing emerging technologies such as Intelligent Speed Adaptation.
- A cross-agency task force has been established to develop a speed management plan that will aim to have a set of consistent speed limits reflecting the appropriate speed for different kinds of routes / situations and taking into account all road users.

Impaired driving

New legislation:

- In 2012, new legislation introduced a zero drink-drive limit for drivers under 20 and implemented fines and demerit points for drivers under 20 years who have a blood alcohol concentration between zero and 0.03.

- It also allowed for the introduction of alcohol interlocks. This is a sentencing option for the courts to use for repeat offenders, and first-time offenders with a high blood alcohol content.
- It introduced a zero blood alcohol limit for a minimum three-year period for repeat drink drivers, or drivers subject to an alcohol interlock, following the completion of their disqualification or interlock.
- It allowed police to collect data that will clearly ascertain the level of harm caused by drivers who have a BAC between 0.05 and 0.08. The results of the data being collected by the Police are due to be provided to government in early 2014.
- In 2013 a proposal will be prepared on options to align BAC for drivers to reflect risk for adult, young, commercial and high-risk drivers and riders.
- An increased uptake of voluntary policies by individuals and companies to reduce impaired driving will be encouraged, which could include zero alcohol/drugs policies and voluntary use of technology such as alcohol interlocks.
- A programme of work for 2014-15 to reduce impaired driving will be developed.

New legislation to reduce the impact of high-risk drivers:

- Doubled the maximum prison term for dangerous driving (including drink- and drug-driving) causing death;
- Introduced the ability for police to extend a 28-day licence suspension for up to three continuous periods. This will be used in cases in which charges cannot be brought against a driver within 28 days.

Driver education

Young and novice drivers

- The minimum age for applying for a driving licence was raised to 16.
- The restricted driving licence test has been made more difficult, to encourage novice drivers to undertake 120 hours of supervised practice before driving solo.

Vehicle safety

- From 2013, New Zealand will be investigating options to encourage less safe vehicles to exit the vehicle fleet, through vehicle–exiting incentives. One possible action is to introduce a safety levy when vehicle ownership is changed or as part of vehicle licensing, to be used as an incentive for vehicle scrappage.
- Encourage a culture of personal responsibility for vehicle maintenance. Current warrant-of-fitness and certificate-of-fitness inspections require regular renewal, and work is being developed on extending the period of time between inspections to reduce compliance costs.
- A range of initiatives are being developed to encourage increased vehicle safety, such as helping fleet operators to improve safety; trialling, promoting and providing incentives for the uptake of vehicle safety features such as Intelligent Speed Adaptation; enhancing consumer information to influence vehicle purchasing decisions.

Infrastructure

Safe roads and roadsides

Work already completed or underway includes:

- KiwiRAP star ratings of the state highway network. These have been developed as part of the IRAP process and allow sections of high-risk rural roads to be identified so improvement programmes can commence.

- The development of a classification system for the state highway network. This is the first step towards a national classification system for the entire road network. This system categorizes roads according to their function and sets a consistent and predictable level of service for each category. This can help drivers understand what to expect and how to behave on different categories of road.

- Progress on the seven Roads of National Significance. These were identified as roads that are important to the economy, are busy, handle a lot of traffic and are located by our most populated areas. Each Road of National Significance will be built to a minimum four-star KiwiRAP rating, to ensure they have significant safety as well as economic benefits.

- A change to the give-way rule for turning traffic was introduced in March 2012, to improve safety at intersections.

- Work will be carried out to improve high-risk intersections, high-risk rural roads and reduce the risk on high-risk motorcycling routes.

- Investment in operations and maintenance associated with safety improvements will be prioritised to ensure optimal road safety.

Road safety campaigns

- Campaigns targeting key road safety issues continue throughout the year. This year, among other campaigns, a new initiative involving social media has been developed called "Drive Social", that encourages people to look at driving as not being just a solo pursuit but an activity that is more social, involving people in their community. It allows people to see who they share a particular road with through an interactive platform on a dedicated website linked to Facebook.

Motorcyclists safety

An amendment to the Land Transport (Driver Licensing) Rule 1999 came into effect in October 2012 to strengthen motorcycle rider training and licensing while introducing a power-to-weight restriction for novice motorcycle riders.

7. Useful websites and references

Useful websites

New Zealand's road safety strategy to 2020	http://www.saferjourneys.govt.nz/
Drive Social	http://www.drivesocial.co.nz/
KIWIRAP	www.kiwirap.org.nz

Contact

For more information, please contact: w.jones@transport.govt.nz and l.mortimer@transport.govt.nz.

Norway

Source: IRTAD, Public Roads Administration

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Oslo	**4.9 million**	**710**	**168**	**3.4**

1. Comments about road safety data collection

Crash data are collected by the police and consolidated at national level by Statistics Norway and the Public Roads Administration.

Less severe crashes and injuries are often not reported to the police, and may therefore be under-represented in the figures. This concerns in particular light injuries and single bicycle accidents. At the moment all injury data is collected by the police, but there are plans to use hospital data in the future.

The police do not use MAIS3+ to classify the injuries, but this will be done when data on injury is provided by the hospital in the future.

2. Short term trends

General comments and trends for 2011

A total of 168 persons were killed in road traffic accidents in 2011; 40 fewer than the year before (i.e -19.2%). The number of fatalities per 100 000 inhabitants was 3.4, the lowest ever.

A total of 8 363 persons were injured in road traffic accidents last year; 767 fewer than in 2010.

Provisional data for 2012

Provisional data for 2012 indicate that 148 persons were killed on the road in 2012, a 12% decrease in comparison to 2011.

3. Long term trends (1990-2011)

Fleet and mobility

In 2011, around 42 500 million vehicle km were registered on Norwegian public roads. About 44% of this was on the national roads, 36% on county roads and 20% on municipal roads.

On national and county roads heavy goods vehicles (HGV) account for about 10%-11% of the total traffic.

Since 1990, total vehicle km has increased by 48.5% on public roads. The increase for light vehicles has in this period been 46.9%, and for HGVs the increase has been by 61.4%.

Change in the number of fatalities and injury crashes

Since 2000, the number of road deaths has been halved, and the number of injury crashes decreased by 30%.

In the last three years, the number of fatalities was decreased by a third. There is no single reason for this very positive development, but the result of a systematic, long term and fact-based broad approach. We see a positive development on indicators like speed, seatbelt wearing, lane barriers and other key factors with known effect on severe traffic accidents. The positive trend is continuing, with 145 killed in 2012.

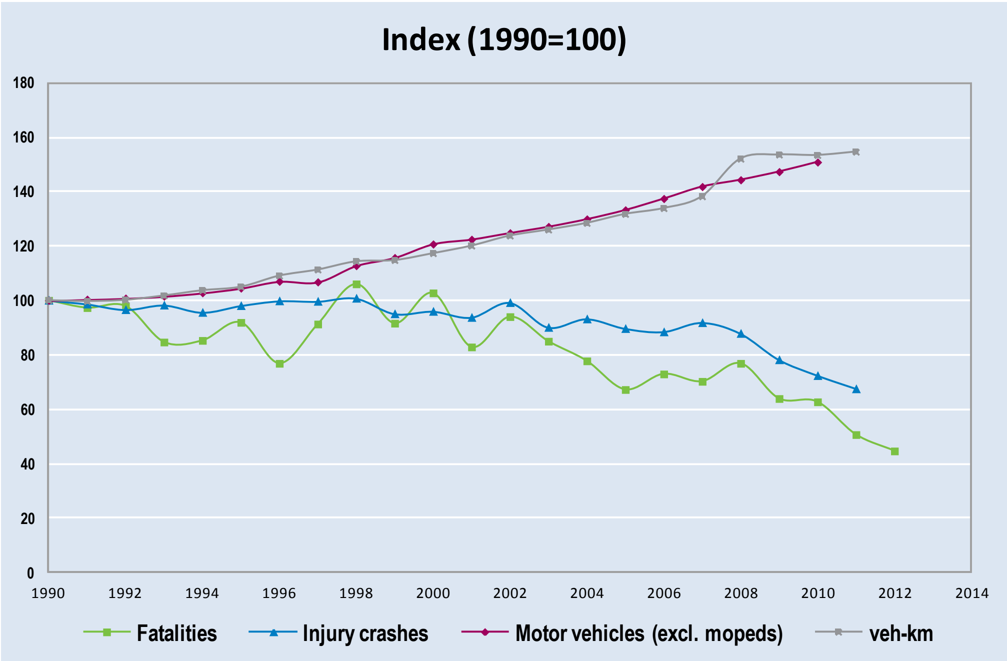
Risk and rates

In 2011, Norway reached its lowest level of mortality with a rate of 3.4 fatalities per 100 000 population, thus reaching the rate of Sweden.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	**2010**	**2000**	**1990**
Reported safety data							
Fatalities	332	341	208	168	-19.2%	-50.7%	-49.4%
Injury crashes	8 801	8 440	6 360	5 932	-6.7%	-29.7%	-32.6%
Hospitalised	1 636	1 265	-	-			
Deaths/100 000 population	7.8	7.6	4.4	3.4	-20.3%	-55%	-57%
Deaths/10 000 registered vehicles	1.4	1.2	0.6	-			
Deaths/billion vehicle-kms	12.0	10.5	5.0	3.9	-19.8%	-63%	-69%
Fleet and mobility data							
Vehicles (exc. mopeds)* 1000	2 220	2 666	3 326	-			
Vehicle- kilometres (in million)	27 755	32 547	42 561	42 903	0.8%	31.8%	54.6%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	554.7	617.7	710.3	-			

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2012* Index (1990=100)**



* provisional data for 2012

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated around EUR 2.18 billion (excluding property damage costs). Costs are calculated by a willingness-to-pay approach.

Table 2. **Costs of road crashes in Norway**

Cost (EUR) Billion)	2009	2010	2011	% change
Fatalities	0.77	0.78	0.63	-19%
Hospitalised	0.84	0.84	0.79	-6%
Slight injuries	0.57	0.56	0.51	-9%
Property damage				
Total	2.18	2.18	1.93	-11%

* *Calculated at constant exchange rate 0.12 EUR/NOK, average 2009-2010 interbank rate.*

Road users

Since 2000, road safety improvements benefited pedestrians and motorcyclists the most, while there has been less progress with cyclists' safety.

In 2011, 17 pedestrians were killed. This is the lowest ever number registered on Norwegian roads. The average for the period 2002-2011 was 27.

The number of persons killed on motorcycles showed a significant decrease, from 26 in 2010, to 13 in 2011. The average for the last 10-year period was 30. The number seriously injured was 73. Seven of the motorcyclist fatalities were in the age group 35-54 years.

In 2011, 12 cyclists were killed in road traffic accidents compared to 5 in 2010. Even though it is a big increase from 2010, the number are just above the level in 2009 and 2008, with 8 and 9 killed cyclists. Due to small numbers, it is difficult to show a solid trend, but the increase in killed cyclists will be monitored carefully. Three out of 4 cyclists killed were in the age group over 54 years.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		2010	2000	1990
Bicyclists	17	5%	13	4%	5	2%	11	7%	120%	-15%	-35%
Mopeds	14	4%	6	2%	0	0%	4	2%	n.a.	-33%	-71%
Motorcycles and scooters	25	8%	40	12%	26	13%	13	8%	-50%	-68%	-48%
Passenger car occupants	214	64%	225	66%	125	60%	100	60%	-20%	-56%	-53%
Pedestrians	55	17%	47	14%	24	12%	17	10%	-29%	-64%	-69%
Others	7	2%	10	3%	28	13%	23	14%	-23%	70%	143%
Total	**332**	**100%**	**341**	**100%**	**208**	**100%**	**168**	**100%**	**-19%**	**-51%**	**-49%**

In terms of risk per distance travelled, motorcyclists are far more at risk than passenger car occupants. This is mainly due to relatively high speeds combined with low-level protection.

Age

In 2011, no child below the age of 6 years was killed in road traffic.

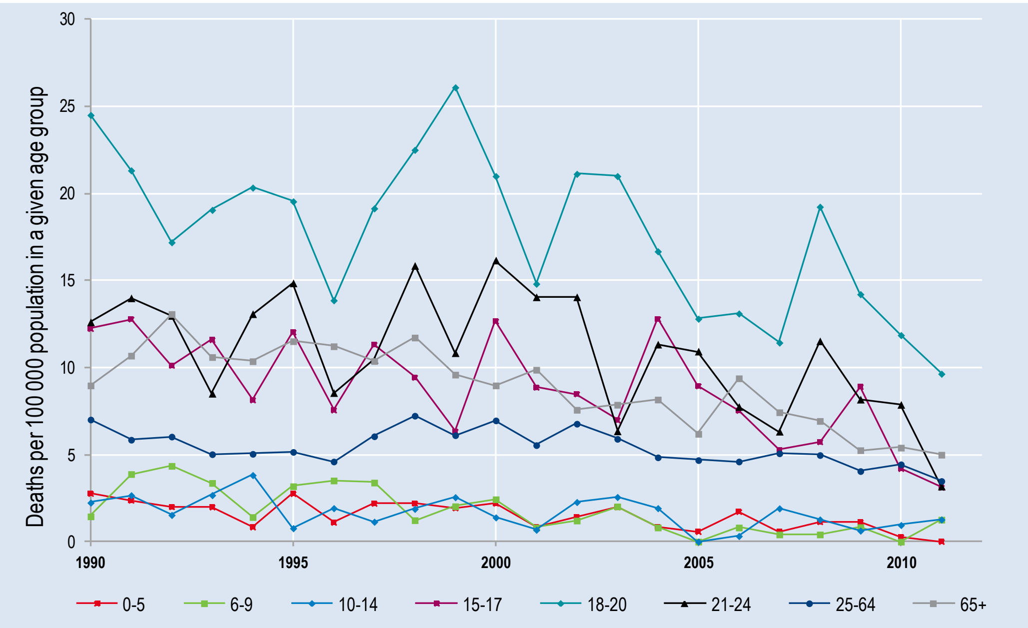
Since 2000, progress was made in all age groups (except the 10 – 14) and the most significant decrease was in the age group 21-24. In 2011, there was a 50% decrease in fatality for this group. There is no single reason for this good result, but it may be explained by a combination of better education and training, safety campaigns targeting this age group and increased age for taking the driving licence.

Table 4. **Reported fatalities by age group**
1990-2011

	1990	2000	2010	2011	2011% change over 2010	2000	1990
0-5	9	8	1	0	-100%	-100%	-100%
6-9	3	6	0	3	n.a.	-57%	0%
10-14	6	4	3	5	67%	0%	-29%
15-17	23	20	8	6	-25%	-70%	-74%
18-20	49	34	23	19	-17%	-44%	-61%
21-24	34	36	19	8	-58%	-77%	-76%
25-64	146	165	115	91	-21%	-46%	-38%
>65	62	61	39	36	-8%	-42%	-43%
Total	332	341	208	168	-19%	-51%	-49%

The 18-20 age group is the most at risk, with a fatality rate 3 times that of the general population.

Figure 2. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2011)



Road Type

In 2011, 75% of road fatalities occurred on roads outside densely populated areas. Head-on collisions accounted for 42% killed, and 38% of these were killed in run-off-the-road accidents.

4. Recent trends in road user behaviour

Impaired driving

The legal maximum blood alcohol content is 0.2 g/l. The number of impaired drivers due to alcohol seems to be fairly stable or slightly reduced. Impairment due to illegal substances is increasing slightly.

Speed

In-depth studies in Norway shows that excessive speed or too high speed according to the road conditions (snow, ice, fog or rain) are an important element in fatal accidents, both to the accident itself and to its consequences. In 2011, it was estimated that excessive or inappropriate speed was a contributing factor in one third of all fatal accidents and to 44 per cent of the deathly outcome.

Table 5. **Summary of speed limits in Norway in 2013**

	General speed limit Passenger cars	Actual speeds	Comments
Urban roads	50 km/h	49.4 km/h	Average speed in 2012
Rural roads	80 km/h	77.5 km/h	Average speed in 2012
Motorways	100 km/h	98.9 km/h	Average speed in 2012

Seatbelts and helmets

Seatbelt use has been compulsory in front seats since 1975 and in rear seats since 1985. In 2011, the rate of seatbelt use in front seats among drivers is around 95% in rural areas and 93% in urban areas. There is no monitoring of seatbelt use in rear seats yet, but it is estimated to be seven to eight percentage points lower.

Table 6. **Seatbelt wearing rate by car occupants**

	2000	*2010*	*2011*
Front seat			
General	88%	91%	94.5%
Urban areas	92%	91%	93%
Rural roads	80%	94%	95%
Rear seats			
General	84%		
Urban areas	84%		
Rural roads	68%		

Distracted driving, use of mobile phone and fatigue

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. There are no good estimations on the number of fatal crashes due to the use of mobile phones, but research shows that this is a factor to be watched carefully.

In-depth studies show that fatigue and sleepiness is the cause in 16% of all fatal crashes in Norway.

5. National road safety strategies and targets

Organisation of road safety in Norway

Norway adopted Vision Zero by a decision in the Parliament (Stortinget) in 2001, and strategies based on the vision were first implemented in the National Plan of Action for Traffic Safety 2002-2011. The Government have since continued to say that Vision Zero provides the basis for traffic safety activities in Norway in all following National Transport Plans and in the latest National Plan of Action for Traffic Safety 2010-2013.

The Norwegian Vision Zero involves all modes of transport. The main focus is to reduce crashes that can lead to fatalities and serious injuries. Highest priority is given to reduction of head-on crashes, single-vehicle crashes and collisions with vulnerable road users (cyclist and pedestrians). High risk road users, such as young drivers, elderly road users and motorcyclist, are also paid special attention.

The traffic safety work in Norway is coordinated by the Norwegian Public Road Administration (NPRA). In addition to NPRA, the police, the public administration of both Health and Education training, together with the leading NGOs are main stakeholders in the traffic safety work at national level. At region and local level, the work of counties and municipalities are of key importance. This broad and collaborative approach is of great importance, as well as co-ordination of efforts of all stakeholders, based on a common strategy.

Evaluation of the past road safety programme

Every year the NRPA reports to the Government on the progress with implementing the National Plan of Action for Traffic Safety 2010-2013 on behalf of all the stakeholders. As part of this reporting, there is an evaluation of the plan. This knowledge is taken into the on-going work on National Plan of Action for Traffic Safety 2014-2017.

Road safety strategy for 2011-2020: National Plan of Action for Traffic Safety 2010 -2013

The Government has decided that efforts to improve road traffic safety in Norway should be based on a vision of zero fatalities and severe injuries in road traffic – Vision Zero. During the parliamentary debate on the National Transport Plan (NTP) 2010-2019, an intermediate goal of reducing the number of fatalities by one-third before 2020 was established. This means that the number of fatalities and serious injuries should be reduced from an expected level of 1 150 in 2010 to a maximum of 775 in 2020. Accordingly, the number of fatalities and severe injuries should be reduced from approximately 1 150 at the start of the planning period to approximately 950 in 2014.

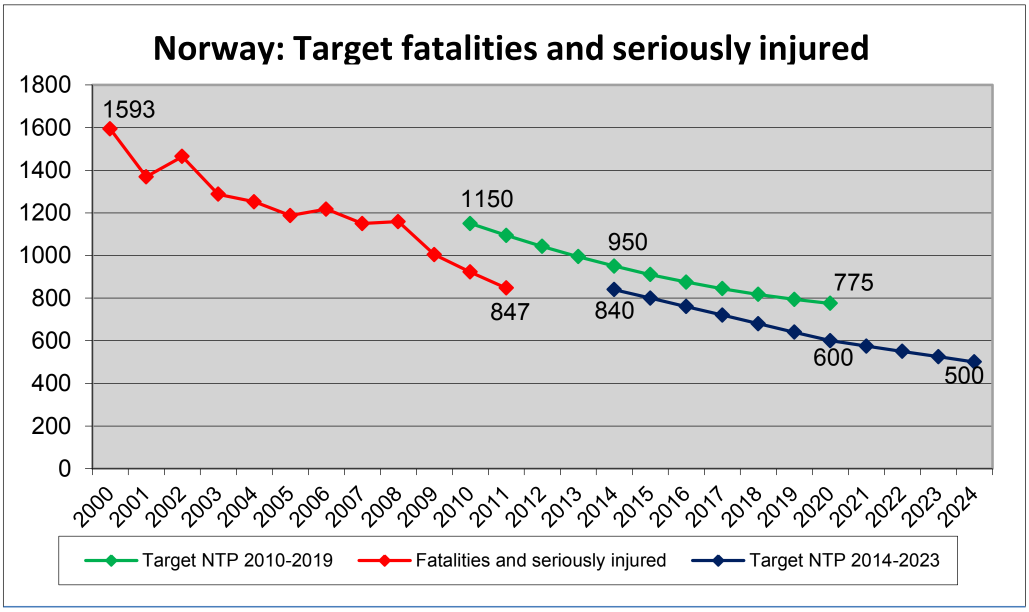
Target setting

It has recently been proposed to have a more ambitious target and to reduce the numbers of fatalities and seriously injured by half by 2024. Calculations based on existing knowledge shows that it is possible to reach 630 fatalities and seriously injured by 2024. In addition, taking into account the fact that it is not possible to assess the effect of all measures and that new technology may bring additional benefits, a new target of less than 500 fatalities and seriously injured by 2024 was set.

Monitoring

The development in fatalities and seriously injured are constantly monitored. The numbers of fatalities and seriously injured are well on track to meet the target

Figure 3. **Trends towards national target**



In addition to monitoring the development in fatalities and seriously injured, the Norwegian Public Road Administration are also monitoring a set of indicators with importance to traffic safety. In the National Plan of Action for Traffic Safety there are targets several indicators, for instance speed, seatbelt wearing and heavy vehicle safety standards.

6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

- In the summer of 2009, the Ministry of Transport and Communications asked the Norwegian Public Roads Administration to test average speed cameras on three stretches of road. The results from the evaluation of average speed cameras shows that this is an effective and strong measure in achieving a significant reduction in driving speeds on stretches of road where the speed is initially higher than the speed limit. Under the tested conditions, the results show that the average driving speed is reduced by up to 10%. The size of the reduction is dependent on how high the driving speed is before the establishment of ATC. The Ministry has approved the extension of about 40 more road stretches until 2013. This includes some experiments in tunnels, as well as sub-sea tunnels, and the results will be published before the summer of 2013.

- NPRA has established new criteria for speed limits on roads with high traffic and severe crashes. The purpose is to reduce the number of fatalities and severely injured by 10 to 15 persons per year. High speed is, on average, found to be an important factor in almost 50% of all fatal accidents. This implies that on 420 km of road the speed limit will be lowered from 80 to 70 km/h and on 70 km of road from 90 to 80 km/h. The new criteria extends the existing policy regarding speed limits, but the focus is now more on traffic safety, especially for roads with a high risk of head-on collisions and for roads without a median barrier.

Impaired driving

Measures directed to road-users:

- Concentrate the number of sobriety tests to times and places where the risk of crash is the highest.
- Continue the learning of "Signs and symptoms" to detect the consumption of drugs other than alcohol.
- From 1st February 2012 impairment-based legislative limits for driving under the influence of non-alcohol drugs is implemented. For further information: Vindenes, V. *et al.* (2§§§011), "Impairment based legislative limits for driving under the influence of non-alcohol drugs in Norway", *Journal of Forensic Science Int*. November, 24.

Measure directed to vehicles:

- Introducing an alco-lock programme aimed at impaired drivers of goods transport vehicles. Instead of drivers losing their licence the vehicles will have alco-locks installed.

Enforcement

- Penalty point endorsement of driving licences was introduced in 2004 to prevent high risk driving. On 1st July 2011 the system was renewed, targeting young drivers and risky behaviour.

Driver education

- There is an on-going evaluation of driver education, but the results are not yet available.

Vehicle safety

- Norway does not have national production of cars. The NPRA is, however, promoting the use of EuroNCAP, and recommends consumers to buy safe cars, preferably with five stars.

Infrastructure

- Infrastructure measures targeting traffic safety are mainly focusing on preventing head-on collisions by building motorways and median barriers, reducing the consequences of road crashes by providing safe roadsides, and protecting vulnerable road users by building safe crossings and cycle-paths.

Road safety campaigns

- The NPRA is running three big national traffic safety campaigns on speed, seatbelts and car-cyclist communication. There is also on-going work on a campaign targeting young people.

- The national speed campaign for 2009-2012 has been evaluated. The main result is a significant change in self-reported speed behaviour of the target group (persons aged 25 to 40 years). The evaluation does also contain objective measurements of general average speed, and a small — but significant — decrease in speed has been recorded. It is difficult to conclude how much of the effect is due to the campaign, but the reduced average speed corresponds strongly with the campaign. Due to the positive evaluation, it has been decided to continue with the speed campaign.

7. Useful websites and references

Useful websites

Public Road Administration	www.vegvesen.no
TOI – Research Institute forTransport Economics	www.toi.no
International Research Institute	www.iris.no
SINTEF	www.sintef,no
Norwegian Institute of Public Health, Division of Forensic medicine and Drug Abuse Research	www.fhi.no

Contact

For more information, please contact: guro.ranes@vegvesen.no.

Poland

Source: IRTAD, Motor Transport Institute

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Warsaw	**38.2 million**	**619**	**4 189**	**10.97**

1. Comments about road safety data collection

The basic source of road accidents data is the Police database. This database was set up in 1975, under the responsibility of the Department of Road Traffic of the General Headquarters of the Police.

The information collected in the database is gathered by police officers according to categories included in the Road Accident Card, which is grouped for each road accident and collision and divided in the following categories:

- description of accident site;
- circumstances of accident (time, weather conditions, lighting, road condition, vehicle condition, etc.);
- behaviour of participants;
- age and sex of drivers and victims;
- type of injury (killed, severely/slightly injured);
- cause of accident.

Guidelines for gathering accident data and all definitions are described in Head Chief of Police Regulation No 123 of 31 May 2012.

In 2012, the Motor Transport Institute conducted a comparative analysis in order to verify the Police accident database and compare its data with public statistics (national health services data and national statistics office data). Pilot studies encompassed data from years 2008-2010. The outcome was that the real number of people killed in road accidents could be higher than shown in official Police data by 3 to 25% — depending on the method used. This pilot study showed the need for further investigation of the data.

MAIS 3+ is not currently used in Poland. Accidents statistics are measured using the medical ICD 10 scale instead. However, with the new trend of standardising the definition of 'serious injuries' based on the MAIS 3+ system, discussions are ongoing in Poland on how to implement this scale. While the Ministry of Health supports the introduction of the MAIS 3+, it will take some time to change the system.

In 2010, the establishment of the Polish Road Safety Observatory was launched. The aim of the Observatory is the creation of a road safety data collection system which will enable the comprehensive analysis of road safety in Poland. The Observatory also disseminates knowledge about road safety problems as well as successful activities. The new system for road safety data collection and its analysis will be a starting point for effective and efficient activities, as well as assessment of the measures taken.

2. Short term trends

General comments and trends for 2011

In 2011, the number of road fatalities increased by 7.2%. It is assumed that this increase was partly due to newly introduced speed limits and the very mild winter.

Provisional data for 2012

Based on provisional data for 2012, there were 3 571 road fatalities in 2012 — a 15% reduction in comparison to 2011. These good results are largely attributed to the implementation, since 1 July 2011, of the new speed camera system.

3. Long term trends (1990-2011)

Fleet and mobility

Since 1990, the number of motorised vehicles has multiplied by 2.5. Most recently, the increase in the number of motor vehicles in Poland has been stable, without significant impact due to the economic crisis.

Change in the number of fatalities and injury crashes

A peak in the number of fatalities was reached in 1991, with 7 901 deaths. In recent years (2000-2011) the upward trend has broken, and the number of fatalities and injury crashes fell by 33% and 30%, respectively.

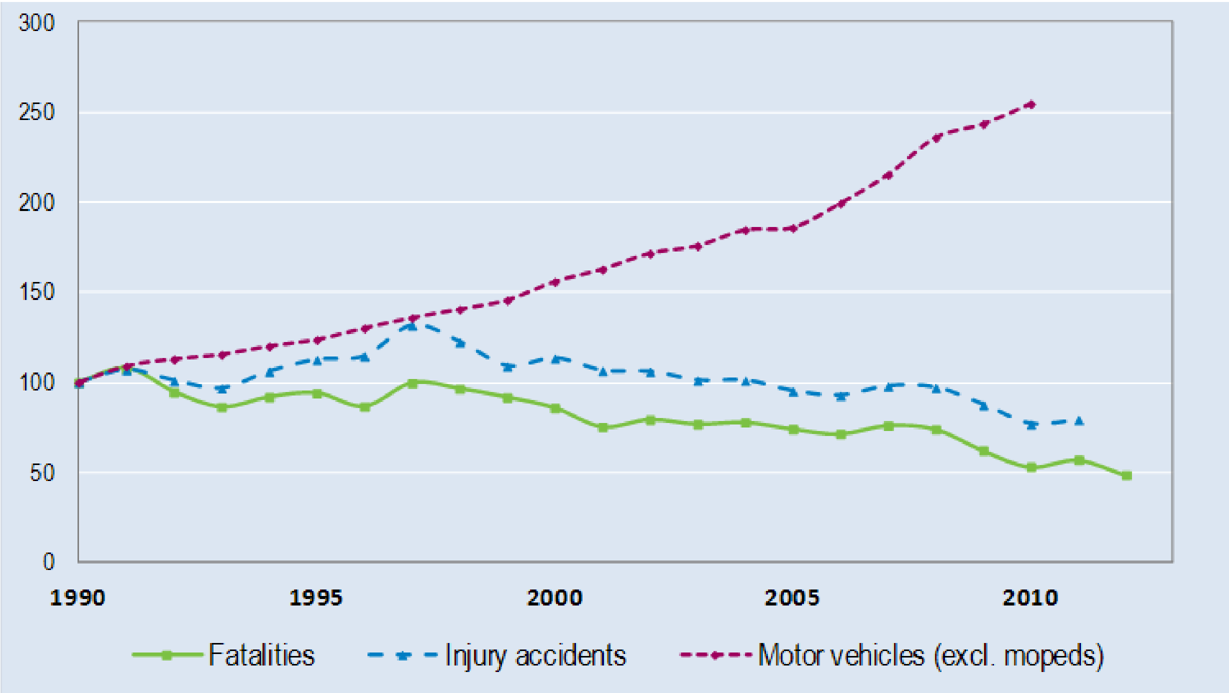
Risk and rates

In 2011, Poland had a fatality rate, expressed in terms of deaths per 100 000 population of 10.9 — 32.7% less than in 2000.

Table 1. **Safety and mobility data 1990-2011**

	1990	2000	2010	2011	2011% change over 2010	2011% change over 2000	2011% change over 1990
Reported safety data							
Fatalities	7 333	6 294	3 908	4 189	7.2%	-33%	-43%
Injury crashes	50 532	57 331	38 832	40 069	3.2%	-30%	-21%
Deaths/100 000 population	19.20	16.29	10.24	10.97	7.1%	-32.7%	-42.9%
Deaths/10 000 registered vehicles	8.1	4.5	1.7	1.8	5.9%	-60%	-78%
Fleet and mobility data							
Vehicles (exc. mopeds)	9 041	14 106	22 115	22 840	3%	38%	60%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	236.8	365	603.6	618.9	2%	41%	61%

Figure 1. **Reported road fatalities, injury crashes and motorised vehicles Poland: 1990-2011 (Index 100 = 1990)**



Economic costs of traffic crashes

Costs of traffic crashes are calculated based on the capital approach[1].

Traffic crashes represent a very significant cost for society, estimated at around PLN 20,1 billion[2] (around EUR 4.85 billion), i.e. 1.32% of GDP. They account for more than the budget deficit in Poland.

1. http://krbrd.gov.pl/download/pdf/koszty_wypadkow_drogowych_na_sieci_drog_w_polsce_na_koniec_roku_2011.pdf

According to the World Bank, estimated costs of traffic crashes amount to PLN 27-34 billions (EUR 6.5-8.2 billions) i.e. 2% of GDP

Table 2. **Costs of road crashes in Poland**[3]

Cost (EUR) Billion)	2010	2011	% change
Fatalities	1.65	1.58	-4%
Injury and disability	2.91	2.79	-4%
Property damage and other costs	0.49	0.47	-4%
Total	5.05	4.85	-4%
Total as a % of GDP	1.48	1.32	-10%

Road users

Since 2000, all user groups except motorcyclists and moped riders benefited from a decrease in the number of fatalities. The decrease was more marked for cyclists.

In 2011, the increase in road fatalities concerned all road users, but the increase was more marked for cyclists, motorcyclists and pedestrians.

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 1990-2011**

									2011% change over		
	1990		2000		2010		2011		2010	2000	1990
Bicyclists	574	8%	692	11%	280	7%	314	7%	12.1%	-54.6%	-45.3%
Mopeds	288	4%	75	1%	83	2%	87	2%	5%	16%	-70%
Motorcycles and scooters	749	10%	178	3%	259	7%	292	7%	13%	64%	-61%
Passenger car occupants	2 237	31%	2 709	43%	1 853	47%	1 897	45%	2.4%	-30.0%	-15.2%
Pedestrians	2 977	41%	2 256	36%	1 236	32%	1 408	34%	13.9%	-37.6%	-52.7%
Others	508	7%	383	6%	197	5%	191	5%	-3.0%	-50.1%	-62.4%
Total	**7 333**	**100%**	**6 294**	**100%**	**3 908**	**100%**	**4 189**	**100%**	**7.2%**	**-33.4%**	**-42.9%**

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 102 in 2011, corresponding to a decrease of nearly 80%.

2. Instytut Badawczy Drog i Mostow, 2012

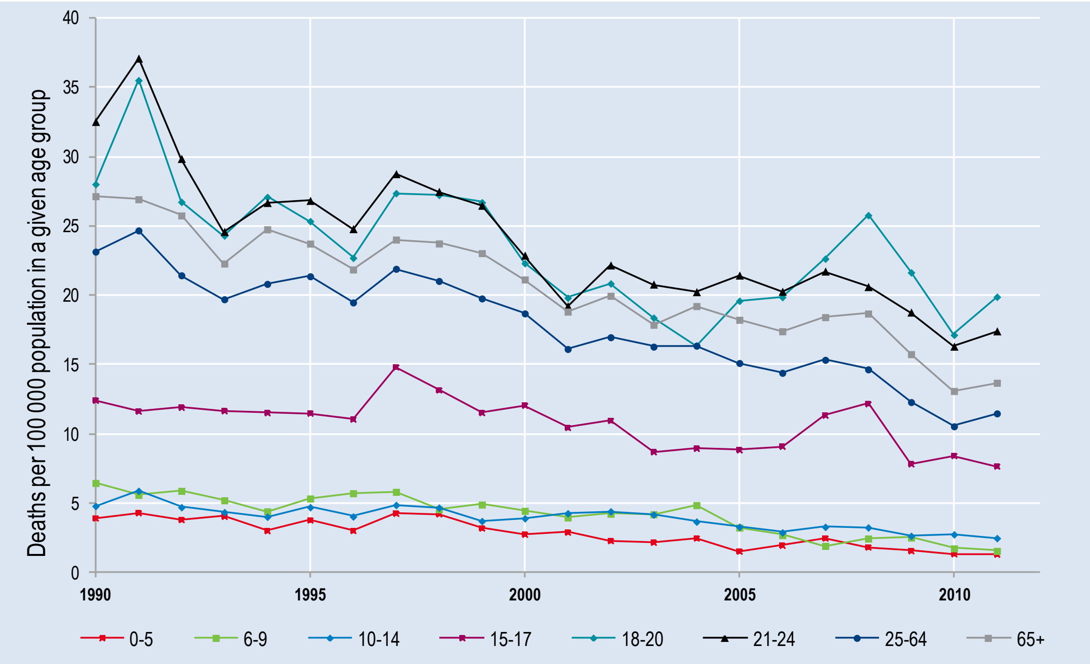
3. Instytut Badawczy Drog i Mostow, 2012

Table 4. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
0-5	139	66	31	31	0%	-53%	-78%
6-9	176	89	25	22	-12%	-75%	-88%
10-14	156	112	56	49	-13%	-56%	-69%
15-17	223	245	122	106	-13%	-57%	-52%
18-20	455	443	280	315	13%	-29%	-31%
21-24	636	583	392	401	2%	-31%	-37%
25-64	4 493	3 751	2 293	2 525	10%	-33%	-44%
>65	1 055	1 004	676	710	5%	-29%	-33%
Total	**7 333**	**6 293**	**3 875**	**4 159**	**7%**	**-33%**	**-43%**

The 18-20 age group is the most at risk, with a fatality rate twice as high as the general population.

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**

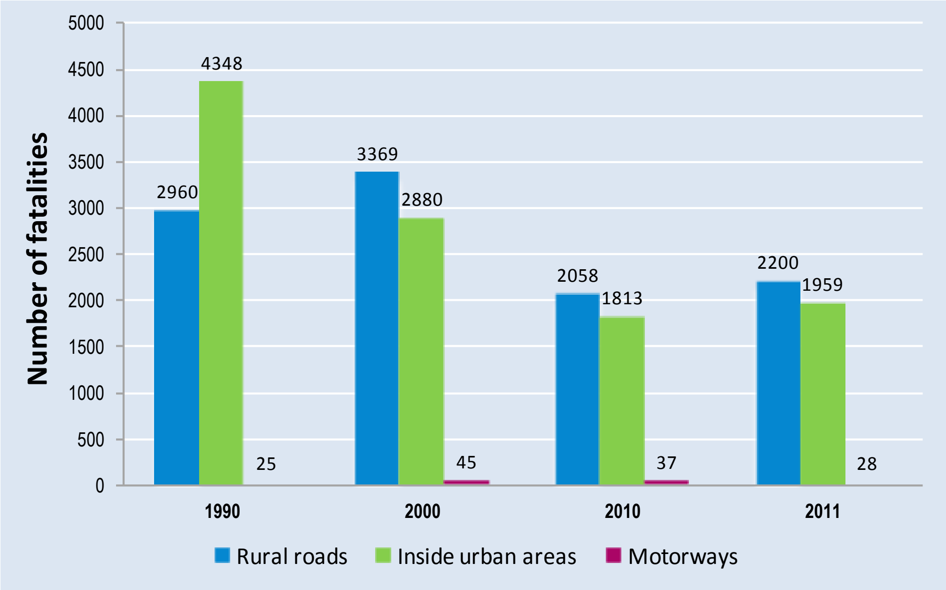


Road Type

In 2011, fatalities were equally spread over the urban and rural networks. The decrease in fatalities over the last twenty years has been achieved mainly through the improvement of country roads.

Motorways only account for 1% of fatalities; this is because there is a limited number of motorways in Poland, but in 2012 the increase in motorway lengths was very significant.

Figure 3. **Reported fatalities by road type 1990, 2000, 2010 and 2011**



4. Recent trends in road user behaviour

Impaired driving

The maximum authorised blood alcohol concentration (BAC) level in Poland is 0.2 g/l for all drivers.

In the last ten years, the number of crashes caused by drivers under the influence of alcohol decreased by 35%. People killed in crashes involving drink-driving represent 8% of all traffic fatalities, while in Europe this percentage equals 12%.

In 2011, alcohol-related crashes decreased by 10.7%.

According to DRUID research in Poland, the prevalence of alcohol and other psychoactive substances in the driving population is lower than the EU average which, for alcohol, is 3.48%, whilst in Poland it is 1.47%. The prevalence of illegal drugs in the EU is 1.89%, whilst in Poland it is only 0.71%.

Speed

In the last ten years, the number of fatal crashes involving speeding decreased by 50%; however, speed still remains one of the main causes of crashes in Poland and is a contributing factor in around 30% of fatal crashes. Speed enforcement efforts will be increased.

Table 5. **Summary of speed limits in Poland 2013**

Type of Road	General speed limit Passenger cars	Actual speeds
Urban roads	50 km/h	No monitoring is carried out
Rural roads	90 km/h 2-carriage expressway: 120 km/h Single-carriage express roads and dual-carriage roads with at least two lanes in each direction: 100 km/h	
Motorways	140 km/h	

Seatbelts and helmets

Seatbelt use has been compulsory in front and rear seats since 1991. The rate of use is around 86% in front seats and 65% in rear seats.

Helmet wearing has been compulsory on motorcycles and mopeds since 1997. However helmets are not compulsory on bicycles.

Table 6. **Seatbelt wearing rate by car occupants**

	*2008**	*2011***
Front seats		
General	78%	86%
Urban roads		84%
Rural roads		89%
Rear seats		
General	51%	65%
Children	85%	82%

* Road survey for the National Road Safety Council.

** Public opinion survey for Motor Transport Institute.

Distracted driving, use of mobile phone and fatigue

In Poland the use of hand-held mobile phones while driving is forbidden, the use of hands-free phones is allowed.

There are no research findings on fatigue.

5. National road safety strategies and targets

Organisation of road safety in Poland

On 1st January 2002, the National Road Safety Council was created. This is an advisory body for the Council of Ministers on Road Safety. The Minister of Transport is the chairman of this Council and the vice-chairman is the Minister of Internal Affairs. Members of the National Road Safety Council come from the Ministries of: Defence, Justice, Public Administration, Finance, Economy, Labour, Education and Environment, as well as from Police, Fire Department and General Directorate of National Roads and Motorways.

The National Road Safety Council sets direction and coordinates activities of the govermental administration in the area of road safety.

The main areas of the National Road Safety Council activities include:

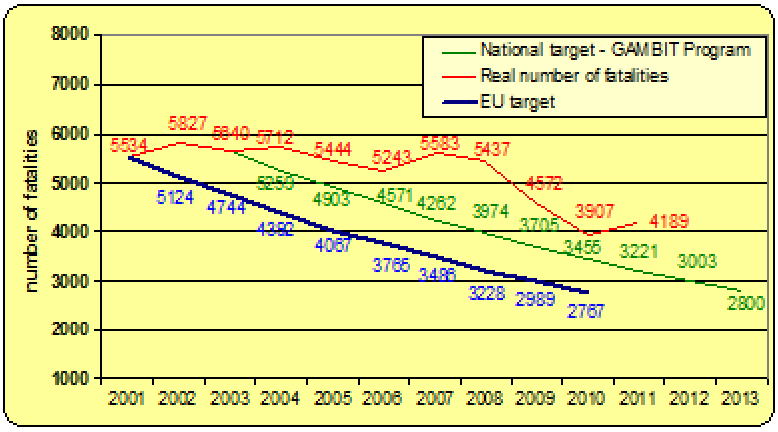
- setting directions and preparing road safety programmes;
- commission of the scientific research in the area of road safety;
- initiation of new laws on road safety;
- initiation of international cooperation and educational activities;
- cooperation with non-governmental institutions;
- analysis and evaluation of the activities undertaken.

Evaluation of the past road safety programme

In 2005, the Council of Ministers adopted the National Road Safety Programme for 2005-2013: the GAMBIT 2005. It includes a long-term vision of zero fatality on Polish roads and the strategic target to decrease by 50% the number of fatalities in comparison to 2003, (i.e. no more than 2 800 fatalities in 2013).

The GAMBIT target for 2010 (3 500 killed), as well as the target for 2012 (3 000 killed) was not achieved. The 2010 target was almost achieved in 2012 (3 571 killed).

Figure 4. **Trends towards national target**



Road safety strategy for 2005-2017

On 9 January 2013, the National Road Safety Council adopted a draft of a new National Road Safety Programme for the years 2013-2020. Developed by the Secretariat of the National Road Safety Council and government bodies’ experts, the programme envisages that by 2020 road accident deaths in Poland should be reduced by 50% and serious injuries by 40%. 2010 data are used as the point of reference. Vision Zero is included in this new Programme.

Target setting

The targets of the new National Road Safety Programme are based on the targets of both the UN Decade of Action for Road Safety and the European Union. The targets are consistent with National Transport Policy and Transport Development Strategy.

Monitoring

The realization of the New National Road Safety Programme will be monitored. The Programme is expected to be evaluated based on yearly reports and periodical reports, with the evaluation of the National Road Safety Programme, which are foreseen for years 2014 and 2017. The body responsible for these reports is the National Road Safety Council. Fatalities and severely injured rates will also be monitored.

6. Recent safety measures (2011-2012) and effectiveness of past measures (2005-2010)

Speed management

Poland has been building its automatic speed camera system since 1 July 2011. The new system is managed by the Road Transport Inspection and, in early 2013, comprised 611 fixed speed cameras (375 managed by the Road Transport Inspection and 236 managed by municipal guards). In addition, the Road Transport Inspection has 29 cars with in-built mobile cameras, as well as 390 Police cars. This adds up to 16 speed cameras per 10 000 km of roads in Poland. There is strong political will to develop this speed camera system.

Infrastructure

On 24 April 2012, the President signed an act concerning road safety management. This is to implement into Polish legislation the Directive 2008/96/EC of the European Parliament and of the Council of 19 November 2008 on road infrastructure safety management.

Road safety campaigns

The following campaigns were conducted in 2012:

- Child restraining system campaign — Motor Transport Institute
- Seatbelt campaign — National Road Safety Board
- Drink driving campaign — National Road Safety Board
- Speed kills campaign — National Road Safety Board

7. Useful websites and references

Recent and on-going research

Assesment methodology of pedestrians safety with the use of the automatic video image analysis – new research project of Motor Transport Institute

About 30% of pedestrian victims of road accidents in Poland are hit on marked pedestrian crossings. The aim of this project is to develop and test a method of assessing the safety of pedestrian road crossings using automatic video image analysis. The method will be based on detecting traffic conflicts between pedestrians and vehicles. Such conflicts are much more frequent than accidents, and therefore assessments can be made based on relatively short observation periods. Statistical analysis of conflicts will result in an objective evaluation of measures used to improve pedestrian safety. Promoting best practices will lead to a reduction in the numbers of pedestrians killed or injured on Polish roads.

Useful websites

Ministry of Transport, Construction and Maritime Economy	www.transport.gov.pl
National Road Safety Council	www.krbrd.gov.pl
Motor Transport Institute	www.its.waw.pl

Contact

For more information, please contact: justyna.wacowska-slezak@its.waw.pl

Portugal

Source: IRTAD, Department of Infrastructure and Transport

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities /100 000 inhabitants in 2011
Lisbon	**10.6 million**	**545**	**891**	**8.38**

1. Comments about road safety data collection

In Portugal, the authorities responsible for reporting on road crashes are the:

1. Public Security Police (PSP), who work inside urban areas; and
2. National Republican Guard (GNR), who work outside urban areas.

When the police officers attend a crash they must fill in the standard road accident form (Beav). The statistics cover only those accidents which are reported to the police. Thus, an appreciable proportion of non-fatal accidents is not included in national statistics (under-reporting).

All the registration forms (Beav's)—which constitute the basis of road accident analyses—are sent to the National Authority for Road Safety that is responsible for inserting the data into the national road accidents database and control data quality. This control consists of checking if there are duplications, incoherent data or errors (in accordance with a predefined classification list of errors).

In Portugal, the severity of an injury is registered by the police on the road accident forms (Beav's) and defined by the length of hospitalisation needed as follows:

- ***Serious injury***—A person who was hospitalised as a result of the accident for a period of 24 hours or more.
- ***Slight injury***—A person who was injured as a result of the accident and was not hospitalised, or was hospitalised for a short period (up to 24 hours).

As mentioned above, the national road traffic injury database is only based on the police reports, and the number of seriously and slightly injured persons reported by the Police is not cross-checked and final assessed by the medical services (hospital).

Currently, Portugal has been working with the EU concerning the implementation of a common definition of serious injury based on the "maximum abbreviated injury scale" (MAIS 3+) in order to produce comparable statistics.

As of 2010, in order to meet internationally agreed definitions, the fatality data for Portugal is recorded within 30 days (instead of within 24 hours). Prior to then, a road death was defined as a fatality within 24 hours after the crash. A correction factor of 0.26 was applied in the IRTAD database until 2010.

2. Short term trends

General comments and trends for 2011

In comparison to 2010, in 2011 there was a decrease of 8.1% in injury crashes, 4.9% in fatalities, 8.5% in serious injuries, and 9.6% in slight injuries, thus indicating a general improvement.

Provisional data for 2012

Based on provisional data, in 2012 the total number of fatalities within 30 days from January till August is 489.

3. Long term trends (1990-2011)

Fleet and mobility

Since 1990, the number of motorised vehicles has multiplied by nearly 3.

Change in the number of fatalities and injury crashes

Between 1970 and 1989, there was an average annual increase in road deaths (+3.5%) and injury accidents (+3.9%). The number of fatalities reached a peak in 1975, with 3 372 persons killed. At the same time, the number of vehicles rose by 8.3% on average.

Between 1990 and 2000 there was a steady decrease in the number of fatalities and injury crashes. On a yearly average, the number of fatalities fell by 3.2%.

Since 2000, the rate of decline has accelerated, with an average annual decrease of 4.7% between 2000 and 2011.

The progress of road safety observed in the last decade is the result of the work and actions carried out by several actors and the policies implemented concerning different areas and road safety problems.

Although it is not possible to provide a full explanation of the success of the policies undertaken, there are various measures that had contributed to this, namely, the following:

- Treatment and reduction of blackspots, implementation of traffic calming measures and construction of new roads, especially motorways (more than 3 000 km).
- Road Code update regarding new traffic rules and penalties.
- Regular awareness campaigns on television, radio and press, focused on specific targets and issues.

- Increased enforcement, particularly attentive on speeding, drinking and driving, use of seatbelts, especially on rear seats, and child restraint systems.
- Improved passive safety features of vehicles.
- Advances in post-impact care.

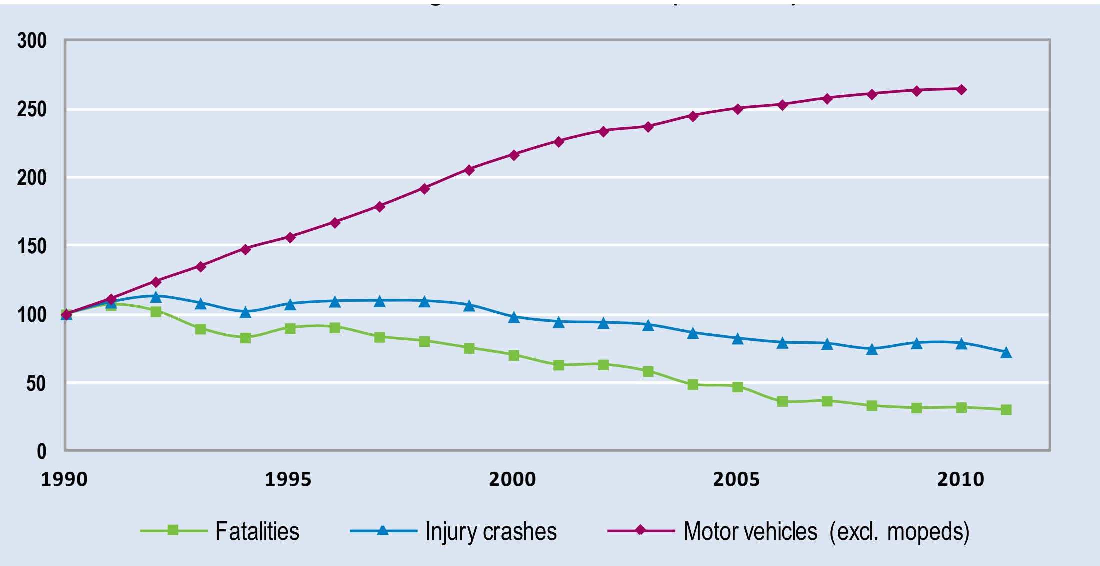
Risk and rates

In 2011, Portugal had a mortality rate, expressed in terms of road death per 100 000 population, of 8.4, one fourth of what it was 20 years ago.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
Reported safety data							
Fatalities	2924	2053	937	891	-4.9%	-56.6%	-69.5%
Injury crashes	45 110	44 159	35 426	32 541	-8.1%	-26.3%	-27.9%
Hospitalised	12 165	6 918	2 475	2 265	-8.5%	-67.3%	-81.4%
Deaths/100 000 population	31.21	20.02	8.81	8.38	-4.9%	-58.1%	-73.1%
Deaths/10 000 registered vehicles	13.36	3.86	1.6	-			
Fleet and mobility data							
Vehicles (exc. mopeds)	2188	4743	5795	-			
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	233.6	462.4	544.8	-			

Figure 1. **Reported road fatalities, injury crashes and motorised vehicles 1990-2011 (Index 100 = 1990)**



Economic costs of traffic crashes

The National Authority for Road Safety (ANSR), in partnership with a Portuguese university (Universidade Autónoma de Lisboa), launched a study in 2010-11 to estimate the national costs of traffic crashes.

This study used the methodology of Human Capital. It is an ex-post method, based on the data from several public institutions, for a period of 15 years (1996-2010). This method tends to estimate a value lower than the willingness-to-pay approach, relying mainly on historical data. Therefore, the costs presented in this study should be viewed as minimum estimates that constitute a basis for political action based on cost-benefit analysis.

Table 2. **Costs of road crashes in Portugal**

Cost (EUR Billion)	2010
Fatalities	0.46
Injury and disability	1.43
Property damage and other costs	-
Total	1.89
Total as a % of GDP	1.17

Road users

Since 1990, all user groups, with the exception of motorcyclists, benefit from the improvements in road safety. The number of killed among moped riders was divided by 10.

In 2011, there was a marked increase in the number of cyclists killed (+41.9%).

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		*2010*	*2000*	*1990*
Bicyclists	120	4%	62	3%	31	3%	44	5%	41.9%	-29.0%	-63.3%
Moped	786	27%	248	12%	77	8%	71	8%	-7.8%	-71.4%	-91.0%
Motorcycles and scooters	106	4%	234	11%	128	14%	117	13%	-8.6%	-50.0%	10.4%
Passenger car occupants	898	31%	809	39%	367	39%	331	37%	-9.8%	-59.1%	-63.1%
Pedestrians	742	25%	425	21%	195	21%	199	22%	2.1%	-53.2%	-73.2%
Others	272	9%	274	13%	139	15%	129	14%	-7.2%	-53.1%	-52.6%
Total	**2 924**	**100%**	**2 053**	**100%**	**937**	**100%**	**891**	**100%**	**-4.9%**	**-56.6%**	**-69.5%**

Age

Between 1990 and 2011, all age groups benefited from safety improvements, with the greatest improvements concerning children (0-14) and young people (15-24). More recently (since 2000), the older age groups (65+) have shown a slower decrease than the other groups.

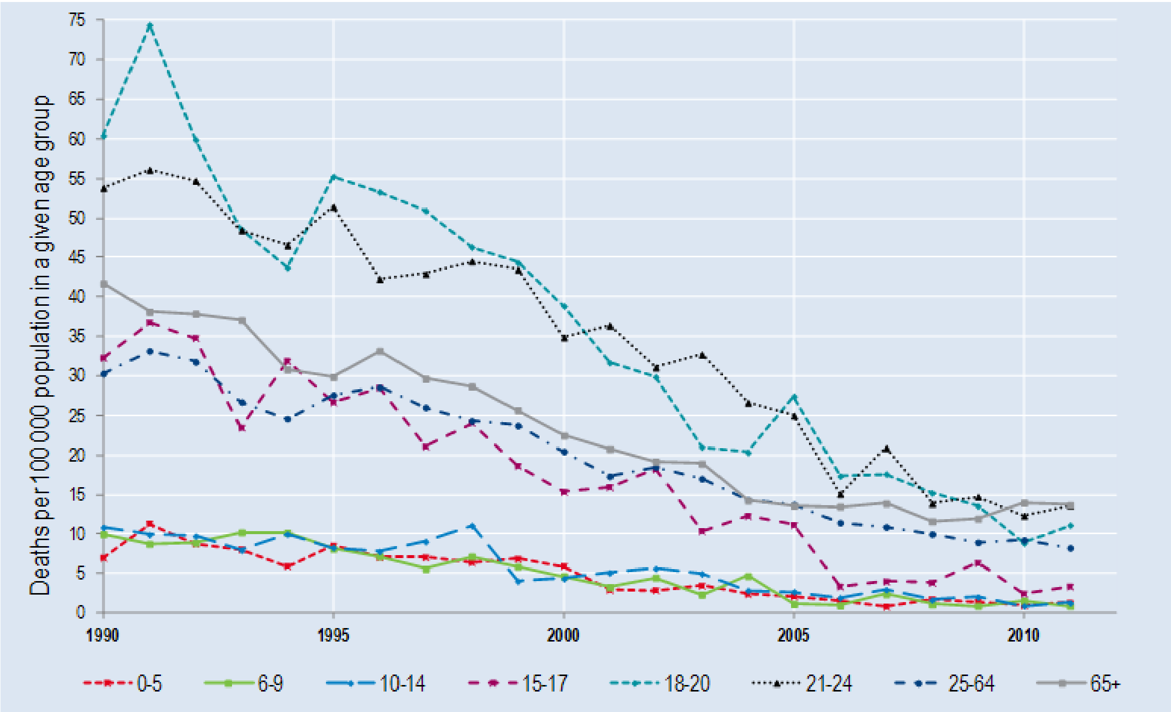
In 2011, there was a worrying increase (+17%) in the number of fatalities among young people (15-24).

The older population (65+) has the highest risk.

Table 4. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
0-5	47	38	6	8	33.3%	-78.9%	-83.0%
6-9	52	20	7	4	-42.9%	-80.0%	-92.3%
10-14	81	25	5	7	40.0%	-72.0%	-91.4%
15-17	152	60	8	11	37.5%	-81.7%	-92.8%
18-20	282	171	31	39	25.8%	-77.2%	-86.2%
21-24	333	221	60	66	10.0%	-70.1%	-80.2%
25-64	1 411	1 120	549	492	-10.4%	-56.1%	-65.1%
>65	509	377	270	264	-2.2%	-30.0%	-48.1%
Total	2 924	2 053	937	891	-4.9%	-56.6%	-69.5%

Figure 3. **Reported death rate by age band (Fatalities per 100 000 population in a given group) 1990-2011**



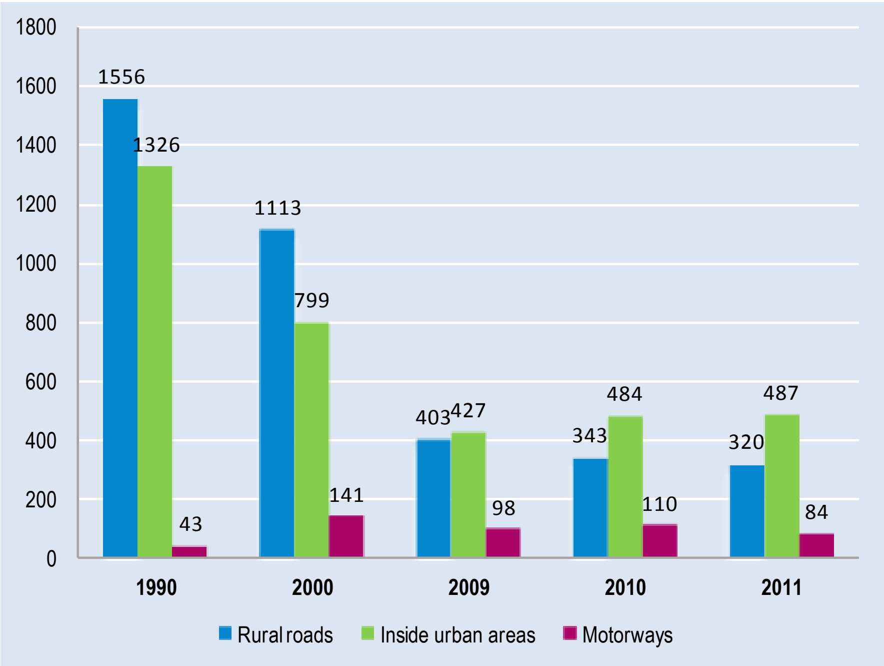
Road Type

In 2011, there were more fatalities in urban areas (55%) than on country roads (36%). This represents a significant change compared with 1990 and 2000, as the reduction registered in the number of road deaths has been more prominent outside urban areas. The positive results registered for rural roads are closely related to the significant increase in the length of the motorway network and blackspot treatment.

Urban area fatalities and serious injuries are a major concern, having registered a considerable increase since 2009, thus being one of the identified risk groups on the revised National Road Safety Strategy.

Improving urban road safety remains a priority target of the new Road Safety Plan.

Figure 3. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

In Portugal, the maximum authorised BAC is 0.50 g/l for all drivers.

According to the data of INML (the National Forensic Medicine Institute – Toxicological Department), in 2011, 32.7% of drivers killed in road crashes were found to be over the legal blood alcohol limit and 9% tested positive for drugs.

Speed

The table below summarises the main speed limits in Portugal.

Table 5. **Summary of speed limits in Portugal 2013**

	General speed limit Passenger cars
Urban roads	50 km/h
Rural roads	90 km/h
Motorways	120 km/h

Seatbelts and helmets

Seatbelt use has been compulsory in front seats since 1978 (outside urban areas), and in rear seats since 1994. There is no estimation available on wearing rate.

Distracted driving, use of mobile phone and fatigue

The Portuguese law regarding mobile phone use while driving allows the use of hands-free kits and headset kits.

In 2010, Portugal transposed into national legislation (law No 27/2010, dated 30 August) the European Parliament and Council Directive 2006/22/EC of 15 March in order to lay down common rules for checking the correct implementation of Regulation (EC) No 561/2006 of 15 March concerning drivers working hours.

The use of mobile phone and fatigue are part of a new operational objective defined within the National Road Safety Strategy (ENSR) review, which aims to better understand the influence of these issues on road accidents in Portugal.

5. National road safety strategies and targets

Organisation of road safety in Portugal

The National Authority for Road Safety (ANSR) is a government agency within the Ministry of Internal Affairs which has the mission of planning and coordinating road safety policies in Portugal — namely through the development of national road safety strategies and targets.

Directly dependent on the National Authority for Road Safety (ANSR), there is a Road Safety Council (RSC), which is an advisory body chaired by the President of ANSR. This body ensures the strategic management and coordination of the organisations involved in road safety. Its members are representatives of the Police authorities (PSP and GNR), the Mobility and Transport Institute (IMT) and the Directorate of Health (DGS). The Road Safety Council can also invite other public or private institutions to take part in its meetings whenever it wishes.

Although the medium- and long-term road safety targets are defined by the National Authority for Road Safety (ANSR) with the support of external expertise, during the process of elaboration of inter-sectorial programmes with detailed tasks to be developed the local authorities are invited to collaborate with ANSR, giving suggestions and presenting proposals.

The main stakeholders within the road safety sector are:

- Other ministries, such as the Ministry of Education, the Ministry of Economy and the Ministry of Justice;
- Universities, insurance companies, road concessionaires;
- NGO's and associations, such as automobile associations, the Portuguese Road Accident Prevention (PRP), Auto-mobilized Citizens Association (ACA-M), the Children Safety Promotion (APSI), etc.

Evaluation of the past road safety programme

In 2009, the Portuguese Plan for the Prevention of Road Accidents, launched in 2003, was terminated. Regarding the targets that Portugal adopted for the year 2009, the most important ones were achieved or even surpassed.

In terms of the evolution of people killed or seriously injured in road accidents in relation to the baseline period (1998-2000) the main results were:

- a reduction in the total number of fatalities and serious injuries of -58% and -65%, respectively, which was superior to the target reduction of 50% that was envisaged.

Regarding the specific targets which had a foreseen a reduction of 60%:

- The number of fatalities and serious injuries amongst pedestrians decreased 62% and 67%, respectively.
- The number of fatalities and serious injuries amongst two-wheeled vehicles users decreased 65% and 72%, respectively.
- The number of fatalities and serious injuries inside urban areas decreased 53% and 68%, respectively.

Road safety strategy for 2008 - 2015

The National Authority for Road Safety (ANSR) is currently reviewing the 2008-2015 National Road Safety Strategy (ENSR). This process began with an analysis of the evolution of road safety, the current situation, and the performance of the Strategy to date.

This in turn led to the definition of a new Vision, and consequently the redefinition of the existing strategic goals, the definition of new ones, and related key actions.

Based on the identification of the main risk groups and risk factors, ANSR has defined 7 strategic targets:

– The improvement of driver behaviour.
– Protection of vulnerable road users.
– Increased road safety in urban areas.
– Reduction of the main risk behaviours.

– Safer infrastructures and better mobility.

– Promotion of vehicle safety.

– Improvement in the assistance, treatment, and follow-up of injured road users.

– 13 operational objectives have been established — each one assigned to a work group comprising different public and private entities — which will define the correspondent key actions.

These actions, once implemented, will be the subject of regular monitoring and evaluation.

Target setting

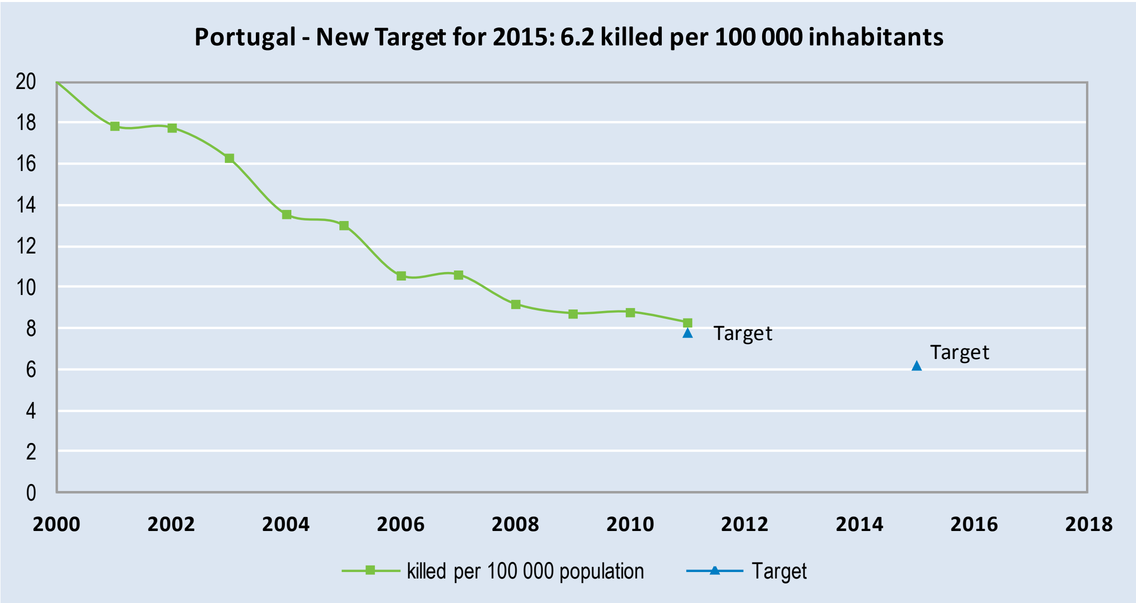
Although ANSR has, since 2010, been accounting fatalities within 30 days, it has maintained the previous objective of 62 fatalities per million inhabitants in 2015. This now represents an even bigger challenge for the country, particularly for those more directly involved in road safety.

The real number of fatalities within 30 days (+26.5% and +29.3% in comparison with the deaths within 24 hours for the years 2010 and 2011, respectively) is much higher than the figures that have been estimated since 1998 by applying a correction factor of 14%. This means it will be harder to reach the objective.

Monitoring

According to the National Road Safety Strategy (ENSR) methodology, all the targets and respective actions established within the ENSR should be evaluated (and possibly reformulated), annually.

Figure 4. **Trends towards national target**



6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

A project concerning the implementation of automatic speed cameras is currently under preparation.

Campaigns

In 2012, ANSR launched the following road safety campaigns:

- Three road safety campaigns during the Easter, Summer, Christmas and New Year holiday periods which were related to fatigue, alcohol and speed. These consisted mainly of posters, advertisements in journals and magazines, as well as commercials on the radio. The materials were also posted on ANSR website for download.
- The 4th edition of the European Road Safety Day, dedicated to young people, which took place on 25th July 2012. ANSR, together with the police authorities (GNR, PSP), the municipalities of Almada and Oeiras, the Portuguese Red Cross (CVP) and the National Association of Spirit Drinks Companies (ANEBE) organised several events and distributed promotional materials in many schools.
- "The pilgrimage to Fátima", during the months of May and October. These campaigns were targeted at drivers, encouraging them — through radio spots and advertisements in journals and magazines — to modify their behaviour towards vulnerable road users (pilgrims) by driving carefully and responsibly.
- "Children coming back to school safely", in early September. This campaign involved the production and distribution in several schools of flyers, posters, rulers and a game where children were challenged to think specifically about road safety.
- National Remembrance Day for road accident victims, 18th November. This day, celebrated annually on the third Sunday of November, is dedicated to those who died on Portuguese roads. In 2011, there was a ceremony to honour the victims jointly organised by ANSR, Auto-mobilized Citizens Association (ACA-M), Directorate of Health, and the Cascais municipality.
- "Safe Road" campaign — the Prison of Torres Vedras municipality started a pilot project, with the collaboration of ANSR, on organising training sessions and the distribution of flyers targeted at the prisoners who were arrested under the influence or without a valid driving license.
- European Year for Active Ageing and Solidarity between Generations. ANSR, in partnership with the municipality of Torres Vedras and the involvement of young volunteers, developed an initiative to raise awareness of road safety for the elderly.
- Distribution of flyers, produced in collaboration with cartoonists, focused on alcohol: "Don't drink and drive" for older drivers and, for young drivers, "I'm the best, I drive safely".

7. Useful websites and references

Useful websites

Autoridade Nacional de Segurança Rodoviária – ANSR (National Authority for Road Safety)	www.ansr.pt
Instituto Mobilidade e Transportes – IMT (Mobility and Transport Institute)	www.imtt.pt
Polícia Segurança Pública – PSP (Public Security Police)	www.psp.pt
Guarda Nacional Republicana – GNR (National Republican Guard)	www.gnr.pt
Estradas de Portugal – EP (Portuguese Roads Institute)	www.estradasdeportugal.pt

Contact

For more information, please contact: transito@ansr.pt

Serbia

Source: Road Traffic Safety Agency of the Republic of Serbia - RTSA

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Belgrade	**7.186 million**	**280**	**731**	**10.2**

Serbia joined the IRTAD Group in 2012, as an observer.

Data included in this report are provided by the national traffic safety agency, but have not yet been reviewed by the IRTAD Group. They do not cover the autonomous provinces of Kosovo and Metohija since 1999.

1. Comments on road safety data collection

Crash data are collected by the Ministry of interior of the Republic of Serbia.

Categorisation of an injury is always made on the basis of expert assessment given by doctors during admission to hospital, during hospitalisation or following hospitalisation. This information is submitted to the police.

The Republic of Serbia has not yet adopted a definition for serious injury, and has yet to consider collecting data based on the MAIS classification.

All further activities and improving data collection and monitoring of road traffic safety features are planned through the establishment of a unique safety database. Some weaknesses, however, may be expected in the capabilities of institutions in terms of data collection and sharing between the institutions involved in the databases system (in particular, the Ministry of Interior, Public Enterprise "Roads of Serbia" and Road Traffic Safety Agency).

2. Short term trends

Safety performance in 2011

There were 731 road deaths in 2011, a 10.8% increase in comparison with 2010.

The deterioration of the situation in 2011 compared to 2010 is explained by the scientific and professional community by a weakening of the effects of the new Road Traffic Safety Law, due to the non-application of certain secondary legislations, delays in the adoption of secondary legislations, lack of company activities, waning of the positive effects of media influence, and lack of penalty enforcement.

Provisional data for 2012

Provisional data for 2012 show a 6.4% decrease in fatalities in comparison with 2011. It should be noted that performance in 2012 largely varied from month to month. There was a 67% decrease in fatalities in February and a 50% increase in April. These important variations are mainly explained by weather conditions in February 2012.

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

The Republic of Serbia does not yet have accurate data on the number of vehicle-kilometers.

Change in the number of fatalities and injury crashes (1990-2011)

Serbia reached a peak in the number of fatalities in 1990, with 1 955 road fatalities. Since then, the trend has been an overall improvement, with a 63% decrease in road fatalities (although performance varied from year to year).

Serbia is a former region of Yugoslavia. It became independent in 2006. During the 1991-2000 period, Serbia passed through several political and diplomatic crises which affected trade and mobility within the country, and thus also its safety performance.

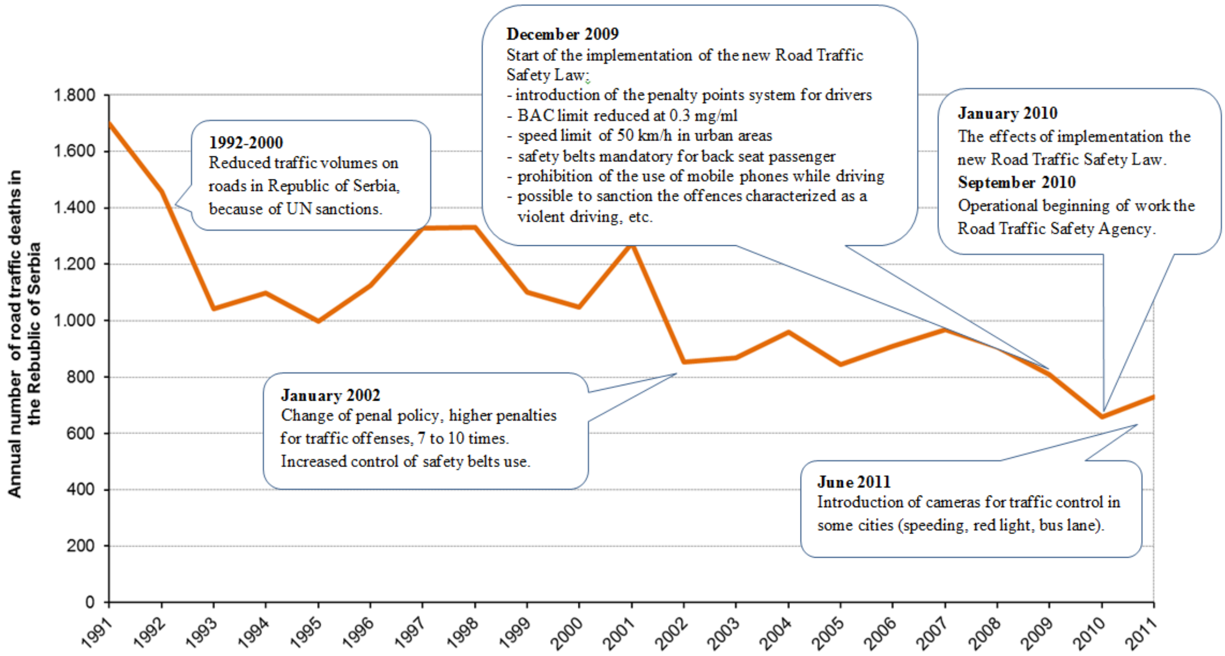
Since 2001, there has been stability in the political regime of Serbia and more attention has been given to the issue of road safety, with several important measures taken. These are summarised in the chart below.

In 2002, the Federal Road Traffic Safety Law (which dated from 1988) was revised. Fines for traffic violations were significantly increased. However, after the amendment of penalty policy in 2002, it was quickly realised that this would not be enough to pursue progress.

In 2009, Serbia implemented the New Road Traffic Safety Law, which involved new important measures, including:

- Institutional capacity building (such as the establishment of the national Road Traffic Safety Coordination Body, Road Traffic Safety Agency, etc.).
- The introduction of a penalty point system.
- A reduction of the maximum blood alcohol content to 0.3 g/l.
- The introduction of a 50 km/h speed limit in urban areas.
- Compulsory seatbelt wearing for rear seats.
- Prohibition of the use of mobile phone while driving, etc.

Figure 1. **Evolution in the number of annual road traffic deaths in the Republic of Serbia, 1991-2011**



Risks and Rates

In 2011, Serbia had a fatality rate of 10.2 deaths per 100 000 population, a 49% decrease in comparison with 1990.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
Reported safety data							
Fatalities	1955	1048	660	731	10.8%	-30.2%	-62.6%
Injury crashes	17 133	12 749	14 179	14 119	-0.4%	10.7%	-17.6%
Deaths/100 000 population	20.0	14.0	9.2	10.2	10.9%	-27.1%	-49.0%
Deaths/10 000 registered vehicles	9.8	6.4	3.7	3.6	-2.7%	-43.7%	-63.3%
Fleet and mobility data							
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)		222.2	250.6	280.2	11,8%	26,1%	

Economic costs of traffic crashes

There is no assessment, as yet, of the economic costs of traffic crashes.

Road users

In 2011, the increase in fatalities concerned all road users, with the exception of cyclists. The biggest increase concerned motorcyclists (+29%).

Table 3a. **Reported fatalities by road user group 1990-2011**

					2011% change over
	2010		2011		*2010*
Bicyclists	65	9.8%	57	7.8%	-12.3%
Motorised two-wheelers	68	10.3%	87	11.9%	27.9%
Passenger car occupants	278	42.1%	311	42.5%	11.9%
Pedestrians	169	25.6%	187	25.6%	10.7%
Others	80	12.1%	89	12.2%	11.2%
Total	660	100%	731	100%	10.8%

Age

Between 2010 and 2011, there was a sharp decline in the number of killed children in the age group 0 to 5 years (-44.4%) and 6 to 9 years (-28.6%). At the same time, there was an important increase from 8 to 27 deaths in the age group 15 to 17.

In 2011, the number of elderly (>65 years) killed in road traffic crashes increased by 10.8%, thereby breaking the cycle of reducing the number of killed in this age group.

Table 4. **Reported fatalities by age group 1990-2011**

			2011% change over
	2010	2011	*2010*
0-5	9	5	-44%
6-9	7	5	-29%
10-14	9	10	11%
15-17	8	27	238%
18-20	31	35	13%
21-24	50	53	6%
25-64	389	422	8%
>65	157	174	11%
Total	660	731	10%

Road Type

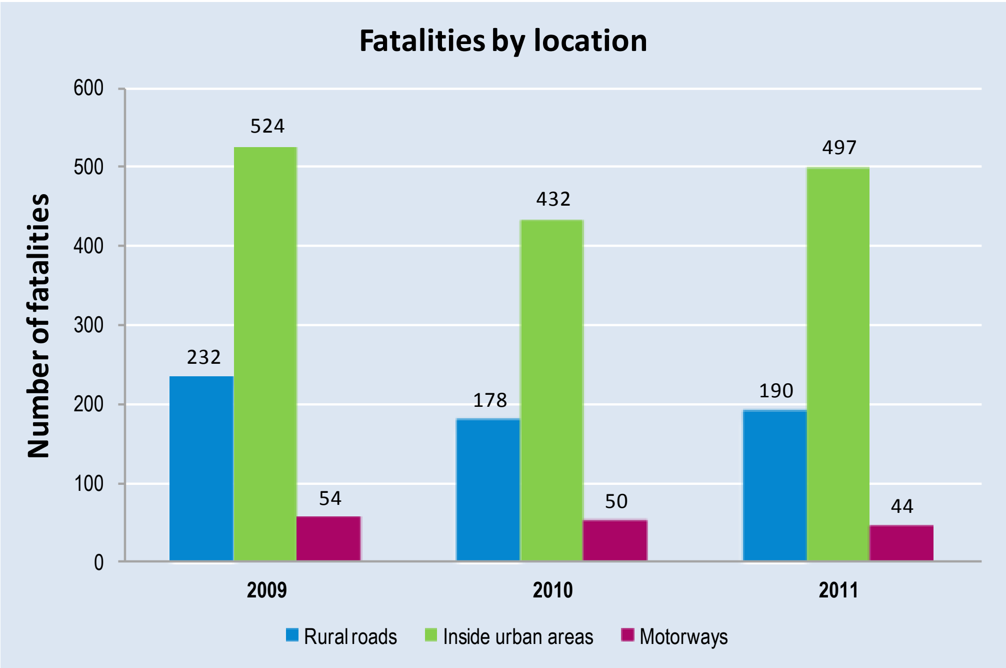
Unlike many other countries, the great majority of fatalities (68%) occurred in urban areas. This is explained by the following factors:

- The passing of the main state roads through urban areas (settlements).
- Local roads and street network is not adapted to vulnerable road users (especially pedestrians and cyclists).

- Insufficient or inadequate local community activities in the field of traffic safety.
- A large number of illegally constructed buildings that later affect the route of the road infrastructure and traffic regime.

In 2011, the increase in fatalities was equally shared on urban and non urban networks.

Figure 3. **Reported fatalities by road type**
2009, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

In Serbia, the maximum authorised blood alcohol content is 0.3 g/l. It is 0 g/l for novice and professional drivers and for mopeds and motorcycles operators. In 2011, 6% of road traffic crashes were attributed to drink driving.

Speed

In 2011, excessive or inappropriate speed was a contributory factor in 52.1% of fatal crashes. The table below summarises the main speed limits in Serbia.

Table 5. **Summary of speed limits in 2013**

	General speed limit -*Passenger cars*
Urban roads	50 km/h
Rural roads	80 km/h
Motorways	120 km/h

Seat belts and helmets

Seatbelt use has been compulsory on front seats since 1986, and on rear seats since 2009.

The Road Traffic Safety Agency surveyed the use of seatbelts in 2012, and estimated that 61% of car drivers, 50% of front seat passengers and 3% of the rear seat occupants wore seat belts.

Helmet wearing is not compulsory for bicycle riders.

Table 6. **Seatbelt wearing rate by car occupants**

	2012
Front seat	
General	58%
Rear seats	
General	3%

Distracted driving, use of mobile phone and fatigue

Since 2009, it is illegal to use a hand-held mobile phone or similar device while driving. The penalty for this is about EUR 50.

Distracted driving is recognised as a growing problem in country, but there are no adequate surveys in Serbia to assess the extent of the problem.

5. National road safety strategies and targets

Organisation of road safety

The national Road Traffic Safety Coordination Body is composed of ministers in charge of traffic issues, interior affairs, health, labour, justice, education and trade and services, with the main aim to establish co-operation and harmonise efforts to improve road safety.

The Government has also established the Road Traffic Safety Agency to manage legal and technical issues in the field of road traffic safety. The agency also co-operates with regional and local bodies for road traffic safety.

Evaluation of the past road safety programme

In the past, Serbia did not have specific national road traffic safety strategies, but nevertheless has achieved a 43% decrease in the number of fatalities from 2001 to 2011 (while the set goal of the EC is to achieve a 50 % reduction).

Road safety strategy for 2011-2020

The adoption of the first national road traffic safety strategy is expected in 2013. It will cover the period 2013-2020. A draft of the strategy is under preparation with the assistance of the World Bank.

6. Recent safety measures (2011-2012) and effectiveness of past measures

Speed management

Serbia has started to implement speed cameras.

Between 7am and 9pm, speed limits are reduced to 30 km/h in school zones.

Speed limits are reduced to 50 km/h in urban areas.

Safety campaigns

Several safety campaigns were launched that focus on:

- Drink-driving,
- Seatbelt and helmet wearing,
- General safety issues,
- Reducing speeding,
- Pedestrians,
- Tractor on road: safety and visibility,
- "Attention now", intended for children (Careful boy),
- Be careful - recognizes the danger in time (winter conditions),
- Motorcyclists,
- Marking the International Day of Remembrance of the victims in traffic accidents,
- Marking the Mobility Week.

Graduated licensing

In 2012, Serbia introduced a graduated licensing system: young people who obtain their driving licence at 17 have a one-year probationary period.

Education

In June 2012, Serbia began implementation of the driver rehabilitation courses for drivers whose licence is revoked.

During 2013, Serbia has begun with the licensing of driving instructors. In the first four month of this year, about 800 driving instructors received their licence.

During 2012, Serbia began the licensing of personnel-technicians to work in the tachograph workshops.

Enforcement

In 2009, a new traffic safety law came into force. It included the adoption of a demerit point system, a lower BAC limit of 0.3 g/l, the introduction of special traffic violations for dangerous driving, prohibition to use a mobile phone while driving, and the compulsory use of seatbelts on rear seats.

Infrastructure

In 2010-2012, 60 kilometres of motorway was built, meeting high safety standards; and a new bridge was built and opened to traffic on the E75 motorway (Belgrade-Novi Sad) over the Danube River.

Heavy vehicles

Since January 2012, the Road Traffic Safety Agency introduced digital tachographs for monitoring heavy trucks and professional drivers.

7. Useful websites and references

Useful websites

Road Traffic Safety Agency-RTSA	www.abs.gov.rs

Contact

For more information, please contact: jovica.vasiljevic@abs.gov.rs and dragoslav.kukic@abs.gov.rs

Slovenia

Source: IRTAD, Slovenian Traffic Safety Agency

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Ljubljana	**2.0 million**	**653**	**141**	**6.9**

1. Comments about road safety data collection

In Slovenia, crash data are collected by the police, which is the only source of information (also for injuries).

Slovenia uses its own classification of injuries, which is similar to that used by Germany and Austria. Slovenia does not use the AIS classification scale and, in the short-term, it is not planned to collect data for MAIS3+.

2. Short term trends

General comments and trends for 2011

In 2011, there were 3 more deaths than in 2010, corresponding to a slight increase of 2.2%. This slight increase follows 6 consecutive years of continuous reduction in the number of fatalities, including a significant decrease (-19%) in 2010.

The increase mainly concerns motorcyclists (+7 deaths).

Provisional data for 2012

Based on provisional data, the downward trend in the number of fatalities restarted in 2012, with a 9.3% decrease.

3. Long term trends in safety and mobility (1990-2011)

Fleet and mobility

Since 1990, traffic (in vehicle–kilometres) more than doubled and the vehicle fleet increased by 73%. During the same period the number of fatalities decreased by 72%.

In 2011, traffic volume was on the increase again (+1.8%) after a net slowing down in 2010.

Change in the number of fatalities and injury crashes

Since 1990, the number of fatalities was divided by more than 3. However the number of injury crashes increased by 58%.

Fatality numbers reached a peak in 1979, when 735 people died on the roads. Since then the number of killed has steadily decreased, though with a period of relative stagnation between 2002 and 2007.

There was a noticeable declining trend in fatalities from 2007 to 2010, probably due to the new motorway toll system (vignettes), constant media campaigns promoting road safety and the Road Safety Act, which came into force in 2008.

Risk and rates

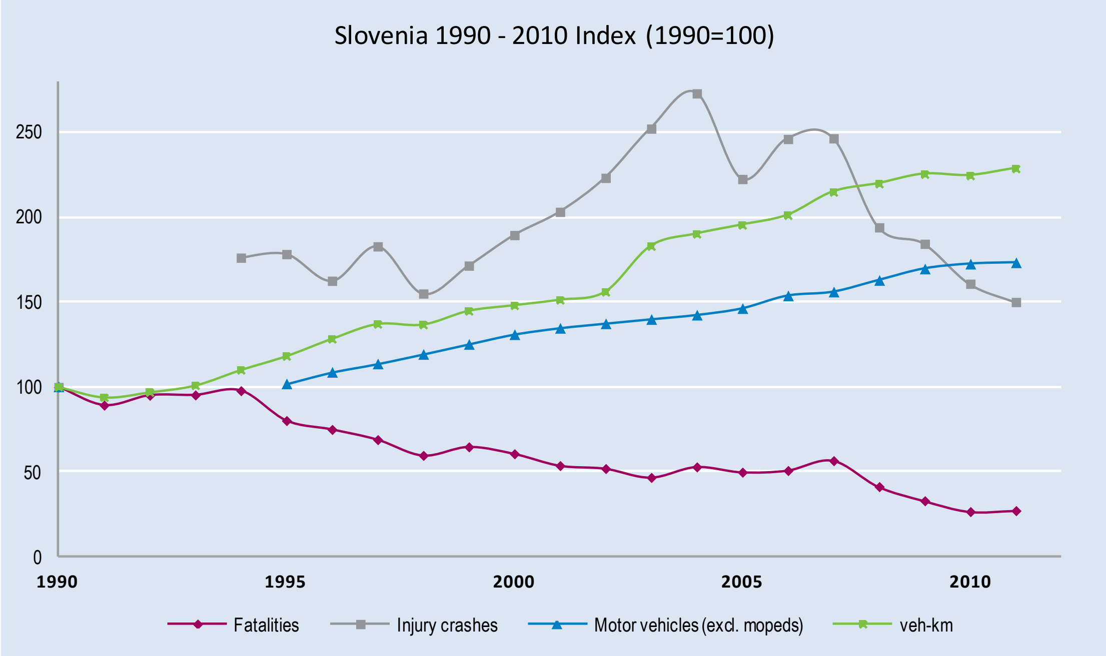
Between 1990 and 2011, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 73% and the risks (deaths per billion veh-km) by 88%.

In 2011, Slovenia had a mortality rate of 6.9 deaths per 100 000 population.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	2000	2010	2011	2010	2000	1990
Reported safety data							
Fatalities	517	314	138	141	2.2%	-55.1%	-72.7%
Injury crashes	-	8951	7596	7089	-6.7%	-20.8%	50.1%
Deaths/100 000 population	25.9	15.8	6.7	6.9	2.1%	-56.4%	-73.4%
Deaths/10 000 registered vehicles	6.9	3.21	1.04	1.05	1.0%	-67.3%	-84.8%
Deaths/billion vehicle-kms	65.07	26.70	7.74	7.77	0.4%	-70.9%	-88.1%
Fleet and mobility data							
Vehicles (exc. mopeds) in 1 000s	749	979	1290	1296	0.5%	32.38%	73.03%
Vehicle- kilometres (in millions)	7 945	11 759	17 826	18 153			
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	375	492	651	653	0.3%	32.6%	74.3%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011**



Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2011 at around EUR 636 million, i.e. 1.76 % of GDP.

This estimation is based on the HEATCO methodology (Developing Harmonised European Approaches for Transport Costing and Project Assessment), adapted to the specific conditions of Slovenia.

Table 2. **Costs of road crashes in Slovenia**

Cost (EUR billion)	2010	2011
Total	0.628	0.636
Total as a % of GDP	1.8%	1.8%

Road users

In 2011, the higher increase in fatalities concerned motorcyclists (+30 %), from 23 fatalities in 2010, to 30 in 2011). There was almost no change for passenger car occupants and a decrease in the fatalities of the other user groups.

Since 2000, all user groups, especially pedestrians and passenger car occupants, have benefited from the improvement. Between 2000 and 2011, the number of pedestrians killed decreased by 65%, and the number of passenger occupants by 61.5%. The lowest reduction is found for motorcyclists (-25%).

Table 3a. **Reported fatalities by road user group 1990-2011**

	1990		2000		2010		2011		2011% change over 2010	2011% change over 2000	2011% change over 1990
Bicyclists			26	8%	16	12%	14	10%	-12.5%	-46.2%	
Moped			*21*	*7%*	*6*	*4%*					
Motorcycles and scooters			*19*	*6%*	*17*	*12%*					
Motorised two wheelers			40	13%	23	16%	30	21%	30.4%	-25%	
Passenger car occupants			179	57%	68	50%	69	49%	1.5%	-61.5%	
Pedestrians			60	19%	26	19%	21	15%	-19.2%	-65.0%	
Others			9	3%	4	3%	7	5%	75.0%	-22.2%	
Total	**517**	**100%**	**314**	**100%**	**138**	**100%**	**141**	**100%**	**2.2%**	**-55.1%**	**-72.7%**

When taking into account the distance travelled, the risk of being killed is 28 times higher for a motorcyclist than for a car occupant.

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

	Reported fatalities	Deaths per billion veh-km
Passenger car occupants	68	4.3
Motorcycles	17	113

Age

In 2011, the largest share of fatalities was in the group aged between 45 and 54 (25 killed–18 %) and between 35 and 54 (24 killed–17 %). The lowest share was amongst young people (under 18).

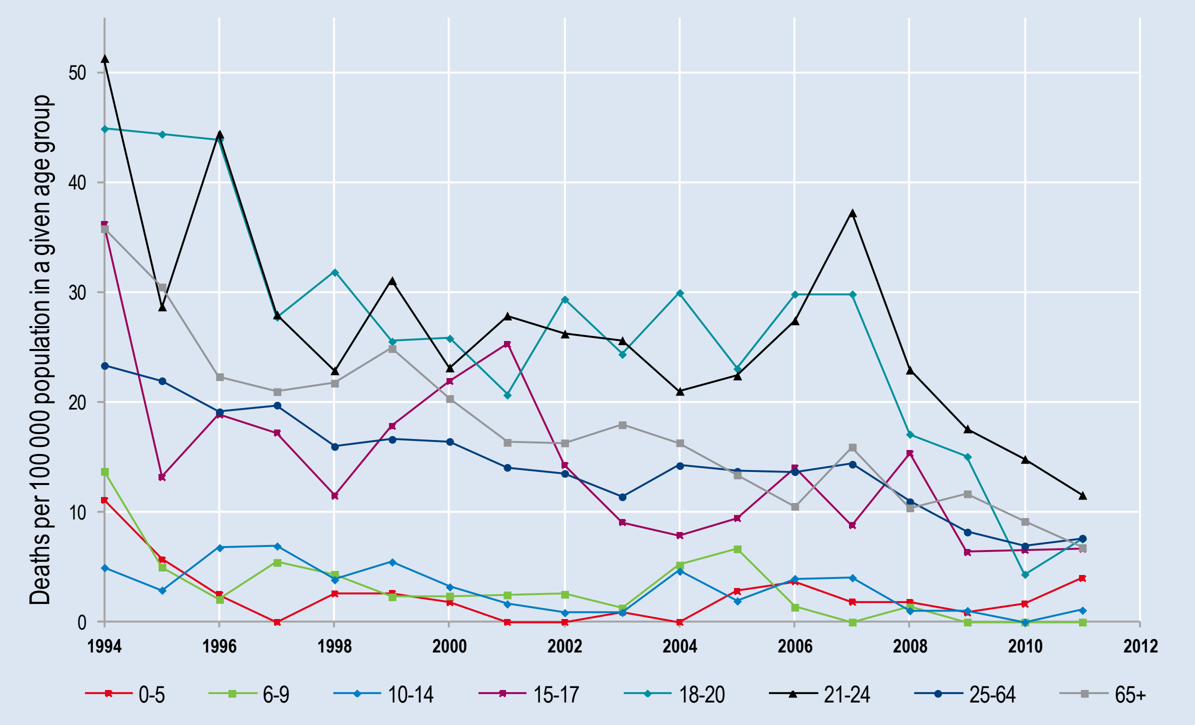
Since 2000, all age groups have benefited from the improvements in road safety, with the best results for young people (15-20 age group).

In 2011, the group aged 21–24 had the highest mortality risk, nearly twice the risk for the overall population.

Table 4. **Reported fatalities by age group 2000-2011**

				2011% change over	
	2000	**2010**	**2011**	**2010**	**2000**
0-5	2	2	5	150%	150%
6-9	2	0	0	-	-100%
10-14	4	0	1	-	-75%
15-17	18	4	4	0%	-78%
18-20	23	3	5	67%	-78%
21-24	28	16	12	-25%	-57%
25-64	181	82	91	11%	-50%
>65	56	31	23	-26%	-59%
Total	***314***	***138***	***141***	***2%***	***-55%***

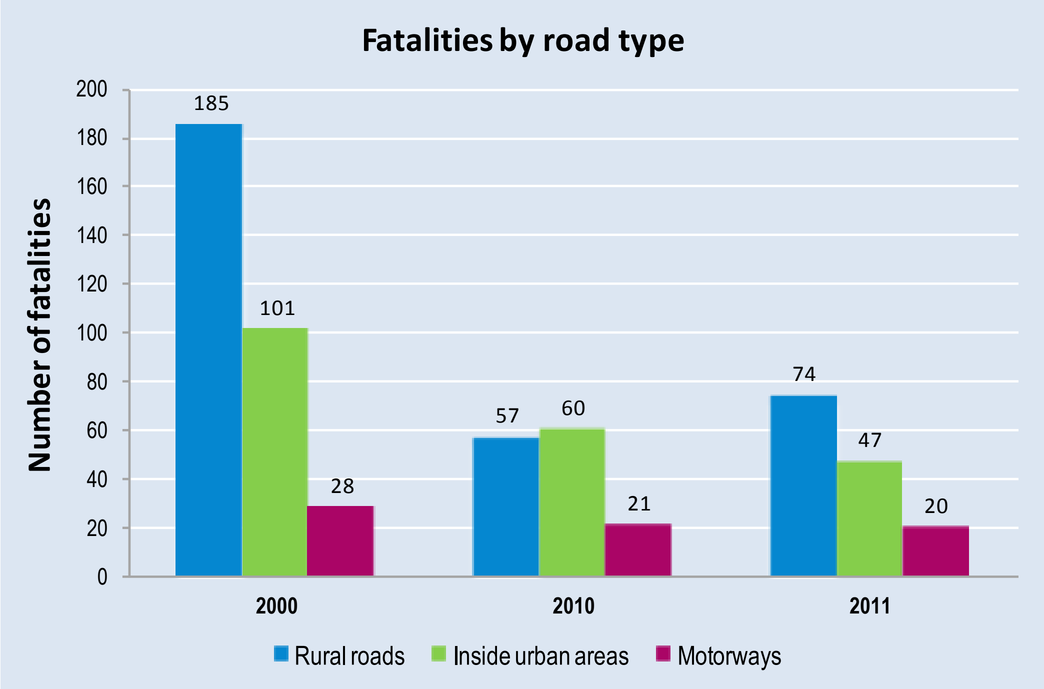
Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1994-2011)**



Road Type

In 2011, there was a marked increase in the number of fatalities on rural roads (+30%), while fatalities in urban areas decreased by 22%. In 2011, rural roads accounted for 53% of all fatalities.

Figure 3. **Reported fatalities by road type**
2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

The maximum permissible blood ***alcohol*** content is 0.5 g/l. Driving under the influence of alcohol represents a major problem in Slovenia. Around one-third of serious crashes involve persons with blood alcohol levels higher than that allowed by law. Some 40 000 of those driving under the influence of alcohol are penalised by the police every year.

In 2011, the number of road crashes caused by drink driving decreased by 7%, thus leading to 29% less people killed.

In 2011, the number of road crashes caused by road users under the influence of ***drugs*** decreased by 13 %, but these crashes were more severe and caused the deaths of 8 people.

Speed

Speeding is one of the major causes of traffic crashes in Slovenia.

In 2011 (compared with 2010), the number of traffic crashes caused by speeding was reduced by 8 %, but the consequences of these were much worse: a 27% increase in the number of people killed.

Fatal crashes caused by speeding represented 39% of all fatal traffic accidents in Slovenia in 2011.

The table below summarises the main speed limits in Slovenia.

Table 5. **Summary of speed limits in Slovenia in 2011**

	General speed limit Passenger cars	Average speeds (day time)
Urban roads	50 km/h	55 km/h
Rural roads	90 km/h	79 km/h
Motorways	130 km/h	122 km/h

Seatbelts and helmets

Seatbelt use has been compulsory in front seats since 1977 and in rear seats since 1998. The rate of seatbelt use is around 94% in front seats and 66% in rear seats (for adults).

Table 6. **Seatbelt wearing rate by car occupants**

	2010	*2011*
Front seat		
General	92.3%	93.1% (driver) 94.5% (passenger)
Urban roads (driver)	87.9%	88.7%
Rural roads (driver)	92.9%	94.6%
Motorways (driver)	96.5%	96.8%
Rear seats (adults)		
General	76.4%	66.2%
Urban roads	67.8%	
Rural roads	59.1%	
Motorways	67.4%	

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

Distracted driving, use of mobile phone and fatigue

The use of hand-held mobile phones while driving is not allowed in Slovenia. The use of hand- free devices is tolerated.

There is no statistical data available at the present time on the effect on traffic accidents of mobile phone use while driving.

5. National road safety strategies and targets

Organisation of road safety in Slovenia

The Slovenian Traffic Safety Agency was created in 2010, in accordance with the Road Traffic Safety Act of 1st September, 2010. It is an independent Agency, but financially linked to the Ministry of Infrastructure and Spatial Planning.

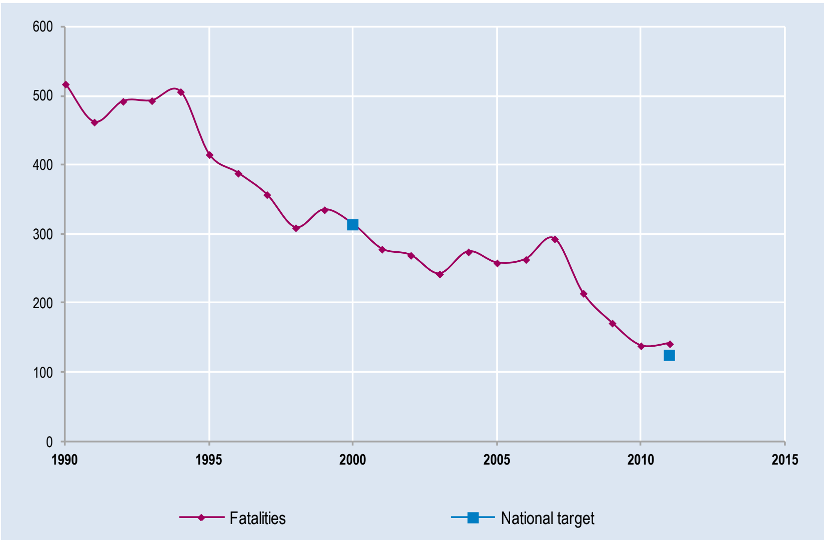
The Agency is the main national traffic safety organisation, combining all expertise from the road safety field. The Agency's tasks begin with road safety and cover research and analysis, preventive and educational programmes, expert tasks related to the national road safety programme, tasks related to drivers and vehicles and rehabilitation programmes. The Agency will also take over independent investigation of traffic accidents resulting in death.

Evaluation of the past road safety programme

The target of the past National Road Safety Programme was to achieve no more than 124 deaths in road traffic crashes in 2011. This goal was set in accordance with the EU goal of halving the number of deaths in road traffic accidents by 2010. The target was not reached, as there were 141 fatalities in 2011, nevertheless important achievements were made in the decade.

No detailed evaluation is available.

Figure 4. **Trends towards national target**



Road safety strategy for 2013-2021

The *Slovenian National Road Safety Programme 2013–2021* was drafted in January 2011, and adopted by government in March 2013.

The programme is based on *Vision Zero* — no fatalities and no seriously injured on Slovenian roads. The main target is to halve the number of fatalities and seriously injured, so the fatality and injury rates will not exceed 35 fatalities per million and 235 seriously injured per million.

Priorities addressed in the national road safety programme are:

- Driver education and training;
- Preventive action and media campaigns for vulnerable road users, such as pedestrians, children, the elderly and cyclists;
- Measures against the main killers on roads – speed and alcohol.

Implementation of the new national road safety programme has been established at three levels:

- *Political level*: the Parliament is responsible for policy co-ordination and control, and once a year considers the development of, and issues concerning, road safety in Slovenia.
- *Strategic level*: the Government establishes the Board of Directors, which prepares the strategic guidelines and baseline measures, defines and assigns specific tasks, provides financial and other resources and monitors implementation of the national road safety programme.
- *Professional level*: an inter-departmental working group was established for monitoring and implementing the programme, bringing together individual experts, organisations and NGOs in the field of road safety. Local councils, civil society and socially responsible companies are also involved in the process of organisation and implementation.

6. Recent safety measures (2011-2012) and effectiveness of past measures

Legislation

At the end of 2010, the National Assembly approved a package of new road traffic legislation, which includes the Vehicle Law, the Law on the Public Roads Act and the Law of Rules. The legislation was applied on 1 July 2011. The whole area of road traffic legislation is now covered by the Ministry of Transport.

The Law of Rules provides stricter penalties for more serious traffic offences which may result in serious crashes (such as driving in the opposite direction on motorways, driving under the influence of alcohol, speeding in residential areas) and lower penalties for minor violations.

The Law on drivers focuses on advanced training for beginner drivers; the possibility of medical examination with the advice of a personal doctor for drunk drivers with an alcohol level of under 0.8 g/l; the opportunity to participate in rehabilitation programmes for drunk-driving or serious violations related to speeding; and a health control check system.

Infrastructure

In October 2011, Slovenia acquired the first generation of licensed auditors of road safety. Professional training is conducted by the Slovenian Traffic Safety Agency. The area of auditors in Slovenia is currently limited to the motorway network, which is part of the trans-European road network. The work of the auditors refers to the provision of high level safety on roads that are in the phase of planning, phase of designing, construction phase and for existing roads that are already in use.

Road safety campaigns

Many road safety campaigns were implemented in 2012, including:

January 2012: **"Be currently unavailable if you want to stay alive"** – for the first time, Slovenia launched a campaign to raise awareness about the danger of mobile phone use while driving. The campaign involved all mobile phone operators in Slovenia, which also contributed to raise awareness among their customers.

February – April 2012: **"40 days without alcohol"** – This annual campaign, jointly organised by the Institute Med.Over.Net, the Slovenian Traffic Safety Agency, the Slovenian Caritas, focused on the consequences of driving under the influence of alcohol.

May - August 2012: **"Speed – slower is safer"** – The 2012 campaign took place in the summer months (from May till August).

May 2012: **"Seatbelt – fasten your life"** – A campaign aimed at increasing seatbelt usage rates for drivers and passengers of cars, trucks and buses.

September 2012: **"Mobility Week"** – Promoting cycling, public transport and walking in urban areas and cities, with awareness about safe cycling in cities, use of bicycle helmets and refreshing the traffic rules and practical skills for cycling for young pupils and older people.

March – April 2011*:* ***"Activities to improve the security of two-wheeled motor vehicle drivers"*** – Activities with the purpose to increase respect of traffic rules, to impact the attitude of two-wheeled motor vehicle drivers between themselves and to introduce infrastructural, technical and other solutions to reduce the severity of traffic accidents between two-wheeled motor vehicles drivers.

April -June 2012: "***Cyclists***" – The purpose of the campaign was to increase responsible behaviour among cyclists (and also other road users) and the importance of cycling infrastructure. The focus was also on safety helmets for cyclists.

February 2011 and 2012: "***Stop. The train cannot***." – This preventive campaign was the successor of the 2010 campaign, launched to improve safety at level crossings across the railway line in the context of the National Programme for Road Safety. To promote the campaign, a website was launched on which all information regarding the campaign was published.

April 2012: **"Elderly drivers"** – the Slovenian Traffic Safety Agency organised a new preventive campaign for elderly drivers with the aim to increase mobility and safety of elderly drivers, and raise the level of awareness and competence with regard to driving.

August – September 2012: Preventive action **"Beginning of the school year"** – Well-known annual activities include the review of school paths, review and update of the school path maps, meetings with schoolteachers and parents, provision of yellow scarves to first and second grade scholars, promoting the priority of pedestrians at crossings in urban areas.

7. Useful websites and references

Recent and on-going research

- May 2012: "**"Dangerous spots 2009–2011"** – Annual analysis and identification of dangerous spots on the Slovenian road network.
- June 2011: **"Dangerous spots 2008–2010"** – Annual analysis and identification of dangerous spots on the Slovenian road network.
- February 2011: "Traffic accidents on the Slovenian motorway network and the correlation of accidents with road facilities and systems for the period 2007-2009". The analysis was prepared for the Motorway Company in the Republic of Slovenia.
- February 2011**: "Analysis of a large-scale traffic accident on the A2 motorway on 27 November 2010" –** In this large-scale accident, 38 vehicles and over 50 people were involved; of which 3 were killed, 6 were seriously injured and 13 slightly injured. The analysis was the first of its type and was conducted by the Slovenian Traffic Safety Agency. It will serve as a comprehensive guide for future reports on fatal traffic accidents on national roads, which are part of the trans-European road network. The analysis was prepared in collaboration with the Motorway Company in the Republic of Slovenia, Slovenian Roads Agency and the Transport Directorate of the Ministry of Transport of the Republic of Slovenia, the Administration Office for Protection and Rescue, and the Police.

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

Contact

For more information, please contact: Andraz.Murkovic@avp-rs.si

South Africa

Source: Road Traffic Management Corporation (Lead Agency)

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Pretoria	**51.8 million**		**13 954**	**27.6**

South Africa joined the IRTAD Group in 2012 as an Observer. The data presented in this report have not been reviewed by IRTAD.

1. Comments about road safety data collection

In South Africa, the police collect motor vehicle crashes data using the Accident Report (AR) form on behalf of the Road Traffic Management Corporation (RTMC), which is the lead road safety agency in South Africa.

RTMC generates, interprets, consolidates, analyses and reports official statistics about motor vehicle crashes. Fatal crashes should be reported within 24 hours using quick response forms and/or within 30 days after the crash has occurred. The challenge is the under- and late reporting of both serious and fatal crashes by police to the RTMC. In order to eradicate, or minimise, error margins the RTMC was using a “seven day period” approach to recording road crash fatalities and, from 2011, adhered to 30 days as required by international standards.

2. Short term trends

Provisional data for 2012

Based on the provisional data, there were 9 852 fatal crashes (with 12 211 fatalities).

Safety performance in 2011

In 2011, there were 11 228 fatal crashes resulting in 13 954 fatalities, a very small decrease in comparison with 2010.

3. Long-term trends in mobility and safety (1990- 2011)

Fleet and mobility

The motorised vehicle fleet is growing fast in South Africa, and has almost doubled in the last 20 years.

Change in the number of fatalities and injury crashes (1990-2011)

Between 1990 and 2011, the number of road fatalities increased by 25%, peaking in 2006 with 15 419 road fatalities. As from 2000, more than 10 000 fatal crashes and fatalities were recorded on a yearly basis. Since 2006, the number of fatalities decreased by 10%. Rapid urbanisation and motorisation is a major factor.

Risk and rates

In 2011, there were 28 fatalities for 100 000 population, which was among the highest rates worldwide. However, the rate has declined from 36.7 in 1990 to 27.58 in 2011.

Figure 1. **Evolution in the number of annual road traffic deaths 1991-2011**

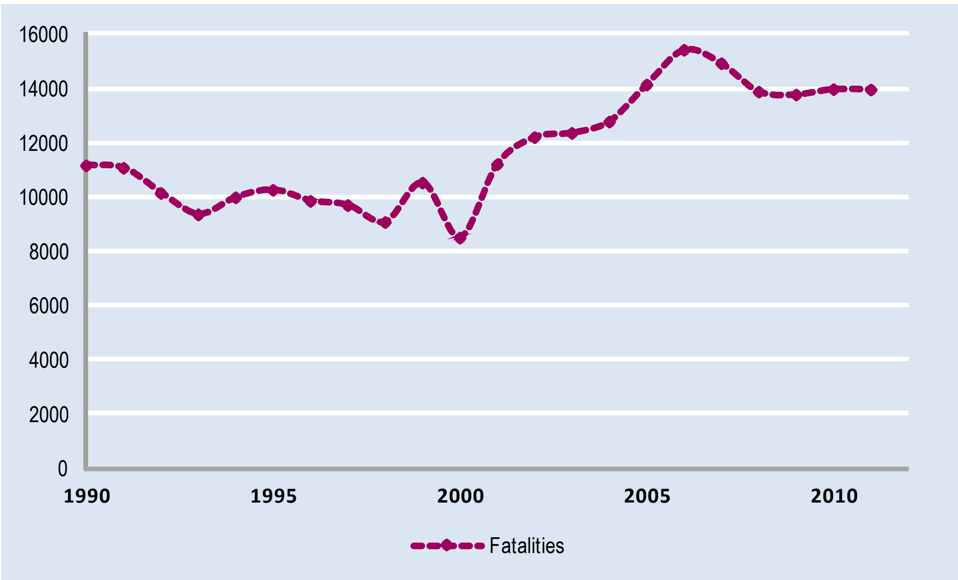
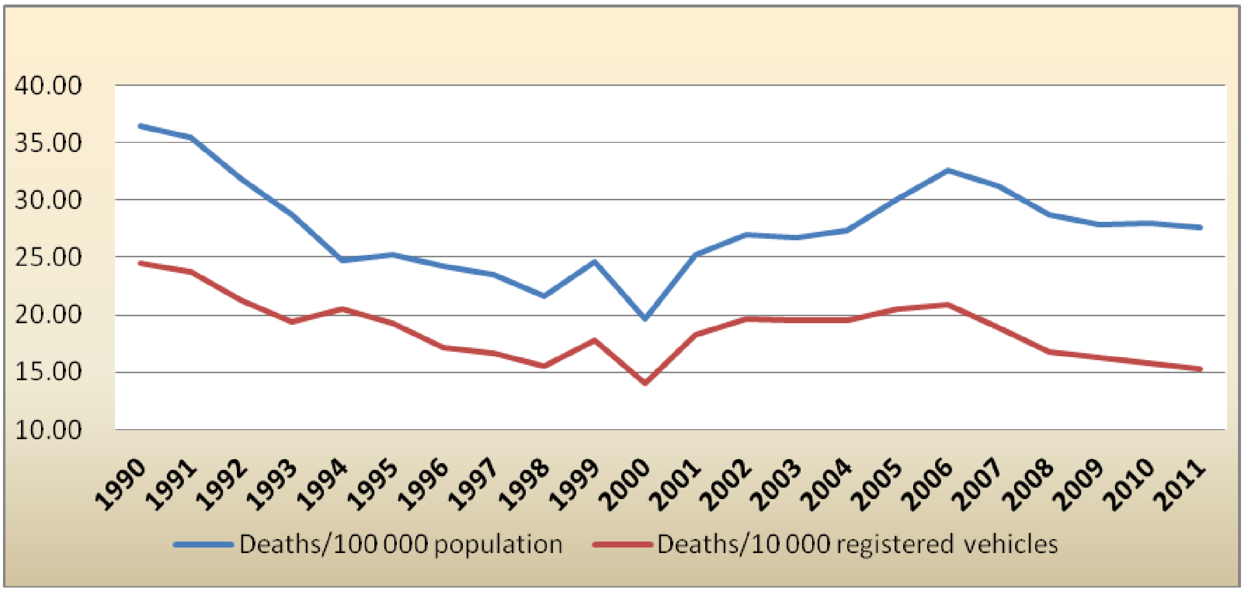


Figure 2. **Evolution in death rates**
1990-2011



Economic costs of traffic crashes

It is estimated that road crashes cost around USD 36 billion every year (or ZAR 307 billion) [1].

The cost was calculated using the human capital method.

Road users

Pedestrians are particularly at risk, and represent more than 35% of all reported fatalities.

Age

The most vulnerable road users are those in the 15–44 age group, with the highest peak at age 25–34.

4. Recent trends in road user behaviour

Impaired driving

In South Africa the maximum permissible blood alcohol content is 0.05 grams per 100 millilitres for drivers, and 0.02 grams per 100 millilitres for professional drivers.

Speed

The table below summarises the main speed limits in South Africa.

1. Reference: The true cost of crashes (www.irap.org/library.aspx)

Table 5. **Summary of speed limits in 2013**

	General speed limit Passenger cars	Comments
Urban roads	**60 km/h**	Speed limits under review
Rural roads	**100 km/h**	Speed limits under review
Motorways	**120 km/h**	Speed limits under review

Seatbelts and helmets

Seatbelt use is compulsory in both front and rear passenger seats, except for older vehicle models that do not have rear seatbelts. However, the wearing rate is very low.

Helmet wearing is compulsory for users of powered two-wheelers.

Table 6. **Seatbelt wearing rate by car occupants** *

	2010
Front seats	
Drivers	67.5%
Front passengers	75%
Rear seats	<2%

Source: 2010 Road Traffic Offence Report

Distracted driving and use of mobile phone

It is illegal in South Africa to use a hand-held phone while driving in all jurisdictions. RTMC undertakes annual studies on the usage of mobile phones by drivers. Between 2010 and 2009, the level of mobile phone usage for light motor vehicles decreased from 18.1% to 4.7%.

5. National road safety strategies and targets

Organisation of road safety in South Africa

The strategy on road safety in South Africa was developed and adopted in 2007. This strategy is under review and the reviewed strategy is expected to be adopted during 2013 in line with the WHO injuries report recommendations (i.e. five pillars).

6. Recent safety measures (2011-2012) and effectiveness of past measures

Enforcement: National rolling enforcement plan (2010-11)

The National Rolling Enforcement Plan (NREP) is aimed at stopping and screening a minimum of 1 million vehicles per month nationwide, and a minimum of 10 000 drivers for substance abuse.

The objectives are to:

- Reduce crashes, fatalities and serious injuries.
- Create a heightened awareness of road traffic safety issues.
- Inculcate good road user behaviour and encourage voluntary compliance.
- Increase detection and prosecution of critical road traffic offences.
- Reduce offence rates on all key safety indices.
- Harmonize and co-ordinate common operations at all three tiers of service delivery.
- Maximize communications and publicity exposure on enforcement issues.
- Contribute towards the reduction of crime in general.
- Change the perception of "*I will not get caught*", to "*I will be caught and be punished*".

The Focal Areas are:

- **Driver Fitness:** particularly documentation, fatigue, alcohol and substance abuse;
- **Moving Violations:** particularly barrier lines, red-light infringements, cell phones, over-speeding, seatbelt usage, following distances, inconsiderate driving, reckless and negligent driving;
- **Public Transport** (Passenger and Freight) Enforcement: particularly vehicle fitness, documentation, load management;
- **Vehicle Fitness:** particularly documentation, roadworthiness and registration plate enforcement;
- **Pedestrian Safety:** particularly pedestrian jay-walking, drinking and walking;
- **Crime Prevention:** in support of pro active policing.

Speed management

The NREP is also being used in order to manage and monitor speed through law enforcement visibility on the roads and the use of speed monitoring equipment. In terms of managing speed through infrastructure, speed calming facilities such as speed humps, traffic circles, etc are implemented.

Road safety education

Scholar patrol: This is a facility for learners to cross the road safely at intersections near schools under the supervision of a learner.

National Debates: Learners in Grades 10 and 11 (aged 16 and 17) are given road safety topics to research and debate for their own knowledge enrichment and share with other learners.

Participatory Education Techniques: Learners in Grades 10 to 12 identify road safety challenges in their localities and develop a model depicting these challenges, as well as another model providing solutions. The models are to be presented to the local road safety authorities in the area for their attention and implementation where possible.

Professional Driver of the Year Competition (UICR): This is an international competition hosted every second year; the hosting is on an alternate basis. There are about 15 countries that participate in this competition (8 from European countries and 7 from Africa).

Road Safety Educational Programme: This programme is for grades 1-9, and aims to teach road safety within the school curriculum.

Infrastructure

South African Road Safety Audit Manual: Volume 4 of the Road Safety Audit Manual has been reviewed to address the challenges of road infrastructure. Plans are in place to implement the reviewed manual.

International Roads Assessment Programme, IRAP: The IRAP South Africa has been established, and is expected to target 40 000 km of hazardous routes in different provinces in the next 10 years.

Road safety campaigns

Get There No Regrets, www.gettherenoregrets.co.za

7. Useful websites and references

Road Traffic Management Corporation	www.rtmc.co.za.

Contact

For more information, please contact: MagadiG@rtmc.co.za

Spain

1. *Source: IRTAD,* Dirección General de Tráfico

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities/ 100 000 inhabitants in 2011
Madrid	**46.1 million**	**677**	**2060**	**4.46**

1. Comments about road safety data collection

In Spain, there are several sources of information for traffic injury data.

The source of information that provides detailed data on the circumstances of the crashes is based on the information collected by officers responsible for traffic surveillance and control, who complete the appropriate statistical questionnaires. Traffic police officers monitor the condition of those injured during the first 24 hours after the crash occurred, specifying whether the person injured died within that period, spent more than 24 hours in hospital, was considered serious or slightly injured, or was not taken to hospital in that period of time. This is done by obtaining the required information from hospitals.

From 1993 to 2010, the procedure to estimate the number of people killed within 30 days was based on adjusting the number of people who were seriously injured by means of corrective factors that were derived from monitoring a representative sample of those injured. This method was used to determine the number of fatalities within a period of time from 24 hours after the crash occurred but within the following 30 days.

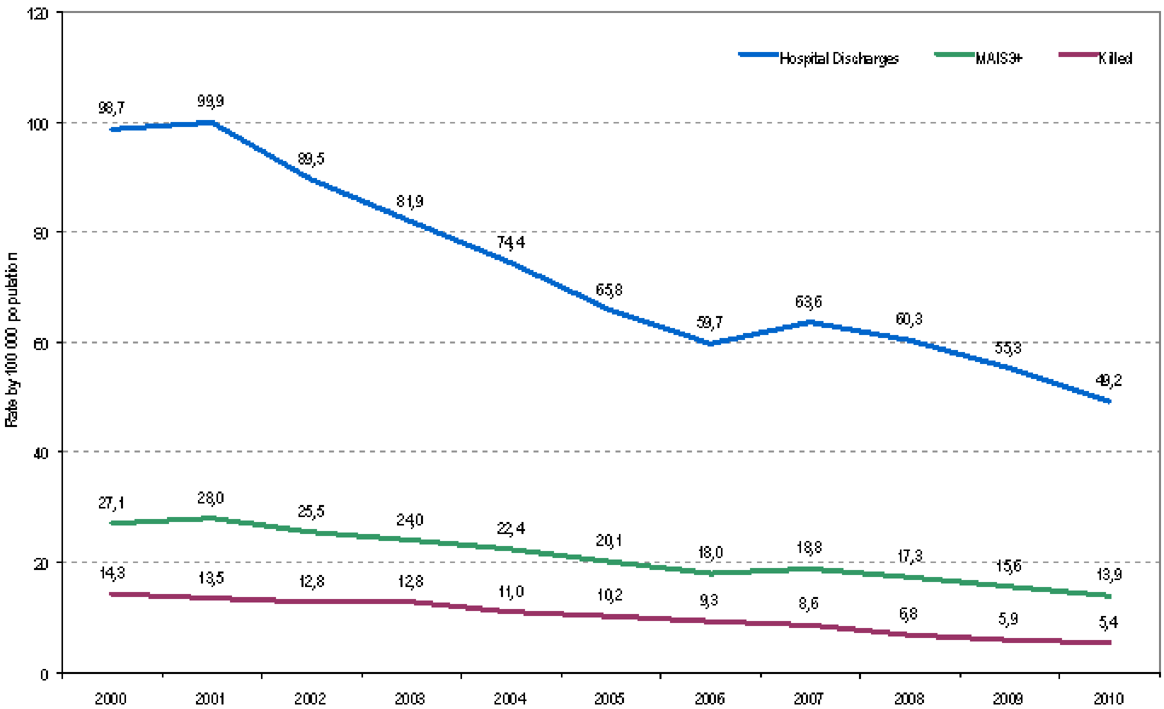
Spain abandoned this method from 2011, and the number of fatalities is now determined by combining the register of accidents reported by the police and the national deaths register, which includes the total number of deaths registered throughout the national territory.

The information from hospital discharges, health sources, as well as the information reported by the police was published jointly for the first time in 2011. When both sources are used, important differences are observed: figures from police records show that for each person killed there are 6 seriously injured and 51 slightly injured, while the figures from health sources show that for each fatality there are 11 people hospitalized as a result of a road traffic accident and 266 slightly injured.

Figure 1. **Road traffic victims 2011 by source of information (Police and Hospital/Police)**

Hospital discharges are used to describe injuries, through the Barell Matrix, which is based on ICD codes. To assess the severity of injuries, "Maximum Abbreviated Injury Score" MAIS3+ is used.

Figure 2. **Hospital Discharges, MAIS 3+ and killed (Rate by 100 000 population) 2000-2010**



2. Short term trends

General comments and trends for 2011

In 2011, the number of road fatalities decreased by 16.9% compared to 2010. It is estimated that 3.6% of this important reduction can be attributed to the new methodologies to calculate road fatalities.

Over the same period, traffic volume outside urban areas fell by 2% and GDP increased by 0.4%. Although GDP showed no reduction in 2011, it decreased by 0.3 in 2010 and by 3.7 in 2009.

The economic recession that hit Spain is one of the factors explaining this important reduction.

Provisional data for 2012

Preliminary data for 2012 suggest that the number of road fatalities dropped by about 11%, thus continuing the downward trend of previous years.

3. Long term trends (1990-2011)

Fleet and mobility

Between 1990 and 2011, distance travelled increased by more than 85% on Spanish State Road Network, which carries 50% of the national traffic volume.

Between 2000 and 2011, traffic volume outside urban areas increased by 13%, although in this period two phases can be observed: from 2000 to 2007 there was an increase of 23%, and from 2008 to 2011 there was a decrease of 1%.

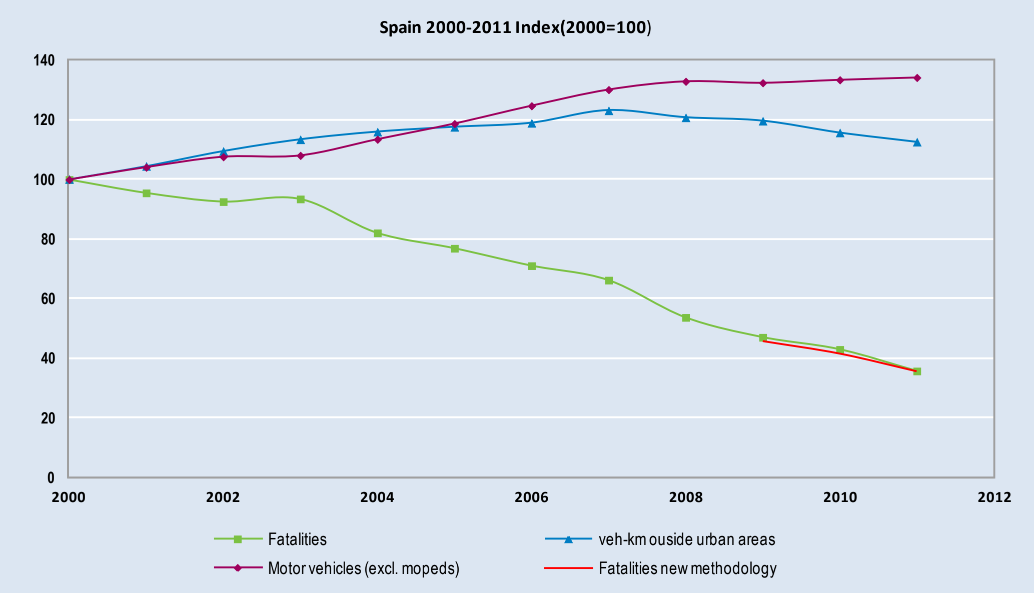
Vehicle fleet nearly doubled from 1990 to 2011. Between 2000 and 2011, there was an increase of 34%, although from 2008 growth has been less than 1% per year.

Change in the number of fatalities and injury crashes

Between 1990 and 2011, the number of fatalities dropped by 77%. For this period, different methodologies to calculate the number of killed within 30 days has been applied:

- ***Up to 1992*** the correction factor 1.3 was applied over the figures of killed and the reduction in the number of fatalities from 1990 to 1992 was 13%.
- ***From 1993 to 2010*** there were 6 correction factors which were applied, depending on whether the seriously injured in road traffic accidents happened inside or outside urban areas and also considering whether they were drivers, passengers or pedestrians. Figures of fatalities in that period dropped by 61%.
- ***In 2011,*** a revised methodology to calculate road fatalities was applied. The decrease in fatalities between 2010 and 2011 was 17%. It is estimated that the new methodology explains 3.6% of the decrease.

Figure 3. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres (2000-2011)**



Risk and rates

In 2011, Spain had a fatality rate (expressed as the number of deaths per 100 00 population) of 4.5. The rate of deaths by 10 000 registered vehicles was 0.61.

Since 2000, the risk rate has been divided by three.

Table 1. **Safety and mobility data 1990-2011***

					2011% change over		
	1990	2000	2010	2011*	2010	2000	1990
Reported safety data							
Fatalities	9 032	5 776	2 478	2 060*	-16.9%	-64.3%	-77.2%
Injury crashes	101 507	101 729	85 503	83 027	-2.9%	-18.4%	-81.2%
Hospitalised	-	27 764	11 995	11 347-	-5.4%	-59.1%	
MAIS3+	-	10854	6412	-			
Deaths/100 000 population	23.2	14.5	5.4	4.5	-17.3%	-69.3%	-80.8%
Deaths/10 000 registered vehicles	5.13	2.25	0.74	0.61	-17.6%	-72.9%	-88.1%
Fleet and mobility data							
Vehicles (exc. mopeds) (in thousands)	15 697	23 284	31 087	31 269	0.6%	34.3%	99.2%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	403	586	676	677	0.2%	15.6%	68.0%

* A revised methodology to calculate road fatalities has been applied since 2011. It is estimated that this new methodology explains 3.6% (on average) of the decrease in fatalities between 2010 and 2011.

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 6.0 billion (i.e. 0.6% of GDP) according to police-reported data. However, when the health system data is included, these economic costs rise to EUR 11.0 billion (i.e. 1.04% of GPD). This estimation *does not include* property damage costs.

Costs are calculated based on the calculation of a monetary value of statistical life, based on a willingness-to-pay approach[1].

The average costs applied for 2011 are:

- EUR 1.4 million in the case of fatalities,
- EUR 219 000 in the case of hospitalisations
- EUR 6 100 for slight injuries.

Table 2. **Costs of road crashes in Spain**

	Police data				Health system data
Cost (EUR) Billion)	**2009**	**2010**	**2011***	**% change**	**2011**
Fatalities	3.809	3.469	2.884	17%	2.884
Hospitalised people	3.057	2.627	2.485	5%	4.858[1]
Slight injuries	0.679	0.661	0.636	4%	3.348[2]
Total	7.545	6.757	6.005	11%	11.090
Total as a % of GDP		0.6%	0.6%	0%	1.04%

1.Hospital Discharges. Year 2010

2.European Health Survey. Year 2009

*A revised methodology to calculate road fatalities has been applied since 2011. It is estimated that this new methodology explains 3.6% on average of the decrease in fatalities between 2010 and 2011

Road users

In 2011, the decrease in fatalities benefited all road users, with the largest reduction for cyclists (-26.9%), moped riders (-26.0%) and pedestrians (-19.3%).

Since 1990, all user groups, but especially car occupants and moped riders, have benefited from improvements in road safety. In recent years (2000-2011), motorcyclist fatalities showed strong increments until 2007, but this trend was broken in the following years with large reductions: by 22% in 2008, 12% in both 2009 and 2010 and 10% in 2011.

1. DGT (2011), *The monetary value of a statistical life in Spain* http://www.dgt.es/was6/portal/contenidos/documentos/publicaciones/boletines/profundidad_observatorio/boletines044.pdf

Table 3. **Reported fatalities by road user group 1990-2011***

									2011% change over		
	1990		2000		2010		2011*		2010	2000	1990
Bicyclists	160	2%	84	1%	67	3%	49	2%	-26.9%	-41.7%	-69.4%
Mopeds	683	8%	474	8%	100	4%	74	4%	-26.0%	-84%	-89%
Motorcycles and scooters	792	9%	392	7%	386	16%	348	17%	-9.8%	-11%	-56%
Passenger car occupants	5 034	56%	3 289	57%	1197	48%	977	47%	-18.4%	-70.3%	-80.6%
Pedestrians	1 542	17%	898	16%	471	19%	380	18%	-19.3%	-57.7%	-75.4%
Others	822	9%	639	11%	257	10%	232	11%	-9.7%	-63.7%	-71.8%
Total	**9 032**	**100%**	**5 776**	**100%**	**2478**	**100%**	**2060**	**100%**	**-16.9%**	**-64.3%**	**-77.2%**

* As of 2011, a new methodology was applied to calculate the number of road fatalities. The revised methodology explains the 3.6% (on average) of the decrease between 2011 and 2010.

Age

In 2011, reductions in fatalities were registered for all age groups compared to 2010. The largest decreases were observed in those killed under the age of 18 years old. The age group over 64 years showed a smaller reduction.

Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned children and young people. Since 2000, there have been reductions in all age groups. The two greatest reductions have been observed in the group of young people, 15-24 years, which has fallen by 80%, and the 25-34 age group, by 73%. People older than 64 showed the lowest rate since 2000, with a 43% reduction in fatalities.

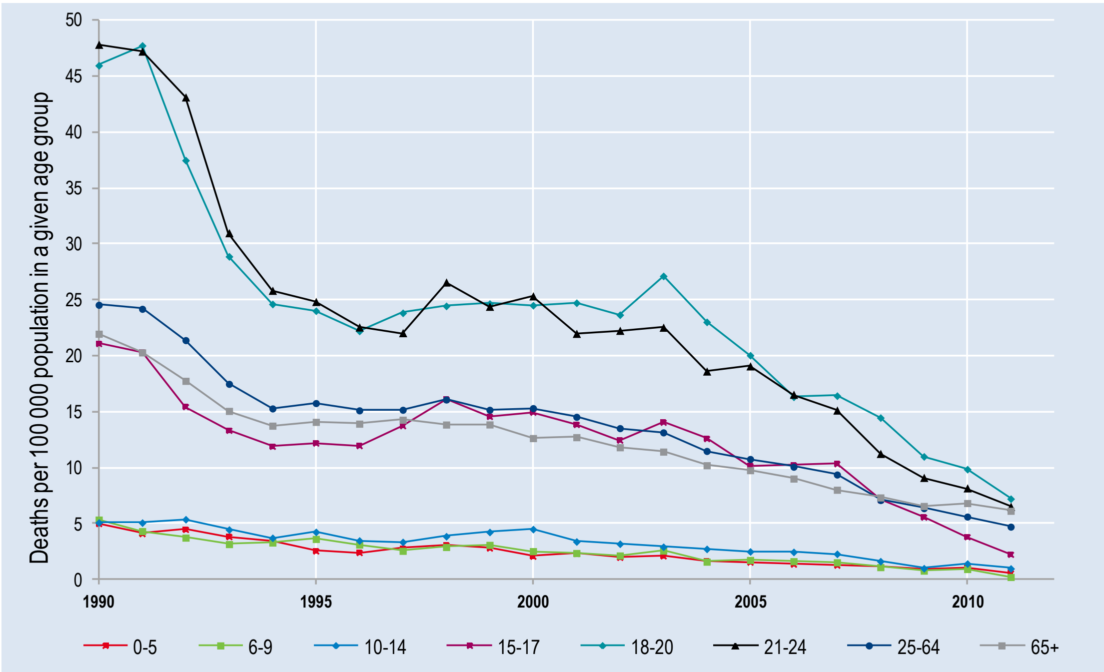
Young people (18-24) still constitute a high-risk group; however, the mortality rate dropped significantly, from 46 killed per 100 000 population in 1990, to 7 in 2011, for the 18-20 age group (Figure 4).

Table 4. **Reported fatalities by age group 1990-2011**

	1990	2000	2010	2011*	2011% change over 2010	2011% change over 2000	2011% change over 1990
0-5	129	46	32	17	-47%	-63%	-87%
6-9	111	40	17	4	-76%	-90%	-96%
10-14	160	95	30	21	-30%	-78%	-87%
15-17	417	223	50	29	-42%	-87%	-93%
18-20	902	422	139	100	-28%	-76%	-89%
21-24	1 266	661	174	134	-23%	-80%	-89%
25-64	4 759	3 267	1 489	1 253	-16%	-62%	-74%
>65	1 134	843	529	484	-9%	-43%	-57%
Total	8 878	5 597	2 478	2 060	-17%	-64%	-77%

* As of 2011, a new methodology was applied to calculate the number of road fatalities. The revised methodology explains 3.6% (on average) of the decrease between 2011 and 2010

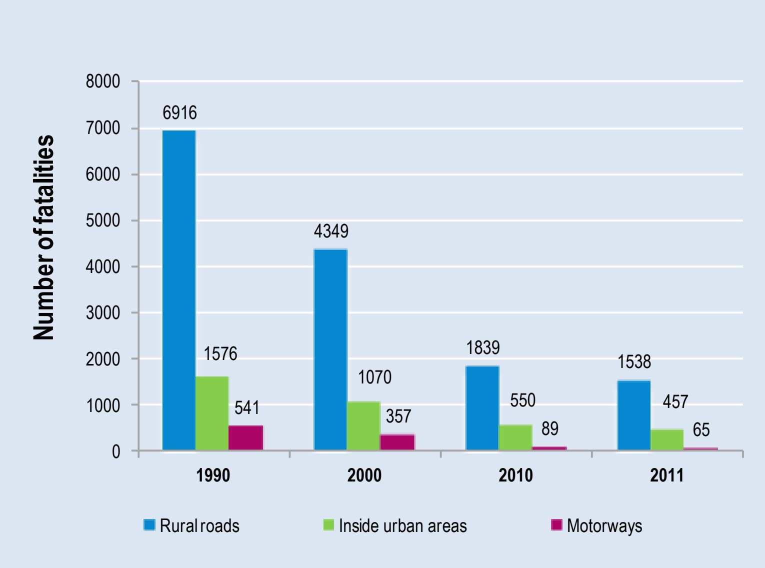
Figure 4. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**



Road Type

In 2011, 75% of fatal crashes occurred on rural roads, 22% on urban roads and 3% on motorways. Since 2000, there have been reductions on all type of roads; the biggest being on motorways (82%), and on rural roads (65%). In urban areas the reduction was 57%.

Figure 5. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



4. Recent trends in road user behaviour

Impaired driving

In Spain, the legal BAC limit is 0.5 g/l for general drivers and 0.3 g/l for novice and professional drivers.

Spain increased the number of preventive blood alcohol controls in roads outside urban areas, from 1.6 million in 2001 to 5.6 million in 2011. The rate of violations registered during those controls dropped from 5.5% to 1.8%. Concerning the BAC level of killed drivers, a clear downward trend was observed between 2002 and 2006, during which the percentage of drivers killed with a BAC higher than 0.3g/l, fell from 34.7% to 28.8%. The percentages for 2007 to 2010 remained around 30%. In 2011 the percentage rose to 33%.

According to the data collected during 2008 and 2009 (in the framework of the European DRUID project), driving after consumption of psychoactive substances is frequent in Spain, reaching a percentage of 17% of Spanish drivers. Besides alcohol, almost 11% of drivers drive after consuming any substance (drugs of abuse) that may affect the ability to drive safely. Cannabis (THC) and cocaine are the two most frequently found substances. The concurrent use of substances that have been shown as a high-risk behaviour is comparatively common in Spain, reaching frequencies around 2% of randomly selected drivers.

Table 5. **Percentages of drivers tested positive DRUID Project, 2009**.

Substances	Drivers tested positive
Some psychoactive substance	17%
Alcohol (>0,1 g/l blood)	7%
Illegal drugs	11%
Psychoactive drugs *(Antidepressants; Anxiolytics; Antiepileptics,etc.)*	2%
Alcohol in combination with other psychoactive substances	2%
Illegal drugs in combination with other substances	2%

Speed

Speeding is a major concern in Spain and a contributory factor in about 24% of fatal crashes.

The Directorate-General for Traffic (DGT) conducted two studies in speed on Spanish roads in 2009 and 2010. The indicators obtained describe the speed-choosing drivers in ideal conditions: very little traffic, no police presence or surveillance, good weather and favourable road sections. The measurements distinguish between daytime and night-time behaviour. For light vehicles, the average speeds are very high, especially on rural roads and at night-time, where the average speed exceeds the specified limit.

Looking at the V85 (85th percentile, i.e., speed exceeding 15% of light vehicles that go fast) it was found that the majority of speeding was done on rural roads, exceeding the 15% of vehicles by at least 20 km/h. On high capacity roads this problem is less: on autovias 15% of the fastest vehicles travel 10 km/h above the legal speed, while on motorways the speed is a bit higher.

Table 6. **Summary of speed limits in Spain**

	General speed limit Passenger cars	Actual speeds (2010 data)	Comments
Urban roads	50 km/h		
Rural roads	90 / 100 km/h	98.4 km/h daytime 102.5 km/h night-time	90 km/h (roads with no hard shoulder or with one of less than 1.5 m. width) 100 km/h (roads with hard shoulder, at least 1.5 m. wide or with two lanes or more in each direction)
Motorways	120 km/h	117.7 km/h daytime 115.6 km/h night-time	2010 data

Seatbelts and helmets

Seatbelt 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, where only recommended). There are some general exemptions: for medical reasons (a medical certificate must be presented on police request); while climbing steep hills and in extreme heat conditions. There is an exemption for professional cyclists while training and/or competing; they will comply with their own rules.

In 2011, seatbelt wearing rates were 89% in front seats and 78% in rear seats. Helmet-wearing rates for moped riders were 98% inside urban areas and 99% outside urban areas, whereas wearing rates for motorcyclists were 99% and 100% respectively.

Table 7. **Seatbelt wearing rate by car occupants***

Seatbelt wearing rate	**2005**	**2006**	**2008**	**2009**	**2010**	**2011**
Car driver inside urban areas	69%	82%	80%	88%	83%	83%
Car driver outside urban areas	81%	92%	95%	97%	95%	95%
Helmet wearing rate						
Moped inside urban areas	93%	91%	97%	98%	95%	98%
Moped outside urban areas	88%	94%	97%	99%	96%	99%
Motorcycle inside urban areas	98%	98%	99%	100%	97%	99%
Motorcycle outside urban areas	99%	99%	100%	100%	99%	100%

Distracted driving, use of mobile phone and fatigue

Since 2002, the use of hand-held mobile phones while driving is forbidden. Only hands-free phones are permitted. As of 1 July 2006, driving while using hand-held mobile phones, GPS or other communication devices entails the loss of three points from the driving licence. In 2011, 3.0% of the driving population were observed to be using hand-held mobile phones while driving, 2.4% outside and 3.5% inside built-up areas.

5. National road safety strategies and targets

Organisation of road safety in Spain

The agency that centralises most of the competences on road safety is the Directorate-General for Traffic (DGT), which belongs to the Ministry of the Interior. The core competences of the DGT are at national level on all inter-urban roads, except for the competences transferred to the Basque Country, Catalonia and Navarre. The key competences include:

- Issuing and renewing driving licences and vehicle authorisations, regulating and licensing private driving training institutes, and supervision of the Roadworthiness Inspection System.
- Registering vehicles, drivers and traffic offences.
- Traffic control and traffic law enforcement on all interurban roads.
- Managing the Traffic Division of the Civil Guard (the police body in charge of traffic control and traffic law enforcement), with around 10 000 officers.
- Centralising road traffic statistics and co-ordinating crash investigations.

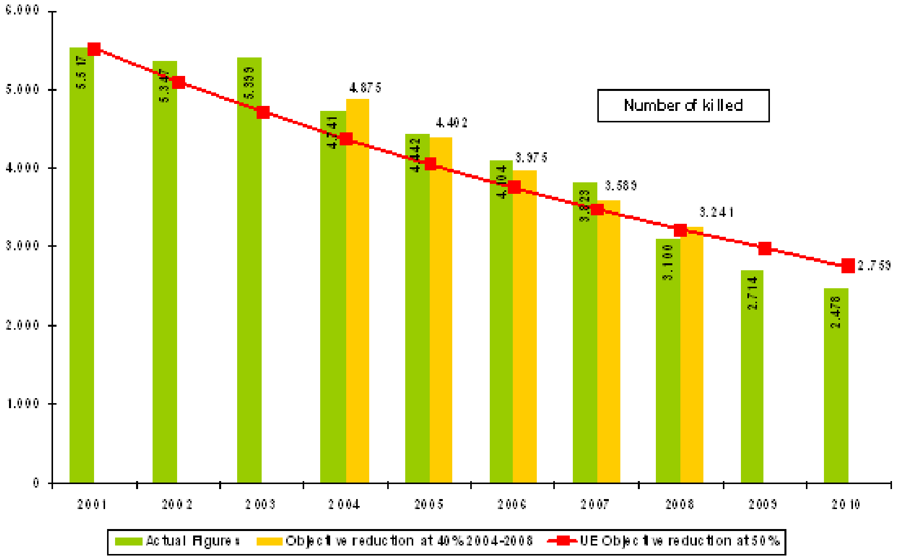
- Developing road safety plans and policies, in coordination with other relevant ministries or public bodies.
- Supervision of driving information as well as road safety education campaigns.

Evaluation of the past road safety programme

Spain's objective for 2008 was to reduce by 40% the number of road accident fatalities compared to 2003. This target was reached, with a 43% reduction in fatalities.

The Road Safety Strategic Plan 2005-2008, the Urban Road Safety model plan and the Motorcycles Plan were major planning tools for improving road safety in order to achieve these results.

Figure 7. **Results in Achieving Objectives**



Road safety strategy for 2011-2020 [2]

The new Spanish Road Safety Plan 2011-2020 was passed by the Council of Ministers on 25 February 2011. This Plan set as its main objective to reduce by 2020 the rate of killed per million of the population to below 37. This target is aligned with the European objective of halving the number of people killed in 2020; it will be revised in 2015. There are specific targets for the main groups of users and roads.

Spain adopted a number of safety performance indicators, which are summarised below:

- Lower the fatality rate to 37 deaths per million inhabitants.
- Reduce the number of serious injuries by 35%.
- Zero children killed without a child-restraint system.

2. See the full strategy at : http://www.dgt.es/was6/portal/contenidos/documentos/seguridad_vial/planes_seg_vial/estrategico_seg_vial/estrategico_2020_006.pdf

- 25% less drivers between the ages of 18 and 24 killed or seriously injured at the weekend.
- 10% less drivers killed above the age of 64.
- 30% less deaths due to being run over.
- 1 million more cyclists without their death rate rising.
- Zero deaths in cars in urban areas.
- 20% less deaths and serious injuries among motorcyclists.
- 30% less deaths due to having come off a single carriageway.
- 30% less deaths in accidents driving to and from work.
- 1% reduction in those testing positive for alcohol in the blood in random preventive tests.
- 50% reduction in the percentage of light vehicles which exceed the speed limit by more than 20km/h.

In 2012 and 2013 the National Road Safety Plan is being revised, with the intention of focusing efforts on the following priorities:

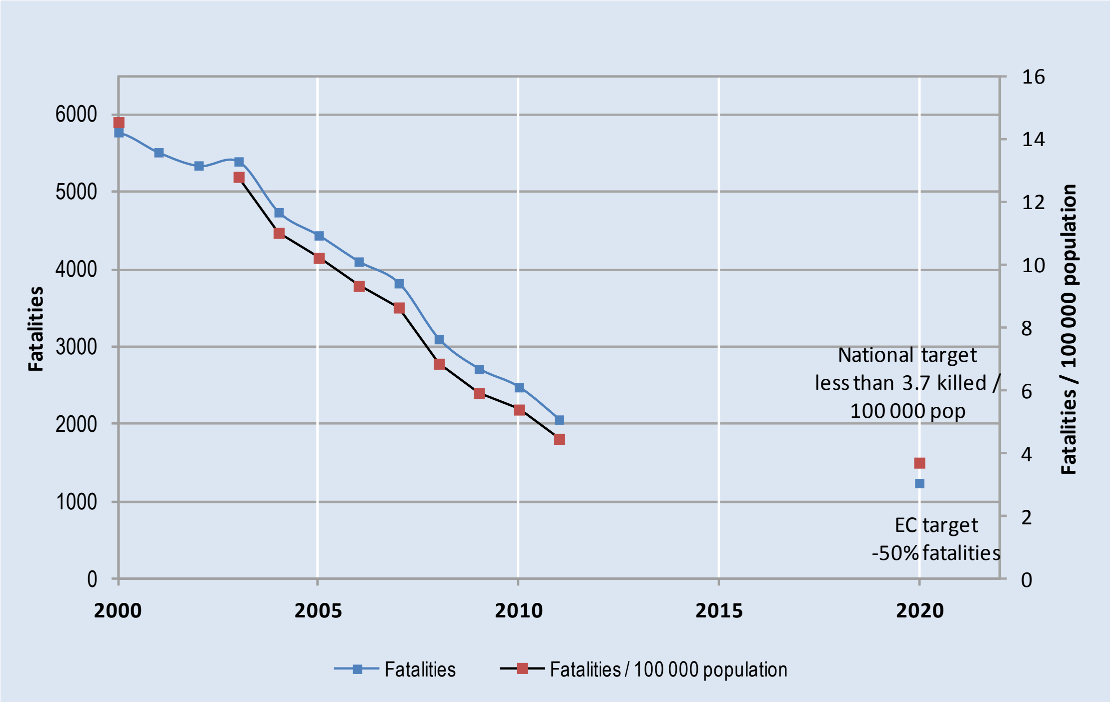
- Improve the information systems.
- Assessment model drivers and intervention programmes for recidivist drivers.
- Alcohol, drugs and medicines.
- Disabled groups.
- Safe mobility.

Target setting

The process of drawing up the strategy was based on: the analysis of data and information contained in official, valid and sustainable sources of information and the participation of the various public and private agents through working groups and international comparison. Furthermore, other strategies have been analysed, such as the Infrastructures and Transport Strategic Plan (2005-2020), the Strategic Action Plan for the Transport of Goods and Passengers, the 2008-2012 Action Plan for Spain's Energy Saving and Efficiency Strategy, Spain's Sustainable Mobility Strategy, Spain's Health and Safety at Work Strategy (2007-2012), etc., assessing their interrelations and contributions.

The target will be revised in 2015.

Figure 8. **Trends towards national target***



* *The European Commission target is to halve the number of fatalities between 2010 and 2020*

6. Recent safety measures (2011-2012) and effectiveness of past measures (2005-2010)

Speed management

- *March-June 2011: temporary decrease of the speed limits*

In March 2011, the Spanish Government reduced the speed limit on autovias and motorways from 120 to 110 km/h. The limit was introduced in order to make savings on fuel costs, as the price of oil was particularly high at that time (around USD 125 per barrel). In July 2011, when the price of crude oil fell, the Government returned the speed limit on motorways to 120 km/h. A reduction of fuel consumption by 8.4% and savings of EUR 450 million in fuel were estimated during the four months the measure was in force.

Between March and June 2011, the average speed on *autovias* and free motorways was 101.09 km/h, a 5.84% reduction relative to that observed between March and June of 2010, when the general speed limit was 120 km/h. This reduction rate is larger than the historical reduction rate; for example the average speed decreased by only 1.01% between 2009 and 2010.

On toll motorways, a significant reduction in average speed was also observed. Between March and June 2011, the average speed was 105.14 km/h, a 7.31% reduction relative to the same months of 2010. Again, this value exceeds the historical reduction rate; between 2009 and 2010, the average speed decreased by only 0.22%.

The total number of fatalities on *autovias* and motorways between March and June 2011 was 76, representing a 34% reduction relative to the same four months of 2010. On rural roads, the number of fatalities decreased by only 10%. Applying before-and-after methods, with rural roads as the comparison group, it has been estimated that the reduction in the number of fatalities attributable to the reduction in speed limit is at least 30%.

- *Speed control sections*

Two average-speed control sections were installed in 2010, and four more in 2011. At the end of 2011, there were 558 fixed-speed control cameras and six average-speed controls on roads outside urban areas.

Impaired driving

In 2012 , a zero tolerance for drugs programme was implemented with the following main objectives:

- Increase awareness of the public regarding the issue of drugs and driving.
- Inform drivers that the use of drugs with alcohol leads to a significant deterioration in the ability to drive and that there will be drugs controls and drugs+ alcohol controls on all types of roads, days and hours.
- Encourage collaboration between Local, Regional and National Administrations in legislative, educational and training fields regarding drugs and driving.
- Promote research related to drugs and road safety.

In addition to continuous enforcement campaigns on alcohol, at least once a year a special campaign on alcohol tests is launched. In this campaign, people from road traffic victim associations, along with the police, talk about their own experiences and the risks involved in driving under the influence of alcohol.

Work-related road safety

For those companies which have implemented a Road Safety Plan, discounts on taxes that they have to pay to the government.

From October to November 2011, a specific mass-media campaign was carried out on road traffic accidents occurring while working, or while driving to or from work.

Enforcement

A number of special enforcement campaigns were undertaken throughout 2010 and 2011, targeting speed, safetybelt and child restraint use, motorcycle and moped helmet use, drink driving, mobile phone use, school buses, trucks and vans.

Vehicles

Since 10 July 2011, a new vehicle regulation requires the use of conspicuous markings on heavy goods vehicles and trailers. It is also recommended for other types of vehicles.

Infrastructure

- Motorcycle-friendly crash barriers have been installed in accordance with a specific regulation issued by Spanish Central Administration. As of 2010, The Ministry of Public Works has already equipped 1 600 Km with such barriers.
- Implementation of the Directive 2008/96/CE on road infrastructure safety management 2008/96/CE, which came into force in Spain on 13th March 2011.
- Chevron marks were painted on the road surface of 43 road sections at risk of rear-end collisions in July 2011. The length covered is 88 km.

7. Useful websites and references

Recent and on-going research

- Aparicio Izquierdo, F., B. Arenas Ramírez, J.M. Mira McWilliams, J. Páez (2011), *The endurance of the effects of the penalty point system in Spain three years after: Main influencing factors*, Accident Analysis and Prevention 43 (2011) 911–922.
- Aparicio Izquierdo, F., B. Arenas Ramírez, E. Bernardos Rodríguez (2011), The interurban DRAG-Spain model: *The main factors of influence on road accidents in Spain*. Research in Transportation Economics. In press.
- Ana M Novoa, Katherine Pérez, Elena Santamariña-Rubio & Carme Borrell (2011), *Effect on road traffic injuries of criminalizing road traffic offences: a time–series study*. Bulletin of the World Health Organization. Volume 89, Number 6, June 2011, 393-468.
- Pons-Villanueva, J., M.J. Rodríguez de Armenta, M.A. Martínez-González, M. Seguí-Gómez (2011), *Longitudinal assessment of quality of life and its change in relation to motor vehicle crashes*: the SUN (Seguimiento Universidad de Navarra) Cohort. J. Trauma. 2011 May;70(5):1072-7.
- Maria Segui-Gomez, Francisco J. Lopez-Valdes, Francisco Guillen-Grima, Ernesto Smyth, Javier Llorca, Jokin de Irala (2011), *Exposure to Traffic and Risk of Hospitalization Due to Injuries*. Risk Analysis Volume 31, Issue 3, pages 466–474, March 2011.
- Spanish Society of Epidemiology (2011), Lesiones Medulares Traumáticas y Traumatismos Craneoencefálicos en España, 2000-2008. (*Evolution of Spinal Injuries and Brain Trauma in Spain 2000-2008*).

Useful websites

General Traffic Directorate	www.dgt.es
Research studies	http://www.dgt.es/portal/es/seguridad_vial/estudios_informes
National Road Safety Strategy	http://www.dgt.es/portal/es/seguridad_vial/planes_seg_vial/
Motorcycle safety plan	http://www.dgt.es/was6/portal/contenidos/documentos/seguridad_vial/planes_seg_vial/sectoriales/plan_sectorial006.pdf
Safety Plan – Urban areas	http://www.dgt.es/portal/es/seguridad_vial/planes_seg_vial/tipo_seg_vial

Contact

For more information, please contact: analisis.estadistica@dgt.es

Sweden

Source: IRTAD, Swedish Traffic Agency, Swedish Transport Administration, VTI

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Stockholm	**9.4 million**	**597**	**319**	**3.4**

1. Comments about road safety data collection

Sweden has a safety data system that fully integrates police and health data. This system, called STRADA, is composed of two parts:

- STRADA police: based on accident report by the police, which includes detailed information on the crash.
- STRADA hospital: based on medical information.

The system is based on a systematic linking between police and health data and allows accurate information on the severity and consequences of crashes to be obtained.

STRADA, however, only allows information on seriously injured people and acquires medical information about injured persons visiting an emergency hospital following the accident. The number of people "less" seriously injured is likely to be underreported. As an example, people suffering from a minor injury requiring only primary care, without being further directed to an emergency hospital, are not recorded in STRADA. Sweden defines a serious injury as a health loss following a traffic injury, reflecting that a person does not recover their previous health condition within a reasonable amount of time. The measure used is "medical impairment". Medical impairment is a concept for evaluating various functional impairments, regardless of the reason. The concept has been used since the end of the 19th century in Sweden and in many other countries. The concept originated from German private accident insurance. The concept is used today in individual and collective accident insurance and is often decisive to the compensation an injured person receives from his/her insurance company. The disability scale is built up from functional impairment; e.g. total paralysis is regarded as 100% disability, the loss of one hand as 50-65%, and the loss of the outer joint of the ring finger as 2%. A person with any percentage of medical disability has not recovered their previous physical health condition and is therefore defined as seriously injured. Today, the cut-off percentage is one or higher, but discussions are ongoing on adding a complementary percentage of 10 or higher.

By using the concept of medical impairment, Sweden is not using MAIS 3+ as a formal measure in the efforts to increase road safety. MAIS is, however, used to calculate the number of persons seriously injured and is therefore an important part of the Swedish efforts to increase the level of road safety.

2. Short term trends

General comments and trends for 2011

In 2011, 319 people were killed in a traffic crash — a 20% increase in comparison with 2010. This sharp increase needs to be interpreted with care however, as in 2010, Sweden observed a 26% decrease in road fatalities. The number of fatalities increased for all road users except for car drivers and cyclists. The relative increase was highest for the number of deceased pedestrians.

The fact that the 2011 fatality figure was higher than in 2010 does not represent a break in the overall downward trend of the past years; instead, the fatality figure for 2010 can be regarded as lower than expected in view of the risk level at the time. The low result for 2010 can also be explained by the unusually severe winter — which meant lower than usual speeds — and by a delayed recession effect.

The number of injury crashes remained stable in 2011.

Provisional data for 2012

Provisional data show that the downward trend continued in 2012, during which the number of fatalities decreased by 7%, from 319 to 296. This reduction in fatalities covered all road user categories except for cyclists. The largest decrease occurred among killed motorcyclists — from 46 to 32. Over the same period, the number of seriously injured (reported by police) decreased by 5%, from 3 127 to 2 961. This reduction concerned all road user categories. The largest decrease occurred among seriously injured moped riders (27%).

3. Long term trends (1990-2011)

Fleet and mobility

Passenger cars account for about 81% of traffic volumes (vehicle kilometres) on Swedish roads. Buses and motorcycles account for just over 1% each, light lorries for 10% and heavy lorries for 6%. Light lorries are the type of vehicle showing the most rapid increase, both in terms of numbers of vehicles and traffic volume. In 2011, the total traffic volume increased by 1.8%. For passenger cars the change was +1.5%, for light lorries +4.5 % and +2.3%for heavy lorries.

Change in the number of fatalities and injury crashes

Between 1990 and 2011, the number of road fatalities decreased by nearly 60%, while the number of injury crashes was reduced by only 4%. The positive trend can partly be explained by the gradual improvements in infrastructure, vehicle population and an increased focus on injury prevention. Both the safe national roads and safe vehicles indicators are improving at a sufficient rate, and road design in the municipal road network has also long been developing towards greater safety. The positive development can also be explained by the fact that most safety measures have targeted the severest crashes, aided by much better reporting of injury crashes in recent years.

The number of fatalities on the roads decreased dramatically in 2009 (-10%) and 2010 (21%[1]). GDP at fixed prices grew by 6.1% in 2009 and 3.9% in 2011[2]. Thus, 2011 was a year with high growth and a large increase in the number of traffic fatalities. Experiences from several countries indicate that there is a link between the number of traffic fatalities and economic development, whereas an economic slowdown is often followed by a reduction in traffic fatalities. It has not been possible, however, to establish exactly what constitutes this link. Neither is it possible to quantify the effect of different factors that influence road safety in individual years. This is partly because many factors (both measurable and non-measurable) coincide, and partly because there is considerable random variation from year to year in the outcome for the number of fatalities.

Risk and rates

In 2011, the mortality risk expressed in terms of deaths per 100 000 population was 3.4, a 63% decrease in comparison with 2010.

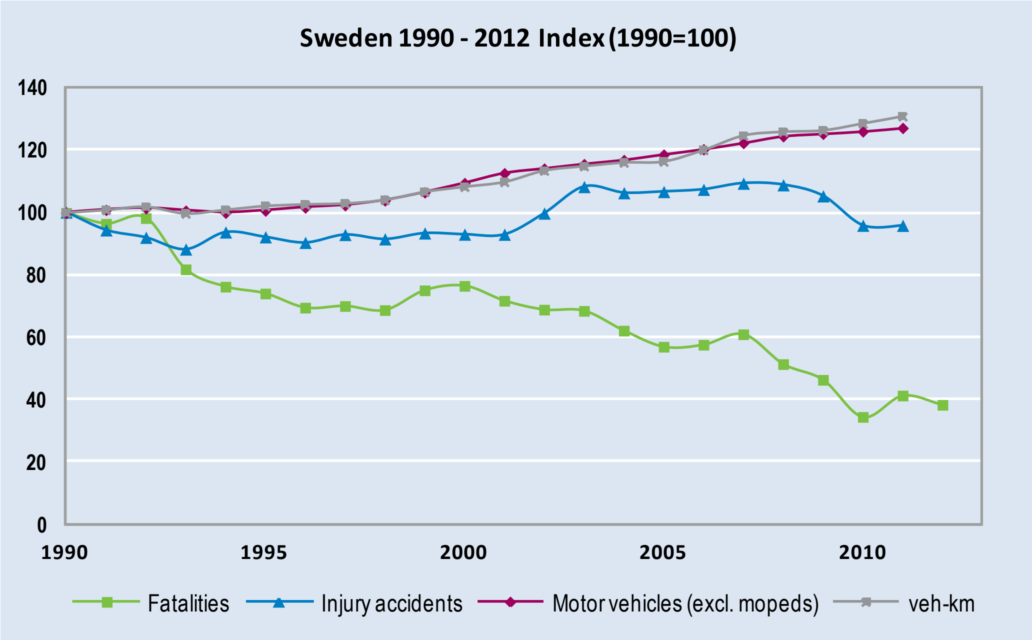
Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Reported safety data							
Fatalities	772	591	266	319	19.9%	-46.0%	-58.7%
Injury crashes	16 975	15 770	16 255	16 251	-0.02%	3.1%	-4.3%
Hospitalised	17 180	10 897	7 701	7 869	2.2%	-27.8%	-54.2%
MAIS3+	-	-	1 300	1 229	-5.5%	-	-
Deaths/100 000 population	9.1	6.7	2.85	3.39	18.9%	-49.4%	-62.7%
Deaths/10 000 registered vehicles	1.73	1.22	0.47	0.57	21.3%	-53.3%	-67.1%
Deaths/billion vehicle-kms	11.98	8.47	3.21	3.78	17.8%	-55.4%	-68.4%
Fleet and mobility data							
Vehicles (exc. mopeds)	4 322	4 735	5 453	5501	0.9%	16.2%	27.3%
Vehicle- kilometres (in billion)	64 430	69 785	82 875	84 367	1.8%	20.9%	30.9%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	523.16	546.43	605.28	596.64	-1.4%	9.2%	14%

1. In order to calculate the percentage change 2009–2010, the fact that suicides are excluded from official statistics as of 2010 must be considered. If suicides are included, the number of fatalities between 2009 and 2010 decreased from 358 to 283, a reduction of 21 percent. We know that in 2010 there were 17 suicides and other premeditated acts among the fatalities. On the same basis as for the year before, the number of traffic fatalities, excluding suicides, decreased from 358 to 266, a reduction of 24%.

2. According to the National Accounts, Statistics Sweden (www.scb.se).

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres (1990-2012)**



2012 data are provisional

Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2011 at around EUR 5.2 billion, i.e. 1.3% of GDP.

The cost of road crashes were first evaluated in 1990 by the ASEK Group, on the basis of a willingness to pay approach[3] to assess the unit cost of a fatality, a hospitalised person, a lightly injured person and a property damage only crash. Since then, these unit costs are regularly re-evaluated taking into account the evolution of GDP and of the Consumer Price Index (CPI)[4]

Table 2. **Cost of Road Crashes**

Cost (EUR billion)°	2011	2010	% change
Fatalities	0.9	0.7	+29
Hospitalised people	2,7	2.5	+8
Slight injuries	0,8	0.9	-12
Property damage and other costs	0,8	0.8	0
Total	5,2	4.9	+6

3. http://www.trafikverket.se/Foretag/Planera-och-utreda/Planerings--och-analysmetoder/Samhallsekonomisk-analys-och-trafikanalys/ASEK---arbetsgruppen-for-samhallsekonomiska-kalkyl--och-analysmetoder-inom-transportomradet/

4. http://www.scb.se/Pages/Product 33783.aspx

Road users

In 2011, the increase in fatalities concerned all road users, with the sharpest increase for pedestrians — from 31 killed in 2010, to 53 in 2011. The reasons behind this negative outcome are not clear, but in part explained by the very low number of pedestrians killed in 2010 – probably due to the hard winter in that year — resulting in less exposure for both pedestrians and motor vehicles, and a level slightly higher than expected in 2011.

Overall since 1990, all user groups, with the exception of motorcyclists, benefited from the improvements in safety. Regarding motorcyclists, the relative lack of progress is explained by the explosion in the motorcycle fleet, which doubled between 1996 and 2011. To respond to this trend, 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.

Since 2003, Sweden has experienced a substantial drop in injured passenger car occupants (both in-patients and fatalities). For in-patients the drop is so radical that, from the year 2008, there are more cyclists as in-patients than car occupants. This is mainly due to safer cars, lower speeds and the introduction of median barriers. Injured motorcyclists and moped riders have decreased during the last years, largely due to the fact that a driving license is now required for moped riders.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		*2010*	*2000*	*1990*
Bicyclists	68	9%	47	8%	21	8%	21	7%	0%	-55.3%	-69.1%
Mopeds	22	3%	10	2%	8	3%	11	3%	38%	10%	-50%
Motorcycles	46	6%	39	7%	37	14%	46	14%	24%	18%	0%
Passenger car occupants	468	61%	393	66%	151	57%	159	50%	5.3%	-59.5%	-66.0%
Pedestrians	134	17%	73	12%	31	12%	53	17%	71.0%	-27.4%	-60.4%
Others	34	4%	29	5%	18	7%	29	9%	61.1%	0%	-14.7%
Total	**772**	**100%**	**591**	**100%**	**266**	**100%**	**319**	**100%**	**19.9%**	**-46%**	**-58.7%**

In 2010, on the basis of distance travelled, riders of motorised-two wheelers had a risk 20 times higher than a car occupant to be killed in a car crash.

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

	Reported fatalities	Deaths per billion veh-km
Passenger car occupants	151	2.2
Motorised 2 wheelers	45	44.0

Age

In 2011, the increase in fatality hit more particularly the 18-20 and 65+ age groups.

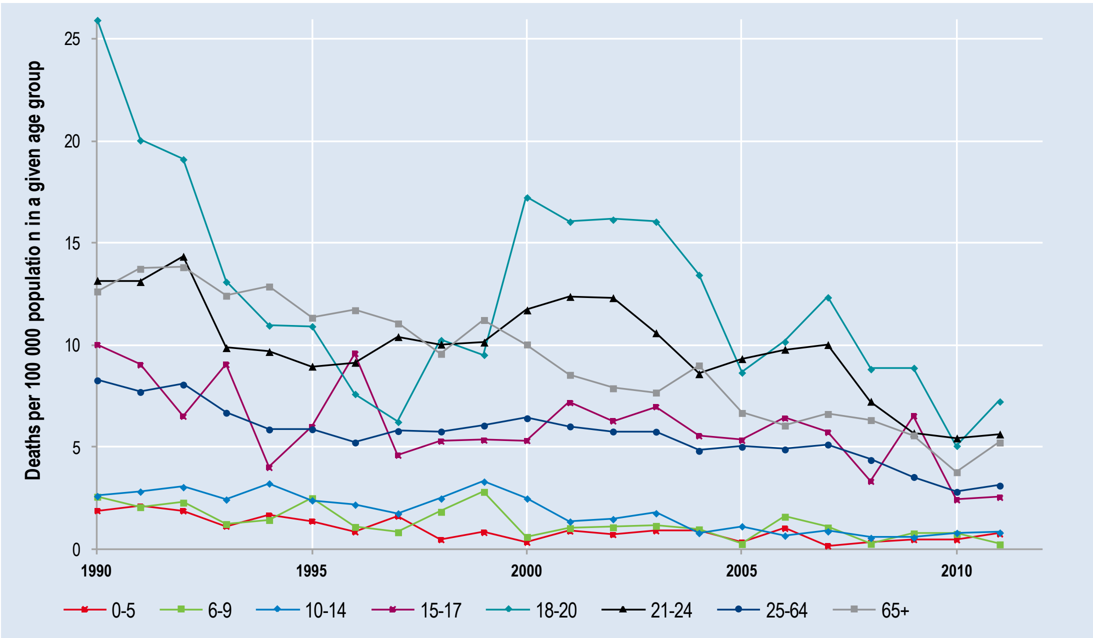
Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerns the younger groups. Child (0-14) fatalities have been halved since 2000, partly due to the legislation on child-restraint systems, but also to work on separating traffic modes in urban areas.

Young people (18-20) constitute a high-risk group, with a mortality rate twice as high as the older age groups. On the other hand, the mortality rate of the 21-24 age group reduced considerably in 2008-2009, perhaps due to the economic downturn and its impact on the mobility patterns of this age band.

Table 5. **Reported fatalities by age group 1990-2011**

					2011% change over		
	1990	2000	2010	2011	*2010*	*2000*	*1990*
0-5	10	2	3	5	67%	150%	-50%
6-9	12	3	3	1	-67%	-67%	-92%
10-14	13	14	4	4	0%	-71%	-69%
15-17	34	16	9	9	0%	-44%	-74%
18-20	88	52	20	29	45%	-44%	-67%
21-24	66	50	26	28	8%	-44%	-58%
25-64	357	300	137	152	11%	-49%	-57%
>65	192	154	64	91	42%	-41%	-53%
Total	772	591	266	319	20%	-46%	-59%

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**



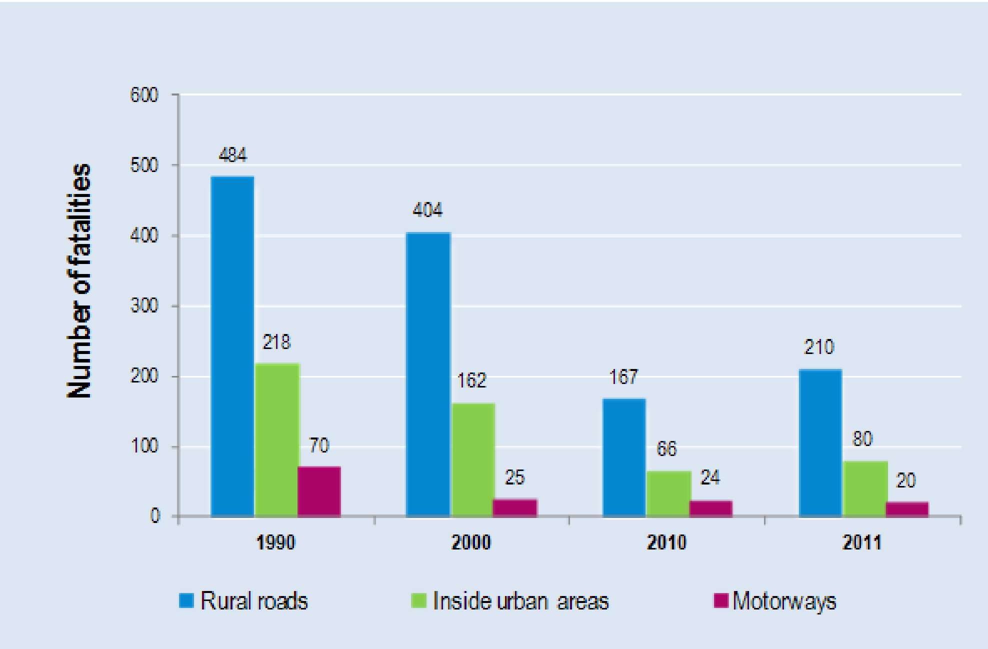
Road Type

In 2011, 68% of fatal crashes occurred on rural roads, 26% on urban roads and 6% on motorways. The increase in fatalities hit both rural and urban roads but did not affect motorways, where the number of fatalities continued to decrease (-17%).

Over the past twenty years there has been a major improvement over the whole network, but the decrease in fatalities, in particular for pedestrians and cyclists, has been achieved mainly through the improvement of urban road conditions, i.e. construction of mini-roundabouts, bicycle lanes and other countermeasures in infrastructure.

On rural roads, improvements in road safety since 2000 are in part due to the implementation of speed cameras and the generalisation of the "2+1" roads[5], which has been very cost effective in reducing head-on collisions on rural roads. In 2011, 210 kilometres of road with median barriers were added, of which 20 kilometres were motorways.

Figure 3. **Reported fatalities by road type 1990, 2000, 2010 and 2011**



4. Recent trends in road user behaviour

Impaired driving

In Sweden, the legal BAC limit is 0.2 g/l. In 2011, 18% of motor vehicle drivers killed in crashes were under the influence of alcohol.

5. A "2+1" road is a 3-lane road, with two lanes in one direction and one lane in the other, separated by a median barrier.

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, primarily due to road safety cameras.

The recording of excessive speed by the police has increased markedly, largely because of the introduction of speed cameras in 2006, and the reporting of non-compliances has accordingly doubled to 400 000. In 2012, the Swedish Road Administration measured[6] the average speed and compared the results with the average speed in 2004. These showed that the average speed has decreased by 3.4. The trend is therefore positive from a road safety perspective.

Sweden has also adopted tighter speed limits and introduced new speed limits in 10 km/h steps, ranging from 30 km/h to 120 km. In some specific areas, speed limits of 5, 10 and 20 km/h are also used.

Table 6. **Summary of speed limits in Sweden**

	General speed limit Passenger cars	Actual speeds	Comments
Urban roads	50 km/h	51.9 km/h	Change since 2004 is -1.6%
Rural roads	90 km/h or 70 km/h	88.9; 68.4 km/h	Change since 2004 is -0.4% and -0.6%
Motorways	110 km/j	114.4 km/h	Change since 2004 is -1.9%

Seatbelts and helmets

The use of seatbelts increased from 96 to 97 percent in the front of passenger cars during 2011. The proportion of killed car drivers that were unrestrained has continued to drop, and was 31% in 2011.

In Sweden it is mandatory for children below 15 years to use a helmet when cycling and between 60-70% of children comply with this law. For adults, the use of helmets is about 25%, but it varies much by cities. In 2011, overall helmet use increased from 27 to 32%.

6. http://publikationswebbutik.vv.se/upload/6958/2013_002_hastighetsundersokningen_2012_resultatrapport.pdf

Table 7. **Seatbelt wearing rate by car occupants**

	1990	2000	2010	2011
General (front + rear seats)	87%	90%	95%	96%
Front seat (all)			96%	97%
Driver	89%	90%	97%	97%
Passenger	91%	92%	96%	96%
Rear seats				
Adults	65%	72%	81%	84%
Children	79%	89%	95%	96%

Distracted driving, use of mobile phone and fatigue

There is no law in Sweden to ban or restrict the use of mobile phones (whether hand-held or hands-free) while driving.

At the request of the Government, VTI undertook in 2011 a literature review on distracted driving and the effectiveness of relevant legislation and measures in other countries. It concluded that measures to educate and inform drivers were preferable to a prohibition of the use of communication devices while driving.

5. National road safety strategies and targets

The basis of Swedish road safety work is *Vision Zero*, a strategic approach towards a safe system, whereby no-one is at risk of being fatally or severely injured while using road transport.

Organisation of road safety in Sweden

There are several agencies in Sweden supporting the Government in the field of road safety. The authorities cooperate with each other, but have specific tasks within the road transport system. The three main governmental agencies are:

- Transportstyrelsen, The goal of the Swedish Transport Agency is to offer good accessibility, high quality, secure and environmentally friendly rail, air, sea and road transport. The Agency has overall responsibility for drawing up regulations and ensuring that authorities, companies, organisations and citizens abide by them.
- Trafikverket, The Swedish Transport Administration, is responsible for long-term planning of the transport system for all types of traffic, as well as for building, operating and maintaining public roads and railways. The Swedish Transport Administration is also responsible for administering the theoretical and driving tests needed for a driving licence for both professionals and private drivers.
- Trafikanalys, Transport Analysis reviews bases for decisions, assesses measures and is responsible for statistics.

Sweden is divided into 290 municipalities and 20 county councils. These municipalities and counties also have responsibility for road safety at local level. Local government has a long tradition in Sweden. The country's municipalities, county councils and regions are responsible for providing a significant proportion of all public services, including road safety. They have a considerable degree of autonomy, as well as independent powers of taxation. Local self-government and the right to levy taxes are stipulated in the Instrument of Government, one of the four pillars of the Swedish Constitution.

Evaluation of the past road safety programme

In 2007, some of the earlier road safety programmes were evaluated[7]. The main lesson learnt from this evaluation was that the interim target for the number of fatalities did not provide sufficient guidance to stakeholders for their activity planning. More action-related interim targets are needed. This is understood to mean indicators that help stakeholders to identify measures that can contribute towards changes in condition states on the road transport system that are necessary to achieve targets for the number of fatalities and seriously injured.

Road safety strategy for 2011-2020

There is no safety plan in a traditional sense. However, Sweden has an interim target for the year 2020, which initially stated a reduction in fatalities by 50% between 2007 and 2020.

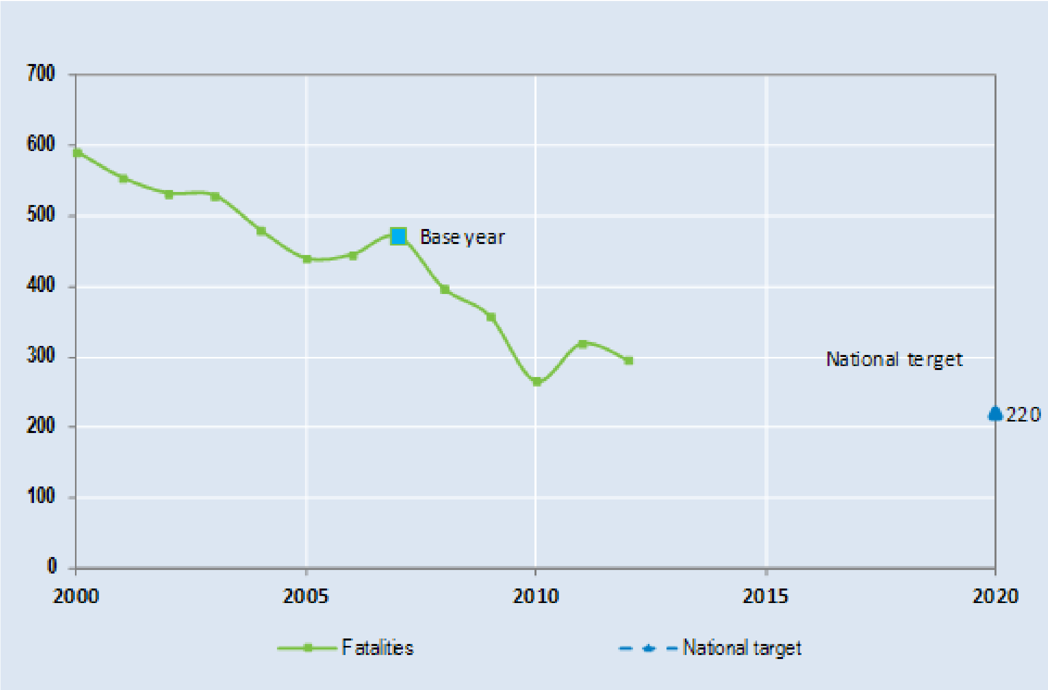
Target setting and monitoring

The target, and the monitoring set-up for reaching this target, was revised in 2012. The revision years (2012 and 2016) were fixed to ensure that target levels and indicators are always as relevant as possible. The year 2012 revision started in autumn 2011, and will take into consideration a sharpening of the interim goal due to the new EU targets[8]. However, as of April 2013, there has been no decision to review the current target (no more than 220 fatalities by 2020).

7. Management by objectives for road safety work *Stakeholder collaboration towards new interim targets 2020.*http://publikationswebbutik.vv.se/upload/4253/89217_management_by_objectives_for_road_safety_work_stakeholder_collaboration_towards_new_interim_targets_2020_summary.pdf

8. More information can be found in: Swedish Transport Administraztion (2012), *Review of interim targets and indicators for road safety in 2010-2020,* Publication 2012:62. http://publikationswebbutik.vv.se/upload/6816/2012_162_review_of_interim_targets_and_indicators_for_road_safety_in_2010_2020.pdf

Figure 4. **Trends towards national target**



6. Recent safety measures (2011-2012) and effectiveness of past measures (2005-2010)

Speed management

Review of changes in speed limits

The Swedish Government adopted a new speed limit system in 2008. The new system includes a larger number of speed limits (in 10 steps, ranging from 30 km/h to 120 km/h) and new instructions aimed at making speed limits correspond better to the safety requirements and capacity of the various roads.

A review of all Swedish roads began in autumn 2008 and continued in 2009, with speed limits revised as necessary. Speed limits have been changed on 17 000 kilometres of roads, and out of this 15 400 kilometres have lowered speeds. Since 2010, changes in speed limits are targeting urban areas.

By the end of 2011, 25 % of the municipalities had introduced amended speed limits. The objective set by the Swedish Transport Administration was that 60% of municipalities would have carried out a review during 2011.

Implementation and Evaluation [9]

On rural roads, speed limit changes mainly concern roads with a low traffic safety record and unsatisfactory roadsides that were selected for introduction of reduced speed limits, as well as roads with a good traffic safety record being selected for an increase in speed limits. Essentially, roads important to local economy transport and commuting has been assigned higher speed limits than roads less important from a local economy point of view.

On the rural network, accident statistics show that fatalities as well as serious injuries have been reduced (less 50 fatalities and serious injuries). Lives have predominantly been saved on dual carriageways where speed limits were reduced from 90 km/h to 80 km/h, with more than 70% of saved lives belonging to this group.

Speed cameras

During 2011, the number of speed cameras (1 100) increased by 5% (50 additional cameras on rural roads). This will have a significant impact on speed compliance on these roads.

Impaired driving

On 1 January 2012, a system was introduced to allow a person having committed a drunk-driving offence to keep their driving licence: instead of losing their licence, the person can apply for a licence with alcolock conditions for a period of one or two years. A longer term is required for those convicted of severe drunk-driving offences. The conditions include regular medical checkups (with sampling and inspections) and servicing of Interlock and its log.

The police has steadily increased the number of breathalyser tests; 1.1 million tests were performed in 2001, 2.7 million in 2007 and 2.5 million in 2011.

Cyclist safety

The Government has requested an action plan for increased and safer cyclist traffic. This action plan[10] highlights that achieving increased accessibility and improved traffic flow for cyclists is key to increasing cycling as a mode of transport. At the same time, it is important to pay attention to conditions where this accessibility and/or traffic flow may conflict with road safety for cyclists and/or other road users. It is also important that cycling is perceived as a safe mode of transport. Development of a good cycle infrastructure in conjunction with an approach that takes in all modes of transport simultaneously will be a success factor.

Vehicle safety

Penetration of 5* cars: The first cars to achieve the highest safety scores, five stars in Euro NCAP, were tested and came onto the market in 2001. By the end of 2007, 66% of all new cars sold in Sweden had the highest safety(5*) scores in Euro NCAP. The target level of 100% by 2020 means that an increase of just over 2.5 percentage units per year is required. This was achieved with a good margin in 2007–2008, when the percentage increased by 5 percentage

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9. More information can be found in: Vadeby, A., Å.Forsman, A. Carlsson, U. Björketun and M-R. Yahya, (2012) *Evaluation of the new speed limits – traffic safety and environmental effects*. VTI notat 34-2012. VTI. Linköping. Summary in English

10. *Ökad och säkrare cykling – en översyn av regler ur ett cyklingsperpsketiv*, SOU 2012/70. In Swedish, but with summary in English. http://www.regeringen.se/sb/d/108/a/202566

units. In 2009 and 2010, the increase stagnated, but the percentage in 2011 rose from 74 to 78 percent.

ABS brakes for motorcycles: The development of ABS brakes as standard equipment on motorcycles has moved quickly over the last three years. From being standard at only one manufacturer and an expensive option in others, ABS has become standard equipment for the majority of the major motorcycle models.

Heavy vehicles – collision avoidance: It is likely to be some time before technology to prevent head-on collisions, or to alleviate the consequences of these, will begin to be widely introduced in heavy vehicles. At the present time, technology is primarily being introduced in heavy vehicles with the focus on rear-end collisions, technology that supports the driver in staying within his lane (lane-keeping systems) and electronic stability control.

7. Useful websites and references

Recent and on-going research

VTI: **Literature review on the use of communication devices while driving**:

In October 2011, VTI presented the result of a review of research literature on the use of mobile phones and other communications devices while driving. A major finding was that no long-term traffic safety impact could be found for countries that have legal requirements for hands-free equipment. VTI was therefore commissioned by the Swedish government, in November 2011, to investigate what options may exist for a ban on the use of mobile communication while driving. This report was delivered to the government in April 2012. The report outlines possible means to reduce the dangerous usage of mobile phones and other communication devices while driving, while at the same time preserving the positive effects. The suggested countermeasures cover several areas and are intended to function as alternatives to banning device usage. The report suggests that various actions that educate, inform and support the driver in order to manage communication in a secure manner are preferable to prohibiting the use of communication devices while driving.

- Vadeby, A., Å. Forsman, A. Carlsson, U. Björketun, M-R. Yahya, (2012), *Evaluation of the new speed limits – traffic safety and environmental effects*. VTI notat 34-2012. VTI. Linköping. Summary in English
- Hjort, M., H. Andersson (2012), *Road safety effects associated with tires, rims and wheels.* VTI notat 29-2012. Summary in English
- Vadeby, A., and M-R. Yahya (2012), *Speed of motorcyclists – levels and changes on roads with new speed limits.* VTI rapport 760-2012, VTI, Linköping. Summary in English.
- Joelsson, J. (2012), *Why does a sleepy driver continue to drive?* VTI Notat 32A.
- Carlsson, A., U. Björketun, A. Vadeby (2012), *Traffic safety effects of milled rumble strips in the middle of the road*. VTI notat 28-2012. VTI, Linköping. Summary in English.

Useful websites

Swedish Transport Administration	http://www.trafikverket.se/Om-Trafikverket/Spraksida/English-Engelska/
Swedish Transport Agency	http://www.transportstyrelsen.se/en/
VTI	http://www.vti.se/default____2782.aspx
Transport Analysis	http://www.trafa.se/In-English/English-Start/
Chalmers	http://www.chalmers.se/en/Pages/default.aspx

Contact:

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Switzerland

Source: IRTAD, Federal Road Office, BfU

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities / 100 000 inhabitants in 2011
Bern	**7.8 million**	**718**	**320**	**4.1**

1. Comments about road safety data collection

Since January 2011, the Federal Roads Office (FEDRO) is responsible for all Swiss road crash data. A new reporting form was introduced to all cantonal police forces and a new platform for data entry and data analysis (statistical and geographical) is online.

In Switzerland injury severity is still judged by means of a simple definition by the police force present at the scene. Nothing is known on the kind, and long-term outcome, of injuries. Moreover, an international comparison of non-fatal crashes is not feasible.

In order to have a better understanding of the consequences of road crashes, in 2013 the Swiss Federal Roads Office will start to link police-reported data with other data sources, including hospital data. This will allow coding of the recommended maximum AIS score based on ICD-10.

2. Short-term trends

General comments and trends for 2011

The number of road fatalities fell in 2011 to 320, a 2% decrease from 2010 and the fifth consecutive year with a decrease, allowing Switzerland to reach its lowest level since fatalities have been recorded.

The situation improved for car occupants and pedestrians, but the number of fatalities increased among cyclists and motorcyclists.

Provisional data for 2012

Provisional figures for the year 2012 indicate an increase (+5.9%) in the number of road fatalities, with 339 persons killed. It should be noted that a dramatic coach crash which occurred in a tunnel in March 2012 resulted in 28 fatalities.

3. Long-term trends (1990-2011)

Fleet and mobility

Since 1990, distance travelled (vehicle-kilometres) increased by 27% and the number of motorised vehicles increased by 45%.

Total vehicle-kilometres travelled in 2011 showed a small increase (1.2%) compared with the previous year.

Changes in the number of fatalities and injury crashes

Road fatalities peaked in 1971, when 1 720 people died on the roads. Between 1971 and 1996, the number of fatalities significantly diminished. The average annual reduction was initially 7.5%, and then 3%, until 1996. Between 1997 and 2000, the number of casualties was stable at around 600 per year. In 2004-2006, the rate of decrease significantly accelerated. In 2011, Switzerland experienced its lowest level of fatalities since record-keeping began.

Recent figures show a downward trend in the numbers of those seriously injured, after years of little change.

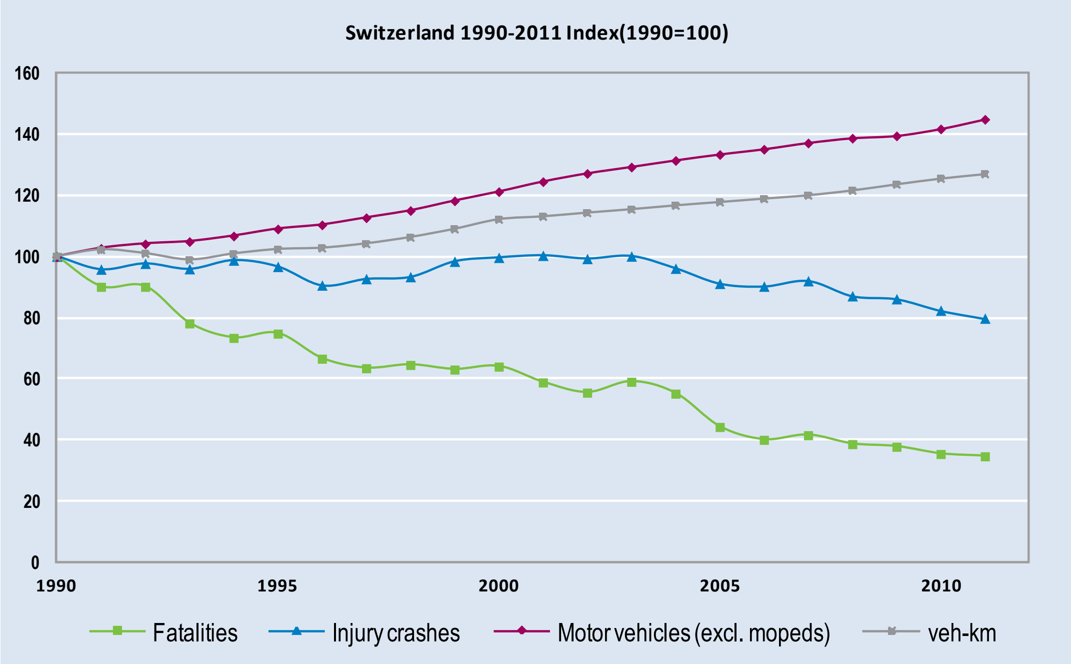
Risk and rates

In 2011, the mortality rate expressed in terms of deaths per 100 000 population was 4.1, a 51% decrease since 2000. Similarly, the mortality risks, expressed in terms of deaths per distance travelled, have also halved since 2000.

Table 1. **Safety and mobility data 1990-2011**

					2011 % change over		
	1990	**2000**	**2010**	**2011**	**2010**	**2000**	**1990**
Reported safety data							
Fatalities	925	592	327	320	-2.1%	-45.9%	-65.4%
Injury crashes	23 834	23737	19 609	18 990	-3.2%	-20%	-20.3%
Deaths/100 000 population	13.86	8.26	4.20	4.07	-3.1%	-51%	-71%
Deaths/10 000 registered vehicles	2.18	1.23	0.59	0.57	-3.4%	-54%	-74%
Deaths/billion vehicle-kms	18.64	10.63	5.25	5.07	-3.4%	-52%	-73%
Fleet and mobility data							
Vehicles (exc. mopeds)	3 777	4 583	5 360	5479	2.2%	19.6%	45.1%
Vehicle-kilometres (in Millions)	49 624	55 686	62 339	63 078	1.2%	13.3%	27.1%
Motorisation (number of motorised vehicles exc. mopeds/1 000 inhabitants)	635.6	673.08	709.6	717.5	1.1%	7%	13%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011**



Economic costs of traffic crashes

In 2009, the cost of road crashes was EUR 12.7 billion, i.e. 2.3% of GDP. This estimation of the total economic burden is based on a willingness-to-pay approach[1].

Table 2. **Costs of road crashes**

Cost (EUR Billion)	2008[2]	2009[3]
Fatalities	1.0	1.1
Injury and disability	8.7	8.7
Property damage	2.9	2.9
Total	12.6	12.7
Total as a % of GDP	2.3%	2.3%

1. Sommer, H., O. Brügger, C. Lieb and S. Niemann (2007), Volkswirtschaftliche Kosten der Nichtberufsunfälle in der Schweiz: Strassenverkehr, Sport, Haus und Freizeit. bfu-Report 58. Bern, bfu - Beratungsstelle für Unfallverhütung.
2. Estimates 2008: bfu – Swiss Council for Accident Prevention (2011), Swiss Statistics on non-occupational accidents and the level of safety in Switzerland, Berne: bfu. http://www.bfu.ch/PDFLib/1625_75.pdf
3. Estimates 2009: bfu – Swiss Council for Accident Prevention (2012), Swiss Statistics on non-occupational accidents and the level of safety in Switzerland, Berne: bfu. http://www.bfu.ch/PDFLib/1798_75.pdf

Road users

All user groups have benefited from the improvement in road safety since 1990. Very good results were achieved for mopeds (-92%), mainly due to a large reduction in kilometrage in recent years.

In the last decade, cyclists are the user group with the smallest improvements, followed by motorcyclists. The number of cyclists killed increased from 34 to 39 between 2010 and 2011.

Regarding motorcyclists, the slower decrease in the number of fatalities is partly explained by a strong increase in PTW traffic.

Riders of motorcycles encounter risks nearly 20 times as high as occupants of passenger cars.

Table 3a. **Reported fatalities by road user group 1990-2011**

									2011 % change over		
	1990		2000		2010		2011		2010	2000	1990
Bicyclists	58	6%	48	8%	34	10%	39	12%	14.7%	-18.8%	-32.8%
Mopeds	49	5%	19	3%	4	1%	4	1%	0%	-79%	-92%
Motorcycles	205	22%	111	19%	71	22%	73	23%	2.8%	-34.2%	-64.4%
Passenger car occupants	455	49%	273	46%	129	39%	119	37%	-7.8%	-56.4%	-73.8%
Pedestrians	167	18%	130	22%	75	23%	69	22%	-8.0%	-46.9%	-58.7%
Others	40	4%	30	5%	18	6%	20	6%	11.1%	-33.3%	-50%
Total	**925**	**100%**	**592**	**100%**	**327**	**100%**	**320**	**100%**	**-2.1%**	**-45.9%**	**-65.4%**

Table 3b. **Relative fatality risk by road user group, 2011**

	Reported fatalities	Deaths per billion v-km
Passenger car occupants	119	2.3
Motorcycles	73	39.2

Age

Since 1990, a reduction in fatalities has been observed in all age groups, with the strongest decrease for children aged 10-14. The number of young people (21-24) killed in a car crash decreased by 85%.

Relative to the number of inhabitants, young people aged 18-24 represent the largest group of casualties, mainly as car occupants and motorcyclists. Their situation improved in 2010, with a 50% decrease in fatalities in the 21-24 age group. Measures have been introduced to reduce the risks for young drivers, including a two-phase driving licence and a provisional licence.

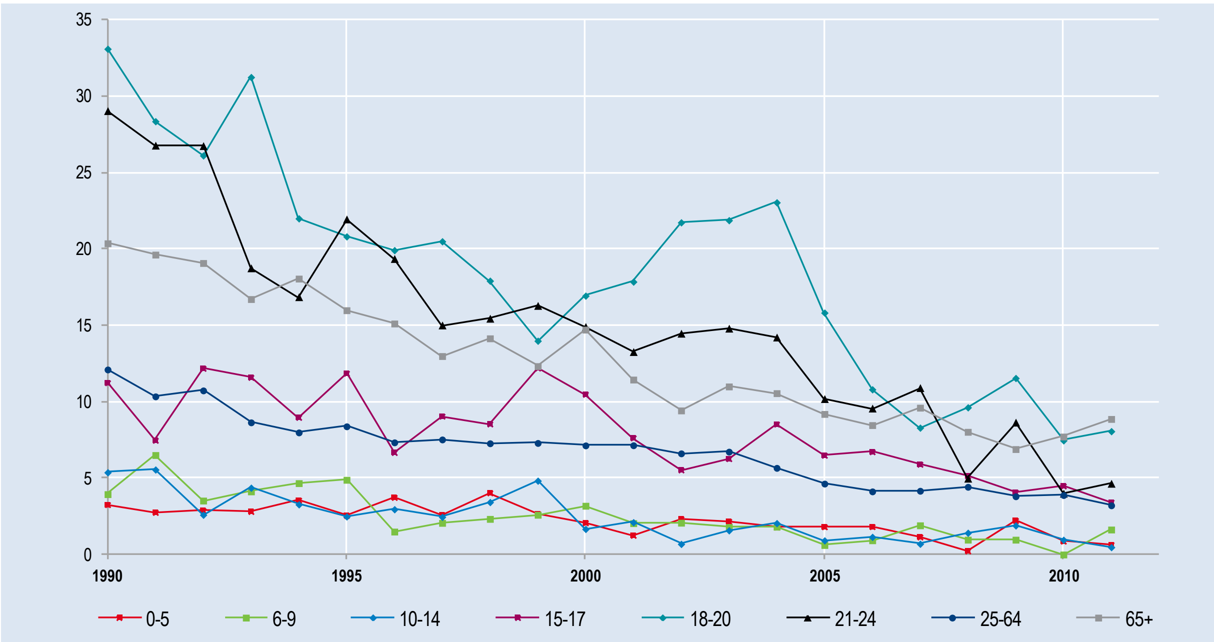
In 2011, there was a 17% increase in road fatalities among the senior population over 65. This increase is to be analysed in the context of the ageing of the population.

Table 4. **Reported fatalities by age group 1990-2011**

	1990	2000	2010	2011	2011 % change over 2010	2011 % change over 2000	2011 % change over 1990
0-5	15	10	4	3	-25%	-70%	-80%
6-9	12	11	0	5	-	-55%	-58%
10-14	20	7	4	2	-50%	-71%	-90%
15-17	28	26	12	9	-25%	-65%	-68%
18-20	93	42	21	23	10%	-45%	-75%
21-24	121	49	15	18	20%	-63%	-85%
25-64	438	285	170	142	-16%	-50%	-68%
>65	198	161	101	118	17%	-27%	-40%
Total	925	592	327	320	-2%	-46%	-65%

Unlike other countries, where young people are at highest risk, in Switzerland in 2011, seniors (+65) were the age group with the highest risk, with nearly 9 deaths per 100 000 population.

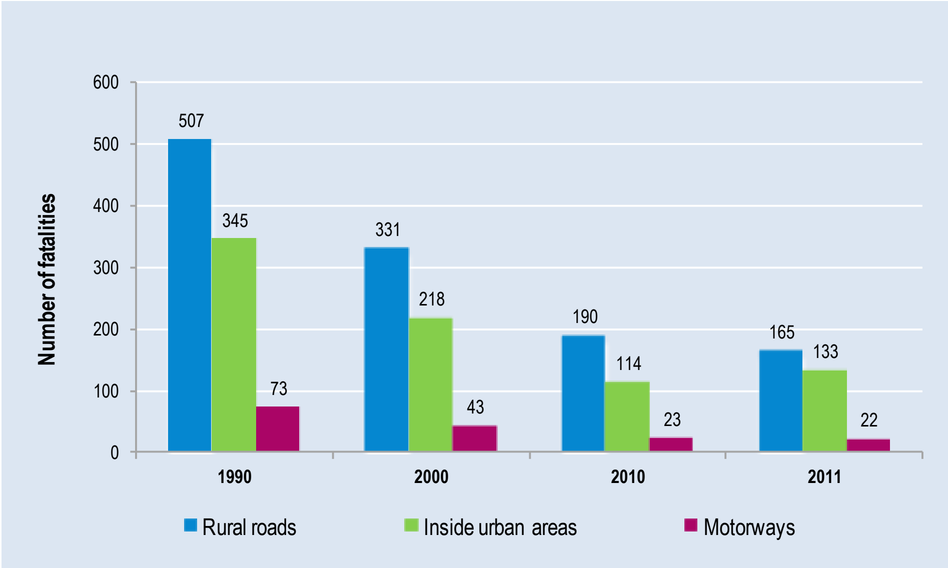
Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**



Road type

In 2011, more than half (51%) of road fatalities occurred on rural roads. When taking into account distances travelled, motorways are the safest type of road in Switzerland.

Figure 3. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



3. Recent trends in road user behaviour

Impaired driving

In 2005, the maximum legal BAC was reduced from 0.8 g/l to 0.5 g/l and random breath-testing was introduced.

In 2011, 14% of injury crashes involved a driver with a BAC above 0.5 g/l.

In official statistics, the consumption of drugs is probably underreported. In 2011, 20 (6%) road fatalities were explicitly due to a road user impaired by drugs (legal or not).

In a roadside survey conducted in 2008 in the French-speaking part of Switzerland, drivers were tested on 107 different substances. The prevalence of impaired driving was 4.7% for alcohol, 4.3% for illegal drugs, and 9.5% for other pharmaceutical substances. Although the study results cannot be generalised to the whole of Switzerland, they indicate the extent of impaired driving.

Speed

In 2011, speed was a contributing factor in around 20% of injury crashes.

Speeding is a contributing factor in around 30% of fatal accidents (2011). In 2010, the proportion of drivers above the speed limit was 23% on urban roads, 31% on rural roads and 18% on motorways. In most cases, inappropriate speed is to blame rather than excessive speed. The survey on actual speeds was stopped in 2010.

Table 5. **Summary of speed limits in Switzerland**

	General speed limit Passenger cars	Actual speeds (v85)
Urban roads	50 km/h	50 km/h
Rural roads	80 km/h	84 km/h
Motorways	120 km/h	121 km/h

Seatbelts and helmets

Seatbelt use has been compulsory in front seats since 1981 and in rear seats since 1994. In addition, since 2002, dedicated child-restraint systems have been mandatory for all children below the age of seven. Starting from 1 April 2010, new regulations have been applied for the transport of children in cars: children between 7 and 12 and smaller than 150 cm must be restrained with a certified child-restraint system.

With a seatbelt-wearing rate for drivers and front-seat passengers of 92% each, the 90% rate was surpassed for the first time in 2012. An increase over the previous year was observed in all locations.

In contrast, seatbelt-wearing rates among rear-seat passengers even declined slightly compared with 2011, the current figure being around 77%.

Methodology for the seat belt survey: *The survey on seatbelt use is carried out every May by suitably trained staff at 73 observation sites throughout Switzerland. Details are recorded for around 45 000 vehicles with Swiss registration plates. Children under the age of 7 and special-purpose vehicles (police, taxi, etc.) are not included.*

Table 6. **Seatbelt wearing rate by car occupants**

	1990	*2000*	*2011*	*2012*
Front seat				
General	67% (driver)	77% (driver)	88% (driver) 89% (passenger)	92% (driver) 92% (passenger)
Urban roads (driver)	53%	66%	85%	90%
Rural roads (driver)	71%	74%	89%	93%
Motorways (driver)	80%	89%	92%	95%
Rear seat (general)		32%	79%	77%

Helmet wearing has been compulsory on motorcycles since 1981 and on mopeds (up to 50 cc, maximum speed 45 km/h) since 1990. Observation indicates the compliance rate is almost 100%.

A helmet is not compulsory on bicycles, but the estimated wearing rate is around 40% and 70% for children.

Distracted driving, use of mobile phones and fatigue

"Distraction or lack of attention" is cited in 25% of injury crashes. Since 2011, police records show more detailed information on the sources of distraction (e.g. use of mobile phone, fine-tuning the radio, use of GPS device).

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.

4. National road safety strategies and targets

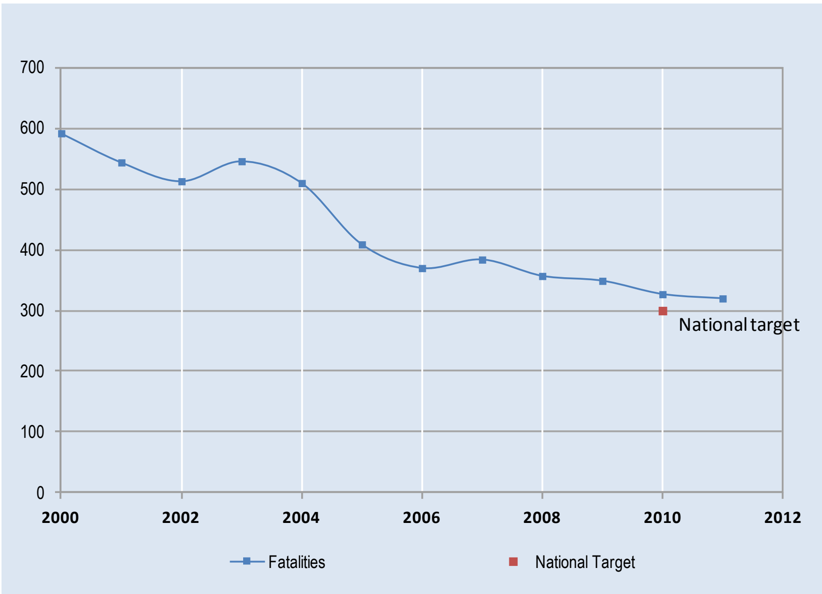
Organisation of road safety in Switzerland

Due to Swiss federalism, many organisations are involved in, and responsible for, road safety (local and cantonal authorities, special interest groups, insurance companies). The leading roles in road safety are taken mainly by the three organisations: "Fund for road safety", "bfu - Swiss council for accident prevention" and the "Federal roads office". The Swiss Federal Council regulates the national road safety policy and is responsible for the road safety programme, "Via Sicura".

Evaluation of the previous road safety programme

The prior target in Switzerland was to halve the number of fatalities and seriously injured by 2010 in comparison to 2000. Despite a substantial improvement in road safety during the last decade, the target for 2010 was not reached. Much progress has been made towards the fatality target.

Figure 4. **Trends towards previous national target**



Road safety strategy for 2011-2020

On 15 June 2012, the Swiss Federal Council adopted the road safety programme, "Via Sicura", almost ten years after the first proposal. A range of safety measures are being progressively implemented, including:

- Road safety audits;
- Mandatory test on fitness to drive in case of, e.g., drug offences;
- Revocation of driver's licence for two years (minimum) in case of excessive speeding and lifelong (minimum ten years) revocation in case of repeated offence;
- Alcolock for excessive drunk driving offenders.

Target setting

No quantitative target was set under the Via Sicura programme, since the strategy’s timeframe and details of the measures were not known when the strategy was developed.

Monitoring

Monitoring is planned for every measure to be implemented.

5. Recent safety measures (2011-2012) and effectiveness of past measures

Road safety campaigns

Ongoing and future campaigns:

- Speeding (www.slow-n-easy.ch);
- Advanced driver assistance systems (http://www.auto-iq.ch);
- Head-rest campaign, 2011-2013 (www.kopfstuetzen.ch);
- Driver fatigue, 2011-2013 (www.turbosieste.ch);
- Campaign on motorcycle safety (http://www.fahr-weise.ch);
- Campaign on bicycle helmets, starting 2012 (www.lovevelo.ch).

Speed management

Purely automatic speed control does not exist in Switzerland. Fines are also processed manually. The first section-control systems (to control the average speed between two points) were implemented in 2009. The final evaluation report was published at the end of 2011. The expected effects on drivers’ speeds were analysed and, in both of the trial sections, traffic has become more homogeneous and the number of speeding cases has decreased.

7. Useful websites and references

Recent and on-going research

- E-bikes: A project on safety issues of e-bikes will be launched soon. The project will also focus on the effectiveness of current bicycle helmets, especially regarding the high speeds of e-bikes.
- Data linking: The Swiss Federal Roads Office will link road accident data with data on car registrations, driving rights and licence withdrawal, as well as on hospital and infrastructure data.
- A pilot project on the safety benefits of using an event data recorder in the vehicle fleet of "Swisscom" (large telecommunications provider).
- The second edition of the bfu Report on the safety of bicyclists was published (abstract also in French and Italian): http://www.bfu.ch/PDFLib/1782_22473.pdf

Useful websites and references

Federal Roads Office (FEDRO/ASTRA)	www.astra.admin.ch
Swiss Council for Accident Prevention (bfu)	www.bfu.ch
Road accident data	www.astra.admin.ch/unfalldaten
SINUS report 2012 on Road Safety	http://www.bfu.ch/PDFLib/1807_74.pdf

Contact

For more information, please contact: philippe.bapst@astra.admin.ch or s.niemann@bfu.ch

United Kingdom

Source: IRTAD, Department for Transport

Capital	Inhabitants	Vehicles /1 000 inhabitants	Road fatalities in 2011	Fatalities /100 000 inhabitants in 2011
London	**63.2 million**	**558**	**1 960**	**3.10**

Information and data presented in this report concern the United Kingdom (i.e. Great Britain + Northern Ireland). Data are provided by Great Britain only (95% of UK fatalities) where comparable information is not available for Northern Ireland.

1. Comments on road safety data collection

There are two main sources of safety information in the UK:

- The national road accident reporting system, STATS19, which includes information from police reports.
- Hospital episode statistics (HES).

Most of the data included in this report, and also included in the IRTAD database, come from STATS19.

While all fatal crashes are reported by the police, a considerable proportion of non-fatal casualties are not known to the police. Hospital, survey and compensation claims data all indicate a higher number of casualties than police accident data would suggest.

DfT's current estimate, derived from the National Travel Survey, is that the total number of casualties was within the range 660 000 to 800 000 for 2010. This compared with around 290 000 casualties reported to the police in 2010. The estimate, including accidents not reported to the police, will next be updated in September 2013 for 2011 and 2012.

The police data are therefore not a complete record of all injury crashes, and this should be borne in mind when using and analysing the STATS19 data.

Linking data from hospital and police sources gives a better understanding of injury severity and outcomes. Around 47% of the police-reported seriously injured casualties are matched to the hospital records. As part of this linkage, the UK uses the MAIS classification for the severity of injury crashes:

– MAIS 1 and 2 : correspond to minor or moderate injuries

– MAIS 3+: correspond to serious injuries.

2. Short term trends

Safety performance in 2011

Road deaths in ***the United Kingdom*** increased by 2.9% in 2011 compared with 2010, with 1 960 fatalities. This is the first increase since 2003. The number of persons seriously injured increased by 2%. However, the 3% increase in road deaths followed a 17% fall between 2009 and 2010, which was the largest percentage fall in a single year in the post war period.

In 2011, the number of fatalities rose for pedestrians and car occupants by 12% and 6% respectively compared with 2010, but fell for all other road users.

Provisional data for 2012

Provisional data for 2012 show a continuing downward trend in fatal road crashes, but an increase in the number of seriously injured casualties. In the 12 months to the end of September 2012, the number of fatal casualties decreased by 7% in comparison to the previous year. However, the number of killed or seriously injured (KSI) casualties increased by 2%.

3. Long terms trends in mobility and safety (1990- 2011)

Change in the number of fatalities and injury crashes

Between 1990 and 2011, the number of fatalities decreased by 64% and, more recently (2000-2011), by 45%.

There are various possible factors which may contribute to the recent large reductions in fatalities in addition to longer term trends in improved vehicle safety, road engineering, trauma care and education. The recession and ongoing economic downturn, falling traffic levels for three consecutive years and continued reduction in free flow speeds have played a part. Similar large falls in fatalities were seen in the recession in the early 1990s.

It was recognised that sustained periods of snow and ice in the first and fourth quarters of 2010 contributed to the highest ever annual fall (-17%). Extreme winter weather tends to reduce the number of serious casualties, as there is less traffic on the roads and those motorists who do venture out drive much more slowly and carefully than usual.

Comparable periods of bad weather were not seen in 2011, and this is a main factor of the increase in road fatalities between 2010 and 2011.

Risks and Rates

In 2011, the death rate, expressed in terms of deaths per 100 000 population was 3.1, ranking the United Kingdom among the three best countries worldwide. Between 1990 and 2011, the death rate decreased by 67%.

Fleet and mobility

Motor vehicle traffic rose by 0.2% between 2010 and 2011. This follows three consecutive years in which traffic levels fell, mainly due to the economic conditions. However it is likely, due to the way road traffic is recorded, that pedal cycling traffic has increased more than the road traffic estimates suggest. 2011 Census results, for instance, show that the number of people commuting by bicycle doubled between 2001 and 2011 in London.

Heavy goods vehicle (HGV) traffic has particularly decreased in recent years. Aside from the 0.6% increase between 2009 and 2010, HGV traffic has dropped every year since 2007. The provisional figures suggest that HGV traffic fell by 16% between 2007 and 2012 and show no signs of increasing.

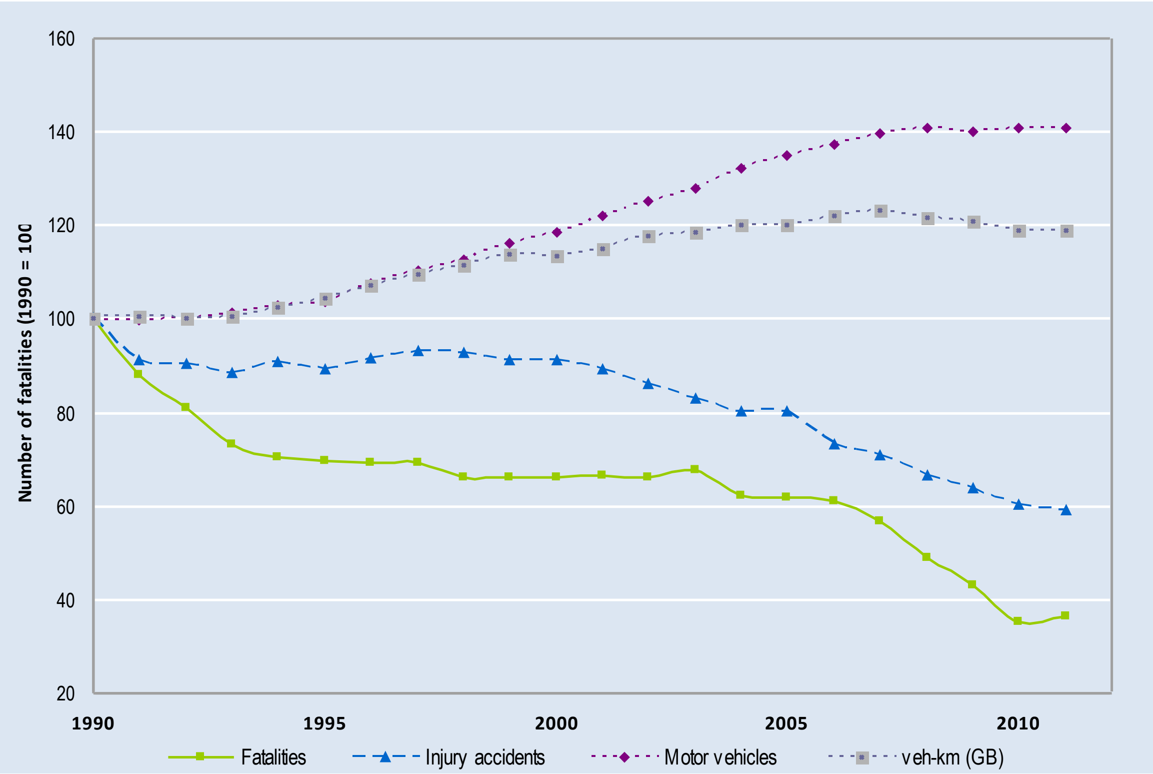
Aside from an initial drop in 2008 and 2009, light goods vehicle (LGV) traffic has grown steadily throughout the latter parts of the recession. Provisional 2012 traffic figures are 1% higher than 2007, prior to the start of the recession.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Reported safety data							
Fatalities	5 402	3 580	1 905	1 960	2.9%	-45.3%	-63.7%
Injury crashes	265 600	242 117	160 080	157 058	-1.9%	-35.1%	-40.9%
Hospitalised	-	-	-	-			
MAIS3+ (Great Britain only)	-	47 130	34 810	-	-	-	-
Deaths/100 000 population	9.44	6.08	3.06	3.10	1.3%	-49%	-67.2%
Deaths/10 000 registered vehicles	2.14	1.21	0.54	0.56	3.7%	-53.7%	-73.8%
Deaths/billion vehicle-kms	-	7.41	3.75	3.85*	2.7%	-48.0%	-
Fleet and mobility data							
Vehicles (exc. mopeds)	24 941	29 523	35 087	35 119	0.1%	19%	40.8%
Vehicle- kilometres (in million)	410 767	466 168	487 933	488 882	0.2%	4.9%	19%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	435.8	501.4	564.9	557.9	-1.2%	11.3%	28%

* provisional, based on final vehicle-kms for Great Britain and estimated figures for Northern Ireland

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011 (1990 = 100)**



Economic costs of traffic crashes

Since 1993, the valuation of both fatal and non-fatal casualties has been based on a consistent willingness-to-pay approach. This approach encompasses all aspects of the valuation of casualties, including the human costs (which reflect pain, grief, suffering), the direct economic costs of lost output, and the medical costs associated with road crash injuries[1].

It is estimated that police reported personal-injury accidents cost around GBP 15.6 billion in 2011 (Great Britain only). If one takes into account crashes not reported by the police (including damage-only accidents), the costs could be as high as GBP 34.8 billion (up to 3% of GDP).

Tables 2 and 3 present the average values of prevention of road crashes and casualties in Great Britain by severity based on 2011 prices and values and the total value of crash prevention by severity and costs elements.

1. The methodology used to value the cost of road crashes is published in the Transport Analysis Guidance at: www.dft.gov.uk/webtag/documents/expert/unit3.4.1.php

Table 2. **Average value of prevention of reported road crashes, Great Britain, 2011 prices**

Cost (GBP°) per accident	2011	2010	% change
Fatalities	1 877 582	898 292	-1.09
Serious injuries	216 204	217 814	-0.74
Slight injuries	23 138	23 183	-0.19
All injury crashes*	71 886	69 967	2.74
Property damage and other costs	2 027	2 032	-0.22

* The cost of all injury crashes can move in a different direction to the different injury types if the distribution of accidents between the severities change between years.

Table 3. **Total value of prevention of reported crashes by severity and costs elements, Great Britain, 2011 prices**

	Casualties related costs			Crash related costs			
Cost (GPB million)	Lost output	Medical and ambulance	Human costs	Police costs	Insurance and administration	Damage to property	Total
Fatalities	1 116	10	2 195	32	1	21	3 374 (22%)
Serious injuries	521	313	3 548	43	4	108	4 537 (29%)
Slight injuries	404	171	1 924	69	15	394	2 977 (19%)
All injury crashes	*2 041*	*494*	*7 667*	*144*	*20*	*523*	*10 889 (70%)*
Damage only crashes	0	0	0	79	128	4 461	4 668 (30%)
Total (All crashes)	2 041 *13%*	494 3%	7 667 49%	223 1%	147 1%	4984 32%	15 557 (100%) 100%

Road users

Between 1990 and 2011, the number of pedestrians killed decreased by 67%, the number of bicyclists by 60%, the number of motorized two-wheelers by 58%, and passenger car occupants showed a decrease of 68%.

For 2011 in comparison with 2010, KSI[2] casualties increased for pedestrians (+5%), cyclists (+15%) and motorcyclists (+8%). The number of KSI casualties fell for other road users. Looking at fatalities figure only, the number of cyclists killed increased by 31% between 2010 and 2011.

Compared with 2005-09 average, there have been reductions in the number of reported KSI casualties with the exception of cyclists. Cyclists casualties have risen steadily since 2004, as have traffic levels. In 2011, the number was 26% higher than the 2005-09 average. Although assessing how pedal cycle traffic levels have changed is hard, traffic statistics provide estimates of a 12% rise over the same period. However, other evidence (for instance, from the 2011 census of population and the National Travel Survey) suggests that this is an underestimate, especially in urban areas.

2. KSI : Killed and Seriously Injured

Table 4. **Reported fatalities by road user group 1990-2011**

	1990		2000		2010		2011		2011% change over		
									2010	2000	1990
Bicyclists	267	5%	131	4%	111	6%	109	6%	-1.8%	-16.8%	-59.2%
Motorised two-wheelers	671	12%	612	17%	413	22%	369	19%	-10.7%	-39.7%	-45%
Passenger car occupants	2 462	46%	1 784	50%	867	46%	917	47%	5.8%	-48.6%	-62.8%
Pedestrians	1 754	32%	889	25%	415	22%	466	24%	12.3%	-47.6%	-73.4%
Others	248	5%	164	5%	99	5%	99	5%	0%	-39.6%	-60.1%
Total	5 402	100%	3 580	100%	1 905	100%	1 960	100%	2.9%	-45.3%	-63.7%

Although the largest number of fatalities is for car occupants, motorcyclists have the highest fatality rate. In 2011, 79 motorcyclists were killed per billion vehicle-kilometres. The pedestrian fatality rate per billion kilometres walked has fallen steadily in recent years; however the rate in 2011 was 10% higher than in 2010.

Table 5. **Relative fatality risk by road user group 2011 (Great Britain)**

	Reported fatalities	Deaths per billion veh-km	Deaths per billion passenger-km
Passenger car occupants	883	2.3	
Bicyclists	107	21.8	
Motorcycles	362	78.7	
Pedestrians	453	39.8	
Rail transport	6[3]		0.1
Air transport	0		

Age

Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction was in the youngest group (0-14), for which fatalities decreased by 87%, from 394 in 1990, to 52 in 2011.

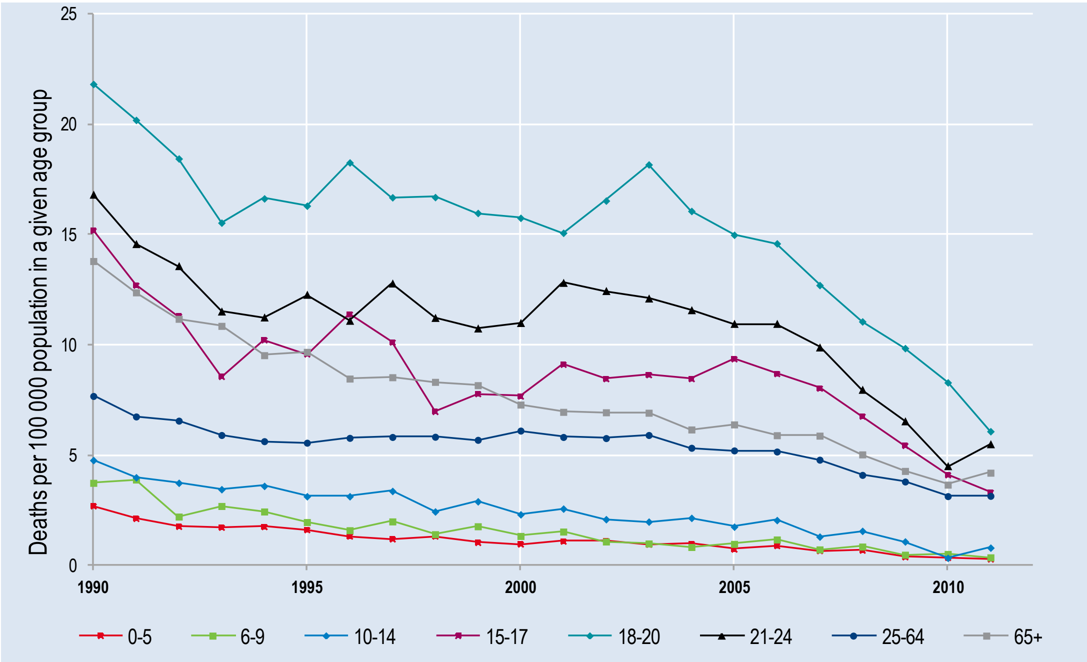
In 2011, the young population (18-24) still had the highest risk of being killed in a road crash (see figure 3).

3. Excludes suicides and deaths of trespassers. Figure for 2011/12.

Table 6. **Reported fatalities by age group 1990-2011**

	1990	2000	2010	2011	2011% change over 2010	2000	1990
0-5	123	41	15	13	-13%	-68%	-89%
6-9	108	41	12	10	-17%	-76%	-91%
10-14	163	89	15	29	93%	-67%	-82%
15-17	335	169	57	77	35%	-54%	-77%
18-20	558	342	197	152	-23%	-56%	-73%
21-24	616	304	178	189	6%	-38%	-69%
25-64	2223	1908	1046	1051	0%	-45%	-53%
>65	1241	679	385	439	14%	-35%	-65%

Figure 2. **Reported death rate by age band (Fatalities per 100 000 population in a given group, 1990-2011)**



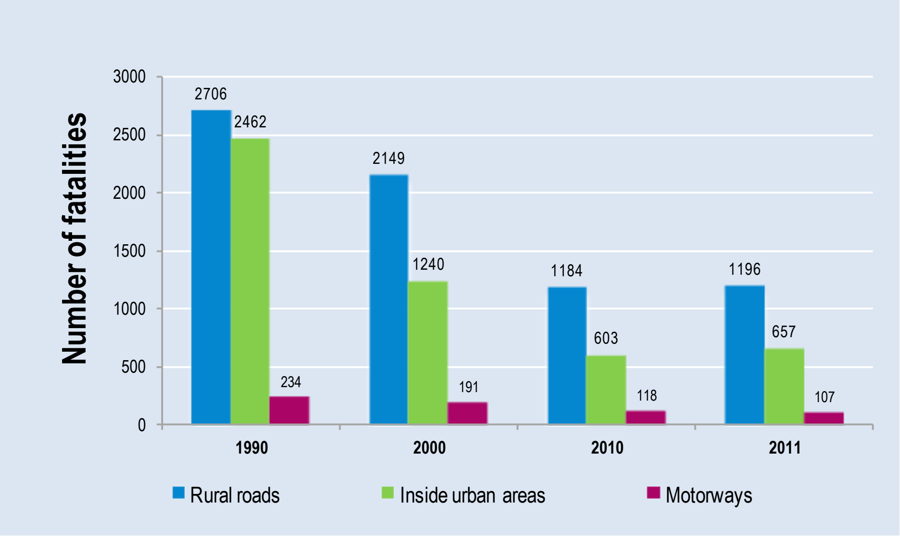
Road Type

In 2011, 64% of fatalities occurred on rural roads, 30% on urban roads and only 7% on motorways although motorways carry around 20% of traffic. Since 1990, the largest improvement was made on urban roads.

In 2011, the greatest number of KSIs were on urban roads with posted speed limits of 30 mph (48 km/h) or lower. However, rural single carriageway roads with speed limits of 60 mph (97 km/h) had the largest number of fatal accidents. Urban A roads had the highest rate of KSI casualties per billion vehicle miles, though the highest rate of fatalities were on rural roads.

In 2011, approximately 66% of all traffic fatalities occurred on rural roads outside of urban areas. The majority, 69%, of fatalities and serious injuries involving vulnerable road users (pedestrians, motorcyclists and bicyclists) occurred in urban areas. However, there was roughly the same number of fatalities of vulnerable road users in urban and rural areas. These figures mask the difference between motorcycle casualties and walking & cycling casualties. KSI casualties for pedestrians and pedal cyclists are predominantly an urban phenomenon, with 84% and 75% respectively occurring in urban areas. Seriously injured motorcyclist casualties are almost evenly split between urban and rural areas, though nearly 70% of motorcyclist fatalities occur outside of urban areas.

Figure 3. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



3. Recent trends in road user behaviour

Impaired driving

In Great Britain, the maximum authorised blood alcohol content is 0.8 g/l. In 2010, provisional estimates indicate that in 13% of fatal crashes one of the drivers had a BAC above 0.8 g/l.

In Great Britain, it was estimated in 2011 that 15% of road fatalities and 5% of all casualties occurred when someone was driving with a BAC above the limit.

A important survey on self reported drink and drug driving was conducted in 2009 and the results are published in http://assets.dft.gov.uk/statistics/releases/road-accidents-and-safety-annual-report-2011/rrcgb2011-05.pdf

The UK is introducing new legislation on driving with a specified controlled drug in the body above a specified limit. This will be a change from the current legislation which requires the police to demonstrate that that driving was impaired by drugs in order to prosecute. This legislation has been introduced as a response to the North Review.[4]

4. http://webarchive.nationalarchives.gov.uk/20100921035225/http://northreview.independent.gov.uk/docs/NorthReview-Report.pdf

Speed

Exceeding the speed limit was reported as a factor in 5% of all crashes in 2011, but these accidents involved 14% of fatalities. At least one case of exceeding the speed limit and travelling too fast for the conditions was reported in 12% of all accidents, and these accidents accounted for 23% of all fatalities.

The table below summarises the main speed limits in the United Kingdom.

Table 7. **Summary of speed limits in 2013**

	General speed limit *Passenger cars*	Actual speeds (2011) (free flow speeds)	Comments
Urban roads	30 mph	30 mph (cars)	Average 35 mph in 40 mph areas
Rural roads	60 mph (single carriageway)	48 mph (cars)	Average 68 mph on dual carriageways (speed limit 70 mph)
Motorways	70 mph	69 mph (cars)	

Seatbelts and helmets

Seatbelt use is compulsory on all seats:

- Front seatbelt wearing regulations for drivers and passengers (both adult and children) came into force on 31 January 1983.
- Seatbelt wearing regulations for children in rear seats came into force on 1 September 1989.
- Seatbelt wearing regulations for adults in rear seats came into force on 1 July 1991.
- Van drivers and passengers were included for the first time in the October 1994 survey.

Helmet wearing has been compulsory on motorcycles since 1973 and on mopeds (up to 50cc, maximum speed 45 km/h) since 1977. A helmet is not compulsory on bicycles.

The most recent survey of seatbelt usage, carried out in 2009, provided estimates that 95% of car drivers and front-seat passengers and 89% of rear-seat occupants wore seatbelts. These rates are slightly higher than earlier in the decade. Seatbelt wearing for front seat passengers has never been below 93% since 1999.

Distracted driving, use of mobile phone and fatigue

Research demonstrates that reaction times for drivers using a hand-held phone are 30% worse than for driving under the influence of alcohol at the legal limit.[5]

It is illegal to use a hand-held mobile phone or similar device while driving. The fine is GBP £60 and three penalty points. If the case goes to court, a maximum fine of GBP 1 000 (GBP 2 500 if

5. Bruns, PC, Parkes, A, Burton, S, Smith RK and Burch D, 2002, *How dangerous is driving with a mobile phone? Benchmarking the impairment to alcohol, TRL547*; available at www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/report_how_dangerous_is_driving_with_a_mobile_phone?_benchmarking_the_impairment_to_alcohol.htm.

driving a bus, coach or heavy goods vehicle), discretionary disqualification and three points are imposed.

A driver can also be prosecuted for using a hands-free phone or similar device if distracted and not in proper control of the vehicle. The same penalties apply. Employers could also be prosecuted if employees are distracted because they require them to use their mobile phones while driving.

A 2009 survey[6] in England showed the proportion of drivers observed using hand-held mobile phones whilst driving increased from 1.1% to 1.4% for car drivers and from 2.2% to 2.6% for van and lorry drivers, compared to 2008. The number of drivers who appeared to be using hands-free mobile phones increased from 0.5% to 1.4% for car drivers and from 1.1% to 2.4% for van and lorry drivers.

4. National road safety strategies and targets

Organisation of road safety

The Department for Transport sets the overarching road safety strategy in Great Britain. This includes decisions about road safety targets and legislating on key safety issues. The devolved administrations can also set road safety policy: Transport Scotland has certain powers in respect of road safety in Scotland, for example it can vary the drink driving limit; and the Welsh Assembly Government has set a Welsh road safety target. Local Highways Authorities are responsible for safety on their roads and can use engineering measures as well as local education campaigns to improve safety. Road safety in Northern Ireland is the responsibility of the Department of the Environment in Northern Ireland.

Road safety strategy for 2011-2020: Great Britain

A new Strategic Framework for Road Safety for Great Britain was launched on 11 May 2011, when the UN launched its Decade of Action. This set out an outcomes framework to monitor progress on road safety, including six key, and a range of other, indicators for which initial figures were published in the 2010 Annual Report.

The six key indicators are:

- Number of road deaths (and rate per billion vehicle miles);
- Rate of motorcyclist deaths per billion vehicle miles;
- Rate of car occupant deaths per billion vehicle miles;
- Rate of pedal cyclist deaths per billion vehicle miles;
- Rate of pedestrian deaths per billion miles walked;
- Number of deaths resulting from collisions involving drivers under 25.

6. http://webarchive.nationalarchives.gov.uk/20110503151558; www.dft.gov.uk/adobepdf/162469/221412/221549/564852/mobileusedrivers.pdf

The Government's approach translates into a number of key themes for road safety:

– Making it easier for road users to do the right thing and going with the grain of human behaviour;

– Better education and training for children and learner and inexperienced drivers;

– Remedial education for those who make mistakes and for low-level offences, where this is more effective than financial penalties and penalty points;

– Tougher enforcement for the small minority of motorists who deliberately choose to drive dangerously;

– Extending this approach to cover all dangerous and careless offences, not just focusing upon speeding;

– Taking action based upon cost-benefit analysis, including assessing the impact on business;

– More local and community decision-making from decentralisation, and providing local information to citizens to enable them to challenge priorities; and

– Supporting and building capability by working with the road safety community on better tools to support road safety professionals.

The action plan has not set quantitative targets as such, but a modelling exercise has been conducted to assess the expected casualty reduction

The table below shows projected reductions based on assumptions about the effectiveness of measures contained in the new strategic framework, both in terms of casualty numbers and percentage reduction compared with the 2005-09 average.

Table 8. **Projected casualty reduction up to 2030**

	2005-09 average	2020	2025	2030
Killed				
Central projection	2 816	1 770	1 720	1 670
Change on 05-09 average		-37%	-39%	-41%
Low projection		1 530	1 370	1 220
Change on 05-09 average		-46%	-51%	-57%
Killed or seriously injured				
Central projection	30 040	18 070	15 820	13 570
Change on 05-09 average		-40%	-47%	-55%
Low projection		15 110	12 130	9 150
Change on 05-09 average		-50%	-60%	-70%

* Full details for the Strategy can be found at: https://www.gov.uk/government/publications/strategic-framework-for-road-safety.

5. Recent safety measures (2011-2012)

Impaired driving

A clause in the Crime and Courts Bill seeks to create an offence of driving with a specified drug in the body above a specified limit. The Government published the report of the independent scientific panel, *Driving under the influence of drugs,* in March 2013. The report is available at https://www.gov.uk/government/publications/driving-under-the-influence-of-drugs-2. The Government will use the Expert Panel's advice and other relevant factors to bring forward specific proposals for consultation about which drugs and limits should be included in regulations for the new offence.

Alongside the proposed new drug driving offence, the Government is looking to type approve drug screening devices to assist the police both at the roadside and in police stations. The laboratory testing stage of the type approval process for police station drug screening equipment is underway, with the first device receiving type approval decisions in 2013.

Safety of motorcyclists

The Department is currently reviewing the motorcycle test. The test is currently carried out in two parts, one on-road and one off-road. Some manoeuvres have already been revised, including a new hazard avoidance manoeuvre. Research examining the feasibility and safety of putting these new manoeuvres on road will conclude shortly. The Department will consider its conclusions and decide whether any further action should be taken.

Uninsured drivers

DfT is tackling uninsured driving. Since June 2011 it has been an offence to keep a vehicle without insurance, known as continuous insurance enforcement. This supplements the offence of driving without insurance. Currently, every responsible motorist pays an average £30 each year within their premiums to cover crashes involving uninsured and untraced drivers. It is also estimated that uninsured and untraced drivers kill 160 people and injure 23 000 every year.

6. Useful websites and references

Recent and on-going research

Recently published research reports can be found at:
https://www.gov.uk/government/publications/road-safety-research-and-statistical-reports
https://www.gov.uk/government/publications/road-safety-research-and-statistical-reports

Useful websites

UK Department for Transport – Road Safety Unit	https://www.gov.uk/government/policies/making-roads-safer
Reported Road Casualties Great Britain 2011: Annual Report	https://www.gov.uk/government/publications/reported-road-casualties-great-britain-annual-report-2011

Contact:

For further information, please contact: Anil.Bhagat@dft.gsi.gov.uk

United States

Source: NHTSA, IRTAD

Capital	Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2011	Fatalities/ 100 000 inhabitants in 2011
Washington DC	**309.3 million** (in 2010)	**826**	**32 367**	**10.4**

1. Comments on road safety data collection

The State Police collect data on motor vehicle traffic crashes on specific roadways in the State. Each State also has local police jurisdictions within counties, cities and towns that collect data on motor vehicle traffic crashes on the roadways not covered by the State Police.

The NASS (National Automotive Sampling System) consists of 2 sub-systems: the General Estimates System (GES) and the Crashworthiness Data System (CDS). Both sub-systems are probabilistic surveys designed to produce national estimates on motor vehicle traffic crashes annually.

The CDS is a nationally representative sample of police-reported motor vehicle traffic crashes in which at least one light motor vehicle (automobile, automobile derivative, minivans, vans, pickup trucks, and sport utility vehicles) was towed from the crash scene as a result of the crash.

The GES is a nationally representative sample of all police-reported motor vehicle traffic crashes occurring across the United States, designed to produce national estimates on general characteristics of motor vehicle traffic crashes.

In particular, the (GES) data are obtained through a sample selected from all police-reported motor vehicle crashes. Although various sources suggest that about half the motor vehicle crashes in the country are not reported to police, the majority of these unreported crashes involve only minor property damage and no significant personal injury. By restricting attention to police-reported crashes, the GES concentrates on those crashes of greatest concern to the highway safety community and the general public.

Approximately 90 data elements are coded into a common format. To protect individual privacy, no personal information (names, addresses, specific crash locations) is coded.

Strengths of the system:

- obtaining information on all types of motor vehicle traffic crashes that can aid policy makers in enhancing safety standards in the motor vehicle;
- can produce national estimates on a characteristics of the crash.

Weaknesses:

- the PAR may not be completed when it is obtained by the GES, therefore some of the information may not be available on the PAR;
- access to the PARs is dependent on the cooperation of the police jurisdictions.

Challenges collecting at the federal level is obtaining and maintaining cooperation with the police jurisdictions (State and local).

In the GES, serious injuries are defined as incapacitating injuries which are defined as severe lacerations (exposure of muscles or bone), broken or distorted extremities, crush injuries, internal skull/chest/abdominal injuries, significant burns, unconscious, and paralysis.

MAIS 3+ injuries are coded in the CDS not the GES and are defined as serious injuries.

2. Short term trends

General comments and trends for 2011

In 2011, 32 367 people died in motor vehicle traffic crashes in the United States—the lowest number of fatalities since 1949, when there were 30 246 fatalities. This was a 1.9% decline in the number of people killed, from 32 999 in 2010. Passenger vehicle and SUVs occupants were the main beneficiaries in the decline in fatalities.

Provisional data for 2012

A statistical projection of traffic fatalities for the 2012 shows an increase of about 5.3% as compared to 2011.

3. Long terms trends in mobility and safety (1990- 2011)

Fleet and mobility

In 1990, there were 188 797 914 registered motor vehicles in the U.S. and vehicle ownership rate was close to 0.76 vehicles per capita. Since then except for years of 1991 and 1998, the number of registered vehicles had grown steadily to over 255 917 664 by 2008 with an ownership rate exceeded 0.84 vehicles per capita. Even though the number of registered vehicles was down for years 2009 and 2010, the latest 253,108,389 registered vehicles for 2011 indicates the total number of vehicle registered is on the rise again. From 1990 to 2011, an annual average compound growth rate for registered vehicles is over 1.6%.

Travel as measured by vehicle mile traveled (VMT) indicated that in 1990, total VMT was approximately 2 144,= 362 million miles; and by 2007, VMT reached its peak of 3 031 124 million miles. From 1990 to 2007, VMT had grown at an annual average compound growth rate of approximately 1.02%. For year 2008, total VMT was down to 2 976 528 million miles. The latest 2011 VMT data which was 2 946 131 million miles is still below the 2007 peak.

In 2011, the vehicle miles travelled decreased by 0.7%

Change in the number of fatalities and injury crashes (1990-2011)

Between 1990 and 2011, the number of fatalities decreased by 27%; however, most of the progress was achieved from 2006 through 2011. During the 1990s, there was little progress in terms of reductions in the number of casualties. Traffic fatalities have been declining steadily since reaching a near-term peak in 2005, and the reduction accelerated in 2008 and 2009. The magnitude of decline decreased in 2010 and 2011.

The reduction in fatalities in 2008-2011 may be partly explained by a reduction in distance travelled (vehicle miles travelled lower than in 2007), as a consequence of the economic recession; but the overall decline in fatalities has been much greater than the reduction in traffic volume, thus assuming that the recent safety measures promoted by the US DoT have been effective.

Risks and Rates

The fatality rate per 100 million vehicle miles traveled (VMT) fell to a historic low of 1.10 in 2011. The overall injury rate increased by 1.3 percent from 2010 to 2011.

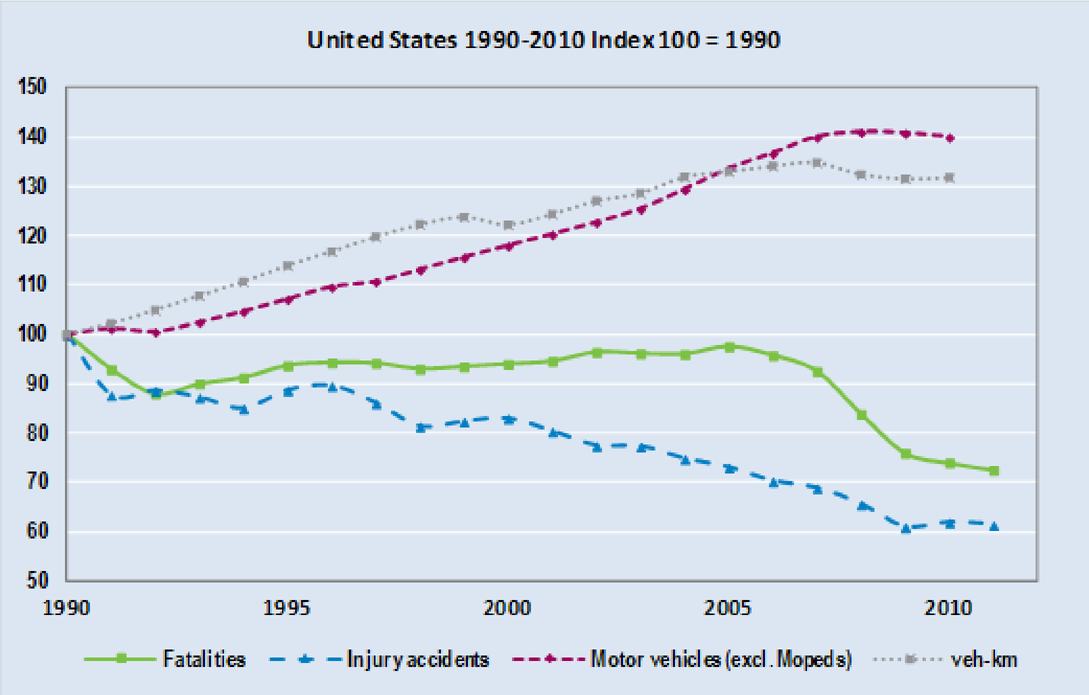
In 2011, the death rate expressed in terms of deaths per 100 000 population was 10.39. This is a 2.6% decline from 2010.

Between 1990 and 2011, the death rate, expressed in terms of deaths per 100 000 population decreased by 42%; while the risks (in terms of deaths per billion veh-km) declined by 37%.

Table 1. **Safety and mobility data 1990-2011**

					2011% change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Reported safety data							
Fatalities	44599	41945	32999	32367	-1.9%	-22.8%	-27.4%
Injury crashes	2161836	2107526	1572296	1559757	-0.8%	-26.0%	-27.9%
Deaths/100 000 population	17.88	14.87	10.63	10.39	-2.6%	-30.1%	-41.9%
Deaths/10 000 registered vehicles	2.42	1.93	1.28	1.25	-2.4%	-37.8%	-48.3%
Deaths/billion vehicle-kms	12.92	9.49	6.89	6.83	-0.9%	-28%	-47%
Fleet and mobility data							
Vehicles (exc. mopeds)	184275	217028	257312	257512	0.1%	18.7%	39.7%
Vehicle- kilometres (in billion)	3451016	4420747	4775353	4741338	-0.7 %	7.3%	37.4%
Motorisation (number of motorised vehicles excl mopeds/1 000 inhabitants)	739	769	832	826	-0.8%	7.4%	11.8%

Figure 1. **Reported road fatalities, injury crashes, motorised vehicles and vehicle-kilometres 1990-2011**



Economic costs of traffic crashes

The latest estimation of the economic costs of traffic crashes was done in 2000[1]. The cost of motor vehicle crashes that occurred in 2000 totaled USD 230.6 billion. This is equal to approximately USD 820 for every person living in the United States and 2.3 percent of the U.S. Gross Domestic Product. Included in these losses are lost productivity, medical costs, legal and court costs, emergency service costs, insurance administration costs, travel delay, property damage, and workplace losses. The economics costs are calculated based on a human capital approach.

The costs are based on crash severity level – the cost of fatal crashes, injury crashes and property damage-only crashes.

Table 2. **Costs of road crashes**

Cost (USD Billion)	2000
Fatalities	41
Injury and disability	130
Property damage and other costs	60
Total	231
Total as a % of GDP	2.3%

1. Blincoe, L., A.Seay, E. Zaloshnja, T. Miller, E. Romano, S. Luchter, R. Spicer, *The Economic Impact of Motor Vehicle Crashes*, 2000, U.S. DOT HS 809 446, May 2002.

Road users

In 2011, passenger vehicle and SUVs occupants were the main beneficiaries in the decline in fatalities. There was an increase in fatalities among cyclists (+8.7%), motorcyclists (+2.1%) and pedestrians (+3.0%).

Since 1990, all road users except motorcycle riders have benefited from the improvement in road safety. Motorcycle rider fatalities increased by 42% between 1990 and 2011.

Between 1990 and 2011, the United States experienced a marked reduction of 50% in passenger car occupant fatalities. A further reduction in passenger car occupant fatalities is expected with increased availability of front and side airbags, electronic stability control, safety belt use, use of age-appropriate child safety seats and a continued reduction in alcohol- and drug-impaired driving.

Over the same period, the number of pedestrians and cyclists killed in motor vehicle crashes decreased by 32% and 21%, respectively.

Motorcycle fatalities reached their lowest level in 1997, and increased continuously and substantially until 2008. In 2008, motorcyclist fatalities made up 14% of all motor vehicle traffic crash fatalities and accounted for 5 312 lives, an increase of 132% since 1998.

In 2009, motorcyclist fatalities broke the continuous 11-year increase, with a large decline of 843 fatalities (24% of the total decline of 3 540). But the number of motorcyclists increased again in 2010 and 2011.

Table 3. **Reported fatalities by road user group 1990-2011**

									2011% change over		
	1990		2000		2010		2011		2010	2000	1990
Bicyclists	859	2%	693	2%	623	2%	677	2%	8.7%	-2.3%	-21.2%
Motorised two-wheelers	3 244	7%	2 897	7%	4 518	14%	4612	14%	2.1%	59.2%	42.2%
Passenger car occupants	24 092	54%	20 699	49%	12 491	38%	11 981	37%	-4.1%	-42.1%	-50.3%
Pedestrians	6 482	15%	4 763	11%	4 302	13%	4 432	14%	3.0%	-6.9%	-31.6%
Others, including SUVs	9 922	22%	12 893	31%	11 065	34%	10 665	33%	-3.6%	-17.3%	7.5%
Total	**44 599**	**100%**	**41 945**	**100%**	**32 999**	**100%**	**32 367**	**100%**	**-1.9%**	**-22.8%**	**-27.4%**

Motorcyclists are the user group the most at risk, with a fatality risk, per km driven, 31 times higher than a car occupant

Table 4. **Relative fatality risk by road user group**
2011

	Reported fatalities	Deaths per billion veh-km	Deaths per billion passenger-km
Passenger car occupants	11 981	4.97	
Motorised 2 wheelers	4 612	154.90	

Age

In 2011, the greatest decline in fatalities with respect to the age groups was the youngest children, ages 5 and under. This group experienced over 10% decline compared to the overall decline of 1.9% in fatalities.

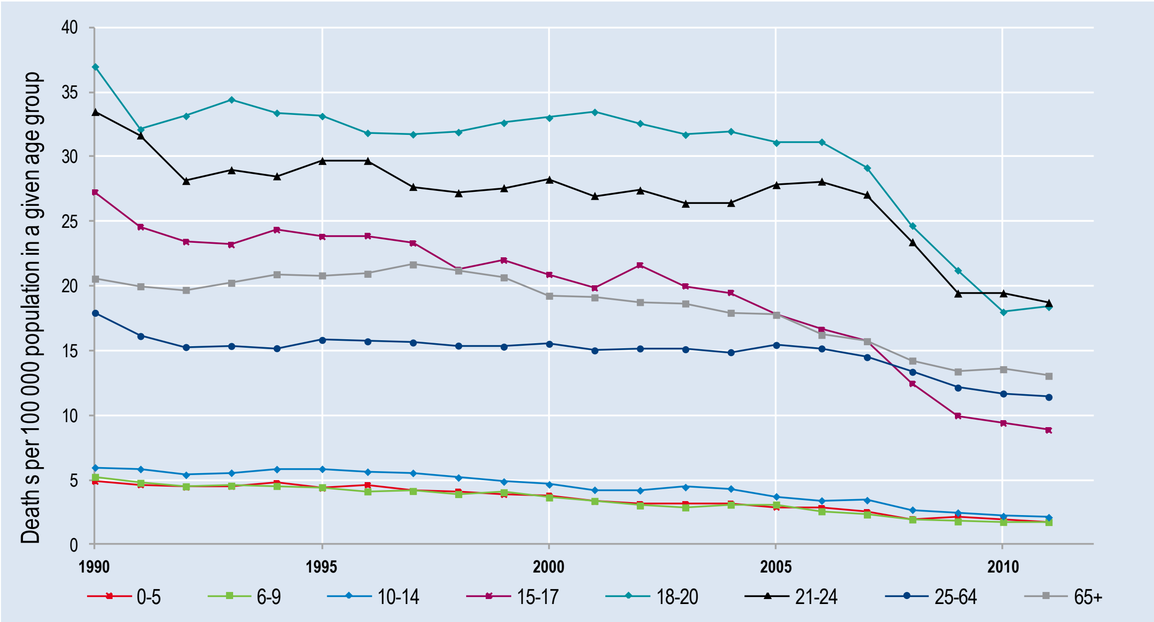
Since 1990, the reduction in fatalities has benefited all age groups, but the highest reduction concerned the youngest group (0-14), for which fatalities decreased by 60%, from 2 878 in 1990, to 1 140 in 2011.

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

Table 5. **Reported fatalities by age group**
1990-2011

					2011% change over		
	1990	**2000**	**2010**	**2011**	**2010**	**2000**	**1990**
0-5	1 101	858	471	421	-10.6%	-50.9%	-61.8%
6-9	752	579	285	283	-0.7%	-51.1%	-62.4%
10-14	1 025	926	455	436	-4.2%	-52.9%	-57.5%
15-17	2 744	2 467	1 216	1 127	-7.3%	-54.3%	-58.9%
18-20	4 563	3 967	2 449	2 484	1.4%	-37.4%	-45.6%
21-24	5 047	4 061	3 340	3 282	-1.7%	-19.2%	-35.0%
25-64	22 803	22 267	19 213	18 873	-1.8%	-15.2%	-17.2%
>65	6 426	6 701	5 424	5 401	-2.3%	-19.4%	-16.0%
Total	**44 586**	**41 945**	**32 999**	**32 367**	**-1.9%**	**-22.8%**	**-27.4%**

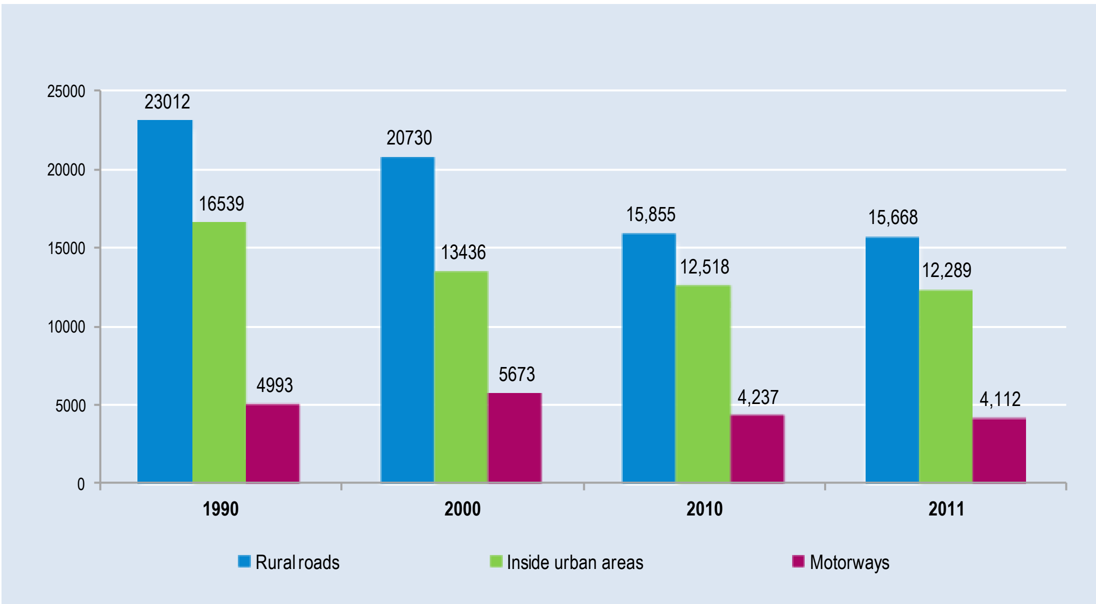
Figure 3. **Reported death rate by age band**
(Fatalities per 100 000 population in a given group, 1990-2011)



Road Type

In 2011, 48% of fatalities occurred on rural roads, 38% on urban roads and 13% on motorways. Since 1990, the reduction in fatal crashes has been spread equally between urban and rural networks. From the beginning of the 2000s, less progress was made on urban roads. Motorways experienced an increase in the number of fatalities between 1990 and 2000, which certainly must be analyzed in conjunction with the increase of the motorway.

Figure 4. **Reported fatalities by road type**
1990, 2000, 2010 and 2011



3. Recent trends in road user behaviour

Impaired driving

Each state makes its own laws governing BAC levels for law enforcement action. In general, state BAC laws fall into three categories: zero tolerance; 0.08 BAC *per se*; and high BAC (0.08+). All 50 states have enacted zero tolerance laws (primarily, *per se* laws at 0.02% BAC or lower) that make it illegal for drivers under age 21 to have any detectable amount of alcohol in their bodies. As of August 2005, all 50 states, the District of Columbia and Puerto Rico, had enacted 0.08 BAC *per se* laws. Additionally, as of January 2005, 32 states had enacted high BAC laws.

Alcohol-impaired driving fatalities [fatalities in crashes involving a driver or motorcycle rider (operator) with a blood-alcohol concentration (BAC) of 0.08 grams per decilitre (g/dL) or greater] declined by 2.5% in 2011, accounting for 31% of overall fatalities. The number of alcohol-impaired drivers in fatal crashes declined for most vehicle types with the largest decline among drivers of vans (9.8%). Fatal crashes involving alcohol-impaired motorcycle operators increased by 8.6%—the only category of drivers by vehicle type with an increase in alcohol impaired crash involvement. The proportion of alcohol-related crashes has remained stable over the years.

While data focusing on the danger of driving under the influence of alcohol is readily available and often cited, less is known or discussed about drivers under the influence of other drugs. The Fatality Analysis Reporting System (FARS) contains a number of variables to describe drug involvement for those in fatal crashes. The Drug Test variable contains three linked elements (Test Status, Test Type and Test Result). The Test Status element provides information on whether or not the person was tested for drugs; Test Type records the type of test (if one was given); and Test Result reports which specific drug (if any) was found. Up to three tests and associated types of drugs can be recorded for an individual.

It is important to note that drug involvement means only that drugs were found in the driver’s system. Drug involvement does not imply impairment or indicate that drug use was the cause of the crash. Drug presence as recorded in FARS includes both illegal substances as well as over-the-counter and prescription medications, which may or may not have been misused. Unlike alcohol data in FARS, there is no measure of the amount of drug present.

In 2009, 63% of fatally injured drivers were tested for the presence of drugs. Overall, 3 952 fatally injured drivers tested positive for drug involvement in 2009. This number represents 18% of all fatally injured drivers and 33% of those with known drug test results in 2009. Both the proportion of fatally injured drivers tested and the proportion of these drivers testing positive for drugs generally increased over the past five-year time period.

Speed

Speeding is a contributing factor in around 30% of fatal crashes (31% in 2010, 30% in 2011).

Speeding-related fatalities, as a percentage of total fatalities, showed a downward trend from a high of 36.8% in 1986 to a low of 29.9% in 2000. Since 2000, the number of total fatalities and speeding-related fatalities have decreased; however, the proportion related to speeding has remained constant.

Speed limits in the United States are set by each state.

Table 5. **Summary of speed limits in 2013**

	General speed limit *Passenger cars*	Actual speeds	Comments
Urban roads	35-65 mph	+/- 10% posted	Arterial and major collector roadways- generalized
Rural roads	50-65 mph	+/-10% posted	Arterial roadways - generalized
Motorways	55-80 mph	+/-10% posted	Interstate highways - generalized

Seatbelts and helmets

Primary belt laws (PBLs) allow law enforcement to stop a driver solely for not wearing a seatbelt. As of April 2013, 32 States and the District of Columbia have primary seatbelt laws. In 17 states, drivers must commit another driving offence before they can be stopped, thus the seatbelt law is referred to as a secondary law. One state has no belt use law – primary or secondary – for adults, although this state does have a primary child-passenger safety law that covers all drivers and passengers under 18.

In 2011, among fatally injured passenger vehicle occupants, almost half (52%) of those killed in 2011 were unrestrained.

The NHTSA conducts a national seatbelt campaign each May, involving more than 10 000 state and local law enforcement agencies. As a result of stronger laws and high visibility enforcement, the overall seat-belt rate reached a high of 86% in 2012. Seat-belt use continued to be higher in the states with primary belt laws (90%) as compared with states with secondary belt laws (78%).

Table 6a. **Seat-belt wearing rate by car occupants**

	2000	*2010*	*2011*	*2012*
Front seat (all)	71%	85%	84%	86%
Rear seats		74%	74%	

Motorcycle helmet laws are issued and enforced by the individual states; there is no national law requiring motorcycle helmet use. As of April 2013, 19 states plus the District of Columbia and Puerto Rico require helmet use by all operators and passengers. In 28 states, only a specific population segment is required to wear helmets. Three states have no motorcycle helmet use laws. As of April 2013, 21 states and the District of Columbia have enacted age-specific bicycle helmet laws. Table 6b shows the evolution in motorcycle helmet usage since 1998.

Table 6b. **Evolution in motorcycle helmet usage 1998-2011**

	1998	2000	2002	2004	2006	2008	2010	2011	2012
Usage rate	67%	71%	58%	58%	51%	63%	54%	66%	60%

Distracted driving, use of mobile phone and fatigue

In 2011, 3 331 people were killed on US roadways, and an estimated additional 387 000 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, 385 involved at least one driver reported to have been using a cell phone (12% of fatalities in distraction-related crashes). Of those injured in distracted-driving-related crashes, 21 000 involved reports of a cell phone as a distraction (5% of injured people in distraction-related crashes). Ten per cent of fatal crashes and 17% of the injury crashes in 2011 involved reports of distracted driving.

Mobile phone use is permitted in the US, with laws on the behavior varying from State to State. Some laws prohibit hand-held phone use while permitting hands-free phone use. There are various legislations regarding text messaging while operating a motor vehicle, as well. The Graduated Licensing (GDL) programmes for novice drivers in some States contain provisions against certain use of electronic device during the different phases of the GDL programmes.

4. National road safety strategies and targets

Organisation of road safety

The U.S. uses a "federalism" approach that divides the powers of government between the national (federal) government and state and local governments. Under federalism, each level of government has sovereignty in some areas and shares powers in other areas. At the national level, Congress passes the laws and provides the funding that provides the overall structure for USDOT to carry out its safety mission. However, most traffic safety laws and policies are enacted and developed at the State level. For example, each of the 50 States in the U.S. has the authority to set its own speed limit, distracted driving, or seat belt use law.

Congress can influence the States by providing incentive grants to States if they enact certain laws that have been proven effective or penalties if they do not. It can also use performance results as eligibility criteria for grants in some cases. USDOT implements these grant programmes and provides guidance to the States on developing effective strategies that address their particular traffic safety challenges.

Within USDOT, the National Highway Traffic Safety Administration (NHTSA) has the lead role in reducing traffic crashes and fatalities.

Road safety strategy for 2011-2020

The number one priority of the Department of Transportation (USDOT) remains safety. In 2011, there were 32 367 motor vehicle fatalities in the United States. That represents a 24.2 percent decline in fatalities in the United States over the most recent five-year period, and is the lowest number of fatalities on record since 1949, when the U.S. began keeping records. Yet there is still much to do to maintain that momentum. 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.

In July 2012, a new highway safety bill, "Moving Ahead for Progress in the 21st Century" (MAP-21) was signed into law by President Obama. MAP-21 is a milestone for the U.S. economy and the Nation's surface transportation programme. MAP-21 creates a streamlined and performance-based surface transportation programme and builds on many of the highway, transit, bike, and pedestrian programmes and policies established in 1991.

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- 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, focus the energy and resources involved and develop new strategies to combat submeasure trends.

While the USDOT has developed submeasures for programmatic effectiveness, the overall fatality rate goal continues to be primary measure. This was modified in 2009 to take into account the recent declines in the frequency of fatal motor vehicle crashes and to set more ambitious targets. In 2011, there were 1.10 fatalities per 100 million vehicle miles travelled (VMT). The overall fatality rate goal for 2012 has a target of 1.05 and 1.03 for 2013.

Target setting

The targets for the USDOT include an overall fatality rate measure as well as the four submeasures to better identify trends within each group. Each measure is a rate that combines the number of fatalities and an exposure measure for that group.

The overall fatality rate and the nonoccupant fatality rates use the fatalities of the respective groups in relation to the number of vehicle miles travelled in the given year. The passenger vehicle fatality rate and the large truck fatality rate combine respective fatality figures with vehicle miles travelled for those specific types of vehicles. The motorcycle fatality rate is the number of fatalities in relation to the number of registered motorcycles for the given year. The fatality rates are forecasted through statistical methods for a number of years into the future in order to guide a plan of action for safety countermeasures. These forecasted rates use historical data combined with an evaluation of the existing countermeasures, trend in data, and other societal factors that may affect the fatality rates in the future.

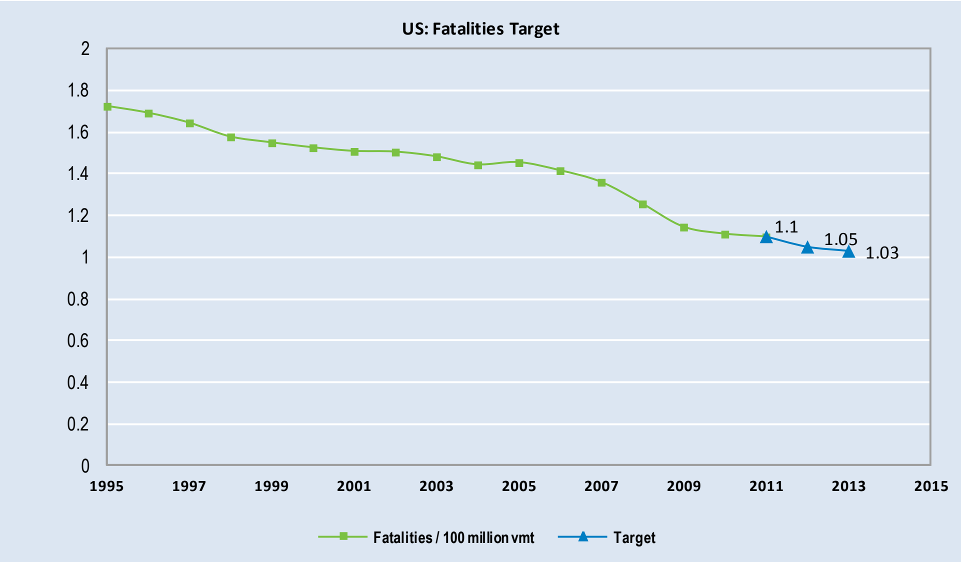
Each year, the USDOT calculates the actual fatality rates for the overall target and each submeasure. This is compared to the target set in previous years to determine whether the Department met its goal. USDOT programs are then reviewed in concert with the economic conditions, the environment, and other factors to better understand the rates and the status of road safety.

Monitoring

Under recent legislation by Congress, States must now comply with specific performance criteria.

The road safety performance is an annual event to ensure corrective actions can be taken based on recent data, economic activity and other external factors. This is done through the annual budgetary cycle and the performance evaluations of the programmes.

Figure 5. **Trends towards national target**



5. Recent safety measures (2011-2012) and effectiveness of past measures

Impaired driving

- Each year the "***Drive Sober or Get Pulled Over***" impaired driving campaign is conducted in September and December with the involvement of thousands of law-enforcement agencies across the country. These enforcement crackdown periods are supported by national "Drive Sober or Get Pulled Over" advertisement campaigns that run for about two weeks. The ads are designed to raise awareness and draw public attention to law-enforcement activities in every state. The advertisements convey the message that law-enforcement officers are vigilant in deterring drunk drivers. This law enforcement campaign is coupled with state programs that address the underlying alcohol dependency problems. Special drunk driving courts that provide intensive interventions, as well as the use of ignition interlocks on the vehicles of offenders, are two examples. The NHTSA provides a variety of technical resources to help States develop and expand the use of these special courts and ignition interlock programs.

Speed Management

- NHTSA has developed a two-day speed management workshop for law-enforcement agencies to help communities design and implement effective speed-management programs tailored to their area. For more information, see: NHTSA Speed Management Workshop.

Distracted driving

- As the US Department of Transportation and NHTSA continue to focus on distracted driving and its deadly consequences, there are several new resources, including a redesigned www.distraction.gov. A teen micro-site has been developed, which can be found at http://distraction.gov/teens/. In addition, a new social norming component, *One Text or Call Could Wreck It All,* was launched in late 2011 with a television ad and other supporting materials. All of the PSAs direct audiences to StopTextsStopWrecks.org, a new campaign website where teens and young adults can find facts about the impact of texting while driving, and tips for how to curb the behaviour. The website also has an area where individuals can post on Facebook and share their solutions to stop texting and driving.

Vehicle safety

- Quiet Cars - As required by the bipartisan Pedestrian Safety Enhancement Act of 2010 (PSEA), the USDOT's National Highway Traffic Safety Administration (NHTSA) proposed that hybrid and electric vehicles meet minimum sound standards in order to help make all pedestrians more aware of the approaching vehicles.
- Connected Vehicles Pilot Test – Vehicle-to-vehicle safety technology could help drivers avoid or reduce the severity of four out of five unimpaired vehicle crashes. NHTSA began a road test with vehicles that can send electronic data messages, receive messages from other equipped vehicles, and translate the data into a warning to the driver during specific hazardous traffic scenarios. During this road test, the will gather extensive data about system operability and its effectiveness at reducing crashes.
- Heavy Vehicle Electronic Stability Control - The USDOT's NHTSA proposed a new federal motor vehicle safety standard to require electronic stability control (ESC) systems on large commercial trucks, motor coaches, and other large buses for the first time ever. Agency research shows the technology could prevent up to 56 percent of rollover crashes each year—the deadliest among all crash types—and another 14 percent of loss-of-control crashes.
- Brake Throttle Override - The USDOT's NHTSA today proposed to update existing safety standards to ensure drivers can better stop a vehicle in the event both the brake and accelerator pedals are depressed at the same time. NHTSA research indicates a "Brake-Throttle Override" requirement will help reduce the risks of high-speed unintended acceleration and prevent crashes involving a stuck or trapped accelerator pedal by allowing the driver to maintain control through normal application of the vehicle's brakes.
- Distraction Guidelines – The USDOT announced the first-ever federally proposed guidelines to encourage automobile manufacturers to limit the distraction risk for in-vehicle electronic devices. The proposed voluntary guidelines would apply to communications, entertainment, information gathering and navigation devices or functions that are not required to safely operate the vehicle.

Road safety campaigns

- In 2011, NHTSA developed new child passenger safety guidelines and a new child safety seat campaign, *Think Safe, Ride Safe, Be Safe*, in partnership with *Chuggington*, an international computer-animated television series for children, ages 3-6, broadcast in 175 territories throughout the world.
- NHTSA has a newly-redesigned and improved marketing website: www.TrafficSafetyMarketing.gov, which provides the latest tools and ideas for implementing traffic safety campaigns. NHTSA has also added more robust social media elements to all of the highway safety campaigns. From more posts and groups on Facebook, to tweets, retweets and Twitter parties, to other social marketing opportunities, NHTSA expects to be more aggressive in using these tools to engage audiences in conversations in all of our programmes.

6. Useful websites and references

Useful websites

NHTSA	http://www.nhtsa.gov
NHTSA 2010 survey on Distracted Driving	http://www.nhtsa.gov/staticfiles/nti/pdf/811555.pdf
Traffic Safety – Overview of 2008	http://www-nrd.nhtsa.dot.gov/Pubs/811162.PDF
NHTSA database on behavioural safety research reports going back to 1969	www.nhtsa.gov/portal/site/nhtsa/menuitem.935ae205e29ac00baff82410dba046a0/
Vehicle Safety Research Portal	www.nhtsa.gov/portal/site/nhtsa/menuitem.272a2ad16c06afd24ec86e10dba046a0/
NHTSA 2010 survey on Distracted Driving	http://www.nhtsa.gov/staticfiles/nti/pdf/811555.pdf http://www.nhtsa.gov/Driving+Safety/Current+Research+In+Progress Overview of NHTSA Road Safety Programs http://www.nhtsa.gov/Driving+Safety

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The following national institutes also provide information and data to IRTAD:

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Greece	EL.STAT.	Ms Nektaria TSILIGAKI
Iceland	Icelandic Road Traffic Directorate	Mr. Gunnar Geir GUNNARSSON
Italy	ISTAT	Ms. Silvia BRUZZONE

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ACEM – European Motorcycle Manufacturers Association	Ms Veneta VASSILEVA
Daimler AG	Mr Jorg BAKKER
DEKRA Automobile	Mr Walter NIEWOEHNER
European Transport Safety Council (ETSC)	Ms Graziella JOST
FIA Foundation for the automobile and society	Mr David WARD, Ms Rita CUYPERS
Ford	Mr Paul FAY
IMMA - International Motorcycle Manufacturer's Association	Mr Edwin BASTIAENSEN, Ms Vinciane LEFEBVRE
Nissan Motor Manufacturing	Ms Leoni BARTH
Renault	Mr Yves PAGE
Robert Bosch Gmbh	Mr Walter GROTE
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Road Safety
Annual Report 2013

The IRTAD Annual Report 2013 provides an overview for road safety indicators for 2011 in 37 countries, with preliminary data for 2012, and detailed reports for each country.

The report outlines the crash data collection process in IRTAD countries, describes the road safety strategies and targets in place and provides detailed safety data by road user, location and age together with information on recent trends in speeding, drink-driving and other aspects of road user behaviour.

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